



**5th ANNUAL REPORT &  
9TH SEMI ANNUAL REPORT**

**October 2004 - March 2005**





# Ridge to Reef Watershed Project

USAID Contract No. 532-C-00-00-00235-00

## **5<sup>th</sup> ANNUAL REPORT & 9<sup>TH</sup> SEMI ANNUAL REPORT**

**October 2004 - March 2005**

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Government of Jamaica  
National Environment and Planning Agency

And the

United States Agency for International Development

Implemented by:

ARD, Inc.  
P.O. Box 1397  
Burlington, Vermont 05402



## Preface

The Ridge to Reef Watershed Project (R2RW) is a five-year bilateral initiative between the Government of Jamaica's National Environment and Planning Agency (NEPA) and the Government of the United States' Agency for International Development (USAID). The Project focuses on three distinct, but interrelated activities working towards the objective of improving the management of Jamaica's watersheds. The R2RW Components are:

- Component 1 Sustainable Environmental Practices
- Component 2 Compliance and Enforcement
- Component 3 Institutional Strengthening

The Project is directly supportive of USAID's Strategic Objective 2 (SO2) – Improved quality of key natural resources in selected areas that are both environmentally and economically significant. ARD Incorporated implements R2RW.

This Report provides a comprehensive overview of the progress on Project implementation under USAID Contract No. 532-C-00-00-00235-00 and reports on progress toward achieving the set of activities proposed in the R2RW Fifth Annual Work Plan. In addition, the Report contributes to the fulfilment of the overall R2RW Life of Project Strategy and documents progress made toward achieving the indicators of success originally presented in the R2RW Performance Monitoring Plan. Finally, this Report summarizes progress toward the agreed performance benchmarks, and presents expenditures for the period October 2004 to March 2005.

## Acronyms

AGM	Annual General Meeting
ARD	Associates in Rural Development
C&E	Compliance and Enforcement
CANARI	Caribbean Natural Resources Institute
CASE	College of Agriculture, Science and Education
CBO	Community-Based Organization
CDC	Community Development Committee
CEO	Chief Executive Officer
CETF	Compliance and Enforcement Task Force
CLINs	Contract Line Item Numbers
COP	Chief of Party
CRS	Compliance and Regional Services Branch (NEPA)
CWIP II	Coastal Water Quality Improvement Project – Phase 2
EAST	Environmental Audits for Sustainable Tourism
EFJ	Environmental Foundation of Jamaica
EJASP	Eastern Jamaica Agricultural Services Project
ENACT	Environmental Action Program
FAWP	Fifth Annual Work Plan
FD	Forestry Department
GOJ	Government of Jamaica
GR	Great River
GRW	Great River Watershed
GRWMC	Great River Watershed Management Committee
ICF	Island Constabulary Force
IICA	Inter-American Institute for Cooperation on Agriculture
IR	Intermediate Result
ISC	Inter-Agency Steering Committee
ISCF	Island Special Constabulary Force
IWCZMB	Integrated Watershed and Coastal Zone Management Branch
JAS	Jamaica Agricultural Society
JCDT	Jamaica Conservation and Development Trust
JCF	Jamaica Constabulary Force
JET	Jamaica Environmental Trust
JIS	Jamaica Information Service
JSIF	Jamaica Social Investment Fund
JTB	Jamaica Tourist Board
KAP	Knowledge, Attitudes and Practices
LCTF	Land and Conservation Task Force
LFMC	Local Forest Management Committee
LWMC	Local Watershed Management Committee
MBMP	Montego Bay Marine Park Trust
MINAG	Ministry of Agriculture
MIND	Management Institute for National Development
MLE	Ministry of Land and Environment
MLGYCD	Ministry of Local Government, Youth and Community Development
MOU	Memorandum of Understanding
NCSA	National Capacity Self-Assessment Project
NEPA	National Environment and Planning Agency
NGO	Non-Governmental Organization
NIWMC	National Integrated Watershed Management Council
NSWMA	National Solid Waste Management Authority
NWC	National Water Commission

OPDEM	Office of Disaster Preparedness and Emergency Management
P&MTF	Production and Marketing Task Force
PATF	Public Awareness Task Force
PATG	Port Antonio Theatre Group
PAWG	Public Awareness Working Group
PC	Parish Council
PCA	Pesticide Control Authority
PDC	Parish Development Committee
PEPA	Portland Environment Protection Agency
PHD	Public Health Department
PIC	Project Implementation Committee
PIOJ	Planning Institute of Jamaica
PMP	Performance Monitoring Plan
PPPCD	Policy, Programs and Projects Coordination Division (NEPA)
R2RW	Ridge to Reef Watershed Project
RADA	Rural Agricultural Development Authority
RGW	Rio Grande Watershed
RGWMC	Rio Grande Watershed Management Committee
RPPU	Rural Physical Planning Unit
SAR	Semi-annual Report
SBA	Small Business Association
SDC	Social Development Commission
SEP	Schools Environment Program
SJPC	St. James Parish Council
SO2	Strategic Objective Number 2
SOW	Scope of Work
STTA	Short-Term Technical Assistance
TAP	Targeted Appropriate Practice
TF	Task Force
TNC	The Nature Conservancy
TOR	Terms of Reference
TPDCo	Tourism Product Development Company
USA	United States of America
USAID	United States Agency for International Development
W&S	Water and Sanitation
WMC	Watershed Management Committee
WMS	Watershed Management Specialist
WPA	Watershed Protection Act
WPM	Western Parks and Markets
WRA	Water Resources Authority
WSTF	Water and Sanitation Task Force

# Table of Contents

<b>Preface</b>	<b>3</b>
<b>Acronyms</b>	<b>4</b>
<b>1. Introduction</b>	<b>8</b>
<b>2. Project Vision and Strategy</b>	<b>13</b>
2.1 Vision	13
2.2 Project Strategy	15
<b>3. Component 1A: Sustainable Environmental Practices in the Great River Watershed</b>	<b>18</b>
3.1 Development of the Great River Watershed Management Committee	18
3.2 Improved Production of Pineapple for Sustainable Livelihoods: Anchor Project # 1	20
3.3 Production and Marketing	23
3.4 Cleaning and Greening of Cambridge: Anchor Project # 2	29
3.5 Water & Sanitation Initiatives in the Great River Watershed	32
3.6 Public Awareness Activities	37
<b>4. Component 1B: Sustainable Environmental Practices in the Rio Grande Watershed</b>	<b>40</b>
4.1 Development of the Rio Grande Watershed Management Committee	40
4.2 Improved Land Management Practices in the Rio Grande Watershed: Anchor Project # 3	42
4.3 Water and Sanitation Activities	46
4.4 Public Awareness Activities	49
<b>5. Component 2: Compliance and Enforcement</b>	<b>55</b>
5.1 Compliance and Enforcement – Nationally	56
5.2 Compliance and Enforcement in the Great River Watershed (GRW)	57
5.3 C&E in Portland, with emphasis on the Rio Grande Watershed (RGW)	58
<b>6. Component 3: Institutional Strengthening</b>	<b>61</b>
6.1 Development of Local Watershed Management Committees	61
6.2 Framework for Watershed Management	63
6.3 Dissemination of Improved Sanitation Technology: Anchor Project # 4	64
6.4 Transfer Approaches, Methodologies and Lessons Learned	68
6.5 Special Studies	71
6.6 Public Awareness Activities	75
<b>7. Hurricane Ivan Rehabilitation</b>	<b>80</b>
7.1 Damage Assessment and Community Clean-ups	80
7.2 Water and Sanitation and Rural Infrastructure	81
7.3 Land and Coastal Zone Rehabilitation and Restoration	82



7.4	Agriculture Sector Recovery	83
<b>8.</b>	<b>Project Management</b>	<b>84</b>
8.1	Grant Fund Management	84
8.2	Staffing	85
8.3	Management Coordination	86
8.4	Project Reporting	87
8.5	Project Closeout	87
<b>9</b>	<b>Performance Indicators</b>	<b>89</b>
9.1	Overall Project	90
9.2	Component 1 Targets	91
9.3	Component 2 Targets	94
9.4	Component 3 Targets	96
9.5	Cross-cutting Activities	97
<b>10.</b>	<b>Activity Benchmarks</b>	<b>100</b>
<b>11.</b>	<b>Program Expenditures</b>	<b>113</b>
<b>Appendices</b>		
Appendix 1	Memorandum of Understanding for the Establishment and Sustainable Operations of the Great River Watershed Management Committee	114
Appendix 2	Final report for the Improved Production of Pineapple in the Great River Watershed	126
Appendix 3	Final Report of the Cleaning and Greening of Cambridge Anchor Project	134
Appendix 4	Final Report for the Rio Grande Land Management Anchor Project	154
Appendix 5	Executive Summary of the Portland Youth, Culture and the Environment Conference	164
Appendix 6	Agenda: Second Networking Conference Local Natural Resources Management Groups	172
Appendix 7	Program for R2RW Closing Ceremony and Exposition	175
Appendix 8	Hurricane Ivan Rehabilitation Activities	176
Appendix 9	Gant Chart Update of Fifth Annual Work Plan	177

# 1. Introduction

This 9<sup>th</sup> Semi Annual Report (SAR) summarizes the accomplishments of the final period of the five-year Ridge to Reef Watershed Project (R2RW) from October 1, 2004 to April 30, 2005. At the end of the fourth year, the R2RW was in full implementation with ongoing activities in four Anchor Projects and more than 20 active grants and consultant contracts. In early September 2004, in the final month of the fourth year of the Project, Jamaica suffered considerable damage from Hurricane Ivan that caused significant hardships in upper watersheds of the two Project target areas: the Great River Watershed (GRW) in Western Jamaica, and the Rio Grande Watershed (RGW) in eastern Jamaica. The R2RW Project demonstrated flexibility in rapidly reprogramming existing funds and programming new Hurricane Assistance funds. R2RW responded to Hurricane damage by establishing a Hurricane Ivan Community Upgrading Program (HICUP) that gave grants of \$1,000 - \$5,000 to 35 community groups, expanded programming to other affected Parishes through grants to implementing organizations, and expanded sanitation initiatives to schools damaged by the Hurricane.

The project also consolidated its intervention impact through the continued implementation of 4 anchor projects. Through these anchor projects and other core activities, the full-time staff and long-term consultants and their partners continued to address multiple complex aspects of watershed management through comprehensive integration of activities. Partners included more than 10 Government of Jamaica (GOJ) agencies, many non-governmental organizations (NGOs), a host of community-based organizations (CBOs), two other USAID-funded projects, multiple divisions of the National Environment and Planning Agency (NEPA) and a number of active and concerned citizens and private sector organizations. This high level of engagement has continued and significant resources were directed toward nurturing these relationships and strengthening partners.

Supporting coordination mechanisms that will sustain interventions facilitates the integration of these multiple partners into the Project activities. The principal mechanisms were Watershed Management Committees (WMCs) and the National Integrated Watershed Management Council (NIWMC). This past year, R2RW staff began to reduce direct support to the Great River Watershed Management Committee (GRWMC), Rio Grande Watershed Management Committee (RGWMC) so as to prepare these entities to assume solid positions within an integrated, national network capable of sustainable watershed management. The Project also reduced its support to the National Integrated Watershed Management Council (NIWMC).

## Principal Project Components

The principle Project components remained, as they have during the full Project implementation period:

**Component 1:** Through targeted organizations, sustainable environmental management practices by resource users identified and supported in the Great River Watershed (*Component 1A*) and in the Rio Grande Watershed (*Component 1B*)

**Component 2:** Incentives for and obstacles to enforcement of targeted existing environmental regulations identified and solutions supported.

**Component 3:** Capacity of Jamaican government agencies, international donors, private sector and civil society organizations to implement effective watershed management programs enhanced.

The first 2 sections of this report highlight overall achievements during the reporting period and assess progress toward implementing the Project vision and strategy.

Sections 3 – 6 highlights progress on the three Project components, as well as on cross-cutting themes. Achievements during the reporting period are described relative to the full range of activities presented in the Fifth Annual Work Plan.

Section 7 presents achievements made on Hurricane Ivan recovery, both in the original target areas, and in new geographical areas of intervention.

Section 8 highlights key aspects of Project Management including: Grant Fund Management; Staffing; Management Coordination; Project Reporting; and Project Closeout.

Section 9 presents an update of the performance indicators that were originally set out in the R2RW Performance Monitoring Plan.

Section 10 reports on the achievement and status of the performance benchmarks presented in the Fifth Annual Work Plan (FAWP).

Section 11 presents a summary of program expenditures for the year.

Appendices 1 – 10 contain supporting documents that provide greater detail about activities and include key references for readers.

### **Summary of Key Work Plan Achievements**

R2RW made numerous significant achievements during the reporting period. Each of these is presented and described in the text of this document. In this section, a brief review, of major achievements for the reporting period is presented.

### **Component 1: Sustainable Environmental Management Practices**

#### ***Great River Watershed (Component 1A)***

- ✍ The GRWMC matured to exhibit leadership as a governance structure capable of uniting stakeholders around solutions to the difficult issues of watershed management with incrementally reduced support from R2RW. A new Executive was chosen, and progress made on the implementation of an Action Plan for sustainability.
- ✍ R2RW, organizational partners and communities implemented multiple grants- and (otherwise-funded) community-based activities to support environmentally friendly agriculture, livestock, water harvesting, wastewater disposal, solid waste management, and marketing.
- ✍ Fecal environmental pollution was reduced by completing three grant-funded, innovative water supply and wastewater disposal systems at large schools.
- ✍ Over 22,000 trees were established in the watershed through a multi-faceted Plant-A-Tree Campaign.
- ✍ The second year of the Great River Green Village Awards Program recognized significant achievements in community beautification.
- ✍ The Improved Production of Pineapples Anchor Project resulted in the establishment of 5 demonstration plots, planting of 80 acres of new pineapple, production of a video on improved pineapple production and training of farmers in improved practices.

- ✍ The Cleaning and Greening of Cambridge' Anchor Project resulted in a strong community based organization (CBO) which can now address public awareness, community beautification and land management issues in the second largest town in St. James.
- ✍ Water and sanitation systems in Pisgah and Retrieve and goat improvement projects with the St. James 4-H Clubs and the Knockalva Agricultural School were completed and handed over.

### ***Rio Grande Watershed (Component 1B)***

- ✍ More than 200 farmers and agricultural extension agents benefited from training sessions and field days on tree crop production, minimization of damage from hurricanes, and the construction of vegetative contour barriers.
- ✍ The Rio Grande Watershed Management Committee (RGWMC) and its four task forces were strengthened to become leaders and coordinators of environmental improvement.
- ✍ A study to develop a sediment budget for the Rio Grande Watershed Management Unit and St. Margaret's Bay, and a study on the causes of river bank erosion in Berridale were completed.
- ✍ Water supply systems in Cornwall Barracks and Comfort Castle were completed and handed over.
- ✍ Records of goat improvement initiatives (stud stations) and of agro forestry initiatives in 6 communities were compiled and handed over to the Rural Agricultural Development Authority (RADA).
- ✍ Completed the Implementation of the Land Management Anchor Project that encouraged improved land husbandry practices such as planting of fruit and timber trees, established vegetative barriers, introduced improved goat management systems, and provided farmer training in improved land management practices.
- ✍ Implemented 5 separate public awareness activities in the Upper RGW and Lower RGW targeting community groups, schools and mass gatherings including the use of drama in communicating environmental messages.
- ✍ The constructed wetland system was completed at the College of Agriculture, Science and Education (CASE) and nutrient and bacterial contamination removal performance was analysed.
- ✍ Planted 14,302 timber, 12,347 fruit trees and 30,920 pineapple (representing over 515 chains of contour barrier) to re-establish vegetative cover and provide long-term income generation.
- ✍ Established a community and partnership-based Water Quality Monitoring Program in partnership with TNC, WRA, NEPA, UWI and WSTF.

### **Component 2: Enhanced Compliance and Enforcement**

- ✍ A second edition of the popular "A Pocket Guide to Environmental and Planning Laws of Jamaica" was completed.
- ✍ Thirteen (13) courses on compliance and enforcement were completed through

- ✍ Management Institute for National Development (MIND). These were designed for enforcement officers and community leaders.
- ✍ Compliance and Enforcement task forces in both targeted watersheds were supported to address local issues such as sand mining in the Rio Grande.
- ✍ The Quarry Monitoring Committee in Portland was strengthened to improve dialogue amongst stakeholders, operators and regulatory agencies as well as to provide better oversight of mines and quarries.
- ✍ A tour of mining operations in Portland was organized and conducted with the Mines and Geology Department of the Ministry of Land and the Environment in order to highlight safe mining practices, infrastructure damage due to erosion, and mitigation practices to control erosion.
- ✍ A Compendium of Environmental Cases was prepared with the assistance of NEPA and law students of The Norman Manley Law School.

### **Component 3: Enhanced Capacity to Implement Effective Watershed Management Programs**

- ✍ Programs of the National Integrated Watershed Management Council were supported by actively assisting its Working Groups and Secretariat.
- ✍ Participation in Public Awareness events such as Wood and Water Day, Green Expo, Denbigh Agricultural Show, World Wetlands Day and World Water Day assisted in bringing major environmental issues and solutions to the attention of the public.
- ✍ A networking conference involving 50 individuals from local resource management groups across Jamaica highlighted achievements and provided the opportunity to share lessons learned from local experience.
- ✍ Two thousand (2000) copies of 2005 NEPA calendar highlighting the achievements of the R2RW Project were printed and distributed.
- ✍ Multiple training workshops on meeting management, fundraising, proposal writing and facilitation skills, wetlands education, and grant management were developed and presented.

### **Response to Hurricane Ivan**

- ✍ Damage caused by the hurricane to land, infrastructure, roads, and rural schools was rapidly assessed.
- ✍ New sanitation systems were installed at 11 Primary and All Age Schools in 4 Parishes. Construction Materials and equipment and engineering designs were provided to an additional 10 schools.
- ✍ Sanitation systems in 10 Basic Schools were installed through a grant to an NGO, the Build Jamaica Foundation.
- ✍ Thirty five (35) Hurricane Ivan Community Upgrading Program (HICUP) grants to communities across Jamaica helped in recovery from hurricane damage to drains, roads and community infrastructure.
- ✍ New water supply improvement projects improved health and environmental management in three communities in St. James, St. Elizabeth and Portland benefiting 6000 persons.

- ✍ Three (3) timber tree nurseries were repaired with support provided for the production of 200,000 seedlings.
- ✍ Relief assistance was provided to farmers in six parishes with inputs distributed to 628 vegetable farmers and 28 aquaculture farmers. Fifty two (52) training sessions were conducted in crop care, land husbandry, and disaster mitigation
- ✍ Twenty five (25) ornamental fish farmers were assisted with equipment and materials to re-establish of farms and restart production.

### ***Project Management***

- ✍ 26 active grant programs were completed and closed out
- ✍ Actively encouraged cross-project coordination through regular team meetings, Project Implementation Committee meetings, CWIP/R2RW administrative meetings, and participating in regular NEPA Senior Management Team meetings.
- ✍ Prepared and implemented a Closeout Plan for the R2RW Project that addressed the programmatic and administrative close out of the Project.

## 2. Project Vision and Strategy

The overall vision and strategy for the Project was updated during the third year of implementation to reflect the state of lessons learned. The following sections describe the vision and progress toward realizing this vision and implementing the strategy.

### 2.1 Vision

R2RW and NEPA together articulated a vision incorporating five key areas which contribute to improved environmental management, namely:

- ✍ Improved governance,
- ✍ Effective institutional arrangements,
- ✍ Enhanced public awareness,
- ✍ Improved policy, legislation, compliance, and enforcement, and
- ✍ Capacity building.

Progress in realizing that vision is presented below:

#### Improved Governance

- ✍ At the national level, Government agencies are more accountable to local communities using mechanisms established by R2RW for local accountability. The Local Watershed Management Committees established in the GRW and the RGW have served effectively to bring together local representatives of State Agencies to identify priority issues and develop project initiatives to address these issues. Management policies were tested and adapted through watershed management plans, capacity building eg. training in meeting management, and an operational manual for local watershed management committees (LWMCs).
- ✍ Local authorities are now playing a more active role in watershed management through participation in LWMCs along with communities, and participating in the implementation of watershed improvement initiatives.
- ✍ Greater relationships and interconnections between lower and upper watershed residents have taken place through exchange visits, training programs, and workshops. The Project has facilitated dialogue among communities about common interests through WMC task forces affording the cross-fertilization of ideas about techniques and methods for addressing issues such as low public awareness and income generation projects.
- ✍ The regulatory framework for watershed management has improved due to distribution of materials on environmental laws, and the training of compliance and enforcement officers in skills needed to enforce legislation and regulations. There has been a marked increase in environmental cases brought before the courts.
- ✍ A new Watershed Policy and a new NEPA Act that incorporates the challenges of enhanced governance have been initiated to support the legal framework for environmental management.

## **Effective institutional arrangements for watershed management**

- ✍ More efficient sustainable Local Watershed Management Committees are serving as models for other watershed areas. This is evidenced by, recognition by the NIWMC of the accomplishments of LWMCS, increasing use of exchange visits between communities like that between Cambridge and Boundbrook, and the sharing of experience in networking conferences
- ✍ Increased collaboration between State Agencies and communities on sand mining in the RGW, and sanitation improvements in the GRW has resulted more responsible usage of the resources in the watersheds. Improved natural resources management has been achieved utilizing an integrated approach of multi-agency task forces overseeing community level grants and programmatic initiatives such as Best Kept Community competitions in the GRW and RGW.
- ✍ Assignment of a NEPA staff to R2RW has helped ensure incorporation of Project experiences and lessons learned into NEPA so that improved management mechanisms can be replicated, and protocols for watershed monitoring and evaluation can be standardized. All Project reports are shared in both print and electronic form with NEPA.

## **Enhanced public awareness**

- ✍ Public knowledge of Watershed Management Units has increased. Signs announcing watershed borders and project interventions are prominent. There has been a positive change in the attitude of land users as evidenced by participation in community clean-ups, beautification campaigns and Best Kept Community competitions.
- ✍ People's awareness, understanding and appreciation of practices that impact their everyday lives have increased. For example, farmers are beginning to understand how their actions and decisions affect water quality downstream.
- ✍ Increased linkage between watershed management and improved water quality and quantity has resulted in interest in water quality monitoring programs. Teaching tools for communities about the importance of watersheds such as posters, videos, signs, and the enviro kits have been developed.
- ✍ Watershed management promotional material such as brochures, videos and posters (eg. on environmental laws) has led to a tangible increase in understanding of what and where a watershed is.

## **Improved policy, legislation, compliance and enforcement**

- ✍ A draft Watershed Policy and drafting instructions for a new NEPA Act, as well as a workshop on a revised Watershed Protection Act are contributions to the policy and legislative framework. Environmental issues related to watersheds are now higher on the national agenda. Mechanisms for sharing information on watershed programs have been established.
- ✍ The Great River Watershed Management Plan lays out clear objectives for five year development.
- ✍ Communities are working to solve their own problems by organizing clean-up days, participating in competitions and educating themselves through skits and educational presentations. Improved well being of watershed residents has been fostered through the implementation of environmentally sound income generation projects.



## Capacity building

- ✍ NEPA has improved capacity to monitor environmental conditions and have developed and provided guidelines, training materials, reports and informational databases. This has included the production of Lesson Learned Fact Sheets on key accomplishments and the production of operational manuals on operating LWMCs.
- ✍ Prototypes for water quality monitoring protocols including procedures, methods and technologies introduced have been developed for the Great River and Rio Grande. Demonstration plots have been developed to demonstrate sound watershed management practices.
- ✍ Representatives of State Agencies are working as teams to guide the dynamics of sustainable watershed management through participating in judging of Best Kept Community competitions and guiding watershed improvement interventions.
- ✍ Coordination within watersheds has improved with the rise of the Parish Development Councils (PDCs) and their participation on task forces and in training on administrative processes.

## 2.2 Project Strategy

This section describes progress of the four strategies that R2RW employs to achieve objectives and goals, and realize the Project vision. It is important to re-emphasize that these strategies are not followed in isolation, but rather they inform and influence each other. The four strategies are:

- ✍ Building strategic partners;
- ✍ Enhancing community involvement;
- ✍ Identifying leverage points; and
- ✍ Applying appropriate practices.

In addition, a governance framework that brings together multiple centralized government agencies; emerging regional, parish, and other local mechanisms for coordination; and Jamaican citizens forms a platform upon which the four strategies are implemented. Progress on achieving the Project Strategy is as follows:

### Building Strategic Partners

- ✍ R2RW staff worked closely with strategic partners to address constraints to effective environmental management. This included activities such as working directly with the NEPA's Legal Services Division to finance and implement a series of judicial symposia to educate magistrates on environmental laws and working with the Forestry Department on incentives for watershed management.
- ✍ R2RW worked intensely with of strategic partner's field staff to motivate them to achieve organization goals. This as accomplished through regular facilitated retreats of Watershed Branch staff, technical training for RADA field staff and SDC, and assisting them to overcome financial constraints relating to carrying out field projects.
- ✍ The establishment of LWMCs has enhanced working arrangements between public sector agencies, NGOs, and CBOs. The NIWMC has provided a coordination mechanism for jointly planning and implementing programs.

## Enhancing Community Involvement

- ✍ Communities within the targeted watershed areas have actively provided substantive input into Local Watershed Management Committees decision making by taking positions on Executive and Grant Approval Committees, and contributing local knowledge to the design of field projects.
- ✍ Community-based and community-driven sub-project activities are being developed as evidenced by communities organizing themselves for water supply improvements, community clean-ups, and drain cleaning exercises.
- ✍ Strategic partners are more focused on sustainable activities such as goat breed improvement programs with RADA and Jamaica 4-H Clubs, and on water supply maintenance with CBOs so that these activities will continue.
- ✍ Linkages among community involvement, public awareness, and environmental education successfully demonstrated using such methods as the popular “roots theatre” to bring environmental messages in patois to communities.
- ✍ Gender considerations have been linked to community involvement approaches through training to educate community leaders in recognizing and supporting disadvantaged groups within communities. Community leaders are encouraged to reach out to all interest groups within their communities.
- ✍ Models of “local watershed stewardship” and “community compliance strategies” have been developed. For example, the Cambridge Benevolent Society addresses long-term public sanitation issues, helps communities to make connections with the National Solid Waste Management Authority, and engage the National Water Commission to address local water and sanitation issues; and trains community leaders about environmental laws and legal procedures.
- ✍ Over 400 persons from NEPA, the SDC, RADA and other agencies working in the field have been trained in community outreach and mobilization skills. Advanced Participation Methods (APM) is being used to produce community Action Plans.

## Identifying Leverage Points

- ✍ Gender Analysis techniques such as the Gender Equity Mechanism piloted by the Planning Institute of Jamaica have been employed to gain insights into key individuals and groups with influence over shaping public opinion.
- ✍ Social marketing strategies such as use of videos to demonstrate improved pineapple production and sanitation practices, and the use of community based drama and skits have successfully reached target audiences and delivered environmental improvement messages.
- ✍ Social, economic or environmental change has been encouraged and enhanced through the targeted skills-building initiatives, fund raising and proposal writing workshops, provision of tools for development in tool pools, and brochures, posters, videos and enviro kits to leverage opinion change.
- ✍ Joint partnership activities have been used to leverage human and financial capital to undertake projects such as the water quality monitoring in the Rio Grande watershed, and implementation of the Great River Green Village Program.

- ✍ Field initiatives have been carefully assessed to identify and utilize leverage points to enhance impact. This is demonstrated by the careful planning of the Portland Youth, Culture and the Environment Conference where youth leaders, cultural leaders, and political representatives were involved in conference execution.
- ✍ Collaborating with other environmental projects and initiatives has been achieved through joint sponsorship of activities such as the Portland Clean and Green Competition with the EAST Project, and collaboration with CWIP II on the provision of training in Advanced Participation Methods.
- ✍ Communities and strategic partners have been leveraging funding from other donors especially, the Jamaica Social Investment Fund, and the Canada Green Fund, as well as organizing fund raising activities such as the annual Nyamins and Jammins Festival of the Jamaica 4-H.

### **Applying Appropriate Practices**

- ✍ Farming systems and technologies have been introduced to stimulate economic growth and retard resource degradation, including the use of economic crops such as pineapples on contour barriers where cultivation is being done on steep hillsides, and the use of innovative marketing arrangements between communities and hotels for the supply of vegetables according to specifications.
- ✍ Ways to conserve natural resources were demonstrated through expanding honey production thus giving producers a vested interest in preserving trees and ground cover; and through establishment and multiplication of improved variety of goats such as Boers and Nubians that produce more meat per animal.
- ✍ Water supply, water harvesting, irrigation systems and sanitation systems were introduced to reduce washing in rivers and streams and safely dispose of human waste. Increased productivity was realized by the use of labor-saving tools and equipment such as wheel hoes, tool pools for more expensive tools, and expanded use of improved varieties of bananas and tree crops to increase production.
- ✍ Low-cost, environmentally-sensitive sanitation solutions such as constructed wetlands have been developed, tested, and disseminated to rural areas (especially schools) where their use is appropriate.

### 3. Component 1A: Through Targeted Organizations, Sustainable Environmental Management Practices by Resource Users Identified and Supported in the Great River Watershed

Work in the Great River watershed revolved around the Great River Watershed Management Committee (GRWMC) and watershed communities. R2RW helped to strengthen the GRWMC, which has emerged as a valuable forum for coordination, sharing, and decision-making. The GRWMC, linked with the Parish Development Committee (PDC) will remain as an integral part of local governance to engage citizens and government in joint planning and action.

In cooperation with the GRWMC, R2RW reached local organisations to introduce and disseminate targeted appropriate practices to stimulate income growth, protect the environment, and benefit health. Activities not only promoted appropriate practices but also strengthened the capacity of organisations to transfer and sustain these practices.

Achievements during the reporting period are described in the following sections.

- 3.1 Development of the Great River Watershed Management Committee
- 3.2 Improved Production of Pineapple for Sustainable Livelihoods: Anchor Project # 1
- 3.3 Production and Marketing
- 3.4 Cleaning and Greening of Cambridge: Anchor Project # 2
- 3.5 Water & Sanitation Initiatives in the Great River Watershed
- 3.6 Public Awareness Activities

#### 3.1 Development of the Great River Watershed Management Committee

The Project focused on establishing the GRWMC as a viable part of local environmental governance following Project completion. Previously, the Project focused on capacity building through direct technical assistance and resources provision. R2RW contributions have diminished as the GRWMC and its Task Forces are increasingly becoming a functioning contributor to watershed management on its own. Project activities focused on helping the GRWMC fulfil its longer term mandate that includes:

- ✍ Implementation of the Strategic Actions and Implementation Plan
- ✍ Develop MOUs to implement Projects
- ✍ Capacity Building Training Programs
- ✍ Implement Strategic Plan for Sustainable Development of the GRW

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>3.1</b>	<b>Development of the Great River Watershed Management Committee</b>	
3.1.1	Implementation of the Strategic Actions and Implementation Plan of GRWMC	A Self-Governance Workshop was conducted with the Executive Committee of the GRWMC to determine the way forward. The Committee decided that in order to implement the Strategic Actions and Implementation Plan of the GRWMC, the Committee should be legalized as a Benevolent Society under the Friendly Societies Act. A draft Constitution for the GRWMC was completed and registration documents were submitted to the Department of Cooperatives and Friendly Societies

<b>Work Plan Activity</b>	<b>Activity Description</b>	<b>Achievements During Reporting Period</b>
3.1.2	Develop MOUs to implement Projects	A MOU was drafted to incorporate GRWMC activities into the work plan and budgets of partner Agencies. This MOU was amongst 13 Stakeholder Agencies, including NEPA, RADA, SDC, the four Parish Councils and the GRWMC.
3.1.3	Capacity Building Training Programs	In keeping with the phase out plan of R2RW, a number of training sessions were delivered to support GRWMC function. These were, Meeting Management and Minutes Taking, Proposal Writing, Fundraising and Environmental Advocacy.
3.1.4	Implement Strategic Plan for Sustainable Development of the GRW	Presentations were made at St. James Parish Council and the JHTA to secure buy in and ensure financial commitment. Ongoing dialogue is taking place with NEPA to ensure that the GRWMC will continue. A funding proposal of the GRWMC has been written and submitted to various organizations for funding. A copy of the R2RW Mailing List Database was transferred to the GRWMC; this was accompanied by training of the Secretaries of the GRWMC and other members of the executive in using Microsoft Access (included hands on training)

### **3.1.1 Implementation of the Strategic Actions and Implementation Plan of GRWMC**

The Self-Governance Workshop, one of the items in the Strategic Actions and Implementation Plan of the GRWMC, was conducted with the Executive of the GRWMC on January 26, 2005. The workshop goal was to outline the way forward for the management committee. Following discussion of a number of options, establishing the GRWMC as a Benevolent Society appeared to be the best solution. This option allows the Committee to maintain its structure with its task forces and multiple stakeholders. A Constitution was developed as a step towards registration under the Friendly Societies Act, and a consultant was contracted to work with the GRWMC to develop its Constitution. Registration documents have been submitted to the Department of Cooperatives and Friendly Societies to ensure the establishment of the GRWMC as a legal entity.

### **3.1.2 Develop Memorandum of Understanding to Implement Projects**

A Memorandum of Understanding (MOU) was developed to establish the working arrangement between stakeholders in the public sector, private sector and civil society for the establishment and sustainable operation of the GRWMC. This MOU was developed amongst 13 stakeholder agencies, including NEPA, RADA, SDC, the four Parish Councils and the GRWMC to outline the roles, responsibilities, obligations, and relationships among all agencies for the management of the Great River Watershed. The MOU is attached as Appendix 1.

### **3.1.3 Capacity Building Training Programs**

An ongoing thrust of R2RW is the capacity building of the GRWMC, which have become even more necessary in light of the completion of the project. To date a series of trainings courses were delivered. These are:

#### Meeting Management and Minutes Taking

The final in the series Meeting Management Workshop took place October 25, 2004 at Catherine Hall. A total of 35 persons from the GRW were trained in effective recording of minutes, conducting a meeting and setting agendas.

### Proposal Writing and Fund Raising Training

A final in a series of Proposal Writing and Fund Raising Training was delivered to the GRW. On November 23, 2004 a total of 20 persons were trained at Catherine Hall, St. James and on November 24, 2004 a total of 52 persons were trained in Lucea, Hanover.

### Environmental Advocacy Training

On March 2, 2005, 11 persons were trained in Environmental Advocacy; this was done in association with Jamaica Environment Trust and the Carter Center. A number of local case studies were used to demonstrate various tools in advocacy and how to go about conducting a successful campaign.

#### **3.1.4 Implement Strategic Plan for Sustainable Development of the GRW**

The Strategic Plan for the Development of the Great River Watershed<sup>1</sup> was prepared in 2003 for the five-year period from 2004 through 2008. R2RW implemented a number of activities in support of the objectives of the plan. Most notable were actions in support of Objective 3: Institutionalize water management in Parish governments and national agencies, Objective 4: Encourage communities and residents to internalize attitudes and behavior that support watershed management, Objective 5: Facilitate economic development in the watershed, Objective 6: Develop a collaborative, advocacy approach to enforcement, and Objective 7: establish a sustainable role and configuration for the Great River Watershed Management Committee. Specific activities are described in the remainder of this chapter and in Chapter 5.2 and 6.1 specifically.

#### **3.2 Improved Production of Pineapple for Sustainable Livelihoods – Anchor Project # 1**

Pineapple production in the upper Great River Watershed is widespread. Excessive water runoff and use of agrochemicals result in soil loss and degradation. The specific objectives of this Anchor Project were to i) establish demonstration plots to show environmentally sustainable pineapple production, ii) establish 100 new acres of improved pineapple for 200 farmers, iii) improve income generation strategies of culturing pineapples, and iv) increase the awareness of pineapple growers about sustainable growing methods. Specific activities included:

- ✍ Implementation of 5 demonstration Plots
- ✍ Establish 100 acres of new pineapples
- ✍ Complete Marketing Strategy
- ✍ Develop and Implement Exit Strategy
- ✍ Produce and utilize Pineapple Production Video

<b>Work Plan Activity</b>	<b>Activity Description</b>	<b>Achievements During Reporting Period</b>
<b>3.2</b>	<b>Improved Production of Pineapple for Sustainable Livelihoods – Anchor Project # 1</b>	
3.2.1	Implementation of 5 demonstration Plots	Five demonstration plots were established. Each plot was 0.25 acres and had an average of 4,000 pineapple plants of 4-5 varieties. Signage was placed at each location for easy identification. Sixty training days were held benefiting 720 farmers

<sup>1</sup> Donaldson, L and Schweithelm, J, Strategic Plan for the Development of the Great River Watershed, R2RW, July 2003

Work Plan Activity	Activity Description	Achievements During Reporting Period
3.2.2	Establish 100 acres of new pineapples	This area was reduced to 80 acres to accommodate reprogramming of funds to Hurricane Ivan related activities. Almost one million pineapple plants were established on 80 acres benefiting 81 farmers with acreages from 0.5 to 1 acre.
3.2.3	Complete Marketing Strategy	Key buyers were identified and linkages established between pineapple growers and hotels, restaurants, processors, supermarkets and exporters. Meetings and discussions were held regarding marketing of improved quality and volume of pineapple. The Marketing Division of RADA will continue to work with farmers on the marketing of pineapple.
3.2.4	Produce and utilize Pineapple Production Video	Video completed. Widespread distribution in both Great River Watershed and Rio Grande Watershed to RADA, JAS, GRWMC, Antilles Chemical Company, Sydney Pagan Agricultural School, College of Agriculture Science and Education, Knockalva Agricultural School and farmers groups
3.2.5	Develop and Implement Exit Strategy	Beneficiary cards and reports were handed over to RADA for sustainability of activities after R2RW. RADA extension officers were integrally involved in training activities along with Antilles Chemical and PCA. The technology promoted by R2RW was incorporated into regular extension activities of extension officers.

The final report for the Improved Production of Pineapple in the Great River Watershed is contained in Appendix 2.

### **3.2.1 Implementation of 5 Demonstration Plots**

Five demonstration sites were established at strategic locations: Chesterfield, Coffee Ground, Maybole, Ginger Hill, and Retrieve. The plots were located in recognized pineapple growing communities, based on ease of access for on-farm training and visibility to passersby. The Rural Physical Planning Unit (RPPU) of the Ministry of Agriculture completed soil tests that guided site preparation and fertility management. Plots were visited and monitored on a weekly basis and were used to demonstrate best pineapple production practices with comparisons made with existing farmers fields. Environmentally friendly techniques were employed on the plots such as lining and spacing, selection and treatment of planting material, preparation of holes, contour planting, fertilizer placement and weed management. R2RW conducted a national search for the Smooth Cayenne variety and re-introduced an improved strain under the name Smooth Cayenne Jamaica 2<sup>2</sup>. The data collected and analyzed to support variety comparison comprised:

- ✍ Date of planting,
- ✍ Date of treatment,
- ✍ Rate of plant growth at six monthly intervals (height above ground level),
- ✍ Biomass above ground (plants cut at ground level and weight taken at six month intervals),

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<sup>2</sup> The Smooth Cayenne Jamaica 2 was named by R2RW Agricultural Specialist, Joe Suah

- ✍ Length and weight of roots (same plant used for above),
- ✍ Time to 10% flowering of all plants,
- ✍ Time to 100% flowering of all plants,
- ✍ Time range to maturity of all fruits (25% of color change at base),
- ✍ Weight of fruits at maturity, and
- ✍ Quality and market acceptance

Data collected suggests an overall improvement in parameters that influence productivity (such as rate of growth and weight of fruits at maturity) following adoption of improved practices. The Smooth Cayenne Jamaica 2 was the last variety to be added to the demonstration plots, as planting material only became available following a multiplication process at the UWI Biotechnology Centre. Consequently, there is no information to determine the performance of Smooth Cayenne Jamaica 2 vis-à-vis other local varieties. Data will continue to be collected and analyzed after the R2RW closeout by RADA with voluntary TA from Joseph Suah.

### **3.2.2 Establish 100 Acres of New Pineapples**

The demonstration plots achieved the desired objective, in getting pineapple farmers to adopt the new technologies. It has also encouraged environmentally friendly livelihoods strategies. One million pineapple plants were established on 80 acres of land benefiting 81 farmers (one acre maximum per farmer) who all received technical assistance and inputs such as planting material and land preparation incentives. Other supporting activities included:

- ✍ 3,200 chains of soil conservation barriers established including sugarcane and vetiver on contour
- ✍ 15 stone barriers for soil conservation
- ✍ 125 chains of trenching

Sixty training sessions were conducted with participating farmers. Evaluations show that new awareness was created with greater understanding of sound production practices, increase in number of persons accepting the new techniques, and more farmers willing to replant using recommended best practices.

Additional benefits of the anchor project were:

- ✍ An additional 50 farmers started replanting fields without R2RW assistance
- ✍ Increase in yield to 14 tons per acre and in weight per fruit to four pounds each
- ✍ Increase in prices for pineapple to \$25/lb due to better quality
- ✍ Increased commercial activity such as sale of pineapple planting material, increased transportation and more purchases of farm inputs
- ✍ New opportunities for employment created in agriculture with most farmers and their family supplying labor. Hiring was done mostly for land preparation and harvesting
- ✍ Water quality improvement verified by water quality testing and monitoring conducted by the NWC
- ✍ Reduced pesticide usage due to the integrated approach to pest management
- ✍ Greater participation in environment improvement practices



- ✍ On the social side, the project has demonstrated that communities can respond to positive changes. Local community people have been empowered to build bonds through cooperation. Linkages have been formed whereby communities can again think of agriculture as one of the key areas for development.

### **3.2.3 Complete Marketing Strategy**

No formal report was completed, as funds for STTA were reprogrammed towards hurricane relief assistance. However, a marketing strategy was employed that identified key buyers such as hotels, restaurants, processors, supermarkets and exporters, and bringing these key buyers together with farmers in order to secure commitments for pineapple marketing. Several potential buyers have expressed their intent to buy pineapple (including processor West Best Foods). Meetings were held with the Jamaica Hotel and Tourist Association, and subsequently, several hotels have commenced purchasing pineapple from the target farmers on a regular basis. Marketing Division of RADA will continue to work with farmers on the produce marketing.

### **3.2.4 Produce and Utilize Pineapple Production Video**

A video entitled "Pineapple Production in the Great River Watershed" was produced with assistance from CPTC. The video highlights the importance of pineapple to the GRW, and recommends watershed friendly cultural practices to improve productivity. The video was widely distributed in both Great River Watershed and Rio Grande Watershed to several organizations including RADA, JAS, GRWMC, Antilles Chemical Company, Sydney Pagan Agricultural School, College of Agriculture Science and Education, Knockalva Agricultural School and farmers groups.

The video was shown at meetings of pineapple farmers, Production and Marketing Task Force Meetings of the GRWMC. It is used extensively by RADA and JAS as part of their ongoing extension training in pineapple production.

The video is a key part of R2RW displays at agricultural fairs such as Denbigh Agricultural Show and Montpelier Agricultural show. It continues to be used for training at several schools and the Jamaica 4-H Clubs. Requests have been honored for showing the video at community meetings and on local cable stations.

### **3.2.5 Develop and Implement Exit Strategy**

An exit strategy for the Improved Production of Pineapple for Sustainable Livelihoods Anchor Project was successfully carried out. The strategy was based on transfer of R2RW roles to competent stakeholders that were already part of the pineapple improvement process. These stakeholders include RADA in the four parishes of the GRW, JAS in the parishes involved, Antilles Chemical Company who were the partners responsible for providing plant nutrition for the plots, Pesticides Control Authority that provided guidance and training in the use of pesticides, Pineapple Processors-West Best Foods and owners of the demonstration plots.

Beneficiary cards, records and special reports were handed over to RADA, who will continue to use the demonstration plots for training and to promote adoption of pineapple best practices in the GRW and extension areas across Jamaica. A meeting was held between RADA parish managers in Western Jamaica and R2RW's COP where RADA made commitments to incorporate R2RW's approaches and extension materials into their ongoing extension and rural development programs.

## **3.3 Production and Marketing in the Great River Watershed**

Income generation as an incentive to sustainable watershed management was a top priority of stakeholders in the GRWMC. R2RW supported income generation because good agricultural practices not only improve earnings, but also benefit the environment. Since income generation in the watershed is mainly confined to agriculture and because agriculture can cause wide spread watershed degradation. The R2RW was careful to select enterprises that could be improved from an environmental perspective.

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>3.3</b>	<b>Production and Marketing in the Great River Watershed</b>	
3.3.1	Improved crop varieties- production of high quality seedlings, hand over of banana and plantain germplasm, technical assistance	Much success with scotch bonnet pepper. Improved FHIA varieties of banana and plantains have been introduced and multiplied through the Banana Board Research Department. R2RW has concluded its involvement and has handed over the initiative to the Research Department.
3.3.2	Livestock Improvement	Start-up herds of goats were provided to training institutions Knockalva Agricultural School and Jamaica 4-H Chubs. The herds have increased in numbers twofold and six fold, respectively and buck service is being provided to communities.
3.3.3	Plant-a-Tree Campaign	In collaboration with the Forestry Department and RADA, fruit and timber trees are being distributed and planted. (See Table in 3.3.3 below)
3.3.4	Complete implementation of ongoing grants	Six grants were completed and R2RW's support brought to closure
3.3.5	Official closeout of completed grant activities/handovers	All grants were officially closed and formal handovers to relevant organizations done for major initiatives

### **3.3.1 Improved Crop Varieties- Production of High Quality Seedlings, Hand Over of Banana and Plantain Germplasm**

The introduction of improved crop varieties is critical to improving productivity, expanding the income of farmers, and improving sustainability. R2RW successfully engaged farmers groups and key government and private sector partners to introduce improved varieties of banana, plantain and pineapple. New approaches to crop care and land husbandry accompanied introduction of new varieties. The new approaches focused on responsible use of pesticide and inorganic fertilizers, and practices which minimize soil erosion while improving livelihoods. The new varieties were.

#### Banana and Plantain:

Banana and plantain are important income earning crops of the GRW, but suffer from leaf spot diseases. Plant selections resistant to these diseases (yellow and black sigatoka) were imported from Honduras (FHIA 17, 20, 21 and 25) and kept under strict quarantine by the Government's Banana Board and Research Department. Some 100 plants were released to the Jamaica Organic Agriculture Movement (JOAM) and others and being prepared for release to RADA. The plants withstood the effects of Hurricane Ivan and have shown high tolerance to nematode and wind damage and have since produced large high quality fruits. They have proven very satisfactory for cooking and banana chips.

### Pineapple:

Many varieties of pineapple are grown in Jamaica including Cowboy, Sugar Loaf, Ripley and Cheese. The most popular variety internationally, the Smooth Cayenne, which had been grown in Jamaica is not grown here now. After failure to obtain planting materials from abroad, the plant is being reproduced by tissue culture at the Biotechnology Centre of the University of the West Indies. Materials will be placed in demonstration plots supervised by RADA and the Ministry of Agriculture Research Department for further development. Many growers have become anxious to receive planting materials, and this should become a great benefit to the pineapple industry in Jamaica.

### **3.3.2 Livestock Improvement**

Livestock have always been popular with Jamaican farmers, with cattle being the dominant livestock in GRW communities. However, as the consumption of beef lessened, the population of cattle continued to decline. Consequently, several acres of pastureland were left to grow into thickets or even to be eroded in many communities. Goat meat is central to typical Jamaican diets, but a significant amount of it is imported and the local supply is generally of low quality. R2RW supported goat rearing and honey production in the GRW.

### Goats

Goats are and will be important in the rural economy given increasing demand for goat meat. The animal is efficient in recycling farm waste while producing valuable by-products such as milk, hide and manure. Goats are traditionally used as a method of saving by rural farm families. Because goats are so important in rural areas, R2RW decided to work to introduce responsible animal husbandry practices. The Project established one mother farm of purebred Nubian goats imported from the USA, and another with graded Nubians. These farms served as focal points for demonstration and training. They also provided animals for a revolving herd scheme, and to generate organic matter for the development of organic farming. Although successful, the process was slow, and in order to meet increasing demands, the farms are providing stud service.

The goat projects were vested with two training institutions, the Jamaica 4-H Clubs, St James and Knockalva Agricultural School, Hanover. Despite being completed under the third annual work plan, the two projects continued to demonstrate improved goat husbandry practices that reduced negative environmental impacts. Monitoring visits to these two completed projects revealed that at the Knockalva Agricultural School, the herd increased from the initial 12 animals to 27 in good condition, over 400 students had benefited from practical goat husbandry training, and buck service was being made available to the community. The herd with the St. James 4-H clubs had increased from 12 to 77 animals in very good condition, representing an increase of 52 animals. Additionally, 17 local goats were added to benefit from the buck service.

### Bees

Apiculture is becoming popular, as apart from the expense of hive materials, other inputs are cheap, and bee pasturage is free. R2RW sought to encourage beekeeping as it provides the following benefits to the watershed:

- ✍ Farmers tend not to destroy nectarious plants
- ✍ Farmers reduce the use of farm chemicals that kills honeybees
- ✍ Good income and ready market

R2RW supported Hermitage Honey Limited, a group comprised mainly of local women, to establish two apiaries with a total of 70 hives. The group was trained in record keeping, accounting and business management. A product label approved by the Jamaica Bureau of Standards was developed and is being used by them. This Hermitage Honey Project is becoming a useful model to other communities interested in beekeeping.

### 3.3.3 *Plant-A-Tree Campaign*

Perennial plants not only provide income over a long period, but are also beneficial to the environment. The Plant-A-Tree Campaign, started under the third annual work plan, continued under the FAWP as a key strategy to encourage more people to plant and care for trees for economic, cultural and environmental reasons. A joint initiative of R2RW, Forestry Department and the GRWMC, the campaign supported:

- ✍ The revival of traditional environmental stewardship values and practices such as honoring new babies by planting a tree at their birth,
- ✍ Using a gimmick “Putting Cedar back into Cedar Grove”,
- ✍ Honoring of persons or occasions with gifts of trees,
- ✍ Supported the objectives of ongoing R2RW public awareness activities,
- ✍ Promotion of orchard crop production through the Ministry of Agriculture’s Fruit Tree Crops Project,
- ✍ Publishing the booklet “Selection and Field Establishment for Fruit Trees”, and
- ✍ Training in fruit tree crop resuscitation and care

R2RW provided fruit tree seedlings and rooted cuttings to farmers and homeowners throughout the GRW.

The project will be sustained and expanded by RADA, the Forestry Department and community groups interested in protecting their environment. About 34,000 trees of the following categories and types have been planted since the Campaign began.

Category	Types	Total Planted
Timber	Mahogany, Cedar, Lignum Vitae, Mahoe, Caribbean Pine, Spanish Elm	19,746
Fruit	Ackee, Naseberry, Nutmeg, Guava, Otaheiti Apple, Jackfruit	6,719
Coconut	Maypan	2,000
Cocoa	ICS 60	5,500
<b>Total</b>		<b>33,965</b>

### 3.3.4 *Complete Implementation of Grants*

The on-going projects, which have received intensive support from R2RW for nearly two years are beginning to show the potential to generate income for farmers. The Rushea Scotch Bonnet Pepper project is the most advanced with very poor farmers now generating J\$10,000 (US\$165) of income in a typical week. Linking Rushea farmers to a reliable and reputable exporter who collects pepper and pays farmers promptly was key to the success observed to date.

In addition, seven field days were held to demonstrate lining out of pepper plots, soil conservation methods, lining out for planting Cocoa trees, fruit tree pruning and resuscitation. Other training

session were also held in business management including the development of marketing plans. Some 120 persons benefited from these training opportunities.

The grants were made to community groups depending on needs, potential to demonstrate proper environmental management while earning improved income, and replicability in other areas. The grants were well distributed throughout the watershed for effective demonstration. The Project provided technical guidance, facilities not easily obtained by the farmers, some planting materials and crop production inputs, and marketing advice. The farmers provided land, labor, some transportation, some materials including plants and water, and were always willing to inform other persons of their activities and results. The grants are summarized in the table below and discussed later in this section.

Location	Objectives	Partners	Status
Rushea	Expand income for 13 farming families through export marketing of Scotch Bonnet peppers, produced using environmentally friendly irrigation, soil management, and fertilization systems	Rushea Farmers Group	Start date: March 2003 Status: completed Completion date: December 2003. Received TA to March 2005
Cedar Grove	Expand income for nine farm families through export marketing of Scotch Bonnet peppers produced using environmentally friendly irrigation, soil management, and fertilization	Cedar Grove Farmers Group	Start date: March 2003 Status: Completed Completion date: December 2003 Received TA to March 2005
Hermitage	Improve livelihoods and increase environmental awareness by expanding honey production and sales	Hermitage Honey Producers	Start date: March 2003 Status: Completed Completion date: March 2005
Mafoota	Enhance livelihoods and demonstrate environmentally friendly agricultural practices including non-use and judicious use of pesticides and inorganic fertilizers, composting, and soil and water conservation	Mafoota Farmers Group	Start date: March 22, 2004 Status: Completed Completion date: March 2005
Cacoon Castle	Reverse environmental degradation from shifting cultivation and poor agronomic practices and introduce improved, practical and affordable technologies to produce exotic vegetables and herbs, semi-perennials (pineapples) and perennials (fruit trees and timber) for full-year cultivation	Cacoon Castle Farmers' Group  Jamaica Agricultural Society	Start date: March 22, 2004 Status: Completed Completion date: March 31, 2005

Location	Objectives	Partners	Status
Catadupa	Improve cocoa production by approximately 20 tons of dried beans per annum, after four years, support existing cottage industry producing chocolate bars for local and export markets, and Use minimal tillage, excellent root structure, and heavy leaf litter of cocoa for land stability and erosion control	Catadupa Farmers Group  RADA  Cocoa Industry Board	Start date: March 2004  Status: Completed   Completion date: March 2005

#### Rushea Scotch Bonnet Pepper Project Follow-up

The income of 13 farmers (mostly women) comprising the Rushea Farmers Group were able to expand their production of scotch bonnet pepper for export and the local markets. They were provided with the first set of plants, small drip irrigation systems, organic fertilizer, and later a plant house and instructions for seedling production. They were also guided into proper field practices including soil conservation, disease and pest control and prevention, effective weed control, crop rotation and pre and post harvest care to suit various markets. At the peak of production some farmers generated about J\$10,000 (US \$165.00) of income in a week. Although the project was completed in 2003, they still continued to benefit from technical service through R2RW, and lately by RADA. The latter agency has now assumed full responsibility for the Project.

#### Cedar Grove Farmers Group Follow-up

The group consisted of 9 farmers, 4 of whom were young men. They had some experience in pepper production, and a great interest in planting timber. They were given the same assistance as the Rushea farmers, but had less success. A plant house donated by FAO, but damaged by Hurricane Ivan, was repaired by R2RW and proved useful in the production of hot pepper and sweet pepper seedlings. The farmers also established a compost heap and were instructed in the production of other crops. RADA and the Ministry of Agriculture Research Department are involved with this project and will continue to service it. Capitalizing on an early show of interest in planting timber, the R2RW introduced a gimmick "Putting Cedar Back into Cedar Grove". A group of farmers including young men got involved and have planted hedgerows and groves of cedar seedlings supplied by the Project. This effort is being closely watched by other organizations that hope to use it in other communities named after plants.

#### Hermitage Honey Producers Follow-up

A key outcome of the Hermitage Honey Producers grant was the first product to be branded "Endorsed by the Great River Watershed Management Committee". Hurricane Ivan damaged some apiaries as well as affected the availability of nectar. This impact was subsequently addressed with R2RW assistance to rehabilitate apiaries and repair the building that house the processing facility.

#### Mafoota Farmers Group

The Mafoota Farmers Group is well organized into a cooperative society. They have been supplying common and exotic vegetables and herbs to the Montego Bay Sandals hotel and local restaurants over the past 4 years, and have recently expanded to a wider clientele. They have gained a reputation as being well organized and have been awarded many certificates and prizes. The Group's support for environmentally friendly methods of production is outstanding, and they receive regular visits from scientists, farmers, students, marketers and consumers.

The R2RW assisted the group in several ways. First, a plant propagation house was constructed and mist irrigation system installed. Seedling trays and potting medium were provided initially and farmers were instructed how to use them. The house also served as a plant holding center for fruit and timber trees. Second. R2RW has recently constructed two water storage ponds with a

total capacity of one million gallons to help address seasonal drought. The system was designed so that the ponds fill by gravity from a small stream, thus eliminating the use of energy (pumping). The farmers will construct their own system to supply water to their individual farms. And finally, the Project supported Mafoota car-wash and laundry project was redesigned to accommodate storage for farm materials and for grading and packing vegetables. Later a section will be modified for cool storage of vegetables.

#### Cacoon Castle

This project is located in a very fertile valley in Hanover, which suffers from occasional severe drought. There was no access to irrigation. Hence farming was limited to short term crops, some fruit trees and scrub pastures which are being over-run by a pernicious weed, the piano grass. Through R2RW and RADA, the Round Hill Hotel nearby offered the farmers a generous marketing opportunity. The R2RW devised a strategy for small plot production of several vegetables and herbs, a semi perennial crop (pineapple) and some perennial fruit trees. At first, a plant house was built and materials and training provided to produce seedlings continuously as needed. A training and demonstration plot was established near the plant house, and the farmers attended it every Wednesday. Afterwards each farmer was provided with a small water storage tank and hose for watering field plots. Each farmer started out on one square chain of land, and planted not more than three vegetables at a time. The Project suffered set backs by Hurricane Ivan but is now progressing slowly but successfully and the hotel seems pleased with the produce it is receiving. The effort is being sustained by RADA with active participation by the Round Hill Hotel.

#### Catadupa Farmers Group:

This project is situated in a critical area of the headwaters of the Great River Watershed. Although agriculture is the dominant economic activity in the GRW, several areas were neglected and allowed to become ruinate or eroded, and farmers' income was greatly decreasing. The farmers expressed a great desire for perennial trees with particular interest in cocoa. The Project supported the planting of 12 acres of new cocoa fields and resuscitated 20 acres of existing cocoa, as well as June plum, ackee, sour sop, guinep and naseberry. The Cocoa Industry Board, the Ministry of Agriculture Fruit Tree Crop Project and RADA supported the effort. The Project supplied the plants, conducted field training and assisted in some field operations. The Cocoa Board provides the plants at a subsidized rate and assisted with farmer training. A strong farmers group supported by the Cocoa Industry Board, a local chocolate drink producer and RADA will sustain the project.

### **3.3.5 Official Closeout of Completed Grant Activities/Handovers**

Final grant closeout reports were received for all grants reported above. In addition, final financial statements were prepared for each grantee and put in the grant files.

### **3.4 Cleaning and Greening of Cambridge – Anchor Project # 2**

The goal of this anchor project was to support the SDC, the St. James Parish Council and other stakeholders in re-developing the Community Development Committee (CDC) for Cambridge. This would provide a local governance mechanism for the community to be involved in the management of its natural resources, and to support activities of the CDC and its constituents that were likely to contribute to improved watershed management practices. This Anchor Project contributed to the overall goal of the R2RW Project of “natural resources under improved and sustainable management”, through:

- ☞ Supporting targeted activities of the CDC and its constituents that were likely to contribute to improved watershed management practices.

- ✍ Undertaking public awareness strategies to make residents more aware of the environmental and planning regulations,
- ✍ Supporting the CDC as a local governance mechanism to obtain greater community participation in the management of natural resources; and
- ✍ Building the capacity of partner agencies (central and local governments, and CBOs to more efficiently undertake their mandates.

The Final Report for the Cleaning and Greening of Cambridge Anchor Project is contained in Appendix 3.

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>3.4</b>	<b>Cleaning and Greening of Cambridge – Anchor Project # 2</b>	
3.4.1	Execute implementation plan for Project	Project implemented according to detailed implementation plan. The organizational development of the Cambridge Benevolent Society progressed through training; the development of a Community Profile; and the development and signing of a MOU
3.4.2	Implement Public Awareness Campaign	Implementation of PA campaign successfully completed. Campaign included: <ul style="list-style-type: none"> <li>? Development and dissemination of Promotional materials</li> <li>? Development and use of a Bird Costume</li> <li>? Delivering Presentations at schools and other community groups</li> </ul>
3.4.3	Continued implementation of community clean-up activities	Work completed on series of activities to clean-up the community: <ul style="list-style-type: none"> <li>? Removal of Derelict Vehicles</li> <li>? Deployment of skips and drums</li> <li>? District Beautification Competition</li> </ul>
3.4.4	Implement Land Management Activities	Land Management improved through: <ul style="list-style-type: none"> <li>? Demonstration plot to show improved practices such as contour barriers, and use of vetiver grass</li> <li>? Planting of Fruit and timber Trees</li> <li>? Improving sanitation</li> </ul>

#### **3.4.1 *Execute Implementation Plan for Project***

The Project Coordinator was supported directly by a Public Awareness Coordinator and a Field Animator, as well as by members of the R2RW technical team. The Project related to and was supported by the following organizations:

- ✍ Task Forces of the GRWMC
- ✍ Strong community involvement through an existing and well-organized PTA
- ✍ RADA extension officers



- ✍ Other support agencies including NEPA, Jamaica Agricultural Society (JAS), Pesticides Control Authority (PCA), Parish Council (PC), Community Development Committees (CDC), and the Social Development Commission (SDC).

Members of the Cambridge CDC met weekly during the period, and underwent training in group formation that ultimately resulted in their successful registration as a Benevolent Society. A Steering Committee consisting of the SDC, R2RW, St. James Parish Council met quarterly to oversee the project and assess progress on activities.

### **3.4.2 Implement Public Awareness Campaign**

Promotional materials for the public awareness campaign were developed to educate target groups on the environmental issues in the community and their respective impacts. Materials developed and used included:

- ✍ Colorful billboards erected at highly visible locations in the community to identify the clean-up campaign and highlight the participating partners. The last of three billboards was unveiled at a Partnership Workshop held on March 30, 2005.
- ✍ Distribution of a Leaflet on Environmental Legislation continued through schools, Health Centres, Post Offices, Police Station, etc.
- ✍ Bumper stickers were distributed to transport providers
- ✍ A Comic Strip on "Bush Fires" was distributed in schools and to community groups.
- ✍ A-Z booklet of wildlife was developed in association with the Natural History Society

Some 31 schools with a total enrolment of 7, 750 students in the surrounding watershed were visited during the period. During each visit, presentations were made on the local environment, and an appearance was made by a life size hummingbird mascot to stimulate students' interest. Feedback from the presentations was overwhelmingly positive. In addition, 20 basic school teachers from across the Western Region participated in a workshop to demonstrate techniques in environmental education.

Articles on the Cambridge Project appeared in the Western Mirror highlighting the progress on the land management and public awareness activities. A monthly newsletter was very popular among community residents, and helped in the sharing of information and networking of community leaders to promote the clean-up campaign. In addition, regular outreach was made to district groups to address solid waste management issues. "Walk and talk" visits were made to business operators and transportation providers in Cambridge square to highlight what these groups could do to clean up Cambridge. An Essay/Art/Poetry competition was developed and implemented in schools and trophies and prizes were presented at the annual Cambridge Day celebration held on May 19, 2005.

### **3.4.3 Continued implementation of community clean-up activities**

Progress was made, and work completed on a series of activities to clean-up the community. These included the following:

- ✍ The removal of derelict vehicles from road verges that had become an eyesore and mosquito breeding ground
- ✍ The purchase, deployment and use of 4 new garbage skips and 200 garbage drums, as well as strengthening the ties to the Solid Waste Management Authority to dispose of garbage

- ✍ District Beautification Competition encouraging each of the 11 districts of Cambridge to organize beautification campaigns in their areas.
- ✍ The planting of ornamentals such as hibiscus, bougainvillea and alamander to beautify road verges.
- ✍ The participation of the private sector in the painting of buildings in the town square and the proper disposal of their solid waste
- ✍ The establishment of a Nature Park in the centre of the town in an area, which formerly housed an illegal abattoir and a chicken coop.
- ✍ Tool Pool established: 7 shovels; 5 machetes; 3 forks; 7 rakes; 4 files

Community members have reported a rising sense of pride by local residents, as persons take notice of the improvements in the community and want to become part of the cleaning and greening campaign.

#### **3.4.4 Implement Land Management Activities**

A land management demonstration plot was established in Ducketts through the R2RW technical team working with farmers. This plot demonstrated improved pineapple production techniques, the use of vegetative barriers to control erosion, and the planting and caring of fruit trees.

Over 3,000 trees were planted in Cambridge as part of the “Plant a Tree program” that was implemented across the GRW. Additionally, over 1,000 ornamental plants were planted in the districts of Cambridge and have contributed to the beautification exercises carried out.

### **3.5 Water and Sanitation Initiatives in the Great River Watershed**

Over the life of the project, stakeholders in the GRW ranked sanitation, both solid and wastewater disposal, as their highest priority. Several strategies were employed to support water and sanitation improvements, including i) creation of the Water and Sanitation Task Force as part of the GRWMC, ii) showcasing completed demonstration constructed wetlands at schools in Pisgah and Retrieve, and iii) hosting workshops and community meetings to sensitize communities to low cost alternative sanitation technologies. Communities throughout the watershed, in part inspired by the Green Village Awards Program, took increasing interest in organizing community clean-ups that were supported by agencies such as NSWMA and NEPA. Activities during the reporting period included:

- ✍ Rationalizing use of car wash and laundry facility at Mafoota
- ✍ Handing over ceremonies for sanitation systems
- ✍ Institutionalizing Community Clean-up Days
- ✍ Implementing and completing water and sanitation initiatives

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>3.5</b>	<b>Water and Sanitation Initiatives in the Great River Watershed</b>	
3.5.1	Rationalize use of car wash and laundry facility at Mafoota	Hurricane Ivan damaged this facility. Representation was made by the Mafoota Farmers Cooperative to take possession of the facility and to convert its use to a packing facility for vegetables and a store-room for agricultural inputs. This request was approved.
3.5.2	Handing over ceremonies for sanitation systems	A ceremony was held January 2005 to handover two projects - the Pisgah Water Supply system and Pisgah All Age School constructed wetland sanitation system. The Minister of Water & Housing, Hon. Donald Buchanan and USAID officials were involved in the ceremony. Also, a ceremony was held at Retrieve All Age School to handover the completed sanitation system to the school and the Ministry of Education.
3.5.3	Institutionalize Community Clean-up Days	Several communities benefited from tool pool arrangements, whereby a bank of tools were made available to CBOs to facilitate community clean up efforts. Many of these tool pools were established immediately after Hurricane Ivan, and are still in active usage. Several agencies continue to provide services to community led clean-up days including NSWMA, NEPA and PHD.
3.5.4	Implementation of W&S Initiatives	The water and sanitation initiatives completed were primarily related to R2RW post Ivan rehabilitation work and major work included  Pisgah Water Supply: Pisgah, St Elizabeth and Comfort Hall Water Supply: Comfort Hall, Anchovy, St. James. Sanitation upgrading was also completed at Dundee All Age School, part of school sanitation program. Support was also provided to four schools as part of school sanitation upgrading. Bethel Town All Age, Anchovy Primary, Bickersteth Primary and Chester Castle All Age benefited from engineering designs to upgrade their sanitation systems, water saving water closets and water tanks. Note that eight HICUP grants related to improving sanitation were awarded (clean-up of solid waste and clearing drains)

### **3.5.1 Rationalize Use of Car Wash and Laundry Facility at Mafoota**

A car wash and laundry facility was constructed at Mafoota during the fourth year of the Project year to alleviate the problems associated with washing motor vehicles in the river. The applicants, Mafoota Citizens Association and Mafoota Youth Club, had difficulty arriving at a consensus on how the facility would be managed. In September 2004, Hurricane Ivan damaged this facility. Representation was subsequently made to by the Mafoota Farmers Cooperative to take possession of the facility and to convert its use to a packing facility for vegetables and a

storeroom for agricultural inputs. This latter group is a successful vegetable growing organization with a good track record of managing its affairs. The request was therefore approved. The Cooperative has taken possession of the facility 'as is' and will undertake necessary repairs from their own resources.

### 3.5.2 *Handing Over Ceremonies for Sanitation Systems*

The purpose of handover ceremonies was to publicly turn over the management of community projects to local community groups that would take active ownership, continue maintenance, continue use of environmental best practices, and thereby ensure sustainability.

A ceremony was held January 2005 to handover the Pisgah water supply and Pisgah All Age School constructed wetland sanitation systems. The Minister of Water & Housing, Hon. Donald Buchanan and USAID officials were involved in the ceremony. The Hon Minister turned over the water for the Pisgah community. A ceremony was held at Retrieve All Age School to handover the completed sanitation system to the school and the Ministry of Education in January.

The school water and sanitation projects utilize efficient and easy-to-maintain technology to ensure that the schools have environmentally friendly toilets and a more efficient water storage and supply system.

### 3.5.3 *Institutionalize Community Clean-up Days*

Community clean-up days, designed in partnership with communities, are implemented with communities providing voluntary labour for activities such as garbage pickup, drain cleaning, tree planting and beautification of public spaces. The respective agency contributions were as follows:

Organization	Services provided
WSTF	Leadership, receives requests from communities and make recommendations to R2RW, NEPA and other agencies
R2RW	Logistical support and equipment
NSWMA	Garbage bags, no dumping signage and collection services for garbage
NEPA & PHD	Information on the importance of a clean environment, education on environmental laws governing waste disposal, advocacy

Clean-up days were usually prompted in the GRW following drama performances of the Action Boyz, R2RW supported community meetings, and other initiatives that educated communities on environmental laws and established linkages between environment and health. Awards such as the Green Village and the Cambridge best kept community competitions provided incentives for community clean-ups and engendered stewardship for the environment.

Several communities benefited from tool pool arrangements, whereby a bank of tools (shovels, spades, machetes, rakes, forks and pick axes) were made available to community organizations, which are available for community clean up efforts. Many of these tool pools were established immediately after Hurricane Ivan, and are still in active usage. Tool pools are governed by a protocol signed between beneficiary community groups and R2RW that covers:

- ✍ Responsibility to provide leadership and management for all tools received
- ✍ Maintenance of a log/register for the use of all tools and equipment at all times indicating borrowers name, type of tools borrowed, intended time for use, date when tools were returned, user fee paid for use, comment if return damaged

- ✍ Openness for inspection at any time (With or Without prior notice from) R2RW/USAID, NEPA, RADA or related state agencies.
- ✍ How user fees should be used
- ✍ Non-sale of tools: The tools assigned to community tool pool must not be offered for sale.
- ✍ Non-discrimination: Use of tools must not be done on the basis of political, religious nor racial consideration.

Several agencies continue to provide services to community led clean-up days including NSWMA, NEPA and PHD.

### **3.5.4 Implementation of W&S Initiatives**

Water supply and sanitation activities took place in Pisgah, Comfort Hall, Dundee, Bethel, Anchovy, Bickersteth and Chester Castle.

#### *Pisgah Water Supply: Pisgah, St Elizabeth*

This system was supported through a grant to Pisgah All Age School Parent Teachers Association with technical support from the St Elizabeth Parish Council and Peace Corp engineers. The intervention comprised the renovation of a 100,000 gallon concrete tank, repairing the paved concrete area that serve as a catchment for filling the tank, and laying pipelines to Pisgah All Age School and throughout the community. Over 250 households and 3,000 persons benefited directly from the intervention. Residents contributed labor and the Parish Council provided technical expertise. The community also completed a community action plan to develop a strategy for the management of the systems in order to ensure sustainability of the project.

#### *Comfort Hall Water Supply: Comfort Hall, Anchovy, St. James*

This system consists of three plastic water tanks installed in series on a concrete plinth. The St James Parish Council fills the tanks periodically. Over 70 persons are direct beneficiaries.

#### *Dundee All Age School, Westmoreland*

This school benefited from rainwater harvesting and an upgraded sanitation system comprising conversion of pit latrines to flush toilet system, installation of septic tanks and constructed wetland.

*Support to additional schools:* Four schools (Bethel Town All Age, Anchovy Primary, Bickersteth Primary and Chester Castle All Age) benefited from engineering designs to upgrade their sanitation systems, water saving water closets and water tanks.

Note that eight HICUP grants related to improving sanitation (clean-up of solid waste and clearing drains) were awarded in the Great River watershed. See Section 7: Hurricane Ivan Recovery for more details of this program.

## **3.6 Public Awareness Activities**

The Project has been working to increase local level environmental stewardship while establishing mechanisms to carry the initiatives forward through time. Activities in support of this goal include:

- ✍ Support follow up activities from the Great River Youth and Environment Conference
- ✍ Implement Green Village Program 2004
- ✍ Participation in fairs, expositions and community forums
- ✍ Promoted successes through press releases, radio programs and special events.

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>3.6</b>	<b>Other Public Awareness Activities</b>	
3.6.1	Work with Youth Leaders to identify and support follow on activities to the Great River Y&E Conference	<p>Focused for continued leadership in environmental management on four youth groups from</p> <ul style="list-style-type: none"> <li>✍ Retrieve- The Action Boyz;</li> <li>✍ Cedar Grove Environmental Club;</li> <li>✍ Castle Heights Youth Group and</li> <li>✍ Youth arm of Catadupa Citizens' Association</li> </ul>
3.6.2	Implement Green Village Program 2004	Program implemented, with 13 communities having entered this year's competition.
3.6.3	Participation in fairs, expositions and community forums	<p>Participated in five environmental/public awareness expositions at</p> <ul style="list-style-type: none"> <li>? St. James 4H Nyamins &amp; Jamins - October 2004</li> <li>? The annual environmental fair at Round Hill Hotel – December 2004</li> <li>? Lucea town square –Feb 19, 2005</li> <li>? Montego Bay, Feb 24</li> <li>? Montpelier Agricultural Fair – March 28</li> </ul>
3.6.4	Project successes promoted through press releases, radio programs and special events	<p>The project's promotional profile improved in the following areas:</p> <ul style="list-style-type: none"> <li>? Press releases</li> <li>? Press conferences</li> <li>? 19 newspaper articles,</li> <li>? 18 radio interviews covering a range of events, plus 22 interviews on a weekly slot on KLAS FM for a total of 7 hours air time – starting in October 2004</li> <li>? Television coverage-8 features including news coverage</li> <li>? 3 features in two media websites- JIS and Radio Jamaica</li> </ul> <p>In addition, the project supported the Pesticide Control Authority in the following areas:</p> <ul style="list-style-type: none"> <li>? 200 posters, 200 comic books and 100 bookmarks on pesticide control, distributed to 10 schools,</li> </ul>

Work Plan Activity	Activity Description	Achievements During Reporting Period
		? Presentations made to 13 schools, 12 clinics, two hospitals and two farming communities

**3.6.1 Work with Youth Leaders to Support Follow on Activities to the Great River Youth and Environment Conference**

As follow-up with youth groups that participated in the Youth and Environment Conference, R2RW supported four youth groups from Retrieve, Cedar Grove, Castle Heights, and Catadupa as follows:

- ✍ From Retrieve, the Action Boyz was helped to establish a business strategy and marketing plan so that they could continue to perform their environmental skits.
- ✍ Cedar Grove Environmental Club was assisted in their preparations for the Green Village Program,
- ✍ Castle Heights Youth Group was supported in their coordination efforts with the local school and the NSWMA as they worked to address solid waste issues in their community, and
- ✍ Youth arm of Catadupa Citizens' Association was supported in their efforts to strengthen their sports club and link activities to environmental improvement.

Each of these youth groups shows commitment and leadership in environmental management. It should be noted that the Green Village Award Program, Action Boyz in community drama for education, and partnerships with NEPA, SDC and the NSWMA, remain as ways to involve youth in environmental stewardship.

**3.6.2 Implement Green Village Awards Program 2004**

The second Green Village Awards Program was successfully implemented, with 13 communities entering the competition. They were from:

- ✍ Hanover Parish: Cacoon Castle; Lethe
- ✍ St. James Parish: Catadupa; Comfort Hall; Retrieve; Rushea; Mafoota; Seven Rivers
- ✍ Westmoreland Parish: Cedar Grove; Dundee; St. Leonard's; Stonehenge; York/Castle Heights

Five communities entered for the first time, expanding participation from last year. Planning for the Award ceremony is now in the final stages. Private sector participants, providing support and awards, include The El Greco Hotel, Half Moon Bay Hotel, Palm Bay Guest House, Sandals-Montego Bay, Discount Lumber and Crichton Brothers Hardware Stores. The awards ceremony will be held at Mountain Valley Rafting, in Lethe on May 5, 2005.

The Green Village Program has stimulated significant interest, and the competition with its revised criteria offers the GRW a template for community participation in watershed management. NEPA and the GRWMC will take the lead in sustaining this medium cost initiative with partner agencies. These agencies include the SDC, on whose earlier "Best Kept Village" the competition is based; RADA, the Forestry Department and Public Health Department who function as judges, and the private sector businesses including Hardware stores and Hotels mentioned above.

The 1<sup>st</sup> place community was Cedar Grove, Westmoreland that built and placed garbage bins throughout the community, planted more than 4,000 cedar trees under the theme “putting cedar back into Cedar Grove”, and organized educational events to educate residents about environmental issues such as garbage disposal, water pollution and soil erosion in their community.

### **3.6.3 Participation in Fairs, Expositions and Community Fora**

R2RW played a major role as exhibitor in five environmental/public awareness expositions. These fora offer stakeholders an opportunity to work in partnership and to get environmental messages and literature out to a wider audience. Partners that invited our participation, include:

- ✍ St. James 4H for the Nyamins & Jamins, October 2004
- ✍ Round Hill Hotel for the Annual Environmental Fair at Round Hill Hotel, December 2004
- ✍ Dolphin Head Trust for the Lucea town square Public Awareness Day, Feb 19, 2005
- ✍ Community Management and Sustainable Development (COMAND) for the Montego Bay Public Education Day, Feb 24, 2005
- ✍ Montpelier Agricultural Research Station for the Montpelier Agricultural Fair, March 28, 2005

Of the expositions in which the Project participated, the one attracting the greatest number was the St. James’ 4H Nyamins and Jamins attended by an estimated 20,000 persons. In addition to displaying products from R2RW supported community enterprises and distributing hundreds of brochures and posters, the Action Boyz delivered their educational skit and an original environmental song.

Handing over ceremonies for water and sanitation systems at Retrieve and Pigsaw All Age schools, and at Montpelier Agricultural Research Centre for Nubian goats to the St James 4H created media opportunities. Note that the Minister of Water and Housing officiated at the Pigsaw All Age School ceremony. These events also involved the participation of respective communities and raised the profile of active community groups, thereby engendering a sense of pride, ownership, and accomplishment.

### **3.6.4 Project Successes Promoted through Press Releases, Radio Programs and Special Events**

The Project’s public relations profile has improved over the last six months. Press releases related to public education and watershed management events included:

- ✍ Handing over of water and sanitation systems to Retrieve All Age and Pigsaw All Age and community,
- ✍ Handing over of Nubian goats to St. James 4H Clubs
- ✍ Handing over of Anti-litter posters to St. James Association of Taxi Operators and JUTA
- ✍ The Green Village Award ceremony.

This was supplemented by newspaper articles, radio interviews, and features on television news and media house websites.

The weekly segment on one radio station, KLAS-FM, provided the opportunity to highlight project activities and accomplishments. At least 10 of the 22 interviews held during the review period related to GRW activities such as the Public Education outreach work in support of Young environmental stewards; Cambridge Anchor project Action Planning workshop and MOU with the



St. James Parish Council, the Pineapple Production project, an audio version of the Action Boyz environmental skit and the post hurricane rehabilitation activities in schools and communities.

The hurricane in September 2004, revealed many weaknesses in environmental management at the state and community levels. The breakaway of roads, overflow of pit latrines in schools and blocked drains came to public attention. As a result, in spite of the original intention to start no major new initiatives in the West in year 5, R2RW was able, with additional resources, to respond to the needs of Pisgah, Ramble Pond, Cambridge and its environs, Stonehenge, Bickersteth among others, and to highlight through media, the work being done and the links between managing the aftermath of this disaster and sustainable watershed practices.

In addition, the project gave special support to the Pesticides Control Authority (PCA) in their public awareness drive to reduce the incidence of child poisoning. The project "Reducing Child Poisoning in Great River and Rio Grande Watersheds" was successfully completed in April 2005. Posters, bookmarks, comic books and a video presentation were shared with health clinics at Chester Castle, Cambridge, Catadupa, Hopewell, Copse, Bethel Town, St. Leonard's, Roehampton, Ramble, Mt. Carey, Lamb's River; with farming communities in Cambridge (65 persons) and Ginger Hill (35 persons) and in 13 schools including Knockalva Agricultural School. Some 600 students in the Great River were exposed to this education, and in response to the video presentation, were attentive and could report on incidents they know to have occurred in their communities.

PCA's preliminary survey results indicate a higher rate of cases in 2004, which they attribute to better reporting (88 cases of pesticide poisoning in the age group in 2004 compared to 40 cases the year before). However, the data for the period up to April 2005, when the program began to take effect, shows only 15 cases for the four month period.

#### 4. Component 1B: Through Targeted Organizations, Sustainable Environmental Management Practices by Resource Users Identified and Supported in the Rio Grande Watershed

In February 2002, a Strategic Action Planning Workshop was conducted for the Rio Grande Watershed where local stakeholders identified priority issues and actions. Since then, R2RW has worked to implement or support those identified actions, which were consistent with the overall objectives of the Project. R2RW facilitated the establishment of the Rio Grande Watershed Management Committee (RGWMC) that serves as the focal point for coordination and decision-making regarding watershed activities and Project support in the watershed. The RGWMC established four Task Forces to address compliance and enforcement, public awareness, water and sanitation, and land conservation.

Achievements in the Rio Grande watershed during the reporting period are described in the four sections, namely:

- 4.1 *Rio Grande Watershed Management Committee (RGWMC) Development*
- 4.2 *Improved Land Management in the RGW - Anchor Project # 3*
- 4.3 *Water and Sanitation Activities*
- 4.4 *Public Awareness*

##### 4.1 Rio Grande Watershed Management Committee Development

Following several years of focused support for the Rio Grande Watershed Committee (RGWMC) Committee and its Task Forces, R2RW gradually reduced direct support and encouraged approaches and activities independent of Project support. R2RW provided training and guidance to enable the RGWMC to function independently, so as to ensure sustainability. However, the Development Area Plan for the watershed was not completed as resources were diverted to Hurricane Ivan recovery activities. Work plan activities in support of RGWMC development included:

- ✍ Implementing strategic actions and implementation plan of RGWMC
- ✍ Reviewing and strengthening of the MOU with PDC and RGWMC
- ✍ Capacity building training programs for task forces
- ✍ Preparation of a development area plan for the RGW.

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>4.1</b>	<b>Development of the Rio Grande Watershed Management Committee</b>	
4.1.1	Implementation of the Strategic Actions and Implementation Plan of RGWMC	Four support actions were undertaken: 1) Institutional needs and Training Program, 2) Creation of a Finance Committee, 3) Streamlining of all Administrative functions, and 4) Rationalization of the Organizational Structure of the RGWMC. A Self-Governance Workshop was conducted with the Executive of the RGWMC January 18, 2005. At this Workshop it was decided that that the way forward for the Committee was to register as a legal entity – a benevolent society.

<b>Work Plan Activity</b>	<b>Activity Description</b>	<b>Achievements During Reporting Period</b>
4.1.2	Review and Strengthening of MOU with PDC and RGWMC	One meeting was conducted between the PDC and the RGWMC. The MOU was also reemphasised at a quarterly meeting of the RGWMC.
4.1.3	Capacity Building Training Programs for task forces	Training provided included 1) Meeting Management and Minutes Taking, 2) Proposal Writing and Fund Raising and 3) Environmental Advocacy. The R2RW Mailing List Database was also transferred to the RGWMC accompanied by hands on training in Microsoft Access.
4.1.4	Prepare Development Area Plan for the RGW	Not completed; as time and money had to be diverted to Hurricane Ivan recovery.

#### **4.1.1 Implementation of the Strategic Actions and Implementation Plan**

The RGWMC identified four issues in their Strategic Actions and Implementation Plan relating to phase out of R2RW support to the RGWMC. These were:

- ✍ Institutional needs and Training Program. This issue was addressed by the training programmes implemented by R2RW. That included Proposal Writing and Fund Raising.
- ✍ The Creation of a Finance Committee. The aim of this committee is to secure funding locally, regionally and internationally, which necessitate the setting up of a bank account. All the relevant documentation from the RGWMC has been forwarded to a bank and it is envisioned that an account should be opened shortly.
- ✍ The Streamlining of all administrative functions and the Rationalization of the organizational structure of the RGWMC.

As a follow up to these issues, a Self-Governance Workshop was conducted with the Executive of the RGWMC January 18, 2005, to determine the way forward. After examining a number of possible options it was decided that the way forward for the Committee was to register as a legal entity and under the Friendly Societies Act. Training Manuals and Rules from the Department of Co-operatives & Friendly Societies have been delivered to the RGWMC to guide this process.

#### **4.1.2 Review and Strengthening of MOU with PDC and RGWMC**

The MOU which was signed September 26, 2002 among the PDC, the RGWMC and the R2RW in order to establish policies and procedures for the general working agreement between the PDC, RGWMC and the R2RW and to articulate a coordinated approach and consensus among key stakeholders for the implementation of the R2RW was given credence by a meeting with the PDC and the RGWMC; this was further reinforced by discussions at a RGWMC quarterly meeting. The resolution from the meeting indicated that this MOU would have to be amended in order to reflect the non- existence of R2RW and continued working relationship between the PDC and the RGWMC.

#### **4.1.3 Capacity Building Training Programs for Task Forces**

R2RW has completed a series of Training Programs in the RGW in an effort to keep the RGWMC fully functional after R2RW. The training courses included:

- ✍ Proposal Writing and Fund Raising, November 16, 2004. 27 persons participated (18 females and 9 males).

✍ Environmental Advocacy, March 3, 2005. 24 persons participated (14 females and 10 males).

These courses significantly strengthened the capacity of the task forces to fulfil their specific missions in an organized way and helped them understand how to identify and access resources to continue priority activities.

The R2RW Mailing List Database was transferred to the RGWMC accompanied by hands on training in Microsoft Access. It was extremely important that key participants (four persons) got hands on training and were able to manipulate this software to create relevant documentation for the day to day operation of the RGWMC. A handout was produced by the group; enabling the transfer of information obtained from the training to other members of the RGWMC. This handout was also circulated to the GRWMC.

#### **4.1.4 Prepare Development Area Plan for the RGW**

The preparation of a development area plan for the watershed was considered a priority that would provide a baseline examination of physical resources and the impact of human activities within the watershed. Unfortunately, Hurricane Ivan, which struck the island in September 2004, derailed implementation plans for this work, as hurricane recovery work took priority.

#### **4.2 Improved Land Management Practices in the Rio Grande Watershed – Anchor Project # 3**

The objectives of this set of activities was to 1) support sustainable land management practices that will mitigate soil erosion and flooding and consequential damage to property and infrastructure 2) improve ground cover and land permeability to improve water quality and quantity, protection of soil, maintenance and improvement of biodiversity, disaster mitigation, and creation of sustainable livelihood opportunities, and 3) increase the understanding of natural resource issues and conflicts in the RGW with a view to mitigation of potential hazards by:

- ✍ Implementing community based agro forestry initiatives,
- ✍ Setting up goat stud stations in three communities,
- ✍ Expanding tree planting initiative to new communities,
- ✍ Promoting environmentally friendly cropping practices, and
- ✍ Sustaining Improved Land Management

<b>Work Plan Activity</b>	<b>Activity Description</b>	<b>Achievements During Reporting Period</b>
<b>4.2</b>	<b>Improved Land Management Practices in the Rio Grande Watershed – Anchor Project # 3</b>	
4.2.1	Implement community based agro forestry initiatives	Six community agro forestry projects were successfully implemented. 256 farmers participated, establishing four demonstration plots that are now used extensively for in-field training and planning 26,680 pineapple plants as soil conservation barriers along 440 chains of contour, 12,766 timber seedlings, and 10,754 fruit trees
4.2.2	Implement goat stud stations in 3 communities	Three buck stations were completed and stocked with graded Boer bucks. Over 35 farmers were trained in goat husbandry, the utilization of grass barriers for fodder, and linkages between goat rearing and agro forestry projects.

Work Plan Activity	Activity Description	Achievements During Reporting Period
4.2.3	Expand tree planting initiative to new communities	The tree planting initiative was expanded to include Bowden Pen, Milbank, Prospect, Stoney Hill benefiting 168 participants who received 1,593 fruit trees, 1536 timber trees and 4,240 pineapple suckers.
4.2.4	Promote environmentally friendly cropping practices through farmer training days	16 training sessions conducted with 226 farmers participating. Topics included establishing hillside barriers using pineapple, grass, etc; management of fruit and timber trees; responsible pesticide use; goat husbandry
4.2.5	Sustaining Improved Land Management	RADA has expressed its commitment to continue supporting improved land management activities and has been provided with the information necessary to follow-up with farmers.

The Final Report for the Rio Grande Land Management Anchor Project Is contained in Appendix 4.

#### **4.2.1 Implement Community Based Agro forestry Initiatives**

The existing agro forestry projects in Industry, Rock Hall, and Coopers Hill respectively were incorporated into the Improved Land Management Anchor Project. Three new agro forestry projects were initiated in Moore Town, Chatsworth and Durham Gap. All were successfully implemented and concluded. Agro forestry activities included development of detailed farm plans, lining out assistance and field training days. Soil conservation measures supported by R2RW included vegetative barriers, gully plugging, and integrated planting of crops. Crops include timber, fruit trees, plantain (as a nurse crop) and pineapple that were all employed within a broader context of land husbandry and sustainable agricultural practices. The crops selected improve land stability and have good income generating potential. The crops established by communities for the reporting period are shown in the table below.

Name of Community or Group	No. of Farmers	No. of Fruit Trees	No. of timber Trees	Pineapple Suckers	Plantain Suckers
Moore Town	27	616	1,370	5,400	820
Chatsworth/Fruitful Vale	23	862	1,670	3,620	1,800
Durham/Dumphries	26	690	720	3,620	200
Coopers Hill	30	680	953		
Industry	25	713	842		
Rock Hall	27	755	975	745	
Rio Grande Tree Planting Initiative	68	1,593	1,536	4,240	
<b>Total</b>	226	5,909	8,066	17,625 (approx 290 chains of barriers)	2,820

Some 450 persons benefited directly from planting material and other inputs. Approximately 250 farmers benefited from training sessions that addressed topics such as contour planting, establishment and care of timber and fruit trees and erosion control.

The area impacted was 600 acres, resulting in an increase in the percentage of land brought under sustainable management.

#### **4.2.2 Implement Goat Stud Stations**

A livestock component was included in the Anchor Project as a complement to land management initiatives. Grass barriers (vetiver grass and several other varieties) were being promoted as a way to reduce soil erosion. While grass can be utilized by the farmer for mulching, animals could also be fed the grass as fodder. The opportunity to use the grass as fodder provides farmers with the chance to generate additional income through animal husbandry. Goats were identified as the livestock of choice because of the hilly terrain. Droppings from the animals is utilized as organic fertilizer and as an ingredient in composting, also promoted as organic fertilizer. Accomplishments were:

- ✍ Training in relevant goat husbandry practices, specifically in how to manage foraging goats,
- ✍ Construction of three goat stud stations in Moore Town, Chatsworth and Rock Hall. The goat houses are elevated with slotted floors, to allow for the collection of droppings that are used as organic fertilizer.
- ✍ The provision of three (one per community) high quality graded Boer bucks to upgrade local goat breeds and improve weight gain by 20-40% for first generation offsprings.
- ✍ The establishment of six chains of grass barriers (two chains per buck-keeper) with dual purpose for fodder and as barrier to reduce soil erosion. Each buck-keeper also established small areas of grass (0.05 acre). Napier and N-69 grasses were used, as these have relatively high protein content, thereby improving animal nutrition and productivity.

The activity is expected to increase farmers income by 20-40% for first generation offsprings, and higher for succeeding generations. As part of R2RW technical assistance, precautions were put in place to prevent inbreeding. Three buck-keepers benefited who will in turn provide buck service to at least 225 goat farmers. At the end of the FAWP period, a collective total of 25 does were serviced, with the first set of offsprings expected July 2005.

#### **4.2.3 Expanded Tree Planting Initiative**

Communities participating in the tree planting initiative were Boundbrook, Prospect, Bowden Pen, Stoney Hill, St. Margaret's Bay, Spring Bank and Shot-over. Several schools also participated in tree planting initiatives, comprising:

- ✍ Titchfield High School
- ✍ Cooper's Hill All Age
- ✍ Moore Town Primary and Junior High
- ✍ Fruitful Vale All Age
- ✍ Rock Hall All Age

It should be noted that many housewives participated in this initiative planting less than 10 plants each while at the other end, farmers at Bowden Pen, established barriers and planted significant number of timber and fruit trees on their farms. Coffee farmers were supplied with Honduras mahogany for use as shade trees on coffee farms. Training Days were also conducted in some of these communities, promoting environmentally friendly practices, improving awareness, and

educating farmers on how to establish and care for trees. Training Days were held in Bowden Pen, Prospect, Stoney Hill, Coopers Hill All Age and Moore Town All Age School.

Overall, under the expanded tree planting initiative, 62 participants benefited who planted the following:

- ✍ 1,693 timber trees (cedar, Honduras mahogany, blue mahoe)
- ✍ 1,536 fruit trees (Spanish guava, guinep, starapple, ackee, breadfruit, nutmeg, jack fruit, naseberry, tamarind, avocado, soursop and cashew)
- ✍ 4,240 pineapples (Sugar loaf variety)

The area impacted was 60 acres resulting in an increase in the area of land brought under sustainable management.

#### **4.2.4 Environmentally Friendly Cropping Practices**

Field training days, provided in farmers fields, provided an opportunity to promote environmentally friendly cropping practices. These practical training events were particularly well received, as the training was practical with clear benefits to participants. The practices promoted by the Project included establishing hillside contours, minimum tillage on slopes, alley cropping and contour planting using pineapple barriers where appropriate. Communities benefiting from training days include Rock Hall, Industry, Moore Town, Chatsworth, Dumphries, Durham, Bowden Pen and Stony Hill. Training days were often planned and implemented in collaboration with RADA, the Forestry Department, CWIP II and the SDC. The specific goal of many of the training days was to provide training in establishing contours using the 'A' frame method.

Sixteen training days were completed resulting in the training of 226 farmers. These farmers were members of agro-forestry groups from Bowden Pen, Prospect, Stoney Hill and Boundbrook. Other farmers were also invited and many participated. Topics covered in training sessions were:

- ✍ Proper Establishment of Fruit & Timber Trees: proper lining, preparation of site, use of organic fertilizer and mulching
- ✍ Proper Care & Management of Fruit & Timber Trees: pruning, cut back, pest management, plant nutrition
- ✍ Establishing of Vegetative and Non Vegetative Barriers using pineapple, vetiver, sugar cane and grass, bamboo, stone and wood
- ✍ Proper Use & Disposal of Pesticides and Fertilizers

#### **4.2.5 Sustaining Improved Land Management**

Several communities benefited from tool pool arrangements, whereby a bank of tools comprising folks, shovels, spades, A-frames, pruning saws, pruning shears/roll cuts, mist blower (one only at RADA Port Antonio) were made available to community organizations, which are available for community clean up efforts. Many of these tool pools were established immediately after Hurricane Ivan, and are still in active usage.

The Land and Conservation Task Force, headed by the Acting Parish Agricultural Manager of RADA, Portland is active and committed to continuing the work started by R2RW. RADA has assumed responsibility:

- ✍ To continue the training of farmers and providing technical and other logistical support,
- ✍ To monitor buck stations, agro forestry plots and community tool pool arrangements,
- ✍ Provide relevant marketing information for pineapple farmers.

RADA was provided with data on all the farmers who benefited from R2RW support, including all individual farm plans, delivery sheets and other relevant information crucial to monitoring so that follow-up with individual farmers will be possible. RADA will know, for example, where in Portland most of the fruits trees were delivered, planted and in what quantities, so that they can begin to plan strategically to assist exporters with vital marketing information. Ownership of the environment by communities and the sustainable use of natural resources to make a livelihood was a major premise of the Anchor Project, which augers well for sustainability.

### 4.3 Water and Sanitation Activities in the Rio Grande Watershed

Sanitation, including personal hygiene and solid waste management, are high priority in watershed communities. As a result, R2RW worked to improve watershed quality and livelihoods by improving access to drinking water, managing human waste disposal, and demonstrating how poor sanitation practices impact on the watersheds and people.

The general approach to water and sanitation improvements was to 1) identify and prioritize poor sanitation as an area of focus, 2) create WMC task forces with responsibility for water and sanitation, 3) work with these task forces in communities to jointly develop and implement community projects that solve specific problems and demonstrated alternative solutions, and finally 4) collect, test and analyze samples to determine the effectiveness of interventions in reducing pollutants (particularly for sanitation interventions). Current work focused on:

- ✍ Handing over completed water supply projects,
- ✍ Finishing the Millbank Sanitation Project,
- ✍ Completing construction of sanitation system and data collection at CASE,
- ✍ Completing implementation of the Water Quality Monitoring Program, and
- ✍ Institutionalizing community clean-up days in water and sanitation task forces

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>4.3</b>	<b>Water and Sanitation Activities in the Rio Grande Watershed</b>	
4.3.1	Handing over of water supply Projects	Four water supply projects were officially handed over at ceremonies – Cornwall Barracks, Comfort Castle, Moore Town and Windsor. These water supply projects benefited 13 communities and a combined total of over 12,000 residents directly.
4.3.2	Millbank Sanitation Project	Nine individual homes were upgraded with sanitation solutions that comprised conversion of pit latrines near the riverbank to a small bathrooms with each having flush toilet, sink, and shower. Waste generated is treated using a plastic septic tank and a small constructed wetland.



Work Plan Activity	Activity Description	Achievements During Reporting Period
4.3.3	Complete construction of sanitation system and data collection at CASE	The project involved establishing a hydroponics unit, spice garden, and small ponds for ornamental fish production that utilize treated wastewater from the livestock tutorial farm. Also, simulated household systems were installed at CASE for demonstration and data gathering. Support was provided to upgrade testing facilities to allow the college to continue the research on the technology. Preliminary data was analysed on the performance of the smaller wetland system that indicated dramatic reductions in nutrients and faecal coliform.
4.3.4	Complete Implementation of Water Quality Monitoring Program	Water quality monitoring program in the RGW implemented with partners The Nature Conservancy (TNC), NEPA, WRA, Moore Town Maroon Council and SRC.
4.3.5	Institutionalize community clean-up days in water and sanitation task forces	The WSTF of the RGWMC had a leadership role in promoting community clean-up activities with support from R2RW. Several tool pools were established at key agencies RADA, NEPA and selected community groups, which were equipped with tools such as shovels, spades, rakes, machetes and forks. The tool pools are in active usage.

#### **4.3.1 Handing Over Completed Water Supply Projects**

R2RW assisted communities to repair and upgrade existing water supply systems that were installed over 40 years ago, and helped train local tradesmen in the installation and repair. It was important to strengthen local community organizations, engage them in the management of natural resources, and encourage the formation of water users associations and functional benevolent organizations.

Four water supply projects were completed and officially handed over at ceremonies – Cornwall Barracks, Comfort Castle, Moore Town and Windsor. The specific activities carried out were:

##### Cornwall Barracks

- ✍ Construction of a new entombment
- ✍ Installation of a new pipeline from the new entombment to the existing distribution line

##### Comfort Castle

- ✍ Upgrading of an existing entombment
- ✍ Installation of new pipeline from the entombment to the main road, where the Parish Council made connections to the existing distribution line. The existing line was connected to supply Millbank and the new line to supply three lower communities.

##### Moore Town

- ✍ Upgrading of entombment
- ✍ New pipeline installation from the entombment to the Moore Town Community, creating independence from the lower community of Windsor.
- ✍ Training of the Maroon Council's team under the supervision of the NWC Technical staff.

## Windsor

✍ Providing pipes to replace the defective pipeline along the road to Windsor

These water supply projects benefited 13 communities and a combined total of over 12,000 residents directly.

### **4.3.2 The Millbank Sanitation Project**

The purpose of this intervention was to upgrade sanitation for nine individual houses in Millbank, converting pit latrines that were in close proximity to the river bank to small bathrooms with a flush toilet, sink, and shower in order to reduce pollution in the river. Wastewater generated is treated using a plastic septic tank and a small constructed wetland. The Project worked with individuals and a past students association to promote acceptance of this alternative technology to the wider community.

### **4.3.3 Complete Construction of Sanitation System and Data Collection at CASE**

The College of Agriculture, Science and Education (CASE) represents a field research system that consists of a 100m<sup>2</sup> fish pond with polyethylene lining and a 100m<sup>2</sup> hydroponics unit with gravel bed and pipe system, which utilizes treated wastewater from the livestock tutorial farm. R2RW designed and built a constructed wetland at this facility as a way to test constructed wetland performance under Jamaican environmental conditions.

With R2RW support, the CASE system was designed and built with several small mini constructed wetlands (5 m<sup>2</sup> modules) that were connected in parallel to a septic tank system. The preliminary tests on the system were to measure the transpiration rate of wild cane (*Gynerium sagittatum*) in the constructed wetland under Jamaican conditions at a single house scale (under 800 liters per day). This was achieved by pumping a set volume of wastewater into the system on a consistent basis while varying the size of the wetland by taking modules off-line.

To determine performance of the constructed (or artificial) wetland under local conditions, field data was collected, analyzed and disseminated to public health inspectors and NEPA. To date, the results from the testing are in line with internationally derived data on wetlands.

The data analyzed indicate that wild cane on average has an evapo-transpiration rate of approximately 16 L/m<sup>2</sup>/day (0.4 Gal/ft<sup>2</sup>/day) of water in constructed wetland during the December to February months. The ET rate is very important, because it will affect the sizing of the wetland and thus the cost. Based on the data collected from Pisgah and Retrieve and relating it to CASE, it was concluded that the application rate can be doubled (40 L/m<sup>2</sup>/day or 2 Gal/ft<sup>2</sup>/day) which will result in a 50% reduction in the original size of the wetland. It was also concluded that 19 L/day or 5 Gal/day was a conservative figure to use for wastewater generated per student, and that usage above that indicates a water conservation problem.

Information regarding this experimental unit and test results have been packaged for builders, architects and engineers through the revisions to the Developers Manual and the adopted (with modifications) International Builders Code. The Developers Manual and the International Builders Code represent the best strategies to mainstream and institutionalize constructed wetlands as a sanitation best practice.

Additional research into the use of other plants, and comparing performances is recommended. The infrastructure is in place at CASE to facilitate this additional research post R2RW.

### **4.3.4 Complete Implementation of Water Quality Monitoring Program**

Meetings were held with The Nature Conservancy (TNC) that has a management role for the Blue and John Crow Mountain National Park to discuss the development of a water quality monitoring program for the RGW. Following discussions, a joint proposal was supported that was based on community-level water quality monitoring concepts pioneered by CWIP and CWIP II. Monitoring commenced on May 27, 2004. NEPA, WRA, citizens of Moore Town, and R2RW personnel participated in the sampling program. Laboratories at NEPA and SRC did sample analysis.

The results show that the activities along the Rio Grande River are affecting the water quality of the river. The average values measured for fecal coliform (FC) was found to be below the 400 MPN/100ml, the international standard for recreational water bodies, in 5 out of the 6 sites where the samples were taken. The Alligator Church site was the only site that the FC measures were above 1600 MPN/100 ml on 3 of the 8 site visits.

Firstly, elevated FC appears to be related to poor sanitation practices by persons who dwell along the riverbank. Appropriate measures must therefore be taken to remove all absorption pits along riverbanks in order to reduce FC contamination of the river. Secondly, the removal of livestock from areas along the riverbank would also reduce the potential FC contamination of the river.

Elevated levels of phosphorus was noted for several of the test sites. The phosphorus is most likely coming from the fertilizers used in the farming communities. It is important to continue soil conservation techniques and best practices for fertilizer and other farming inputs to reduce the level of pollutants (including nutrients) in the river.

#### **4.3.5 Institutionalizing Community Clean-up Days**

The Water and Sanitation Task Force (WSTF) of the RGWMC has assumed a leadership role in promoting community clean-up activities. To assist the task force, R2RW helped the WSTF to establish six tool pools at RADA and NEPA offices and selected community groups in Chatsworth, Durham, Durham Gap, Moore Town, Industry and Rock Hall. An additional tool pool was established primarily to facilitate community clean-up, included shovels, spades, rakes, machetes and forks. During the life of the R2RW, tool pools were monitored by the Project Coordinator of the Rio Grande Land Management Project. Agreement was reached with RADA to monitor tool pools after the end of R2RW.

Tool pools were instrumental in facilitating the communities to engage in self-help to clean-up debris after Hurricane Ivan. Many blocked drains and gullies, landslides and roadways were cleared by community members using mechanisms established by the WSTF and R2RW.

Tool pools are governed by a protocol signed between beneficiary community groups and R2RW that covers:

- ✍ Responsibility to provide leadership and management for all tools received
- ✍ Maintenance of a log/register for the use of all tools and equipment at all times indicating borrowers name, type of tools borrowed, intended time for use, date when tools were returned, user fee paid for use, comment if return damaged
- ✍ Openness for inspection at any time (With or Without prior notice from) R2RW/USAID, NEPA, RADA or related state agencies.
- ✍ How user fees should be used
- ✍ Non-sale of tools: The tools assigned to community tool pool must not be offered for sale.

- ✍ Non-discrimination: Use of tools must not be done on the basis of political, religious nor racial consideration.

Several agencies continue to provide services to community led clean-up days in the RGW including RADA, NSWMA and NEPA.

#### 4.4 Public Awareness Activities

Public awareness activities in the Rio Grande Watershed focused on improving environmental practices among the rural poor, which would have a positive impact on people's sustainable use of natural resources. Activities included:

- ✍ Public Awareness Program implementation,
- ✍ Community Clean and Green Competition,
- ✍ Schools Environment Program,
- ✍ Environmental skits,
- ✍ Youth, Culture and Environment Conference, and
- ✍ Public awareness information dissemination.

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>4.4</b>	<b>Public Awareness Activities in the Rio Grande Watershed</b>	
4.4.1	Complete implementation of Public Awareness Program in the Rio Grande Watershed	<p>Community Education and Public Awareness in the lower watershed implemented in partnership with the Portland PDC resulted in:</p> <ul style="list-style-type: none"> <li>-42 trained community animators, with 8 retained to work in 11 communities in the watershed</li> <li>-3 Town meetings with a total attendance of 1,200 persons helped sensitize communities and launched the Clean &amp; Green Program.</li> <li>-Improvements made in awareness of solid waste issues through partnership with relevant agencies</li> <li>-Continuing support to JCDT in the upper watershed resulted in i) town meeting held to launch the Clean and Green competition in the upper watershed with 7 communities entering the competition, and ii) community support for the solid waste management pilot project.</li> </ul>
4.4.2	Implement Clean and Green community competition for the Rio Grande Watershed	The competition was successfully completed with the support of six partner agencies. 13 communities participated with Ginger House declared the winner. One result of the completion was a solid waste management pilot project with the PATF, NSWMA, and communities working together.
4.4.3	Implementation and completion of Schools for the Environment Program with schools in the Rio Grande	R2RW supported PEPA's work in 13 additional schools, resulting in i) three new environmental clubs formed and one dormant one revived, ii) over 700 students educated through audio-visual presentations, and iii) Parish wide teacher training workshops on environmental education, in which over 100 teachers participated

Work Plan Activity	Activity Description	Achievements During Reporting Period
4.4.4	Environmental skits delivered to communities in the RGW	The Port Antonio Theatre Group conducted workshops and performances including i) 3 workshops in the lower watershed and one performance, benefiting 5 communities, ii) 4 workshops held in the upper valley, and iii) 5 full performances at 3 town meetings and at the Youth & Environment Conference and Clean & Green Award ceremony. An estimated 1,800 persons have benefited from this work.
4.4.5	Youth, Culture, and Environment Conference held in the RGW	The Conference was successfully implemented, with 68 youth and 20 resource persons attending. The program included exhibits, field trips, quiz and informative presentations.
4.4.6	Disseminate posters/calendars/brochures (including PCA materials) to a wider audience	About 30 enviro-kits were distributed to managers, partner agencies, CASE Library, and animators. 400 calendars (for 2005) were distributed. 1500 posters and hundreds of educational handouts distributed at town meetings, the Youth and Environment Conference, Wood and Water Day celebrations and the 4H Achievement Day. 100 posters and 100 comic books related to pesticide use were also distributed to four schools.

#### **4.4.1 Public Awareness Program in the Rio Grande Watershed**

This activity was implemented in collaboration with the Public Awareness Task Force of the RGWMC with support given to the Jamaica Conservation and Development Trust (JCDT) to address environmental degradation within the upper Rio Grande watershed and Portland Parish Development Council in the lower watershed. The program was designed to raise awareness of the deleterious environmental practices (slash and burn agriculture and deforestation), water pollution (dumping of solid waste in rivers and streams, contamination from agricultural chemical residue run-off and deliberate river poisoning in order to catch fish). The program had five programmatic themes:

- ✍ Environmental stewardship (including stewardship among youth),
- ✍ Institutional capacity-building of key partners and communities,
- ✍ Community-based environmental competition,
- ✍ Funding for community-based environmental activities, and
- ✍ Improved enforcement and land management for eco-tourism

During the period, 42 Community animators were trained with 8 retained to work in 11 communities in the lower watershed and two who were already Junior Rangers continued to work in the upper valley. The animators were trained to work with community groups, help identify environmental issues, and link communities to information and resources to enable them to address their priority issues. The Junior Rangers, attached to the JCDT, already had a focus on conservation within the National Park Reserve, and were able to expand their community outreach.

The very successful Clean and Green program was launched between September and November at three Town meetings (2 in the lower watershed and 1 in the upper watershed-attended by some 1,200 people). This competition offered the animators in the lower watershed, who were relatively inexperienced in watershed management issues, a focal point for their work in communities. In the end, 13 communities participated (see section 4.4.2) for details.

The Youth and Environment conference and pilot project in solid waste management - two areas prioritised by the PATF a year earlier - equally contributed to the focused activities within the mandate of the overall public awareness program.

In addition, the JCDT continued its work on conservation, reforestation, and building community stewardship. .

Finally, R2RW supported the Pesticides Control Authority (PCA) program focused on "Reducing Child Poisoning in Great River and Rio Grande Watersheds". The program conducted workshops in clinics and hospitals and produced and disseminated 100 posters and comic books. These pesticide use awareness materials were distributed to four schools in the Rio Grande (Fellowship, Comfort Castle, Moore Town, and Coopers Hill) and videos on pesticide and chemical management were also presented.

Challenges to the public awareness program included: The orientation of the Project Manager and animators in the Lower Watershed to community development, exclusive of environmental management, cold and rainy weather for three months soon after the most successful of the three town meetings, and the aftermath of the hurricane, all of which affected the pace of activities between December 2004 and early March 2005.

Project impact was seen in the number of environmental stewards, including animators, who developed a gradual but growing awareness of environmental-related issues and violations, and who were brought in closer working relationships with partner agencies especially PEPA, NSWMA, the Port Antonio Theatre Group, the PDC and the Parish Council. The establishment of a Nature Park in Ginger House and improved solid waste management through partnership between communities and NSWMA, are also some of the outstanding results. One animator representing Pleasant Hill, Breastworks and communities off the main route of garbage trucks used posters, the environmental skits, as well as a presentation from the NSWMA representative on how to use the skip, to bring these adjacent communities into the mainstream.

#### **4.4.2 Clean and Green Community Competition**

The Clean and Green Community Competition was successfully completed with the support of six partner agencies that functioned as judges, visiting each community three times. Partners included Forestry Department; RADA; Public Health Department; Social Development Commission, Portland 4H and PEPA. PEPA headed the Steering Committee of judges and coordinated the logistics of the Award ceremony. For this activity, public awareness, land management personnel, partner agencies and community stewards worked together as a team.

Seven communities on the eastern side of the watershed and six from western Rio Grande participated in the competition. Two communities from the upper valley were among the top three winners - Ginger House was first with Bowden Pen Farmer's Association third. In the lower watershed, St Margaret's Bay Citizen's Association received the second prize and Durham was named the "most improved community". The success of the competition was due largely to the support given by the private sector including the Jamaica National Building Society, Tim Bamboo Hotel, and Ramtulla's Hardware Store who donated prizes and trophies.

Two activities supportive of the Clean and Green competition were the handing over the small "peel off" versions of anti-litter posters to Bus and Taxi Operators at the JUTA Headquarters and the initiation of community partnerships with the NSWMA to collect and remove solid waste from the watershed. The NSWMA agreed to collect solid waste from a holding station in Windsor, which their trucks could reach, and communities agreed to organize efforts to collect solid waste and transport the waste to the holding station.

The competition was a great success, helping to improve the environment and engendering community pride. This bodes well for future competitions and for communities' participation in the planned Green Destination Certification of Portland.

#### **4.4.3 Environment Program with Schools in the Rio Grande**

The Portland Environmental Protection Association (PEPA) has been a local leader in community environmental programs for many years. During the reporting period, PEPA introduced 13 additional schools to the highly successful Schools Environment Program (SEP) and Portland Environment Protectors (PEP) club program. Through this intervention the project increased the level of environmental awareness among staff and students in the watershed and encouraged over 700 students, to implement projects to mitigate or eliminate environmental degradation in their schools and communities through multiple approaches including audio-visual presentations. R2RW supported PEPA's work, which resulted in:

- ✍ Three new environmental clubs formed and one dormant one revived.
- ✍ Over 700 students educated through audio-visual presentations
- ✍ Parish wide teacher training workshops on environmental education, in which over 100 teachers participated
- ✍ School gardens established in 7 schools
- ✍ Cessation in the use of styrofoam for lunch containers in three schools
- ✍ Environmental essay competition, to which 27 students from nine schools entered
- ✍ Garbage collection now weekly at Ken Wright Primary School

This effort expanded the SEP and PEP club programs, increased environmental awareness among staff and students in the RGW, promoted integration of sustainable environmental practices in schools, engendered stewardship, and increased appreciation of Portland's biodiversity, endemic species, and other natural resources, increased awareness of the consequences of individual and community actions, and strengthened PEPA's capacity to administer such programs.

#### **4.4.4 Environmental Skits**

The success of the Action Boyz proved that community drama is an effective way to build community awareness especially among non-literate rural householders. As a result, R2RW agreed to support the involvement of the Port Antonio Theatre Group (PATG) in public awareness. The PATG developed a 20 minute skit called "It nuh right" which was performed at town meetings, the Youth, Culture and Environment Conference, and the Clean & Green Award ceremony. The theatre group also performed improvisational educational skits in 13 communities that helped to build capacity to design their own skits based on the specific environmental issues in those communities.

Skits were well attended and had a major impact on communities in the upper valley who would not normally have had this exposure because of distance from Port Antonio. The skits were part of a broad effort to motivate communities to participate in clean-up days and the Clean and Green competition, and address identified environmental issues. The skit in Durham helped motivate the community to clean up and beautify the play area, which earned them the "most improved community" prize in the Clean & Green Awards.

#### **4.4.5 Youth, Culture and Environment Conference**

A Youth, Culture and Environment Conference, "Empowering Youth to be Cultural and Environmental Stewards" was held in Port Antonio on April 8, 2005. Conference objectives were to i) demonstrate the link between culture and the environment, ii) inform participants about careers that focus on culture and the environment, iii) help youth to be better cultural and environmental stewards, and iv) help identify ways to make this an annual event. Planning was completed by a conference Steering Committee that included youth representatives. The planning experience provided Steering Committee members with the opportunity to participate

and learn how such a conference is planned and implemented. The conference included presentations, cultural and environmental exhibits, field tours (to CASE and the Marine Police), focused working sessions on various conference topics, an environmental quiz, and presentation of the skit "It Nuh Right" by the PATG

NEPA, Forestry Department, RADA, Portland 4H Clubs, NSWMA, Institute of Jamaica, and the Caribbean Maritime Institute all participated with exhibits. Representatives from Portland Public Health Department, Caribbean Maritime Institute, Jamaica Cultural Development Commission, NEPA Laboratories, NSWMA, JCDT, and Cariforum held small group workshops to sensitize participants to health, culture and environment activities and how to work towards change.

The conference was covered by the media. Ten radio interviews and two newspaper articles were generated from this single event. The Executive Summary of the Portland Youth, Culture and the Environment Seminar is contained in Appendix 5.

#### **4.4.6 Disseminate Posters, Calendars and other Materials**

About one thousand five hundred posters, 400 calendars, and hundreds of brochures were disseminated to organizations, community groups, and individuals in Portland and the Rio Grande watershed. These were distributed at town meetings, the Youth, Culture and Environment Conference, the Wood and Water Day, the 4H Achievement Day, schools, teacher training workshops, and to partner agencies and animators.

The Pesticides Control Authority has independently distributed 100 copies of two posters and an equal number of comics, dealing with pesticide control to schools in the Rio Grande.

A second set of about 30 enviro kits, which contained all the main brochures, environmental story for children, and posters were distributed bringing the total number distributed in Portland and the watershed to about 60. These were particularly well received and the demand for them from animators, continues.



## 5. Component 2 - Incentives for and Obstacles to Enforcement of Targeted Existing Environmental Regulations Identified and Solutions Supported

Considerable progress has been made in overcoming obstacles to enforcement of existing environmental regulations. The progress resulted from a refined understanding and focused program related to the regulatory and governance environment. The national situation influencing enforcement of environmental regulations included:

- ✍ Multiple environmental laws and authorities;
- ✍ Fragmented services, with numerous persons involved in enforcement;
- ✍ Unavailability of existing laws to professionals and the population;
- ✍ General impression that compliance and enforcement is ineffective;
- ✍ Most enforcement actions are taken under the Litter Act (now the NSWMA) Act and the Mines and Quarries Act, with very few cases prosecuted under core environmental legislation;
- ✍ Significant regulatory authority rests with Parish Councils – but some 39 centralized state line-agencies tend to disregard them; and
- ✍ Disproportionate blame is placed on communities for breaches of environmental regulations.

Attempts to support a national enabling environment and to achieve more community participation to encourage compliance with, and greater enforcement of environmental laws by all stakeholders, have highlighted the need for higher levels of understanding of these laws, and a trained cadre of officers to assist with compliance and enforcement.

The “Mid-term Internal Assessment Review” identified the reasons for the revision of the original premise regarding environmental legislation, compliance and enforcement. The review indicates that compliance and enforcement would be increased or enhanced if communities were more involved in management of resources and in enforcement of laws and regulations that governed those resources.

The Knowledge, Attitudes and Practices (KAP) Study found that communities lacked basic awareness of environmental issues, especially as they relate to watershed concepts. Surprisingly, the KAP Study also identified that neither communities nor relevant authorities are aware of the laws, regulations, and policies that exist to protect watershed and the environment. Based on these findings, the Project approached compliance and enforcement through a heightening of awareness of environmental issues and of relevant laws at both the community and national levels. Communities were targeted in the parish of Portland and the Great River Watershed (GRW)..

The “Mid-term Internal Assessment Team also endorsed a public awareness emphasis, and felt that “given that many Jamaican communities do not have a history of making their own rules, resolving conflict, or enforcing compliance, ...a public awareness campaign of the nature the project was engaged in was the best and most realistic alternative”.

This Project component contributes to USAID's SO2 by reporting on indicators established for the following Intermediate Results:

- IR 1.2 Increased economic incentives for environmentally sound practices
- IR 2 Adoption of policies for improved Environmental Management
- IR 2.1 Effective promulgation and enforcement of environmental regulations
- IR 2.2.1 Increased capacity of key GOJ agencies

### 5.1 Compliance and Enforcement - Nationally

The objective of this set of activities is to increase awareness of environmental laws and regulations as a strategy to enhance compliance with, and enforcement of those laws. Activities that support this objective include:

- ✍ Delivery of compliance and enforcement courses at the Management Institute for National Development (MIND),
- ✍ Production of a 2<sup>nd</sup> edition of the Pocket Guide to Environmental and Planning Laws of Jamaica, and
- ✍ Producing a compendium of environmental cases in Jamaica and the Caribbean.

Work Plan Activity	Activity Description	Achievements During Reporting Period
5.1	<b>Compliance and Enforcement – Nationally</b>	
5.1.1	Delivery of C&E courses at MIND	R2RW worked in partnership with MIND and ENACT to develop four training courses on compliance and enforcement of environmental and planning legislation. For each course, MIND prepared a handbook of resource materials, guidelines for facilitators, and a participant workbook. 13 out of 15 courses planned were held during the reporting period and training provided to more than 250 individuals.
5.1.2	Produce and print 2 <sup>nd</sup> edition of Pocket Guide	All corrections made and formatting done for a second edition of Pocket Guide. NEPA will post the guide on the Internet and produce copies when funds become available.
5.1.3	Produce Compendium of Environmental Cases	A draft Compendium of Environmental Cases was produced, but is awaiting finalization and drafting of additional cases prior to publication. NEPA will complete this work and produce the finalized compendium

#### 5.1.1 Delivery of C&E Courses at MIND

Building the capacity of official enforcement officers requires an intense, focused, and long-term approach. R2RW worked in partnership with MIND and ENACT to meet this challenge by developing four training courses on compliance and enforcement of environmental and planning legislation. These courses built on the recognized need for a formal training program in compliance and enforcement and on the work of a NEPA-led multi-agency participatory process to develop the training courses. The target groups for these training courses are the 1,570 enforcement officers presently in the Government service: 100 Enforcement Managers, 1189 Enforcement Officers, and 281 Game Wardens. In addition, there is another audience estimated at 200 community leaders who would be interested in and would benefit from a tailored course for community leaders.

The following courses were delivered:

Course	Length of Course	# of times Delivered
EC01 - Introduction to Resource Systems, Environmental Legislation and Planning Legislation;	10 days	5
EC02 – Techniques and Procedures for Enforcement and Compliance of Environmental and Planning Legislation;	6 days	5
EC03 – Personal Competencies for Enforcement and Compliance;	4 days	4
EC04 - Enforcement and Compliance of Environmental and Planning Legislation for Community Leaders.	3 days	2

Between September 2004 and April 2005, a total of 243 persons attended at least one of the above courses. For each course, MIND provided a handbook of resource materials, guidelines for facilitators, and a participant's workbook. The development of these courses was jointly financed by R2RW and ENACT.

### **5.1.2 Produce a 2<sup>nd</sup> Edition of Pocket Guide**

Based on feedback received, R2RW assisted in the production of a second, updated edition of the Pocket Guide to Environmental and Planning Laws of Jamaica. The second edition added information on additional laws, corrected mistakes in the first edition, and provided a more attractive format and graphics. The finalization of the 2<sup>nd</sup> edition was delayed by the Hurricane Ivan Recovery Program, and the shift of resources to support these activities. The publication of the 2<sup>nd</sup> edition will be financed through supplemental funds to be supplied through USAID to R2RW in June 2005, and the Guide sold to cover some of the costs of publication.

### **5.1.3 Produce Compendium of Environmental Cases**

The NEPA's Legal, Standards & Enforcement Division asked for support to develop a "Compendium of Environmental Cases in Jamaica". R2RW supported NEPA to hire four legal interns to research and prepare 12 cases presented in the draft compendium. Cases for inclusion were suggested by several agencies. The compendium sets out environmental, wildlife and natural resource cases from Jamaica and the Caribbean in a format which includes i) the charge, ii) relevant legislation, iii) summary details of the case, iv) the decision and v) where relevant a commentary.

## **5.2 Compliance and Enforcement - Great River Watershed**

The Project is continuing to work with the Compliance and Regional Services (CRS) Division of NEPA and GRWMC's Compliance and Enforcement Task Force. Activities that support Compliance and Enforcement in the Great River Watershed include:

- ✍ Training and
- ✍ Future coordination on compliance and enforcement.

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>5.2</b>	<b>Compliance and Enforcement - Great River Watershed</b>	
5.2.1	Conduct training of community leaders (including municipal wardens and game wardens)	Training course for community leaders held in Cambridge in November – December 2004.
5.2.2	Determine coordinating mechanisms for agencies involved in enforcement	Compliance and Enforcement Task Force of the GRWMC merged with NEPA led Multi-Agency Enforcement Group.

### **5.2.1 Conduct training of Community Leaders (including municipal wardens and game wardens)**

The EC04 course “Enforcement and Compliance of Environmental and Planning Legislation for Community Leaders” was delivered over three days in November and December 2004 to a group of 25 mostly professionals living and working in the greater Cambridge area of St. James. The course consisted of three units as follows:

#### EC04 course material

Course Units	Subjects Covered
Unit 1 – Global And National Environmental Problems	Air Pollution; Global Warming and Climate Change; Depletion of The Ozone Layer; Water Pollution; Pollution of The Marine Environment; Loss of Biodiversity; Land Degradation; Desertification; Defining Sustainable Development; Agenda 21; Compliance And Enforcement; Environmental Management; The Need for Compliance And Enforcement Programs
Unit 2 – Local Environmental Issues	Jamaica’s Physical Features; State of Jamaica’s Environment
Unit 3 – Economic Sectors Impact On The Environment	Tourism And The Environment; Agriculture And The Environment; Mining And The Environment

The participants in the course learned about the international and local environmental issues that affect their community, and are more knowledgeable to take informed decisions about courses of action to address breaches of environmental laws.

### **5.2.2 Coordinating Among Agencies Involved in Enforcement**

The Compliance and Enforcement Task Force continued to meeting during the period with support provided by the Compliance and Regional Services Division of NEPA. The decision was taken by the group to merge the Compliance and Enforcement Task Force with a Multi-Agency Compliance and Enforcement group that brings together the enforcement officers from NEPA, the Public Health Department, the Forest Department and the Parish Councils in Western Jamaica. Follow-up is being undertaken by stakeholders under the leadership of NEPA.

## **5.3 Compliance and Enforcement - Portland with Emphasis on the Rio Grande Watershed**

Compliance and enforcement in the Rio Grande watershed is inextricably linked to the broader issue of compliance and enforcement in Portland Parish in which the Rio Grande watershed lies. R2RW is working closely with the Portland PDC, a strong interagency group developed with support from the ENACT Project, to encourage greater compliance and enforcement of

environmental laws at the watershed and community levels. Activities in Portland and the Rio Grande Watershed include:

- ✍ Implementing an action planning process for the joint public awareness and compliance and enforcement task forces,
- ✍ Training for community and municipal leaders, and
- ✍ Addressing sand mining issues.

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>5.3</b>	<b>Compliance and Enforcement - Portland with Emphasis on the Rio Grande Watershed</b>	
5.3.1	Implement Action Planning for joint Public Awareness/C&E Task Forces	Workshop held to share information on roles and responsibilities of agencies involved in public awareness and compliance/enforcement in Portland and identified a number of obstacles, community members were facing.
5.3.2	Conduct training of community leaders (including municipal wardens and game wardens)	Three day EC04 course delivered to 22 community leaders in Port Antonio in October 2004.
5.3.3	Work with Quarry Monitoring Committee to address sand mining issues in the RGW	Quarry Monitoring Committee established for the Rio Grande Watershed to address issues related to mining activities in the Parish of Portland.

### **5.3.1 Implement Action Planning for Joint Public Awareness/C&E Task Forces**

The Project supported and participated in a workshop designed to share information on roles and responsibilities of agencies involved in public awareness and compliance and enforcement in Portland. Community members identified several difficult issues that needed attention and solutions including bird shooting, sand mining and erosion from flooding.. The workshop developed an Action Plan to assist the stakeholders overcome these issues through the formation of joint public sector/private sector partnerships to promote dialogue and the implementation of programs.

### **5.3.2 Conduct Training for Community Leaders**

The EC04 course, the same course that was offered in the Great River watershed, was delivered over three days in October 2004 to a group of 22 community leaders including municipal wardens and game wardens from across Portland Parish. The course covered global and national environmental issues: local environmental issues, and economic sectors and the impact on the environment as outlined in the EC04 course materials table in Section 5.2.1. The participants in the course learned about the international and local environmental issues that affect their community, and are more knowledgeable to take informed decisions on courses of action to take in addressing breaches of environmental laws.

### **5.3.3 Work with Quarry Monitoring Committee to Address Sand Mining Issues**

An assessment of agencies involved in quarry monitoring in Portland was completed and circulated. The Mines and Quarry Division of the MLE named a Quarry Monitoring Committee for the Rio Grande, and the committee has been meeting regularly since June 2004.

The Quarry Monitoring Committee participated in a tour of mining operations in Portland conducted on March 16, 2005. The tour examined areas of beach and river bank erosion, damaged infrastructure due to flood events, the environmental controls of sand mining operations, and watershed practices to mitigate excessive erosion. The committee is sharing knowledge about the content of mining licences, and is now in a position to recommend actions to deal with breaches of legal operations and to address illegal operations.

## 6. Component 3 - Capacity of Jamaican Government Agencies, International Donors, Private Sector and Civil Society Organizations to Implement Effective Watershed Management Programs Enhanced

The central government in Jamaica has a key role to play in watershed management – through multiple line agencies and the National Integrated Watershed Management Council (NIWMC) certain responsibilities - coordination, oversight, and regulatory - must remain with GOJ agencies. The Integrated Watershed and Coastal Zone Management Branch in the recently restructured NEPA (formerly the Sustainable Watersheds Branch), in particular, is expected to lead policy, information management, and monitoring of watersheds. However, NEPA recognizes that many aspects of watershed management are best led by local government, NGOs, CBOs, or private sector entities. The ability of all partners to implement watershed management programs has been increased by capacity building activities under R2RW. The Project has supported direct institutional strengthening through training and provision of materials as well as interagency and public sector-community cooperation, and coordination.

Capacity enhancement achievements during the reporting period are described in the following sections:

- 6.1 *LWMC Development*
- 6.2 *Framework for Watershed Management*
- 6.3 *Improved Sanitation Management Practices – Anchor Project # 4*
- 6.4 *Transfer Approaches, Methodologies and Lessons*
- 6.5 *Special Studies*
- 6.6 *Public Awareness*

### 6.1 Development of Local Watershed Management Committees (LWMCs)

The objective of these activities is to engage greater citizen participation in sustainable watershed management and to provide a forum for the networking of experiences, best practices, and lessons learned. This activity supports the development activities focused on the Great River and Rio Grande Watershed Management Committees, and a broader framework and venue for sharing experiences and supporting watershed management approaches to environmental management. Activities included

- ✍ Sponsoring a networking conference for local watershed committees,
- ✍ Sharing experiences of LWMC work with PDCs, and
- ✍ Assisting in integrating LWMC activities into the work of the NIWMC.

Work Plan Activity	Activity Description	Achievements During Reporting Period
6.1	<b>Local Watershed Management Committee (LWMC) Development</b>	
6.1.1	Hold one networking conference for LWMCs	Between March 8-9, 2005, some 65 persons from LWMCs shared experiences, best practices, lessons learned and agreed on some mechanisms for continuity

Work Plan Activity	Activity Description	Achievements During Reporting Period
6.1.2	Disseminate the findings of the study on the linkages between LWMCs and PDC	The findings have been disseminated to key stakeholders, that is, NEPA, USAID, SDC, RADA, FD and National Irrigation Commission (NIC). Further review and dissemination of the study took place at the second Networking Conference
6.1.3	Develop mechanism to incorporate LWMCs input into the NIWMC	Mechanism presented in Study. Further linkage also discussed at the second Networking Conference

### **6.1.1 Hold One Networking Conference for LWMCs**

The second LWMC Networking Conference was held March 8-9, 2005 at the Runaway Bay Heart Hotel. Over sixty persons attended the conference. The purposes of the Conference were to:

- ✍ Review progress in local resource management since the first Conference
- ✍ Review the findings and recommendations put forward by the R2RW Study on LWMCs and Local Government Reform
- ✍ Continue to build consensus on a process for the sustainable establishment, financing, and operating of LWMCs, including functions, procedures, compositions, roles, responsibilities and institutionalisation
- ✍ Continue to build some consensus on an Action Agenda for realizing the above.
- ✍ Share experiences, relationships and agree on some mechanisms for continuity.

The Agenda for this conference is contained in Appendix 6. The major conclusions of the Conference were that there was renewed commitment to learn from each other and to develop a stronger linkage with the NIWMC; Attendees recognised the importance of working with communities and learned how much this might be accomplished from examples provided from the R2RW experience. A committee was also set up to ensure continuity of networking among the groups.

### **6.1.2 Study on LWMCs and PDC Linkages**

The findings of the Study have been circulated to key stakeholders, that is, NEPA, USAID, SDC, FD, RADA and NIC. The major recommendations were:-

- a. Strengthening the Legal and Regulatory Framework
- b. Developing the Relationship between National and Local Organizations
- c. Strengthening the Capacity and Leadership Role of the NIWMC
- d. Increasing Coordination between Stakeholders
- e. Providing Financial Resources and Incentives
- f. Deepening the Participatory Process
- g. Addressing Geographic and Thematic Issues

The major conclusion drawn from the study is that coordination with PDCs are critical to the long term future of LWMC, however further financial and human resources need to be allocated to the PDCs.



### 6.1.3 Incorporating LWMCs Input into the NIWMC

The National Integrated Watershed Management Council (NIWMC) was established with the assistance of R2RW in 2001 to improve the coordination of planning, resource allocation and implementation of watershed management activities by various agencies as outlined in the National Integrated Watershed Management Program. The Integrated Watershed and Coastal Zone Management Branch of NEPA Acts as the Secretariat for the NIWMC and is also responsible for chairing the Local Group Coordination Working Group, which would see to the incorporation of the LWMC input into the NIWMC. However, this has proven to be a challenge. To address this the study by R2RW “The Review of Local Watershed Management Committees and Local Government Reform in Jamaica” recommended that :-

- ✍ Policies that reflect natural resources management should be reviewed by the NIWMC.
- ✍ Consideration should be given to the roles and functions of the NIWMC in relation to each Policy
- ✍ Greater attention and support need to be given by member agencies to the role of the NIWMC. Increased emphasis on the roles and functions of the NIWMC and its importance as a national multi-stakeholder organization will help to give it the clout and the respect to make its operations successful. Requisite support will be the only way for NIWMC to survive and continue to exist. This support must be expected to come from Ministries and especially agency members. The NIWMC will need to build its human and financial capacities to fulfill its potential leadership role in watershed management at the national level, and in coordinating watershed management at the local level.

Therefore the incorporation of LWMCs input in the NIWMC must be guided by the above before any meaningful progress can be made.

### 6.2 Watershed Management Framework

R2RW supported an improved framework for watershed management and improving and defining roles and responsibilities of various GOJ agencies by:

- ✍ Assisting in the development of a new NEPA Act, and
- ✍ Supporting the continued development of the NIWMC.

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>6.2</b>	<b>Policy and Legislation</b>	
6.2.1	Produce drafting instructions for new NEPA Act	A Jamaican consultant was contracted to assist NEPA to prepare drafting instructions for a new NEPA act. 5 Workshops were held between January and March 2005 with stakeholders to present ideas on new Act. Due to illness of consultant, the work has not been completed as planned.
6.2.2	Support continued development of the NIWMC	R2RW played active role in NIWMC meetings providing reports on Hurricane Ivan response, reviewing a draft Cabinet submission, and continuing to follow-up the Action Plan for the NIWMC prepared in May 2004.

### **6.2.1 Produce Drafting Instructions for New NEPA Act**

Over the last several years, NEPA's mandate has changed to cover a range of areas including conservation and sustainable use of land, biodiversity and other natural resources, ecosystem protection, pollution prevention, trans-boundary movement of hazardous waste and the orderly development of its urban, rural, agricultural and marine environment. The Government proposed a new NEPA Act to clarify roles and responsibilities and incorporate the following current legislation into one Act:

- ✍ The Natural Resources Conservation Authority Act
- ✍ Watershed Protection Act
- ✍ Beach Control Act
- ✍ Wildlife Protection Act
- ✍ The Land Development and Utilization Act
- ✍ The Town and Country Planning Act

At the request of NEPA, R2RW provided a consultant to prepare detailed drafting instructions and make presentations on the proposed Act at a series of stakeholder consultations. Unfortunately, the consultant became sick during the consultancy period, and was unable to complete work under the consultancy. Nevertheless, preliminary ideas on the composition of the new NEPA Act were developed, and presented at these consultations, and feedback from participants obtained to inform the drafting instructions. NEPA's focus on completion of the new NEPA Act changed with the departure of its CEO in February. New NEPA leadership that has not yet had time to focus on this issue will now direct completion of the Act. Work completed to date now resides with the Legal, Standards, and Enforcement Division (Legal Services Branch) of NEPA.

### **6.2.2 Development of the NIWMC**

R2RW continued to participate in and support the work of the NIWMC. The Project provided regular updates on Project progress including work done under special studies and Hurricane Ivan recovery activities. The Project also reviewed and provided suggestions for improvement draft Cabinet submission on the NIWMC. This Cabinet Submission documented recently completed and present work by State Agencies and Projects in watershed management in Jamaica. R2RW continued to work with the NIWMC to follow-up on the establishment of coordination mechanisms as identified in the NIWMC Action Plan developed at the R2RW sponsored retreat in May 2004.

### **6.3 Improve Sanitation Management Practices – Anchor Project #4**

R2RW developed a version of an existing treatment technology, the septic tank, combining this with a sub-surface constructed wetland to provide nutrient removal so that disposal of the effluent would have less effect on the rivers and reefs connected to watersheds. The main technical change to the technology is the introduction of the constructed wetland, which provides tertiary treatment (nutrient removal). This has proved to be a robust yet simple technology, which not only removes nutrients down to satisfactory levels in the wastewater, but also in many situations evaporates the wastewater entirely.

Most septic systems do not remove the nutrient content of the effluent that they produce. The most common disposal mechanism is a soakaway or tile field. New standards for wastewater requires lower levels of nutrients than before, meaning that many more systems will require a means to remove them.

The cost of this additional nutrient removal technology must be compared with the only other technology in use in Jamaica, the Evapotranspiration Bed, which is promoted by the Environmental Health Unit as a treatment system where it is important not to get nutrients in the

groundwater. This bed system, which consists of a shallow tank filled with gravel, with a geo-membrane and soil topping on the top, has much the same design below the geo-membrane as the constructed wetland. It is, however, less effective at evaporation, and will need to be some 8 to 10 times the size of the constructed wetland to provide the equivalent loss of effluent. This means that the cost of the evapo-transpiration bed is considerably greater than the wetland for the same effect. It should be noted that an emergency soakaway system is needed for the wetlands, as they do not have the capacity of the evapotranspiration systems to absorb large surges or heavy rainfall inputs.

R2RW conducted the scientific research and field monitoring needed to mainstream the constructed wetland wastewater system into the range of sanitation options available to and appropriate for Jamaica and worked toward formal recognition of constructed wetlands as an approved sanitation solution. Specific activities are summarized in the table below and discussed in more detail later in this section.

6.3 Improve Sanitation Management Practices – Anchor Project #4		
6.3.1	Technical workshops held to disseminate sanitation technologies	<p>Technical workshops were conducted with the Ministry of Health Environmental Health Unit and NEPA Field Staff. Simplified workshops were held at the community level with householders, contractors, masons, and builders. The content of the workshops included linkages between sanitation and health, impact of improper wastewater disposal on the environment, wastewater treatment options and cost comparisons.</p> <p>Brochures, a video and PowerPoint presentations on the constructed wetlands system supported the workshops.</p>
6.3.2	Completion of documentation of constructed wetlands systems at Pisgah, Retrieve and CASE	<p>Constructed wetlands systems at Retrieve and Pisgah were monitored and tested, and a report written documenting that contaminants were reduced significantly. The results show reduction in BOD by 50-78%, TSS by 85%, total Nitrogen by 68-95%, total phosphorus by 64-97%, and total coliform by 99.9%. Documentation of system at CASE completed. Reductions similar to Retrieve and Pisgah were noted for CASE. Mainstreaming is being achieved through revisions to the Developers Manual and contribution to the domestic treatment section of the Building Code.</p>
6.3.3	Mainstreaming of constructed wetland technology	<p>Fact sheets and design criteria for constructed wetlands systems prepared. 5 meetings held with Sanitation Working Group for new National Building Code held. Presentations made to NHT and developers. Under Hurricane Ivan Rehabilitation and reconstruction activities, work was undertaken with the Ministry of Education to upgrade sanitation in several schools using this technology.</p>

6.3.4	Application to NEPA for permitting of constructed wetland technology	System designs, calculations and drawings prepared and submitted to NEPA for consideration as part of their approval criteria for wastewater systems
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### **6.3.1 Technical workshops held to disseminate sanitation technologies**

Technical information on sanitation technologies was disseminated to various audiences through the following workshops:

#### **Workshops in Project areas with MOH, NEPA, and communities**

Community meetings, where local officials from the parishes could meet alongside persons from a wide spread of communities in the watersheds were held. Two workshops were held in the Great River, one “upstream” at Cambridge, and one in Montego Bay. Presentations were made and some 48 persons attended the two sessions. In the Rio Grande, it was decided that one workshop would suffice, and 29 persons attended the workshop in Port Antonio. PowerPoint presentations and a video were used in these workshops, along with a pamphlet on sanitation technology. Linkages were established with the anchor project Cleaning and Greening of Cambridge. Visits were made to Cambridge and sanitation firmly put on the agenda of the community organization.

#### **Workshop for the Ministry of Health staff (Environmental Health), and Parish Councils**

A presentation was made to Public Health Inspectors for the entire island at their Annual conference, which was well received. In this presentation, an update was presented on the timetable and progress in adopting the building code, and the likely effect this would have on public health.

#### **Disseminate information to NEPA field staff**

This activity was completed through two “Brown Bag” Presentations. The information disseminated included the effectiveness of constructed wetland technology and linkages between sanitation, health and the environment.

#### **Conduct workshops for contractors, masons, builders involved in construction of the technologies**

Several individuals from this group attended the community workshops, and were constructive in discussing the technologies with the other participants.

### **6.3.2 Completion of documentation of constructed wetlands systems at Pisgah, Retrieve and CASE**

A constructed wetland was built on the campus of CASE in Portland for demonstration and research purposes. The system utilizes wastewater from the existing waste treatment structures of the livestock tutorial farm for hydroponics, a spice garden, and ornamental fish production. The system remains a part of the on-going program at the school that investigates performance and agricultural utility of wastewater disposal options.

A delay to allow the proper establishment of the grass in the test wetlands delayed the testing phase, which was ongoing at the end of project activities. The project contributed to the capacity of CASE by donating testing equipment for use by their laboratory

A US Peace Corps volunteer, working with the National Water Commission in Montego Bay assisted this activity. He monitored the performance of the Pisgah and Retrieve plants. A report of his research<sup>3</sup> on the constructed wetland system under Jamaican conditions was presented to the project. Research indicates that the wetlands systems reduce in BOD by 50-78%, TSS by 85%, total Nitrogen by 68-95%, total phosphorus by 64-97%, and total coliform by 99.9%. The Executive Summary of this report is attached in Appendix 9. The treatment systems are working well and should provide good service to the schools.

The reports on the constructed wetland test sites confirmed that this technology is an excellent treatment mechanism, able to remove pathogens, oxygen demand and nutrients to levels that make disposal of septic tank effluent possible and safe in areas that are environmentally sensitive. The wetlands also evaporate 25 to 30% of the effluent. The test site, as part of the teaching of CASE, has good potential to be sustained, as there are many possible research subjects that could be addressed using this facility.

For future studies, the following areas were recommended:

- ✍ Confirmation of transpiration rates under Jamaican conditions using different species of plants in the constructed wetland
- ✍ Rates of flow for adequate treatment

Discussions are underway for CASE to be used as a test site for further research funded by the Environmental Foundation of Jamaica.

### **6.3.3 Mainstreaming of Constructed Wetland Technology**

In 2004, the Jamaican government adopted as a new building code, the International Building Code (IBC), and committees to adapt it to suit Jamaica are now at work. R2RW supported a committee to review the Domestic Sewage treatment section, with members from all the regulatory and stakeholder agencies, which has made substantial progress in the work, having met seven times, and is set to complete the task by September 2005. Constructed wetland technology is included under the code as one of the treatment options.

Fact sheets were prepared and finalized with data from the constructed wetland test sites. The data allowing design criteria to be established is now available, and draft criteria were prepared. These have been offered to the International Building Code, Sewage Section Review Committee for inclusion into the code.

The Developer's Manual<sup>4</sup>, which was recently revised, and the training material associated with the IBC will include information and data for professionals. The Public Health Inspectorate that benefited from presentations about sanitation solutions at their annual conference have requested follow-up training sessions to explain the content of the Domestic Sewage Code on constructed wetlands. The Public Health Inspectors will do most of the work of promoting good practice to the contractors and tradesmen.

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<sup>3</sup> Evaluation of septic tank and subsurface wetland for Jamaican public school sewage treatment by Ed Stewart

<sup>4</sup> The Developers Manual, Ministry of Health Environmental Health Unit

Individual meetings were also held with individual developers and the National Housing Trust to explain and assist them in the use of constructed wetlands. The use of constructed wetlands in schools as a tertiary treatment for the effluent from septic tanks has introduced many school populations, Boards and the Ministry of Education to this technology.

Following Hurricane Ivan, several additional wetland systems were constructed and several school sanitation systems were upgraded. Systems of varying sizes were designed and constructed, which assisted in the dissemination goal of the project.

#### **6.3.4 Application to NEPA for Permitting of Constructed Wetland Technology**

R2RW, as part of NEPA, carried out the work at Retrieve school to replace the latrines next to the river. This project demonstrated a technology that can be used close to a river, and would be relevant to be used in many other circumstances. The project design was done to design criteria already approved by NEPA for previous projects.

The research project carried out on the Retrieve and Pisgah Systems served to provide NEPA with local data, independent of the international data (primarily from USA) used before.

System designs, calculations and drawings were prepared and submitted to NEPA for consideration as part of their approval criteria for wastewater systems.

### **6.4 Transfer Approaches, Methodologies and Lessons Learned**

R2RW worked to identify and mainstream important achievements of and lessons from the Project into NEPA, other GOJ agencies, and the broader stakeholder community to help improve planning, managing, and regulating watershed management. Specific activities included:

- ✍ Documenting successes through case studies,
- ✍ Disseminating lessons learned,
- ✍ Promoting achievements at symposia,
- ✍ Strengthening participatory process skills through Advanced Participation Methods Training
- ✍ Summarizing achievements and lessons at an end of Project Exposition.

<b>Work Plan Activity</b>	<b>Activity Description</b>	<b>Achievements During Reporting Period</b>
<b>6.4</b>	<b>Transfer Approaches, Methodologies and Lessons to Key Partners and Stakeholders</b>	
6.4.1	Document successes and achievements through case studies (including grant activities)	Successes documented through the LWMC and Local Government Reform Study. A series of 5 Lessons Learned Fact Sheets developed. Case Studies are to be presented in the Final Report of the R2RW Project.
6.4.2	Infusion of Lessons Learned into State Agencies responsible for Watershed Management	Lessons learned document was developed for NEPA and other Government agencies. The document was discussed and used by LWMCs at Networking Conference, in radio interviews, and public presentations including the Clean and Green Awards Ceremony in Portland in April 2005 and the Great River Green Village Awards Ceremony in May 2005.

Work Plan Activity	Activity Description	Achievements During Reporting Period
6.4.3	Promote R2RW achievements and lessons learned at national and regional symposia	5 Papers on R2RW achievements are to be presented at the annual conference of the Jamaica Institute for Environmental Professionals in June 2005.
6.4.4	Disseminate Advanced Participation Methods (APM) to key partners	287 Facilitators trained in APM 1; 85 Facilitators trained in APM 2; 214 Facilitators trained in APM 3; The training of 47 Facilitators as Training of Trainers for APM 1; 15 persons now qualify as Coaches in the system; with about seven actively facilitating processes
6.4.5	Plan and implement an end of Project exposition to highlight Project achievements, case studies and lessons learned	The end of Project Exposition planned for May 27, 2005 provides a final opportunity to present Project experiences and results

#### **6.4.1 Case Study Documentation**

R2RW, NEPA, and USAID/Jamaica are all focusing on documenting the many and significant successes and achievements of the Project. The Project's Fourth Annual Report began this process in a more formal way. Successes have also been documented through the Review of Local Water Shed Management Committees and Local Government Reform. The Project Final Report will include specific sections focusing on case study success stories and lessons learned. Project technical staff is preparing four papers to be presented at the Jamaica Institute of Environmental Professionals Annual Conference. The Lessons Learned Fact Sheets also outline lessons learned from specific cases.

#### **6.4.2 Infusion of Lessons Learned into State Agencies Responsible for Watershed Management**

The lessons learned document was developed by STTA for sharing with NEPA and other Government agencies. Lessons learned were discussed and used by LWMCs at Networking Conference, and in radio interviews and public presentations including the Clean and Green Awards Ceremony in Portland in April 2004. The five Lessons Learned Fact Sheets are as follows:

LESSON LEARNED	DESCRIPTION
1. Awareness Leads to Action:	Building Local Awareness and engendering stewardship is critical to the adoption of improved environmental practices by communities.
2. Enhancing Participation Pays Off in Watershed Management:	Effective partnerships among government agencies, NGOs, and community groups are critical to building sustainable solutions to resource management issues.
3. Building Capacity Sustains Change:	Targeted training, adds value to project initiatives and is essential for building long-term capacity in natural resource management.
4. Knowledge of Environmental Laws	Awareness and education of communities, enforcement officers and the judiciary are prerequisites for enhancing

Improve Compliance and Enforcement:	compliance and enforcement of environmental laws.
5. Incentives Motivate Environmental Protection:	Successful adoption of improved environmental practices depends on motivating factors and delivery of benefits.

#### **6.4.3 Promote R2RW Achievements and Lessons Learned at National and Regional Symposia**

Five papers on R2RW achievements are being prepared by R2RW technical staff to be presented at the annual conference of the Jamaica Institute for Environmental Professionals in June 2005. These are as follows:

1. Strategies to Implement the Participation of Civil Society Organizations, Communities and State Agencies in Watershed Management. Mark Nolan and Trevor Spence
2. Community Intervention Strategies for Developing Governance Mechanisms. Janet Patti Bedasse
3. Planning for Sustainable Development: A local Model. Sonja T. Harris
4. Evaluation of Septic Tank and Subsurface Wetlands for Jamaican Public School Sewage Treatment. Ed Stewart
5. The Revision of Jamaica's Existing Building Code to Permit the Use of the Full Range of Low-Cost Alternative Technologies for Waste Disposal. Jason Excell and Stephen Hodges

#### **6.4.4 Disseminate Advanced Participation Methods (APM)**

ARD developed Advanced Participation Methods as tools to improve and focus broad stakeholder participation in activity planning and implementation. These tools have been successfully applied in diverse sectors around issues such as environmental and health management, strategic planning, civil society development, institutional capacity-building and inter-governmental relations. Both CWIP2 and R2RW projects have been applying these techniques in their work in Jamaica.

APM was used as the intervention strategy in both the Great River, and the Rio Grande watersheds. The methodology served as a guide to both the R2RW and CWIP2 projects to provide training to a number of stakeholders, with special emphasis on the Social Development Commission (SDC), National Environment and Planning Agency (NEPA), and Management Institute for National Development (MIND). The training offered included APM 1 (Consensus Workshop Method), 2 (Focused Discussion Method) and, 3 (Action Planning Method) and a Training of Trainers for APM 1.

The training courses were targeted at field officers of State Agencies as well as community leaders. The outputs of the training were as follows:

- ✍ 287 facilitators trained in APM 1;
- ✍ 85 facilitators trained in APM 2;
- ✍ 214 facilitators trained in APM 3;
- ✍ 47 facilitators trained as Training of Trainers for APM 1;

15 persons now qualify as Trained Trainers capable of delivering the APM training to further groups. The Training Manuals for APM 1, 2, 3, and the Training of Trainers for APM 1 are now in



place. The course has been institutionalized into the curriculum of the MIND, which intends to incorporate APM training into its future course offerings.

This training has been particularly successful with governmental and non-governmental agencies working at the community level anxious to have the competency to use this tool. Agencies are also buying in to the APM approaches in order to respond to the needs of the public sector modernization process. Discussions are underway to institutionalize the APM curricula and training within MIND and SDC

#### **6.4.5 End of Project Exhibition**

An end of Project Exposition and Awards Ceremony is scheduled for May 27, 2005. The exposition provides the opportunity to highlight Project achievements, share success stories, and communicate lessons learned during this five year Project. The R2RW final report will document successful approaches and methodologies and outline specific lessons learned during the Project. The agenda for the event is contained in Appendix 7.

### **6.5 Special Studies**

Special studies have been an effective means of answering important questions and guiding the decision-making process of stakeholders. The objective of this special studies activity was to provide a mechanism for addressing specific issues in watershed management in a focused and scientific way. Special studies brought scientific rigor to important natural resource management issues. Many students and planners have requested information from these studies to support their own work.

During the reporting period, emphasis was placed on completing special studies already started and initiating new studies only when the issue was compelling and the work could be completed before the end of the Project. Hurricane Ivan and the Project's response to the devastation brought new priorities to the R2RW and several planned studies were not completed as resources were reallocated to more pressing recovery efforts. The special studies activities planned included:

- ✍ Sediment Budget Study for Rio Grande and St. Margaret's Bay
- ✍ Assessment of Flooding and Bank Erosion at Berridale,
- ✍ Determination of the extent and hazard of land slippage/faulting in Dumphries,
- ✍ Watershed Management Units Reclassification
- ✍ Valuation study for development of incentives for improved land use practices in Buff Bay-Pencar Watershed
- ✍ Development of a herb, spice and medicinal plant industry in the Charles Town Development Area
- ✍ Final Gender Report
- ✍ Archiving special studies reports

Work Plan Activity	Activity Description	Achievements During Reporting Period
6.5.1	Sediment Budget Study for Rio Grande and St. Margaret's Bay	The University of the West Indies Department of Geography and Geology completed a one-year study entitled "The Sediment Budget Study of the Rio Grande Watershed, Portland Parish, Jamaica" dated March 2005.
6.5.2	Assessment of Flooding and Bank Erosion at Berridale, Rio Grande, Portland Jamaica	The University of the West Indies Department of Geography and Geology completed this study entitled "Assessment of Flooding and Bank Erosion at Berridale, Rio Grande, Portland, Jamaica" dated February 2005
6.5.3	Determination of the extent and hazard of land slippage/faulting in Dumphries, RGW, Portland	This study was not completed largely because resources were reprogrammed to address Hurricane Ivan recovery.
6.5.4	Complete study of WMUs reclassification	This study was not completed largely because resources were reprogrammed to address Hurricane Ivan recovery.
6.5.5	Valuation study for development of incentives for improved land use practices in Buff Bay-Pencar Watershed	The study "Action-Learning Project on Incentives for Improved Watershed Services in the buff Bay/Pencar Watershed" dated April 2005 was completed by UWI's Department of Economics.
6.5.6	Feasibility Study: Development of a herb, spice and medicinal plant industry in the Charles Town Development Area (CTDA), Portland	The study, dated March 2005, is entitled "Feasibility Study: Development of a Herb, Spice & Medicinal Plant Industry in the Charles Town Development Area, Portland" was completed by Inter-American Institute for Cooperation on Agriculture (IICA), in collaboration with UWI's Biotechnology Centre.
6.5.7	Final Gender Report	Final Gender Report completed. Anchor Projects collected data on participation of disadvantaged groups in project training courses and interventions.
6.5.8	Archive reports of special studies on relevant media	All special studies (and other Project documents as well) will be transferred to NEPA and USAID's Development Clearinghouse in Washington DC.

### **6.5.1 Sediment Budget Study for Rio Grande and St. Margaret's Bay**

Beach erosion in St. Margaret's Bay and possible links to sand mining and sediment loading and transport in the Rio Grande River have been citizen concerns for some time. The objective of this special study was to develop a rapid survey of the sediment budget for Rio Grande Watershed and the beaches at the river's exit point into St. Margaret's Bay and examine possible linkages to watershed management practices.

The completed study<sup>5</sup> concluded that beach changes in the area where erosion problems have occurred are closely linked to large riverine flood events. It is doubtful if mining activities in the valley play any significant part in changes seen at the beaches, although mud from the washing plants probably does affect the environment during times of normal base flow in the river. However the mining activity does continually change the geometry of the river bed and banks,

<sup>5</sup> The University of the West Indies, March 2005, The Sediment Budget Study of the Rio Grande Watershed, Portland Parish, Jamaica, Kingston, Jamaica

which can lead and probably has led to local changes in flow regime, directly impinging on and eroding the river banks.

### **6.5.2 Assessment of Flooding and Bank Erosion at Berridale**

At NEPA's request, the sediment budget study was expanded to investigate recurrent flooding by the Rio Grande River at Berridale, Portland. The report<sup>6</sup> prepared by Department of Geography and Geology Department, UWI, revealed that:

- ✍ Meander-type erosion dominated, creating severe bank slumps at river meander apexes.
- ✍ Gabion baskets were poorly constructed with field evidence revealing that the size of cobbles used to construct the internal walls of the gabion baskets were less than the size of the holding basket, which collapsed during spate.
- ✍ The mining activity on the right bank of the Rio Grande River at Berridale created a net shift in erosion concentration on right bank meanders, thus proliferating 'bank-cutting'.
- ✍ Old ruptured gabion baskets on the right bank of the river provided little protection.

### **6.5.3 Determination of the Extent and Hazard of Land Slippage/Faulting in Dumphries**

This study, designed to examine slope stability in the Dumphries area of Portland Parish, was not completed due to delays in procuring new digital imagery of the geographic area and reprogramming of R2RW funds to address post hurricane rehabilitation and reconstruction needs.

### **6.5.4 Water Management Unit Reclassification**

This study intended to ascertain the changes in the 26 watershed management units (WMUs) since 1999 (initial classification and baseline); to formulate and utilize a set of criteria for the re-classification of Jamaica's WMUs; and to assist NEPA to undertake a visioning process to develop a set of revised management plans for the WMUs.

The study was not completed due to reprogramming of R2RW funds to address post hurricane rehabilitation and reconstruction needs.

### **6.5.5 Valuation Study for Development of Incentives for Improved Land Use Practices in Buff Bay-Pencar Watershed**

The study<sup>7</sup>, completed by UWI's Department of Economics, focused on a valuation of watershed services within the Buff Bay/Pencar Watershed. The purpose of the study was to complete a valuation of watershed services within the Buff Bay/Pencar Watershed; to estimate the costs of incentives identified for maintaining and enhancing these watershed services; and the development of methods and indicators for monitoring the impact of incentives on targeted watershed services and their impacts on livelihoods.

Existing incentives described were free timber seedlings nurseries, remission of property taxes on lands declared as forestry management areas or forest reserves, income tax exemption for landowners with approved farmer status, long term conditional leasing of public land for

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<sup>6</sup> The University of the West Indies, February 2005, Assessment of Flooding and Bank Erosion at Berridale, Rio Grande, Portland, Jamaica, Kingston, Jamaica

<sup>7</sup> The University of the West Indies, April 2005, Action-Learning Project on Incentives for Improved Watershed Services in the Buff Bay/Pencar Watershed: Economic Valuation Report, Kingston, Jamaica

reforestation, and technical assistance from agencies. New incentives explored were carbon trading, tourism certification, providing LWMCs with lumber licenses, shade planting of coffee and the integration of tree crops on coffee farms, and eco-labeling.

The report estimated direct use (crops, timber, agro forestry, recreation /tourism) and indirect use (water supply, water quality, soil conservation and carbon storage) values within the watershed at US\$82.5 to US\$86.5 million. In addition to existing incentives, the study recommended the following:

- ✍ Carbon trading – Trading carbon sequestration credits for money, which is then used to pay landowners who plant new trees.
- ✍ Tourism certification for area – By certifying Portland as a “green” destination, residents have to do certain things to retain this certification.
- ✍ Providing the LFMCs with lumber licenses.
- ✍ The development of two incentives to encourage shade planting of coffee and the use of tree crops by coffee farmers, a “water levy,” which would be paid by coffee farmers who do not practice shade planting and a “financial incentive” for shade planting, to be tested in the Buff Bay/Pencar Watershed
- ✍ Eco Labeling: Branding and marketing of horticultural, fresh and processed agricultural products, as well as bottled water based on agreed and applied standards of practice e.g. A Great River Brand.
- ✍ Create a system of payments for environmental services by establishing a Forestry Fund that could fund a “Conservation and Management Certificate”

#### **6.5.6 Development of a Herb, Spice and Medicinal Plant Industry in the Charles Town Development Area**

The Inter-American Institute for Cooperation on Agriculture (IICA), in collaboration with UWI's Biotechnology Centre completed this study<sup>8</sup> designed to establish the feasibility of harvesting/cultivating, processing and packaging herbs and herbal products with medicinal and health benefits, for national and international markets. The study Area was Charles Town, Buff Bay, Portland represented by Charles Town Maroon Council.

Results indicated that more than 100 medicinal plants are used locally and that informal local markets for some of these plants exist. A broader market analysis suggests that eight of these plants have immediate commercial potential – Sarsaparilla (*Smilax regelii*), Pimento (*Pimento dioica*), Cinnamon (*Cinnamomum zeylanicum*), Cerassee (*Momordica charantia*), Black mint (*Mentha viridis*), Peppermint (*Satureja vimenea*), Sorrel (*Hibiscus sabdariffa*) and Lemongrass (*Cymbopogon citrates*). Sustainable harvesting practices are presented for each of these plants along with processing methods that could be adopted. The study indicated that current marketing trends suggest a growing demand for herbal products and spices both locally and internationally, and recommended the business as an avenue for developing sustainable livelihoods and reducing rural poverty.

#### **6.5.7 Gender Report**

Following on the Draft Gender Report 2004, further advice was given to Anchor Project

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<sup>8</sup> IICA, March 2005, Feasibility Study: Development of a herb, spice and medicinal plant industry in the Charles Town Development Area, Portland, R2RW, Kingston, Jamaica.

Managers to keep disaggregated data. Other analyses were done to expand the understanding of gaps in gender equity.

Using a purely numerical indicator, the RGW's training sessions in land management; tree resuscitation and agro forestry, all related to improved livelihoods, attracted 80% males and 20% females. Most of the participants were older, average age between 40 and 70 years. There were however approximately 10% younger persons participating who were 18 to 35 years, the majority of whom were female. These persons are unemployed and show interest in any training activities in their communities. Many of the youth were sons and daughters of older farmers. Their attendance was vital, as they are literate and can take information back to the homestead for easier consumption. This was a strategy understood by R2RW managers, which brought some value to groups normally left out of such training.

Other Anchor Project Managers, for example in Cambridge and in Pineapple farming, experienced through natural selection, strong female participation in the Cambridge Benevolent Society, and approximately 25% female participation in pineapple production. In some communities, younger persons under 30 years in St. James (such as Catadupa, Retrieve, Stonehenge and Chesterfield) benefited from involvement with the expansion of pineapple growing. These persons have access to family land. In some communities such as Retrieve, the Jamaica Agricultural Society representatives, mostly females, contributed to the 50% female participation rate there.

The draft of final Gender Report was just completed and it clarifies the inadequacy of numerical indicators for understanding "equity". However, it is a logical starting point in equity analysis.

#### **6.5.8 Archiving Special Studies Reports**

Arrangements have been finalized with NEPA for the transfer of all Project documents (including special studies) to the NEPA Library. Bounded copies and electronic versions on CDs will be transferred at the end of the Project. Studies and reports currently posted on the R2RW website will be transferred to the NEPA website in May 2005. As required by contract, copies of Project reports, including special studies, will be provided to USAID's Development Clearinghouse in Washington DC.

### **6.6 Public Awareness**

The project worked hard to improve public awareness of improved watershed management and the ways in which NEPA, USAID, and Jamaican partners are contributing to environmental improvement and local capacity-building. Specific activities included:

- ✍ Re-examining the Knowledge, Attitudes, and Practices (KAP) study and evaluating changes,
- ✍ Producing calendars to highlight R2RW achievements
- ✍ Prepare a smaller version of anti-littering poster for display in buses,
- ✍ Follow-up with recipients of enviro-kits to assess usage, and
- ✍ Take advantage of other opportunities to increase public awareness

Work Plan Activity	Activity Description	Achievements During Reporting Period
<b>6.6</b>	<b>Public Awareness</b>	
6.6.1	Produce update on the KAP study to assess changes in public awareness	Positive changes in public awareness measured in Evaluation Survey Report done for Cambridge April 2005, and in National Capacity Self-Assessment (NCSA) Public Awareness draft Report
6.6.2	Produce 2005 calendar that highlights R2RW achievements	2000 calendars produced and shared equally with NEPA
6.6.3	Produce smaller version of anti-littering poster for display in buses	Over 1,400 small versions produced and a formal hand over of 600 posters held at JUTA, Port Antonio March 17, 2005. Another 650 posters were distributed to the St. James Taxi Association, to Cambridge for their taxi drivers and at all events in which R2RW was involved.
6.6.4	Follow-up with recipients of enviro-kits to assess usage	A formal assessment was not completed but anecdotal evidence attests to usage and effectiveness
6.6.5	Make use of other opportunities as they arise to increase public awareness	Opportunities included video production, press releases, newspapers and newsletters, radio and television.

#### **6.6.1 KAP Study Re-assessment**

A formal update on the KAP study was not completed. However, the impact of Project activities was evaluated using indicators from two reports that provided information on changes in public awareness levels.

The evaluation of the Cambridge project's Public awareness initiatives<sup>9</sup>, and the NCSA project's findings in their assessment of public awareness interventions and results, related to the environment<sup>10</sup>, both noted positive changes in awareness and increased knowledge.

The impact on sustainable management practices were derived mainly from Programs such as community competitions in both watersheds, using cash and in-kind prizes as incentives, and guiding communities to establish links with the NSWMA. Anecdotally, sustained practices can be seen in both watersheds. For example, communities are now organizing independent community clean-ups, signs for proper disposal of solid waste are being posted, and conflicts are being mediated using resource agencies that are available for support.

#### **6.6.2 2005 Achievement Calendar**

Some 2000 calendars for 2005 were produced and distributed. The calendar highlights environmental issues, Project and community responses and notes important environmental events and recognition days. This collaborative activity between NEPA and R2RW was successful again this year with agencies outside Project targeted watersheds requesting calendars. The success of the calendar production was due not only to its educational content, but also to stakeholders being able to identify familiar faces and places in the pictures.

<sup>9</sup> Cross cutting issue of Public Awareness, education and Training – for National Capacity Self-Assessment Project – by Penelope Budhlall – February 2005

<sup>10</sup> Environmental Awareness Public Education Evaluation Survey Report- for the Cleaning and Greening of Cambridge Project – by Michael Pryce- April 2005

### **6.6.3 Anti-Littering Poster for Display in Buses**

R2RW redesigned the anti-littering posters so that they could be used on buses. Some 1,400 sticker-posters were produced and distributed. These posters suitable for taxis and buses were distributed mainly to the Portland Jamaica Union of Travellers Association (JUTA), to four Taxi Associations in Port Antonio and beyond, and to the St. James Association of Taxi Operators and JUTA St James. A small ceremony was held in March 2005 to hand over Anti-litter poster stickers to JUTA and Taxi Operators in Portland. The JIS and local cable media covered this event, which gave this public education strategy more mileage.

### **6.6.4 Assess Usage of Enviro-Kits**

One Hundred twenty (120) Enviro-Kits were produced and 60 were distributed during the reporting period. They were sent out with evaluation forms and contained:

- ✍ 5 short stories
- ✍ 2 flyers
- ✍ 11 booklets
- ✍ 13 brochures
- ✍ 33 posters
- ✍ Buttons and stickers

Reactions to the kits have been extremely positive. They contain a treasure of information on environmental issues that have been extremely useful to educators, animators, and public education officers. A formal assessment of Enviro-Kit usage was not completed. However, anecdotal evidence suggests that the kits are useful and popular. Organizations and individuals continue to request the kits. NEPA reported a particular interest in schools following Hurricane Ivan, including schools such as Harbour View Primary and John Mills All Age schools. NEPA also asked for an electronic version of the kit, which was sent to them and they referred us to the Environmental Officer at Half Moon Hotel, who was interested in the kit and our activities. This hotel later supported the GRWMC in one of the cash prizes for the Green Village competition.

Eight kits were given to schools during the Cambridge school public awareness and outreach. A total of 10,500 students attend these schools. Feedback indicates the following:

- ✍ Two schools, Anchovy and Bickersteth Primary, used the kits two weeks after receiving them, as part of the New Horizon Schools' Exhibit held in Montego Bay in October 2004
- ✍ The monthly newsletter in Cambridge included a Quiz, and the information in the kit, particularly dealing with endemic species, solid waste management, the laws and agencies involved, informed many of the correct answers given by students
- ✍ In the Essay and Arts competition launched in March 2005, the information in the kits was useful to teachers and students in their entries.
- ✍ The kit also contributed directly to the re-establishment of the Jamaica 4H and environment clubs at Cambridge Primary and High schools.

### **6.6.5 Other Public Awareness Activities**

The Project has taken advantage of other opportunities to raise public awareness, which included:

- ✍ The production of the video on pineapple production,
- ✍ Press releases about project activities and environmental events,

- ✍ Articles in newspapers and newsletters,
- ✍ Opportunities to reinforce messages as a result of Hurricane Ivan's environmental impact, and
- ✍ Radio and television programs and interviews.

Thirty six copies of the Pineapple Production video were produced and distributed to all partner agencies and some community leaders, teaching institutions and Libraries.

Press releases and coverage were issued on the following events during the reporting period:

- ✍ Wood and Water Day celebrations at Titchfield High School Portland – October 2004
- ✍ IICA/R2RW project – To investigate viability of herbal products- November 2004
- ✍ USAID to provide relief to farmers – November 2004
- ✍ \$4.4 million grant to Build Jamaica Foundation – December 2004
- ✍ Sanitary upgrades for seven rural schools- December 2004
- ✍ Pisgah & Retrieve communities given charge of water and sanitation projects- January 2005
- ✍ USAID hands over goat project to St. James 4H- February 2005
- ✍ Comfort Castle Cornwall Barracks Rio Grande recipients of water supply- February 2005
- ✍ USAID funds J\$24m sanitation upgrade project for 11 rural schools- March 2005
- ✍ RGW Portland tour with Commissioner of Mines & Geology- March
- ✍ Second annual Youth & Environment conference held in Port Antonio- April 2005
- ✍ Ginger House takes Portland environment award- April 2005
- ✍ USAID assists Build Jamaica Foundation to complete sanitation upgrade in 14 Basic schools –April 2005

One major press conference covering the handing over for 11 completed school sanitation systems was also held in March 2005. The Minister of Education and Deputy of Mission Director at USAID/Jamaica were the main speakers.

The Agriculturalist, the monthly farmer's newspaper, also published five articles submitted by the project between November 2004 and February 2005, covering the following:

- ✍ Forestry Department gets \$4.6 million to restore forest cover
- ✍ Hurricane Ivan ravished sections of Jamaica
- ✍ \$7.3 million grant to IICA to assist agricultural sector recovery following the hurricane
- ✍ Over \$500 million secured for recovery of agricultural sector for hurricane recovery
- ✍ USAID hands over goat project to St. James 4-H Clubs

The Hurricane Ivan Community Upgrading Program (HICUP) was funded and implemented shortly after the devastation of September 2004. While this disaster disrupted the flow of regular programming activities, it also provided media with the opportunity to focus on communities who with small USAID grants were able to rehabilitate their lives and livelihoods. It also reinforced the importance of many of R2RW initiatives such as tree planting, pineapple production and the use of vetiver grass for slope stabilization.

Opportunities for expanding media opportunities were vigorously pursued during the period. Focus was placed upon inserting environmental messages into radio programming including feature articles and "talk show" programs, given that radio is one of the primary ways for Jamaicans to receive their news.

In total, 40 radio interviews with over 60 persons, were conducted during the reporting period as follows:

- ✍ R2RW arranged 22 weekly radio interviews on KLAS-FM, where a regular slot focused on health and the environment. The Project took this opportunity to arrange for interviews of



Project stakeholders in order to highlight Project activities. The following people were interviewed about R2RW and watershed topics:

- The Director of the Legal Standards and Enforcement Division at NEPA
- Anchor Project Managers- responsible for land management; Cambridge cleaning and greening; sanitation innovations and pineapple production
- The Great River Watershed Public Awareness Outreach Officer
- Community leaders from Comfort Castle and Cornwall Barracks
- The Action Boyz, the community drama group
- Commander Velma Thomas from the ISCF Portland- with responsibility for Environmental Law enforcement
- Representatives from partner agencies, both government and non-government
- Representatives from the Port Antonio Taxi Association
- The Senior Public Health Inspector

✍ Project staff were interviewed 18 times on six major radio stations including JIS radio, on topics that included:

- Youth Month – November 2004
- Launching the Clean & Green competition in the Rio Grande Watershed - November 2004
- A tour of the Great River Watershed with MLE officials and the Commissioner of Mines- March 2005
- The Handing over of small posters to Transport Operators- March 2005
- The signing of the MOU between Cambridge and the St. James Parish Council for continuing support for the Cambridge environmental program – March 2005
- Youth Culture & Environment Conference- March/April 2005
- The official opening of two rural school sanitation systems - April 2005
- The handing over of Nubian goats to St. James 4-H

In addition, the Project took advantage of eight opportunities for television coverage, including evening news. This coverage focused on:

- ✍ USAID grant of \$4.4 million to Build Jamaica Foundation for sanitation upgrades in rural Basic schools
- ✍ Handing over of water supply to Rio Grande Watershed communities
- ✍ The tour of Portland watershed by MLE and the Commissioner of Mines
- ✍ The Official opening of Springvale and Victoria schools sanitation systems
- ✍ Environmental program activities during an interview with USAID's Program Management Specialist and the R2RW Chief of Party on Television Jamaica's morning show

Information on R2RW activities, such as the handing over of anti-litter sticker-posters and the Clean & Green Award ceremony were highlighted on JIS and RJR websites.

The R2RW website was updated during the period of review. It has a wealth of information, including all R2RW Reports, and summaries of activities. Responses to the website have come mainly from international students, and development professionals who visit our offices after seeing the website information, as well as students from the University of the West Indies.

## 7.0 Hurricane Ivan Rehabilitation

Hurricane Ivan ravaged Jamaica with hurricane force winds and torrential rainfall on September 10–11, 2004. Major damage was sustained to all sectors of the Jamaican economy with south coast parishes being hardest hit. In rural communities, where R2RW operate, damage was evident as buildings lost their roofs or collapsed, crops and livestock were devastated, water supply interruption and sanitation problems posed health hazards.

The R2RW Project was mobilized to assist the recovery from the damage caused by the hurricane. Hurricane recovery activities to address rehabilitation needs were implemented and completed from September 2004 to March 2005. This work was financed by reprogramming of existing funds and allocation of new funds. This required expanding project activities to new areas outside of the original geographic scope of R2RW, and building on partnerships with key stakeholders to work in new areas at a time when the Project should have been reducing field activities as the Project drew towards completion. Support to rehabilitation and recovery efforts targeted the following key elements:

- ✍ Damage Assessment and Community Clean-ups
- ✍ Water and Sanitation and Rural Infrastructure
- ✍ Land and Coastal Zone Rehabilitation and Reforestation
- ✍ Agriculture Sector Recovery

The detailed list of activities and results are provided in Appendix 8: “Hurricane Ivan Rehabilitation Activities”. Below is a synopsis of activities and accomplishments.

### 7.1 Damage Assessment and Community Clean-ups

#### Damage Assessment

Staff conducted damage assessments of Hurricane Ivan damaged areas in the original target areas of the GRW and RGW, and across several parishes including St. Catherine, Clarendon, St. Elizabeth and Westmoreland to determine specific needs and candidate projects for funding. Specifically, the following assessments were conducted:

- ✍ “A Report on the Assessment of Sanitation in Rural Schools” completed November 2004. This Report identified rural primary and all-age schools across six parishes that urgently required sanitation upgrading.
- ✍ Assessment reports from R2RW field staff on damage to project beneficiaries (grantees),
- ✍ Assessment of damage to specific community infrastructure (e.g. drains and roads), that formed part of HICUP applications
- ✍ Multi-agency tour of Southern parishes to determine the extent of damage to agriculture.
- ✍ Evaluation of damage to crops, livestock and infrastructure in Portland. This was done through RADA, Port Antonio with STTA provided by R2RW

#### Community Clean-ups

Small HICUP grants averaging \$1,000 per community were allocated to 38 communities to purchase tools, materials, equipment and engage skilled labor to assist clean-up in severely affected communities. The assistance was provided in kind, primarily through CBOs, to address problems such as clearing blocked drains, flood control, and clearing debris from roadways and access roads.

## 7.2 Water and Sanitation and Rural Infrastructure

### Sanitation Systems at Rural Schools

The objective of this assistance was to replace and at the same time upgrade sanitation infrastructure in selected primary and all-age schools in rural areas. Working in partnership with the Ministry of Education, sanitation systems were installed in 11 schools (selected mainly from the USAID funded New Horizons Project) benefiting 5,760 students aged 6-13 years in addition to teaching and ancillary staff. The schools benefiting by parish were:

- ✍ St Mary: Highgate All Age, Jack's River Primary, and Albion Mountain Primary
- ✍ St Catherine: Spring Gardens All Age, Tulloch Primary, Victoria All Age, Polly Ground Primary, Springvale Primary
- ✍ Westmoreland: Dundee All Age, Negril All Age
- ✍ Portland: Coopers Hill All Age

Additionally, 10 schools were supplied with proposed designs for sanitation systems, water storage tanks, and water saving water closets as contributions to self-help projects to install improved sanitation facilities for students and staff. These schools were:

- ✍ St Catherine: White Marl Primary
- ✍ St Mary: Long Road All Age and Basic
- ✍ Westmoreland: Bethel Town All Age
- ✍ St James: Anchovy Primary, Bickersteth Primary
- ✍ Hanover: Chester Castle All Age
- ✍ St Elizabeth: Marie Cole Memorial, Schoolfield All Age
- ✍ Manchester: Porous Primary, Mizpah All Age

### Sanitation Systems - Basic Schools

The Project entered into partnership with Build Jamaica Foundation (BJF), a faith-based NGO, to advance their aggressive campaign to eradicate pit latrines from 600 Basic schools in Jamaica. The schools were selected from BJF's list of most urgent Basic schools requiring proper sanitation facilities. Ten schools (the target was four in the annual work plan) were completed benefiting 488 infants aged 3-6 years old and teaching and ancillary staff as well. The student populations of the selected schools range from 18 to 56 students. Funds was used to build toilet blocks, purchase and install toilet fixtures, install rainwater-harvesting systems, install hand washing facilities and pay for technical supervision.

### Water Supply Systems

After Hurricane Ivan, the consequential hygiene problems caused by unavailability of potable water in communities and interruption in domestic water supply, posed the greatest threat to health in communities. The Project completed three water supply projects to mitigate health hazards as follows:

#### Windsor Water Supply: Windsor, Rio Grande, Portland

This intervention involved upgrading an existing dysfunctional water supply system through a grant to the Windsor Community Development Committee. The National Water Commission provided backstopping including supervision to install the pipes. The upgraded water supply system serves the communities of Windsor, Seaman's Valley and River's View. Over 3,000 persons are direct beneficiaries of the intervention.

#### Pisgah Water Supply: Pisgah, St Elizabeth

This system was supported through a grant to Pisgah All Age School Parent Teachers Association with technical support from the St Elizabeth Parish Council and Peace Corp engineers. The intervention comprised the renovation of a 100,000 gallon concrete tank, repairing the paved concrete area that serve as a catchment for filling the tank, and laying pipelines to Pisgah All Age School and throughout the community. Over 250 households and 3,000 persons benefited directly from the intervention.

#### Comfort Hall Water Supply: Comfort Hall, Anchovy, St. James

This system consists of three plastic water tanks installed in series on a concrete plinth. The St James Parish Council fills the tanks periodically. Over 70 persons are direct beneficiaries.

### **Community Improvement Activities**

Hurricane Ivan Community Upgrading Program (HICUP) grants averaging \$1,000 per community were administered to 38 communities across Jamaica to support recovery activities in the following categories:

<b>Categories of HICUP Grants</b>	<b>No of grants</b>
Agricultural sector recovery	6
Community clean-ups (clearing road blockages, landslides and beaches)	7
Community clean-ups (drain cleaning/flood control)	25

## **7.3 Land and Coastal Zone Rehabilitation and Reforestation**

### **Agro forestry Projects**

Existing agro forestry initiatives in six communities of the RGW (part of the RGW Land Management Anchor Project) were reprogrammed to accommodate the resuscitation of 30 acres of fruit trees. Some 150 farmers benefited from the intervention, which included training in crop resuscitation and soil conservation.

### **Forestry Nurseries**

The Forestry Department (FD) lost much of its capacity to produce timber seedlings due to hurricane damage to nurseries. Assessment of damage by the FD revealed damage of approximately 780 hectares of hardwood and pine plantations, blocked forest roads/trails, and damage to nurseries including potting houses, seedbeds and irrigation. R2RW supported activities through a grant aimed at restoring tree cover across Jamaica's watershed management units. Activities and accomplishments include:

- ✍ Infrastructure repairs: rehabilitated three nurseries at Williamsfield in Manchester, Mt. Airy in St. Andrew, and Moneague, St. Ann.
- ✍ Rehabilitation work: restoration of potting houses; re-construction of germination beds; and replacement of irrigation systems.
- ✍ Seedling production: 200,000 timber and ornamental tree seedlings for distribution to farmers' island wide under FD's private planting program.
- ✍ Equipment and tools: procured nursery equipment and tools.

## 7.4 Agriculture Sector Recovery

### Agricultural Recovery in Target Areas

R2RW supported a request from the Inter-American Institute for Cooperation on Agriculture (IICA) and Ministry of Agriculture to render assistance to Jamaican farmers within rural parishes that were heavily devastated by Hurricane Ivan. The objective of the assistance was to ensure expeditious reactivation of production, agricultural trading and income generating capacity. Relief assistance was rendered to farmers in six parishes where agricultural production was most heavily affected: St. Catherine, Clarendon, Manchester, St. Elizabeth, Westmoreland and Hanover. RADA extension agents in these parishes played an important role in the damage verification and coordination of agricultural inputs distribution.

Accomplishments include:

- ✍ Inputs distributed to 628 vegetable farmers impacting on over 850 acres of farmland. The beneficiaries were producers of tomatoes, watermelons, hot pepper, sweet potato, and callaloo. They were provided with planting material and tools, and support for land preparation.
- ✍ Linkages established between farmers' groups and buyers (processors, exporters and hotels)
- ✍ Assistance delivered to 28 aquaculture farmers in Clarendon, St Catherine and St Elizabeth in the form of feed, fingerlings, equipment and pond reconstruction
- ✍ 52 training sessions conducted in crop care, land husbandry, and disaster mitigation
- ✍ A workshop was conducted on "The Role of Farmer Commodity Groups/Organizations in Disaster Mitigation and Recovery"

### Fishing Industry Recovery

Support to fisheries recovery was also provided through Agricultural Sector Recovery program (see above). Assistance was restricted to pond culture of freshwater fish (tilapia). The Project also supported the Jamaica Ornamental Fish Farmers Association (JOFFA) to assist 25 ornamental fish farmers devastated by Hurricane Ivan. The support was to re-establish fish farms and restart production. Support included materials to repair shade houses, machinery time to clear silt and debris from earthen ponds, importation of quality broodstock from the US, and other essential equipment.

## 8.0 Project Management

Project management activities that continue and must be completed fall into the following categories:

- ✍ Grant fund management,
- ✍ Staffing,
- ✍ Management arrangements, and
- ✍ Project Reporting.

This 9<sup>th</sup> SAR focused on project completion scheduled for July 11, 2005. The activities included in this section were governed by a schedule of activities leading to programmatic and administrative close-out for the Project.

### 8.1 Grant Fund Management

The R2RW Project has taken a comprehensive approach to grant management. The Watershed Grants Program was a “hands on” program that facilitated applications from community groups for demand driven, priority initiatives that fostered environmental protection. Project activities in watersheds were not only seen as a way to address immediate community felt environmental problems, but also as an opportunity to create effective linkages between communities and GOJ State Agencies. In addition, the R2RW Team provided targeted technical assistance to “buttress” grant proposals from communities. 31 grants were awarded and completed under the Watershed Grants Program during years 2-5 of the Project, and 26 grants were closed out during the reporting period.

As the Project draws to a close, focus shifted to ensure that all grants were brought to successful closure, and a visit was made to each grantee to assess impact, and to determine follow-up actions. Where appropriate, formal handing over ceremonies were conducted e.g. for the water supply projects in Comfort Castle and Cornwall Barracks, and the goat projects at Knockalva and Montpelier with the Jamaica 4H Clubs. The contribution of each grant to the program indicators was tabulated, and is presented in Section 9 of this SAR: Performance Indicators.

#### Outputs

- ✍ All grants were brought to successful completion, funds properly accounted for, and final reports received.
- ✍ The experience of the unique hands-on grant program implemented by R2RW was assessed to determine its impact

Work Plan Activity	Activity Description	Achievements During Reporting Period
8.1.1	All on-going grants are completed and closed out	<p>Grants were completed and closed out for 26 projects during the reporting period:</p> <p>GRW:</p> <ol style="list-style-type: none"> <li>1. Knockalva Agricultural School - Goats</li> <li>2. Jamaica 4H – Goats</li> <li>3. Hermitage Honey Production</li> <li>4. Rushea Hot Pepper Production</li> <li>5. Cedar Grove Hot Pepper Production</li> <li>6. Mafoota Farmers Group</li> <li>7. Cacoon Castle Vegetable Production</li> <li>8. Catadupa Cocoa Production</li> <li>9. Pisgah Water Users Group</li> <li>10. Dundee Sanitation Project</li> </ol> <p>RGW</p> <ol style="list-style-type: none"> <li>11. Comfort Castle Water Supply</li> <li>12. Cornwall Barracks Water Supply</li> <li>13. Coopers Hill Sanitation</li> <li>14. Dumphries Agroforestry</li> <li>15. Chatsworth Agroforestry</li> <li>16. Coopers Hill Agroforestry</li> <li>17. Rock Hall Agroforestry</li> <li>18. Industry Agroforestry</li> <li>19. Moore Town Agroforestry</li> <li>20. Windsor Water Supply</li> <li>21. PEPA Schools Environment Program</li> <li>22. Port Antonio Theatre Group</li> <li>23. Portland PDC – Public Awareness</li> <li>24. JCDDT – Public Awareness</li> </ol> <p>National</p> <ol style="list-style-type: none"> <li>25. Jamaica 4H – Environmental Challenge</li> <li>26. PCA – Public Education</li> </ol>
8.1.2	Assessment of the R2RW Grants Program conducted	<p>Final closeout reports were received and reviewed for each of the above grants, along with final financial statements. Visits were made to each project site, and sustainability of initiatives was discussed with each grantee. The impact of the grants was assessed, and the contribution to program indicators tabulated. . Where appropriate formal handing over ceremonies were conducted.</p>

## 8.2 Staffing

At the start of the final year of the R2RW Project, all long-term staff positions, both administrative and technical, were filled, and no changes in personnel were anticipated. Demand for personnel at peak times has been filled when needed by temporary workers. Staff coordination was accomplished through weekly administrative staff meetings held every Monday morning. A comprehensive weekly schedule for the entire Project is discussed at these meetings and logistics worked through with all Kingston based full time staff. In addition, monthly technical team meetings, held for half a day on the first Monday of every month, provided an opportunity to update technical team members on progress on all Project components as well as to discuss

current issues and upcoming activities. The objective of these activities was to ensure that staff was aware of the immediate tasks to be accomplished, and were motivated and empowered to carry out these tasks.

## Outputs

- ✍ A highly motivated staff of technical and administrative personnel working productively to implement Project activities.
- ✍ Staff working together as a cohesive and responsive team to address the priorities of the clients and stakeholders.

Work Plan Activity	Activity Description	Achievements During Reporting Period
8.2.1	Staff Team building	Sub-teams were formed to implement key initiatives such as the Cambridge AP, the Pineapple AP, the RG Land Management AP, the Schools Sanitation Project, and Public Awareness events.
8.2.2	Information sharing and dissemination	Accomplished through weekly meetings of all full time Kingston staff, and monthly meetings of all of the technical assistance team

## 8.3 Management Arrangements

The R2RW Team has functioned smoothly to ensure that equitable attention is given to meeting the information and communication needs of the USAID Project CTO; the NEPA Director of the Division of Policy, Programs, and Projects (or her designee); the head of the NEPA Integrated Watershed and Coastal Zone Branch, and community members where R2RW is working in order to improve collaboration and collective decision-making. Further attention is paid to initiate and complete efforts to clarify specific information and communication needs of key client representatives and provide identified information and communication in the formats, styles, and schedules, which meet the agreed-upon needs. R2RW is working to foster coordination and communication among persons involved in project management and implementation. This is achieved through a series of meetings including the following:

### ✍ Project Implementation Committee

The Project Implementation Committee (PIC) was restructured in August 2003 to incorporate other USAID SO2 initiatives including the CWIP II and the EAST Projects. The new PIC meets monthly to update clients on project progress, address issues that need approval or resolution, incorporate client concerns into project implementation and to provide overall project management guidance.

### ✍ Interagency Steering Committee

Members of the Interagency Steering Committee (ISC) include representatives of GOJ agencies having responsibility for elements of watershed management including NEPA, Forestry Department, Ministry of Agriculture, Ministry of Health, National Water Commission, Ministry of Health, Ministry of Tourism, among others. The ISC meets semi-annually to review Semi-Annual Reports, Performance Monitoring Plans, and Annual Work Plans. The objective of these activities is to ensure that regular meetings, workshops and seminars are held to share



information by the main R2RW clients to develop consensus of the activities, achievements and lessons learned from the R2RW Project.

### Outputs

- ✍ Management of the project interventions was achieved through regular meetings with main Project clients.
- ✍ Consensus was achieved on the major Project planning documents primarily the Annual Work Plan submitted in August 2004.

Work Plan Activity	Activity Description	Achievements During Reporting Period
8.3.1	Management Coordination	The NEPA led Project Implementation Committee met sporadically during the period. The Inter-Agency Steering Committee did not meet during the period. However input of the clients was regularly sought during regular phone calls, face-to-face meetings, monthly NEPA meetings of Senior Staff, and participation of client representatives in the monthly meetings of the Technical Team.

### 8.4 Project Reporting

Accurate reporting on project activities is critical to completing and documenting Project achievements. R2RW has a successful track record of demonstrating and reporting on Project achievements through regular reporting to USAID and NEPA. The objective of reporting is to document all project activities under each of the Project components in a concise yet comprehensive manner that accurately reflects the outcome and impact of activities.

### Outputs

- ✍ Quarterly Reports to NEPA
- ✍ Semi Annual Report
- ✍ Final Project Report

Work Plan Activity	Activity Description	Achievements During Reporting Period
8.4.1	Quarterly Report to NEPA	Monthly reports submitted and delivered to the Monthly NEPA Senior Staff Meetings.
8.4.2	Semi-Annual Report	This, the 9 <sup>th</sup> SAR, was delivered to USAID in May 2005.
8.4.3	Final Project Report	Report scheduled to be completed June 30, 2005

### 8.5 Project Closeout

A preliminary Project closeout plan was developed during April 2004. The plan outlined major program and administrative actions that were necessary to close out the Project. A final closeout plan was submitted to USAID on March 29, 2005. The objective is to plan for and implement actions necessary for the orderly and systematic close-out of the R2RW Project.

## Outputs

- ✍ Programmatic activities are systematically closed-out in a phased fashion as the Project draws to a close
- ✍ Non-expendable property is disposed of in a transparent manner
- ✍ All administrative arrangements including contracts, sub-contracts, service agreements, and staff are terminated
- ✍ All Project accounts and vouchers are finalized

Work Plan Activity	Activity Description	Achievements During Reporting Period
8.5.1	R2RW Project Close Out Plan	R2RW Closeout plan delivered and accepted.
8.5.2	Close out of Program Activities	Closeout plan presented a schedule of all activities remaining, along with a plan for the resources needed for completion
8.5.3	Disposal of Non-Expendable Property	Inventories of assets held by the Project in 4 locations (Kingston office, Port Antonio, Cambridge and the COP residence) finalized, and recommendations for disposition submitted to USAID and NEPA
8.5.4	Close out of Administrative arrangements	Letters to terminate all service agreements with vendors delivered, and procedures in Closeout plan adhered to
8.5.5	Staff Terminations	Letters terminating all staff contracts sent to all staff to terminate employment for consultants effective March 31, 2005, for Anchor Project Coordinators effective April 30, 2005, and for all remaining full time staff effective May 31, 2005/
8.5.6	Final Project Accounts and Vouchers	In process
8.5.7	Demobilization of International Staff	Mark Nolan, COP will be demobilized effective June 30, 2005.

## 9. Performance Indicators

The R2RW contributed to the following USAID's SO2 Indicators established for the following Intermediate Results:

### 1. IR 1 - Increased adoption of environmentally sound practices, by:

- ✍ Number of improved practices by target populations.
- ✍ Number of private sector entities practicing or supporting environmentally friendly practices.
- ✍ Number of organizations demonstrating tangible results to beneficiaries in the field.
- ✍ Number of initiatives in place to support compliance with and enforcement of environmental regulations.
- ✍ Number of partners implementing gender equity considerations.
- ✍ Number of public awareness activities conducted.

### 2. IR 2 - Adoption of policies for improved environmental management, through:

- ✍ Number of new or revised regulations and policies drafted/developed
- ✍ Increased compliance and enforcement of environmental regulations in targeted areas.
- ✍ Number of organizations participating in R2RW supported watershed management coordination activities.

### 3. IR 2.1 - Effective promulgation and enforcement of environmental regulations, through:

- ✍ Number of new or revised regulations and policies drafted/developed
- ✍ Increased compliance and enforcement of environmental regulations in targeted areas.

### 4. IR 2.2.1 - Increased capacity of key GOJ agencies, by:

- ✍ Number of organizations participating in R2RW supported watershed management coordination activities.

## Contract Objective (CO) Indicators

### 9.1 Overall Project

Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Comments	Support to SO2
		Year	Actual	Target	Actual	Target	Actual		
<b>Contract Objective: Natural resources under improved and sustainable management in identified watersheds</b>									
Percentage of land under sustainable management in targeted areas	<p><u>Sustainable Management:</u> Targeted appropriate practices and sustainable resource utilization principles applied</p> <p><u>Targeted Areas:</u> Geographic areas identified in work statement and prioritized for intervention following rapid reconnaissance and establishment of baseline data</p> <p><u>Unit:</u> Cumulative numerical</p>	2000	0	35	48	50	58	<p>Targeted appropriate practices and sustainable resource utilization principles were applied in 30 communities out of 52 communities in the targeted areas.</p> <ol style="list-style-type: none"> <li>1. Retrieve: Water harvesting and sanitation systems, pineapple production</li> <li>2. Content: Water harvesting &amp; sanitation</li> <li>3. Cornwall Barracks: Water supply</li> <li>4. Comfort Castle: Water supply</li> <li>5. Moore Town: Water supply; agro forestry</li> <li>6. Passley Gardens: Integrated waste management for crop &amp; livestock</li> <li>7. Cacao Castle: Vegetable production; tree planting</li> <li>8. Montpelier: Goats</li> <li>9. Knockalva: Goats</li> <li>10. Pisgah: sanitation system</li> <li>11. Mafoota: Car wash &amp; laundry; vegetable production &amp; irrigation</li> <li>12. Catadupa: Tree planting activities; Cocoa production</li> <li>13. Millbank Sanitation Project, tree planting</li> <li>14. Rushea: Hot Pepper production</li> <li>15. Bethel Town: Hot Pepper and Honey</li> <li>16. Coopers Hill: Agro forestry; sanitation</li> <li>17. Industry: Agro forestry</li> <li>18. Rock Hall: Agro forestry</li> <li>19. Durham Gap: Agro forestry</li> <li>20. Chatsworth: Agro forestry</li> <li>21. Chesterfield: pineapple production</li> <li>22. Ginger Hill: pineapple production</li> <li>23. Maybole: pineapple production</li> <li>24. Cambridge: solid waste management</li> <li>25. Prospect: Tree planting and drain cleaning</li> <li>26. Pisgah Water Supply</li> <li>27. Dundee Sanitation and Community Clean-up</li> <li>28. Upper Rio Grande – Sanitation collection</li> <li>29. Ginger House, Clean-up and Park</li> <li>30. Windsor Water Supply</li> </ol>	SO2 Indicator

### 9.2 Component 1 Targets

Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Comments	Support to SO2
		Year	Actual	Target	Actual	Target	Actual		
<b>Contract Result: Through targeted, sustainable environmental practices by resource users identified and promoted</b>									
Number of improved practices adopted by target populations	<p><u>Improved Practices Adopted:</u> Activities that improve environmental conditions and sustain resource base</p> <p><u>Unit:</u> Number of practices introduced that are applied and sustained by land managers. Cumulative numerical</p>	2000	0	14	20	16	22	<p>20 practices were introduced to date. These are:</p> <ol style="list-style-type: none"> <li>1. Fruit trees establishment</li> <li>2. Agro forestry interventions</li> <li>3. Community clean-up of solid waste</li> <li>4. Rural water supply</li> <li>5. Rooftop water harvesting for schools and households</li> <li>6. New varieties of bananas and plantains</li> <li>7. Constructed wetlands for purifying septic effluents</li> <li>8. Car wash and laundry</li> <li>9. Mucuna seeds for leguminous ground cover</li> <li>10. Intensive goat management systems</li> <li>11. Improved goat varieties</li> <li>12. Planting timber trees under the Plant A Tree Program (GRW)</li> <li>13. Honey production</li> <li>14. Vegetable production</li> <li>15. Herbs and spices production</li> <li>16. Hot pepper production</li> <li>17. Improved pineapple production</li> <li>18. Cocoa establishment</li> <li>19. Vegetative barriers along contours</li> <li>20. Drain Clearing</li> <li>21. Gully Plugs</li> <li>22. Solid waste collection</li> </ol>	IR 1

Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Support to SO2	
		Year	Actual	Target	Actual	Target	Actual		
<b>Contract Result: Through targeted, sustainable environmental practices by resource users identified and promoted (cont'd)</b>									
Number of organizations demonstrating tangible results to beneficiaries in the field	<p><u>Organization:</u> formalized group operating in the field</p> <p><u>Results:</u> Provision of technical, program and financial services</p> <p><u>Unit:</u> Cumulative numerical</p>	2000	0	7	21	8	25	<ol style="list-style-type: none"> <li>1. Sanitation Support Unit with demonstration project in Retrieve</li> <li>2. RADA with new crop technologies.</li> <li>3. JAS with community groups agricultural projects</li> <li>4. Goat Breeders Association with new goat management systems</li> <li>5. Farmer training by JOAM in organic farming</li> <li>6. Montego Bay Marine Park delivering public awareness programs with the Action Boyz</li> <li>7. Port Antonio Theatre Group delivering environmental messages through drama</li> <li>8. Forestry Department with Plant A Tree Program and agro forestry projects</li> <li>9. NSWMA with Community Clean-ups and solid waste management</li> <li>10. JCDT with public awareness in the upper RGW</li> <li>11. Portland PDC with public awareness, lower RGW</li> <li>12. Jamaica 4-H clubs with Environmental Challenge Program</li> <li>13. PEPA, Schools Environmental Ed. program</li> <li>14. CASE, integrated waste mangt. demonstration</li> <li>15. SDC with community mobilization strategies</li> <li>16. St. James Parish Council with implementation of Cambridge Anchor Project</li> <li>17. Pesticide Control Authority with reduction of child poisoning due to pesticides</li> <li>18. Social Development Commission with community action planning</li> <li>19. Valley Tours, craft development Rio Grande Watershed</li> <li>20. Great River WMC as a program catalyst of public awareness activities</li> <li>21. Rio Grande Watershed Management Committee as a program catalyst of water and sanitation improvements</li> <li>22. Ministry of Education with improved sanitation systems in Schools</li> <li>23. Build Jamaica Foundation with sanitation systems in Basic Schools</li> <li>24. JOFFA with hurricane assistance</li> <li>25. IICA with hurricane assistance</li> </ol>	IR 1.1

Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Comments	Support to SO2
		Year	Actual	Target	Actual	Target	Actual		
<b>Contract Result: Through targeted, sustainable environmental practices by resource users identified and promoted (cont'd)</b>									
Number of Private Sector entities practicing or supporting environmentally friendly practices	<u>Private Sector</u> : Profit-making entities whether small, medium or large  <u>Unit</u> : cumulative numerical	2000	0	8	16	10	17	Work was done with 16 entities: <ol style="list-style-type: none"> <li>1. Farmers in Catadupa with trees and cocoa production.</li> <li>2. Farmers in Rushea with hot pepper.</li> <li>3. Farmers in Cedar Grove with hot pepper.</li> <li>4. Farmers in Cacoon Castle with vegetables, herbs &amp; spices</li> <li>5. Private sector support for Great River Green Village program prizes</li> <li>6. Sandals in Mafoota and participation in public awareness techniques</li> <li>7. Round Hill Hotel in Cacoon Castle</li> <li>8. Farmers in Coopers Hill with agro forestry</li> <li>9. Farmers in Industry with agro forestry</li> <li>10. Farmers in Rock Hall with agro forestry</li> <li>11. Farmers in Durham Gap with agro forestry</li> <li>12. Farmers in Chatsworth with agro forestry</li> <li>13. Farmers in Moore Town with agro forestry</li> <li>14. Business community of Cambridge</li> <li>15. Private Sector involvement in Portland for Clean &amp; Green Campaign</li> <li>16. Private Sector involvement in Portland beach clean up</li> <li>17. Farmers in Upper GRW with pineapple production</li> </ol>	IR 1 IR 1.2

### 9.3 Component 2 Targets

Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Comments	Support to SO2
		Year	Actual	Target	Actual	Target	Actual		
<b>Component 2 Result: Incentives for and obstacles to enforcement of targeted environmental regulations identified and solutions supported</b>									
Number of new or revised regulations and policies drafted/developed	<u>New or revised regulations and policies:</u> Regulations and policies developed that promote sustainable environmental practices.  <u>Unit:</u> Cumulative numerical	2000	0	2	1	3	2	Completion of a Draft Watershed Policy that was presented to NIWMC, NRCA Board and Cabinet (through MLE). Consultations have been held towards a revision of the Watershed Protection Act, which follows the updated Watershed Policy. A workshop was held to begin the revision of the Watershed Protection Act.  Drafting instructions produced and vetted in public consultations for a new NEPA Act.	IR 2 IR 2.1
Number of incentives in place to support compliance with and enforcement of environmental regulations	<u>Incentives:</u> payment or concessions in place promoting sustainable environmental practices and resource use  <u>Unit:</u> Cumulative numerical	2000	0	8	10	10	12	<ol style="list-style-type: none"> <li>1. Incentives Working Group of the NIWMC systematically pursuing implementation of incentives</li> <li>2. CANARI supported study and testing of incentives in Buff Bay/Pencar Watershed</li> <li>3. Great River Green Village Program</li> <li>4. Plant A Tree Program in the GRW</li> <li>5. Tree Planting Initiative in RGW under Anchor Project</li> <li>6. Public Awareness to inspire community Clean-ups in the River Action Program, GRW</li> <li>7. Public awareness to inspire community clean-ups through drama, schools environmental program, and community education, RGW</li> <li>8. Environmental challenge program in schools</li> <li>9. Training of farm groups in pesticide use and disposal</li> <li>10. Use of drums and skips in Cambridge to address solid waste management issues</li> <li>11. Portland Clean and Green Campaign to encourage environmental stewardship</li> <li>12. Organized garbage collection system in the Upper Rio Grande Watershed</li> </ol>	IR 1.2 IR 2.1



Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Comments	Support to SO2
		Year	Actual	Target	Actual	Target	Actual		
<b>Component 2 Result: Incentives for and obstacles to enforcement of targeted environmental regulations identified and solutions supported</b>									
Increased compliance and enforcement of environmental regulations in targeted areas	<p><u>Increase Compliance and Enforcement:</u> Number of activities designed to increase knowledge and understanding of environmental laws</p> <p><u>Unit:</u> cumulative total</p> <p>Note: The definition was changed to quantify measurable activities</p>	2000	0	12	18	16	20	<p>20 activities have been conducted to date:</p> <ol style="list-style-type: none"> <li>1. Study of Policy and Legislative Framework</li> <li>2. Meeting/Workshop of GRW Task Force to review draft Policy and Legislative Framework</li> <li>3. Meeting of Legal and Policy Experts to review draft Policy and Legislative Framework</li> <li>4. Joint input of ENACT and R2RW into the preparation of a Pocket-sized field guide, on Jamaica's environmental laws, geared towards supporting enforcement officers in the field</li> <li>5. Input into the Portland Multi-Agency Group on C&amp;E, and lead-role in the establishment of a Portland C&amp;E Task Force</li> <li>6. Four Meetings of the GRWMC C&amp;E Task Force. Meetings are used as mini-workshops</li> <li>7. Joint support by ENACT and R2RW for a 3-Day "Training of Trainers Workshop" for NEPA's staff</li> <li>8. Three Focus Group Meetings (Kingston, Montego Bay, and Port Antonio), to review draft of a review of "Incentives to encourage Private Sector involvement in watershed management"</li> <li>9. Design of posters to educate the public about C&amp;E Issues</li> <li>10. Production of scientific study of causes of erosion in St. Margaret's Bay</li> <li>11. Production of scientific study on sediment budget for Rio Grande River and St. Margaret's Bay</li> <li>12. Brochures drafted on environmental laws</li> <li>13. Video and Jingle produced for "It Haffi Legal" campaign</li> <li>14. symposia to sensitise judiciary on environmental Laws and regulations</li> <li>15. Quarry Monitoring Committee established for Portland</li> <li>16. Four (4) courses developed with MIND for enforcement officers and community leaders on environmental laws and advocacy</li> <li>17. Compendium of Environmental Cases</li> <li>18. 2004 Calendar produced on theme of compliance of environmental laws</li> <li>19. Pocket Guide to Environmental Laws of Jamaica produced</li> <li>20. Two training courses in Advocacy conducted including case studies</li> </ol>	IR 2 IR 2.1

**9.4 Component 3 Targets**

Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Comments	Support to SO2
		Year	Actual	Target	Actual	Target	Actual		
<b>Component 3 Result: Capacity of Jamaican Government Agencies, International donors, and private-sector and civil society organizations to implement effective watershed management programs enhanced</b>									
No. of organizations participating in R2RW supported WM coordination activities	<p><u>Organization:</u> Group or institution</p> <p><u>Participating:</u> Acquiring and sharing information at the local or national level</p> <p><u>Unit:</u> Cumulative total</p>	2000	0	10	32	12	34	<ol style="list-style-type: none"> <li>1. National Environment and Planning Agency (with Integrated Watersheds and Coastal Zone Branch acting as lead)</li> <li>2. Min. of Land and Environment</li> <li>3. NIWMC</li> <li>4. Rural Agricultural Dev. Authority</li> <li>5. Forestry Department</li> <li>6. Jamaica Agricultural Society</li> <li>7. National Water Commission</li> <li>8. Public Health Department</li> <li>9. Social Development Commission</li> <li>10. Sanitation Support Unit</li> <li>11. Montego Bay Marine Park</li> <li>12. Local Authorities (Parish Councils)</li> <li>13. Water Resources Authority</li> <li>14. Sandals Hotel</li> <li>15. Round Hill Hotel</li> <li>16. Montpelier Citrus Company</li> <li>17. Portland Environment Protection Association</li> <li>18. Valley Hikes</li> <li>19. Valley Tours</li> <li>20. GRWMC</li> <li>21. RGWMC</li> <li>22. CBO's</li> <li>23. Jamaica 4H Clubs</li> <li>24. Jamaica Conservation Development Trust</li> <li>25. Pesticides Control Authority</li> <li>26. University of the West Indies</li> <li>27. College of Agriculture Science and Education</li> <li>28. Knockalva Agricultural School</li> <li>29. Portland PDC</li> <li>30. The Nature Conservancy</li> <li>31. Caribbean Natural Resources Institute</li> <li>32. Management Institute for National Development</li> <li>33. Mines and Geology Division</li> <li>34. National Solid Waste Management Authority</li> </ol>	IR 2 IR 2.2

## 9.5 Cross-Cutting Activities

Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Comments	Support to SO2
		Year	Actual	Target	Actual	Target	Actual		
<b>Cross-Cutting Activities</b>									
<b>Gender Equity Strategy</b>  Number of partners implementing gender equity considerations	<u>Gender Equity</u> : fairness and justice among men, women and special groups in accessing project benefits, participating in decision making and in undertaking project responsibilities  <u>Unit</u> : Numerical annual totals  Note: Definition expanded to include “special groups” based upon stakeholders input.	2000	0	10	9	12	12	1. Gender training materials produced for the GRWMC 2. Case study materials produced for gender training of the RGWMC 3. Report on Gender for the GRWMC 4. Paper for the CWWA on R2RW's gender training approach 5. Revision of the Grant Fund to include gender equity 6. Report of Gender training of the RGWMC 7. Overall gender report of project activities 8. Draft gender checklist completed and in use 9. Gender disaggregated data included in the KAP survey and used to guide the development of public awareness strategies. 10. Grant Approval Committees considered disadvantaged groups in approvals 11. Gender data collected on individual beneficiaries 12. Participation of women in community clean-ups and water supply projects	IR 1 IR 1.1 IR 1.2

Performance Indicator	Indicator Definition And Unit of Measure	Baseline Data		Project Year 4		Project Year 5		Comments	Support to SO2
		Year	Actual	Target	Actual	Target	Actual		
<b>Grant Fund</b>  Number and value of grants approved and implemented that promote adoption of sound environmental practices	<u>Environmental practices adopted</u> : activities that improve environmental conditions  <u>Unit</u> : Cumulative number and value (US\$ thousands)	2000	0	14 \$400	29 \$430	16 \$450	32 \$768	The following grants were approved: 1. Water harvesting and waste water disposal at Retrieve All Age School 2. Water harvesting and waste water disposal at Pisgah School 3. Mafoota Car Wash & Laundry 4. Mafoota Irrigation 5. Millbank Sanitation 6. Coopers Hill Sanitation 7. Moore Town Water Supply Improvement 8. Rushea Hot Pepper Production 9. Cedar Grove Hot Pepper production 10. Hermitage Honey Production 11. Content Water supply and sanitation 12. Rock Hall Agro forestry 13. Industry Agro forestry 14. Coopers Hill Agro forestry 15. Durham Gap Agro forestry 16. Moore Town Agro forestry 17. Chatsworth Agro forestry 18. Comfort Castle Water Supply 19. Cornwall Barracks Water Supply 20. CASE Demonstration Project 21. JCDT Community Education Program for SWM in the Upper RGW 22. Portland PDC Public Awareness Program in the Lower RGW 23. Jamaica 4-H Clubs Environmental Challenge Program 24. PEPA Rio Grande Valley Schools Environmental Education Program 25. Cacoon Castle Vegetables & Herbs and Spices 26. Strengthening Ecocultural Tourism & Income Generation in the RGW 27. Green Expo 2004 28. Catadupa Cocoa Production 29. Pesticide Control Authority Reduction of Child Poisoning. 30. Windsor Water Supply 31. JOFFA for support of ornamental fisheries recovery from hurricane Ivan 32. Forest Department for nursery rehabilitation after Hurricane Ivan	S02
		Year	Actual	Target	Actual	Target	Actual		

		Year	Actual	Target	Actual	Target	Actual		
<b>Public Awareness</b>	<u>Public Awareness:</u> formal and non-formal education, information sessions, extension and environmental education	<b>2000</b>	<b>0</b>	<b>12</b>	<b>33</b>	<b>16</b>	<b>39</b>	<ol style="list-style-type: none"> <li>1. NIWMC Tour of GRW</li> <li>2. GRW video promoted</li> <li>3. Monthly GRW PATF meetings held</li> <li>4. Two newsletters produced</li> <li>5. 5 News releases produced</li> <li>6. RGW public awareness working group active</li> <li>7. Posters for C&amp;E produced, launched and</li> <li>8. Video of Constructed Wetlands Technology</li> <li>9. Stewardship/leadership training course developed in conjunction with MIND</li> <li>10. Clean-up work days for solid waste coordinated in several communities</li> <li>11. Implementation of River Action Program</li> <li>12. "Enviro" kits developed and distributed</li> <li>13. Great River Green Village Program 2003</li> <li>14. Magistrates symposia series</li> <li>15. Pocket Guide on environmental laws produced</li> <li>16. World Wetlands Day</li> <li>17. Content, St. James Environmental Gathering</li> <li>18. CASE Career Fair (2004)</li> <li>19. RADA Youth in Agriculture Expo</li> <li>20. World Water Day 3/22/04 - Pisgah, St. Elizabeth</li> <li>21. World Wetlands Day 2/2/04 Pt Antonio Marina</li> <li>22. Green Village Awards Dec 11, 2003</li> <li>23. 4-H Nyammins and Jammins Oct 20, 2003</li> <li>24. World Food Day Oct 16, 2003 Hope Road</li> <li>25. Lecture Case Feb 19, 2004</li> <li>26. Round Hill Hotel Env. Fair Dec, 2003</li> <li>27. UNEP tour of Great River - September 2004</li> <li>28. US Ambassador tour of Upper Rio Grande - 7/04</li> <li>29. Green Expo - June 2004</li> <li>30. Denbigh - July - August 2004</li> <li>31. Montego Bay Solid Waste Mgt. Seminar - 4/04</li> <li>32. Youth &amp; Environment - July 2004</li> <li>33. Faith &amp; Environment Seminar - May 2004</li> <li>34. Green Village Awards Ceremony, May 2005</li> <li>35. Portland Clean and Green Awards Ceremony, April 2005</li> <li>36. Town Hall Meeting Comfort Castle, October 2004</li> <li>37. Town Hall Meeting, Fellowship, November 2004</li> <li>38. Town Hall Meeting, Port Antonio, November 2004</li> <li>39. Handing Over of anti-littering posters to transport operators in Portland, March 2005</li> </ol>	IR 1
Number of public awareness activities conducted	<u>Unit:</u> Numerical annual totals								

## 10. Annual Period Performance Benchmarks

This section provides an update of the performance benchmarks that were previously proposed for the 4<sup>th</sup> year of R2RW. Progress on the Performance Benchmarks are reported on an annual basis, hence this section provides an interim status of the annual benchmarks. Individual tasks in the FAWP and their percentage completion can be viewed in Appendix 21, Tracking Gantt.

### **Component 1A: Sustainable Environmental Practices in the Great River Watershed**

#### **Plan for phase out of R2RW support to the GRWMC executed:**

A Self-Governance Workshop was conducted with the Executive of the GRWMC on January 26, 2005. The workshop goal was to outline the way forward for the management committee. Following discussion of a number of options establishing the GRWMC as a Benevolent Society appeared the best solution. This option allows the Committee to maintain its structure with its task forces and multiple stakeholders. A Constitution was developed as a step in registration under the Friendly Societies Act, and a consultant was contracted to work with the GRWMC to develop its Constitution. Registration documents have been submitted to the Department of Cooperatives to ensure the establishment of the GRWMC as a legal entity under the Act.

A Memorandum of Understanding (MOU) was developed to establish the working arrangement between stakeholders in the public sector, private sector and civil society for the establishment and sustainable operation of the GRWMC. This MOU was developed amongst 13 stakeholder agencies, including NEPA, RADA, SDC, the four Parish Councils and the GRWMC to outline the roles, responsibilities, obligations, and relationships among all agencies for the management of the Great River Watershed. The MOU is attached as Appendix 1.

Training in skills needed to build the capacity of GRWMC members was conducted between October 2004 and March 2005 in the following areas::

Meeting Management and Minutes Taking: This course took place October 25, 2004 at Catherine Hall. A total of 35 persons from the GRW were trained in effectively recording minutes and the process of conducting a meeting and setting agendas.

Proposal Writing and Fund Raising Training: This course was delivered to 20 persons from the GRWMC on November 23, 2004.

Environmental Advocacy Training: 11 persons were trained in Environmental Advocacy in association with the Jamaica Environment Trust and the Carter Center on March 2, 2004. Three local case studies were used to demonstrate various tools in advocacy and how to go about conducting a successful campaign.

#### **Training course in Fund Raising and Proposal Writing implemented:**

A series of Proposal Writing and Fund Raising Training Courses was delivered community leaders and field agents of State Agencies between October and December 2004. These were as follows:

1. 20 persons were trained in Catherine Hall on November 23, 2004
2. 52 persons were trained in Lucea on November 24, 2004
3. 27 persons (18 females and 9 males) were trained in Port Antonio on November 16, 2004
4. 120 field agents from the SDC were trained in Oracabesa on December 1, 2004.

### **Improved pineapple production practices disseminated to farmers through 12 field days:**

Sixty training sessions were conducted with participating farmers at the 5 demonstration plots established under the Pineapple Production Anchor Project. Attendance at the training sessions ranged from 5 – 20 farmers each. Evaluations show that new awareness was created with greater understanding of sound production practices, increase in people accepting the new techniques with farmers willing to replant using recommended best practices.

The outcome of this training was:

- ✍ An additional 50 farmers started replanting fields without R2RW assistance
- ✍ Increase in yield to 14 tons per acre and in weight per fruit to four pounds each
- ✍ Increase in prices for pineapple to \$25/lb due to better quality
- ✍ Increased commercial activity such as sale of pineapple planting material, increased transportation and more purchases of farm inputs
- ✍ New opportunities for employment created in agriculture with most farmers and their family supplying labor. Hiring done mostly for land preparation and harvesting
- ✍ Water quality improvement verified by water quality testing and monitoring conducted by the NWC
- ✍ Reduced pesticide usage due to the integrated approach to pest management
- ✍ Greater participation in environment improvement practices
- ✍ Local community people have been empowered to build bonds through cooperation. Linkages have been formed whereby communities can again think of agriculture as one of the key areas for development.

A video entitled “Pineapple Production in the Great River Watershed” was produced with assistance from CPTC. The video highlights the importance of pineapple to the GRW, and recommends watershed friendly cultural practices to improve productivity. The video was widely distributed in both Great River Watershed and Rio Grande Watershed to several organizations including RADA, JAS, GRWMC, Antilles Chemical Company, Elim Agricultural School, College of Agriculture Science and Education, Knockalva Agricultural School and farmers groups

The video was shown at meetings of pineapple farmers, Production and Marketing Task Force Meetings of the GRWMC. It is used extensively by RADA and JAS as part of their extension training in pineapple production. The video was also a key part of R2RW displays at agricultural fairs such as Denbigh Agricultural Show and Montpelier Agricultural show. It continues to be used for training at several schools and the Jamaica 4-H Clubs. Requests have been honored for showing the video at community meetings and on local cable stations.

### **Solid waste management initiatives implemented in Cambridge:**

Work was completed on a series of activities to clean-up the community of Cambridge. These included the following:

- ✍ The removal of derelict vehicles from road verges that had become an eyesore and mosquito breeding ground.
- ✍ The purchase, deployment and use of 4 new garbage skips and 200 garbage drums, as well as strengthening the ties to the Solid Waste Management Authority to dispose of the garbage.
- ✍ District Beautification Competition encouraging each of the 11 districts of Cambridge to organize beautification campaigns in their areas.

- ✍ The planting of ornamentals such as hibiscus, bougainvillea and alamander to beautify road verges.
- ✍ The participation of the private sector in the painting of buildings in the town square and the proper disposal of their solid waste.
- ✍ The establishment of a Nature Park in the centre of the town in an area, which formerly housed an illegal abattoir and a chicken coop.
- ✍ Tool Pool established: 7 shovels; 5 machetes; 3 forks; 7 rakes; 4 files

Community members have reported a rising sense of pride by local residents, as persons take notice of the improvements in the community and want to become part of the cleaning and greening campaign.

#### **Award ceremony for the Second Year of the Green Village Program held:**

The second Green Village Program has been successfully implemented, with thirteen communities entering the competition. They were from:

- ✍ Hanover Parish: Cacoon Castle; Lethe
- ✍ St. James Parish: Catadupa; Comfort Hall; Retrieve; Rushea; Mafoota; Seven Rivers
- ✍ Westmoreland Parish: Cedar Grove; Dundee; St. Leonard's; Stonehenge; York/Castle Heights

Five communities entered for the first time, expanding participation from last year. Planning for the Award ceremony is now in the final stages. Private sector participants, providing support and awards, include The El Greco Hotel, Half Moon Bay Hotel, Palm Bay Guesthouse, Sandals-Montego Bay, Discount Lumber and Crichton Brothers Hardware Stores. The awards ceremony will be held at Mountain Valley Rafting, in Lethe on May 5, 2005.

The Green Village Program has stimulated significant interest, and the competition with its revised criteria offers the GRW a template in community participation in watershed management. NEPA and the GRWMC will take the lead in sustaining this medium cost initiative with partner agencies. These agencies include the SDC, on whose earlier "Best Kept Village" the competition is based; RADA, the Forestry Department and Public Health Department who function as judges, and the private sector businesses including Hardware stores and Hotels mentioned above.

The 1<sup>st</sup> place community was Cedar Grove Westmoreland that built and placed garbage bins throughout the community, planted more than 4,000 cedar trees under the theme "putting cedar back into Cedar Grove", and organized educational events to educate residents about environmental issues such as garbage disposal, water pollution and soil erosion in their community.

#### **Component 1B: Sustainable Environmental Practices in the Rio Grande Watershed**

##### **RGW Development Area Plan prepared:**

The preparation of a development area plan for the watershed was considered a priority that would provide a baseline examination of physical resources and the impact of human activities within the watershed. This activity was not completed in the aftermath of Hurricane Ivan, which struck Jamaica in September 2004. Hurricane rehabilitation activities including community level HICUP grants derailed implementation plans for this work, as hurricane recovery work took priority.



### **Plan for Phase out of R2RW support to RGWMC executed:**

The RGWMC identified four issues in their Strategic Actions and Implementation Plan for the phase out of R2RW support for the RGWMC. These were:

1. Institutional needs and Training Program: this issue was addressed by the training programmes in Proposal Writing and Fund Raising
2. The Creation of a Finance Committee to secure funding locally, regionally and internationally, which necessitate the setting up of a bank account. All the relevant documentation from the RGWMC has been forwarded to a bank and it is envisioned that an account should be shortly
3. The Streamlining of all administrative functions
4. The Rationalization of the organizational structure of the RGWMC

As a follow up to these two issues a Self-Governance Workshop was conducted with the Executive of the RGWMC January 18, 2005, to determine the way forward. After examining a number of possible options it was decided that that the way forward for the Committee was by means of a legal entity and under the Friendly Societies Act. Training Manuals and Rules from the Department of Co-operatives & Friendly Societies have been delivered to the GRWMC to guide this process; this was necessary as the R2RW could not facilitate the process further, as a result of lack of time and resources.

The MOU which was signed September 26, 2002 among the PDC, the RGWMC and the R2RW (in order to establish policies and procedures for the general working agreement between the PDC, RGWMC and the R2RW and more specifically to articulate a coordinated approach and consensus among key stakeholders for the implementation of the R2RW) was given credence by a meeting with the PDC and the RGWMC; this was further reinforced by discussions at RGWMC quarterly meeting. The resolution from the meeting indicated that this MOU would have to be amended in order to reflect the non- existence of R2RW and continued working relationship between the PDC and the RGWMC.

R2RW completed a series of Training Program in the RGW in the effort to make the RGWMC fully functional at the completion of the project. The training courses included:

- ✍ Proposal Writing and Fund Raising, November 16, 2004; 27 persons participated that is, 18 females and 9 males
- ✍ Environmental Advocacy, March 3, 2005; 24 persons participated, that is, 14 females and 10 males.

These courses significantly strengthened the capacity of the task forces to fulfil their specific missions in an organized way and helped them understand how to identify and capture resources to continue priority activities.

The R2RW Mailing List Database was also transferred to the RGWMC accompanied by hands on training in Microsoft Access. It was extremely important that each participant got hands on training and able to manipulate this software to create relevant documentation for the day to day operation of the GRWMC; as a result the R2RW was only able to train 4 persons. However, a handout was produced by the group; enabling the transfer of information obtained to the members of the GRWMC. This handout was also circulated to the GRWMC.

### Six agro-forestry projects completed:

The existing agro forestry projects in Industry, Rock Hall, and Coopers Hill respectively were incorporated into the Improved Land Management Anchor Project. Three new agro forestry projects were initiated in Moore Town, Chatsworth and Durham Gap. All were successfully implemented and concluded. Agroforestry activities included development of detailed farm plans, lining out assistance and field training days. Soil conservation measures supported by R2RW included vegetative barriers, gully plugging, and integrated planting of crops. Crops include timber, fruit trees, plantain (as a nurse crop) and pineapple that were all employed within a broader context of land husbandry and sustainable agricultural practices. The crops selected improve land stability and have good income generating potential. The crops established by community for the reporting period are shown in the table below.

Name of Community or Group	No. of Farmers	No. of Fruit Trees	No. of timber Trees	Pineapple Suckers	Plantain Suckers
Moore Town	27	616	1,370	5,400	820
Chatsworth/Fruitful Vale	23	862	1,670	3,620	1,800
Durham/Dumphries	26	690	720	3,620	200
Coopers Hill	30	680	953		
Industry	25	713	842		
Rock Hall	27	755	975	745	
Rio Grande Tree Planting Initiative	68	1,593	1,536	4,240	
<b>Total</b>	226	5,909	8,066	17,625 (approx 290 chains of barriers)	2,820

Some 450 persons benefited directly from planting material and other inputs. Approximately 250 farmers benefited from training sessions that addressed topics such as contour planting, establishment and care of timber and fruit trees and erosion control. The area impacted was 600 acres, resulting in an increase in the percentage of land brought under sustainable management.

A livestock component was included in the three of the Agroforestry Projects as a complement to land management initiatives. Grass barriers (vetiver grass and several other varieties) were being promoted as a way to reduce soil erosion. While grass can be utilized by the farmer for mulching, animals could also be fed the grass as fodder. The opportunity to use the grass as fodder provides farmers with the chance to generate additional income through animal husbandry. Goats were identified as the livestock of choice because of the hilly terrain. Droppings from the animals is utilized as organic fertilizer and as an ingredient in composting, also promoted as organic fertilizer. Accomplishments were:

- ☞ Training in relevant goat husbandry practices, specifically in how to manage foraging goats,
- ☞ Construction of three goat stud stations in Moore Town, Chatsworth and Rock Hall. The goat houses are elevated with slotted floors, to allow for the collection of droppings that are used as organic fertilizer.

- ✍ The provision of three (one per community) high quality graded Boer bucks to upgrade local goat breeds and improve weight gain by 20-40% for first generation offspring.
- ✍ The establishment of six chains of grass barriers (two chains per buck-keeper) with dual purpose for fodder and as barrier to reduce soil erosion. Each buck-keeper also established small areas of grass (0.05 acre). Napier and N-69 grasses were used, as these have relatively high protein content, thereby improving animal nutrition and productivity.

The activity is expected to increase farmers income by 20-40% for first generation offspring, and higher for succeeding generations. As part of R2RW technical assistance, precautions were put in place to prevent inbreeding. Three buck-keepers benefited who will in turn provide buck service to at least 225 goat farmers. At the end of the FAWP period, a collective total of 25 does were serviced, with the first set of offsprings expected July 2005.

### **Water harvesting and sanitation projects completed:**

R2RW assisted 4 communities in the Rio Grande Watershed to repair and upgrade existing water supply systems that were installed over 40 years ago, and helped train local tradesmen in installation and repair. It was important to begin the process of strengthening local community organizations, engaging them in the management of natural resources, and encouraging the formation of water users associations and functional benevolent organizations.

Four water supply projects were completed and officially handed over at ceremonies – Cornwall Barracks, Comfort Castle, Moore Town and Windsor. The specific activities carried out were:

#### *Cornwall Barracks*

- ✍ Construction of a new entombment
- ✍ Installation of a new pipeline from the new entombment to the existing distribution line

#### *Comfort Castle*

- ✍ Upgrading of an existing entombment
- ✍ Installation of new pipeline from the entombment to the main road, where the Parish Council made connections to the existing distribution line. The existing line was connected to supply Millbank and the new line to supply three lower communities.

#### *Moore Town*

- ✍ Upgrading of entombment
- ✍ New pipeline installation from the entombment to the Moore Town Community, creating independence from the lower community of Windsor.
- ✍ Training of the Maroon Council's team under the supervision of the NWC Technical staff.

#### *Windsor*

- ✍ Providing pipes to replace the defective pipeline along the road to Windsor

These water supply projects benefited 13 communities and a combined total of over 12,000 residents directly.

R2RW also completed three projects aimed at improving sanitation conditions in the RGW.

#### *Millbank*

- ✍ Upgrade sanitation for nine individual houses in Millbank,
- ✍ Converting pit latrines that were in close proximity to the riverbank to small bathrooms with a flush toilet, sink, and shower in order to reduce pollution in the river.
- ✍ Wastewater generated is treated using a plastic septic tank and a small constructed wetland.
- ✍ The Project worked with individuals and a past students association to promote acceptance of this alternative technology to the wider community.

## CASE

The College of Agriculture, Science and Education (CASE) established a field research system that consists of a 100m<sup>2</sup> fish pond with polyethylene lining and a 100m<sup>2</sup> hydroponics unit with gravel bed and pipe system, which utilizes treated wastewater from the livestock tutorial farm. R2RW designed and built a constructed wetland at this facility as a way to test constructed wetland performance under Jamaican environmental conditions.

## Coopers Hill

Water harvesting system to collect and store water  
Conversion of pit latrines to flush toilets for rural All-Age School  
Installation of septic tanks and constructed wetlands to dispose of effluent

## Public awareness programs in the RGW completed:

This activity was implemented in collaboration with the Public Awareness Task Force of the RRWMC with support given to the Jamaica Conservation and Development Trust (JCDT) to address environmental degradation within the upper Rio Grande watershed and Portland Parish Development Council in the lower watershed. The program was designed to raise awareness of the deleterious environmental practices (slash and burn agriculture and deforestation), water pollution (dumping of solid waste in rivers and streams, contamination from agricultural chemical residue run-off and deliberate river poisoning in order to catch fish). The program had five programmatic themes:

- ✍ Environmental stewardship, including among youth,
- ✍ Institutional capacity-building of key partners and communities,
- ✍ Community-based environmental competition,
- ✍ Funding for community-based environmental activities, and
- ✍ Improved enforcement and land management for eco-tourism

During the period, 42 Community animators were trained with 8 retained to work in 11 communities in the lower watershed and two who were already Junior Rangers continued to work in the upper valley. The animators were trained to work with community groups, help identify environmental issues, and link communities to information and resources to enable them to address their priority issues. The Junior Rangers, attached to the JCDT, already had a focus on conservation within the National Park Reserve, and were able to expand their community outreach.

The very successful Clean and Green program was launched between September and November at three Town meetings (2 in the lower watershed and 1 in the upper watershed-attended by some 1,200 people). This competition offered the animators in the lower watershed, who were relatively inexperienced in watershed management issues, a focal point for their work in communities. In the end thirteen communities participated (see section 4.4.2) for details.

The Youth and Environment conference and pilot project in solid waste management, two areas prioritised by the PATF a year earlier, equally contributed to the focused activities within the mandate of the overall public awareness program.

In addition, the JCDT continued its work on conservation, reforestation, and building community stewardship.

Finally, R2RW supported the Pesticide Control Authority (PCA) program focused on "Reducing Child Poisoning in Great River and Rio Grande Watersheds". The program conducted workshops in clinics and hospitals and produced and disseminated 100 posters and comic books. These pesticide use awareness materials were distributed to 4 schools in the Rio Grande (Fellowship, Comfort Castle, Moore Town, and Coopers Hill) and videos on pesticide and chemical management also presented.

Project impact was seen in the number of environmental stewards, including animators, who developed a gradual but growing awareness of environmental-related issues and violations, and who were brought in closer working relationships with partner agencies especially PEPA, NSWMA, the Port Antonio Theatre Group, the PDC and the Parish Council. The establishment of a Nature Park in Ginger House and improved solid waste management through partnership between communities and NSWMA, are also some of the outstanding results. One animator representing Pleasant Hill, Breastworks and communities off the main route of garbage trucks used posters, the environmental skits, as well as a presentation from the NSWMA representative on how to use the skip, to bring these adjacent communities into the mainstream.

**Component 2: Compliance and Enforcement**

**Training courses delivered to enforcement personnel:**

Building the capacity of official enforcement officers requires an intense, focused, and long-term approach. R2RW worked in partnership with MIND and ENACT to meet this challenge by developing four training courses on compliance and enforcement of environmental and planning legislation. These courses build on the recognized need for a formal training program in compliance and enforcement and on the work of a NEPA-led multi-agency participatory process to develop the training courses. The target groups for these training courses are the 1,570 enforcement officers presently in the Government service: 100 Enforcement Managers, 1189 Enforcement Officers, and 281 Game wardens. In addition, there is another audience estimated at 200 community leaders who would be interested in and would benefit from a tailored course for community leaders.

The following courses were delivered:

<b>Course</b>	<b>Length of Course</b>	<b># of times Delivered</b>
EC01 - Introduction to Resource Systems, Environmental Legislation and Planning Legislation;	10 days	5
EC02 – Techniques and Procedures for Enforcement and Compliance of Environmental and Planning Legislation;	6 days	5
EC03 – Personal Competencies for Enforcement and Compliance;	4 days	4
EC04 - Enforcement and Compliance of Environmental and Planning Legislation for Community Leaders.	3 days	2

Between September 2004 and April 2005, a total of 243 attended at least one of the above courses. For each course, MIND provided a handbook of resource materials, guidelines for facilitators, and a participant’s workbook. The development of these courses was jointly financed by R2RW and ENACT.

**2 Training courses delivered to community leaders in C & E:**

The EC04 course “Enforcement and Compliance of Environmental and Planning Legislation for Community Leaders” was delivered over three days to participants in both the Great River and Rio Grande Watersheds. The RG course took place with 28 participants on three consecutive days in October 2004, while 25 leaders were trained in the GR over three days in November and December 2004. The course consisted of three units as follows:

## EC04 course material

Course Units	Subjects Covered
Unit 1 – Global And National Environmental Problems	Air Pollution; Global Warming And Climate Change; Depletion Of The Ozone Layer; Water Pollution; Pollution Of The Marine Environment; Loss Of Biodiversity; Land Degradation; Desertification; Defining Sustainable Development; Agenda 21; Compliance And Enforcement; Environmental Management; The Need For Compliance And Enforcement Programs
Unit 2 – Local Environmental Issues	Jamaica's Physical Features; State Of Jamaica's Environment
Unit 3 – Economic Sectors Impact On The Environment	Tourism And The Environment; Agriculture And The Environment; Mining And The Environment

The participants in the course learned about the international and local environmental issues that affect their community, and are now are more knowledgeable so as to take informed decisions about courses of action to take in addressing breaches of environmental laws.

### **Second edition of Pocketsize field guide finalized, printed and being distributed:**

Based on feedback received, R2RW assisted in the production of a second, updated edition of the Pocket Guide to Environmental and Planning Laws of Jamaica. The second edition added information on additional laws, corrected mistakes in the first edition, and provided a more attractive format and graphics. The finalization of the 2<sup>nd</sup> edition was delayed by the Hurricane Ivan Recovery Program, and the shift of resources to support these activities. The publication of the 2<sup>nd</sup> edition will be financed through supplemental funds to be supplied through USAID to R2RW in June 2005, and the Guide sold to cover some of the costs of publication

### **Portland Quarries Monitoring Committee functional and addressing mining issues:**

An assessment of agencies involved in quarry monitoring in Portland was completed and circulated. The Mines and Quarry Division of the MLE named a Quarry Monitoring Committee for the Rio Grande, and the committee has been meeting regularly since June 2005.

The Quarry Monitoring Committee participated in a tour of mining operations in Portland conducted on March 16, 2005. The tour examined areas of high of beach and riverbank erosion, infrastructure damaged during flood events, the environmental controls of sand mining operations, and watershed practices to mitigate excessive erosion. The committee is sharing knowledge about the content of mining licences, and is now in a position to recommend action to deal with breaches of legal operations and to address illegal operations.

### **Compendium of environmental court cases prepared:**

The NEPA's Legal, Standards & Enforcement Division asked for support to develop a "Compendium of Environmental Cases in Jamaica". R2RW supported NEPA to hire four legal interns to research and prepare 12 cases presented in the draft compendium. Cases for inclusion were suggested by several agencies. The compendium sets out environmental, wildlife and natural resource cases from Jamaica and the Caribbean in a format with includes i) the charge, ii) relevant legislation, iii) summary details of the case, iv) the decision and v) where relevant a commentary.

### **Component 3: Institutional Strengthening**

#### **1 Networking Conference of local groups involved in resource management in watershed areas:**

The Second LWMC Networking Conference was held March 8-9, 2005 at the Runaway Bay Heart Hotel. Over sixty persons attended the conference. The purposes of the Conference were to:

- ✍ Review any progress in local resource management since the first Conference
- ✍ Review the findings and recommendations put forward by the R2RW Study on LWMCs and Local Government Reform
- ✍ Continue to build consensus on a process for the sustainable establishment, financing, and operating of LWMCs, including functions, procedures, compositions, roles, responsibilities and institutionalisation
- ✍ Continue to build some consensus on an Action Agenda for realizing the above.
- ✍ Share experiences, relationships and agree on some mechanism for continuity.

The major conclusions of the Conference were that there was renewed commitment to learn from each other and to develop a stronger linkage with the NIWMC; Attendees recognised the importance of working with communities and learned how much this might be accomplished from examples provided from the R2RW experience, as well through sharing their own experiences in group formation. A committee was also sent up to ensure continuity of the networking of the groups.

#### **Special studies completed and published:**

Special studies have been an effective means of answering important questions and guiding the decision-making process of stakeholders. The objective of this special studies activity was to provide a mechanism for addressing specific issues in watershed management in a focused and scientific way. Special studies brought scientific rigor to important natural resource management issues. Many students and planners have requested information from these studies to support their own work.

During the report period, emphasis was placed on completing special studies already started and initiating new studies only when the issue was compelling and the work could be completed before the end of the Project. Hurricane Ivan and the Project's response to the devastation brought new priorities to the R2RW and several planned studies were not completed as resources were reallocated to more pressing recovery efforts. The special studies activities included:

- ✍ Sediment Budget Study for Rio Grande and St. Margaret's Bay,
- ✍ Assessment of Flooding and Bank Erosion at Berridale,
- ✍ Determination of the extent and hazard of land slippage/faulting in Dumphries,
- ✍ Water Management Unit Reclassification
- ✍ Valuation study for development of incentives for improved land use practices in Buff Bay-Pencar Watershed
- ✍ Development of a herb, spice and medicinal plant industry in the Charles Town Development Area
- ✍ Final Gender Report

#### **End of Project Exposition Held:**

An end of Project Exposition and Awards Ceremony is scheduled for May 27, 2005. The exposition provides the opportunity to highlight Project achievements, share success stories, and communicate lessons learned during this five year Project. The closing ceremony includes a

review of key achievements, a statement on the impact and lessons learned from project experience, and presentations on project sustainability.

**Drafting Instructions for new NEPA Act produced:**

Over the last several years, NEPA’s mandate has changed to cover a range of areas including conservation and sustainable use of land, biodiversity and other natural resources, ecosystem protection, pollution prevention, trans-boundary movement of hazardous waste and the orderly development of its urban, rural, agricultural and marine environment. The Government proposed a new NEPA Act to clarify roles and responsibilities and incorporate the following current legislation into one Act:

- ✍ The Natural Resources Conservation Authority Act
- ✍ Watershed Protection Act
- ✍ Beach Control Act
- ✍ Wildlife Protection Act
- ✍ The Land Development and Utilization Act
- ✍ The Town and Country Planning Act

At the request of NEPA, R2RW provided a consultant to prepare detailed drafting instructions and make presentations on the proposed Act at a series of stakeholder consultations. Unfortunately, the consultant became sick during the consultancy period, and was unable to complete work under the consultancy. Nevertheless, preliminary ideas on the composition of the new NEPA Act were developed, and presented at these consultations, and feedback from participants obtained to inform the drafting instructions. NEPA focus on completion of the new NEPA Act changed with the departure of the NEPA’s CEO in February. New NEPA leadership that has not yet had time to focus on this issue will now direct completion of the Act. Work completed to date now resides with the Legal, Standards, and Enforcement Division (Legal Services Branch) of NEPA.

**Lessons Learned documented and disseminated to stakeholders:**

Lessons learned document was developed by STTA for sharing with NEPA and other Government agencies. Lessons Learned were discussed and used by LWMCs at Networking Conference, and in radio interviews and public presentations including the Clean and Green Awards Ceremony in Portland in April 2004, the Great River Green Village Awards Ceremony, and the Final Project Exposition. The five Lessons Learned Fact Sheets are as follows:

LESSON LEARNED	DESCRIPTION
1. Awareness Leads to Action:	Building Local Awareness and engendering stewardship is critical to the adoption of improved environmental practices by communities.
2. Enhancing Participation Pays Off in Watershed Management:	Effective partnerships among government agencies, NGOs, and community groups are critical to building sustainable solutions to resource management issues.
3. Building Capacity Sustains Change:	Targeted training, adds value to project initiatives and is essential for building long-term capacity in natural resource management.
4. Knowledge of Environmental Laws Improve Compliance and Enforcement:	Awareness and education of communities, enforcement officers and the judiciary are prerequisites for enhancing compliance and enforcement of environmental laws.
5. Incentives Motivate Environmental Protection:	Successful adoption of improved environmental practices depends on motivating factors and delivery of benefits.



### **Final Gender Report completed:**

Following on the Draft Gender Report 2004, further advice was given to Anchor Project Managers to keep disaggregated data. Other analyses were done to expand the understanding of gaps in gender equity.

Using a purely numerical indicator, the RGW's training sessions in land management; tree resuscitation and agro forestry, all related to improved livelihoods, attracted 80% males and 20% females. Most of the participants were older, average age between 40 and 70 years. There were however approximately 10% younger persons participating who were 18 to 35 years, the majority of whom were female. These persons are unemployed and show interest in any training activities in their communities. Many of the youth were sons and daughters of older farmers. Their attendance was vital, as they are literate and can take information back to the homestead for easier consumption. This was a strategy understood by R2RW managers, which brought some value to groups normally left out of such training.

Other Anchor Project Managers, for example in Cambridge and in Pineapple farming, experienced through natural selection, strong female participation in the Cambridge Benevolent Society, and approximately 25% female participation in pineapple production. In some communities, younger persons under 30 years in St. James (such as Catadupa, Retrieve, Stonehenge and Chesterfield) benefited from involvement with the expansion of pineapple growing. These persons have access to family land. In some communities such as Retrieve, the Jamaica Agriculture Society representatives, mostly females, contributed to the 50% female participation rate there.

The draft of final Gender Report was completed and it clarifies the inadequacy of numerical indicators for understanding "equity". However, it is a logical starting point in equity analysis.

### **Hurricane Ivan Recovery Activities**

#### **Clean up activities completed in 20 communities:**

32 communities benefited from HICUP grants to address issues such as clearing blocked drains, flood control and clearing debris from roadways.

#### **Forestry department nurseries rehabilitated and 200,000 seedlings produced:**

Three forestry nurseries were rehabilitated and irrigation systems installed. Over 200,000 seedlings were produced for distribution nationally.

#### **100 vegetable farmers assisted to pre-hurricane production levels:**

628 vegetable farmers, 28 freshwater food fish farmers and 25 ornamental fish farmers were assisted with inputs to assist in rehabilitation and recovery

#### **Sanitation systems improved at 15 rural schools:**

Sanitation systems installed in 11 primary and all-age schools. Also, 10 primary and all-age schools were supplied with proposed designs for sanitation systems, water storage tanks, and water saving water closets. Additionally, sanitation systems were installed in 10 rural basic schools.

#### **Water supply systems rehabilitated in four communities:**

Three water supply systems were installed benefiting five communities and 6,070 persons directly.

## ***Project Management***

**On time submission of work plan and semi annual reports:** The 5<sup>th</sup> Year Work Plan was submitted in October 2004 including all activities necessary to closeout the programmatic and administrative aspects of R2RW initiatives. This document contained a special section outlining the response to Hurricane Ivan and for the programming of \$710,971 of new Development Assistance and Child Health Funds. The 8<sup>th</sup> Semi Annual Report and 4<sup>th</sup> Annual Report providing a comprehensive reporting of the activities from October 2003 to September 2004 was submitted at the end of October 2004.

**Grant activities successfully closed out.** 24 grants with community based organizations and 4 grants with Non-government organizations were closed out during the period. Final progress reports were received from all grantees, along with final financial statements. The impact of the grantees was assessed through site visits to each grantee, and reviewing their contribution to the performance indicators as set out in the Performance Monitoring Plan.

**Project closeout plan implemented:** A comprehensive closeout plan submitted on March 31, 2005, was approved and implemented. The plan covered the following topics:

1. Closeout of Program Activities
2. Reports and Deliverables
3. Budget
4. Personnel – Staff Terminations
5. Local Consultant Agreements
6. Disposition of Inventory and Property
7. Project Leases
8. Sub-Contracts and Grants
9. Final Accounts and Vouchers
10. Disposition of Project Files
11. Demobilization of Expatriate Staff

Implementation of the plan is on track towards a complete Project shutdown on May 31, 2005.

**Final Project report completed:** An outline of the Final Report on R2RW activities has been drafted, and report preparation is on track for completion prior to the Project completion date.

## 11. Program Expenditures

On the following page, a summary of program expenditures incurred during the period October 1, 2004 to March 31, 2005 is provided. The expenditures are listed by key support areas, with a breakdown of expenditures by project Components, which partially correspond to USAID-required Contract Line Item Numbers (CLINs). The expenditures relate to the projected fiscal plans submitted in the R2RW Life of Project Strategy and Fourth Annual Work Plan and Childs Survival and Development Assistance funds provided to assist in Hurricane Ivan Recovery. The key support areas in the expenditure summary also correspond to NEPA's code accounts for fiscal reporting to the GOJ.

### ARD, Inc.

Ridge to Reef Watershed Project  
Period October 1, 2004 to March 31, 2005

Contract No. 532-C-00-00-00235-00

	RIDGE TO REEF CONTRACT FUNDS						HURRICANE FUNDS		TOTALS
	CLIN 1	CLIN 2	CLIN 3	CLIN 4	CLIN 5	CLIN 6	CS	DA	
Project Management & Admin	113,101	40,973	38,679	3,318	1,654	2,861	49,625	100,063	350,273
Travel, Transportation & Per Diem	24,977	6,142	1,106	0	555	0	7,039	19,187	59,006
Equipment & Supplies	19,253	8,697	2,174	0	1,144	0	183	287	31,739
Operating Costs	50,207	21,028	5,139	0	2,704	0	9,874	37,700	126,653
Subcontracts & Tech Assistance	119,213	23,054	4,883	0	731	0	20,399	38,446	206,726
Grants	114,024	0	0	0	0	0	297,754	125,709	537,487
Training									
- Study Tours	0	0	0	0	0	0	0	0	0
- In-Country	10,440	16,227	118	0	0	0	937	3,766	31,489
<b>TOTALS</b>	<b>451,215</b>	<b>116,121</b>	<b>52,100</b>	<b>3,318</b>	<b>6,788</b>	<b>2,861</b>	<b>385,812</b>	<b>325,158</b>	<b>1,343,373</b>

**MEMORANDUM OF UNDERSTANDING (MOU)**

Between the

**National Environment and Planning Agency (NEPA)  
And the**

**Rural Agricultural Development Authority (RADA)  
And the**

**National Water Commission (NWC)  
And the**

**Forestry Department (FD)  
And the**

**Social Development Commission (SDC)  
And the**

**Ministry of Health (MOH)  
And the**

**National Solid Waste Management Authority (NSWMA)  
And the**

**St. James Parish Council (St. James PC)  
And the**

**St. Elizabeth Parish Council (St. Elizabeth PC)  
And the**

**Hanover Parish Council (Hanover PC)  
And the**

**Westmoreland Parish Council (Westmoreland PC)  
And the**

**Pest Control Authority (PCA)  
And the**

**Jamaica Hotel and Tourist Association (JHTA)**

For the

**Establishment and Sustainable Operation  
Of the  
Great River Watershed Management Committee (GRWMC)  
As a Benevolent Society**

## **1.0 PURPOSE**

The purpose of this Memorandum of Understanding (MOU) is to establish a working arrangement between a range of stakeholders in the public sector, private sector and civil society in the Great River Watershed (GRW) for the establishment and sustainable operation of the Great River Watershed Management Committee (GRWMC) as a Benevolent Society.

## **2.0 BACKGROUND**

### **2.1 Great River Watershed**

The Great River watershed (GRW) is located in northwestern Jamaica covering parts of the four parishes of Hanover, St James, Westmoreland and St. Elizabeth. The Great River watershed has an area of 13,760 hectares (34,000 acres) and supports a population of approximately 85,000 persons. The GRW has considerable environmental and economic importance, as the Great River and its tributaries are the major source of water to Montego Bay, a major tourist resort area, and surrounding human settlements.

The Great River watershed is predominantly a limestone area with hilly and undulating terrain and moderate rocky slopes of generally less than seven degrees (68%). Almost a quarter of the watershed is forested. The main environmental threats in the GRW include water contamination and pollution, soil erosion, agrochemical pollution, sedimentation, deforestation, and threats to the coral reefs from nutrients and physical damage.

Land use in the GRW is diverse, with a mixture of agriculture, forestry, and small urban and rural settlements. Agriculture is the main economic activity within the watershed, including banana, citrus, other tree crops, cash crops, livestock and mixed farming, with a few large estates and numerous smallholdings of less than 4 hectares. However the dominant sources of employment for the people of the GRW are located outside of the watershed in the tourism industry in Montego Bay and Negril and in the industrial sector in the Montego Bay Free Zone.

Over 50% of population in the watershed live in thirteen (13) main communities, including Anchovy, Montpelier, Mafoota, Cambridge, Bethel Town, Seaford Town, Berkshire and Retrieve. The main watershed management issues relevant to human settlements in the GRW include garbage disposal, agricultural activities on steep slopes and marginal lands, squatting and lack of tenure, lack of proper infrastructure, praedial larceny, poor road conditions and transportation, high usage of pit latrines, inadequate sanitation services, inadequate irrigation, and rural/urban drift.

### **2.2 Great River Watershed Management Committee**

The Great River Watershed Management Committee (GRWMC) was established in 2001 under the Ridge to Reef Watershed (R2RW) Project with funding support from USAID and the Government of Jamaica (GOJ). The objectives of the GRWMC include advising NEPA and other state agencies on watershed management issues, promoting and monitoring environmental activities in the watershed, providing a forum for sharing lessons learned and for influencing national level policies, providing a medium for addressing concerns of local communities and other relevant stakeholders, and facilitating coordination and collaboration of state agencies and private sector activities in the watershed.

The GRWMC has over thirty (30) members comprising individuals from a range of entities in the public sector, private sector and civil society in the Great River watershed, including the stakeholders and partners described below. The GRWMC currently has the following four (4) Task Forces: Public Awareness; Production and Marketing; Water and Sanitation; and Compliance and Enforcement. The GRWMC has undertaken a range of activities to promote

sound watershed management practices in the GRW. The achievements of the GRWMC since its formation include support for sustainable livelihood projects such as goat rearing, scotch bonnet production and honey production; provision of environmentally acceptable sanitary solutions and water supply systems to communities; launch of public education and awareness campaigns including posters, videos, newsletters and live presentations; implementation of a water quality monitoring program in the Great River; and training of enforcement staff.

The R2RW project, which has provided funding for the operations of the GRWMC, is scheduled to come to an end in June 2005. The members of the GRWMC wish to ensure that the committee will continue to operate on a sustainable basis after the R2RW project. To this end the GRWMC will be established as a Benevolent Society to provide the committee with a separate legal identity. As part of the preparation for sustainable operation, a Strategic Plan for Sustainable Development of the Great River Watershed was prepared in 2003 under the R2RW project with the participation of members of the GRWMC. The Strategic Objectives of the GRW Strategic Plan are attached as Annex 1 to this MOU, and will serve to guide its implementation.

Under the GRW Strategic Plan, the following functions are envisaged for the GRWMC on an ongoing basis after its establishment as a legal entity:

1. Establish and facilitate a Stakeholder Communications Network
2. Convene an annual Inter-Agency Consultative Group meeting
3. Convene quarterly Inter-Parish coordination meetings
4. Work with the National Environment and Planning Agency (NEPA) and Parish planners to coordinate development of a watershed zoning plan
5. Raise awareness of watershed issues and mobilize communities in collaboration with the SDC
6. Advocate government interventions that will improve human and environmental conditions in the watershed
7. Work with NEPA to monitor implementation of the Plan.

### **3.0 STAKEHOLDERS AND PARTNERS**

#### **3.1 National Environment and Planning Agency (NEPA)**

The National Environment and Planning Agency (NEPA) is the lead agency in the implementation of integrated environmental and physical development planning in Jamaica, and has the overall responsibility for the management of watersheds under the NRCA Act (1991). NEPA performs a number of watershed management functions, including development of national plans and Programs, maintenance of databases and information systems for watershed monitoring and management, land use and zoning, enforcement actions, and promotion of awareness of watershed conservation. The Coastal Zone and Watershed Management Branch of NEPA focuses on monitoring and coordination of activities within watersheds, provides oversight of the sub-sector, and also serves as the Secretariat for the National Integrated Watershed Management Council (NIWMC) and chairs the Local Group Coordination Working Group of the NIWMC. NEPA also prepares development plans at the national, parish and local levels and processes applications for sub-division and development of land. NEPA has overall responsibility for Jamaica's system of Parks and Protected Areas, which include important centers of biodiversity in upper and lower watersheds. NEPA also operates regional offices in Montego Bay and Port Antonio. The staff of the regional offices participated in the activities of environmental task forces and committees in the parish including the GRWMC and the RGWMC, carry out inspection and enforcement duties, and undertake public education on environmental and watershed management issues at the parish and community levels. NEPA also is coordinating the development of the new NEPA Act, which will replace a wide range of environmental legislation including the Watershed Protection Act (1963).

### **3.2 Rural Agricultural Development Authority (RADA)**

The Rural Agricultural Development Authority (RADA) is a statutory body under the Ministry of Agriculture, with activities defined under the Rural Agricultural Development Act (1990). Its primary functions are to provide technical extension advisory services to farmers to increase production and productivity, to train and develop extension personnel, to administer training programs for farmers, to assist farmers and intermediaries in organizing cooperative marketing ventures, to disseminate marketing information to farmers on a timely basis, and to cooperate with other agencies involved in the development of rural infrastructure to improve the quality of life in rural communities including in the GRW.

### **3.3 National Water Commission (NWC)**

The NWC is a statutory organization governed by the National Water Commission Act (1980) and is responsible for providing potable water and wastewater services throughout Jamaica. The NWC produces more than 90 % of the island's total potable water supply from a network of underground wells, river sources and springs. The NWC is the largest single provider of water supply and sewerage services to urban residents, with approximately 25% of Jamaica's population served by sewerage facilities operated by the NWC. The NWC also has responsibility for a number of small sewerage systems associated with housing developments located throughout the island. The NWC is also the implementing agency for a number of major water and sanitation projects in urban centers, including the Kingston Water Sanitation Project and the Port Antonio Water and Sewage Project. The NWC depends on the Great River as its main source of potable water for Montego Bay and communities in the GRW.

### **3.4 Forestry Department (FD)**

The Forestry Department of the Ministry of Agriculture has the primary responsibility for the management and conservation of the island's forests, and operates a Head Office in Kingston and Regional Offices in Montego Bay and Moneague. The functions of the Forestry Department are mandated by The Forest Act (1996) and include management of forests on Crown lands and forest reserves, controlling the harvesting of forest resources, licensing and enforcement, forest research, public education, and promotion of agro-forestry and private planting programs. The Forestry Department has been instrumental in the establishment of two (2) Local Forestry Management Committees (LFMCs) in Buff Bay and Pencar, with membership from local CBOs, NGOs, and donor and sector agencies. The Forestry Department also liaises and coordinates with NGOs and CBOs in the implementation of forestry Programs in watershed areas such as the GRW, including re-forestation Programs, provides extension services at the local level, carries out a forestry education Program for schools and communities, and has collaborated with NGOs such as the JCDDT with delegated responsibility for management of parks and protected areas which include forested areas.

### **3.5 Social Development Commission (SDC)**

The Social Development Commission (SDC) is the main government agency responsible for the promotion of community development and the empowerment of communities to participate in the process of local governance. The SDC is involved in facilitating the formation and establishment of Development Area Committees (DACs) and CDCs through a process of community mobilization and visioning, and provision of organizational support and capacity building, including in the GRW. The SDC participates indirectly in the provision of environmental management and planning services through a number of mechanisms which are also relevant to watershed and forestry management at the local level, including representation on watershed management committees such as the GRWMC, support for ODPEM Zonal Committees, and facilitating the preparation of community-based plans.

### **3.6 Ministry of Health (MOH)**

The Ministry of Health (MOH) is organized into four (4) regions, with the Western Regional Health Authority which covers the parishes of Trelawny, St. James, Hanover and Westmoreland being responsible for some 82 health facilities and 4 hospitals with a bed capacity of 611, and serving a population of over 450,000 persons in these parishes. Through its responsibilities for environmental health under the Public Health Act the MOH has a range of functions including responsibilities relating to sanitation, water quality, abatement of environmental health hazards, food hygiene, occupational health, and building integrity as related to health issues. The MOH also deploys Public Health Inspectors to carry out a range of functions that are relevant to watershed management in the GRW, including inspection of sewage and wastewater treatment plants.

### **3.7 National Solid Waste Management Authority (NSWMA)**

The NSWMA was established in 2002 to take over the management and regulatory responsibilities for solid waste management at the national and regional levels, and is organized in four (4) watersheds to provide solid waste collection and disposal through regional offices, including Western Parks and Markets covering the parishes of Trelawny, St. James, Hanover and Westmoreland. The NSWMA is also involved in the implementation of the Solid Waste Management Program and the development and implementation of the National Solid Waste Action Plan. The performance of the NSWMA at the parish and municipal level is subject to oversight and monitoring by the local authorities, and the NSWMA also collaborates with communities in public education and solid waste clean-up campaigns at the local level including in the GRW.

### **3.8 Parish Councils**

Parish Councils have the power to process applications for planning permission, to issue stop and enforcement notices, to issue tree preservation orders, and to process sub-division and building applications including monitoring and enforcement of building regulations. Parish Councils also participate in the planning process at the parish level, including coordinating the integration of community-based plans and working with Parish Development Committees (PDCs) to facilitate the participation of civil society. Following the process of local government reform the main areas of environmental management and planning functions in which Parish Councils have responsibilities include solid waste management, sanitation, drains and gullies, hazard mitigation, disaster preparedness and emergency response, sustainable development planning, and development control. The involvement of the Parish Councils in solid waste management includes the oversight of the activities of the regional bodies of the NSWMA, disposal of solid waste recovered from parochial drains and gullies, and the disposal of solid waste from markets and municipal facilities. Local authorities also retain responsibility for municipal sanitary convenience facilities, and for the cleaning and maintenance of drains and gullies associated with parochial roadways in their parishes. The local authorities also have responsibilities in the area of hazard mitigation, disaster preparedness and emergency response, including hosting the Parish Disaster Committees, operating the Emergency Office Centres (EOCs) for their parishes, and providing aid in emergencies. The local authorities also have responsibilities for minor rural water supplies. The Parish Councils of St. James, St. Elizabeth, Hanover and Westmoreland also are represented as resource organizations on the GRWMC.

### **3.9 Pesticides Control Authority (PCA)**

The Pesticides Control Authority (PCA) carries out a range of functions under the Pesticides Act (1975, revised 1987) and Regulations (1996), including registration of pesticides, regulating the importation and use of pesticides, and licensing pest control operators. The PCA collaborates with other agencies including RADA and the Bureau of Standards in the collection and analysis of



pesticide and residue samples, and with the Veterinary Division of the Ministry of Agriculture regarding pesticides used in the control of pest infestations in animals.

### **3.10 Jamaica Hotel and Tourist Association (JHTA)**

The Jamaica Hotel and Tourist Association (JHTA) represents tourism-related businesses in Jamaica. The JHTA is primarily responsible for providing a forum for members to voice and discuss issues and concerns, providing advice and counsel on development matters, and representing members in lobbying with government agencies. The membership of the JHTA includes many hotels, attractions and other tourism-related businesses in the Montego Bay resort destination that benefit from watershed management in the Great River Watershed.

## **4.0 PREAMBLE**

**WHEREAS** the development of local watershed management committees is supported by the watershed policy of the Government of Jamaica and natural resource management at the local level is encouraged under international conventions and Programs on environmental management and sustainable development including Local Agenda 21;

**AND WHEREAS** the Great River Watershed Management Committee has been established under the Ridge to Reef Watershed Project with the support of the Government of Jamaica and USAID and the participation of a wide range of stakeholders in the public sector, private sector and civil society in the Great River Watershed;

**AND WHEREAS** the Great River Watershed Management Committee has undertaken activities that contribute to improved watershed management and sustainable development of the Great River Watershed;

**AND WHEREAS** the stakeholders are desirous that the Great River Watershed Management Committee will continue to operate on a sustainable basis after the Ridge to Reef Watershed Project comes to an end, and wish to support watershed management and sustainable development of the Great River Watershed;

## **5.0 AGREEMENT AND GENERAL PRINCIPLES**

**NOW THEREFORE**, in consideration of the foregoing recitals and of the mutual benefits and covenants contained in this Memorandum, the National Environment and Planning Agency (NEPA), the Rural Agricultural Development Authority (RADA), the National Water Commission (NWC), the Forestry Department (FD), the Social Development Commission (SDC), the Ministry of Health (MOH), the National Solid Waste Management Authority (NSWMA), the St. James Parish Council (St. James PC), the St. Elizabeth Parish Council (St. Elizabeth PC), the Hanover Parish Council (Hanover PC), the Westmoreland Parish Council (Westmoreland PC), the Pest Control Authority (PCA), the Jamaica Hotel and Tourist Association (JHTA), and the Great River Watershed Management Committee (GRWMC) hereby agree as follows:

### **5.1 The National Environment and Planning Agency agrees to:**

1. Provide to the GRWMC adequate office space at their Catherine Hall location to house the GRWMC computers and database
2. Provide staff support for the basic secretarial functions of the GRWMC including preparation and holding of meetings
3. Provide telephone and internet access for the GRWMC office
4. Work with the GRWMC and Parish planners to coordinate development of a watershed zoning plan for the GRW
5. Work with the GRWMC to monitor implementation of the Plan

6. Provide a forum for sharing lessons learned by the GRWMC and for influencing national level policies on watershed management
7. Commit relevant staff from central and regional offices to attend inter-agency meetings organized by the GRWMC to coordinate annual planning by state agencies for the GRW
8. Ensure recognition of local watershed management committees under the new NEPA Act
9. Support the strengthening of the relationship between the GRWMC and the National Integrated Watershed Management Council (NIWMC)
10. Institutionalize the support provided to the GRWMC in its Corporate Plans and Budgets

**5.2 The Rural Agricultural Development Authority agrees to:**

1. Commit relevant staff from central and regional offices to attend inter-agency meetings organized by the GRWMC to coordinate annual planning by state agencies for the GRW
2. Include information relevant to watershed management in technical extension advisory services provided to farmers in the GRW
3. Support the development of sustainable livelihoods for residents of the GRW
4. Cooperate with other agencies involved in the development of rural infrastructure to improve the quality of life in rural communities in the GRW
5. Commit staff to participate on relevant committees of the GRWMC

**5.3 The National Water Commission agrees to:**

1. Commit relevant staff from central and regional offices to attend inter-agency meetings organized by the GRWMC to coordinate annual planning by state agencies for the GRW
2. Support improved sanitation and water quality in the GRW
3. Commit staff to participate on relevant committees of the GRWMC

**5.4 The Forestry Department agrees to:**

1. Commit relevant staff from central and regional offices to attend inter-agency meetings organized by the GRWMC to coordinate annual planning by state agencies for the GRW
2. Commit staff to participate on relevant committees of the GRWMC
3. Support the development of sustainable livelihoods for residents of the GRW including provision of seedlings for agro-forestry and re-forestation projects
4. Include information relevant to watershed management in public education and technical extension services provided to farmers and residents in the GRW
5. Support compliance and enforcement efforts relevant to watershed management in the GRW
6. Commit staff to participate on relevant committees of the GRWMC

**5.5 The Social Development Commission agrees to:**

1. Commit relevant staff from central and regional offices to attend inter-agency meetings organized by the GRWMC to coordinate annual planning by state agencies for the GRW
2. Work with the GRWMC to raise awareness of watershed issues and mobilize communities in the GRW
3. Work with the GRWMC to provide a medium for addressing concerns of local communities and other relevant stakeholders in the GRW
4. Support the inclusion of watershed management issues in the preparation of community-based plans in the GRW
5. Promote the empowerment of communities to participate in the process of local governance in the GRW
6. Undertake training and capacity development of communities to address watershed management issues in the GRW
7. Commit staff to participate on relevant committees of the GRWMC

8. Contribute to the development and implementation of activities under the “Cleaning and Greening of Cambridge” project with the St. James Parish Council, the Cambridge Benevolent Society and the GRWMC

#### **5.6 The Ministry of Health agrees to:**

1. Commit relevant staff from central and regional offices to attend inter-agency meetings organized by the GRWMC to coordinate annual planning by state agencies for the GRW
2. Ensure the consideration of watershed management issues in the performance of its functions related to sanitation, water quality and environmental health in the GRW
3. Deploy its Public Health Inspectors to carry out inspection of sewage and wastewater treatment plants in the GRW and communicate its findings to the GRWMC
4. Commit staff to participate on relevant committees of the GRWMC

#### **5.7 The National Solid Waste Management Authority agrees to:**

1. Commit relevant staff from central and regional offices to attend inter-agency meetings organized by the GRWMC to coordinate annual planning by state agencies for the GRW
2. Commit staff to participate on relevant committees of the GRWMC
3. Collaborate with communities and the GRWMC in public education and solid waste clean-up campaigns at the local level including in the GRW

#### **5.8 The St. James Parish Council agrees to:**

1. Work with NEPA and the GRWMC to coordinate development of a watershed zoning plan for the GRW
2. Commit relevant staff to attend quarterly Inter-Parish coordination meetings for local authorities organized by the GRWMC on planning and land-use issues in the GRW
3. Support compliance and enforcement efforts relevant to watershed management in the GRW
4. Ensure the consideration of watershed management issues in the performance of its functions related to sanitation, water quality and environmental health in the GRW
5. Commit staff to participate on relevant committees of the GRWMC
6. Contribute to the development and implementation of activities under the “Cleaning and Greening of Cambridge” project with the SDC, the Cambridge Benevolent Society and the GRWMC

#### **5.9 The St. Elizabeth Parish Council agrees to:**

1. Work with NEPA and the GRWMC to coordinate development of a watershed zoning plan for the GRW
2. Commit relevant staff to attend quarterly Inter-Parish coordination meetings for local authorities organized by the GRWMC on planning and land-use issues in the GRW
3. Support compliance and enforcement efforts relevant to watershed management in the GRW
4. Ensure the consideration of watershed management issues in the performance of its functions related to sanitation, water quality and environmental health in the GRW
5. Commit staff to participate on relevant committees of the GRWMC

#### **5.10 The Hanover Parish Council agrees to:**

1. Work with NEPA and the GRWMC to coordinate development of a watershed zoning plan for the GRW
2. Commit relevant staff to attend quarterly Inter-Parish coordination meetings for local authorities organized by the GRWMC on planning and land-use issues in the GRW
3. Support compliance and enforcement efforts relevant to watershed management in the GRW
4. Ensure the consideration of watershed management issues in the performance of its functions related to sanitation, water quality and environmental health in the GRW

5. Commit staff to participate on relevant committees of the GRWMC

**5.11 The Westmoreland Parish Council agrees to:**

1. Work with NEPA and the GRWMC to coordinate development of a watershed zoning plan for the GRW
2. Commit relevant staff to attend quarterly Inter-Parish coordination meetings for local authorities organized by the GRWMC on planning and land-use issues in the GRW
3. Support compliance and enforcement efforts relevant to watershed management in the GRW
4. Ensure the consideration of watershed management issues in the performance of its functions related to sanitation, water quality and environmental health in the GRW
5. Commit staff to participate on relevant committees of the GRWMC

**5.12 The Pest Control Authority agrees to:**

1. Commit relevant staff from central and regional offices to attend inter-agency meetings organized by the GRWMC to coordinate annual planning by state agencies for the GRW
2. Provide information on the proper use of herbicides and pesticides in agricultural and horticultural sectors in the GRW
3. Collaborate with other agencies including RADA and the Bureau of Standards in the collection and analysis of pesticide and residue samples in the GRW
4. Commit staff to participate on relevant committees of the GRWMC

**5.13 The Jamaica Hotel and Tourist Association agrees to:**

1. Support the GRWMC in its efforts to promote watershed management and sustainable development in the GRW
2. Ensure the consideration of watershed management issues in the performance of its functions related to providing a forum for members, providing advice and counsel on development matters, and representing members in lobbying with government agencies
3. Commit staff to participate on relevant committees of the GRWMC

**5.14 The Great River Watershed Management Committee agrees to:**

1. Maintain an effective office at the Catherine Hall location of NEPA to house the GRWMC computers and database and perform basic secretarial functions including preparation and holding of meetings
2. Establish and facilitate a Stakeholder Communications Network for community-based organizations, residents, state agency representatives, parish-level officials, and private sector entities in the GRW
3. Convene an annual Inter-Agency Consultative Group meeting for state agencies to coordinate annual planning for the GRW
4. Convene quarterly Inter-Parish coordination meetings for local authorities on planning and land-use issues in the GRW
5. Work with NEPA and Parish planners to coordinate development of a watershed zoning plan for the GRW
6. Work with NEPA to monitor implementation of the Plan
7. Work with NEPA to provide a forum for sharing lessons learned by the GRWMC and for influencing national level policies on watershed management
8. Work with NEPA to support the strengthening of the relationship between the GRWMC and the National Integrated Watershed Management Council (NIWMC)
9. Work with the SDC to raise awareness of watershed issues and mobilize communities in the GRW
10. Work with the SDC to provide a medium for addressing concerns of local communities and other relevant stakeholders in the GRW

11. Advocate government interventions that will improve human and environmental conditions in the watershed
12. Contribute to the development and implementation of activities under the “Cleaning and Greening of Cambridge” project with the St. James Parish Council, the SDC and the Cambridge Benevolent Society
13. Facilitate the participation of the staff of stakeholders and partners on relevant committees of the GRWMC
14. Undertake systematic and ongoing efforts to secure funding support from local and international donors and sponsors, including individuals, private sector companies, government and non-governmental organizations, to support the sustainable operation of the GRWMC.

## **6.0 EFFECTIVE DATE**

This MOU shall come into force and effect on the date of signature by the Chairperson of the GRWMC and signature by the responsible person of each Party, and shall remain in effect until termination by any of the Parties, or until such time as the GRWMC may be dissolved.

## **7.0 AMENDMENTS AND DUE DILIGENCE**

- a. Any Party may withdraw from this MOU upon ninety (90) days written notice to the other Parties. Upon termination by any Party, the remaining Parties can elect to enter into a new MOU if necessary.
- b. The provisions of the MOU will be reviewed annually, and may be amended or supplemented as agreed upon mutually by the Parties.
- c. The Parties shall ensure that this MOU is carried out with due diligence and efficiency, and each shall provide such information relating to the GRWMC as may be reasonably expected by the other Parties.
- d. Any notices and communications to be given or sent by any of the Parties pursuant to this MOU shall be directed in writing and shall be deemed to have been duly give and/or sent to the Party to which it is addressed at the time of its delivery by mail, telex or fax at its respective address. Any one of the parties hereto may, by written notice to the other Parties hereto, change the address to which any notice or request intended for the Party so giving notice shall be addressed.
- e. All Parties shall endeavor to consult with each other in respect of any matter that may from time to time arise in connection with this MOU.

## **8.0 DISPUTES**

The Parties shall first negotiate any disputes or differences touching or concerning this MOU or its construction or effects or the rights, duties or liabilities of the Parties under or by virtue of it or otherwise or any other matter in any way connected with or arising out of the subject matter of this MOU. If the disputes or differences between the Parties cannot be resolved through such negotiations, the matter shall be referred to a single arbitrator or such other persons, body or process as the Parties may agree, for resolution.

## 9.0 ENTIRE UNDERSTANDING

This MOU constitutes the entire understanding between the Parties with respect to the GRWMC.

## 10.0 ENDORSEMENTS

IN RECOGNITION OF THE MUTUAL AGREEMENT AND UNDERSTANDINGS DISCUSSED HEREIN AND IN WITNESS THEREOF; the Parties hereto affix their signatures on this \_\_\_\_\_ day of January 2005:

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National Environment and Planning Agency (NEPA)  
By the Executive Director, Patricia Sinclair-McCalla

---

Rural Agricultural Development Authority (RADA)  
By the Executive Director, Albert Shand

---

National Water Commission (NWC)  
By the ,

---

Forestry Department (FD)  
By the Conservator of Forests, Marilyn Headley

---

Region 3 of the Social Development Commission (SDC)  
By the Regional Director, John White

---

Ministry of Health (MOH)  
By the

---

National Solid Waste Management Authority (NSWMA)  
By the

---

St. James Parish Council (St. James PC)  
By the Secretary Manager, Ian Reid

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St. Elizabeth Parish Council (St. Elizabeth PC)  
By the Secretary Manager,

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Hanover Parish Council (Hanover PC)  
By the Secretary Manager,

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Westmoreland Parish Council (Westmoreland PC)  
By the Secretary Manager,

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Pest Control Authority (PCA)  
By the

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Jamaica Hotel and Tourist Association (JHTA)  
By the

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Great River Watershed Management Committee (GRWMC)  
By the Chairman, Leon Hopkins

### **Ridge to Reef Watershed Project Pineapple Anchor Project Final Report**

Prepared by: Sadie Dixon  
Pineapple Project Anchor Coordinator  
April 27, 2005

#### **1 Introduction**

Pineapple production in the Great River Watershed is widespread and provides an economic development for most of the farmers in the watershed. Pineapple occupied some 800 hectares of land in the watershed, but with the intervention of the Ridge to Reef Project this figure has increased by an additional 34 hectares. Pineapple is the largest single agricultural crop. The Pineapple Anchor Project identified, several existing problems in pineapple production in the watershed. Most of these problems were as a result of inappropriate farming practices. The causes of the problem were identified as being physical, social, cultural and economic.

So the goal of the project was to improve the income and raised the standard of living of residents in targeted areas of the Great River Watershed and surrounding areas that in ways that are environmentally friendly and more economical viable and sustainable. The project sought to do by introduction of new varieties of planting material, on farm demonstration plots, improved agricultural practices, adaptability technologies, marketing strategies, and organizing farmers for training.

The project reaped success in the initiatives undertaken;

- I. Establishment of five demonstration plots of .25 acres each in the communities of Retrieve, Chesterfield, Coffee ground, Maybole and Ginger Hill. With the support of partner stakeholders RADA, SDC, JAS.PCA, NEPA and Antilles Chemical Company these plots were used as the catalysts for the development stage of the project.
- II. Introduction of new varieties of pineapple on the demonstration plots namely Ripley, Cowboy, Sugar loaf, Cheese, Honey and the re introduction of the Smooth Cayenne variety of pineapple back in Jamaica. The Smooth Cayenne variety of Pineapple is being produced through tissue culture at the U.W.I Biotechnology Laboratory. This will be distributed through RADA to participating farmers.
- III. Introduction of small hand tools. these included the wheel hoe, which is used for weed control, and this has caused a reduction in the volume of herbicide used previously for weed control.
- IV. Improved land preparation practices .the use of minimum tillage, planting of pineapple using the triangular method or the staggering method planting across the contour, placement of fertilizers, usage of organic manure and mulching to reduce weed growth, were all environmentally practices that were adopted.
- V. Linkages were established with West Best Foods in Darliston for purchasing of pineapple for processing, hotels in the Montego Bay area through the Jamaica hotel and Tourist Association. restaurants and exploring the potential of the Caricom market.



- VI. Establishing eighty acres of new pineapple plantation in the Great River Watershed communities, using adaptability environmentally friendly practices. Disbursement of land preparation incentive and providing plant nutrient to all of the participating farmers. Each farmer benefitted to a maximum of one acre and a minimum of half an acre
- VII. Organization of five farmer's groups around the demonstration communities. This has led to more organized training days and the advancement of the development stage of the project.
- VIII. Production of video on Pineapple, that was used in training days .the video stimulated a lot of interest in growing of pineapples and is being used extensively by the agricultural schools, RADA .JAS as part of their training resource material.
- IX. Production of booklet on "Production of Pineapple" which has been widely distributed to all stakeholders and schools in the watershed.
- X. The project was well represented at all the major agricultural shows and expositions.

## 2. Goals and Objectives

### The project goal was to:

To improve the income and standard of living of residents in targeted areas of the Great River Watershed and surrounding, and to provide sustainable livelihood so residents could focus more on protecting the natural environment.

### Objectives

- ✍ Established pineapple production using demonstration plots that showed improved pineapple production in an environmentally sustainable system
- ✍ Establish 100 acres of new improved pineapple in the Great River Watershed on Farm lots including some 100 farmers.
- ✍ Improved income generation through new and development strategies of culturing pineapples.
- ✍ Using training, workshops, farm tours to demonstration sites information booklets and a video to, increase the awareness of pineapple farmers.

## 4. Strategy

The project used a number of strategies in achieving the stated objectives and desired results. These strategies were undertaken as a project and in collaboration with some of our main stakeholders.

- ✍ Secure buy in from key stakeholders RADA, JAS. An initial meeting was held with all the stakeholders RADA, 4H, JAS, Antilles Chemical Company, Pesticide Control Authority. NEPA, SDC and farmers representatives from different communities .The aim and the objective of the project was outlined. Plan of action was decided on and the location of demonstration sites.
- ✍ Communities meetings were held throughout the watershed and a public awareness drive was launched
- ✍ Site selection for demonstration plots were done these were selected on the roadway to make for visibility
- ✍ Soil Analysis was done by the Rural Physical Planning Department. to determine nutrient requirement. Stakeholder participation was sought and Antilles Chemical Company, provided the plant food for maintenance of the plot

- ✍ Organizing the groups of farmers around the demonstration plots so they were given the chance of participating in all the activities on the plots.
- ✍ Group of twelve farmers were selected, and the farmer who would manage the plot was also selected.
- ✍ The demonstration plots were established .a size of .25 acres each.
- ✍ On farm training field days and demonstrations were carried out at all five demonstration plot locations.
- ✍ Training in land preparation, land husbandry
- ✍ Training in all relevant areas of production and land management was done.
- ✍ Weekly monitoring of all demonstration plots was done
- ✍ Two field assistants were hired to assist in the development stage to establish new acreages.

#### 4. Project Result

Activity Name	Progress	Comments
Secure Buy-in Stakeholders	Stakeholders meeting held including RADA, JAS, SDC, PCA, ACC, NEPA and Processors and Farmers	Awareness and goals and objectives of project outlined
Demonstration site selected	Five Demonstration plots selected: 1.Maybole 2.Ginger Hill 3.Retrieve 4.Chesterfield 5.Coffee Ground	Soil analysis was done by Rural Physical Planning Department. Recommendations made for plant nutrition.
Arrangement for Planting Material	Local high quality planting material sourced. 1.Ripley 2.Sugar Loaf 3.Cowboy 4.Cheese 5.Honey  15000 suckers were bought from local farmers. U.W.I. Biotechnology Centre has achieved success in producing 4,000 tissue culture Smooth Cayenne variety. RADA will distribute these.	Plots at Chesterfield, Retrieve, Maybole, Ginger Hill, were established with four varieties  The plot at Coffee ground was established with five varieties.
Public Awareness for pineapple project	Five Farmers group was organized and established. Each group had 12 farmers each. These groups provided the avenue through which the development stage of the project was driven. Production and Distribution of pineapple booklets	Farmers meeting, training through workshops, field days, demonstrations were centered on this nucleus of farmers.

Activity Name	Progress	Comments
	to all stakeholders stake. Distribution of booklets and poster presentation at the Caribbean Food Crop Society Conference in St Johns. Radio interviews were done to educate wider public. Several tours were conducted on demonstration plots	
Pineapple Demonstration plot	Five demonstration plots were established each plot was an average of .25 acres each. Each plot had an average of 4000 pineapple suckers with 4-5 varieties of pineapple. Signage was placed at each location for easy identification. Sixty training days were held benefiting seven hundred and twenty farmers.	Plots were visited and monitored on a weekly basis. All environmentally friendly techniques were employed. Lining and spacing, preparation of holes, contour planting, variety comparison, fertilizer placement, weed management and treatment of planting material were initiated. Partner stakeholder provided the plant nutrient for the plots
Established 80 new acres	81 farmers benefited from lining of plot, cord for lining, land preparation incentive, plant nutrient material. Three hundred thousand dollars disbursed in land preparation subsidy. Three hundred bags of soil nutrient distributed.	Farmers benefited from a minimum of .5 acres to 1 acre maximum. Land preparation incentive of Four thousand dollars per acre was given to participating farmers, along with four bags of plant nutrient.
Complete Marketing Strategy	Key stakeholders were identified and targeted hotels, restaurants, processors, supermarkets and exporters. Meetings and discussions held, for marketing of improved production.	Marketing division of RADA will continue to work with farmers on the marketing of produce.
Exit Strategy	Hand over of beneficiary cards to RADA for sustainability of activities after R2RW.extensive discussions with RADA and JAS.	
Produced and utilization of pineapple production video.	Video completed. Widespread distribution in both Great River Watershed and Rio Grande Watershed to RADA, JAS, GRWMC, Antilles Chemical Company, Elim Agricultural School, College of Agriculture Science and Education. Knockalva Agricultural School, Farmers groups	Video was shown at all meetings of pineapple farmers, Production and Marketing Task Force Meeting of GRWMC. Video to be used extensively by RADA and JAS as part of their extension training material in pineapple production.

## 5. Summary of Monitoring Indicators

Objective	Performance Indicators	Means of Verification	Progress
<p>1. To establish a pineapple demonstration variety trial</p> <p>2.To establish or ameliorate pineapple crops in an environmentally sustainable production system</p>	<p>-Five (5) plots each of .25 acres established</p> <p>-Increased production measured on plot.</p> <p>- 5000 tissue culture plants tissue culture plantlets &amp;15000field suckers established.</p> <p>Soil conservation structures in place</p> <p>-Forty (40) training sessions.</p>	<p>-Number of plants planted, number of soil conservation barriers, water quality measurements, weight of pineapples</p> <p>-New varieties on the market</p> <p>-Records and reports</p> <p>-Evaluation report from training sessions.</p>	<p>1500 plants planted, 125 chains of trenching done, 15 soil conservation barriers of stones, sugar cane and vetiver established., Water quality monitoring done by N.W.C in the Great River has improved, reduction in pesticide residues, weight of pineapples increased to 4lbs average weight each,, five varieties of pineapple available on the market. Forty training sessions done Increased demand for training Evaluation from training new awareness created, greater understanding of production practices, number of people accepting new techniques. Willingness of the farmers to accept the new technologies and the number of farmers that wanted to replant</p>
<p>2.To establish 100 new acres of pineapple in the Great River Watershed</p>	<p>-At least 100 farmers participating.</p> <p>-Increased area of new pineapple planted or replanted versus total acreage existing of new.</p> <p>-Improved quality of the fruit</p> <p>Improved water quality.</p> <p>-More visibly conservation barriers</p> <p>Thirty (30) training sessions.</p>	<p>-Number of plants planted, number of soil conservation barriers, water quality measurements weight of pineapple.</p> <p>-Records and reports,</p> <p>-Evaluation reports from training sessions.</p>	<p>Some 960,000 pineapple plants were planted, on 80 acres. Some 3200 chains of soil conservation barriers were constructed.</p> <p>Average weight of pineapple –4 lbs each. Pineapple production moved to 14 tons per acre. Evaluation from training revealed farmers reporting increased yields from plots. More marketable yields. Improvement in soil conservation, water quality improvement, reduced pesticide usage due to the integrated approach to pest management.</p>

Objective	Performance Indicators	Means of Verification	Progress
<p>3.To improve income generation from new development strategies of cultivating pineapples</p>	<ul style="list-style-type: none"> <li>-Increased production from a unit of Pineapple planted.</li> <li>-Identifiable market for pineapple</li> <li>-Increased income from pineapple sold.</li> <li>-Competitive prices for pineapple being sold.</li> <li>-Competitive prices being offered for pineapple.</li> </ul>	<ul style="list-style-type: none"> <li>-More economic: activity in the project area</li> <li>-Number of farmers replanting without assistance.</li> </ul>	<p>Increased economic activity as a result of the development, replanting of fields created employment for community members. Sale of pineapple plants, increased transportation activity, increased training, purchasing of farm inputs. Additional 50 farmers started replanting fields.</p> <p>Increased prices for pineapple an average of \$25/lb. Improvement in the standard of living of the farmers. Additional farm income as a result of intercropping. Diversification of cropping pattern.</p>
<p>4.To use training workshops, an information booklet &amp; a video to increase the awareness of pineapple growers.</p>	<ul style="list-style-type: none"> <li>-Seventy workshops &amp;field days in total</li> <li>-Farmers demonstrate improved understanding of the environmentally sustainable methods of cultivating pineapple.</li> <li>-Improved cooperation with implementing environmentally sustainable methods of planting pineapple.</li> </ul>	<ul style="list-style-type: none"> <li>-Number of workshops</li> <li>-Registration of participants at workshops.</li> <li>-Post workshop assessments.</li> <li>-Number of request for and usage of training materials.</li> <li>-Increased requests for technical assistance.</li> </ul>	<p>70 workshops, field days. training sessions held. Request for assistance amounted to some three hundred acres. Video was widely distributed and used by all stakeholders requests for additional copies surpassed budgeted allowance. Participation of the project in Agricultural fairs at Denbigh, Montpelier, expositions , and fairs. Requests for training from schools and 4Hclubs across the Great River Watershed. Requests for the showing of the video at community meetings and on local cable station. Increased social interaction among farmers, as a result of them working together in groups. More cohesion and community spirit and upliftment.</p>

## Summary and Conclusion

As stated previously in the Pineapple Anchor Project's main objectives the demonstration plots are supposed to be the catalyst of agronomic changes for the pineapple farmers. The demonstration /trial plots was a major activity of the Ridge to Reef Watershed Project through the Anchor Project No.1 "Improved Production of Pineapple for Sustained Livelihoods", has encouraged and demonstrated to the present and potential pineapple growers, the benefits of growing pineapple with improved cultural practices such as:

- ✍ The selection of the best planting materials such as the types (fruit subtended, suckers, crown) size and health.
- ✍ Good plant nursery practices especially from crown and fruit subtended suckers.
- ✍ Ideal plant spacing for optimum population, weed control, soil conservation, crop protection etc.
- ✍ Field layout of flat and hillside lands.
- ✍ Weed and pest control practices through mainly cultural and manual methods including rouging and small hand tools.
- ✍ Applications of plant nutrient through the soil and foliar sprays.
- ✍ The benefits of various mulches organic and plastic

The demonstration included a comparison of other pineapple varieties such as a Ripley, Sugar loaf, and the Smooth Cayenne variety, which will be introduced at a later date. The Smooth Cayenne variety is the most popular now being grown in the world. The plots were located in the five recognized pineapple growing communities. These were used to demonstrate the best pineapple production practices and comparison made with existing farmers fields. The data collected was used to analyze and evaluate the project. The data was collected regularly and recorded and analyzed .The data collected included:

1. Date of Planting
2. Date of treatment
3. Rate of plant growth at six monthly intervals (height above ground level).
4. Biomass of above ground, plants cut at ground level and taken.
5. Length and eight of roots (same plant used for above).
6. Time to 10%flowering of all plants.
7. Time to 100% flowering of all plants.
8. Time range to maturity of all fruits (25%of color change at base).
9. Weights of fruits at maturity.
10. Quality and market acceptance.

Twenty samples were taken each at random using every 4<sup>th</sup> plant in the experimental area. Collaboration was sought from all the stake holder in the watershed, but the chief among them were:

1. RADA in the four parishes of the watershed involved.
2. JAS in the parishes involved
3. Antilles Chemical Company who were the partners responsible for providing plant nutrition for the plots.
4. Pesticide Control Authority provided guidance and training in the use of pesticides.
5. Pineapple Processors-West Best Foods.
6. Owners of the demonstration plots.

The development stage of the project achieved its desired objective, in getting pineapple farmers to adopt the new technologies from the demonstration plots.

It has encouraged alternative survival strategies that are environmentally friendly. It has created new opportunities for employment in agriculture, as most farmers and their family supply the labor, and hire age is done for land preparation and at reaping. In providing an alternative it has given the opportunity for participation in environment improvement practices.

New acreages has been established this has resulted in increased agricultural output, increased farm incomes to the farm families .On the social side it has shown that communities can respond to positive changes. Local community people have been empowered to build bonds through cooperation. Linkages have been formed whereby communities can again think of agriculture as one of the key areas for development.

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Report On: R2RW Anchor Project No. 2

**"CLEANING AND GREENING OF CAMBRIDGE"**



Prepared for:  
The Ridge to Reef (R2RW) Project  
by  
*Janet "Patti" Bedasse,*  
*Project Coordinator*  
April 29, 2005



## ACRONYMS

CBS	CAMBRIDGE BENEVOLENT SOCIETY
CDC	COMMUNITY DEVELOPMENT COMMITTEE
GRWMC	GREAT RIVER WATERSHED MANAGEMENT COMMITTEE
HICUP	HURRICANE IVAN COMMUNITY UPGRADING PROJECT
JIS	JAMAICA INFORMATION SERVICE
JSIF	JAMAICA SOCIAL INVESTMENT FUND
JRC	JAMAICA RAILWAY CORPORATION
MIND	MANAGEMENT INSTITUTE FOR NATIONAL DEVELOPMENT
MOEC	MINISTRY OF EDUCATION AND CULTURE
MOU	MEMORANDUM OF UNDERSTANDING
NEEC	NATIONAL ENVIRONMENTAL EDUCATION COMMITTEE
NSWMA	NATIONAL SOLID WASTE MANAGEMENT AUTHORITY
NWA	NATIONAL WORKS AGENCY
PHD	PUBLIC HEALTH DEPARTMENT
PTA	PARENT TEACHER'S ASSOCIATION
RRA	RAPID RURAL APPRAISAL
R2RW	RIDGE TO REEF WATERSHED PROJECT
SDC	SOCIAL DEVELOPMENT COMMISSION
St. JPC	St. JAMES PARISH COUNCIL

## 1.0 Introduction:

The overall goal of the Ridge to Reef Watershed (R2RW) project was to place “Natural Resources under improved and Sustainable Management”.

The project contained three components as follows:

1. Through targeted organizations, **sustainable environmental management** practices by resources users identified and supported;
2. Incentives for and obstacles to **compliance and enforcement** of targeted existing environmental regulations identified and solutions supported;
3. **Institutional strengthening** of Jamaican government agencies, international donors, private sector and civil society organizations to implement effective watershed management programs.

The vision of the Project was summarized as follows: “Sustainable watershed management (SWM) will be achieved through a comprehensive and integrated approach that includes enhancing the capacities of individuals and organizations through skills building training; improving governance mechanisms through focusing on local watershed management committees; updating policies and laws that directly impact watershed management; improving the coordination of institutions impacting Sustainable Watershed Management (SWM) and the incorporation of SWM activities in corporate plans; and finally enhancing the awareness of the public to environmental issues.

The R2RW Mid Term Assessment Report recommended that specific activities implemented under Component 1 be consolidated and managed in such a way that impact is maximized and measured. The approach to consolidation was the implementation of major initiatives referred to as “Anchor Projects”. The basis of Component 1 was to work with local organizations, governmental, non-governmental, private sector and community-based groups to identify appropriate management practices for watershed resources users and to enhance the capacity of specific watershed communities to improve watershed management.

One of the seven main activity areas of Component 1 was the “**Cleaning and Greening of Cambridge – Anchor Project # 2**”.

On January 7<sup>th</sup> 2004, a Coordinator was contracted to facilitate the process of the “Cleaning and Greening of Cambridge” through the re-development of the Community Development Committee (CDC) for Cambridge in order to provide a local governance mechanism for the community to be involved in the management of its natural resources; and to implement activities of the CDC and its constituents who are likely to contribute to improved watershed management practices.

As stated in the R2RW Fourth Annual Work-plan – Anchor Project No. 2, Cambridge was one of the environmental “hotspots” of the Great River Watershed. This was mainly due to the unsanitary conditions prevailing in the town square making it a public health hazard to residents and visitors alike.

Through the action of members of the Compliance and Enforcement Task Force of the Great River Watershed Management Committee and members of the Cambridge Community, two of the main offenders have ceased their operations, which were the slaughtering of animals in unsanitary conditions and the raising of chickens and pigs in the town in a less than hygienic situation. However the slaughter house, chicken coops and pig pen physical structures remained an ugly sight in the town centre.

Unsanitary conditions remaining to be tackled included:

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The open disposal of un-containerized garbage that stayed for days before being collected resulting in an eyesore as well as a potential public health issue;

- ✍ The private use of the public sanitary conveniences for other purposes;
- ✍ Inadequate drainage and sewage disposal leading to major run-off and flooding in the town;
- ✍ The growing of informal settlements on railway lands in and around the town, adding to the sanitation issues as well as increasing soil erosion;
- ✍ Many land slippages, and
- ✍ More recent housing solutions compounding the problem as soak-away sanitary solutions were being placed very close to the river.

Some of the Community groups were very aware of the problems, but felt inadequate to deal with the challenges especially financial ones and where influential persons were concerned. The community frustrations led to considerations for inappropriate solutions. Both the Women's Group and the Police Youth Club had been actively advocating for improvement in these areas. The SDC and the St James Parish Council were actively involved in re-developing the Community Development Committee (CDC) for Cambridge in order to provide a local governance mechanism for the community to be involved in the decision making process, including the management of the natural resources.

A Rapid Rural Appraisal of the Great River Watershed undertaken by R2RW indicated:

- ✍ A growing population in the Cambridge community (9,000 approximately) that is rapidly becoming a dormitory for Montego Bay, with tourism and industry being major sources of income for younger people. Older people are mainly involved in agriculture;
- ✍ Average household of 3.9 persons with over 50% being headed by women; and
- ✍ A growing informal settlement that lack tenure, and therefore "ownership interest in the town's development.

The main beneficiary of this project would be the population of Cambridge, its associated groups, the St. James Parish Council, key central government agencies, and other communities in the watershed.

## **2.0 Project Goal**

The goal of this anchor project was to support the SDC, the St. James Parish Council and other stakeholders in re-developing the Community Development Committee (CDC) for Cambridge in order to provide a local governance mechanism for the community to be involved in the management of its natural resources; and to support activities of the CDC and its constituents that were likely to contribute to improved watershed management practices.

### **2.1 Linkage to Goals of Ridge-to-Reef Watershed Project:**

This anchor project was expected to contribute to the overall goal of the R2RW Project of "natural resources under improved and sustainable management", through:

1. Supporting targeted activities of the CDC and its constituents that were likely to contribute to improved watershed management practices. These were expected to include improved sanitation and soil conservation practices;
2. Undertaking public awareness strategies to make residents more aware of the environmental and planning regulations, with the hope of achieving greater compliance with, and community involvement in the enforcement of these regulations;
3. Supporting the CDC as a local governance mechanism to obtain greater community participation in the management of natural resources; and

4. Building the capacity of partner agencies (central and local governments, and CBOs to more efficiently undertake their mandates.

This was expected to be directly supportive of the USAID strategic objective 2 (SO2) – “improved quality of key natural resources in selected areas that are both environmentally and economically significant”

### **2.1.1 Project Objectives:**

The objectives of this project were to:

1. Support the SDC, St. James Parish Council and other partners in the re-development of the Cambridge CDC as a local governance mechanism that is expected to include in its mandate, participation in the management of natural resources;
2. Support activities (sanitation, soil conservation etc) of the CDC and its constituents that are likely to contribute to improve watershed management practices; and
3. Support public awareness activities that are geared to make residents more aware of the environmental and planning regulations

### **3.0 Methodology**

The following strategies were adopted for implementation of the project:

1. Literature review:  
***Great River Watershed Management Committee Report – Leon Hopkins; Compilation of Technical Reports –R2RW March 1, 2001- October 6, 2003; Notes from SDC; R2RW Fourth Annual Workplan – Final Document.***
2. Key informant interviews to understand the views and opinions of critical members of the community.
3. Focus Group discussions to verify findings of SDC’s community mapping exercise.
4. Meetings and discussions with key stakeholders – the Social Development Commission, the Parish Council and the GRWMC (inclusive of the National Solid Waste Management Authority – NSWMA).
5. Establishment of working partnerships with key stakeholder agencies (SDC; St. James PC; NSWMA; GRWMC; CBS)
6. Reconnaissance visit and establishment of office in the project area.
7. Participatory Rapid Rural Appraisal of Cambridge
8. Establishment of a legally registered community group
9. Zoning of community to establish smaller district groups which all had representatives attending the community group meetings
10. Design and implementation of Public Awareness Campaign based on results of baseline survey
11. Capacity building and training exercises for community members based on needs assessment

12. Development of participatory action plan for implementation of the CBS' first major project – the extension of the Cambridge Infant School
13. Weekly meetings of district groups
14. Weekly meetings of the CBS
15. Monthly meetings of the CBS executive
16. Quarterly public community meetings

### **MONITORING and EVALUATION**

1. Baseline survey to establish awareness levels prior to implementation of Public Awareness Campaign
2. Post Public Awareness Campaign Survey to establish levels of increase in awareness
3. Participatory appraisal of progress made by project through use of pre-determined indicators.

#### **4.0 Results**

The Project was expected to result in:

- ✍ A functioning partnership in Cambridge by way of the CDC, that includes involvement in local resources management;
- ✍ A cleaner Cambridge and its environs; and
- ✍ Greater awareness of environmental issues by the residents of Cambridge, including greater compliance with environmental and planning laws, and more vigorous prosecution where violations occur.

The Implementation Plan developed for the project was scheduled over a seventeen (17) month period (January 2004 – May 2005) and estimated to cost J\$7,115,000.00 inclusive of staff salaries and recurrent costs related to office operations.

According to the R2RW RRA results, 50% of the households in Cambridge are headed by women and they along with men, children and the elderly impact differently on resources in the watershed. The project took this into consideration and sought to implement strategies to influence the cultural, gender and special group interests positively. Attempts to involve the wood carvers in establishing commercial plots did not materialize but they attended a meeting and learnt about different untraditional carving woods that were ideal for their trade. They also learnt that they did not need to fell an entire tree to get carving material. Awareness was also created around the fact that if they continued to remove trees without replanting them, soon there would be no trees.

The Project started long after construction of the new housing scheme began and efforts to effect changes to the “soak away” sanitary solutions close to the river have so far been futile with the Public Health Department remaining adamant that the present situation poses no threats.

Women outnumber men in the CBS membership. The executive comprises four men and five women. The first chairperson was a man but he has since been replaced by women in two successive elections. He maintains the vice-chairman position and emerged as the manager of the JSIF Project. All the district groups are led by women.

The activities of the CBS have attracted collaboration with a group of persons who hail from Cambridge and now live abroad but are dedicated to the improvement of the standard of living in Cambridge. The group has visited and donated computers to the Cambridge schools. They also hosted a Health Fair with the assistance of the CBS. They have advised the CBS of their decision to participate in the first Annual Cambridge Green Day activities and also to provide and present an award.

Collaboration with the main partners, St. JPC, NSWMA, GRWMC and to a lesser extent the SDC, has impacted positively on project implementation. Although the members of the business community, did not participate in meetings, they cooperated with requests for their proper disposal of garbage and have also supported different aspects of the project through in-kind donations, discounts, and advice. Six businesses have pledged to provide trophies for Awardees in the District Beautification Competition. Discounts have also been given to the Cambridge Infant School Extension Project.

A Community Recognition Ceremony will form a part of the First Annual Cambridge Green Day procedure. Persons who have served the community well will be recognized. Membership in the CBS is not a part of the qualifying criteria but it is felt that such recognition will serve as a catalyst for subsequent membership.

CBS members are ecstatic about the successes they have achieved in cleaning and beautifying their environment and are presently preparing a proposal to seek funding to refurbish the Health Centre.

The results of the project activities are documented below:

**TABLE 1**

			<b>COMPLETE</b>	<b>MAJOR ACHIEVEMENTS</b>
<b>3.4.1</b>		<b>DEVELOP GOVERNANCE MECHANISM FOR ALL ACTIVITIES UNDER: SANITATION PRODUCTION &amp; MKTG. &amp; PUBLIC AWARENESS</b>		
	1	<b>Refurbishing of office building</b>	v	The SDC Office in the South St. James Development Trust's complex in Cambridge was made available for use as the Project Office. Refurbishing exercises were necessary in the office, bathroom and kitchen.
	2	<b>Purchase of office furniture</b>	v	See inventory listing
	3	<b>Purchase of office equipment &amp; supplies</b>	v	See inventory listing – Ownership of the office equipment and furniture will now be divided between the community group and the SDC.
	4	<b>Hire Community Animator (s) – 2 (Part-time)</b>	v	Only one was necessary and he was hired on a full-time basis until the fifteenth and final month of the project when he worked on a part time basis for three days weekly .
	5	<b>Hire Office Assistant (Part-time)</b>	v	An office assistant was hired for the first three months of the project.
	6	<b>Hire Office Attendant (Part-time)</b>	v	An office attendant was hired for the first month of the project. After that, office cleaning was done by the project staff as the office was quite small.

			<b>COMPLETE</b>	<b>MAJOR ACHIEVEMENTS</b>
	7	<b>Provide Community Profile through Participatory Rapid Rural Appraisal</b>	v	The community profile was the responsibility of the SDC and was completed in March 2005 after the R2RW project provided the necessary funding for the collection of data. Consequently, to implement the project a Participatory Rapid Rural Appraisal started by the SDC had to be completed.
	8	<b>Survey to establish Demographics &amp; awareness levels</b>	v	A survey was done to establish some demographic data as well as environmental awareness levels and to create a baseline for implementation of the Public Awareness Program.
	9	<b>Information exchange between Partners and Beneficiaries</b>	v	Meetings were held with potential partners to introduce the project and establish partnerships: SDC, St. James PC, NSWMA, GRWMC. A steering committee chaired by the SDC met on a quarterly basis. Meetings were held with individual agencies as they became necessary. A presentation was made to the St. James Parish Council and a request made for the Council to pass a resolution for support of and involvement in "The Cleaning and Greening of Cambridge" The resolution was passed. A Memorandum of Understanding has been signed by the major partners (CBS, St. James PC, SDC, NSWMA, GRWMC) for continued partnership in the sustainable development of Cambridge after the R2RW project. An action plan for the 2004-2005 partnership has also been developed using Advanced Participatory Methodology.
	10	<b>Formation of Ad Hoc Committee</b>	v	An ad hoc committee of Cambridge Citizens desirous of becoming involved in the town's development was formed. It comprised representatives of the CBOs, which exist in the community and also sought to be representative of the 11 districts, which are in Cambridge. This Ad Hoc Committee evolved into the Cambridge Benevolent Society with 45 members, which was legally registered in June 2004. This membership continues to be representative of the various districts through district groups that have also been formed.
	12	<b>Capacity Building: Organizational Development</b>	v	A needs assessment was done and a Capacity Building and Training Program designed for the community. Initially, it was agreed that the training would be shared between the R2RW Coordinator, R2RW main office and the SDC but the SDC's training did not materialize. The slot was filled by the R2RW Coordinator. Community members have been exposed to training in: Principles of Cooperation for groups; Operations of legally registered groups and their obligations; Organizational Development as a CBO; Leadership, Group Dynamics, Communication; Conflict Resolution; Project Implementation (The CBS has completed implementation of its first project with a \$M4.3 grant from JSIF); Meeting Management; Minutes Taking; Fundraising; Proposal Writing; Community Environmental Law; Legislation related to the environment; Watershed Management; Advanced Participatory Methods. They have also participated in a Solid Waste Seminar; Sanitation Workshop; and the Faith and the Environment Seminar. Members also

			<b>COMPLETE</b>	<b>MAJOR ACHIEVEMENTS</b>
				participate in the Task Forces of the GRWMC.
	13	<b>Dissemination of information to community members</b>	v	Information regarding the activities of the CBS and the Cleaning & Green of Cambridge Project was continuously passed on to community members through various communication channels: Town criers; JIS; Community cable TV; Weekly district meetings with Community Animator, Public Awareness Program; Weekly CBS meetings; Quarterly public community meetings; Monthly CBS executive meetings; Monthly newsletters; Newspaper articles.
	14	<b>Networking – Field Trip to meet another group that has undergone similar development as planned for this one</b>	v	The Boundbrook community group in Portland was visited by members of the CBS. A tour of the activities being undertaken by the Boundbrook group with regards to Sanitation and Land Management was done. There was much sharing of experiences. The Boundbrook group returned the visit and participated in the launch of the Cleaning and Greening of Cambridge's Public Awareness Campaign and the ground breaking ceremony for the extension of the Cambridge Infant School, which is the Cambridge Benevolent Society's first major project. The Boundbrook group also toured some areas of the Great River Watershed to view other projects in Land Management, Sanitation and Agriculture being implemented by R2RW. This exchange served to teach community members that they are not the only ones concerned about sustainable development and that others are also engaged in activities that will lead to better living standards.
	15	<b>Preparation for registration as a legal entity Development of constitution etc.</b>	v	The Cambridge Benevolent Society received its certificate of registration as a legal entity in June 2004 after three months of training and preparation for the necessary oral evaluation. The preparation included the development of the constitution by group members to ensure ownership and adherence.
	16	<b>Evaluation exercise – survey to check if awareness levels have increased.</b>	v	See the Michael Pryce Post PA Campaign Survey Report and Public Awareness Campaign Report.
	17	<b>Development of Brochure introducing CDC and its functions and its projects</b>	v	This was developed by the members of the CBS with assistance from Project Staff and distributed throughout the Cambridge community and further explanation done at a Cambridge Public Meeting.
3.4.2		<b>IMPROVE SANITATION PRACTICES</b>		
	1	<b>Tour Cambridge to identify sanitation problems</b>	v	At the beginning of the project, a tour of Cambridge was undertaken by community members and partner agencies (R2RW; St. James PC, SDC, PHD, RADA, NSWMA). Another tour is scheduled for May 19, to view the effects of the project and increased awareness.



			<b>COMPLETE</b>	<b>MAJOR ACHIEVEMENTS</b>
	2	<b>Develop action plan through Community Group</b>	v	A plan for “clean-up” activities was developed with the community members, NSWMA and St. James PC after the tour, which revealed an alarming amount of garbage and derelict motor vehicles, improper land management, gutters and drains filled with debris.
	3	<b>Procure tools for clean up and garbage disposal</b>	v	6 skips and 200 drums bought and distributed throughout Cambridge for garbage collection. The drums were transported from the Supplier by the NSWMA in exchange for 50, which they placed in another needy community within the watershed. A good working relationship has also been established with the NSWMA, which provides advice on placement of garbage containers etc. Garbage is now collected regularly.  Tool Pool established: 7 shovels; 5 machetes; 3 forks; 7 rakes; 4 files
	4	<b>Establish sorting depot in Cambridge</b>		Was decided against
	5	<b>Conduct physical clean up and greening activities</b>	v	Numerous clean up-activities have taken place. In the first instance: 76 bags of garbage were removed from the railway lands in the town centre. 216 cubic yards of sludge and debris and 68 bags of garbage were removed in the first drain cleaning activity, which was done in collaboration with the St. James PC. It remains a challenge to keep the drains free of garbage but the amount being placed there has lessened considerably. Eight (8) HICUP projects were implemented after Hurricane Ivan to clear gutters and waterways, clean up debris, (Jubilee, Ducketts, Mud Town, Stonehenge, Lower Cambridge, Tank Road, Market Level); establish community compost heap (Stonehenge); construct culverts (Jubilee) and repair a broken road (Shortwood).  The derelict vehicles have been removed with the assistance of the St. James PC.  An annual Beautification Competition has been launched and is getting significant support from the citizens. The Beautification Competition is also serving as a catalyst for the district groups' development. The Awards Ceremony will take place at the launch of Cambridge's Annual Green Day on May 19, 2005  The illegal abattoir, chicken coops and pig pen have all been removed from the town square. The area previously occupied by these has been designated for development as a nature park by the community members and trees and ornamental plants already planted there.  Through the Public Awareness Campaign, two shops in Cambridge town were painted by MAGGI and Nestle respectively. A third is to be painted by LASCO.
	6	<b>Erect Signs</b>	v	Three signs (4ft x 6ft) have been produced (1) Welcome to Cambridge – A fi wi watershed, tek care (2) “Cambridge's Beauty is our Duty (a partners billboard bearing the logos of the partners and (3) a Cambridge

			<b>COMPLETE</b>	<b>MAJOR ACHIEVEMENTS</b>
				Benevolent Society Board bearing the picture of children of Cambridge and a message inviting citizens to become a member of the CBS as well as to keep Cambridge litter free. Districts participating in the Beautification competition are erecting street signs.
	7	<b>Implement alternate sanitation and waste disposal solutions:</b>		<p>The Demo project (Wetland system for sewage) planned for the Infant school had to be cancelled due to unavailability of funds and the fact that an alternative solution was funded by the JSIF.</p> <p>The St. James Parish Council has handed over the keys of the Public Sanitary convenience to the CBS, which will operate and maintain the facility through collection of a small fee for its use. The CBS is now seeking funding assistance for the refurbishing of this facility.</p>
	8	<b>Correct the Cambridge gutter which threatens to destroy citizens home when</b>		A visit was made to the site by a technical team led by the Superintendent of Works from the St. James Parish Council who informed the group that the necessary work would require a lot of money, which the Council did not have. The CBS will try to partner with the St. James PC and send a proposal to JSIF in due course.
		<b>IMPROVE LAND MANAGEMENT PRACTICES</b>		
	10	<b>Develop community action plan through CBS/ CDC</b>	v	<p>An action plan was developed for the establishment of land management plots at the Cambridge Primary and Infant Schools but these plans were cancelled due to unavailability of funds.</p> <p>A land management demonstration plot was established in Ducketts by the Land Management Team working with farmers. This plot stood up well to the rigors of Hurricane Ivan. (See Agronomist's report for details)</p>
	12	<b>Conduct field days, workshops and seminars to share best practices</b>	v	These were to have been done in conjunction with the establishment of the school plots but had to be cancelled as well.
	13	<b>Tree planting – encourage commercial growth of timber and other Agro-forestry products – Carvers to be encouraged to plant their own trees.</b>	v	Over 3000 trees were planted in Cambridge as part of the "Plant a Tree program" being implemented across the watershed. Additionally over 1000 ornamental plants were planted in the districts of Cambridge and have contributed to the beautification exercises being carried out in the competition. (See Agronomist's report for details).
3.4.3		<b>PUBLIC AWARENESS CAMPAIGN (For entire watershed with special emphasis on Cambridge)</b>		
	1	<b>Develop Plan (involve CBS)</b>	v	The Public Awareness Campaign was designed based on the results of the Participatory Rapid Rural Appraisal and the Awareness Baseline Survey and took the emerging gender and socio-cultural aspects into consideration. A slogan "A Fi Watershed.....Tek care"

			<b>COMPLETE</b>	<b>MAJOR ACHIEVEMENTS</b>
				<p>was developed for the campaign. The Streamer Tail Humming Bird – National Bird of Jamaica was used as the Flagship Species of the Campaign to instill national pride and a mascot costume was developed for use in school visits and exhibitions.</p> <p>The CBS was invited to discuss the program and make suggestions, which were incorporated.</p>
	2	<b>Hire a coordinator to deliver program</b>	v	A Coordinator was hired to deliver the Campaign Program over a nine month period with the assistance of the Project Coordinator and a Steering Committee
	3	<b>Establish a steering committee</b>	v	<p>The Steering Committee, which met monthly, was representative of the Partner Agencies (Multi-stakeholders) and Media Personnel. They also had valuable input for program design.</p> <ul style="list-style-type: none"> <li>✍ Marline Stephenson Daley – Media Specialist R2RW</li> <li>✍ Tracey Thomas – Customer Relations Officer, NSWMA</li> <li>✍ Sonja Harris – Public Education and Public Relations Specialist R2RW</li> <li>✍ Duvall Rapine – Forestry Department/GRWMC</li> <li>✍ Carlene Martin – Regional Manager, NEPA Western Division</li> <li>✍ Sadie Dixon – Agriculturist, Rural Agricultural Development Agency /R2RW</li> <li>✍ Rudolf McFarlane – Principal, Cambridge High School</li> <li>✍ Marcia Wilton – Community Development Officer, Social Development Commission</li> <li>✍ Lisa Gelding – Customer Relations Officer, National Water Commission</li> <li>✍ Parkinson – Education Officer, MOEYC</li> <li>✍ Gladstone Bent, – Councilor Cambridge Division, St. James Parish Council</li> <li>✍ Dorette Grant – Public Health Nurse, Cambridge Health Centre</li> <li>✍ Anthony Baronette – Cambridge Benevolent Society/Recording Secretary</li> <li>✍ Janet Bedasse - Chairperson</li> </ul>
	4	<b>Establish Awareness levels</b>	v	<p>This was done through the baseline survey.</p> <p>(See the Michael Pryce report)</p>
	5	<b>Presentations to various publics including all schools</b>	v	31 schools in the Great River Watershed -( 250 Principals and Teachers; 6,792 students in total with

			<b>COMPLETE</b>	<b>MAJOR ACHIEVEMENTS</b>
		<b>in the Great River Watershed.</b>		2,169 coming from the 4 Cambridge schools) were visited and presentations regarding the watershed and the Dr. Bird (Streamer Tail Humming Bird) , which was the flagship species used as a mascot in the campaign, were delivered.
	6	<b>Produce Posters, Bumper Stickers and legislation leaflets.</b>	v	<p>5,600 Posters were produced and distributed through schools, service club meetings, PTA meetings, Church meetings, Walk &amp; Talk in Cambridge Town and various exhibitions.</p> <p>1000 Bumper stickers and 200 legislation leaflets have also been produced.</p> <p>The Taxi Operators were specially targeted and they cleaned up the area usually littered by themselves and have vowed to “do the right thing.”</p>
	7	<b>Produce Buttons, Pencils, T-shirts</b>	v	<p>2000 Buttons “A fi wi it, Tek care” slogan with a picture of the Dr. Bird were also distributed.</p> <p>500 pencils with slogan.</p> <p>100 T-shirts with slogan.</p> <p>These were used as “giveaways” during school presentations.</p>
	8	<b>Develop Mascot idea and Produce costume</b>	v	The Streamer Tail Humming Bird was used as a mascot for school visits mainly and a young lady was hired to wear the costume as necessary.
	9	<b>Produce song for use in presentations etc.</b>	v	Arrangements were made for a local band to produce a song for use in the campaign. However, problems developed, time was running out and it was thought prudent to cancel the arrangement and use two popular songs “All things bright and beautiful” and “Bits of Paper”
	10	<b>Involve Private Sector in development of mini billboards and A-Z Booklet re Watershed protection etc.</b>	v	<p>The A-Z Booklet has been developed by the Natural History Society of Jamaica. Twenty copies will be printed. The CBS will seek funding for additional printing. Pear Tree Press will offer a contribution. Both Pear Tree Press and</p> <p>D-Code Communications have given discounts in the production of the posters and mini billboards.</p> <p>Rockland Sanctuary, Computec Plus, Ritz Carlton Hotel and Wyndham Rose Hall Hotel have provided prizes for the Art, Essay and Poetry Competition.</p> <p>Palace Amusement Company has provided prizes for the trivia competition in the monthly newsletter.</p> <p>MAGGI, Nestle and LASCO have sponsored painting of shops in Cambridge town square.</p> <p>The Member of Parliament, Kameka’s Hardware, Wright’s Hardware, Chin Bros, and Ken’s Haberdashery have sponsored prizes for the beautification competition.</p>

			<b>COMPLETE</b>	<b>MAJOR ACHIEVEMENTS</b>
	11	<b>Develop enviro-kits and video for local cable</b>	v	<p>An estimated 10,500 students benefited from “Enviro Kits”, (information packages)</p> <p>An additional 8 enviro kits produced by the R2RW PA Department were distributed to Cambridge and Retrieve schools.</p> <p>Various videos of R2RW activities including activities in Cambridge and the watershed have been broadcasted by the local cable station.</p>
	12	<b>Conduct competitions and special activities</b>	v	<p>A Trivia Quiz competition was included in the monthly newsletters.</p> <p>An Art, Essay and Poetry competition has been implemented. Awards will be made at the Cambridge Annual Green Day Awards Ceremony on May 19, 2005.</p>
	13	<b>Establish Cambridge Drama Group using “Action Boyz” – Utilize Didactic theatre in town square, street corners, bars etc. to create awareness</b>		<p>The Action Boyz did not follow up on their commitment to assist the Cambridge project. However some work was done with the Cambridge Boys and Girls Club. Members created skits about the environment.</p>
	14	<b>Quarterly newsletter to make the public aware of the various initiatives re “Cleaning and Greening of Cambridge” etc.</b>	v	<p>A monthly newsletter was produced and well received. Persons from as far away as Clarendon and Westmoreland called to comment on the informative content. Distribution was done through the Postmistress who forwarded copies to all the Post Offices, schools, Agency offices and the Western Mirror. A community member has been trained for continued development of the newsletter.</p>
	15	<b>Teacher Training Seminars</b>	v	<p>A one – day Teacher Training Workshop was held in collaboration with the MOEC and the NEEC. 120 Basic School teachers benefited.</p>
	16	<b>Post Public Awareness Campaign Survey</b>	v	<p>This was done at the end of the 9-month Public Awareness program.</p> <p>Awareness levels have increased significantly. See the Michael Pryce Report.</p>
	17	<b>Other</b>		<p>Two schools involved in the New Horizon Program focused on the Streamer tail Humming Bird and Environmental Themes at the New Horizon Schools Expo. The R2RW Project Staff attended as resource personnel.</p> <p>Both the Cambridge High and Primary Schools have re-started their Environmental Clubs.</p>

#### 4.1 Constraints

The SDC allowed the use of its office in Cambridge and chaired the partnership Steering Committee. The Regional Manager supported specific project activities. However, the agency's absence from the general activities in the community was glaring and has left community members skeptical of the contribution the SDC will make to their further development as the designated Community Development Officer did not participate in the Action Planning for 2005-2006. The CBS is seeking a meeting with the SDC to clarify its position as it is convinced that the partnership approach is "a winner".

Budgetary constraints did not allow for the implementation of the Land Management Program in the Cambridge Primary and Infant schools as well as the planned training sessions. The refurbishing of the Public Sanitary Convenience was similarly affected but funding is currently being sought from other sources.

**5.0 Participatory Monitoring and Evaluation**  
**Throughout implementation of the "Cleaning and Greening" of Cambridge project, meetings were regularly held (CBS, Partners Steering Committee, Public Awareness Steering Committee and R2RW Technical Team) to evaluate the results and impacts of the various activities and the partnerships.**

**In the evaluation exercise which was a part of the Partners Action Planning Workshop for 2005 - 2006, (Current Reality Check) assessments were made to determine progress made with regards to achieving original goal and objectives. Indicators were pre-set.**

**Prior to the Public Awareness Campaign, a baseline was established with regards to awareness of environmental issues and a Post Public Awareness Campaign Survey done to establish whether growth in awareness had occurred.**

**Objective 1:** Support the SDC, St. James Parish Council and other partners in the re-development of the Cambridge CDC

✍ **Indicator** – A fully operational CDC, with trained officers that meets regularly, and effectively monitor development and environmental plans for Cambridge.

The Cambridge Benevolent Society (CBS) is fully operational, has trained officers and meets regularly. The CBS has not evolved as a CDC (as defined by the SDC social policy) as the SDC has not fulfilled its commitment to work with the community. However, the opportunity still exists. Meanwhile the CBS has successfully implemented its first major project through Community Based Contracting – the extension of the Cambridge Infant School, funded by JSIF. A Pedestrian crossing and sidewalk have also been constructed. The CBS is now implementing the first annual Beautification Competition and also planning its first annual Cambridge Green Day which will feature an environmental exhibition mounted by partner agencies and other invited organizations. The CBS has also taken over maintenance and operation of the Public Sanitary Convenience. Through a Participatory Action Planning Workshop, the CBS members declared that they did much to the best of their ability during the Project implementation period to "Clean and Green Cambridge" and look, with the partners to implement the 2005 – 2006 Action Plan which includes plans for a Community Centre with training facilities. (See Appendix) forward to continued collaboration through the provisions of the MOU signed on March 29, 2005.

**Objective 2:** Support activities (sanitation, soil conservation etc) of the CBS/CDC and its constituents that are likely to contribute to improve watershed management practices

✍ **Indicator 1** – A cleaner and more environmentally friendly Town Square

The Cambridge Town Square is now cleaner and friendlier. This also applies to the eleven (11) districts in the Cambridge community. The derelict motor vehicles have been removed.

✍ **Indicator 2** – Decrease in the number of public health and other breeches of planning and environmental regulations

The illegal abattoir, chicken coop and pig pen have all been removed from the town centre. Some illegal buildings (shacks) still exist and the CBS has approached the NWA and the JRC for assistance to deal with this as the JRC owns the land and the NWA has responsibility for roads on which these shacks encroach.

**Objective 3:** Support public awareness and compliance and enforcement activities that are geared to make residents more aware of the environmental and planning regulations

✍ **Indicator 1** – An Enviro-Kit for Cambridge developed and being used.

The Enviro-Kit developed by the Public Awareness Department of the R2RW Project was utilized. Eight (8) of these kits were distributed to schools in Cambridge and Retrieve. Additionally, through the Cambridge Public Awareness Campaign, Enviro-Packages containing Posters, Buttons, Legislation Leaflets, Fact Sheets on the Watershed and the Streamer tail Humming Bird etc. were produced and distributed. An estimated 10, 500 students benefited from use of these. and an eighteen (18) hour training course in Community Environmental Law was conducted by MIND. Twenty Two (22) community members including the Police, High School Students, Teachers, Street Cleaner and Public Health Nurses participated. Certificates were issued.

A comparison between pre and post campaign responses to survey questionnaires gives a clear and unbiased indication of the changes in the knowledge and attitude toward the Great River watershed and the related environmental issues.

The pre campaign survey (August 2004) concluded that:

*“Overall, although there is some amount of knowledge in the community about environmental issues. However, it is clear that there is a lot of room for increasing community members’ awareness about these issues. There are wide knowledge gaps pointed to by the large percentage of ‘Don’t know’ and incorrect responses to many of the questions. This indicates the need for increased public awareness and focused messages on the environment and its conservation and management especially in a sensitive watershed area such as that in which Cambridge is located.*

*There also appears to be a strong sense of ‘wanting to know’, among the community members. This suggests that a well-planned public education and outreach will find a willing audience among many in the community, with a subsequent increased awareness of the relevant issues.”*

In March 2005 at the end of the Public Awareness Campaign, a second 1% random survey was carried out in Cambridge. This survey recorded significant increases in awareness although the levels varied from question to question. Only a few of the questions will be discussed to highlight the changes that might have occurred. (For details please see the Michael Pryce report.)

The campaign concentrated much effort on solid waste management and in particular the offences under the Public Regulations Act. The 2005 survey showed a vast improvement in residents being cognizant of two common offences and their fines.

The survey reports:

**“These two offences (at 50.0 % and 48.9 % respectively), were the two offences that respondents were able to correctly give the amount of the fines for:**

(1) *Dropping or otherwise depositing and leaving any litter in any public and place*  
And

**(2) Erecting, displaying (whether by writing or marking or otherwise), depositing or affixing anything in a public place or on any other building, wall, fence, or structure abutting or adjoining a public place, in such circumstances as to cause, contribute to or tend to the defacement of that place, building, wall, fence or structure as the case may be”**

Major attention was also placed on ensuring that citizens were conscious of the main pollutants affecting their water sources. With regards to the question “*What, do you consider to be the two main sources of water pollution?*” the post campaign survey showed that almost all (just under 97.0 %) of the respondents could correctly name at least one of the two main sources.

A clear indication of the campaign’s success is the increased awareness of more complex issues not used in everyday discourse. The residents’ grasp of the concept of biodegradable is a clear example of this. The survey report reads:

*“Unlike the baseline experience where most community members did not know the meaning of the term biodegradable, more than a half of the respondents in this survey were able to give a correct response to this question and a further 13.3 % (those classified as partially correct) clearly had an idea of what the term meant and that it had to do with the breakdown of materials, but were unable to clearly define it. Clearly there has been a significant improvement in the level of awareness of the concept as shown by the stark contrast between the 74.4 % of respondents who indicated that they did not know in the baseline, compared with the 26.7 % who gave the same response in 2005.”*

As regards the community’s awareness of the local agencies, the survey showed that, more than half of the respondents could say what the acronyms NEPA and NSWMA stood for compared to only 17.8% and 15.6% respectively in the pre campaign survey.

The Post Campaign Survey report concludes that:

*“...a comparison of the surveys regarding the level of knowledge of members of the Cambridge community on environment and environmental issues carried out in 2004 and 2005, show a clear picture of increased awareness in all areas targeted by the study. Individual question-by-question comparisons show significant improvements in the percentages of community members who could correctly answer them. Although the level of improvement varied from topic to topic, there were improvements in all areas showing an obvious general increase in the knowledge levels of persons in the entire gamut of topics examined.”*

☞ **Indicator 2** – An annual Green Day established in Cambridge

An annual Green Day has been established in Cambridge by the CBS. The first such day will be celebrated on May 19, 2005 and thereafter every third Thursday in May. The concept for the May 19 event is that each sector of Cambridge (Business, School, Church, Library, Public Health, Youth Club) will do something to commemorate the day e.g. plant trees, plant ornamentals in the area designated for development as a nature park, beautify a road, launch an environmental club, or do a clean-up activity. At the same time, an exhibition will be staged at the Cambridge Infant School under the theme “A fi wi, Tek care” . Participants will include the Partners (SDC, NSWMA, St. James PC & GRWMC). Other invited participants include the Cambridge Library, the St. James and Cambridge Public Health Department, The New Horizon Schools – Bickersteth and Anchovy, ODPEM and the Montego Bay Marine Park. The “Cambridge-ites” – a group of past Cambridge residents now living abroad consider this milestone important enough to send a representative and also offer an award to a winner in the beautification competition.

## **6.0 Summary**

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## 6.1 Viability And Sustainability

The Cambridge Project has demonstrated that the integration of local governance and local involvement in sustainable management of natural resources is viable through strategies that employ the use of:

**Appropriate Technologies** - The Cambridge Project supported best practices in sanitation, soil conservation, and local governance;

**Protection of the Environment** – The project was geared towards protection of the environment and contributed to the overall goal of the R2RW Project of “natural resources under improved and sustainable management”, through improving watershed management practices. Greater awareness of the environmental and planning regulations was achieved with the hope of fostering greater compliance with, and community involvement in, the enforcement of these regulations;

**Socio-cultural aspects/gender awareness** – As Public Health issues usually affect women, children, and the elderly in different ways than they affect men, the Public Awareness Campaign was designed to capture the different audiences bearing in mind that while men are usually expected to provide sanitary facilities for their households, more than 50% of the households are headed by female.

**Capacity Building** – The project improved local capacity (CBS and individual) to be more involved in local decision making activities. It also strengthened the St. JPC, NSWMA and other Central Government Agencies to have more effective intervention strategies at the community level.

The increase in the capacity of the community members is evidenced by:

- ✍ Commitment to participation in training sessions and subsequent sharing of the new learning with other members;
- ✍ Their zeal in managing the JSIF project;
- ✍ Participation in the Partnership Action Planning session for continued development of Cambridge 2005-2006;
- ✍ Commitment to continued partnerships;
- ✍ Commitment to the implementation of the Beautification Competition;
- ✍ Commitment to the development of the district groups which have representation in the CBS – some district groups now have netball and football teams in order to involve the youth;
- ✍ Commitment to the implementation of the Cambridge Annual Green Day.
- ✍ Regular attendance at community meetings.
- ✍ Identification of new projects to continue sustainable development of Cambridge and development of proposals for funding e.g. The refurbishing of the Cambridge Health Centre.
- ✍ Three (3) teachers from the Cambridge Infant School started reading for their Bachelor in Education degrees at the Northern Caribbean University Montego Bay Campus in September 2004. They have continuously used the Project Office as a resource center and environmental topics for their research papers.



- ✍ The CBS' adoption of the Public Awareness Campaign Slogan "A Fi Wi Watershed.....Tek Care" and the Flagship species used as the campaign mascot "the Streamer-Tail Humming Bird" as slogan and logo.

**Economic and Financial Aspects** – This was not an income generating project. However, community members benefited from project activities e.g. construction of the Infant school extension, HICUP projects, drain cleaning, office yard cleaning, catering for workshops and provision of supplies. The private sector and residents are also benefiting from improved sanitary environs.

**Replicability** – The Cambridge partnership has transformed and cleaned-up the existing town. This partnership does provide lessons in community intervention that could be replicated in other communities.

## 7.0 Conclusion

Capacity Building and training are important tools in the quest to develop a local governance mechanism through which the community can be actively involved in the decision-making process, including the management of its natural resources and implementation of activities which support this ideal.

Additionally, the participation and involvement of the major stakeholder partners, St. JPC, SDC, PHD, NSWMA , GRWMC, the Cambridge Business community and all Community members was key to the success of the project.

The results of the survey as well as changes observed through living and working in the community of Cambridge, point to the fact that environmental awareness has increased tremendously. While some residents may not be able to express themselves articulately under test conditions, the new attitudes observed, the enthusiasm, curiosity and demand for new knowledge speak to the changes. The ongoing beautification competition is serving as a laboratory for residents to practice their new found knowledge and skills.

Some community members summed up their satisfaction with the results of the project by saying:

- ✍ *"At least I don't have to walk in garbage anymore – the water flow a little freer in the drains so no water settles on the ground anymore"*
- ✍ *"I love my clean environment – you can feel the cleanliness and people are taking pride in planting and getting the place looking good"*
- ✍ *"I feel a sense of satisfaction in the work I've put in"*
- ✍ *"Thank God, mi glad fi see what is going on – mi feel very proud bout di cleanliness and di beautification"*
- ✍ *"I like the clean environment and the new building"*
- ✍ *"I did not go to school much but all of a sudden, I find myself wanting to do things"*
- ✍ *"I did not take my job as a street cleaner seriously until I learnt about the environment and the laws that protect it"*
- ✍ *"I have learned a whole lot from this project – how to manage responsibilities"*

- ✍ *“Because of the CBS I have learned how to work in a group”*
- ✍ *“My personal awareness of the environment has been increased and I am better able to deal with conflict in groups”*
- ✍ *“The project has made a lot of difference in the community and some districts outside of Cambridge have gotten jealous and start to clean up”*

### Final Report Improved Land Management Practices in the Rio Grande Watershed By Everton Parkes, April 29, 2005

The Rio Grande Watershed has suffered from unfavorable land use practices including farming in unsuitable areas and inappropriate farming practices. Portland (especially the Rio Grande Watershed) has the highest rainfall in Jamaica. Most of the areas now cultivated are prone to soil erosion and would be better served if it is left uncultivated and remain under existing/natural cultivation. This is due partly to the very steep slopes, high rainfall and the associated soil types and shallow profile. The clearing of these slopes (of natural vegetation) to plant coffee and vegetable crops mostly, illegal occupation of land designated as forest reserves, (Forestry Department) inappropriate land use practices are the principal causes of land degradation soil erosion, which leads to River Contamination. As a result of the above factors there was an urgent need to change the attitude of the community members/farmers who reside or farm in the watershed via well-focused, planned intervention to achieve better Land Management practices. The project was able to achieve some of its objectives by conducting sixteen (16) on the farm training sessions, which involved over 200 farmers benefiting over the implementation period. Four demonstration plots were also established and used as training and for farmers within and outside of the Parish. Three buck houses were built and animals (three) sourced and delivered to designated communities.

Fourteen thousand timber and fruit trees were planted throughout the watershed and just fewer than eighteen thousand pineapple suckers were used to construct vegetative barriers. Over sixteen communities and a minimum of ten schools participated in tree planting initiatives in Portland. One hundred and sixty eight (168) farmers received plants and have established same in the watershed.

#### Objective

The overall objectives of the Anchor Project was to address the urgent need to influence change in attitude, increase awareness of residents in the watershed through well planned and improved land management. Some of the specific objectives include:

- a. Improved ground cover and land permeability to improve water quality, protect the existing soil, maintain and enhance biodiversity, mitigate disasters and create sustainable livelihood opportunities
- b. Deepening understanding of Natural Resource issues and conflicts in the RGW.

The expected impact is a slowing of deteriorating watershed health, soil erosion, flooding, water pollution resulting from unfavorable land use practices including farming in unsuitable areas and inappropriate farming practices.

#### Specific Objectives/Output

- ✍ Six Agro forestry projects completed
- ✍ Three goats stud stations integrated into existing agro forestry systems completed
- ✍ Tree planting initiative completed
- ✍ Anchor Project evaluated using relevant indicators
- ✍ Implement six sustainable community tool arrangements.
- ✍ To increase the understanding of National Resource issues and conflicts in the RGW with special studies.

✍ To improve public awareness by providing training via promotional field days

## **Methodology**

The Land Management Anchor Project #3 was implemented over sixteen months period in the RGW. However work was done prior to actual implementation of this specific Anchor Project. Progress was already made in agro forestry components in Rock Hall, Coopers Hill and Industry. Pineapple suckers & trees were delivered to these communities to establish vegetative barriers.

1. Communities were invited to apply for grant funds, (demand driven) to the Rio Grande Watershed Management Committee (RGWMC) (Land and Conservation Task Force) Initiatives (Agro forestry Projects) should fall within the objectives of Ridge to Reef Watershed Project (R2RW) and the Rio Grande Watershed Management Committee. RADA, FD, JAS or other partners would aid applicants in completing their applications.
2. A grants committee of the RGWMC would examine all applications and make recommendation to R2RW for approval. Grant Committee would recommend based on technical feasibility of the project, financial clarity and soundness, positive environmental impact on community, and sustainability of the project in question.
3. A comprehensive Environmental Impact Assessment was done on each sub project (which should meet USAID requirements)
4. Project Detail Budgets implementations schedules, etc. submitted to USAID for Final Approval.
5. A detail Log Frame, and Implementation Plan/Schedule was prepared (January 2004 – June 2005) along with a detailed Project. Monitory & evaluation criteria were established.
6. Most or all activities were group or community based and implementation was carried out with assistance of multiple partners such as RADA, JAS, F.D and SDC.
7. Meetings were held with all parties with regards to implementation of the project. The role of communities and partner organizations was to discuss as it relates to the implementation of the project. Labour for implementation for projects was the communities' responsibilities, RADA was to assist in training, while group and community mobilization was the responsibility of SDC & JAS respectively. Forestry Department was to assist sourcing of timber seedlings and overall logistical support/implementation and procurement of inputs - R2RW (See Appendix –1)
8. The Anchor Project Coordinator coordinated implementation locally with the assistance of initially College interns and later by two assistants. Before inputs were ordered and delivered to farmers individual farm plans were completed. Information collected from participants included: age, sex, land tenure, etc. Individual files were made completed with farm plans and beneficiary cards (indicating inputs delivered to farmers and date of delivery). All planting material were procured from certified source including Bodles and Orange River Research Stations, Ministry of Agriculture for fruit trees and timber through Forestry Department (MOA) Williamsfield Nursery in Manchester. Certified local nurseries were also used to supplement MOA nurseries for fruit trees.

## **Training Component**

An integral part of the implementation strategy was train before delivery of inputs to farmers. Whenever fruit or timber trees were delivered to farmers a training day would be held to ensure proper planting and or agronomic practices were observed. At these field/training days other aspect of environment management was promoted and also to improve public awareness to

support the Anchor Project. Training also served to increase understanding of Natural Resource issues and conflicts in the RGW and provide a platform to conduct relevant Special Studies in the Watershed.

Demonstration plots were established as part of the “tool” available to the project to get the “best practice” message to the farmers. These plots were strategically established in communities that Agro forestry projects were being implemented. They depicted – best practices as it relates to planting of pineapple barriers, bamboo barriers, stone and vetiver barriers etc. Communities provided all the labour (free of cost) to bring these plots to completion.

The project paid for all inputs delivered to farmers, and these include seedlings, fertilizers, fruit trees, pineapple and transportation cost. All on farm labour associated with the implementation of the project and demonstration plots were provided by the farmers or community groups. The project technical team provided training with support from RADA and Forestry Department. Monitoring of project activities was primarily the task of the Anchor Project Coordinator. Finally the project was “demand driven” and groups and communities who wanted to participate had to show a high level of awareness, organization and commitment to maximize benefits from the project. Provision of inputs to the farmer at no cost was an incentive only to persons who were willing to invest in ‘sweat equity’, because as a prerequisite farmers had to demonstrate a willingness to prepare their lands before they would receive inputs. Training was supplemented by the provision of several extension bulletins/pamphlets provided by the project.

## **Results of the Project**

### **4.2.1 Implemented Community Based Agro-forestry Component**

#### Agro forestry Component

Six communities benefited from the Agro forestry Component. Chatsworth/Fruitful Vale, Moore Town, Coopers Hill, Rock Hall, Dumphries/Durham and Industry.

Total Number of Timber planted	= 6,530
Total Number of fruit trees established	= 4,216
Total number of pineapple suckers planted	=14,885

equivalent of approximately 248 chains of barriers.

Total number of beneficiaries = 158 farmers  
NB. See details in table attached.

Varieties of fruit trees supplied to farmers were:

- a. Spanish Guava
- b. Guinep
- c. Star Apple
- d. Ackee
- e. Bread Fruit
- f. Nut Meg
- g. Jack Fruit
- h. Naseberry
- i. Tamarind
- j. Avocado
- k. Soursop
- l. Cashew

### **Types of Timber Supplies to Farmers**

1. Cedar
2. Mahogany
3. Mahoe

All objectives outlined at the outset of the Project were achieved. These were:

4. Plant and care for timber and fruit trees
5. Establish vegetative barriers using pineapples, vetiver, sugar cane and grass
6. Establish non vegetative barriers such as stones, logs and bamboos
7. Farmers Training (establishing four demonstration) were proper Land Management Techniques were carried out. Demonstration Plots are in Moore Town, Chatsworth, Durham and Coopers Hill.

### **Tool Pooling Initiative**

One of the ways to satisfy the demand for tools by farmers in these communities was to establish community tool pools. It was felt that instead of providing funds to purchase tools for individual farmers, a selected number of tools be identified and made available to communities. It should be managed by the groups themselves and a nominal user fee charged. This fee is to be utilized to purchase new tools and to provide regular maintenance to ensure sustainability of the scheme.

The tools/equipment provided to these groups were:

- a. Folks
- b. Shovels
- c. Spades
- d. A-frames
- e. Pruning saws
- f. Pruning shears/roll cuts
- g. Mist blower (one only at RADA Port Antonio)

Tool pool locations:

1. Coopers Hill
2. Moore Town
3. Bowden Pen/Mill Bank
4. Rock Hall
5. Industry
6. Chatsworth/Fruit Vale
7. Durham/Dumphries
8. RADA Parish Office – Port Antonio
9. Prospect to be managed and kept by RADA Parish office Port Antonio

### **4.2.2 Expanding Tree Planting Initiatives**

Several Communities benefited from the Rio Grande Tree planting initiatives.

Again this component was demand driven and communities/organizations who wanted trees to be planted could apply to be a part of this program. Forestry Department played a significant role in this project as farmers would also approach this agency and they would provide farmers with timber seedlings and Ridge to Reef provide fruit trees and in some cases, provide pineapples to establish pineapple barriers.

Coastal Water Quality Improvement Project Phase II played a key part in extending this initiative in Boundbrook Port Antonio.

Communities Participating in RG Tree Planting Initiative were:

1. Boundbrook
2. Prospect
3. Bowden Pen
4. Stoney Hill
5. St. Margaret's Bay
6. Spring Bank
7. Short-over

Several schools also participated

1. Tichfield High School
2. Coopers Hill All Age
3. Moore Town Primary and Junior High
4. Fruitful Vale All Age
5. Rock Hall All Age

Total timber seedlings delivered to initiative – 1,693  
 Total fruit trees delivered - 1,536  
 Total pineapple delivered - 4,240  
 Total number of beneficiaries - 62

It should be noted that many housewives participated in this initiative planting less than 10 plants while at the other end, farmers at Bowden Pen, established barriers and planted significant number of timber and fruit trees on their farms. Training Days were also conducted in some of these communities, promoting environmentally correct issues, improving awareness, and educating farmers how to establish and care for these trees. Training Days were held in Bowden Pen, Prospect, Stoney Hill and at Coopers Hill All Age and Moore Town All Age Schools.

**Table 1**  
**Anchor Project Delivery Sheet**

Name of Community or Group	No. Of Farmers	No. Of Fruit Trees	No. of Timber Trees	Pineapple Suckers	Plantain Suckers
Moore Town	27	616	1370	5400	820
Chatsworth/Fruitful Vale	23	862	1670	3620	1800
Durham/Dumphries	26	690	720	3620	200
Coopers Hill	30	680	953		
Industry	25	713	842		
Rock Hall	27	755	975	745	
Rio Grande Tree Planting Initiative	68	1,593	1,536	4,240	
<b>Total</b>	226	5,909	8066	17,625 (approx 290 chains of barriers)	2,820

NB. Plantains were used as a nurse crop for fruit tree.  
 Trees planted prior Land Management Anchor Project in January 2004 (not included in the above table were as follows:



- a. Timber 6,237 plants
- b. Fruit Trees 6,438 plants
- c. Pineapple Suckers 13,385

Communities that benefited were Rock Hall, Coopers Hill and Industry.

#### **4.2.3 Implement Goat Stud Station in 3 Communities**

A Livestock Component was included in the Anchor Project as a complement some to the Land Husbandry initiatives pursued by R2RW. Grass barriers were being promoted as one of the ways to reduce soil erosion and while grass could be utilized by the farmer for mulching, animals could also be fed the grass as fodder. This would assist as an additional income generating activity for the farmer and his or her farm family. Goats were identified as the livestock of choice because of the hilly terrain. Droppings from the animals could be utilized as organic fertilizer (which is more environmentally friendly on the farmers' holdings). The specific objectives of this component were:

1. ID Consultant for Project
2. Construct 3 goat Stud Stations
3. Conduct Training of farmers in relevant Goat Husbandry practices
4. Identify and deliver to these communities three graded (improved) bucks for these communities.

NB. The purpose of the bucks is to upgrade the breed of local goats, which will result in weight gain of 20 – 40 % and increase income by 20 – 40 % to farmers.

#### **4.2.4 Promote Environmentally Friendly Cropping practices through farmer**

Training Days

Specific Objective:

Organize six (6) farmers' field days in lining out using 'A' frame for contours pineapple production and crop care.

This objective was met with fruitful collaboration achieved with the following agencies, RADA, Forestry Department, and CWIP II while the SDC organized session in Stony Hill and Spring Bank.

#### **Overall Results**

1. Sixteen (16) Training Sessions conducted
2. Two hundred and twenty six (226) farmers were trained
3. Farmers in all Agro forestry Groups (6) along with farmers in Bowden Pen, Prospect, Stony Hill, Boundbrook participated

#### **Topics Covered in Training Sessions**

1. Proper Establishment of Fruit & Timber Trees
  - Including proper lining
  - Preparation of site, mounds etc.
  - Use of Organic Fertilizer and Mulching

2. Proper Care & Management of Fruit & Timber Trees including

- Pruning
- Cut back
- Pest Management
- Plant Nutrition

3. Establishing o Vegetative and Non Vegetative Barriers using

- Pineapple, vetiver, sugar cane and grass
- Bamboo, stone, wood.

4. Proper Use & Disposal of Pesticides and Fertilizers

**Special Studies**

Objective: To increase the understanding of natural recourses issues and conflicts sin the Rio Grande Watershed with Special Studies.

Three (3) studies were planned however only one was actually commissioned and the final report submitted to Project head office. This study was Sediment Budget. University of the West Indies (UWI) study that was conducted on the Rio Grande down to Rio Grande down to St. Margaret's Bay duration of which was one year.

Two other studies (planned) were not done. Landslide Study that was to be conducted in the Dumphries/Durham Gap areas and Land Tenure to determine the effects of Land Ownership and how it affects the Land Management Issues in the Rio Grande.

Monitoring and Evaluation

The following table below was developed in early 2004 before implementation of the Anchor Project by Ms. Cordia Thompson a consultant who developed these performance indicators. Since then however, additional tasks have been added and some of the targets review or deleted as agreed upon by the technical team of the R2RW and represented in the 5<sup>th</sup> Annual Work Plan. Examples of the addition are the Implementation of three (3) buck station s (Livestock Component) and omissions includes Technical Studies on Land Tenure and Landslide Studies in the Durham Dumphries area.

**Monitoring and Evaluation**

The performance indicators for the project and their means of verification will be as outlined in the table below:

Objective	Performance Indicators	Means of Verification	Results/Comments
1. To support sustainable land management practices with three (3) new agro forestry projects	- Trees planted;	- Before (Baseline) and	The 3 new Agro forestry implemented and all three completed
	- Improved practices when planting trees;	After (Rapid Reconnaissance)	
	- Reduced soil erosion and land slippage;	Assessment of the three (3) communities;	Four Demonstration Plots completed
	- Hazards of flooding reduced in the communities	- Number of trees planted & sustained;	290 chain pineapple

Objective	Performance Indicators	Means of Verification	Results/Comments
		- Invoices for tree seedling	barriers established
<b>2. Tree planting initiative</b>	<ul style="list-style-type: none"> <li>- Planting of 15,000 timber trees &amp; 10,000 fruit trees;</li> <li>- Improved planting practices;</li> <li>- Reduced soil erosion and land slippage;</li> <li>- Hazards of flooding reduced in the communities</li> </ul>	<ul style="list-style-type: none"> <li>- Invoice for tree seedlings;</li> <li>- Reports &amp; audit on survival of trees;</li> <li>- Farmers adapting audit on survival of trees;</li> <li>- Random &amp; on the spot before &amp; after reconnaissance assessment on the land management effects.</li> </ul>	Cumulative between Agro forestry, Proper Tree Planting, 5,909 fruits trees and 8,066 timber trees have been planted
<b>3. To increase the understanding of natural resource issues &amp; conflicts in the RGW with special studies</b>	<ul style="list-style-type: none"> <li>- Sediment study conducted;</li> <li>- Landslide study conducted</li> <li>- Land tenure study</li> </ul>	- Report from all the studies with recommendations	Sediment Study of St Margaret's Bay completed
<b>4. To improve public awareness by providing training via promotional field days &amp; printed material</b>	<ul style="list-style-type: none"> <li>- Four (4) extension bulletins produced;</li> <li>- Five (5) field days;</li> <li>- Four (4) workshops;</li> <li>- Construction of soil conservation model.</li> </ul>	<ul style="list-style-type: none"> <li>- Invoices for extension bulletins;</li> <li>- Registration &amp; reports from field days &amp; workshops;</li> <li>- Person demonstrate improved understanding.</li> <li>- Use of model &amp; invoice for construction.</li> </ul>	Extension bulletin produce (at Project Head Office) 16 Field Days completed with 226 farmers trained
<b>5. To provide equipment &amp; services for administrative support for the Project Coordinator</b>	<ul style="list-style-type: none"> <li>- Purchase of desktop computer, printer &amp; stationery supplies</li> </ul>	- Invoices for equipment purchased.	Model was purchased and used at several expositions.

Objective	Performance Indicators	Means of Verification	Comments/Result
<b>Implement 3 Goat Stud Stations in 3 communities</b>	✍ Construction of 3 bucks of 3 buck house	✍ Invoices for purchasing of animals	Three buck houses completed
	✍ Delivery of three graded bucks to 3 communities	✍ Site visit to identify buck house	Four Bucks purchased & delivered to group (one of the animal and had to be replaced.
	✍ Training session conducted with farmers	✍ Training record reports/prospect RADA	Five training days conducted 32 farmers trained
	✍ Animals (bucks) serving goat herd	Buck record book	Six buck service done to date on local goats in the area.
	✍ Purchasing of medicine and equipment for buck keepers	Receipts Reports from Consultants	Medication & equipment delivered to buck keeper

**Some of the Initial Indicators were not achieved because:**

1. There was a difficulty in obtaining certified or good fruit tree seedlings. There were always limited supplies at Bodles and Orange Research Stations of the Ministry of Agriculture. The shortage became more acute after Hurricane Ivan when there was almost a complete shortage and private nurseries were selling seedlings up to 500% pre Ivan prices.
2. There were inconsistent supply of timber from the Williamsfield Nurseries especially for mahogany and mahoe. However there was good supply of cedar seedling although the demand by most farmers was for the former seedlings.
3. Extension bulletins were produced and coordinated centrally at the project's head office in Kingston although there was technical support and information coming from the Land Management Anchor Project. There were neither local capability nor expertise to produce bulletins nor brochures.
4. No new equipment was purchased for the NEPA office at Smatt Road. Existing facilities though inadequate were used during the project period.

**Summary & Conclusion**

Ridge to Reef Watershed Project (R2RW) is a five-year project implemented through NEPA and USAID. The project aims to improve the management of the Great River and the Rio Grande Watersheds Management Units. The Land Management Anchor Project #3 was an eighteen-month (final 18 months) initiative that follows on the projects initial presence in Portland that had started after Agro forestry initiatives in the Parish. The following are some of the observations made.

1. The initial communities where slow to participate in the project because of misunderstanding of the initial concept of project i.e., (no cash provided only inputs).

2. The strategy of project implementation was group oriented and some groups did not have the capacity or support systems to deal with internal conflicts e.g. in/fighting and issues of leadership.
3. Some of the key local authorities/partners were not fully committed to the task of implementing the project and hence their presence/influence was not felt on the ground.
4. While efforts by the project office in Kingston, CASE interns, and RADA were commendable precious time was lost on the ground that caused a delay in implementation an early impact. A project officer based in Portland to coordinate and provide and focus on project activities was two and a half 2.5 years late.

There were several positive lessons learnt and have made an invaluable impact on the communities. The Land Management Anchor Project provided needed focus in the final year of the project, and dealt not only with land-based issues but also with other environmental concerns of the farmers and communities at large. Issues such as, water pollution, garbage management and disposal, economic based issues e.g. Stud Stations, post Hurricane Ivan assistance all served to galvanize support on environmental issues. Key partnerships with Public Awareness, both Upper and Lower Rio Grande Watershed (Youth & Environment Conference, Cleaning & Greening of Portland Competition) work with RADA, PEPA, JAS, Jamaica 4-H Clubs all served to achieve a more holistic approach to environmental management **Land Management** only one part of the whole.

Finally there is hope in the future of the Land and Conservation Task Force headed by the Acting Parish Agricultural Manager RADA Portland who has the drive and staff to monitor what R2RW has started. RADA has assumed that responsibility to continue the training of farmers and providing technical and other logistical support. It also entails monitoring of buck station, Agro forestry Component and tool pool arrangement and also providing relevant marketing information for pineapple farmers. RADA also have the data on all the farmers who have benefited from the Ridge to Reef Watershed Project including all individual farm plans and delivery sheets and all other relevant information to do a good job of monitoring the project. RADA will know for example where in Portland most of the fruits trees delivered were planted and in what quantities so that they can begin to plan strategically to assist exporters with vital marketing information. Ownership of the environment by communities, utilizing its natural resources to make a livelihood in a sustainable way was a major plank of the Anchor Project; while there are still outstanding issues to be dealt with a lot was accomplished.

### The Rio Grande Watershed Youth Culture & Environment Conference 2005

#### Introduction & Rationale

This conference held April 08, 2005 at the Marina, Port Antonio, though a follow on to one held in 2002, represents the first of its kind for Portland, under the guidance of the Ridge to Reef Watershed Project and its partner agencies.

The implementation of this conference was in direct response to the requests of the young persons in the Rio Grande Watershed and some agencies, who had been invited to a similar conference held in the Great River Watershed in July 2004.

The specific areas of interest of the youth on the Steering Committee went beyond the theme of **watershed management** to include that of cultural preservation and health improvements. The conference attempted to make the link between these related themes.

The conference objectives stated below were met except for the establishment of a mechanism for continuous action, which will be addressed in a follow up workshop. Also, the conference had to be scaled down to a one day non-residential event, as the Ridge to Reef Watershed Project completes its fifth and final year in June 2005.

The objectives were:

1. To demonstrate the link between culture and the environment and to build the relevant awareness among participants
2. To empower participants through knowledge of careers in the environmental and cultural field
3. To facilitate greater awareness among participants of their responsibilities for social, health and watershed management
4. To put a mechanism in place to enable participants to continue stewardship activities after the conference.

#### Planning Process

A Steering Committee of nine persons including a chairperson, vice chair and two secretaries, was formed on December 14, 2004. A steady core of five persons, supported by representatives from the Public Awareness Resource team, Social Development Commission, The Portland Environment Protection Agency, the Parish Council and the Port Antonio Theatre Group, met bi-weekly then weekly after February, to put plans in place.

The following were agreed on at that first Steering Committee meeting.

- ✍ The conference theme – **Empowering youth to be cultural and environmental stewards**
- ✍ The need to have a mix of experiences including – speakers; field trips, an environmental Quiz and educational entertainment

- ✍ This conference would broaden the environmental theme to include health, social and cultural presentations
- ✍ Exhibitors would be invited to enhance

The following issues became problematic for the Steering Committee and after two months had still not been resolved:

- ✍ An appropriate and moderate priced venue
- ✍ The number of participants
- ✍ Appropriate places for field trips
- ✍ Keynote speaker
- ✍ Funding for a residential conference
- ✍ Funding for media coverage and outside broadcast
- ✍ Funding for T-shirts

By March 2005, the following decisions were taken:

- ✍ RGWMC/R2RW would go ahead and host a one day blitz on April 8
- ✍ The conference would cover the main components of a two or three day conference
- ✍ Components would include: Official ceremony (see Appendix ); Main presenters (2); Field Trips; Small working groups with resource persons; Open Quiz; Educational entertainment; Mini Talent show; Educational theatre piece
- ✍ This “no frills” plan would be implemented by a team led by the Public Awareness Resource persons (five main persons); five hard working persons from the Steering Committee; Advisors from SDC/NYS/PC and the Port Antonio Theatre Group, and would use a limited budget
- ✍ Exhibitors who had already expressed interest would be confirmed
- ✍ Modest transport arrangements would be made to bring youth from the upper valley and the more distant watershed communities
- ✍ Sponsorship for media coverage would be assiduously sought

The final planning process, guided by Ridge to Reef Watershed Project, and based on a similar model youth conference implemented in the Great River Watershed in 2003 and 2004, was completed in five weeks.

## **What were the Results**

### **Participants**

Sixty eight (68) young persons, 25 males and 43 females attended. In addition, eighteen persons (18) from USAID Office of the Environment, exhibitors from state agencies, CASE, the RGWMC; PDC; Portland 4H office and the media attended, plus 10 resource persons and R2RW staff.

### **Exhibitors**

There were seven agencies with booths or tables, as follows:

- ✍ The Forestry Department
- ✍ RADA
- ✍ NEPA
- ✍ Portland 4H clubs
- ✍ Caribbean Maritime Institute
- ✍ Institute of Jamaica
- ✍ NSWMA

In addition, R2RW exhibited many of our posters on environmental laws.

### **Presenters**

There were two main presenters- Dr. Olive Lewin, cultural icon and musician, and Richard Kelly from the Fisheries Division. The guest speaker in the official ceremony was Ms. Jacqueline daCosta consultant in the Cabinet Office. In addition, in the evening educational entertainment segment popular “conscious” singer from Portland Louis Culture performed, as well as the nationally renown Port Antonio Theatre Group. Ms. Marline Stephenson-Dally, who was master of ceremonies for the day, managed the Environmental Quiz section, patterned on Schools Challenge Quiz.

### **Field Trips**

Two field trips to the Port Antonio Marine Police and the College of Agriculture Science and Education (CASE), were organized with half of the group going to each venue. The **Marine Police** explained the security aspect of their work as well as the environmental related components. Boats trips with small groups were offered to expose the youth to some of the marine area covered in this work. Specifically, their main functions are to maintain the integrity of Jamaica’s twelve mile limit; to protect tourism interests; protect the environment and conduct search and rescue missions. Their headquarters were relocated in 1970 to Newport East and they have branches in Pedro Cays.

At **CASE**, the group was exposed to a wastewater treatment project. The pilot project involves waste water piped through underground pipes from the livestock area across the street, to beds which separate solids from liquid, then is channeled to the artificial wetlands or “Reed bed” then to the hydroponics area. In the latter bed, vegetables, such as tomatoes, pak choy and sweet peppers are grown without soil in water. (It is recommended that vegetables produced using this method of agriculture, not be eaten raw). In the final phases, the water goes to a pond with ornamental fish and the overflow is used for fertigation, that is, to fertilize and water the herbs and spice garden.

In the livestock area, a biodigester plant is also in operation, which powers a special refrigerator, produces hot water to clean the holding area and equipment, and produces heat for the young pigs.

### **Plenary from small group workshops**

#### a) **Hummingbird group-** Culture- Resource person – Richard Derby

Jamaica and Portland have traditional dances and drums from a mainly African heritage, which must be preserved for knowledge of Jamaicans of their history, as well as included in packaged entertainment for tourists. The dances are similar but are known by different names in various parishes, for example, Dinki mini from St. Mary, Etu from Hanover and Tambo, which bears a French/Haitian/African influence out of Trelawny. The Portland version, known as “Bruckins” was used to celebrate emancipation and a competition or “Clash” held annually with “Noble men” from different plantations.

#### b) **Queen Conch** –Water Quality Monitoring- Resource person- Sharlene Williams

Major concerns : Pesticides in the river; deliberate incidence of crayfish poisoning during dry season; building pig pens on the river bank, disposing garbage in the rivers;



General social problem: Getting farm produce out when rivers flood the communities.

Possible solutions: Youth groups to identify the problems, seek corporate support, for example for composting and recycling and support enforcement of environmental laws.

- c) **Ring Tail pigeon**- Effect of HIV/AIDS on the Environment- Resource Person- Mr. Winston Lowe – PHI

Major impact: Breadwinners unable to work; disruption of livelihoods.

Data shows that 17 persons per minute contract AIDS. 3000 of the daily number contracting the disease are women. There were 47 new cases in Portland at the end of 2003.

Possible solutions: Youth can become part of the outreach program. Educational sessions are held in schools and clinics on the dangers of contracting AIDS and the consequences. The Claudia Williams Centre is involved in the STI program and young persons can find out more there.

- d) **Crocodiles**- How to use culture to benefit the economy- Resource person - Marcia Hekstall

Culture – helps to define the norms of a country. Religion is one component of culture. For a community to effectively participate in the economic dissemination of culture, it must become informed and offer alternatives to visitors. Theatre Arts, including traditional dances, folk songs, drama (The Port Antonio Theatre Group and Manchioneal Cultural Group are two such groups) Portland can also promote local cuisine (Jerk and Bussu Festivals); community tourism (visitors staying in existing homes or building special cottages); craft items, local herbs and spices. DVDs can also be developed with Portland scenery and products sold with Jamaican music.

- e) **Yellow snake** – Caribbean Maritime Institute-(CMI) Resource person - Captain Devron Newman

The CMI was started in 1980 by an agreement between Norway and Jamaica. It offers training in engineering on a full or part time. CXC or GCE passes are needed to enter. The Institute is affiliated with Caribbean, British and American universities for further studies. Courses include: ship construction, navigation, thermo-dynamics, and engineering drawings.

Links to the environment exist through MARPOL; Anti-Dumping and Basel Conventions. The Institute also concerns itself with the treatment and disposal of ship food waste and sewerage. They try to minimize the generation of waste and its hazards.

- f) **Iguana group** – Solid Waste Management – NSWMA- Resource person - Hilary Smith

There are two major landfills in the island – one in Riverton, the other in Retirement. Issues discussed: Disposal of old tires; importation of biodegradable garbage bags from Canada. This is something a Jamaican company could do; composting and recycling as means of reducing waste.

Entrepreneurship ideas: Disposal of garbage from tourism sites. (“One man’s trash is another man’s cash”); Recycling company; manufacturing bio-degradable garbage bags.

- g) **Yellow-billed Parrot** – Entertainment- Resource person - Kamau Amen

The objective of entertainment (whether or not the focus is the environment): To create interest; to have appeal; and to create the anticipation of joy.

In Jamaica's history, there have been issues of dub plates and "versions" to popular music. These promote Jamaica and create jobs as broadcasters, business managers, make-up artists, promoters.

Jamaica now has to pay attention to the legal issue of copyrighting.

h) **Coral Reef**- Cultural Traditions in Portland- Resource person - Linnette Wilks

Culture- defined as the way of life of a people. The Maroons were described as the runaway slaves who settled in the Portland mountains, mixing with native and East Indians. Their main foods- coney, fish, cassava. They respected the natural environment from which they drew sustenance. The abeng was used to communicate across villages before there were telephones.

The breakdown in traditional culture and in the respect of the environment can be linked to the adoption of other people's cultures; grandmothers too young to pass on cultural heritage. As a consequence, many young persons have no knowledge of the past.

The Values and Attitudes program in schools attempts to correct this vacuum. People need to share the knowledge they have and see culture as an economic tool.

(pics)

### Participants' Knowledge Base from Questionnaires

Twenty-three questionnaires were returned (33%). From this sample the following was assessed:

- ✍ 100% of respondents knew the definition of a watershed
- ✍ 18 of 23 (78%) knew the definition of "bio-diversity"
- ✍ 19 of 23 (80%) knew how many watersheds are in Jamaica.
- ✍ 80% knew at least one environmental law, the majority citing river pollution (washing, pesticides), but uniquely two respondents mentioned the Wild Life Act
- ✍ All respondents knew at least one of five agencies associated with environmental conservation/protection. 75% knew of JCDT and Water Resources Authority, but only 30% knew of North Eastern Parks and Markets.
- ✍ All respondents expressed willingness to work with religious organizations and sports groups on an environmental project
- ✍ In the area linking environmental conservation to eco-tourism, 13 respondents (56%) had reasonable ideas, the majority of which were related to forestation, and keeping beaches and rivers clean for tourists. However, four respondents among them mentioned : **agro-processing of exotic foods; developing the craft industry; developing white river falls; promoting maroon history; rafting on the Rio Grande; conserving habitat of wild life, flora and fauna to attract visitors.**
- ✍ In the area of future stewardship, 60% were already part of an environmental club or organization and the rest were interested in becoming part of one.

What is evident from these answers is that the participants who knew the most completed and returned the questionnaires. They represent a serious core of committed environmental stewards, who have benefited from the educational activities offered.

### Educational entertainment

There were four main segments to the evening's offerings.

- ✍ Louis Culture – popular Portland "conscious" singer, delivering a relevant and stimulating presentation

- ✍ The young persons' Talent Show- Brief and needing more guidance and depth
- ✍ The Port Antonio Theatre Group's piece on "It nuh right" including a section on HIV/AIDS and the importance of protecting yourself in sexual contacts, if you are to protect the environment
- ✍ The Environmental Quiz- which is usually an exciting way to determine what youth have learned or already know, and is usually structured with two teams. This time an open quiz accompanied by grab bag items for correct answers, was held. The response was overwhelming.

### **Port Antonio Theatre Group**

**This excellent theatre production, focused on a series of environmental messages, is a major sustainable resource for continued watershed management. The Member of Parliament, who attended the evening segment of the conference is interested in having a video produced of the play "It nuh right" and having it used in schools island wide.**

*(pic)*

### **The Environmental Quiz**

**Due to time constraints, the Quiz did not take the format that was originally planned. Instead questions were thrown out to the floor, and the first person acknowledged given a question. If the participant answered the first question correctly, they would then field another question. If the correct answer was given, the participant won a prize selected from a grab bag of prizes, ranging from T-shirts to pens and notebooks.**

Questions were taken from a range of subject areas including- culture. Environment, history, flora, fauna and specifically, information were drawn from the two field trips (waste water treatment and hydroponics at CASE and the Marine Police) and the displays and presentations. Overall the participants were quite knowledgeable and participated actively. The awareness levels of environmental concepts and the accuracy of correct answers, were commendable.

This is a stimulating and exciting activity for youth, while raising awareness levels.

### **Media coverage**

Coverage for the conference was extensive. Sixteen persons, half of them Steering Committee members, including youth, were interviewed on nine radio programs as follows:

- ✍ **IRIE FM** – Aired in News and on "Jamaica corner" Interviewee Lisa Kirkland
- ✍ **KLAS Sports News-** Story aired on two newscasts. Interviewee Mark Nolan
- ✍ **HOT 102 FM-** "Drive Time Live" from the conference. Interviewees Linnette Wilks and Shoapan Williams
- ✍ **POWER 106** – "Independent Talk" –Interviewee Mark Nolan
- ✍ **POWER 106** - "Good evening Jamaica" live from conference. Interviewees Mark Nolan, Sonja Harris & Shoapan Williams. Half hour segment
- ✍ **KLAS Sports Radio** – Three interviews done live from conference. Interviewees Maisilyn Campbell, Dian McKenzie, Denise Francis and Marline Stephenson-Dalley

- ✍ **RADIO MONA** – “Caribbean Beat”- post conference interview. Interviewee Mark Nolan
- ✍ **HOT 102-** “Disclosure” on Environmental Issues. Interviewees- Sonja Harris and Robert Douglas
- ✍ **KLAS Sports Radio-** “Protecting the environment, protecting your health”- Interviewee - Dawn White

In addition:

- ✍ **JIS Radio** – Report carried and story placed on their website
- ✍ **Press Releases** sent post conference to five (5) radio stations and two newspapers
- ✍ **Teen Herald** – The story was carried on April 19

### **Summary of Findings**

- ✍ The response of presenters and resource persons to serve the needs of young persons in Portland in a conference of this nature, indicates a commitment to work with youth for sustainable management of Portland’s natural resources.
- ✍ Public Awareness targeted at Youth was an area prioritized by stakeholders in the early Task Force meetings. This strategy requires content that is appealing to young persons and funding to hold the conference preferably on a residential basis. The strategy was a success for the Rio Grande Watershed.
- ✍ The Minister with responsibility for Youth in the Ministry of Education, Youth & Culture came to the evening segment of the conference, symbolizing his commitment through the time spent, and made an undertaking to work with the Steering Committee to further this strategy, that is to have the conference annually.
- ✍ The Port Antonio Theatre Group are worthy of special mention, as their educational work through drama is professional and timely and can be applied to any watershed or rural community in transition. A video production of their work would be a vital tool in classroom teaching.
- ✍ Dr. Olive Lewin’s presentation was well received. The link between culture and the environment needs more thorough dissemination
- ✍ Richard Kelly- Fisheries Division, is a master presenter and works superbly with youth. He needs an entire afternoon to himself, if he can be spared.
- ✍ Field trips were extremely educational and enjoyable. The work of resource persons from CASE is commendable, and in the future, deserves more time.
- ✍ The link between Health and the environment needs further elaboration, though sensitization took the form of small group workshop and a segment of the Port Antonio Theatre Group’s presentation, which dealt with HIV-AIDS.
- ✍ Employment and training opportunities through work in environmental management was only alluded to, and more time is needed for each small group led by resource person, for example, from NSWMA or the entertainment consultant, to learn more in detail about this.
- ✍ Youth represented in the questionnaire sample are fairly knowledgeable and well organized. They represented organizations from Western Portland – Buff Bay to coastal areas and the

upper valley. More time is needed for youth from different types of environments to exchange information

- ✍ Portland youth, surprisingly, need more information on their culture, if it is to be respected and preserved. The conference offered rich information on this. More is needed.
- ✍ The entertainment segment with Louis Culture was well received. However, there was insufficient time for their own Talent Show.
- ✍ The Environmental Quiz is extremely popular. Patterned on Schools Challenge Quiz and compared by Marline Stephenson Dalley, it deserves the full time. However, this shortened version went over well.
- ✍ As one participant from Springbank said in his written evaluation “ The conference was a very informative one. It was culturally rich and (brought) environmental awareness and enlightenment. I had a catawampas time.”

### **Recommendations**

1. The RGWMC through the Public Awareness Task Force, will need to focus on assisting youth to meet the one objective not met in the conference- that is to establish a mechanism to enable participants to continue activities after the conference. A Youth Council focused on natural resource management, including the cultural heritage of Portland, would give the PATF a special point of engagement for future work.
2. A Youth Council would be encouraged by the PATF to work at the community level and report to the umbrella body, based on a clear plan of activities.
3. Planning and funding for future conferences need to start early and approaches made to the public and private sector, should be based on research of what appeals to them and when, in order to attract their support. (See Appendix )
4. The methodology for future conference planning could include an assessment of which participants came, from which communities, who was left out and why, so that wider representation can be achieved- particularly from communities where youth are marginal to the process of environmental management.
5. Opportunities for youth to volunteer and also work in areas related to environmental/cultural preservation, are vital for detailed inclusion in future youth conferences, as youth need to be exposed to the successful R2RW strategy of awareness-building through training and livelihoods.
6. The future conference should be preferably three days, with budget inclusive of resource persons who can assist with planning and implementation
7. Time needs to be allotted for a full evaluation at the end of future conferences.
8. Partner agencies such as the Social Development Commission and the National Youth Service, as well as NEPA, RADA, Forestry Department and the NSWMA are critical partners in future planning for our youth.

## Agenda

### Second Networking Conference – Local Natural Resources Management Groups

*March 8-9, 2005, starting 9:00 am, Runaway Bay HEART Hotel, Runaway Bay, Jamaica*

### “Towards Greater Citizen’s Participation in Sustainable Watershed Management”

#### Purpose

1. Review any progress in local resource management since the first Conference;
2. Review the findings and recommendations put forward by the R2RW Study on LWMCs and Local Government Reform;
3. Continue to build consensus on a process for the sustainable establishment, financing and operating of Local Watershed Management Committees (LWMCs), including functions, procedures, composition, roles, responsibilities, and institutionalization;
4. Continue to build some consensus on an Action Agenda for realizing (3) above; and
5. Share experiences, relationships, and agree on some mechanisms for continuity.

## AGENDA

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#### Day 1 – March 8, 2005

- 9:00 – 9:20 am**      **Preliminaries** (Prayer, Welcome, Purpose of Workshop, Introductions, and Confirmation of Agenda) – Chairperson – **Mrs. Laletta Davis-Mattis**
- 9:20 – 10:10 am**      **Presentations**
- a. **Greetings** – Mr. Peter Wilson-Kelly, Chair Local Group Coordination Working Group (5 minutes)
  - b. **Greetings** – Mrs. Karen McDonald-Gayle, Project Management Specialist, USAID (5 minutes)
  - c. **Context to Local Participation in WM** – Mrs. Jacqueline daCosta, Chairperson, NIWMC (10 minutes)
  - d. **Background to Project and Study** – Mr. Mark Nolan, COP, R2RW (10 minutes)
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- e. **PowerPoint Presentation on the Study** – Mr. Richard Lumsden and Ms. Alicia Hayman, Consultants (20 minutes)

**10:15 – 10:40 am**

**Discussions**

**10:40 – 11:00 am**

**BREAK**

**11:00 am – 1:00 pm**

**Thematic Groups Work:** Building Consensus on the Roles and Functions of Local Groups active in NRM – **Trevor Spence**

**Expected Outputs**

Each group is expected at the end of the Group discussions to:

1. Confirm the main policies and legislations that will support the sustainable management of the watersheds, and the integration with local governance mechanisms;
2. Confirm the main functions of local groups to support the implementation of Natural Resources Management;
3. Identify the key agency or agencies, and define their roles and responsibilities for each thematic area; and
4. Put forward recommendations to Central Government, Local Authorities, or Civil Society that would support local natural resources management.

**Small Group Discussion Questions**

In order to achieve the expected output, groups should use the questions listed on their Guidelines.

**Thematic Groups**

Listed below are the thematic groups, with Resource Person/s:

1. Watershed-Based (e.g. GRWMC, RGWMC, Buff Bay/Pencar Forestry Management Committee) – **Richard Lumsden & Peter Wilson-Kelly**
2. Conservation and Protected Areas (e.g. MBMP, JCDT, NEPT) – **Alicia Hayman**
3. Water Users Association (WUA), and Domestic Water Groups – **Patti Bedasse**
4. Community-Based/Sub Watershed (e.g. Cambridge, Boundbrook, Retrieve, Redwood) - **Lisa Kirkland**

**1:00 – 2:00 pm**

**LUNCH**

**2:00 – 3:30 pm**

**Plenary** – Groups Reports and Discussions

**3:30 — 5:00 pm** Sharing of Experiences, Best Practices, and Lessons (Groups present will make informal presentations) – **Patti Bedasse and Lisa Kirkland**

**5:00 – 5:20 pm** Summary of Day's Event

**Day 2 - March 9, 2005**

**8:30 – 9:30 am** Review of First Day Workshop – **Mark Nolan**

**9:30 – 10:30 am** **Essential Stages in a LWMC - Facilitator – Lisa Kirkland**

- ✍ Action Planning – **Patti Bedasse**
- ✍ Learning by Doing – **Mark Nolan**
- ✍ Policy Review and Adaptation – **Peter Wilson-Kelly**

Short presentations in the format of a panel would be made. Presenters will draw on the study, along with sharing their own experiences. Attempts should be made to make the sessions as interactive as possible.

**10:30 – 10:45 am** **BREAK**

**10:45 am – 12:30 pm** **Operating a LWMC – Facilitator – Trevor Spence**

- ✍ Role and Functions of Local Management Committees, Task Forces, Sub-Committees, Working Groups – **Peter Wilson-Kelly**
- ✍ Registration, Elections of Officers, and Recognition – **Patti Bedasse**
- ✍ Meetings and Recording Keeping – **Lisa Kirkland**
- ✍ Capacity-Building Skills (Proposal Writing, Fundraising, and Conflict Management – **Mark Nolan**

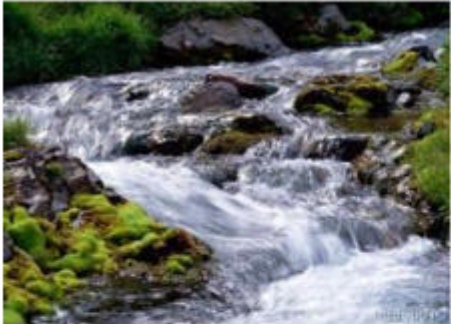
**12:30 – 1:30 pm** **LUNCH**

**1:30 – 2:30 pm** **“Towards greater citizen’s participation in Sustainable Watershed Management” – Open Discussion – Trevor Spence**

**2:30 – 3:30 pm** **Summary, Next Steps and Departure**





Program for R2RW Closing Ceremony and Exposition




The Ridge to Reef Watershed Project (R2RW) was a five - year bilateral initiative between the Government of Jamaica's National Environment and Planning Agency (NEPA) and the Government of the United States Agency for International Development (USAID). The Project officially closes May 31, 2005. The Project focused on three distinct, but interrelated activities working towards the objective of improving the management of Jamaica's watersheds. These Components were: (1) Sustainable Environmental Practices, (2) Compliance and Enforcement and (3) Institutional Strengthening. The Project was directly supportive of USAID's Strategic Objective 2 (SO2) - improved quality of key natural resources in selected areas that were both environmentally and economically significant. AFD incorporated implemented R2RW.

*R2RW wishes to express thanks to their Partners and many Stakeholders that have supported them over the years*

## Closing Ceremony and Exposition



**The Tree House, Hope Zoo**

Friday, May 27, 2005  
at 2:00 pm


### An Invitation:

**The Closing Ceremony for the 5 year Ridge to Reef Project will take place on Friday, May 27, 2005 at 2:00 pm at the Tree House in the Hope Zoo. The hour long ceremony will look at the achievements, impact, lessons learned and sustainability of the R2RW initiative.**

**The ceremony will be followed by an exposition of materials developed under the Project including reports, posters, videos, and other material.**

**A Reception starting at 4:00 will follow the Exposition**

**See You There!**



### Programme

<b>2:00 pm</b>	<b>Ceremony</b>	
	Prayer	Mr. Trevor Spence
	Welcome & Overview	Mr. Mark Nolan
	Greetings	USAID NEPA
	Project Achievements	Mr. Mark Nolan
	Impact & Lessons Learned	Ms. Senja Harris
	Sustainability	Mr. Hugh Graham
	Remarks	USAID NEPA
	Awards	
	Cultural Item	
	Closing Remarks	

**Hurricane Ivan Rehabilitation Activities**

**( See next 6 pages)**

Component B: Target communities revitalized (I).  
CTO: Howard Batson (OE-SO2)

Implementors: ARD (R2RW)

Result #1: Agriculture Sector Recovery

Indicators		Target	Achieved to Date			
No. of communities impacted		100	99			
No. of projects		13	13			
Activity	Subcontractor	Funding	Amount Spent	Location	Status/Issues	Results to Date
Plant Propagation House Replacement	ARD (R2RW), Cedar Grove Farmers & Environmental Group	\$ 890.00	\$ 890.00	Cedar Grove, Bethel Town, Westmoreland	Approved HICUP grant. Complete	20,000 vegetable seedlings produced. 1 community served
Production of Export Crops in Chester Castle	ARD (R2RW)/ Chester Castle Survivors Group	\$ 980.00	\$ 980.00	Chester Castle, Hanover	Approved HICUP grant. Complete	5 acres of land prepared and seeds sown. 1 community served
Manchioneal School Farm Revitalization	ARD (R2RW)/ Manchioneal All Age School	\$ 1,570.00	\$ 1,570.00	Manchioneal, Portland	Approved HICUP grant. Complete	Procurement Complete, Construction complete, school farm in operation 1 community served
Training in Post Ivan Tree Crop Resuscitation	ARD (R2RW), RADA, Forestry Dept.	\$ 3,000.00	\$ 3,000.00	Portland and Western Jamaica	Approved HICUP grant. Complete	170 farmers trained in 6 separate training courses. 42 Extension Agents Trained. 24 community served
Rehabilitation of Pineapple Demonstration Plots	ARD (R2RW), RADA	\$ 2,500.00	\$ 2,500.00	5 communities in Westmoreland, St E, & St.J	Part of ongoing activity/complete	5 Demonstration plots rehabilitated to pre Ivan conditions. 5 communities served
Vegetable Production in Cacoen Castle	ARD (R2RW)/ Cacoen Castle Farmers Group	\$ 8,500.00	\$ 8,500.00	Cacoen Castle, Hanover	Previously approved - amended after Ivan. Implementation complete.	10 vegetable plots (.1 ac each) planted, reaping commenced and being sold to hotels. 1 community served
Post Ivan Recovery in Ridge Pen	ARD (R2RW)/ FAO, Ridge Pen Vegetable Growers Assoc.	\$ 5,104.00	\$ 4,972.00	Ridge Pen, St. Elizabeth	Approved HICUP grant. Complete	10 acres prepared, seedlings produced and planted. 1 community served
Production of Export Crops in St. Leonard's	ARD(R2RW), St. Leonard's Benevolent Society	\$ 890.00	\$ 890.00	St. Leonard's, Westmoreland	Approved HICUP grant. Complete	Inputs procured, planting of crops on-going. 1 community served
Ornamental Fisheries Recovery	ARD (R2RW), Jamaica Ornamental Fish Farmers Assoc.	\$ 23,700.00	\$ 23,700.00	4 locations in St. Catherine and St. Thomas	Grant document signed. Complete	Brood stock, aerators and materials procurement completed, JOFFA distributing inputs. 4 communities served
Agroforestry Initiatives	ARD (R2RW), CBOs	\$ 60,000.00	\$ 60,000.00	Moore Town, Cooper's Hill, Industry, Rock Hall, Durham and Chatsworth	Underway	30 acres of tree crops resuscitated. 150 farmers trained in censervation techniques. 6 communities served
Forestry Nurseries	ARD (R2RW) , Forestry Department	\$ 75,000.00	\$ 44,426.00	Williamsfield, Manchester & Mt. Airy, St Andrew, Moneague, St. Ann	Grant agreement signed and work completed	Materials procurement and rehabilitation completed. 3 communities served, distribution of seedlings to benefit all parishes. 100,000 seedlings potted. Forest Department slow to spend balance of funds by end date.
Agriculture Recovery in Target Areas	ARD (R2RW), IICA, RADA	\$ 120,000.00	\$ 98,000.00	In St C, St E, Clarendon, Westmoreland, Hanover	Project signed and underway, weekly steering committee meetings held. 90% completed	Assistance provided to 31 Aquaculture farmers in St, Catherine, Clarendon and St. Elizabeth; and 580 farmers producing callalu, hot pepper, watermelon and tomato in Clarendon, Manchester and St. Elizabeth. 50 communities served
Landslide Clearing in Floyds Lodge	ARD(R2RW), Floyd's Lodge JAS	\$ 890.00	\$ 890.00	Retrieve, St J	Approved HICUP Grant. Complete	Major landslide cleared, soil conservation measures (vetiver grass) implemented. 1 community served
Technical Assistance, Administrative Support, ODCs	ARD (R2RW)	\$ 5,273.00	\$ 5,273.00	All sites	Cost includes time for Public Relations and monitoring and technical oversight of the numerous small projects.	
Sub Total		\$308,297	\$255,591			

Component B: Target communities revitalized (I).  
 CTO: Howard Batson (OE-SO2)

Implementors: ARD (R2RW)

Result #2: Damage Assessments and Community Cleanups

Indicators		Target	Achieved to Date			
No. of communities impacted		10	9			
No. of projects		8	10			
Activity	Subcontractor	Funding	Amount Spent	Location	Status/Issues	Results to Date
Agricultural Damage Assessment	ARD(R2RW)	\$ 6,300.00	\$ 6,300.00	St. Catherine, St. Elizabeth, Westmoreland, St. James, Portland	Complete	Assessments of agricultural damage completed for target areas, and used in approval of new interventions
School Sanitation Assessment	ARD(R2RW)	\$ 4,500.00	\$ 4,500.00	Portland, St. Mary, St. Catherine, St. Elizabeth, Westmoreland, St. James	Complete	Assessments of 28 schools completed, and used in the design of project interventions
Opening of Nanny Falls	ARD(R2RW), Moore Town Maroon Council	\$ 890.00	\$ 890.00	Moore Town, Portland	Approved HICUP Grant. Complete	1.5 miles of trail cleared, road fixed, impacting 1000 persons. 1 community served
Dundee Operation Clean Up	ARD(R2RW), Dundee Citizens Assoc.	\$ 890.00	\$ 890.00	Dundee, Westmoreland	Approved HICUP Grant. Complete	5 chains of roadway cleared, garbage picked up by National Solid Waste Management Authority. 1 community served.
Ginger House Community Clean Up	ARD(R2RW), Ginger House Environmental Group	\$ 890.00	\$ 890.00	Ginger House, Portland	Approved HICUP grant. Complete	Complete, area cleared, planting complete, landscaping complete. 1 community served
Stonehenge Beautification Project	ARD(R2RW), Stonehenge Citizens Assoc.	\$ 890.00	\$ 890.00	Stonehenge, Westmoreland	Approved HICUP grant. Complete	2 miles drains cleaned, preventing damage to main road. 1 community served
Distribution of Relief Supplies	ARD(R2RW), Cambridge Benevolent Society	\$ 4,000.00	\$ 4,000.00	Cambridge, St J; C	Completed	48 households, 2 educational institutions and 1 court house benefited. 1 community served
Clearing of Access Roads & EcoTourism Trails	ARD(R2RW), Grand Valley Tours	\$ 1,000.00	\$ 1,000.00	Berrydale east and west, Portland	Approved HICUP Grant. Complete	3 miles of trail cleared and critical areas cleared benefiting 200 persons. 2 communities served
Clearing of Access Roads & Ecotourism Trails	ARD(R2RW), Bowden Pen Farmers Group	\$ 890.00	\$ 890.00	The Cuna Cuna Pass: Bowden Pen, Portland to Hayfield, St. Thomas	Approved HICUP Grant. Complete	5 miles of trail cleared. 1 community served.
Beach Clean Up -Treasure Beach	ARD(R2RW), ONR, National Youth Service	\$ 1,885.00	\$ 1,885.00	Treasure Beach, St. E	Approved HICUP Grant. Complete	1.5 miles beach cleaned up by ONR and NYS. 1 community served
Technical Assistance, Administrative Support, ODCs	ARD (R2RW)	\$ 10,865.00	\$ 10,865.00	All sites	Cost includes time for Public Relations and monitoring and technical oversight of the numerous small projects.	
Sub Total		\$33,000	\$33,000			

Component B: Target communities revitalized (I).  
 CTO: Howard Batson (OE-SO2)

Implementors: ARD (R2RW)

Result #3: Water & Sanitation and Rural Infrastructure

Indicators		Target	Achieved to Date			
No. of communities impacted		60	56			
No. of projects		15	34			
Activity	Subcontractor	Funding	Amount Spent	Location	Status/Issues	Results to Date
Repair Fencing & Rehabilitate Access Roads	ARD(R2RW), Cacoon Castle Farmers Group	\$ 890.00	\$ 890.00	Cacoon Castle, Hanover	Approved HICUP Grant. Complete	10 chains of fencing repaired, 1.5 miles of farm road cleared benefiting 140 persons. 1 community served
TA - Designs for Schools Water and Sanitation Projects	ARD(R2RW)	\$ 50,000.00	\$ 50,000.00	Island-wide;	Designs developed; construction completed	For application to all sanitation construction - New Horizon Schools
Shortwood Road Rehabilitation	ARD(R2RW), Cambridge CDC	\$ 890.00	\$ 890.00	Catadupa, St J	Approved HICUP Grant. Complete	2 miles of secondary road opened and repaired. 1 community served
Mafoota Farm Road Rehabilitation	ARD(R2RW), Mafoota Agribusiness Cooperative	\$ 2,000.00	\$ 2,000.00	Mafoota, St James	Approved HICUP Grant. Complete	4 culverts installed and 2 miles of farm road benefiting 18 farmers. 1 community served
Mafoota Car Wash/Laundry hurricane rehabilitation	ARD(R2RW) CDC	\$ 2,130.00	\$ 1,400.00	Mafoota, St. James	Approved HICUP Grant. Complete	To be handed over as is to Mafoota Farmers Coop and RADA. Change of use requested ie packing house for vegetables and storage of inputs/farm produce. 1 Community served
Flood Control in Duckets	ARD(R2RW), Duckets Road District Association	\$ 600.00	\$ 600.00	Duckets, St J	Approved HICUP Grant. Complete	5 chains of drain cleared. 1 community served
Building Drains and Culvert Cleaning	ARD(R2RW), Jubilee District Citizens Association	\$ 753.00	\$ 753.00	Jubilee, St J	Approved HICUP Grant. Complete	4 chains of drain cleared. 1 community served
Cleaning of Market Level Drains	ARD(R2RW), Cambridge CDC	\$ 890.00	\$ 890.00	Cambridge, St J	Approved HICUP Grant. Complete	4 chains of main drain cleared of debris impacting 600 persons. 1 community served
Clearing of Mud Town North Drain	ARD(R2RW), Cambridge CDC	\$ 890.00	\$ 890.00	Cambridge, St J	Approved HICUP Grant. Complete	7 chains of drain cleared affecting 800 persons. 1 community served
Fellowship Drain Cleaning	ARD(R2RW), Fellowship CDC	\$ 890.00	\$ 890.00	Fellowship, Portland	Approved HICUP Grant. Complete	20 chains of drains cleared, benefiting 500 persons. 1 community served
Snow Hill Drain Cleaning	ARD(R2RW), Snow Hill CDC	\$ 890.00	\$ 890.00	Snow Hill, Portland	Approved HICUP Grant. Complete	22 chains of storm drain cleared and planted with vetiver. 1 community served
Stony Hill Drain Cleaning	ARD(R2RW), Stony Hill CDC	\$ 890.00	\$ 801.00	Stony Hill, Portland	Approved HICUP Grant. Complete	2 chains of drain cleared, cross drains installed, affecting 1500 persons. 1 community served
Tank Road District Drain Cleaning	ARD(R2RW), Cambridge CDC	\$ 890.00	\$ 890.00	Cambridge, St J	Approved HICUP Grant. Complete	10 chains of drain cleared benefiting 1000 persons. 1 community served
Cleaning of Gully Outlets	ARD(R2RW), Lower Cambridge Dist. Assoc.	\$ 910.00	\$ 910.00	Lower Cambridge, St J	Approved HICUP Grant. Complete	10 Gully outlets cleared of debris and fallen trees. 1 community served
Clearing of Debris from River to Avert Flooding	ARD(R2RW), Prospect Farmers Group	\$ 1,000.00	\$ 1,000.00	Prospect, Port Antonio	Approved HICUP Grant. Complete	2 miles of river course cleared and riverbank stabilized with vetiver, affecting 1200 persons. 1 community served
Tom's Hope Drainage and Road Repairs	ARD(R2RW), Tom's Hope Improvement and Social Club	\$ 920.00	\$ 920.00	Toms Hope, Portland	Approved HICUP Grant. Complete	2 miles of river course cleared and road rehabilitation benefiting 250 residents. 1 community served
Pisgah Alternate Road Stabilization	ARD(R2RW) CDC	\$ 920.00	\$ 920.00	Pisgah, St. Elizabeth	Approved HICUP Grant. Complete	Half Mile of Alternate Road to bypass major landslide on main road constructed. 2 communities served
Watermount Water Catchment Improvement	ARD(R2RW) CDC, SDC	\$ 888.00	\$ 888.00	Watermount, St. Catherine	Approved HICUP Grant. Complete	Procurement underway, 1 community served
Old Harbour Bay Community Centre Rehabilitation	ARD(R2RW), CDC	\$ 796.00	\$ 796.00	Old Harbour Bay, St. Catherine	Approved HICUP Grant. Complete	Procurement underway, 1 community served
Old Harbour Drain Cleaning	ARD(R2RW), Afrique Youth Club	\$ 1,466.00	\$ 1,466.00	Old Harbour, St. Catherine	Approved HICUP Grant. Complete	Procurement underway, 1 community served
Blackwoods Gardens Drain Cleaning	ARD(R2RW), Blackwoods Gardens CDC	\$ 1,364.00	\$ 1,364.00	Old Harbour Bay, St. Catherine	Approved HICUP Grant. Complete	Procurement underway, 1 community served
Durham Gap Rural Road Repair	ARD(R2RW), Durham Gap Farmers Gap, Portland Parish Council	\$ 2,470.00	\$ 1,800.00	Durham Gap, Portland	Approved HICUP Grant. Complete	3 road breakaways repaired on rural main road benefiting 300 farmers in 4 communities. Finalization of work to be done by Parish Council
Seaford Town Solid Waste Management Project	ARD(R2RW) Seaford Town Heritage Tour Committee			Seaford Town, Westmoreland	Approved HICUP Grant. Cancelled	Project cancelled due to non-responsiveness of grantee

Component B: Target communities revitalized (I).

CTO: Howard Batson (OE-SO2)

Implementors: ARD (R2RW)

Activity	Subcontractor	Funding	Amount Spent	Location	Status/Issues	Results to Date
Sydenham Post-Ivan Community Rehabilitation	ARD(R2RW), CDC	\$ 890.00	\$ 890.00	Sydenham, St. Catherine	Approved HICUP Grant. Complete	Community center repaired after Hurricane damage. 1 community served.
Bickersteth Drain Cleaning	ARD(R2RW), Bickersteth CDC	\$ 2,000.00	\$ 2,000.00	Bickersteth, St J	Approved HICUP Grant. Complete	2 culverts under main road and sink hole cleared affecting users of main road. 1 community served
Dundee Sanitation Project	ARD(R2RW), School PTA	\$ 15,000.00	\$ 15,000.00	Dundee, Westmoreland	Grant Agreement Signed. Complete	New sanitation system at all age school installed complete with flush toilets and constructed wetlands. 1 community served
Coopers Hill Sanitation Project	ARD(R2RW), School PTA	\$ 14,500.00	\$ 14,500.00	Coopers Hill, Portland	Grant Agreement Signed, Project Complete	New Sanitation system installed at Primary School. 1 Community Served.
Water Supply Access - Cornwall Barracks	ARD(R2RW), Moore Town Maroon Council	\$ 500.00	\$ 500.00	Cornwall Barracks, Portland	Approved HICUP Grant. Complete	3.5 miles of access trail to water source cleared, benefiting 800 persons. 1 community served
Comfort Hall Water Supply Project	ARD(R2RW), Ramble Pond CDC, St. James Parish Council	\$ 2,000.00	\$ 2,000.00	Anchovy, St James	Approved HICUP Grant. Complete	3 tanks with capacity 5000 gal. installed, benefiting 100 residents. 1 community served
Pisgah Water Supply	ARD(R2RW), PTA	\$ 18,789.00	\$ 18,789.00	Pisgah, St Elizabeth	Grant Agreement Signed. Complete	Pisgah: All of pipe laying completed affecting 3000 persons. System undergoing testing. 2 communities served
Windsor Water Supply	ARD(R2RW), CDC	\$ 9,024.00	\$ 8,073.00	Windsor, Portland	Grant Agreement Signed, Procurement Complete	Pipes in place, Pipe laying to take place by end of January. 2 communities served
Sanitation Systems in Basic Schools	ARD(R2RW), Build Jamaica Foundation	\$ 72,000.00	\$ 72,000.00	St. Mary: Devon Pen, Lucky Hill, Bellfield, Lewisburg, Mount Vernon. Portland: Cornwall, Barracks, West Retreat	Grant Agreement Signed, Work completed. Training in use and care underway. Visits scheduled to certify completion	10 schools completed instead of 7 approved, without additional resources. Schools are St. Mary: Devon Pen School; Lucky Hill; Belfield Line; Lewisburgh; Mt. Vernon; Seaton; Albany: and 3 schools in Portland: Cornwall Barracks, Seaman's Valley and West Retreat. 10 communities served
Sanitation Systems in Primary Schools	ARD(R2RW), Min. of Education, ST TA	\$ 242,000.00	\$ 232,000.00	11 Schools in 4 Parishes	Activity approved by USAID. Draftsmen completed drawings for 15 schools. Work complete at 11 schools. Final works underway at 1 school	Work completed on 11 schools: in St. Mary (Highgate All Age, Jack's River Primary, Albion Mountain), St. Catherine (Spring Garden All Age, Victoria All Age, Polly Ground Primary, Springvale Primary; Tulloch All Age ), and Dundee All Age, Westmoreland . 11 communities serving 27 districts
Technical Assistance, Administrative Support, ODCs	ARD (R2RW)	\$ 146,784.00	\$ 146,784.00	All sites	Specialized Technical Assistance, including engineering drawings, supervision to contractors, inspection for hurricane resistance	
<b>Sub Total</b>		<b>\$ 596,824.00</b>	<b>\$ 584,384.00</b>			

Component B: Target communities revitalized (I).  
 CTO: Howard Batson (OE-SO2)

Implementors: ARD (R2RW)

Result #4: Land and Coastal Zone Rehabilitation, Reforestation

Indicators		Target	Achieved to Date			
No. of communities impacted			12			
No. of projects			1			
Activity	Subcontractor	Funding	Amount Spent	Location	Status/Issues	Results to Date
Training and supplies (plants, tools) to 6 communities in land stabilization techniques in Rio Grande Watershed	ARD (R2RW), Rio Grande Watershed Management Committee, Land and Conservation Task Force	\$ 137,000.00	\$ 137,000.00	Rio Grande Watershed Communities: Chatsworth, Moore Town, Coopers Hill, Durham, Industry, Prospect	Complete.	Over 200 famers in Rio Grande area assisted with training, tools for re-planting, and over 7000 seedlings (including fruit and timber trees), established contour barriers on 100 ac. 12 communities served
Technical Assistance, Administrative Support, ODCs	ARD (R2RW)	\$ 14,000.00	\$ 14,000.00	All sites	Specialized Technical Assistance, supervision to contractors, training, hurricane mitigaton	
Sub Total		\$ 151,000.00	\$ 151,000.00			

Component B: Target communities revitalized (I).

CTO: Howard Batson (OE-SO2)

Implementors: ARD (R2RW)

Activity	Subcontractor	Funding	Amount Spent	Location	Status/Issues	Results to Date
Total	ARD (R2RW)	\$1,089,121	\$1,023,975			



*Component B: Target communities revitalized (I).*  
*CTO: Howard Batson (OE-SO2)*

*Implementors: ARD (R2RW)*

**Gant Chart Update of Fifth Annual Work Plan**

**( See next 13 pages)**

Ridge to Reef Watershed Project  
 Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006						
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	1 skip	1 day	Fri 10/1/04	Fri 10/1/04																			
2	2 skip	1 day	Fri 10/1/04	Fri 10/1/04																			

Project: R2RW Final Work Plan  
 Date: Tue 5/24/05

Task  Progress  Summary  Rolled Up Split  Rolled Up Progress  Project Summary   
 Split  Milestone  Rolled Up Task  Rolled Up Milestone  External Tasks 

Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006											
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
3	<b>Sustainable Environmental Practices in the Great River Watershed</b>	<b>195 days</b>	<b>Fri 10/1/04</b>	<b>Thu 6/30/05</b>																								
4	<b>3.1 Development of the Great River Watershed Management Committee</b>	<b>108 days</b>	<b>Fri 10/1/04</b>	<b>Mon 2/28/05</b>																								
5	3.1.1 Implementation of the Strategic Actions and implementation Plan of the GRWMC	52 days	Fri 10/1/04	Fri 12/10/04																								
6	3.1.1.1 Conduct workshop for self-governance of the GRWMC	5 days	Mon 10/25/04	Fri 10/29/04																								
7	3.1.1.2 Decide on partner agencies for GRWMC	10 days	Fri 10/1/04	Wed 10/13/04																								
8	3.1.1.3 Establish fund raising Committee of the GRWMC	1 day	Fri 10/15/04	Fri 10/15/04																								
9	3.1.1.4 Design promotional program on GRWMC activities	20 days	Thu 10/14/04	Wed 11/10/04																								
10	3.1.1.5 Prepare lessons learnt on GRWMC process	25 days	Mon 11/8/04	Fri 12/10/04																								
11	3.1.1.6 Refine public awareness strategies modeled on R2RW	43 days	Fri 10/1/04	Mon 11/29/04																								
12	3.1.2 Develop MOUs to implement Projects and Program	106 days	Mon 10/4/04	Mon 2/28/05																								
13	3.1.2.1 Develop MOU for the Green Village Program	65 days	Mon 10/4/04	Fri 12/31/04																								
14	3.1.2.2 Develop MOU for the Pineapple Production Project	12 days	Mon 11/15/04	Tue 11/30/04																								
15	3.1.2.3 Promote incorporation of GRWMC activities in work plans and budgets of partner agencies	85 days	Tue 11/2/04	Mon 2/28/05																								
16	3.1.3 Capacity Building Training Programs for task force	35 days	Fri 10/1/04	Wed 11/17/04																								
17	3.1.3.1 Implement training course in meeting management, developing agendas and minutes taking	1 day	Fri 10/1/04	Fri 10/1/04																								
18	3.1.3.2 Implement training course in fund raising	1 day	Wed 11/17/04	Wed 11/17/04																								
19	3.1.3.3 Implement training course in Proposal Writing	1 day	Wed 11/17/04	Wed 11/17/04																								
20	3.1.3.4 Implement training course in environmental advocacy	1 day	Fri 10/1/04	Fri 10/1/04																								
21	3.1.4 Implement Strategic Plan for Sustainable Development of the GRW	1 day	Fri 10/1/04	Fri 10/1/04																								
22	3.1.4.1 Consultation with NEPA and Parish Councils	1 day	Fri 10/1/04	Fri 10/1/04																								
23	3.1.4.1.1 Secure buy-in and ensure financial commitment to the process	1 day	Fri 10/1/04	Fri 10/1/04																								
24	<b>3.2 Improved Production of Pineapple for Sustainable Livelihoods: Anchor Project # 1</b>	<b>151 days</b>	<b>Fri 10/1/04</b>	<b>Thu 4/28/05</b>																								
25	3.2.1 Implementation of 5 demonstration Plots	130 days	Fri 10/1/04	Wed 3/30/05																								
26	3.2.1.1 Retrieve - Complete variety, planting distance and intercropping demonstration	130 days	Fri 10/1/04	Wed 3/30/05																								
27	3.2.1.2 Maybole -Complete variety, planting distance and intercropping demonstration	130 days	Fri 10/1/04	Wed 3/30/05																								
28	3.2.1.3 Ginger Hill - Complete variety, planting distance and intercropping demonstration	130 days	Fri 10/1/04	Wed 3/30/05																								
29	3.2.1.4 Chesterfield - Complete variety, planting distance and intercropping demonstration	130 days	Fri 10/1/04	Wed 3/30/05																								
30	3.2.1.5 Coffee Ground -Complete variety, planting distance and intercropping demonstration	130 days	Fri 10/1/04	Wed 3/30/05																								
31	3.2.2 Establish 100 acres of new pineapples	108 days	Fri 10/1/04	Mon 2/28/05																								
32	3.2.2.1 Hire 2 field assistants for lining out fields, selecting planting material & supervision of best practices	42 days	Fri 10/1/04	Fri 11/26/04																								
33	3.2.2.2 Establish groups of at least 12 farmers for each demonstration plot	22 days	Fri 10/1/04	Fri 10/29/04																								
34	3.2.2.3 Establish groups of at least 12 farmers for each demonstration plot	6 days	Fri 10/1/04	Thu 10/7/04																								
35	3.2.2.4 Conduct training in lining out of plots, fertilizer use and weed control	108 days	Fri 10/1/04	Mon 2/28/05																								
36	3.2.3 Complete Marketing Strategy	44 days	Wed 11/10/04	Mon 1/10/05																								
37	3.2.3.1 Develop SOW and conduct marketing strategy study	30 days	Wed 11/10/04	Tue 12/21/04																								
38	3.2.3.2 Identify key stakeholders - processors, restaurateurs, hotels, cruise ships	14 days	Wed 12/22/04	Mon 1/10/05																								
39	3.2.4 Develop and Implement Exit Strategy	131 days	Fri 10/1/04	Thu 3/31/05																								
40	3.2.4.1 Establish MOU with RADA to sustain activities after R2RW e.g. improved pineapple Prodn practices	20 days	Mon 1/3/05	Fri 1/28/05																								
41	3.2.4.2 Implement Extension Services	130 days	Fri 10/1/04	Wed 3/30/05																								
42	3.2.4.3 Execute Marketing strategy	64 days	Mon 1/3/05	Thu 3/31/05																								

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary

Split Milestone Rolled Up Task Rolled Up Milestone External Tasks

Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006											
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
43	3.2.5 Produce and utilize Pineapple Production Video	151 days	Fri 10/1/04	Thu 4/28/05																								
44	3.2.5.1 Distribute video to RADA, PCA and Farmers Group	151 days	Fri 10/1/04	Thu 4/28/05																								
45	3.2.5.2 Utilize video in public awareness campaign to improve production practices	151 days	Fri 10/1/04	Thu 4/28/05																								
46	<b>3.3 Production and Marketing</b>	<b>152 days</b>	<b>Fri 10/1/04</b>	<b>Fri 4/29/05</b>																								
47	3.3.1 Improved crop varieties - production of high quality seedlings	130 days	Fri 10/1/04	Wed 3/30/05																								
48	3.3.1.1 Provide technical Assistance on new/improved varieties	130 days	Fri 10/1/04	Wed 3/30/05																								
49	3.3.1.2 Hand over ceremony for improved banana varieties	15 days	Mon 2/7/05	Fri 2/25/05																								
50	3.3.2 Livestock Improvement	25 days	Mon 2/14/05	Fri 3/18/05																								
51	3.3.2.1 Handing over ceremony to St. James 4H and Knockalva Agricultural School	25 days	Mon 2/14/05	Fri 3/18/05																								
52	3.3.3 Plant A Tree Campaign	152 days	Fri 10/1/04	Fri 4/29/05																								
53	3.3.3.1 Implement training course on pruning & care of tree crops	5 days	Mon 10/25/04	Fri 10/29/04																								
54	3.3.3.2 Distribution and planting of timber & fruit trees	152 days	Fri 10/1/04	Fri 4/29/05																								
55	3.3.4 Complete implementation of ongoing grants	131 days	Fri 10/1/04	Thu 3/31/05																								
56	3.3.4.1 Mafoota Farmers Group - Irrigation Ponds	107 days	Fri 10/1/04	Fri 2/25/05																								
57	3.3.4.2 Cacoon Castle Farmers Group - Vegetable Production	107 days	Fri 10/1/04	Fri 2/25/05																								
58	3.3.4.3 Catadupa Farmers Group - Cocoa Production	107 days	Fri 10/1/04	Fri 2/25/05																								
59	3.3.4.4 Chester Castle - Vegetable Production	109 days	Mon 11/1/04	Thu 3/31/05																								
60	3.3.4.5 St. Leonard's Vegetable Production	109 days	Mon 11/1/04	Thu 3/31/05																								
61	3.3.5 Official closeout of completed grant activities/handovers	5 days	Mon 1/10/05	Fri 1/14/05																								
62	3.3.5.1 Cedar Grove Farmers Group	5 days	Mon 1/10/05	Fri 1/14/05																								
63	3.3.5.2 Rushea Farmers Group and Plant House	5 days	Mon 1/10/05	Fri 1/14/05																								
64	3.3.5.3 Hermitage Honey Limited	5 days	Mon 1/10/05	Fri 1/14/05																								
65	<b>3.4 Cleaning and Greening of Cambridge: Anchor Project # 2</b>	<b>152 days</b>	<b>Fri 10/1/04</b>	<b>Fri 4/29/05</b>																								
66	3.4.1 Execute implementation plan for Project	56 days	Mon 10/4/04	Mon 12/20/04																								
67	3.4.1.1 Organizational development training for the Cambridge CDC	20 days	Mon 10/4/04	Fri 10/29/04																								
68	3.4.1.2 Complete a community profile and community development plan	15 days	Mon 11/1/04	Fri 11/19/04																								
69	3.4.1.3 Develop and sign MOU with St. James Parish Council	21 days	Mon 11/22/04	Mon 12/20/04																								
70	3.4.2 Implement Public Awareness Campaign	152 days	Fri 10/1/04	Fri 4/29/05																								
71	3.4.2.1 Develop promotional materials	22 days	Fri 10/1/04	Fri 10/29/04																								
72	3.4.2.2 Develop hummingbird mascot costume	12 days	Fri 10/1/04	Fri 10/15/04																								
73	3.4.2.3 Develop & deliver presentations for schools and community meetings	152 days	Fri 10/1/04	Fri 4/29/05																								
74	3.4.3 Continued implementation of community clean - up activities	22 days	Mon 11/1/04	Tue 11/30/04																								
75	3.4.3.1 Removal of derelict vehicles	22 days	Mon 11/1/04	Tue 11/30/04																								
76	3.4.3.2 Hold District beautification competition	22 days	Mon 11/1/04	Tue 11/30/04																								
77	3.4.4 Implement Land Management Activities	127 days	Fri 10/1/04	Fri 3/25/05																								
78	3.4.4.1 Continued use of demo plot to show proper land management practices	127 days	Fri 10/1/04	Fri 3/25/05																								
79	3.4.4.2 Tree planting: coconut, cedar, mahogany	108 days	Fri 10/1/04	Mon 2/28/05																								
80	<b>3.5 Water and Sanitation Initiatives in the Great River Watershed</b>	<b>142 days</b>	<b>Fri 10/1/04</b>	<b>Fri 4/15/05</b>																								
81	3.5.1 Rationalize use of car wash and laundry facility at Mafoota	20 days	Fri 10/1/04	Wed 10/27/04																								
82	3.5.2 Complete construction of facility and make operational	25 days	Thu 10/28/04	Wed 12/1/04																								

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary   
 Split Milestone Rolled Up Task Rolled Up Milestone External Tasks

Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006						
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
83	3.5.3 Signing of MOU with Citizens Association to manage facility	15 days	Thu 10/28/04	Wed 11/17/04																			
84	3.5.4 Handing over ceremonies for sanitation systems at Retrieve, Pisgah & Content	4 days	Fri 10/1/04	Tue 10/5/04																			
85	3.5.5 Institutionalize community clean-up days in water and sanitation task forces with MOU's	142 days	Fri 10/1/04	Fri 4/15/05																			
86	3.5.5.1 Mobilize 8 communities to do Action Plans for continuous clean up	131 days	Fri 10/1/04	Thu 3/31/05																			
87	3.5.5.2 Formalize community clean-up activities with task forces	54 days	Tue 2/1/05	Fri 4/15/05																			
88	3.5.6 Implementation W & S Initiatives	105 days	Mon 10/4/04	Fri 2/25/05																			
89	3.5.6.1 Promote implementation of sanitation demonstration systems at Catadupa	105 days	Mon 10/4/04	Fri 2/25/05																			
90	3.5.6.2 Promote implementation of sanitation demonstration systems at Dundee All-Age School	75 days	Mon 11/8/04	Fri 2/18/05																			
91	<b>3.6 Public Awareness Activities</b>	<b>161 days</b>	<b>Fri 10/1/04</b>	<b>Thu 5/12/05</b>																			
92	3.6.1 Work with Youth Leaders to identify and support activities of the Y&E Conference	131 days	Fri 10/1/04	Thu 3/31/05																			
93	3.6.1.1 Support follow-up activities to conference including extension of River Action Program to 5 communities	44 days	Fri 10/1/04	Tue 11/30/04																			
94	3.6.1.2 Prepare with youth leaders proposal for funding of 2005 Conference	64 days	Mon 1/3/05	Thu 3/31/05																			
95	3.6.2 Implement Green Village Program 2004	90 days	Fri 10/1/04	Wed 2/2/05																			
96	3.6.2.1 Encourage communities to participate in Green Village 2004	21 days	Fri 10/1/04	Thu 10/28/04																			
97	3.6.2.2 Refine Green Village Competition criteria	1 day	Fri 10/29/04	Fri 10/29/04																			
98	3.6.2.3 Judging of Green Village 2004 Program	15 days	Mon 11/1/04	Fri 11/19/04																			
99	3.6.2.4 Award Ceremony for Green Village 2004	1 day	Wed 2/2/05	Wed 2/2/05																			
100	3.6.3 Participation in fairs, expositions and community forums	151 days	Fri 10/1/04	Thu 4/28/05																			
101	3.6.3.1 Organize National Wood and Water Ceremony	2 days	Fri 10/1/04	Sat 10/2/04																			
102	3.6.3.2 Participate in Jamaica 4-H Clubs Nyammins & Jammins Exposition, Montego Bay	1 day	Mon 10/18/04	Mon 10/18/04																			
103	3.6.3.3 Participate in 6 community events	151 days	Fri 10/1/04	Thu 4/28/05																			
104	3.6.4 Project successes promoted through press releases, radio programs and special events	161 days	Fri 10/1/04	Thu 5/12/05																			
105	3.6.4.1 Write press releases, organize event logistics and arrange radio interviews	161 days	Fri 10/1/04	Thu 5/12/05																			
106	3.6.4.2 Disseminate posters/calendars to wide audience, including PCA material	151 days	Fri 10/1/04	Thu 4/28/05																			
107	<b>3.7 Component 1A Performance benchmarks</b>	<b>0 days</b>	<b>Thu 6/30/05</b>	<b>Thu 6/30/05</b>																			
108	3.7.1 Plan for phase out of R2RW support to the GRWMC executed	0 days	Thu 6/30/05	Thu 6/30/05																			
109	3.7.2 Training course in fund raising & proposal writing delivered	0 days	Thu 6/30/05	Thu 6/30/05																			
110	3.7.3 Improved pineapple production practices demonstrated to farmers thru 12 field days	0 days	Thu 6/30/05	Thu 6/30/05																			
111	3.7.4 Solid waste management initiatives implementd in Cambridge	0 days	Thu 6/30/05	Thu 6/30/05																			
112	3.7.5 Award ceremony for Green Village 2004 held	0 days	Thu 6/30/05	Thu 6/30/05																			

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary   
 Split Milestone Rolled Up Task Rolled Up Milestone External Tasks

Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006											
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
113	<b>4 Sustainable Environmental Practices in the Rio Grande Watershed</b>	<b>195 days</b>	<b>Fri 10/1/04</b>	<b>Thu 6/30/05</b>																								
114	<b>4.1 Development of the Rio Grande Watershed Management Committee</b>	<b>108 days</b>	<b>Fri 10/1/04</b>	<b>Mon 2/28/05</b>																								
115	4.1.1 Implementation of RGWMC Strategic Actions & Implementation Plan	108 days	Fri 10/1/04	Mon 2/28/05																								
116	4.1.1.1 Conduct workshop on self governance of the RGWMC	2 days	Mon 11/8/04	Tue 11/9/04																								
117	4.1.1.2 Decide on partner agencies for the RGWMC	20 days	Fri 10/1/04	Wed 10/27/04																								
118	4.1.1.3 Establish Fund Raising Committee of the RGWMC	20 days	Thu 10/28/04	Wed 11/24/04																								
119	4.1.1.4 Design promotional program on RGWMC activities	15 days	Thu 11/25/04	Wed 12/15/04																								
120	4.1.1.5 Prepare Lessons Learned on RGWMC Development Process	14 days	Thu 12/16/04	Tue 1/4/05																								
121	4.1.1.6 Refine public awareness strategies modeled on R2RW approaches	20 days	Tue 2/1/05	Mon 2/28/05																								
122	4.1.2 Review & strengthening of MOU with PDC and RGWMC	40 days	Mon 11/1/04	Fri 12/24/04																								
123	4.1.2.1 Develop & sign Land Management Program MOU	20 days	Mon 11/1/04	Fri 11/26/04																								
124	4.1.2.2 Update MOU with RGWMC and PDC and affirm commitment	20 days	Mon 11/29/04	Fri 12/24/04																								
125	4.1.3 Capacity building training programs for task forces	72 days	Tue 10/5/04	Wed 1/12/05																								
126	4.1.3.1 Implement training course in meeting management & minute taking	1 day	Tue 10/5/04	Tue 10/5/04																								
127	4.1.3.2 Implement training course in fundraising	2 days	Mon 11/15/04	Tue 11/16/04																								
128	4.1.3.3 Implement training course in proposal writing	1 day	Tue 12/7/04	Tue 12/7/04																								
129	4.1.3.4 Implement training course in environmental advocacy	2 days	Tue 1/11/05	Wed 1/12/05																								
130	4.1.4 Prepare Development Area Plan for RGW	58 days	Fri 10/1/04	Mon 12/20/04																								
131	4.1.4.1 Consult with NEPA and Parish Council	20 days	Fri 10/1/04	Wed 10/27/04																								
132	4.1.4.2 Prepare Scope of Work & hire TA	14 days	Thu 10/28/04	Tue 11/16/04																								
133	4.1.4.3 Prepare Draft Plan	10 days	Wed 11/17/04	Tue 11/30/04																								
134	4.1.4.4 Secure feedback and prepare Final Plan	14 days	Wed 12/1/04	Mon 12/20/04																								
135	<b>4.2 Improved Land Management in the RGW - Anchor Project #3</b>	<b>130 days</b>	<b>Fri 10/1/04</b>	<b>Wed 3/30/05</b>																								
136	4.2.1 Implement community based agroforestry initiatives	130 days	Fri 10/1/04	Wed 3/30/05																								
137	4.2.1.1 Hire two short-term field assistants	10 days	Fri 10/1/04	Wed 10/13/04																								
138	4.2.1.2 Rock Hall - plant/care trees, vegetative barriers, training	130 days	Fri 10/1/04	Wed 3/30/05																								
139	4.2.1.3 Industry - plant/care trees, vegetative barriers, training	130 days	Fri 10/1/04	Wed 3/30/05																								
140	4.2.1.4 Coopers Hill - plant/care trees, vegetative barriers, training	130 days	Fri 10/1/04	Wed 3/30/05																								
141	4.2.1.5 Moore Town - plant/care trees, vegetative barriers, training	130 days	Fri 10/1/04	Wed 3/30/05																								
142	4.2.1.6 Durham/Dumphries - plant/care trees, vegetative barriers, training	130 days	Fri 10/1/04	Wed 3/30/05																								
143	4.2.1.7 Chatsworth - plant/care trees, vegetative barriers, training	130 days	Fri 10/1/04	Wed 3/30/05																								
144	4.2.1.8 Implement tool pool activities with communities	35 days	Fri 10/1/04	Wed 11/17/04																								
145	4.2.1.9 Implement community tool pool activities with RADA	1 day	Fri 10/1/04	Fri 10/1/04																								
146	4.2.2 Implement goat stud stations in three communities	80 days	Mon 10/11/04	Fri 1/28/05																								
147	4.2.2.1 Construct goat stud stations	20 days	Mon 10/11/04	Fri 11/5/04																								
148	4.2.2.2 Training of farmers in goat husbandry techniques	60 days	Mon 11/8/04	Fri 1/28/05																								
149	4.2.3 Expand tree planting initiative to new communities	120 days	Fri 10/1/04	Wed 3/16/05																								
150	4.2.3.1 Identify farmers - Prospect, Stony Hill, Shot Over, Bowden Pen	10 days	Fri 10/1/04	Wed 10/13/04																								
151	4.2.3.2 Establish timber and fruit trees and hillside vegetative barriers	110 days	Thu 10/14/04	Wed 3/16/05																								
152	4.2.3.3 Implement training course on tree pruning & care	3 days	Tue 10/12/04	Thu 10/14/04																								

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary   
 Split Milestone Rolled Up Task Rolled Up Milestone External Tasks

Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006											
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
153	4.2.4 Promote environmentally friendly cropping practices through training	130 days	Fri 10/1/04	Wed 3/30/05																								
154	4.2.4.1 Implement six field training days - lining out/use of A frame for contours, pineapple barriers, crop care	130 days	Fri 10/1/04	Wed 3/30/05																								
155	4.2.4.2 Finalize work on community demonstration plots	101 days	Mon 10/11/04	Mon 2/28/05																								
156	<b>4.3 Water &amp; Sanitation Activities</b>	<b>174 days</b>	<b>Fri 10/1/04</b>	<b>Tue 5/31/05</b>																								
157	4.3.1 Hand-over of water supply projects	14 days	Mon 11/15/04	Thu 12/2/04																								
158	4.3.1.1 Cornwall Barracks	14 days	Mon 11/15/04	Thu 12/2/04																								
159	4.3.1.2 Comfort Castle	14 days	Mon 11/15/04	Thu 12/2/04																								
160	4.3.2 Hand-over of Sanitation Project	14 days	Mon 11/15/04	Thu 12/2/04																								
161	4.3.2.1 Millbank	14 days	Mon 11/15/04	Thu 12/2/04																								
162	4.3.3 Complete construction of sanitation system & data collection at CASE	130 days	Sat 10/2/04	Thu 3/31/05																								
163	4.3.3.1 Complete construction	15 days	Sat 10/2/04	Thu 10/21/04																								
164	4.3.3.2 Data collection on effluent quality	130 days	Sat 10/2/04	Thu 3/31/05																								
165	4.3.4 Complete implementation of water quality monitoring program	174 days	Fri 10/1/04	Tue 5/31/05																								
166	4.3.4.1 Sign MOU with participating agencies	1 day	Mon 10/11/04	Mon 10/11/04																								
167	4.3.4.2 Complete execution of WQM program	174 days	Fri 10/1/04	Tue 5/31/05																								
168	4.3.5 Institutionalize community clean-up days in water & sanitation task forces	75 days	Mon 11/15/04	Fri 2/25/05																								
169	4.3.5.1 Develop MOU to institutionalize community clean-ups	75 days	Mon 11/15/04	Fri 2/25/05																								
170	<b>4.4 Public Awareness Activities</b>	<b>173 days</b>	<b>Fri 10/1/04</b>	<b>Mon 5/30/05</b>																								
171	4.4.1 Complete implementation of public awareness program in Upper RGW	64 days	Tue 3/1/05	Fri 5/27/05																								
172	4.4.1.1 Assess impact of public education activities in the Upper RGW	44 days	Tue 3/1/05	Fri 4/29/05																								
173	4.4.1.2 Prepare Final Report on public education program in the upper RGW	20 days	Mon 5/2/05	Fri 5/27/05																								
174	4.4.2 Implement community competition for clean & green of RGW	107 days	Fri 10/1/04	Fri 2/25/05																								
175	4.4.2.1 Implement public awareness activities using community based animators	87 days	Fri 10/1/04	Fri 1/28/05																								
176	4.4.2.2 Implement clean & green award program	20 days	Mon 1/31/05	Fri 2/25/05																								
177	4.4.3 Complete implementation of Schools for the Envir Program in the RGW	173 days	Fri 10/1/04	Mon 5/30/05																								
178	4.4.3.1 Carry out educational presentations in 8 schools in the RGW	173 days	Fri 10/1/04	Mon 5/30/05																								
179	4.4.4 Environmental skits delivered to communities in RGW	145 days	Mon 10/11/04	Fri 4/29/05																								
180	4.4.4.1 Implement community based drama skits in 8 RGW communities	145 days	Mon 10/11/04	Fri 4/29/05																								
181	4.4.5 Youth & Environment Conference held in RGW	110 days	Sat 10/2/04	Thu 3/3/05																								
182	4.4.5.1 Plan conference, organize logistics	106 days	Sat 10/2/04	Fri 2/25/05																								
183	4.4.5.2 Host conference	2 days	Wed 3/2/05	Thu 3/3/05																								
184	4.4.6 Disseminate posters/calendars (incl. PCA materials) to a wider audience	152 days	Fri 10/1/04	Fri 4/29/05																								
185	<b>4.5 Component 1B Benchmarks</b>	<b>0 days</b>	<b>Thu 6/30/05</b>	<b>Thu 6/30/05</b>																								
186	4.5.1 RGW Development Area Plan prepared	0 days	Thu 6/30/05	Thu 6/30/05																								
187	4.5.2 Plan for Phase out of R2RW support to RGWMC executed	0 days	Thu 6/30/05	Thu 6/30/05																								
188	4.5.3 Six agroforestry projects completed	0 days	Thu 6/30/05	Thu 6/30/05																								
189	4.5.4 One water harvesting and sanitation project completed	0 days	Thu 6/30/05	Thu 6/30/05																								
190	4.5.5 Public awareness program in the Lower RGW completed	0 days	Thu 6/30/05	Thu 6/30/05																								
191	4.5.6 Public awareness program in the Upper RGW completed	0 days	Thu 6/30/05	Thu 6/30/05																								

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary

Split Milestone Rolled Up Task Rolled Up Milestone External Tasks



Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006											
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192	<b>5 Enhancing Compliance and Enforcement</b>	<b>195 days</b>	<b>Fri 10/1/04</b>	<b>Thu 6/30/05</b>																								
193	<b>5.1 Compliance and Enforcement - Nationally</b>	<b>149 days</b>	<b>Fri 10/1/04</b>	<b>Tue 4/26/05</b>																								
194	5.1.1 Delivery of C & E Courses at MIND	149 days	Fri 10/1/04	Tue 4/26/05																								
195	5.1.1.1 Deliver course EC01 to C & E Officers	129 days	Mon 10/4/04	Thu 3/31/05																								
196	5.1.1.2 Deliver course EC02 to C & E Officers	149 days	Fri 10/1/04	Tue 4/26/05																								
197	5.1.1.3 Deliver course EC03 to C & E Officers	149 days	Fri 10/1/04	Tue 4/26/05																								
198	5.1.2 Produce & print 2nd Edition of Pocket Guide	128 days	Fri 10/1/04	Mon 3/28/05																								
199	5.1.2.1 Format document for printing	30 days	Fri 10/1/04	Wed 11/10/04																								
200	5.1.2.2 Printing & distribution of 1000 copies of revised Pocket Guide	30 days	Thu 11/11/04	Wed 12/22/04																								
201	5.1.2.3 Post on NEPA website	20 days	Mon 12/6/04	Fri 12/31/04																								
202	5.1.2.4 Conduct assessment of use of Pocket Guides by C & E Officers	20 days	Tue 3/1/05	Mon 3/28/05																								
203	5.1.3 Produce Compendium of Environmental Cases	120 days	Fri 10/1/04	Wed 3/16/05																								
204	5.1.3.1 Complete Final Compendium	90 days	Fri 10/1/04	Wed 2/2/05																								
205	5.1.3.2 Print & distribute Compendium	30 days	Thu 2/3/05	Wed 3/16/05																								
206	<b>5.2 Compliance and Enforcement in the Great River Watershed (GRW)</b>	<b>102 days</b>	<b>Fri 10/1/04</b>	<b>Fri 2/18/05</b>																								
207	5.2.1 Conduct training of community leaders incl. municipal wardens & game wardens	60 days	Fri 10/1/04	Wed 12/22/04																								
208	5.2.1.1 Conduct training course for community leaders in the GRW	60 days	Fri 10/1/04	Wed 12/22/04																								
209	5.2.2 Determine coordinating mechanisms for agencies involved in enforcement	102 days	Fri 10/1/04	Fri 2/18/05																								
210	5.2.2.1 Implement recommendations of NEPA led coordinating mechanism	100 days	Fri 10/1/04	Wed 2/16/05																								
211	5.2.2.2 Establish MOUs with PCs and State agencies to coordinate enforcement actions	95 days	Mon 10/11/04	Fri 2/18/05																								
212	<b>5.3 Compliance &amp; Enforcement in Portland with emphasis on the Rio Grande Watershed</b>	<b>131 days</b>	<b>Fri 10/1/04</b>	<b>Thu 3/31/05</b>																								
213	5.3.1 Implement Action Plan for joint public awareness/C & E Task Forces	126 days	Fri 10/1/04	Thu 3/24/05																								
214	5.3.1.1 Develop MOU to work together on priority issues in the RGW	55 days	Mon 10/4/04	Fri 12/17/04																								
215	5.3.1.2 Undertake work on agreed issues	126 days	Fri 10/1/04	Thu 3/24/05																								
216	5.3.2 Conduct training of Community leaders in the RGW	97 days	Fri 10/1/04	Fri 2/11/05																								
217	5.3.2.1 Conduct one training courses for C & E Officers in RGW	97 days	Fri 10/1/04	Fri 2/11/05																								
218	5.3.3 Work with Quarry Monitoring Committee to assess mining issues in the RGW	129 days	Mon 10/4/04	Thu 3/31/05																								
219	5.3.3.1 Facilitate three meetings of the Quarry Monitoring Committee	129 days	Mon 10/4/04	Thu 3/31/05																								
220	<b>5.4 Activity Benchmarks</b>	<b>0 days</b>	<b>Thu 6/30/05</b>	<b>Thu 6/30/05</b>																								
221	5.4.1 Three training courses delivered to enforcement personnel	0 days	Thu 6/30/05	Thu 6/30/05																								
222	5.4.2 Two training courses delivered to community leaders in C & E	0 days	Thu 6/30/05	Thu 6/30/05																								
223	5.4.3 Second Edition of Pocketsize field guide finalized, printed & being distributed	0 days	Thu 6/30/05	Thu 6/30/05																								
224	5.4.4 Portland Quarries Monitoring Committee functional & addressing mining issues	0 days	Thu 6/30/05	Thu 6/30/05																								
225	5.4.5 Compendium of environmental court cases prepared	0 days	Thu 6/30/05	Thu 6/30/05																								

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary

Split Milestone Rolled Up Task Rolled Up Milestone External Tasks

Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006											
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226	<b>6 Institutional Strengthening &amp; Capacity Building for Watershed Management</b>	<b>195 days</b>	<b>Fri 10/1/04</b>	<b>Thu 6/30/05</b>																								
227	<b>6.1 Development of Local Watershed Management Committees</b>	<b>127 days</b>	<b>Fri 10/1/04</b>	<b>Fri 3/25/05</b>																								
228	6.1.1 Hold 1 networking Conference for LWMCs	62 days	Mon 10/4/04	Tue 12/28/04																								
229	6.1.1.1 Identify participants	20 days	Mon 10/4/04	Fri 10/29/04																								
230	6.1.1.2 Plan conference, develop case studies & finalize venue logistics	21 days	Mon 11/1/04	Mon 11/29/04																								
231	6.1.1.3 Host conference	1 day	Tue 11/30/04	Tue 11/30/04																								
232	6.1.1.4 Publish proceedings & follow-up activities	20 days	Wed 12/1/04	Tue 12/28/04																								
233	6.1.2 Disseminate the findings of the study on the linkages between LWMCs and PDCs	37 days	Fri 10/1/04	Fri 11/19/04																								
234	6.1.2.1 Finalize, print and distribute report	17 days	Fri 10/1/04	Fri 10/22/04																								
235	6.1.2.2 Make presentations on report findings to NEPA, NIWMC and networking conference	20 days	Mon 10/25/04	Fri 11/19/04																								
236	6.1.3 Develop a mechanism to incorporate LWMCs input into the NIWMC	127 days	Fri 10/1/04	Fri 3/25/05																								
237	6.1.3.1 Prepare report on LWMC activity	102 days	Fri 10/1/04	Fri 2/18/05																								
238	6.1.3.2 Recommendation of the incorporation of input into the NIWMC	10 days	Mon 2/21/05	Fri 3/4/05																								
239	6.1.3.3 Make presentations on report findings to NEPA and the NIWMC	15 days	Mon 3/7/05	Fri 3/25/05																								
240	<b>6.2 Framework for Watershed Management</b>	<b>88 days</b>	<b>Fri 10/1/04</b>	<b>Mon 1/31/05</b>																								
241	6.2.1 Produce drafting instructions for new NEPA Act	88 days	Fri 10/1/04	Mon 1/31/05																								
242	6.2.1.1 Prepare SOW and hire consultant	3 days	Fri 10/1/04	Mon 10/4/04																								
243	6.2.1.2 With NEPA input, prepare initial drafting instructions	24 days	Tue 10/5/04	Fri 11/5/04																								
244	6.2.1.3 Secure NEPA feedback & prepare 2nd drafting instructions	6 days	Mon 11/8/04	Mon 11/15/04																								
245	6.2.1.4 Undertake stakeholders' meetings & public consultations	14 days	Tue 11/23/04	Fri 12/10/04																								
246	6.2.1.5 Incorporate comments & prepare 3rd drafting instructions	9 days	Mon 12/13/04	Thu 12/23/04																								
247	6.2.1.6 Secure feedback from NEPA & partners & produce 4th & final drafting instructions	27 days	Fri 12/24/04	Mon 1/31/05																								
248	6.2.2 Support continued development of the NIWMC	85 days	Mon 10/4/04	Fri 1/28/05																								
249	6.2.2.1 Follow through on implementation plans for the development of the NIWMC	60 days	Mon 11/8/04	Fri 1/28/05																								
250	6.2.2.2 Develop website for the NIWMC	55 days	Mon 10/4/04	Fri 12/17/04																								
251	<b>6.3 Dissemination of Improved Sanitation Technology: Anchor Project # 4</b>	<b>107 days</b>	<b>Fri 10/1/04</b>	<b>Fri 2/25/05</b>																								
252	6.3.1 Technical Workshops to disseminate sanitation technologies	45 days	Mon 10/4/04	Fri 12/3/04																								
253	6.3.1.1 Conduct workshop for Ministry of Health Staff (EHU)	25 days	Mon 10/18/04	Fri 11/19/04																								
254	6.3.1.2 Conduct workshop for NEPA field staff	10 days	Mon 11/22/04	Fri 12/3/04																								
255	6.3.1.3 Conduct workshop for Contractors, masons, builders involved in construction of the technology	20 days	Mon 10/4/04	Fri 10/29/04																								
256	6.3.2 Completion of documentation of constructed wetlands systems at CASE, Pisgah & Retrieve	100 days	Fri 10/1/04	Wed 2/16/05																								
257	6.3.2.1 Collect and analyze data from existing construction wetlands systems	80 days	Fri 10/1/04	Wed 1/19/05																								
258	6.3.2.2 Publish and distribute final report	20 days	Thu 1/20/05	Wed 2/16/05																								
259	6.3.3 Mainstreaming of constructed wetland technology	107 days	Fri 10/1/04	Fri 2/25/05																								
260	6.3.3.1 Develop design criteria, fact sheets and other documentation	30 days	Fri 10/1/04	Wed 11/10/04																								
261	6.3.3.2 Make targeted presentations to developers, planners, engineers and other stakeholders	30 days	Mon 1/17/05	Fri 2/25/05																								
262	6.3.4 Application to NEPA for permitting of constructed wetland technology	20 days	Mon 11/1/04	Fri 11/26/04																								
263	6.3.4.1 Preparation and submission of application to NEPA for the permitting of technology	20 days	Mon 11/1/04	Fri 11/26/04																								
264	<b>6.4 Transfer Approaches, Methodologies and Lessons Learned</b>	<b>162 days</b>	<b>Fri 10/1/04</b>	<b>Fri 5/13/05</b>																								
265	6.4.1 Document successes and achievements through case studies (including grant activities)	152 days	Fri 10/1/04	Fri 4/29/05																								

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary   
 Split Milestone Rolled Up Task Rolled Up Milestone External Tasks



Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006						
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
306	6.6.2 Produce 2005 calendar that highlights R2RW achievements	42 days	Fri 10/1/04	Fri 11/26/04																			
307	6.6.2.1 Plan and layout calendar, select photographs	22 days	Fri 10/1/04	Fri 10/29/04																			
308	6.6.2.2 Print and distribute 2000 calendars	20 days	Mon 11/1/04	Fri 11/26/04																			
309	6.6.3 Produce smaller version of anti-littering poster for display in buses	50 days	Mon 11/8/04	Fri 1/14/05																			
310	6.6.3.1 Meet with bus operators to determined poster specifications	15 days	Mon 11/8/04	Fri 11/26/04																			
311	6.6.3.2 Layout graphics, print and distribute posters	35 days	Mon 11/29/04	Fri 1/14/05																			
312	6.6.4 Follow-up with recipients of enviro-kits to assess usage	30 days	Mon 10/18/04	Fri 11/26/04																			
313	6.6.4.1 Conduct survey of recipients of enviro-kits to determine extent of usage	10 days	Mon 10/18/04	Fri 10/29/04																			
314	6.6.4.2 Report findings in brief report	20 days	Mon 11/1/04	Fri 11/26/04																			
315	<b>6.7 Section 6 Benchmarks</b>	0 days	Thu 6/30/05	Thu 6/30/05													◆ 6/30						
316	6.7.1 One networking conf held for local gps involved in resource mangt in watershed areas	0 days	Thu 6/30/05	Thu 6/30/05													◆ 6/30						
317	6.7.2 Four special studies completed and published	0 days	Thu 6/30/05	Thu 6/30/05													◆ 6/30						
318	6.7.3 End of project symposium & exposition held	0 days	Thu 6/30/05	Thu 6/30/05													◆ 6/30						
319	6.7.4 Drafting instructions for new NEPA Act produced	0 days	Thu 6/30/05	Thu 6/30/05													◆ 6/30						
320	6.7.5 Five lessons learned documented & disseminated to stakeholders	0 days	Thu 6/30/05	Thu 6/30/05													◆ 6/30						
321	6.7.6 Final Gender Report prepared	0 days	Thu 6/30/05	Thu 6/30/05													◆ 6/30						

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary

Split Milestone Rolled Up Task Rolled Up Milestone External Tasks

Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

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322	<b>7 Hurricane Ivan Rehabilitation</b>	<b>152 days</b>	<b>Fri 10/1/04</b>	<b>Fri 4/29/05</b>																								
323	<b>7.1 Reprogramming of already planned activities</b>	<b>152 days</b>	<b>Fri 10/1/04</b>	<b>Fri 4/29/05</b>																								
324	7.1.1 Damage assessment and community clean-ups	131 days	Fri 10/1/04	Thu 3/31/05																								
325	7.1.1.1 Conduct damage assessments	44 days	Fri 10/1/04	Tue 11/30/04																								
326	7.1.1.2 Complete clean-up activities in 20 communities	131 days	Fri 10/1/04	Thu 3/31/05																								
327	7.1.1.3 With NEPA procure IKONOS imagery for selected areas	22 days	Mon 11/1/04	Tue 11/30/04																								
328	7.1.2 Water and Sanitation and Rural Infrastructure	114 days	Mon 10/25/04	Thu 3/31/05																								
329	7.1.2.1 Implement sanitation systems in 4 affected communities	114 days	Mon 10/25/04	Thu 3/31/05																								
330	7.1.2.2 Implement sanitation systems in four basic schools	114 days	Mon 10/25/04	Thu 3/31/05																								
331	7.1.2.3 Implement water supply systems in 3 affected communities	114 days	Mon 10/25/04	Thu 3/31/05																								
332	7.1.2.4 Implement community improvement activities in 10 communities	114 days	Mon 10/25/04	Thu 3/31/05																								
333	7.1.3 Land and Coastal Zone Rehabilitation and Reforestation	152 days	Fri 10/1/04	Fri 4/29/05																								
334	7.1.3.1 Implement agroforestry interventions in six communities	152 days	Fri 10/1/04	Fri 4/29/05																								
335	7.1.3.2 Rehabilitate Forestry Department nurseries and produce 200,000 forest seedlings	109 days	Mon 11/1/04	Thu 3/31/05																								
336	<b>7.2 Hurricane rehabilitation activities from new funding</b>	<b>109 days</b>	<b>Mon 11/1/04</b>	<b>Thu 3/31/05</b>																								
337	7.2.1 Agriculture Sector Recovery	109 days	Mon 11/1/04	Thu 3/31/05																								
338	7.2.1.1 Provide inputs for vegetable production farmers in Southern Parishes	109 days	Mon 11/1/04	Thu 3/31/05																								
339	7.2.1.2 Rehabilitate/improve irrigation infrastructure in St. Elizabeth & Westmoreland	109 days	Mon 11/1/04	Thu 3/31/05																								
340	7.2.1.3 Provide assistance for fishing industry recovery to 3 communities in Clarendon & St. Catherine	109 days	Mon 11/1/04	Thu 3/31/05																								
341	7.2.1.4 Assist with flood control measures in 4 communities	109 days	Mon 11/1/04	Thu 3/31/05																								
342	7.2.1.5 Conduct roadside stabilization works in six communities using vetiver	109 days	Mon 11/1/04	Thu 3/31/05																								
343	7.2.2 Water and Sanitation and Rural Infrastructure	109 days	Mon 11/1/04	Thu 3/31/05																								
344	7.2.2.1 Improve sanitation systems at 15 rural schools using child survival funds	109 days	Mon 11/1/04	Thu 3/31/05																								
345	7.2.2.2 Rehabilitate water supply systems in four affected communities	109 days	Mon 11/1/04	Thu 3/31/05																								
346	<b>7.3 Performance Benchmarks</b>	<b>0 days</b>	<b>Fri 4/29/05</b>	<b>Fri 4/29/05</b>																								
347	7.3.1 Clean up activities completed in 20 communities	0 days	Fri 4/29/05	Fri 4/29/05																								
348	7.3.2 Forestry Department nurseries rehabilitated and 200,000 seedlings produced	0 days	Fri 4/29/05	Fri 4/29/05																								
349	7.3.3 100 vegetable farmers assisted to pre-hurricane production levels	0 days	Fri 4/29/05	Fri 4/29/05																								
350	7.3.4 Sanitation systems improved at 15 rural schools	0 days	Fri 4/29/05	Fri 4/29/05																								
351	7.3.5 Water supply systems rehabilitated in four communities	0 days	Fri 4/29/05	Fri 4/29/05																								

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary

Split Milestone Rolled Up Task Rolled Up Milestone External Tasks

Ridge to Reef Watershed Project  
Progress Tracking Gantt October 1, 2004 to April 30, 2005

ID	Task Name	Duration	Start	Finish	2005												2006											
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul		
352	<b>8 R2RW Project Management</b>	<b>203 days</b>	<b>Fri 10/1/04</b>	<b>Mon 7/11/05</b>	[Gantt bars for 2005 and 2006]																							
353	<b>8.1 Grant Fund Management</b>	<b>173 days</b>	<b>Fri 10/1/04</b>	<b>Mon 5/30/05</b>	[Gantt bars for 2005 and 2006]																							
354	8.1.1 All ongoing grants are completed and closed out	173 days	Fri 10/1/04	Mon 5/30/05	[Gantt bars for 2005 and 2006]																							
355	8.1.1.1 Monitoring of ongoing grants to ensure activities are completed on time	173 days	Fri 10/1/04	Mon 5/30/05	[Gantt bars for 2005 and 2006]																							
356	8.1.1.2 Receipt of final reports on grants	44 days	Tue 3/1/05	Fri 4/29/05	[Gantt bars for 2005 and 2006]																							
357	8.1.2 Assessment of the R2RW Grants Program conducted	30 days	Tue 3/1/05	Mon 4/11/05	[Gantt bars for 2005 and 2006]																							
358	8.1.2.1 Prepare SOW, identify and contract consultant	10 days	Tue 3/1/05	Mon 3/14/05	[Gantt bars for 2005 and 2006]																							
359	8.1.2.2 Conduct study and prepare final report	20 days	Tue 3/15/05	Mon 4/11/05	[Gantt bars for 2005 and 2006]																							
360	<b>8.2 Staffing</b>	<b>195 days</b>	<b>Fri 10/1/04</b>	<b>Wed 6/29/05</b>	[Gantt bars for 2005 and 2006]																							
361	8.2.1 Staff Team Building	171 days	Fri 10/1/04	Thu 5/26/05	[Gantt bars for 2005 and 2006]																							
362	8.2.1.1 Hold team building retreat to motivate staff	2 days	Thu 11/25/04	Fri 11/26/04	[Gantt bars for 2005 and 2006]																							
363	8.2.1.2 Allow opportunities for staff training to prepare for post R2RW positions	171 days	Fri 10/1/04	Thu 5/26/05	[Gantt bars for 2005 and 2006]																							
364	8.2.2 Information sharing and dissemination	195 days	Fri 10/1/04	Wed 6/29/05	[Gantt bars for 2005 and 2006]																							
365	8.2.2.1 Produce amalgamated wky activity schedules to share info on project activities	195 days	Fri 10/1/04	Wed 6/29/05	[Gantt bars for 2005 and 2006]																							
366	8.2.2.2 Hold weekly admin meetings to plan and coordinate support and logistics functions	195 days	Fri 10/1/04	Wed 6/29/05	[Gantt bars for 2005 and 2006]																							
367	8.2.2.3 Hold monthly technical team meetings to plan & coordinate project interventions	152 days	Fri 10/1/04	Fri 4/29/05	[Gantt bars for 2005 and 2006]																							
368	<b>8.3 Management Arrangements</b>	<b>196 days</b>	<b>Fri 10/1/04</b>	<b>Thu 6/30/05</b>	[Gantt bars for 2005 and 2006]																							
369	8.3.1 Management coordination	176 days	Tue 10/12/04	Tue 6/14/05	[Gantt bars for 2005 and 2006]																							
370	8.3.1.1 Hold monthly Project Implementation Committee meetings	176 days	Tue 10/12/04	Tue 6/14/05	[Gantt bars for 2005 and 2006]																							
380	8.3.1.2 Hold One InterAgency Steering Committee meeting	1 day	Wed 11/24/04	Wed 11/24/04	[Gantt bars for 2005 and 2006]																							
381	8.3.2 Project Reporting	132 days	Fri 10/1/04	Fri 4/1/05	[Gantt bars for 2005 and 2006]																							
382	8.3.2.1 Quarterly Report to NEPA	132 days	Fri 10/1/04	Fri 4/1/05	[Gantt bars for 2005 and 2006]																							
383	8.3.2.1.1 Provide timely & accurate quarterly reports to NEPA	132 days	Fri 10/1/04	Fri 4/1/05	[Gantt bars for 2005 and 2006]																							
387	8.3.3 Semi Annual and Annual Reports published	88 days	Tue 3/1/05	Thu 6/30/05	[Gantt bars for 2005 and 2006]																							
388	8.3.4 Produce 1 Semi Annual Report covering period April to Sept 2004	22 days	Fri 10/1/04	Fri 10/29/04	[Gantt bars for 2005 and 2006]																							
389	<b>8.4 Final Project Report</b>	<b>88 days</b>	<b>Tue 3/1/05</b>	<b>Thu 6/30/05</b>	[Gantt bars for 2005 and 2006]																							
390	8.4.1 Produce Final Project Report covering entire period of Project	88 days	Tue 3/1/05	Thu 6/30/05	[Gantt bars for 2005 and 2006]																							
391	<b>8.5 Project Closeout</b>	<b>203 days</b>	<b>Fri 10/1/04</b>	<b>Mon 7/11/05</b>	[Gantt bars for 2005 and 2006]																							
392	8.5.1 R2RW Project Close-out Plan	20 days	Mon 1/3/05	Fri 1/28/05	[Gantt bars for 2005 and 2006]																							
393	8.5.1.1 Finalize and submit R2RW Project Close-out Plan to USAID	20 days	Mon 1/3/05	Fri 1/28/05	[Gantt bars for 2005 and 2006]																							
394	8.5.2 Close out of Program Activities	174 days	Fri 10/1/04	Tue 5/31/05	[Gantt bars for 2005 and 2006]																							
395	8.5.2.1 Close out activities in the GRW	173 days	Sat 10/2/04	Tue 5/31/05	[Gantt bars for 2005 and 2006]																							
396	8.5.2.2 Close out activities in the RGW	173 days	Fri 10/1/04	Mon 5/30/05	[Gantt bars for 2005 and 2006]																							
397	8.5.2.3 Close out of activities in C& E	173 days	Sat 10/2/04	Tue 5/31/05	[Gantt bars for 2005 and 2006]																							
398	8.5.2.4 Close out of IS activities	173 days	Fri 10/1/04	Mon 5/30/05	[Gantt bars for 2005 and 2006]																							
399	8.5.3 Disposal of Non-Expendable Property	71 days	Mon 4/4/05	Mon 7/11/05	[Gantt bars for 2005 and 2006]																							
400	8.5.3.1 Disposal of property at Kingston Office	64 days	Mon 4/4/05	Thu 6/30/05	[Gantt bars for 2005 and 2006]																							
401	8.5.3.2 Disposal of property at Port Antonio Office	64 days	Mon 4/4/05	Thu 6/30/05	[Gantt bars for 2005 and 2006]																							
402	8.5.3.3 Disposal of property at Cambridge office	64 days	Mon 4/4/05	Thu 6/30/05	[Gantt bars for 2005 and 2006]																							
403	8.5.3.4 Disposal of property at COP residence	71 days	Mon 4/4/05	Mon 7/11/05	[Gantt bars for 2005 and 2006]																							

Project: R2RW Final Work Plan  
Date: Tue 5/24/05

Task: [Blue box] Progress [Black bar] Summary [Grey bar] Rolled Up Split [Blue bar] Rolled Up Progress [Black bar] Project Summary [Grey bar]

Split: [Blue bar] Milestone [Black diamond] Rolled Up Task [Blue bar] Rolled Up Milestone [Black diamond] External Tasks [Grey bar]







