

BEST AVAILABLE DOCUMENT

Mid-Project Evaluation of the Basic Needs Trust Fund

Prepared for the Caribbean Development Bank

Craig V. Olson
Thaddeus E. Knowles

June 1986



Development Alternatives, Inc. 625 North Street, N.W. Washington, D.C. 20001

EXCHANGE RATES'

US\$ 1 = ECS 2.7

US\$ 1 = BZ\$ 2

BEST AVAILABLE DOCUMENT

TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	1
PART ONE	
INTRODUCTION	1
PURPOSES OF THE EVALUATION	1
EVALUATION METHODOLOGY	1
PART TWO	
PROJECT OBJECTIVES AND ACCOMPLISHMENTS TO DATE	5
PROJECT OBJECTIVES	5
Goals and Purpose	5
Brief Project Description	6
ACCOMPLISHMENTS TO DATE	7
Selection and Status of Subprojects	7
Adequacy of Design, Construction, and Procurement Arrangements	17
Use of Engineering Consultants	20
Employment Generation	20
Maintenance of Subprojects	31
Development Impact	32
Project Management	32
PART THREE	
COUNTRY-SPECIFIC FINDINGS	35
ANGUILLA	35
Brief Description of the Country	35
Use of Allocation and Status of Subprojects	35
Subproject Visitation Schedule and Description of Subprojects Visited	38
Subproject Selection	39
Design Techniques and Construction Standards	40
Adequacy of Procurement Arrangements	41
Provisions for Maintenance	42
Employment Generation	42
Project Management and Reporting	44
Other Comments	44

BEST AVAILABLE DOCUMENT

ANTIGUA AND BARBUDA	45
Brief Description of the Country	45
Use of Allocation and Status of Subprojects	45
Subproject Visitation Schedule and Description of Subprojects Visited.	48
Subproject Selection	50
Design Techniques and Construction Standards	50
Adequacy of Procurement Arrangements	52
Provisions for Maintenance	53
Employment Generation	53
Project Management and Reporting	54
Other Comments	56
 BELIZE	 57
Brief Description of the Country	57
Use of Allocation and Status of Subprojects	57
Subproject Visitation Schedule and Description of Subprojects Visited.	60
Subproject Selection	64
Design Techniques and Construction Standards	64
Adequacy of Procurement Arrangements	66
Provisions for Maintenance	67
Employment Generation	69
Project Management and Reporting	71
Other Comments	71
 DOMINICA	 72
Brief Description of the Country	72
Use of Allocation and Status of Subprojects	72
Subproject Visitation Schedule and Description of Subprojects Visited.	75
Subproject Selection	77
Design Techniques and Construction Standards	78
Adequacy of Procurement Arrangements	79
Provisions for Maintenance	79
Employment Generation	80
Project Management and Reporting	81
Other Comments	82
 GRENADA	 83
Brief Description of the Country	83
Use of Allocation and Subproject Status	86
Subproject Visitation Schedule and Description of Subprojects Visited.	86
Subproject Selection	89
Design Techniques and Construction Standards	89
Adequacy of Procurement Arrangements	91
Provisions for Maintenance	92
Employment Generation	92
Project Management and Reporting	93
Other Comments	93

14

BEST AVAILABLE DOCUMENT

MONTserrat	94
Brief Description of the Country	94
Use of Allocation and Status of Subprojects	94
Subproject Visitation Schedule and Description of Subprojects Visited.	97
Subproject Selection	99
Design Techniques and Construction Standards	100
Adequacy of Procurement Arrangements	102
Provisions for Maintenance	103
Employment Generation	104
Project Management and Reporting	104
Other Comments	105
ST. KITTS AND NEVIS	106
Brief Description of the Country	106
Use of Allocation and Status of Subprojects	110
Subproject Visitation Schedule and Description of Subprojects Visited.	110
Subproject Selection	112
Design Techniques and Construction Standards	113
Adequacy of Procurement Arrangements	115
Provisions for Maintenance	116
Employment Generation	117
Project Management and Reporting	119
Other Comments	119
ST. LUCIA	120
Brief Description of the Country	120
Use of Allocation and Status of Subprojects	120
Subproject Visitation Schedule and Description of Subprojects Visited.	124
Subproject Selection	126
Design Techniques and Construction Standards	127
Adequacy of Procurement Arrangements	128
Provisions for Maintenance	129
Employment Generation	130
Project Management and Reporting	132
ST. VINCENT AND THE GRENADINES	135
Brief Description of the Country	135
Use of Allocation and Status of Subprojects	135
Subproject Visitation Schedule and Description of Subprojects Visited.	138
Subproject Selection	140
Design Techniques and Construction Standards	142
Adequacy of Procurement Arrangements	143
Provisions for Maintenance	143
Employment Generation	144
Project Management and Reporting	145

PART FOUR	
COMPARATIVE ANALYSIS OF COUNTRY PERFORMANCE	147
MAINTENANCE PERFORMANCE AND LABOR CONTENT	147
RAPIDITY OF IMPLEMENTATION	148
CONTINUED DEMONSTRATED NEED, POPULATION SIZE, AND UNEMPLOY- MENT	148
ENGINEERING AND CONSTRUCTION PERFORMANCE	149
PART FIVE	
CONCLUSIONS AND RECOMMENDATIONS	151
CONCLUSIONS	151
Project Progress	151
Subproject Selection	151
Engineering	152
Contracting	152
Construction	153
Procurement	153
Maintenance	153
Employment Generation	153
Project Management and Reporting	155
RECOMMENDATIONS	156
ANNEX 1: TERMS OF REFERENCE	I-1
ANNEX 2: EVALUATION TEAM ITINERARY	II-1
ANNEX 3: GRENADA SUBPROJECT SELECTION CRITERIA	III-1
ANNEX 4: TYPICAL NEWSPAPER ADVERTISEMENT USED TO INVITE PROPOSALS FROM CONSULTING ENGINEERS	IV-1
ANNEX 5: EXAMPLE OF A PROJECT SUPERVISOR'S MONTHLY REPORT	V-1
ANNEX 6: BNTF - SUPERVISION VISITS BY CDB STAFF	VI-1
ANNEX 7: BELIZE PROJECT SUPERVISOR'S EMPLOYMENT GENERATION AND MATERIALS PROCUREMENT FORM	VII-1

ANNEX 8: MAINTENANCE PLAN: DOVER SCHOOL, GRENADA VIII-1

ANNEX 9: THE HYDROGLAS SYSTEM IX-1

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Basic Needs Trust Fund Financial Plan	8
2	Subproject Selection Criteria	9
3	Approved Subprojects by Type	11
4	Construction Status of Subprojects	14
5	Physical Infrastructure -- Overall Initial Allocation, Allocation for Approved Subprojects, and Expenditure Through May 1986	16
6	Unemployment Rates -- 1970, 1980, 1984	22
7	Labor Content -- St. Lucia	27
8	Labor Content -- Anguilla	28
9	Labor Content -- Belize	29
10	Labor Content -- Anguilla	43
11	Estimated Labor Content for Three Projects -- Antigua	55
12	Completion Date of BNTF Subprojects and Projected Persons Weeks of Employment -- Belize	61
13	Labor Content -- Belize	70
14	Grenada Subprojects -- Situation on March 31, 1986	87
15	Labor Content -- St. Lucia	131

LIST OF MAPS

	Page
Anguilla	36
Antigua	46
Belize	58
Dominica	73
Grenada	84
Montserrat	95
St. Christopher & Nevis	107
St. Lucia	121
St. Vincent & The Grenadines	136

LIST OF PHOTOGRAPHS

	<u>Page</u>
ANGUILLA	37
West End Health Clinic	
Valley Secondary School - Vocational Technical Center	
Island Harbour Health Clinic	
ANTIGUA	47
Antigua Grammar School	
All Saints Health Center	
Liberta Primary School	
Cedar Grove Health Center	
BELIZE	59
Kings Park Health Center	
Guinea Grass Health Center	
Belize City Vocational Technical Center	
Belmopan (Camalote) Water System	
DOMINICA	74
Clifton-Cocoyer Water System	
Clifton Health Center	
Scotts Head School - Phase II	
Dublanc Primary School	
GRENADA	85
Dougaldston Water System	
Dover Primary School	
Tufton Water System	
Annandale Watershed Improvements	
MONTSERRAT	96
Long Ground Health Center	
Brodericks Farm Development	
Montserrat Home Economics Center	
Plymouth Secondary School/Industrial Arts	
ST. KITTS & NEVIS	109
Pogson Hospital	
Sandy Point High School	
Cayon High School	
McKnight Community Center	

204

ST. LUCIA 122

- Dugard Combined School
- Etangs Health Center
- Babonneau Multipurpose Center
- Babonneau Paix Bouche Water System

ST. VINCENT & THE GRENADINES 137

- Monkey Hill Foot Path
- John Hill Water System
- Bucchan Sharpes Link Road
- Bonhomme Road (Stubbs-Calder)

EXECUTIVE SUMMARY

This document provides a mid-project evaluation of the Basic Needs Trust Fund (BNTF) Project, which began in June 1984 and has a completion date of September 1987. The objective of BNTF is "to expand and conserve, using labor intensive technologies, the stock of social and economic infrastructure which is essential to future growth and the provision of basic services and employment in the Eastern Caribbean and Belize "

The overall conclusion of the evaluation is that BNTF is on its way to becoming a successful project. The pace of implementation has been good. Ninety subprojects have been approved for funding under an initial infrastructure allocation of US\$ 76 million. Thirty-seven subproject facilities have been completed, and 33 are under construction. The most rapid implementation has been achieved by Anguilla, St Lucia, and St Vincent, the least rapid by Antigua and Belize.

In general, the pace of construction has been more rapid when carried out by private contractors than by public authorities. Consequently, it is recommended that the use of direct government labor be discouraged in favor of greater use of private contractors.

It is anticipated that all the currently approved subprojects will be completed well before the project completion date. However, the completion date will have to be extended to implement BNTF's performance program component, in which nearly US\$ 5 million is available for the financing of additional subprojects.

With only a few exceptions, the subprojects have been well selected in terms of meeting basic human and community needs. However, the complicated criteria for subproject selection included in the original design have rarely been used and should be discarded in favor of a simpler set emphasizing need, development impact, cost, and sustainability.

Conceptual and methodological problems precluded the possibility of providing a valid analysis of employment generation. It is recommended that either the employment objective be discarded or steps be taken to clarify the conceptual basis of the objective and to improve data collection and reporting.

The performance of engineering consultants engaged by the Caribbean Development Bank (CDB) has been excellent, but the planning and design performance of public works and water authorities has been less satisfactory. It is recommended that the services of consulting engineers be extended to all subprojects, even those executed through direct labor.

With few exceptions, private building contractors were doing good quality work. However, the manner in which they were selected frequently violated CDB procurement regulations. Greater enforcement of these regulations is indicated.

There were few problems with the procurement of construction materials. However, there was also little or no monitoring of the source and origin procurement regulations of the United States Agency for International Development (USAID).

22

The maintenance development systems component of the project had not yet begun. Country maintenance committees were being formed as a first step toward the implementation of this component

The project is well managed by CDB, USAID, and project supervisors. Some project supervisors, however, have insufficient office and transportation support. In addition, monthly reports have been incomplete and late from some countries. Project supervisors in almost every country have had difficulties obtaining timely information needed for the monthly reports from public authorities and have had little success in obtaining reliable employment data from any source.

The project's problems are, however, minor relative to its overall success

PART ONE INTRODUCTION

PURPOSES OF THE EVALUATION

The main purposes of this evaluation are to

- Analyze the progress of the Basic Needs Trust Fund (BNTF) Project in terms of its anticipated outputs, and
- Compare the performance of the nine countries that participate in the BNTF project to assist the Caribbean Development Bank (CDB) in allocating funds under the performance program

The terms of reference required the evaluation team to visit all nine countries, inspect at least 75 percent of the subprojects,¹ and evaluate several dimensions of the project, including rapidity of implementation, engineering and construction standards, procurement arrangements, maintenance performance, and labor content (See Annex I for the complete terms of reference)

EVALUATION METHODOLOGY

The evaluation was conducted by a two-person team -- a social scientist and an engineer -- during May and June 1986. The evaluation team spent five weeks collecting data in the field and one week preparing a draft report in Washington, DC. After receiving comments from the CDB and the United States Agency for International Development (USAID), the team prepared this final report during July 21-July 25, 1986.

The field work began with two days of meetings with the CDB project management team and with USAID staff in Barbados. The meetings were used to clarify the purposes of the evaluation, discuss the management strategy used by CDB

¹ The term "subproject" as used throughout this report, refers to the discrete country-specific projects funded under BNTF

2/4

to implement the project, and review subproject files. An immediate output of these discussions was the preparation of an information checklist to be used in all countries and an initial outline of the draft report.

The evaluation team then left on a prearranged tour (see Annex 2) of eight Eastern Caribbean Commonwealth countries and the Central American country of Belize. The CDB had notified the project supervisor on each island of the evaluation team's arrival and departure dates. The project supervisor was requested to arrange time for the team to meet with appropriate government officials, engineering consultants, contractors, and other interested parties. Time was also requested to review all available files and visit as many subprojects as possible.

In the team's first meeting with the project supervisor, a 1:50,000 or other appropriate scale map of the country was used to orient the team to the location of each subproject and to prepare a subproject visitation schedule. Each subproject was then discussed and the following points were covered:

- The criteria used for the selection of the subproject,
- The basic human need the subproject intended to fulfill,
- The preparation of the conceptual design, the original project profile, and the costing that was submitted to CDB for subproject approval,
- The subproject approval process and the amount of the original allocation,
- The selection and performance of engineering consultants,
- The preparation of plans, specifications, and contract documents,
- The construction documents approved by CDB;
- The method (government direct labor, petty contract, or major contractor) used for construction in each subproject;
- The type of bidding (tendering) process used;
- Bidding procedure and CDB procurement guidelines;
- Communications to potential contractors and contractor selection,
- Tender report preparation by engineering consultants together with their recommendations on the lowest evaluated bidder,

- The status of the construction effort,
- Funds expended to date,
- The collection of employment data,
- Adequacy of procurement arrangements,
- The use of the project if complete,
- Provision for maintenance,
- The submission of monthly reports to CDB by the project supervisor,
- Government support for the project supervisor; and
- The preparation of subprojects for funding under the performance program

To complete its data collection, the team examined project profiles, monthly reports, plans, specifications, contract documents, and correspondence, and held meetings with government officials, engineering consultants, and contractors

The evaluation team visited 72 subproject sites in the nine participating countries (Brief descriptions of each site are included in Part Three). The team attempted to visit subproject sites during working hours and to have the project supervisor, the engineering consultant, and the builder (government, petty contractor, or major contractor) present. During each visit the team:

- Observed construction methods, materials, and equipment used and evaluated their adequacy,
- Checked that construction was in accord with plans and specifications,
- Observed the quality of workmanship,
- Checked the contractor's labor records and attempted to isolate the labor content of the work effort,
- Checked the siting of buildings,
- Checked the availability of utility services (water and electricity),
- Took progress photographs of the work (more than 300 photographs were taken of the sites visited),

204

- Interviewed workers regarding employment opportunities before and after the subproject, and
- Interviewed residents to identify the basic needs of the neighborhood to determine whether the subproject would satisfy those needs.

PART TWO
PROJECT OBJECTIVES AND ACCOMPLISHMENTS TO DATE

PROJECT OBJECTIVES

Goals and Purpose

The Basic Needs Trust Fund was established through a grant agreement, dated June 28, 1984, between USAID and the CDB. The Project Assistance Completion Date (PACD) is September 30, 1987. BNTF is a follow on to a project with similar objectives -- Basic Human Needs (BHN) -- for which funding was provided between 1979 and 1983. The goals of both projects involve the promotion of social and economic growth and the provision of employment opportunities, especially for lower income groups.

As stated in the grant agreement, the purpose of BNTF is "to expand and conserve, using labor intensive technologies, the stock of social and economic infrastructure which is essential to future growth and the provision of basic services and employment in the Eastern Caribbean and Belize." This purpose contains two objectives that under ideal circumstances are complementary but, in some cases, could be competing. The first objective -- "to expand the stock of social and economic infrastructure" -- addresses the need to renovate or replace deteriorating physical infrastructure in the region as well as to create new infrastructure to accommodate population growth. This objective is justified in terms of satisfying basic human needs (water, health, and education) and as a way to conserve the financial resources of the beneficiary countries for use in income-generating investments. The second objective -- "using labor intensive technologies" -- addresses the need to reduce unemployment in the region, which, in some countries, is estimated to be as high as 40 percent. The idea is that the physical infrastructure to be financed under the project -- roads, water systems, schools, and health clinics -- should be built with a high ratio of labor to capital. However, the project provides no practical guidance on how to handle a situation in which the least cost method of construction may be more capital intensive than a higher cost method.

By PACD, the project, according to the logical framework, is to have constructed or renovated at least 100 infrastructure facilities and provided at least 154,000 person-weeks of employment. No interim or mid-project outputs are specified.

Brief Project Description

The grant agreement provides that USAID contribute up to US\$ 12.7 million and the CDB the equivalent of US\$ 3.5 million to finance three project components. The first component, to be used for new construction and the rehabilitation of existing infrastructure, receives the largest portion of these funds -- US\$ 12.55 million. An initial allocation under this component grants US\$ 1 million to each of seven countries: Antigua and Barbuda, Belize, Dominica, Grenada, St. Lucia, St. Kitts and Nevis, and St. Vincent and the Grenadines. In addition, US\$ 200,000 and US\$ 400,000 are granted to the two British dependencies of Anguilla and Montserrat, respectively. The remaining funds for infrastructure -- US\$ 4.95 million -- are to be allocated among the nine countries, based on their performance in the use of the initial allocation. Performance criteria include:

- Maintenance performance,
- Labor content,
- Rapidity of implementation,
- Continued demonstrated need, and
- Population size and unemployment level

The second component is maintenance systems development. This component provides US\$ 650,000 to establish in-country maintenance materials funds, to finance maintenance plans development and public awareness activities, to produce working manuals for maintenance, and to finance the implementation costs of the recommendations that issue from a maintenance evaluation of the predecessor BHN project.

The third component, funded at US\$ 3 million, is project management and implementation. This component meets the costs of CDB staff time spent on the project and reimburses governments, subject to agreed limits, for the salaries and allowances paid to in-country project supervisors. It also provides financing for engineering consultants, public information programs aimed at promoting awareness of employment opportunities under the project, and evaluations.

Table 1 provides a summary financial plan (as revised slightly by project implementation letter from the original plan in the grant agreement).

ACCOMPLISHMENTS TO DATE

Selection and Status of Subprojects

Selection

According to the project paper, subproject eligibility was to be determined through use of a complicated method, labeled the multiple criteria utility assessment (MCUA) formula. Nine selection criteria were agreed upon and relative weights were assigned to the criteria (see Table 2). However, it was also agreed that "host country priority, availability of alternative funding, and consonance with AID and CDB policies" would be "overriding factors in subproject selection." The inclusion of this broad caveat, of course, has the effect, at least potentially, of vitiating the objective use of the criteria.

The actual selection process differed a great deal by country. For most countries, a project identification team used the MCUA in January and February 1984 to cull and rank order a long list of subprojects that was submitted to the team by various government agencies. The total cost of the subprojects invariably exceeded the country's allocation. Therefore, in July 1984, shortly after the CDB/USAID grant agreement was signed, each country was asked to select from among the rank-ordered list a shorter list of subprojects, the total value of which would not exceed the allocation. Some countries did exactly this, others selected some subprojects from the original list and added different ones to it. (This procedure was permitted

TABLE 1

BASIC NEEDS TRUST FUND
FINANCIAL PLAN
(US\$ 000)

Item	Year 1		Year 2		Year 3		Total
	AID	CDB	AID	CDB	AID	CDB	
Physical Infrastructure	2,900	-	3,457	843	3,350	2,000	12,550
Maintenance	85	-	270	-	295	-	650
Project Management and Implementation							
CDB	233	61	245	65	265	71	940
Country Supervisors	87	23	95	25	103	27	360
A&E Consultants	520	45	394	131	201	209	1,500
Evaluation	60	-	70	-	70	-	200
TOTAL	3,885	129	4,531	1,064	4,284	2,307	16, 200

TABLE 2
SUBPROJECT SELECTION CRITERIA

	<u>Criteria</u>	<u>Relative Weight</u>
1	Cost	0.5
2.	Anticipated labor content	1.0
3	Anticipated start-up time	0.9
4.	Materials (% imports)	0.8
5	Recurrent maintenance costs	1.0
6	Environmental impact	0.4
7	In-house technical expertise	0.5
8	Geographic dispersion	0.4
9.	Cost per beneficiary/user	0.8

by CDB and USAID as long as new subprojects were "similar" to the ones for which they were substituted) One country, St. Vincent, whose government had changed in the interim, discarded the entire original list and substituted another Altogether, a substantial number of the subprojects selected by governments were on the lists rank ordered by the identification team

None of the countries used the MCUA in its selection process None of the project supervisors had, in fact, ever heard of it although senior government officials had been informed of it Grenada used its own set of selection criteria, which, in some ways, appears superior to the MCUA because the Grenada criteria, unlike the MCUA, factored in economic rates of return and social impact (see Annex 3). In most countries, projects were selected by the Cabinet Not surprisingly, political considerations (particularly, location relative to a minister's constituency) weighed heavily in the selection of many subprojects When CDB received the formal applications for subprojects from government, the MCUA criteria were used as an approval checklist but the mathematical formula were not applied After CDB approval, subprojects were sent to USAID for concurrence, which in most cases was forthcoming In some cases, however, USAID rejected projects that were on the original list in the project paper

For all these variations in selection methods, the evaluation team found that the subprojects, with only a small number of exceptions mentioned in the individual country sections of this report, were well selected in terms of meeting basic human needs. With the exception of the heavy concentration on roads and footpaths in St Vincent, the subprojects eventually approved were of the same type as were on the original list -- mainly schools, health clinics, and water systems (see Table 3)

In general, the subprojects were also well dispersed geographically and demographically (see country maps, Part Three) On most islands, the subprojects were situated in a variety of locations corresponding to population concentration and need. Water systems were installed in areas of water shortage, schools and school extensions were built in overcrowded areas, and new health centers were located where little or no service previously existed Once again, exceptions to these findings are noted in the individual country sections

TABLE 3
APPROVED SUBPROJECTS BY TYPE

Type of Project	Anguilla	Antigua	Belize	Dominica	Grenada	Montserrat	St. Kitts & Nevis	St. Lucia	St. Vincent & The Grenadines	Total
Health Facilities	2	6	5	4	1	1	1	2	-	22
Tools	1	3	2	6	1	3	3	2	-	21
Water Systems	-	-	6	5	2	-	2	6	2	23
Buildings	-	-	-	-	-	-	-	-	15	15
Other	-	1	1	-	1	2	1	2	1	9
TOTAL	3	10	14	15	5	6	7	12	18	90

34A

Status

The most important accomplishment of BNTF to date is that, at about its midway point, the project has succeeded in preparing plans and construction drawings and in starting or completing construction of a large number of infrastructure subprojects

Although the CDB/USAID grant agreement was signed in June 1984, engineering and construction activities in the nine beneficiary countries only began at various times in 1985. The interim was taken up in negotiating grant agreements between the CDB and the individual countries, appointing project supervisors, processing and approving subproject applications, advertising for and engaging engineering consultants, and satisfying conditions precedent to first disbursements. Conditions precedent to first disbursement for the CDB/USAID grant were satisfied in September 1984, all individual country grant agreements were signed by December 1984, and all project supervisors were appointed by January 1985, except for the Grenada supervisor who was appointed in April 1985. An important event in the project was a meeting of project supervisors held in Barbados in November 1984 and attended by all supervisors except those from Grenada and Montserrat (Grenada and Montserrat were represented at the workshop by other persons designated by those countries' governments)

Conditions precedent to first disbursement under the country grant agreements were satisfied for all countries by early February 1985, and the CDB and USAID had approved the financing of 62 subprojects by late February 1985. Only after specific subprojects had been approved could the CDB initiate procedures for engaging engineering consultants for those subprojects that, in its judgment, would require more complete construction drawings, specifications, bills of quantities, and tendering documents or closer construction supervision than could be provided by host country authorities. For the most part, these included all subprojects with construction by private contractors as well as a certain number of subprojects that would be executed by public authorities through either direct labor or petty contracts. The engineering consultants to be hired had to be nationals of the host country (or US citizens), and the procedures for their engagement included advertisement in local

newspapers and a minimum period of two to three months to allow for responses, invitations for and analysis of proposals, and negotiation of contracts (See Annex 4 for a typical newspaper advertisement inviting consultants' proposals) Actual construction could not proceed until the consultants' plans and drawings had been approved by the CDB and, in the case of construction by private contractors, until contractors had been selected, usually through competitive bidding on the basis of the documents drawn up by the consultants In addition, several other conditions precedent to first disbursement for each subproject had to be approved, including proof of government ownership of the land or rights of way, proof of ability to staff and furnish the completed facility, and evidence of a commitment to maintain it

As a result, most of the construction activity did not get under way, even for the subprojects approved early in 1985, until fall 1985. However, given CDB and USAID procurement and contracting procedures and requirements for satisfaction of conditions precedent, as well as the time normally required for the start-up of any project, the time elapsed between the signing of the grant agreement and the start-up of construction was not excessive In fact, they were probably expedited by the energy and efficiency of the CDB management team

At present, 90 subprojects have been approved under the initial allocation for the nine countries (One additional project has been approved in Anguilla under the performance program allocation) Construction has started on 70 of these subprojects and has been completed or substantially completed on 37 (see Table 4) It can be safely projected, based on site visits and an examination of construction schedules, that all 90 subprojects currently approved will be completed by the PACD (September 30, 1987), most by the end of calendar year 1986 It can also be predicted, however, that an extension of the PACD will be necessary to allow for construction of subprojects under the performance program, particularly since many of the procedures described above, all of which are necessary, will have to be implemented before construction of performance program subprojects can even begin

The most rapid implementation has been achieved by Anguilla, which completed all design and construction work for its subprojects in a five-month period, from August 1985 to January 1986 The slowest implementation is that of Belize, where construction on one of the 14 approved projects has not yet begun and only four

TABLE 4
CONSTRUCTION STATUS OF SUBPROJECTS

	Anguilla	Antigua	Belize	Dominica	Grenada	Montserrat	St. Kitts & Nevis	St. Lucia	St. Vincent & The Grenadines	Total
Not Yet Started	-	3	7	5	-	1	-		4	20
Started But Not Yet Complete	-	3	3	4	5	3	6	7	2	33
Complete or Substan- tially Complete*	3	4	4	6	-	2	1	5	12	37
TOTAL	3	10	14	15	5	6	7	12	18	90

*Substantially complete means ready for service, but perhaps lacking some finishing touches (final painting, electric hook-up, etc).

371

of the subprojects are substantially complete. St. Vincent and St Lucia have also demonstrated relatively rapid implementation, while Antigua and Dominica have been relatively slow. The reasons for these variations in implementation performance (including mitigating circumstances) are discussed in the individual country sections.

The total value of the approved allocations for the 90 subprojects is US\$ 7.4 million, some US\$ 200,000 short of the overall initial allocation of US\$ 7.6 million. Most of this shortfall is from Belize, where only US\$ 879,000 of Belize's allocation of US\$ 1 million has been allocated for approved subprojects. Most of the rest of the shortfall is accounted for simply by the difference between the overall country allocations, which were chosen arbitrarily, and the total of the subproject allocations, which were based on the actual projected cost of subprojects.

At the end of May 1986, 48 percent of the total infrastructure allocation had been disbursed by the CDB to cover incurred construction expenditures (see Table 5). Project supervisors' reports show a somewhat larger amount having actually been spent or claimed, reflecting the lag time (usually about two weeks) between the expenditure in country and the reimbursement by CDB. Anguilla has spent and been reimbursed for its total initial allocation. Grenada, Montserrat, St Lucia, and St Vincent have received more than one-half of their allocations, whereas Antigua, Belize, Dominica, and St Kitts have received less than one-half. Antigua has been particularly slow in using its initial allocation, having been reimbursed for only US\$ 186,000 of its US\$ 1 million allocation.

Notwithstanding a small number of problems that have delayed implementation in some subprojects and some countries, the overall pace of implementation has been more than adequate. The management procedures established by the CDB have been largely successful to date in achieving rapid implementation. In subsequent sections, some changes are recommended that may accelerate implementation even further, but other changes involving contracting and supervision are recommended that may slow it down since the emphasis on the fast-track approach has at times detracted from adequate controls and supervision.

TABLE 5

PHYSICAL INFRASTRUCTURE -- OVERALL
 INITIAL ALLOCATION, ALLOCATION FOR APPROVED SUBPROJECTS,
 AND EXPENDITURE THROUGH MAY 1986
 (US\$000)

	Anguilla	Antigua	Belize	Dominica	Grenada	Montserrat	St. Kitts & Nevis	St. Lucia	St. Vincent & The Grenadines	Total
A. Overall Initial Allocation	200	1,000	1,000	1,000	1,000	400	1,000	1,000	1,000	7,6
B. Allocation for Approved Subprojects	200	1,000	879	992	978	392	1,000	961	991	7,3
C. Expenditure	200	186	386	342	571	228	460	550	615	3,5
D. Difference - A-C	0	814	614	658	429	172	540	450	385	4,0
E. Difference - B-C	0	814	493	650	407	164	540	411	376	3,8

Adequacy of Design, Construction, and Procurement Arrangements

Most BNTF subprojects are simple structures, usually one-story high, or are small water projects that carry low flows. The evaluation team uncovered no site problems or problems of access or utility availability. Potable water was usually available at every building site, and the ground was sufficiently porous to allow septic tank installation.

The new buildings were designed primarily by private consultants who were hired by the CDB at no cost to the host country. St. Lucia and St. Vincent were the only countries that designed their own subprojects. In St. Lucia an engineering consultant reviewed and corrected the plans prepared by government, but the plans (as they went out to construction) were those of government. In St. Kitts the government prepared the basic plans, but an engineering consultant, after having analyzed them, prepared his own plans under his signature.

Construction plans that were designed and drafted by government and water authority employees were generally of a lower quality than those produced by private engineering consultants. Government plans provided few details, rarely showed profiles of roads or water lines, and were almost always inadequate for bidding by private contractors. Under the direct labor method of construction, government plans generally served only as a guide, with public works or water authority supervisors often deviating from them. Frequently, this resulted in performing more work than was originally envisioned. With little research performed by public works personnel prior to design, problems were frequently uncovered only as the works proceeded. As a result, publicly designed and built subprojects generally had many more delays than those that were privately designed and built, resulting in higher costs and lower quality.

40x

Structural Soundness

Almost all the buildings the evaluation team inspected appeared to be structurally sound. The only possible exceptions were the open rafter roof support systems used in certain buildings in Montserrat and Anguilla. As elaborated in the country-specific findings, these types of roofs usually need additional bracing.¹

In general all concrete was mixed and placed under proper conditions. Concrete cubes were taken in most places with tests indicating that adequate strength had been obtained. The one possible exception was some cold joints that were observed on columns for the Micoud two-story multipurpose center in St. Lucia. Honeycombing was also observed at this site. Apparently, a recent introduction of ready-mix concrete to that area of St. Lucia had resulted in several instances of improper batching.

Functional Adequacy

Nineteen subprojects were rehabilitations and expansions to existing buildings. In general the designers found unique and workable solutions to ensure that the functions of the building met the needs of the users. In almost every instance consultation between designer and user determined the most logical floor plan. New spaces served important needs while old spaces were made more useful. The McKnight Multipurpose Center at Basseterre in St. Kitts was the only exception. This building was intended to serve many uses. Some were denied through the approval process, other uses were introduced. These rearrangements produced changing rooms that were poorly located and a hall that was too small to have a stage.

¹ The engineering consultants in St. Kitts prepared an excellent report on how to provide additional support to an open rafter roof support system. (See "The Suitability and Adequacy of Design Drawings Prepared by the Planning Unit, Basseterre, St. Kitts," June 1985, p. 18.)

Preventive Maintenance

No building can be designed maintenance free. However, attempts can be made to build with materials that are highly durable, easily cleaned, and require little or no periodic painting or repairs. Many designs attempted to take advantage of modern construction materials that would reduce life cycle costs and produce a quality product that was also aesthetically pleasing. In Montserrat the school buildings at Plymouth used aluminum roofing panels instead of the standard galvanized steel panels. The latter must be painted about every five years if they are to withstand the harsh salt air that constantly blows across the shorelines of the Caribbean islands. Many consultants designed windows with complete aluminum louvers rather than a slip-in glass or wood louver. Most louvers were placed high in schools so that children could not play with the handles. In Dominica reinforced concrete roofs and water tanks were being built, eliminating periodic roof and wall painting.

There was an absence of a technical specification requiring all subproject existing buildings that were to be renovated and all new buildings that were to be built to have the ground under each building treated by a termicide. Similarly, lumber for social infrastructure was used that had not been pressure treated to resist destruction by termite infestation. Some engineers required that a non-penetrating liquid preservative be painted on the wood. However, the only long-term resistance to termite infestation is the use of pressure-treated lumber.

Aesthetics

In a basic needs project, aesthetics is understandably a low priority. If a unique design can be produced at a reasonable cost, however, it would make good sense to improve appearance. In Dominica the Scotts Head School, the Dublanc School, and the Morne Prosper School were all high quality examples of unique designs that took advantage of the natural environment of the site.

The quality of finish work varied a great deal by country and by subproject. Most of the finish work was adequate, and in some cases it was superior (subprojects in Dominica and Grenada for example). But in certain subprojects in other countries

Har

technical specifications were not sufficiently detailed in describing the level of finish required (especially on wood surfaces) Hammer marks were left on finished wood, finished nails were not used on window and door trim, nails were not set, puttied, and sanded, knots and blemishes were left in finished woodwork, paint was left on aluminum windows, concrete floors were left rough; and stucco on walls was not completely smoothed out.

Use of Engineering Consultants

The engineering consultants engaged by CDB were the vital link in the chain of project success. They corrected government plans, wrote specifications, prepared bidding and contracting documents, supervised the work of private contracting and public agencies, and authorized claims for payment. Many governments and water authorities preferred to do their own designs and construction, which allowed for flexibility and kept more people on the government payroll. However, the evaluation team found that government engineers and designers were generally less efficient than private engineering consultants.

Most engineering consultants were doing an excellent job. However, some consultants, when called upon to evaluate bids and recommend contract awards, were compromising standards for political reasons. As will be discussed in some country-specific sections of Part Three, some BNTF engineering consultants appeared to be accepting politically motivated contracting decisions rather than adhering to CDB competitive bidding regulations.

Employment Generation

The Problem of Unemployment

BNTF documents emphasize employment generation. The project's purpose statement includes the phrase "using labor intensive technologies," the problem statement in the project paper devotes about one-half its verbiage to "the problem of unemployment and underemployment," and an expected output contained in the logical framework is "at least 154,000 person weeks of employment of low income individuals." To monitor employment generation, the project supervisor's monthly

report form includes eight line items on direct and indirect employment generation as well as a place for commentary on "labor". The form includes a requested breakdown of employment generation by sex and age. (See Annex 5 for an example of the form)

The project's emphasis on employment generation is not difficult to understand. Unemployment is extremely high in the participating countries, has increased in every country except Montserrat over the last 15 years, and is probably the primary political issue in most of the Commonwealth Caribbean.

Table 6 shows unemployment figures taken from census data and the CDB's 1985 annual report. The reliability of these figures is unknown as the evaluation team found almost no updated official figures on unemployment in the participating countries. In most countries, the only such figures were provided by the political parties, with the party in power reporting, predictably, a lower rate than the opposition party. Throughout the islands, officials admitted that public services were overstaffed but could not be reduced because of the effects on unemployment. The most extreme example was the government of St. Kitt's operation of the entire sugar industry, which, despite its unprofitability, could not be neglected because it was the island's primary source of employment.

Problems with the Measurement of Employment Generation and Labor Content

Notwithstanding the urgency of the problem, as well as the understandable intention of the BNTF to target the unemployment issue, the evaluation team found it difficult to provide a meaningful or reliable measurement of the project's "employment generation" to date. The reasons for this are both conceptual and methodological (data collection and reporting).

The first conceptual problem stems from the fact that the direct employment generated by the construction of the subproject facilities (which was what project supervisors were attempting to measure) was all short term. Unlike projects that build factories, for example, the BNTF subprojects were not creating long-term jobs (except for the additional teachers who would be employed in the schools or the health workers in the clinics, but this was not what project supervisors were attempting to measure). The employment of most of the skilled and unskilled laborers

TABLE 6

UNEMPLOYMENT RATES -- 1970, 1980, 1984

	<u>1970[a]</u>	<u>1980[a]</u>	<u>1984[b]</u>
Anguilla	n.a.	n.a.	26.4
Antigua and Barbados	12.0	20.7	21.0
Belize	4.7	13.6	14.0
Dominica	7.0	18.3	n.a.
Grenada	9.4	18.2	28.0
Montserrat	4.6	13.0	7.0
St. Kitts and Nevis	4.2	12.4	n.a.
St. Lucia	9.3	17.2	22.0
St. Vincent and The Grenadines	11.1	n.a.	n.a.

Source:

- a BNTF Project Paper
b CDB Annual Report - 1985
n.a. Not available

who worked on BNTF subproject construction lasted several months at most, sometimes only several weeks. In St Vincent the Public Works Department would typically employ three or more separate crews on short road segments to spread income opportunities as widely as possible in the area where the road was being built; this resulted in employment for some men lasting only one week. It would seem debatable whether the creation of a job lasting only weeks or months should be considered employment generation since it provides only temporary benefits for the person employed and is likely to have little effect on yearly employment and unemployment statistics.

A second conceptual problem involves the degree to which the project can directly affect labor intensiveness. Some types of subprojects, such as reforestation or road construction, are, perhaps, more labor intensive than others, such as water systems or building construction. But the selection of subprojects should be determined more by need and cost than by marginal differences in labor content. Once the subproject is selected, little can be done, or should, be done, to affect labor content since the imperative during implementation should be timely and cost-effective completion rather than artificial tinkering with labor-capital ratios. The evaluation team observed, moreover, that private contractors throughout the islands were using almost the same construction techniques, including hand-mixing of cement. Thus, on any given project, the number of person-days of labor should bear a roughly constant relationship to the size of the project. When measured in financial terms, the labor content of a 1,500-foot clinic built by private contractors in Grenada should, in other words, be approximately the same as the labor content of a clinic of similar size built by private contractors in St Lucia as long as the prevailing wage rates are the same. (Most materials are imported and should, therefore, vary little in price although the sources of items such as cement did, in fact, vary between the Leeward and the Windward Islands.)

A third conceptual problem involves the meaning of the term "labor content." Although the term is not defined in any project document examined by the evaluation team, it was assumed that the intention was to define labor content simply as the financial ratio of the amount spent on wages to total project cost: the higher the ratio the better. However, a cross-country comparison of such ratios would always make the countries with relatively low wage rates, such as Anguilla, look better than

countries with relatively low wage rates, such as Belize. An alternative definition of labor content might be the ratio of person-days of labor to total subproject cost. However, because wages are included in total cost, the use of this ratio would have the opposite effect of the one described above: it would make the low wage countries look better than the high wage countries.

With respect to methodology, the team found that the employment data collected by most project supervisors were unreliable and of questionable cross-country comparability. There were several reasons for the unreliability. First, most project supervisors were having a difficult time collecting information and this was reflected in the frequency of late and blank information on monthly reports. Contractors and public works officials were not accustomed to collecting and providing labor data in the form requested by the project and felt little obligation to do so. Data from subprojects executed by government agencies and public authorities frequently arrived late and incomplete. Most project supervisors were not providing any information on indirect employment generation (although those who were seemed to be arriving at reasonable estimates and calculations).

Second, few project supervisors examined or even spot-checked payroll sheets to confirm reported counts of persons employed, person-days of employment, and wages. Most project supervisors relied on oral or ad hoc written reports from contractors or public authorities to obtain employment data. One project supervisor who was having trouble getting employment data directly decided to calculate monthly person-days by dividing the total monthly wages by the number of working days in the month to get the average daily payroll, then dividing the average daily payroll by the number of persons employed to get the average daily wage, and then dividing the average daily wage by the total monthly payroll. Beyond questions of the reliability of the data that go into such a calculation, the result has little meaning since it does not factor in weights for salary differentials (a carpenter typically makes twice as much as an ordinary laborer in the Caribbean). Another project supervisor admitted that he received no data at all from those responsible for construction and that his employment data were guesstimates.

Without direct examination of payroll documents, it is necessary to be skeptical of employment data reported by either private contractors or public works departments. Almost all the private contractors were operating on fixed price contracts, which meant that not only did they have no contractual obligation to report employment data but also most were reluctant to do so for fear of revealing their profits. In addition, private contractors have an incentive to minimize their labor expenses since this is the easiest way to increase profits. Public works departments, by contrast, have an incentive to inflate either the actual labor utilized in a subproject (for political reasons) or the reported labor utilized to increase the amount of their reimbursement from CDB. Under these circumstances it should come as little surprise to find that subprojects executed through public works departments took longer to complete than those done by private contractors.

Data on the sex and age of employees were apparently also obtained in an ad hoc matter since none of the contractor or public works payroll sheets examined by the evaluation team contained this information. In reality it probably mattered little whether the information on sex was gathered systematically, since the nature of the work generated by the subprojects -- construction -- typically requires the employment mostly of men. Yet site inspections by the evaluation team revealed that there were frequently two or more young men (under 20) employed on a construction crew, so it is likely that this category was underreported.

The third reason for the unreliability of the employment data was confusion about how to report data on the monthly form. A comparison of monthly reports with a sample of payroll sheets revealed, for example, that some project supervisors were reporting the "number of men employed" as the number of "different individuals" employed in a given month, others were reporting this figure as the number employed on some random day of the month (often the last day), while others were reporting an average or modal figure. In addition, some project supervisors were treating the category "number of youth employed" as a subcategory of "number of men employed" while others were treating these two categories as mutually exclusive. One project supervisor, who was providing all materials for contractors, was reporting the entire monthly invoice of the contractors as "amount spent on wages," ignoring the fact that the invoices would also include such costs as transportation, insurance, overhead, and profit.

J/S

Even if the data reported were reliable and up to date, the reporting form itself (see Annex 5) created problems for data analysis because it lacked two critical lines of cumulative data cumulative amount spent on wages and cumulative amount spent on materials. Without these two line items, it is necessary to go back through all monthly reports to add the monthly wage and materials totals to calculate labor content.

Some Estimates of Labor Content and Employment Generation

Notwithstanding these conceptual and methodological problems, the evaluation team attempted to perform some analysis of labor content based on available data. Tables 7, 8, and 9, provide these analyses for the three countries whose data were considered the most reliable.

The project supervisor for St Lucia was able to provide complete sets of employment and wage data although the data were two months behind for the water systems projects implemented by the Water and Sewerage Authority (WASA) (see Table 7). An analysis of these data shows an overall labor content of 41 percent for the work done to date on the 12 subprojects in St Lucia, but there is a large disparity between the labor content of the building projects (28 percent), which were done by private contractors, and the labor content of the water systems (55 percent), which were done by the WASA. Since the water systems subprojects should not be inherently twice as labor intensive as the building projects, the difference is attributable, at least in part, to the tendency of private contractors to use labor more efficiently.

The data in Anguilla were complete inasmuch as all three subprojects were complete, however, the wage data, and thus the labor content (49 percent), are inflated by inclusion of the total amount of the contractors' invoices. Even when this error is considered, the labor content in Anguilla is probably the highest of all the participating countries, but this is due almost entirely to the relatively high cost of labor in Anguilla. A division of the total wages by the total person-days in Table 8 reveals an average daily wage of nearly EC\$ 87. The true figure is probably closer to EC\$ 60, but this is still higher than the EC\$ 47 that can be calculated for St Lucia or the EC\$ 27 (BZ\$ 20) that can be calculated for Belize.

TABLE 7

LABOR CONTENT -- ST. LUCIA

<u>12 Subprojects</u>	<u>Direct Labor</u>		<u>Total Construction Expenditure</u> (EC\$)	<u>Labor Content [c]</u> (%)
	<u>Person Days</u>	<u>Wages</u> (EC\$)		
Building Subprojects (6) [a]	3,450	167,948	593,747	28.3
Water Supply Subprojects (6) [b]	<u>6,544</u>	<u>301,428</u>	<u>547,939</u>	55.0
TOTAL	9,994	469,376	1,141,686	41.1

Notes:

- a As of April 30, 1986 -- all construction by private contractors.
- b As of February 28, 1986 -- all construction by the Water and Sewerage Authority.
- c Wages divided by total expenditure.

51"

TABLE 8
LABOR CONTENT -- ANGUILLA

<u>Three Subprojects</u>	<u>Direct Labor (a)</u>		<u>Total Construction Expenditure (EC\$)</u>	<u>Labor Content (c) (%)</u>
	<u>Person Days</u>	<u>Wages (b) (EC\$)</u>		
West End Health and Day Care Center	922	74,000	156,245	47.4
Island Harbor Health and Day Center	913	74,000	168,990	43.8
Extension to Votech Center	1,094	106,700	192,362	55.5
TOTAL	2,929	254,700	517,597	49.2

Notes:

- a All construction in Anguilla was done by private contractors although it was supervised by Public Works.
- b Includes entire invoice of labor contractor, including transportation, insurance, overhead, and profit (if any).
- c Wages divided by total expenditure (but probably an overestimate -- see Note b).

51

TABLE 9

LABOR CONTENT -- BELIZE

<u>Subprojects(a)</u>	<u>Direct Labor</u>		<u>Total Construction Expenditure (BZ\$)</u>	<u>Labor Content (e)</u>
	<u>Person Days</u>	<u>Wages (BZ\$)</u>		
Rehabilitation and Extension Subprojects (2)	3,286	52,642(b)	236,033	22.3
New Health Clinics (2)	2,976	57,670(c)	230,866	25.0
Water Systems (2)	1,251	38,831(d)	194,514	20.0
Total	7,513	149,143	661,143	22.6

Notes:

- a Includes six of the seven projects under construction or completed.
- b Estimate based on a calculation of the average daily wage for April 1986 (BZ\$ 16.02).
- c Estimates based on a calculation of the average daily wage for April 1986 (BZ\$ 20.77 and BZ\$ 17.35).
- d Estimate based on a calculation of the average daily wage for April 1986 (BZ\$ 31.04) for the Belize City water system.
- e Wages divided by total expenditure.

5/11

The data from Belize were incomplete, but those that existed were probably the most reliable as the project supervisor actually had copies of pay sheets in his files. As can be seen in Table 9, the labor content in Belize is only 23 percent, which is undoubtedly the lowest of the participating countries. However, this rate is almost entirely attributable to the low wage rates prevailing in Belize. It is also interesting to note from Table 9 that, unlike in St. Lucia, there is little difference between the labor content of the water systems subprojects and the building subprojects. It can be surmised that the reason is that in Belize all subprojects -- not just the water systems, as in St. Lucia -- were executed by public authorities.

Based on an analysis of data from St. Lucia (which had perhaps the most reliable data on employment and whose wage rates were about average for the Eastern Caribbean), the project will fall well short of attaining its objective of generating 154,000 person-weeks of employment. To date, St. Lucia has spent US\$ 422,847 on infrastructure development and with this expenditure had generated 1,997 person-weeks of employment, yielding a ratio of 4.7 person-weeks of employment for every US\$ 1,000 spent on infrastructure development. If this ratio is valid, the expenditure of every penny of the US\$ 12.55 million allocated for infrastructure (this includes monies allocated for the performance program) will generate just 59,000 person-weeks of employment. Even if it can be assumed that indirect employment will add 50 percent to this figure, total BNTF employment generation will be only about 89,000 person-weeks.

Use of Public Information to Create Employment

According to the grant agreement, a small sum of money (US\$ 68,000) was to be made available "in order to improve the availability of information regarding employment opportunities possible under the projects and to ensure adequate publicity of the works financed." The evaluation team found that, with only a few exceptions, every subproject that was under construction or had been completed featured a large prominently displayed sign announcing the sponsorship of the project by CDB and USAID.

By contrast, the team found no evidence of publicity advertising employment opportunities. The apparent reason for this was lack of need. Both contractors and public works officials were unanimous in their opinion that no such advertising was necessary since the supply of unemployed laborers was more than sufficient to fill the demand. Contractors normally used skilled workers (carpenters, masons, electricians, and plumbers) they had employed in the past. They sometimes also used the same general laborers, but more often hired laborers from among the local men who would show up at a construction site at the first sign of activity.

Maintenance of Subprojects

The maintenance systems development component of BNTF provides US\$ 650,000 to establish in-country maintenance materials funds, to finance maintenance plans development and public awareness activities, to produce working manuals for maintenance, and to finance other activities related to the maintenance of BNTF subprojects. To date none of these activities has commenced. However, an evaluation of maintenance under the BHN program took place in 1985 and a number of recommendations issuing from that evaluation will presumably be incorporated in the BNTF maintenance program. In addition, a work plan for the component has recently been completed, and a USAID sociologist has begun helping establish country-wide maintenance committees. These steps should help launch the implementation of the BNTF maintenance component.

The outlook for the maintenance of the BNTF subprojects differs by country. In Montserrat maintenance of public facilities is of top priority whereas in Antigua there is little concern for repair and maintenance. Concern varies in the other countries, with Dominica ranking high. Education and assistance through the BNTF maintenance program can, if administered properly, significantly affect the attitude toward maintenance.

Development Impact

Most of the subprojects approved under the initial allocation appear to have been well selected and situated in terms of their impact on basic needs. Of the 90 subprojects approved for financing, 37 are complete (or substantially complete) and

about one-half of these are already in use. The evaluation team observed the use of several of these subprojects and talked to a number of users. In almost every case, the facility was serving the needs of the community and the community was appropriately appreciative.

There were a few exceptions. In Belize at least one water system subproject, perhaps more, was duplicating existing facilities. In Anguilla, the day care centers, which supposedly were so badly needed, were not in operation fully five months after completion. In St. Vincent, it was not clear that certain roads or footpaths urgently needed to be paved, given the small number of residences they served. In several countries, vocational and technical centers were being equipped with machines that did not exist elsewhere on the island. And in Grenada, there seemed to be ambiguity about what the purpose of the Annandale scheme was: lumber and citrus production, soil conservation, or watershed management?

The MCUA were devoid of any criteria that would measure socioeconomic utility or need. Given that the MCUA criteria were not used by host country governments in their selection process, it is not clear that the addition of socioeconomic criteria would weed out doubtful subprojects, but it does seem that more systematic attention should be paid to long-term development impact.

Project Management

BNTF is a well-managed project. The project management system, involving regional and subregional management by CDB and USAID, country-specific management by full-time project supervisors and other host country personnel, and the use of engineering consultants for design and construction supervision, has in general worked well. Subprojects have been planned, designed, submitted, and approved rapidly; funds have flowed smoothly so that problems with cash flow have not held up subproject progress, and communications among the management team have been well coordinated.

USAID's Regional Development Office in Barbados has generally limited its role to concurrence in CDB subproject approvals and to occasional inspection visits to the participating countries. This arms-length management stance is appropriate since

day-to-day management has been entrusted to CDB. The one area that USAID has become involved in more directly is the maintenance component, which, given its lack of activity, needed top-level attention

Regional management by CDB is entrusted to a three-person team. One person heads this team and bears overall responsibility to the CDB and to USAID for project management. This person also takes charge of BNTF subprojects in Belize. The Eastern Caribbean countries are divided between the two other members of the team, with one person responsible for the four Windward Islands, the other for the four Leeward Islands. The CDB team visits each island at least quarterly (see Annex 6) and maintains contact with project supervisors more frequently by letter or by telephone. The three CDB staff are all engineers and are thus able to supervise the work of engineering consultants and make judgments about subproject design and construction. Several letters in the files of project supervisors reveal that CDB staff had counseled modifications of an architectural or structural nature after reviewing blueprints.

Each country except Montserrat has a full-time project supervisor whose government salary is reimbursed by the CDB up to an agreed level. In five countries the project supervisors are retired high-ranking civil servants, in three countries they are younger men who are still pursuing careers. In Montserrat the project supervisor, who is British, is on a technical assistance assignment as chief engineer of the Public Works Department. Because of his other duties, he is able to devote only about 5 percent of his time to BNTF project supervision.

All of the project supervisors were able and hard working. Only two of the supervisors -- in Montserrat and in St. Lucia -- were engineers, but most of the others had at least a modicum of experience in the management of public works projects. Some of the supervisors -- in Belize and Dominica, for example -- had assignments that appeared more than full time because of the large number of subprojects or the larger and more difficult terrain they had to cover. Other supervisors -- Anguilla, Montserrat, and perhaps Grenada, for example -- appeared to

have less than full-time jobs because of the number of subprojects or the small size of their islands. However, the amount of time devoted to BNTF subproject supervision by the project supervisor in Montserrat was not sufficient to carry out his duties adequately.

One problem had to do with the project supervisors' transportation and office support. In some countries, project supervisors were receiving, in addition to salary, a transportation allowance for use of their personal car. Sometimes this allowance was simply a flat monthly rate, which differed by country, at other times it was a monthly rate plus mileage. In other countries, supervisors were getting no transportation allowance at all, or it was explained that their salaries had already been topped off to cover transportation. Some supervisors had secretarial support and photocopying services, others did not. The supervisor in Anguilla was paying a secretary from his own pocket. The supervisor in Belize had his office in Belize City but had to send documents to Belmopan for photocopying.

It is recognized that project supervisors are government employees and that their conditions of service are dictated by the civil service regulations of their governments. The CDB should not -- and does not -- impose conditions that will make special exceptions for project supervisors. However, because of the key role the project supervisors play in BNTF, the CDB has an interest in ensuring that they receive adequate support to carry out their responsibilities.

Reference has already been made to the difficulties that project supervisors had with the reporting system, particularly with respect to labor content. But the evaluation team believes that these difficulties stem less from deficiencies in the project management system than from an overcomplicated reporting system that compels project managers to collect data that are not normally part of a management information system in a construction project. Recommendations on how these problems can be overcome appear in Part Five.

PART THREE
COUNTRY-SPECIFIC FINDINGS

ANGUILLA

Brief Description of the Country

Anguilla, a British Dependent Territory, is the most northerly of the Leeward Islands. It is the smallest of the BNTF countries (91 square kilometers) and has the smallest population, about 7,000. The population is evenly distributed over the 21-mile length of the island with only slightly heavier concentrations around the capital, called The Valley, and the west end.

The island is mostly flat with a coral limestone foundation. There is some livestock, but almost no commercial crop production. The economy depends mainly on tourism, offshore banking, livestock, salt production, boat building, and fishing. Chief exports are salt, lobster, and livestock. Much of the working population is employed on nearby St. Maartens and commutes daily. Per capita income is estimated at US\$ 1,000, and unemployment is at 26 percent.

Use of Allocation and Status of Subprojects

Commensurate with its small territorial and population size, Anguilla received the smallest initial allocation -- US\$ 200,000. The allocation was used to finance three subprojects: a vocational/technical center at the island's only secondary school and two combination health clinics/day care centers. The secondary school is situated in the center of the island in The Valley whereas the two health clinics/day care centers are on the two ends of the island.

The three subprojects were designed by engineering consultants engaged by CDB in August and September 1985. Construction of all three buildings began on October 1, 1985, and was completed in January 1986. Both the total time elapsed for design and construction and the time taken for construction was by far the shortest of any

58

of the BNTF countries. Perhaps for this reason Anguilla is the only country to date to have received an allocation under the performance program -- USS 45,000 for another health clinic.

Subproject Visitation Schedule and Description of Subprojects Visited

Schedule

The evaluation team arrived in Anguilla on the morning of June 5. Team members spent the remainder of the day with the project supervisor discussing the project profile, monthly reports, construction plans, and general correspondence. On June 6 the team met with the CDB engineering consultant and staff members of the ministries involved with the BNTF subprojects. In the afternoon the team visited all four sites.

Order of Visit

Subprojects

- | | |
|---|---|
| 1 | Valley Secondary School-Vocational/Technical Center |
| 2 | Island Harbour Health Clinic/Day Care Center |
| 3 | West End Health Clinic/Day Care Center |
| 4 | Southhill Health Clinic ¹ |

Descriptions

The extension of the Vocational/Technical Center at The Valley Secondary School involves construction of a new 2,050 square foot one-story concrete block-stucco building, with a concrete roof, consisting of one large shop area for woodworking and one smaller technical drawing room. This building is part of a larger complex situated in The Valley.

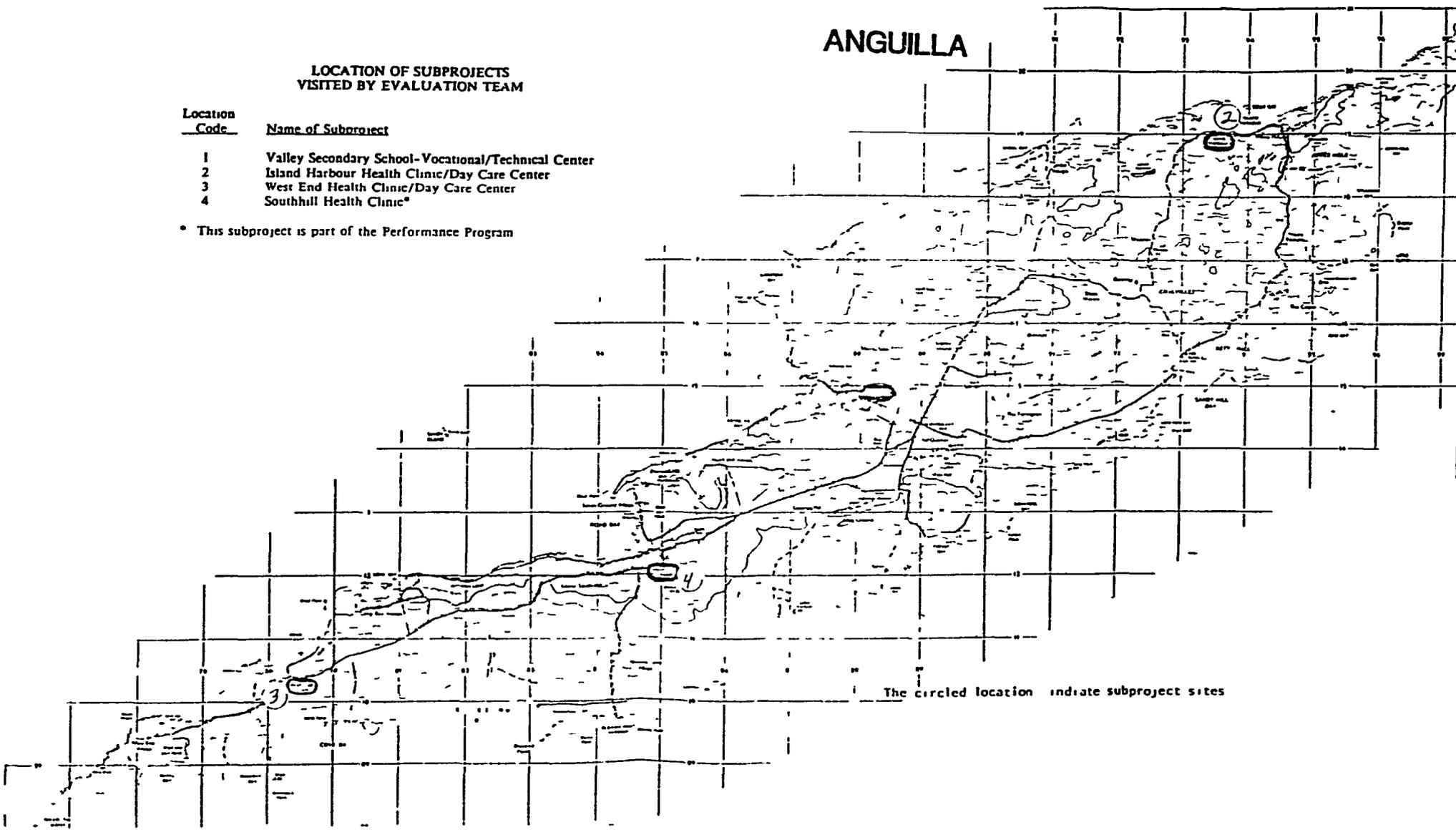
¹ This subproject is part of the performance program.

ANGUILLA

LOCATION OF SUBPROJECTS VISITED BY EVALUATION TEAM

<u>Location Code</u>	<u>Name of Subproject</u>
1	Valley Secondary School-Vocational/Technical Center
2	Island Harbour Health Clinic/Day Care Center
3	West End Health Clinic/Day Care Center
4	Southhill Health Clinic*

* This subproject is part of the Performance Program



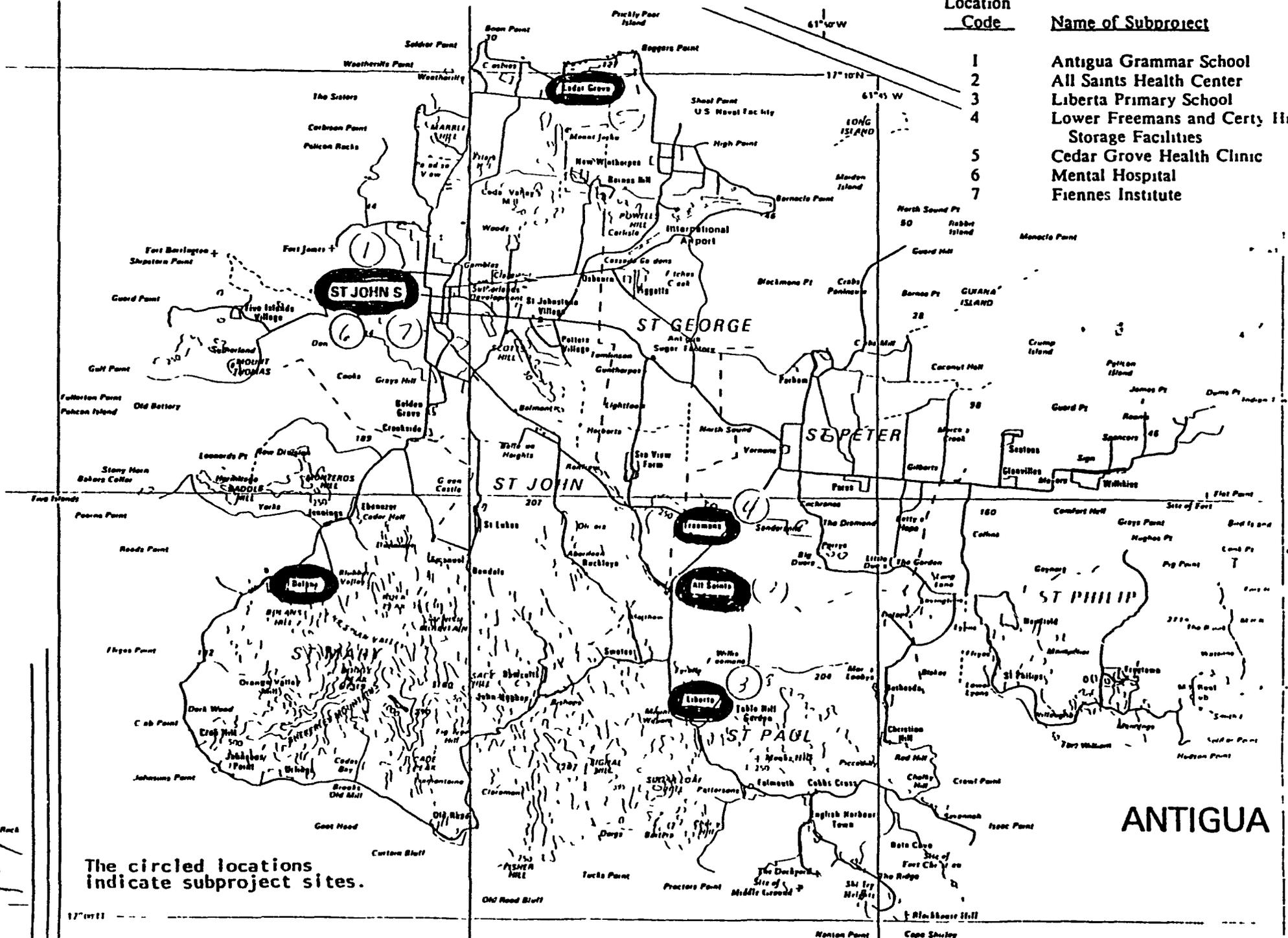
62

LOCATION OF SUBPROJECTS
VISITED BY EVALUATION TEAM

Location
Code

Name of Subproject

- | | |
|---|---|
| 1 | Antigua Grammar School |
| 2 | All Saints Health Center |
| 3 | Liberta Primary School |
| 4 | Lower Freemans and Certy Hill Farmer Storage Facilities |
| 5 | Cedar Grove Health Clinic |
| 6 | Mental Hospital |
| 7 | Fiennes Institute |



The circled locations
indicate subproject sites.

ANTIGUA

107

The Island Harbour Health Clinic/Day Care Center subproject consists of construction of a new 980 square foot one-story concrete block-stucco building to be used as a health clinic, plus an additional new 880 square foot one-story concrete block-stucco building 6 feet away to be used as a day care center. This facility is located in the village of Island Harbour about five miles northwest of The Valley.

The West End Health Clinic/Day Care Center is identical to the one described above at Island Harbour. It is located in the vicinity of West End Village about seven miles southwest of The Valley.

Subproject Selection

The project identification design team did not visit Anguilla and therefore did not apply the MCUA to the original list of projects. Rather a number of projects were identified by the Anguillan government and discussed with the CDB and USAID. Six subprojects with a value of US\$ 964,000 were included in an "eligible" list, but only one project from this list was included among the three eventually financed. Apparently USAID rejected several projects, including the construction of a facility for Radio Anguilla and the construction of a new jetty to handle passengers commuting to and from St. Maartens, on the grounds that these were not social service projects. Funding for others from the original list was obtained from other sources.

The evaluation team felt that the health care centers were useful subprojects, but had some doubts about the urgency of the need for day care centers. At the time of the evaluation in May 1986, neither of the two day care centers was open for use even though they had been completed in January. Apparently the government had not provided for the staff or the furnishing of the centers in its budget and had not decided which ministry would operate them until after the buildings were completed.

42X

The vocational/technical center had only recently begun to hold classes even though it too was completed in January. The center had no electricity and no shelves or cabinets for tools. Much of the equipment did not exist elsewhere on the island, thus students trained in the use of this equipment would have to apply their skills off the island.

Design Techniques and Construction Standards

All three subprojects were designed by one consultant, and in general all three appear to have been well designed from a structural, functional, and aesthetic point of view. The team's only structural concern was the use of an open rafter roof support system in the three buildings inspected in Anguilla. The roofs in these buildings are low pitched (between 15 and 20 degrees) and, accordingly, may be subject to considerable uplift during a severe windstorm. In such roof support systems, the joint at the peak where the rafters come together usually acts as a hinge. The joint, which is usually nailed, may open up during a high velocity windstorm. Steel gusset plates placed on each side of the joint that fasten both rafters together with through bolts can be used to provide additional support. A collar brace placed horizontally midway up the slope of each pair of rafters on each side of the rafter and fastened with through bolts will provide considerable additional support.

High quality finish materials were used that allowed the projects to stand out as above average within the community they served. The project supervisor considered the consultant's work to be very good. It appears that the public works engineer (who did the structural design), the project supervisor, and the engineering consultant worked well together as a team.

Notwithstanding letters to the contrary from the engineering consultants, subproject allocations were insufficient to complete the buildings as designed. The health centers were apparently designed originally with insufficient information concerning budget constraints. When it was realized that funds would be tight, the project supervisor decided to procure materials himself, rather than including materials procurement in the contracts. He then pressed contractors to complete their work at cost or less.

The impression obtained through written reports that the buildings were constructed by the Public Works Department through petty contractors is erroneous. In fact, the project supervisor hired well-established and experienced contractors to start and complete the construction, but for each subproject engaged a single contractor through a series of five separate contracts. This petty-contract method was apparently used to circumvent the CDB requirement for competitive bidding or, perhaps, to satisfy what was perceived to be CDB encouragement to employ small-scale contractors.

Once the projects were awarded, the project supervisor, operating as a quasi-general contractor, secured good value for the money expended. There were, however, minor problems with workmanship. concrete floors were left in a rough state, sawed lumber was not cut straight, and banks of louvers were not installed according to the drawings. The use of the high-quality finish materials was sometimes marred by inadequate preparation of surfaces prior to painting, and paint was left on surfaces (such as the anodized aluminum windows) that were not intended to be painted.

Adequacy of Procurement Arrangements

Anguilla has an unusual procurement situation. The projects supervisor acted as a quasi-contractor. He purchased all materials for the three projects. On the Island Harbour Health Center, all materials arrived on time and in good condition although EC\$ 19,460 more was spent on materials than had originally been planned. This was partly due to an increase in the cost of materials acquired by the supplier and passed on to government from the time the original estimate was submitted. An overrun of EC\$ 5,344 also occurred at the West End Health Clinic for similar reasons. These two instances of overruns occurred because suppliers raised prices during construction. This is a procurement problem that can be solved by having a pre-construction buying agreement signed between the supplier, the government, and the CDB that will require prices to be held firm for a specific period of time. Fixed price contracts with private contractors relieve government of such procurement problems.

LeAV

There was no tracking of USAID Code 899 and 941 procurement regulations

Provisions for Maintenance

Until 1983 the Public Works Department of the Ministry of Communications, Works, and Public Utilities was responsible for maintaining public buildings similar to the ones built under BNTF. The government apparently felt that this arrangement was not giving the ministries adequate control over the operation and maintenance of their facilities. In 1983 each ministry became responsible for the maintenance of its own facilities and was given a line item in its budget for cleaning and maintenance.

The logistical support mechanism for maintenance on Anguilla is one wherein the majority of ministries use a system of petty contracting for maintenance problems. The Public Works Department is available for advising the ministries and often does the required work when requested and paid to do so by the ministry concerned.

Anguilla has been allocated US\$ 24,450 to carry out its portion of the maintenance systems development program. No funds have yet been spent on this program. A country maintenance committee is in the formative stages and may soon start to request funds from the CDB to prepare the country-wide maintenance plan.

Employment Generation

The three subprojects in Anguilla generated 2,929 person-days of direct labor. As shown in Table 10, overall labor content is calculated to be nearly 50 percent, which is probably the highest of all the participating countries. However, this calculation overstates labor content by some unknown quantity because, as reported in the project supervisor's monthly reports, the value of labor was assumed simply to be the value of the contracts (since contractors were not asked to purchase materials), however, the invoices submitted by the contractors would also include such items as transportation, insurance, overhead, and profit.

TABLE 10

LABOR CONTENT -- ANGUILLA

<u>Three Subprojects</u>	<u>Direct Labor(a)</u>		<u>Total Construction Expenditure</u> (EC\$)	<u>Labor Content (c)</u> (%)
	<u>Person-Days</u>	<u>Wages (b)</u> (EC\$)		
West End Health Clinic and Day Care Center	922	74,000	156,245	47.4
Island Harbour Health Clinic and Day Care Center	913	74,000	168,990	43.8
Extension to Votech Center	1,094	106,700	192,362	55.5
TOTAL	2,929	254,700	517,597	49.2

Notes.

- a All construction in Anguilla was done by private contractors although it was supervised by Public Works.
- b Includes entire invoice of labor contractor, including transportation, insurance, overhead, and profit (if any).
- c Wages divided by total expenditure (but probably an overestimate -- see Note b).

44

Even when allowance is made for this error, it is likely that Anguilla still has the highest labor content among the participating countries. The reason for this, however, has little or nothing to do with the project, but can be attributed almost entirely to wage rates on Anguilla being considerably higher than in the other BNTF countries. Skilled tradesmen in Anguilla earn EC\$ 70-80 per day and laborers EC\$ 45-50 per day. In other BNTF countries in the Eastern Caribbean, tradesmen usually earned EC\$ 40-50 per day while laborers earned EC\$ 20-25 per day.

Project Management and Reporting

The project supervisor in Anguilla was young and was also the only supervisor who had not previously worked for government. He had personally signed the contracts with the construction contractors and had taken upon himself the responsibility for all materials procurement. As attested by the rapid completion of the subprojects, he was doing a good job.

Despite Anguilla's small number of subprojects and small allocation, the project supervisor was being paid a full salary. However, he received no secretarial support or transportation allowance from government. He did have other income from other jobs and was using the secretary he employed for these other jobs to do BNTF work.

The completion reports that had been filed for the three subprojects were complete and accurate except for the overestimation of labor content. As in the other countries, there was no attempt to track the source and origin of imported goods even though this would have been relatively simple in Anguilla since the project supervisor was purchasing all materials.

Other Comments

On the basis of its excellent performance under the initial allocation, Anguilla should be rewarded in the performance program. The amount of the reward, however, should take into consideration the country's low population and absorptive capacity. The country has probably already built a sufficient number of health clinics and day care centers. Perhaps additional flexibility in subproject selection is indicated.

ANTIGUA AND BARBUDA

Brief Description of the Country

Located in the Leeward Island chain, the country consists of two islands, the larger of which, Antigua, covers 280 square kilometers, the smaller, Barbuda, 42 square kilometers. Most of the terrain is flat with sparse vegetation.

The population of the two islands is about 80,000, with Barbuda accounting for only about 1,200. Much of the population in Antigua is concentrated around the capital, St John's, which has a population of 30,000.

Leading sectors of the economy include services, tourism, and agriculture. Antigua caters to an up-scale tourist clientele. Agricultural products include cotton, sugar cane, and livestock. Per capita income is about US\$ 2,000, one of the highest in the BNTF countries.

The public sector appears to be far larger than the country can afford. In 1984, the government's current account deficit amounted to 4.4 percent of gross domestic product (the highest in the BNTF countries). In accordance with its standard policy, the CDB has recently delayed approval of loans to Antigua because of the country's arrears in its debt to the CDB. Politically, it will be difficult for the country to make sharp cuts in its public sector payroll, however, as unemployment is already about 21 percent of the work force.

Use of Allocation and Status of Subprojects

All but US\$ 370 of the US\$ 1 million initial allocation for Antigua has been approved for use in 10 subprojects: six health clinics, three schools or school extensions, and one agricultural project. Four of these facilities are complete or substantially complete, but three have not yet started, including a new secondary school that will consume one-half the allocation and two health facilities in Barbuda.

Le8x

The delays in the start-up of these projects are due in large part to initial reluctance by CDB management to approve further financing to Antigua until it made some progress in reducing its indebtedness to CDB.

The two health centers were built by private contractors in about three months. The renovations at the mental hospital and the Fiennes Institute were done by Public Works direct labor, the work at the mental hospital took nine months to complete while the work at the Fiennes Institute took seven months.

Subproject Visitation Schedule and Description of Subprojects Visited

Schedule

The evaluation team arrived in Antigua in the afternoon of May 27. The team met with the project supervisor to discuss the subprojects and review their spatial location. Subproject profiles, monthly reports, construction plans, and general correspondence were reviewed. After spending the morning of May 28 with the consulting engineers, the evaluation team visited the following subprojects in the afternoon of May 28 and the morning of May 29:

Order of Visit	Subproject	Date Visited
1	Antigua Grammar School	May 28
2	All Saints Health Center	May 28
3	Liberta Primary School	May 28
4	Lower Freemans and Certv Hill Farmer Storage Facilities	May 28
5	Cedar Grove Health Clinic	May 28
6	Mental Hospital	May 28
7	Fiennes Institute	May 29

Descriptions

The work at Antigua Grammar School consisted of minor rehabilitation of existing facilities plus construction of a 1,200 square foot one-story concrete block-stucco extension to the existing science laboratory and the construction of a new 1,450 square foot concrete block-stucco workshop. The school is located in St John's.

The work at All Saints Health Center consisted of minor rehabilitation on existing facilities and a 290 square foot concrete block-stucco expansion, which included construction of new toilet facilities, examination room, consulting room, and a waiting room. The facility is situated about 5.5 miles southeast of St John's.

The work at Liberta Primary School consisted of major rehabilitation and renovation on four one-story school buildings. Walkways connect the buildings. The work included recovering the roof of all four buildings. The facility is situated about 7.5 miles southeast of St John's.

Lower Freemans and Certv Hill Farmer Storage Facilities were two of five new farmer storage facilities in five different areas of the island. Each market is a 540 square foot one-story concrete block-stucco building comprising a packing area and storage area. The evaluation team visited two of the five facilities, situated about five miles from St John's.

The work at Cedar Grove Health Clinic consisted of an expansion to an existing concrete block-stucco building, which included toilet facilities, examination room, consulting room, and waiting room. This subproject is situated about four miles northeast of St John's.

The work at the Mental Hospital consisted of major rehabilitation on the male-observation and the female-disturbed buildings plus upgrading of the entire electrical and plumbing systems. This facility is situated in St John's.

704-

The work at the Fiennes Institute consisted of extensive repairs to roof, floor, toilet facilities, and kitchen in a senior citizens residential complex that was completely run down. The facility is situated in St. John's

Subproject Selection

Most of the subprojects approved for financing in the initial allocation were selected from a list drawn up by a CDB/USAID identification team that visited Antigua in January 1984. However, a dam-cleaning and watershed improvement project, which was ranked number one on the list, was later withdrawn because of heavy rains that would have made pumping the water from the dams too expensive. In addition, the original list included no projects for Barbuda, but two projects have subsequently been approved for the island.

Most of the projects appear to have been well selected in terms of serving basic human needs. A possible exception is the extension to a primary school in Liberta where the average class size was only 22. Also, whereas the idea for the small farmer storage facilities is good, the operation of these facilities will add to the administrative and financial burden of the Central Marketing Corporation, a public authority which, according to the Minister of Agriculture, is already unprofitable.

Design Techniques and Construction Standards

Most of the subprojects involved extensive building renovation and rehabilitation. Construction of new buildings occurred only at the Antigua Grammar School and at the five small farmer storage facilities. All subproject construction was supervised by engineering consultants engaged by CDB.

Plans for the rehabilitation and extension work at the two health centers were not available. Both these jobs were awarded to private contractors selected without competitive bidding. The contract agreements for the centers did not have technical specifications attached, and the contract particulars were vague. That the amounts of funds allocated to these subprojects were small may have led to the paucity of

contract documentation involved. However, it should be standard practice that detailed general conditions and special conditions, complete technical specifications, adequate plans, and a well-prepared bill of materials be used with private contractors regardless of the subproject's size.

Rehabilitation work was also performed by Public Works direct labor at the Fiennes Institute and the Mental Hospital. The schedule of work was formulated by an engineering consultant, but no drawings, detailed specifications, or bills of materials were available. The schedule of work for the Fiennes Institute that was formulated on July 1, 1985, stated that wooden floors were to be replaced with concrete and tile with vinyl tile. After the work began, it was decided to redo the floors in wood, rather than concrete, apparently because of difficulties in finding temporary accommodations for the elderly occupants of the buildings. However, the floors, as well as wood rails that were replaced on porches, were left unpainted. Technical specifications should have been provided to Public Works supervisors to ensure that the Public Works personnel produced a quality finished product that would withstand the test of time. Unfortunately, the work performed at the Fiennes Institute barely scratched the surface of the institution's renovation needs, a casual observer would not be immediately observe that any work had been done at all

The Mental Hospital appeared to be in better condition than the Fiennes Institute, the renovation work converted old unused buildings into serviceable facilities. Again, however, definitive plans with technical specifications and bills of materials that would clearly define the work required were not available.

The work at the Liberta Primary School consisted of extensive renovation and was performed by direct government labor. The consultant reports that once construction had started unforeseen works were considerable. Perhaps a more detailed survey of the building in the design stage together with a set of carefully prepared plans would have defined all unsatisfactory elements. At that time adjustments in funding could have been dealt with in a more effective way.

The material used for roofing at the Liberta Primary School was galvanized metal, but no provision was made for painting the roof. In the heavily corrosive conditions that exist in the Caribbean islands, galvanized roofs must be washed with

a chloride solution and painted initially to preserve longevity. In the subprojects in Belize, for example, painting of galvanized metal roofing appears to be standard practice. Public works departments in other islands, such as Montserrat, have discontinued using galvanized roofing and use aluminum treated with zinc. Dominica and Anguilla use primarily reinforced concrete roofs, which perhaps offer the most effective substitute for galvanized rusted-out roofs all across the Caribbean.

The construction of the extension to the Antigua Grammar School was awarded to two private contractors as two separate jobs. Plans, specifications, and bills of materials had been prepared, and the contractors' work was under way during the visit to the site. However, bids were apparently provided by only two contractors whereas CDB regulations required a minimum of three bids. Moreover, the two bidders, once having bid against each other, were each awarded a portion of the work. The unit prices in each contract, when extended by the appropriate quantities, come out to almost exactly the amount of the allocation.

Construction of the five small farmer storage facilities appears to be progressing well. These were bid on a competitive basis with the lowest bidders awarded contracts for the works.

Adequacy of Procurement Arrangements

In Antigua most of the work performed to date was repairs and renovations to older facilities. New galvanized roofing was purchased from a fabrication company located on the island. This procurement was directed by the government as part of Antigua's push to use local or locally fabricated materials. The Public Works Department purchased all hardwood off the shelves in St. John's.

Payments to principal contractors, petty contractors, and suppliers are apparently not being made directly from the special project account but from the public treasury after a transfer has been made from the special project account; this method results in a loss of control by the project supervisor over the performance of contractors. In addition, given the difficult financial situation of the government of Antigua, this practice could result in late payments to contractors and a subsequent reluctance on the part of the best private contractors to compete for government

contracts. The inability of the government to obtain credit for purchases created problems because the project supervisor was required by the government to deposit CDB checks directly into the general treasury. BNTF creditors may not have been paid quickly as they would have to line up behind everyone else to whom the government owed money.

There did not appear to be any tracking of USAID Code 899 and 941 procurement regulations. There was evidence that some of the construction activities were slowed as result of the unavailability of materials.

Provisions for Maintenance

Antigua has been allocated US\$ 57,300 to carry out its portion of the BNTF maintenance system development program. No funds have yet been made available, nor have any been requested. Implementation of the BNTF maintenance program in Antigua will be difficult for two reasons. First, unlike in other Eastern Caribbean islands, there appears to exist in Antigua a very low appreciation of the need for cleanliness and maintenance of public roads, grounds, and buildings, as evidenced by the garbage and litter strewn everywhere. Second, the Ministry of Public Works, which has sole responsibility for maintaining public buildings, is, despite a large maintenance staff, unable for financial reasons to meet its responsibilities adequately, as evidenced by the state of deterioration of public buildings, including its own headquarters.

The Ministry of Public Works lacks the funds, staff, and standards of work that are generally found in other Caribbean islands. A lack of sufficient working capital denies it the ability to purchase in bulk or stockpile materials. These same financial constraints keep the ministry from buying on credit. As a result, public facilities are not well maintained in Antigua.

Employment Generation

Employment data were missing from most of the project supervisor's monthly reports. The lack of data stems mainly from the difficulties encountered by the project supervisor in obtaining this information from the Ministry of Public Works.

7/1/8

which was responsible for the implementation of most of the projects. The supervisor had designed a form to help contractors and Public Works officials provide the employment information, but received little cooperation. Whatever the reason, the lack of data precluded the possibility of estimating overall labor content.

Table 11 provides estimated labor content for three subprojects on which information was available (but even on these subprojects it was necessary to extrapolate the total wage figure based on the latest month's number of person-days and amount spent on labor). The table reveals a high labor content of 48 percent and a low of 37 percent. The lowest labor content was for the Antigua Grammar School, which is the only one of the three subprojects whose construction was awarded through competitive bidding. The construction of the health center was done by contractors selected without competitive bidding, whereas the construction of the Libertá Primary School was being done by Public Works direct labor.

By special request, the project supervisor did produce figures on the direct labor and the number of youth and women employed. To date the subprojects had produced 642 person-weeks or 3,210 person-days of direct labor. The average number of persons employed during subproject construction was 71. Of this total 20 were persons under 20 years old and 3 were women.

Project Management and Reporting

The project supervisor was an able retired ex-permanent secretary who was well informed about the details of his project. His major problems stemmed from difficulties in obtaining timely information from Public Works and from an inability to control project funds directly because of the government requirement that CDB checks be transferred immediately to the public treasury once received. With the exception of the missing employment data, subproject files appeared to contain all other needed information.

The project supervisor occupied office space in the Ministry of Finance and was provided with adequate secretarial assistance. He received ECS 500 per month for use of his private vehicle for project purposes.

TABLE 11

ESTIMATED LABOR CONTENT FOR THREE PROJECTS

ANTIGUA

	<u>Direct Labor</u>		<u>Total Expenditure</u> (EC\$)	<u>Labor Content[b]</u> %
	<u>Person-Days</u>	<u>Wages[a]</u> (EC\$)		
All Saints Health Center	278	16,091	33,231	48.4
Liberta Primary School	1,189	99,533	222,576	44.7
Antigua Grammar School	177	9,004	24,502.72	36.7

a Extrapolated on basis of latest month's wages and person-days.

b Labor content = wages divided by total expenditure.

76^x

Other Comments

No list of projects had as yet been drawn up for submission under the performance program. This is due perhaps to the fact that the last three projects under the initial allocation had only recently been approved and had not yet started.

MM

BELIZEBrief Description of the Country

Located on the Central American mainland, Belize is the only non-island BNTF country. It has the largest population -- estimated at 163,000 -- but because it is also the largest BNTF country -- 22,963 square kilometers -- is the least densely populated. The topography of the country features flat mangrove swamps along the coast and low mountains in the interior. Although English is the official language, several villages in the interior are predominantly Spanish- or Mayan-speaking.

About two-thirds of the population live in rural areas and small towns. The largest city, located along the coast, is Belize City, with a population of 40,000, but the capital, Belmopan, is located in the center of the country and has a population of only 4,000.

The economy is predominantly agricultural. Principal exports are bananas, sugar, citrus fruits, clothing, lobster, and fish. Other agricultural products include rice, beans, corn, and cattle. The labor force is estimated at 48,000 of which 14 percent are unemployed. Per capita income is just under US\$ 1,000.

Use of Allocation and Status of Subprojects

Belize is the only BNTF country in which, at the time of the evaluation, the value of subproject approvals had not substantially attained the value of the allocations. Of Belize's initial allocation of US\$ 1 million, the costs of the 14 projects approved for implementation had attained only US\$ 879,000.

Belize has also been slow in the implementation of its 14 approved subprojects. Only four subprojects were complete or substantially complete, whereas seven had not yet begun. Three of the four completed projects are health centers, the other a

78X

water system in Belmopan. The three under construction include a health center, a vocational and technical center, and a water system. The projects that had not yet begun include a health center, four water systems, an extension to a primary school, and a multipurpose center.

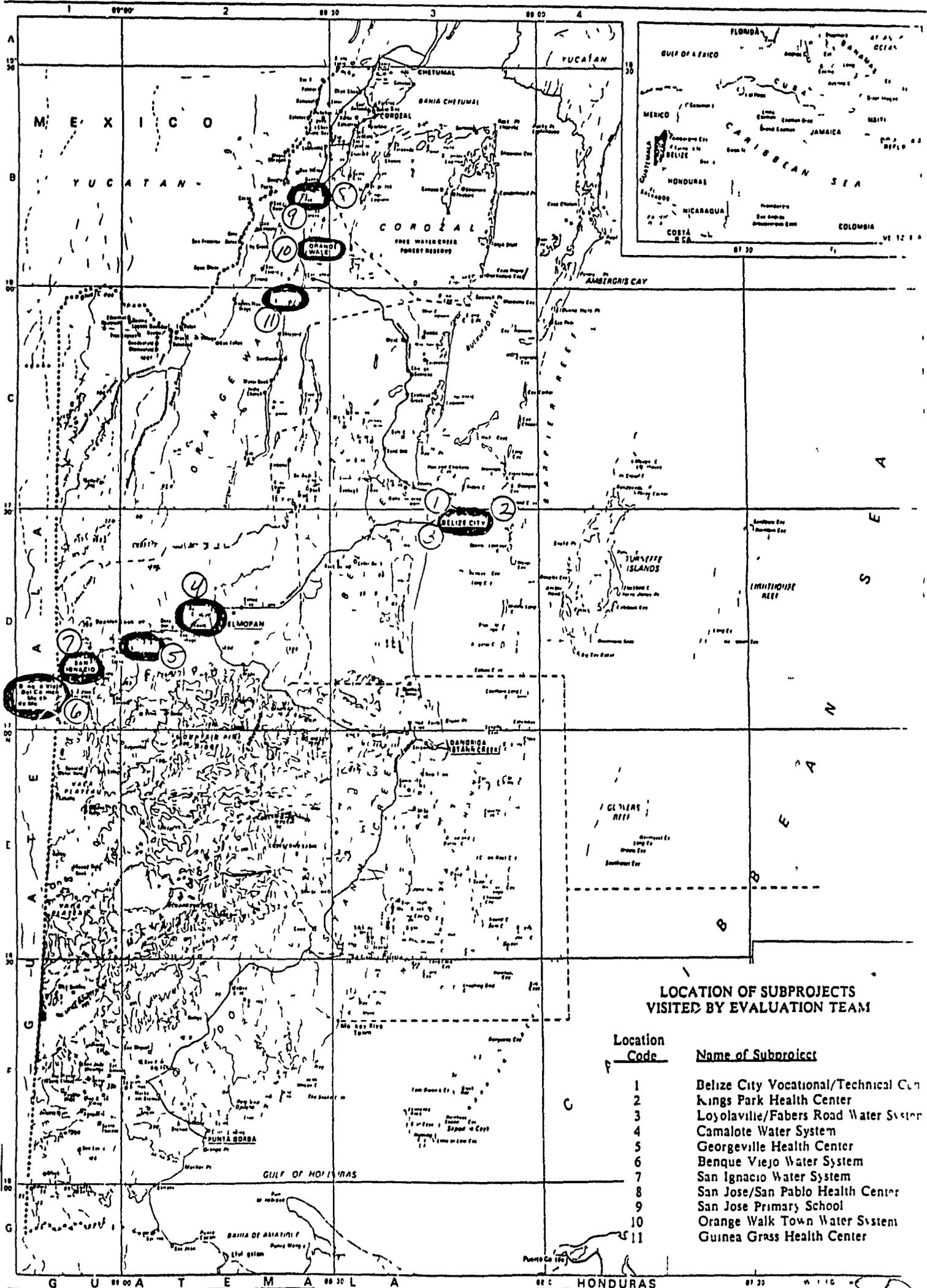
As shown in Table 12, the completed projects all took longer than was originally estimated, and revised completion dates have been entered for two of the three projects under construction. The King's Park and Sienne Bight Health Centers involved rehabilitation, whereas the Georgeville and Guinea Grass Health Centers were new structures. The designs of the new building projects visited by the evaluation team were prepared by the Ministry of Works although modifications to these designs were made by engineering consultants engaged by the CDB. The construction of all projects in Belize is being done through force account by the Ministry of Works or the Water and Sewerage Authority (WASA).

The seven and eight months that it took to complete the Georgeville and Guinea Grass Health Centers, respectively (compared with the four months projected), may be contrasted to the three months it took to complete similar structures in Anguilla. In a note to Table 12, which was prepared by the Belize project supervisor, he explained that the reason for the consistent difference between the projected completion date and the revised completion date is that the engineering consultants, who had prepared the plans and work schedules, were "accustomed to working with private sector contractors and [were] not familiar with the slow pace at which government workers in the public sector perform their daily tasks."

Subproject Visitation Schedule and Description of Subprojects Visited

Schedule

On June 9 the team discussed the subproject profiles, monthly reports, construction plans, and general correspondence with the project supervisor. In addition, meetings were held with engineering consultants, WASA, and other involved contractors and government officials. On June 10, the team discussed the status of the subprojects with government officials in Belmopan. On June 9-11, the team visited the following subproject sites:



LOCATION OF SUBPROJECTS VISITED BY EVALUATION TEAM

Location Code	Name of Subproject
1	Belize City Vocational/Technical Cn
2	Kings Park Health Center
3	Loyolaville/Fabers Road Water System
4	Camalote Water System
5	Georgeville Health Center
6	Benque Viejo Water System
7	San Ignacio Water System
8	San Jose/San Pablo Health Center
9	San Jose Primary School
10	Orange Walk Town Water System
11	Guinea Grass Health Center

80

TABLE 12

COMPLETION DATE OF BNTF SUBPROJECTS AND PROJECTED PERSON WEEKS OF EMPLOYMENT -- BELIZE

	Kings Park Health Center	Georgeville Health Center	Sienna Bight Health Center	Guinea Grass Health Center	Vocational Technical Center	Comolote Water System (Belmopan)	Loyolaville/ Fabers Road Water System (Belize City)
Commencement Date	Oct. 15, 1985	Oct. 15, 1985	Oct. 15, 1985	Oct. 15, 1985	Oct. 15, 1985	Oct. 21, 1985	Oct. 21, 1985
Projected Completion Date	Jan. 15, 1986	Feb. 14, 1986	Jan. 15, 1986	Feb. 14, 1986	May 15, 1986	Jan. 18, 1986	June 30, 1986
Revised Completion Date	Mar. 31, 1986	May 31, 1986	Feb. 21, 1986	June 30, 1986	July 17, 1986	Feb. 28, 1986	June 30, 1986
Projected Person Weeks employment	100 Weeks	150 Weeks	170 Weeks	382 Weeks	1,500 Weeks	25 Weeks	400 Weeks

81 X

Order of Visit	Subproject Description	Date Visited
1	Belize City Vocational Technical Center	June 9
2	Kings Park Health Center	June 9
3	Loyolaville/Fabers Road Water System	June 9
4	Camalote Water System	June 10
5	Georgeville Health Center	June 10
6	Benque Viejo Water System	June 10
7	San Ignacio Water System	June 10
8	San Jose/San Pablo Health Center	June 10
9	San Jose Primary School	June 11
10	Orange Walk Town Water System	June 11
11	Guinea Grass Health Center	June 11

Descriptions

The Belize City Vocational Technical Center consists of a new 6,625 square foot partial two-story and partial one-story concrete block-stucco building comprising classrooms, workshops, a library, offices, a faculty lounge, and toilet facilities.

The work on the Kings Park Health Center involves rehabilitation of an existing two-story concrete block-stucco building, including raising the floor (because of localized flooding). The building is in Belize City

The Loyolaville/Fabers Road Water System subproject consists of the installation of approximately 7,000 linear feet of 6-inch PVC pipe, 13,500 linear feet of 3-inch PVC pipe, and 4,000 linear feet of 0.5-inch PVC pipe together with necessary fittings, valves, and saddles. This subproject is located on the outskirts of Belize City

The Camalote Water System subproject consists of the installation of about 12,500 linear feet of 4 inch potable water lines from Roaring Creek Village to the Village of Camalote along the Western Highway. A small pump station is included. This subproject is located just west of Belmopan.

The Georgeville Health Center is a 1,165 square foot two-story concrete block-stucco building consisting of a health clinic downstairs and a two-bedroom nurse's residence upstairs. The health clinic has a waiting room, examination room, delivery room, and dispensing and toilet facilities. The subproject is located just outside the village of Georgeville, approximately 12 miles west of Belmopan.

The Benque Viejo Water System subproject consists of installation of 6,000 linear feet of 3-inch PVC and 2,000 linear feet of 0.5-inch PVC potable water line together with the necessary fittings, valves, and hydrants to serve a settled area without water in Benque Viejo Village, situated about one mile from the Guatemala border.

The San Ignacio Water System subproject consists of installation of 9,000 linear feet of 3-inch PVC and 2,000 linear feet of 0.5-inch PVC potable water pipe together with the necessary fittings and valves to serve a settled area without water in San Ignacio Village. This subproject site is situated about 25 miles southwest of Belmopan.

The San José/San Pablo Health Center is a 1,165 square foot two-story building that will be almost a replica of the one built at Georgeville. The building will be located midway between the village of San José and San Pablo, approximately 66 miles north of Belize City.

The San José Primary School subproject consists of reconstruction of an extension to a building that had been started by a local village group. The building was built without plans and is being redesigned by a professional engineer to use the existing facilities wherever possible. The building is situated in the village of San José, approximately 64 miles north of Belize City.

834

The Orange Walk Town Water System subproject consists of installation of 1,960 linear feet of 3-inch PVC and 1,000 linear feet of 0.5-inch potable water pipe together with the necessary fittings, valves, and fire hydrants to extend water along two streets on the outskirts of Orange Walk Town, situated approximately 65 miles north of Belize City.

The Guinea Grass Health Center is a 1,165 square foot two-story building that is almost a replica of the one built at Georgeville. The building is in the village of Guinea Grass, located off the main northern road about 65 miles north of Belize City.

Subproject Selection

Almost all of the subprojects eventually funded figured on the original list submitted by the government and the subsequent CDB list rank ordered by MUA. The subprojects were well dispersed geographically and demographically, the health clinics, in particular, demonstrated good locational analysis and land use planning.

The subprojects appear to have been well selected originally in terms of basic human needs. However, the plans for at least one water project that has not yet begun duplicates distribution lines already in the ground, and this may be true for other water subprojects as well.

Design Techniques and Construction Standards

The five water systems were all designed by WASA and are being built using WASA direct labor. The construction plans that were available were extremely sparse; streets were not labeled, dimensions were not available, and houses were not located.

WASA was unable to provide to the evaluation team any plans or maps of its existing water systems or of proposed extensions; knowledge of the locations of some existing pipe lines was kept only in the heads of certain individuals; responsibility for the preparation of plans for new systems rested mainly with technicians from Canada

Two water subprojects appeared to be duplicating distribution lines already in the ground, in Orange Walk, a 4-inch distribution pipe had already been laid along part of the route of an approved BNTF subproject that, fortunately, had not yet begun. Some houses along the routes of proposed pipelines were already serviced or had service prior to the proposed installation of subproject water lines. This may have been accomplished by the property owners installing lines themselves without the knowledge of WASA. Apparently, WASA will now propose alternative water distribution sites to the CDB.

The apparently ineffective manner in which WASA was managed was due in part to the unavailability of trained engineers and utility administrators. There were only three graduate engineers in WASA, and they had the responsibility for the entire country. It may also have been due in part to the fact that WASA was running a large recurrent deficit (with no subsidy from government) and had little planning and design capability. For these reasons, the preparation of plans for the BNTF water systems should have been placed in the hands of private engineering consultants. Every effort must be made under the performance program to ensure that consulting services are provided to WASA prior to the allocation of any further funds for water works.

The building subprojects were all designed by the Ministry of Works with modifications by engineering consultants. Construction was carried out by Ministry of Works direct labor. The four health center sites visited were all well located relevant to the spatial distribution of the population to be served. The two new health centers that had been completed but not occupied were examples of high quality design and construction. These health centers had been designed by local consultants and contained advantageous features. The buildings were structurally sound, functionally correct, and aesthetically pleasing. Some outstanding features included

55X

- c Soffit vents for roof ventilation,
- Gutters draining into water storage tanks;
- Considerable set backs from the main road;
- Painted galvanized roofs; and
- Reinforced concrete exterior stairs

In particular the Georgeville Health Center was sited so that it had an excellent view of the surrounding countryside. The entire standard of a community is raised when public buildings are sited with care.

The Kings Park Health Center is a problem left over from a prior era. When the building was built in 1959, it was situated in a very low site subject to constant flooding. One work element of this subcontract raised the floor, but the building's floor level is still considerably below the adjacent roadway. Thus it is anticipated that this remedial effort will do little to solve the flooding problem in the near future.

The one school under construction was the Belize City Vocational Technical Center. This was effectively designed by an engineering consultant and is being built by direct government labor. The construction methods and materials and workmanship appear adequate. However, the subproject is moving ahead more slowly than anticipated. Building construction by the Public Works Department in Belize takes a long time to complete, especially compared with the construction of similar buildings by private contractors in the Eastern Caribbean, in particular, the amount of labor used in subprojects has far exceeded projections. The Vocational Technical Center will probably run over the Public Works Department estimate of BZ\$ 459,356 and may well run over the allocation of BZ\$ 600,000.

Adequacy of Procurement Arrangements

Only 7 of the 14 projects in Belize had begun, and only about one-third of the country's allocation had been expended at the time the evaluation team visited Belize.

The major subproject expenditure (the Belize City Vocational Technical Center) had not yet proceeded beyond the block, mortar, and concrete stage. Thus foreign procurement was not yet a major problem. However, there were procurement delays on the Vocational Technical Center because of logistical red tape within the Public Works Department. Material was not being delivered in an efficient and timely manner. The procurement regulations that permitted the job site foreman to order only small amounts of materials at a time have created delays because of periodic materials shortages on site.

There is also a problem of distance in Belize that is not prevalent in the Eastern Caribbean island countries. In Belize, Public Works headquarters are geographically disbursed throughout the country with each district procuring on an individual basis.

There does not appear to be much new construction under way in Belize and therefore foreign materials were not readily available. Most manufactured materials are ordered directly from U.S. sources.

The project supervisor was tardy in submitting reimbursement requests to the CDB on several occasions with the result that the initial CDB advance was not sufficient to keep subprojects moving. Subprojects require timely payment requests. If the BNTF bank account runs out of funds, construction work will stop quickly, since development funds are not available from the public treasury.

The project supervisor was aware of USAID Code 899 and 941 procurement regulations and assured the team that Belize was in compliance.

Provisions for Maintenance

In Belize the Ministry of Works is responsible for all maintenance. The country is divided into districts with Ministry of Works employees in each district operating independently of one another even to the point of having separate checking accounts for each district. This carries back to the not-to-distant past when the road system

874

was virtually non-existent and communications between districts was difficult. Similarly, WASA is responsible for developing and maintaining the water supply throughout the entire country. It also has separate district offices.

Belize is a country of two different worlds. One is Belize City, in which little effort has been made over the years to maintain public buildings, roads, drains, and housing properly. Belize City also suffers from periodic flooding, and for this reason, the capital was moved 46 miles west to Belmopan, which represents the delightful other world in the country.

Maintenance within Belize City will be difficult. A prime example is the Belize City Kings Park Health Center. This building, which was built in 1959 in a very low area, had considerable garbage and debris (including a junked car) in the yard when the evaluation team visited the site. This presented a poor example of cleanliness and maintenance of a public health facility and an indication that maintenance at this building site could be a problem in the future.

In the village of Camalote near Belmopan, by contrast, the BNTF water line served residential houses that were old but well painted. In visiting the villages of Benque Viejo, San Jose, and Guinea Grass, the evaluation team found the same positive attitude toward maintenance. In one school near the proposed San Jose/San Pablo Health Center, the building was well maintained. The community assisted in building an extension to a school with its own funds. Communities have assisted with painting and have volunteered time and materials to repair public buildings. In the schools, teachers and students participate in routine cleaning.

Belize has approximately US\$ 57,300 allocated to it to carry out its portion of the maintenance systems development program. No funds have yet been spent on this program. A county maintenance committee is in the formative stages and as such may soon start to request funds from CDB to prepare the country-wide maintenance plan.

There did appear to be a special effort to use low maintenance materials in construction. Building roofs were painted, and aluminum was used wherever possible.

Employment Generation

The project supervisor in Belize had perhaps the most reliable set of employment data of all the BNTF countries. This was because he was obtaining actual payroll sheets from the Ministry of Works and from WASA as back-up documents to claims for payment. The project supervisor had recently devised his own form to help in the collection of employment data, but the form was not yet in use (see Annex 7). Thus, even for Belize, it was necessary to extrapolate from the most recent monthly data to arrive at cumulative expenditures on wages because this information is missing on the BNTF reporting form.

Through April 1986, the project supervisor reported that the seven subprojects completed or under construction had generated 8,807 person-days of direct labor. He also calculated that 150 person-days of indirect employment had been created in four of the subprojects, no indirect employment data were provided for the other three subprojects. No women were employed on any of the subprojects and only one man under age 20.

When the Belize subprojects were submitted for approval, labor content was systematically estimated at 40 percent for the building subprojects and 30 or 35 percent for the water systems. These estimates roughly paralleled the estimates for subprojects in the Eastern Caribbean countries. Table 13 provides estimates of actual labor content for six of the seven projects completed or under construction. As can be seen, the average labor content -- 22.5 percent -- is considerably below the projections. The probable explanation for this is a failure to take into account the low wage rates in Belize. Whereas in the Eastern Caribbean a skilled tradesman earns approximately ECS 50 per day and a laborer ECS 25 per day, in Belize a tradesman earns a top wage of approximately the equivalent of ECS 27 (BZ\$ 20) per day, and a laborer a top wage of about ECS 18 (BZ\$ 13) per day.

TABLE 13
LABOR CONTENT -- BELIZE

<u>Subprojects (a)</u>	<u>Direct Labor</u>		<u>Total Construction Expenditure (BZ\$)</u>	<u>Labor Content (e)</u>
	<u>Person Days</u>	<u>Wages (BZ\$)</u>		
Rehabilitation and Extension Subprojects (2)	3,206	52,642 (b)	236,033	22.3
New Health Clinics (2)	2,976	57,670 (c)	230,866	25.0
Water Systems (2)	1,251	38,831 (d)	194,514	20.0
Total	7,513	149,143	661,143	22.6

Notes:

- a Includes six of the seven projects under construction or completed.
- b Estimate based on a calculation of the average daily wage for April 1986 (BZ\$ 16.02).
- c Estimates based on a calculation of the average daily wage for April 1986 (BZ\$ 20.77 and BZ\$ 17.35).
- d Estimate based on a calculation of the average daily wage for April 1986 (BZ\$ 31.04) for the Belize City water system
- e Wages divided by total expenditure.

OB

Project Management and Reporting

The project supervisor was a retired civil servant who was an able and dedicated individual. The supervisor was faced, however, with several difficulties in performing his job.

The project supervisor's office was located in Belize City whereas government offices, including that of the official government correspondent for BNTF and the Ministry of Works, was located in Belmopan. The supervisor had no secretarial assistance and no photocopying service readily available. The evaluation team, in fact, had to make photocopies of his documents in Belmopan. The government had placed an official vehicle at the supervisor's disposal but had only recently begun providing him with an allowance to defray transportation expenses, a situation that made visitations to subproject sites (many of which were in remote locations) a financial and logistical hardship.

During one three-month period, the project supervisor had not submitted any reimbursement claims to CDB, this may be a partial explanation for some of the delays in project progress. The supervisor also had no copies of the original subproject profiles in his files, making it difficult for key project personnel to appreciate fully the subprojects' social and engineering objectives.

Other Comments

No list of projects for financing under the performance program was available, indeed, the director of economic development, who was the official government of Belize BNTF correspondent, was not aware that additional funds would be available. Belize has an enormous need for additional BNTF-type funds, but it is not clear how quickly the government can provide a list of additional projects.

DOMINICA

Brief Description of the Country

Dominica is the northernmost and largest of the Windward islands with an area of 753 square kilometers. The topography of the island is dominated by a series of rugged mountains, the highest of which is 1,380 meters, as well as abundant rivers and streams. The rich volcanic soil produces a wide variety of agricultural products, especially fruits.

The population, estimated at 80,000 in 1980, resides mostly in the countryside and depends on agriculture for a livelihood. Dominica is the home of the only surviving group of Carib Indians in the Windward chain, and a large reserve has been set aside for the approximately 1,500 Caribs. The largest town in Dominica is the capital, Roseau, with a population of 10,000.

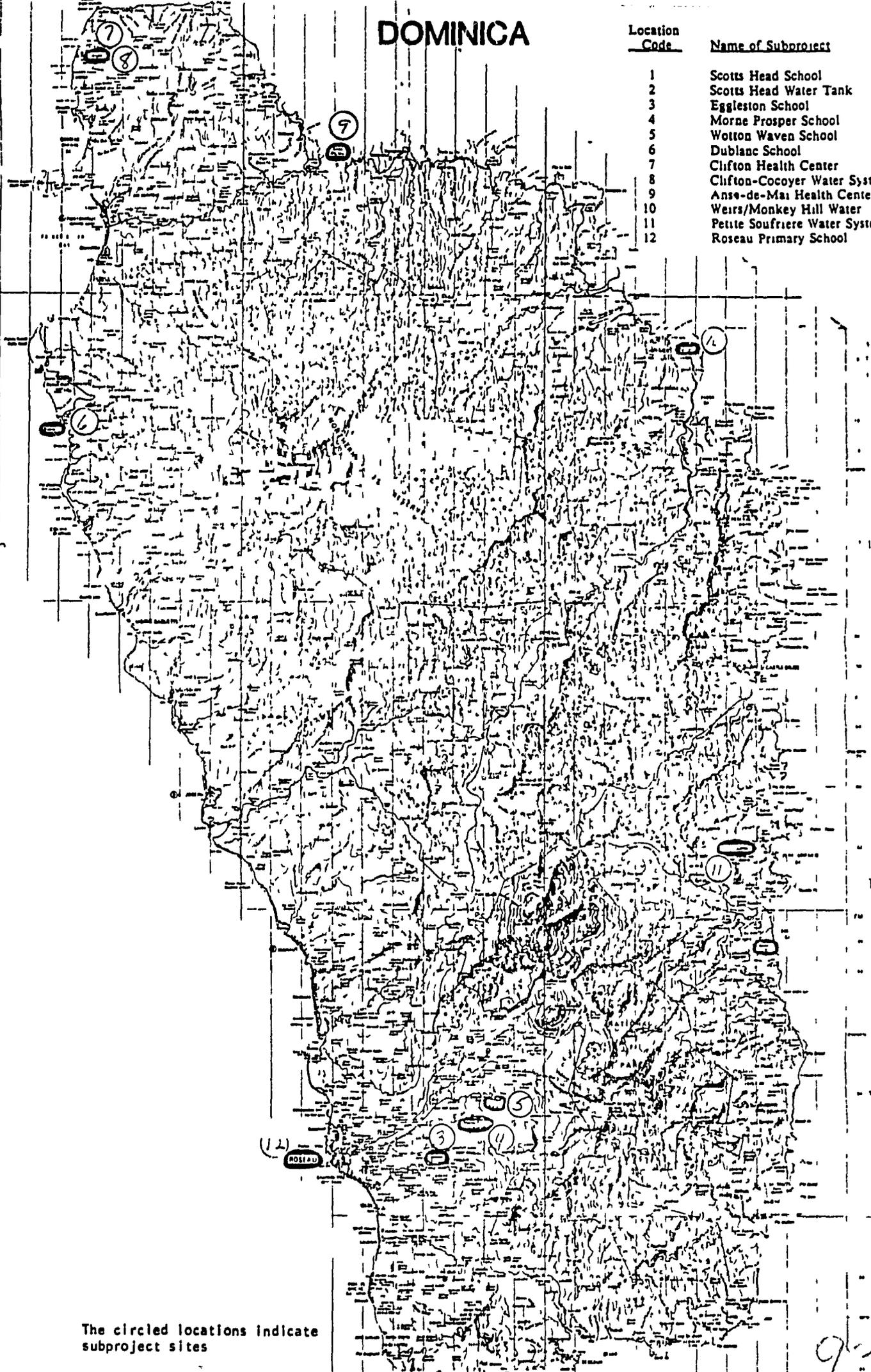
The dominant economic sector in Dominica is agriculture, which provides employment to 40 percent of the population. The principal export is bananas. Gross domestic product (GDP) per capita was estimated in 1979 to be only US\$ 460. However, according to the Prime Minister's 1986 budget address, from 1980 to 1984 real GDP grew rapidly, inflation decreased from 30 percent to 2 percent, and unemployment decreased from 23 percent to 13 percent. According to the CDB Annual Report for 1985, GDP per capita in 1984 was US\$ 1,105.

Use of Allocation and Status of Subprojects

Of Dominica's allocation of US\$ 1 million, US\$ 991,950 has been committed to 15 projects: six schools, four health centers, and five water systems projects. At the time of the evaluation, six projects had been completed, four had begun and were in various stages of construction, and five had not yet begun. About 35 percent of the allocation had been spent by the end of April 1986. With the exception of one water system project, all construction was being carried out by private contractors selected through competitive bidding.

DOMINICA

Location Code	Name of Subproject
1	Scotts Head School
2	Scotts Head Water Tank
3	Eggleston School
4	Morne Prosper School
5	Wotton Waven School
6	Dublanc School
7	Clifton Health Center
8	Clifton-Cocoyer Water System
9	Anse-de-Mai Health Center
10	Weirs/Monkey Hill Water
11	Petite Soufriere Water System
12	Roseau Primary School



The circled locations indicate subproject sites

93

Almost all the projects are well behind the originally proposed schedules although some individual contractors are not much behind the schedules in their contracts. Reasons for the delays include the large number of projects, the relatively large size and logistics difficulties of the mountainous terrain in Dominica, and procurement difficulties resulting from the shortage of materials or delays in the delivery of materials to sites.

Subproject Visitation Schedule and Description of Subprojects Visited

Schedule

The team arrived in Dominica on the afternoon of May 22. On the morning of May 23, a meeting was held with the project supervisor to discuss the spatial distribution, design, and construction status of each subproject and to review subproject profiles, monthly project reports, construction plans, specifications, contract documents, and general file correspondence. The subprojects visited by the evaluation team in the afternoon of May 23 and on May 26 were as follows:

Order of Visit	Subproject	Date Visited
1	Scotts Head School	May 23
2	Scotts Head Water Tank	May 23
3	Eggleston School	May 23
4	Morne Prosper School	May 23
5	Wotton Waven School	May 23
6	Dublanc School	May 26
7	Clifton Health Center	May 26
8	Clifton-Cocoyer Water System	May 26
9	Anse-de Mai Health Center	May 26
10	Weirs/Monkey Hill Water	May 26
11	Petite Soufriere Water System	May 26
12	Roseau Primary School	May 26

Descriptions

The Scotts Head School consists of construction of a new concrete block-stucco second story on top of an existing one-story primary school. This subproject is situated in the village of Scotts Head at the southern tip of Dominica about 10 miles south of Roseau on the leeward coast.

The work on Scotts Head Water Tank involves construction of a 3,000-gallon reinforced concrete-water storage tank and a small pumping station to supply potable water to the Scotts Head School.

The Eggleston School subproject consists of construction of a two-room concrete block school to replace one that was destroyed in the 1979 hurricane. Eggleston is located about six miles east of Roseau.

The Morne Prosper School consists of construction of a 2,420 square foot single-story new concrete block building in the Village of Morne Prosper. This subproject is situated about three and one-half miles east of Roseau.

The Wotton Waven School consists of construction of a new 666 square foot one-room concrete block-stucco school building with a new concrete roof situated in the mountain settlement of Wotton Waven. This subproject is situated approximately three miles west of Roseau.

The Dublanc School consists of construction of a new 2,400 square foot one-story concrete block-stucco school building comprising five classrooms, toilets, and a staff room in the vicinity of the village of Dublanc. This subproject is situated about 26 miles north of Roseau on the leeward coast.

The Clifton Health Center consists of construction of a 1,350 square foot concrete block-stucco, one-story building with a reinforced concrete roof on the leeward coast. This subproject is located in the village of Clifton about six miles north of the town of Portsmouth.

The Clifton-Cocover Water System consists of construction of a gravity water supply system that includes an intake structure, 4,100 feet of 3-inch supply line, a 5,000 gallon tank, two 3,000 gallon break pressure tanks, and distribution lines. This subproject is situated adjacent to the health center listed above.

The Anse-de-Mai Health Center consists of construction of a pre-fabricated health clinic consisting of a two-bedroom residence in one building (for the nurse) and a second building that provides a doctor's office, an examination room, a treatment room, a records room, and a waiting area. This subproject is situated on the windward coast approximately 10 miles west of Portsmouth.

The Weirs/Monkey Hill Water System consists of construction of a pump station, pumping lines, a 15,000 gallon storage tank, and distribution lines. This subproject is situated in a settlement on the east (windward) coast of Dominica approximately one and one-half miles south of the Melville Hall Airport.

The work on the Petite Soufriere Water System involves construction of an intake at a spring, 1830 feet of 2-inch supply pipe, a 5,000 gallon reinforced concrete storage tank, 800 feet of 2-inch and 3550 feet of 1-inch distribution lines. This subproject is situated in the settlement of Petite Soufriere on the windward coast.

The Roseau Primary School subproject consists of construction of a new concrete block-stucco primary school in Roseau adjacent to the Botanical Gardens. This subproject will consist of seven classrooms, offices, and rest rooms in four separate buildings.

Subproject Selection

The selection of projects occurred in several stages. The identification team and the government of Dominica put together an original list of 34 projects, with a total value of US\$ 35 million and rank ordered by utility value. In May 1984, the

project supervisor proposed 14 projects from this list to the Prime Minister, who approved their submission to the CDB. Ten of these projects were ultimately selected for implementation, with five others, all but one from the original list, added later

The geographic dispersion of the subprojects suggests that a conscious attempt was made to meet the needs of populations in all corners of the island. Since several projects had not yet started, it was difficult to make a judgment about their ultimate use, but the projects that had started or were complete appeared to have been well selected in terms of meeting the needs of the communities they would serve.

Design Techniques and Construction Standards

Dominica was the only BNTF country that used private consultants to design its four water systems, and these designs were the most complete that the evaluation team saw in the BNTF countries. The water tanks under construction were well-designed reinforced concrete structures. Such tanks are far superior in resisting the corrosive effects of salt air than steel tanks such as those used in St. Lucia although they are more expensive than the hydroglas tanks used in Montserrat. (See Annex 9 for a discussion of hydroglas tanks.)

The evaluation team was not able to visit the water intake location at Clifton to inspect the nature of the stream bed, but was told that no plans had been made for a check dam upstream of the intake. The nature of the conglomerate geological stratum throughout Dominica virtually requires that provisions be made for impeding moving boulders upstream of intake structures. In St. Vincent a subproject at John Hill involves building such a check dam because of boulder damage to the intake during a major storm in 1981.

All eight building subprojects visited were also designed by engineering consultants. In addition to their design work, the consultants had prepared highly detailed tender reports that demonstrated excellent analytic judgment in determining

to whom contracts should be awarded. The engineering consultants appeared also to be doing an excellent job in observing construction activity and in ensuring that the projects were built in full accord with plans and specifications.

The engineering designs demonstrated a concern for lowering life-cycle costs through the use of low maintenance materials. The use of concrete roofs, exposed wiring, and open blockworks on edge (to allow air to flow through) are all important low maintenance devices. The schools at Dublanc and Scotts Head were excellent examples of the utilization of low maintenance materials in harmony with a desirable, functional, and aesthetically pleasing facility. The construction standards observed in Dominica demonstrated an advanced level of construction sophistication. The workmanship on the buildings was of high quality. Walls, roofs, cantilevered overhangs, and floors all demonstrated a desire to build structurally sound buildings with a high quality level of finish.

Adequacy of Procurement Arrangements

Dominica is one of the more efficient countries operating under the BNTF project. All design and construction work was performed by the private sector using established contractors who purchased their own materials. Their logistical lines of supply were well established. One contractor on the Dublanc School had contacts in England that assisted him in his procurement activities. Most materials were purchased from the United States or Puerto Rico. Cement was obtained from Barbados. There appeared to be no problem with Dominica meeting the USAID Code 899 and 941 procurement regulations.

Provisions for Maintenance

Dominica has several completed projects that are not yet in service. Therefore, maintenance of these facilities cannot be evaluated at this time. The formative meeting of Dominica's country-wide maintenance committee was held while the evaluation team was visiting the island. Dominica should receive approximately US\$ 57,300 to spend on its portion of the US\$ 650,000 maintenance systems development portion of the BNTF project.

984

In Dominica responsibility for maintenance is divided between ministries. In the Ministry of Education and Health, permanent secretaries for education and health are responsible for the maintenance of their respective facilities. Education has been maintaining its own buildings for a number of years but Health assumed this responsibility only in 1985. Both these ministries appear to be adequately maintaining the current inventory of buildings. The 1986 allocations for building maintenance are higher than those for 1985.

The Central Water Authority (CWA) is currently undergoing changes in organization and is having difficulties finding qualified engineering personnel to attend to the maintenance of its wide-spread and isolated systems. CWA's Maintenance Department is headed by a maintenance officer. The island has been divided into eight water areas with six crews serving these areas. Each crew has eight men. Despite staffing problems, the CWA appears to be well organized and apparently operates a well-maintained water system.

The evaluation team visited the Savanne Paille Primary School that was evaluated in June 1985 as part of the BHN project. Repairs have been made to a wall leak that had occurred as a result of driving rain on the end of the building. A sign on one door encouraged routine preventive maintenance.

Employment Generation

The employment data in Dominica are considered unreliable. The project supervisor was making a conscientious attempt to obtain good employment data. He made regular visits to project sites and had written notes to contractors reminding them of their obligation to provide these data. To date, however, he had met with little success.

Ten projects were complete or under construction in Dominica. Of these ten, six had reasonably complete employment data in the latest monthly reports examined by the evaluation team (although even on these six the key figure of cumulative amount spent on wages to date was missing -- as it was in the other countries -- because the form did not have a line for this figure). However, the figures in at least two of these six reports are not credible. In the March 1986 report on

construction of the Scotts Head School, for example, it was reported that 84 person-days of labor had been utilized and that the amount spent on wages for the month was EC\$ 7,995. This would yield an average daily wage per worker of EC\$ 95, which is about four times greater than the prevailing wage rate. By contrast, the most recent monthly report for the Petite Savanne Water Supply Project reported that 100 person-days of labor had been expended and that the wages paid for the month was EC\$ 739. This would yield an average daily wage per worker of only EC\$ 7, which is about four times less than the prevailing wage rate

An analysis of the data on the other four projects -- Dublanc School, Eggleston School, Wotten Waven School, and Clifton-Cocoyner Water System -- revealed average daily wage rates ranging from EC\$ 25 to EC\$ 34 -- which closely correspond to actual wage rates in Dominica, about EC\$ 15-20 for a laborer and SEC 40-45 for a tradesman. The data further revealed that labor content on these four projects ranged from 33 percent to 59 percent with a four project average of 39 percent. This seems like a reasonable figure, but, given the data problems in the other projects mentioned above, some skepticism must be registered even of these results.

One reason for the difficulty in obtaining reliable employment data in Dominica is that contractors themselves are not accustomed to keeping accurate time-sheet records. Many Dominican building contractors do contracting work only part-time, their principal income comes from farming or some other pursuit. Many do not have offices and do not, therefore, employ clerical staff to keep records for them. These circumstances have not, as reported above, kept them from doing good construction work, but have made it difficult for the project to obtain good employment data.

Project Management and Reporting

The project supervisor is a retired permanent secretary who occupies an office in the main government building. He appears to be adequately provided with secretarial and other office assistance. In addition to his salary, he received EC\$ 1,000 per month to defray the expenses of using his personal vehicle to visit project sites.

100X

Beyond the employment data reporting mentioned above, there appeared to be no salient management problems in Dominica

Other Comments

Dominica has fallen behind most of the other islands in its implementation schedule, but much of this is due to understandable logistical difficulties inherent in a poor country with a rugged terrain. At the Dublanc School, for example, there was no water so that the contractor had to truck water in to mix cement. On the day of the evaluation team's visit, the site of the Clifton-Cocoyer Water System intake was inaccessible to the evaluation team as a result of a heavy rainstorm

Dominica may be classified as among the needier of the BNTF countries. It has one of the lowest per capita incomes, many villages are still without piped water, and the hurricanes of 1979 devastated many of the country's buildings. Although no list of projects under the performance program had yet been drawn up, Dominica should have little problem in doing so

GRENADA

Brief Description of the Country

Grenada, the southernmost of the BNTF islands, has a total area, including the main island and dependent islands (Carriacou, Petit Martinique, and others), of 344 square kilometers. Its topography features a hilly spine, the highest elevation of which is the extinct volcano Mount St Catherine (840 meters), and a small flatland area in the south

In 1985 the estimated population was 95,000. The largest town is the capital, St. George's, with a population of 31,000. Other population centers are the towns of Victoria (6,500) Grenville (6,000), Gouyave (5,000), and Sauteurs (3,000), all located along the coast

In 1984 GDP per capita at current prices was US\$ 938. The Ministry of Finance reports that inflation has decreased steadily over the last five years, from 21.2 percent in 1980 to only 2.5 percent in 1985.

The economy is largely agricultural. Principal exports are bananas, cocoa, nutmeg, mace, and other spices. Grenada is, in fact the world's third leading producer of nutmeg and mace -- thus its nickname, the Spice Island.

According to a report of the National Economic Council, entitled "National Development Strategies" (November 1985), Grenada had a labor force of 28,000. Of this total 8,700 (31 percent) were employed by the public sector, an estimated 6,700 (24 percent) in agriculture, 3,100 (11 percent) in the commercial sector and in personal services, 1,100 (4 percent) in tourism, and 1,400 (5 percent) in manufacturing. This would leave about 7,000 persons, or 25 percent of the labor force, unemployed. The CDB Annual Report for 1985 places unemployment in Grenada at 28 percent.

102^x

Use of Allocation and Subproject Status

To date, the CDB has approved five subprojects for Grenada with a total cost US\$ 978,400, 98 percent of the country's initial allocation of \$1 million. Two of the projects are for the refurbishment and expansion of water systems serving the towns of Gouyave and Victoria. A third project is for the refurbishment and expansion of a hospital. A fourth project is for the renovation of a primary school on the island of Carriacou. The fifth project is for afforestation of a watershed that provides the source of water for St. George's and much of the southern part of the country.

Implementation of all five projects has begun. None is completed. As shown on the map, four projects are located in different places on the island of Grenada and one on Carriacou. This spatial distribution, as well as the variety in the type of subprojects, ensures that a wide cross-section of the Grenadian population is being served.

Table 14 shows the current status of the five projects. The two building subprojects and the afforestation subproject are being implemented according to schedule. The delays in the water systems subprojects stem from tardiness in satisfying conditions precedent to first disbursement (acquisition of the land) and from other mobilization difficulties of the Central Water Commission (CWC).

Subproject Visitation Schedule and Description of Subprojects Visited

Schedule

The evaluation team arrived in Grenada on Sunday evening May 11. On May 12 meetings were held with the project supervisor, CDB engineering consultants, and a staff member of the CWC to discuss the spatial distribution, design methodology, and construction status of the subprojects. Subproject profiles, monthly project reports, construction plans, specifications, contract documents, and general file correspondence was reviewed. The subproject sites visited by the evaluation team on May 3 and May 14 were as follows:

GRENADA

LOCATION OF SUBPROJECTS VISITED BY EVALUATION TEAM

Location Code	Name of Subproject
1	Annandale Watershed Improvements
2	Princess Alice Hospital
3	Tufton Water System
4	Dougaldston Water System
5	Dover Primary School (on island of Carriacou -- not shown)

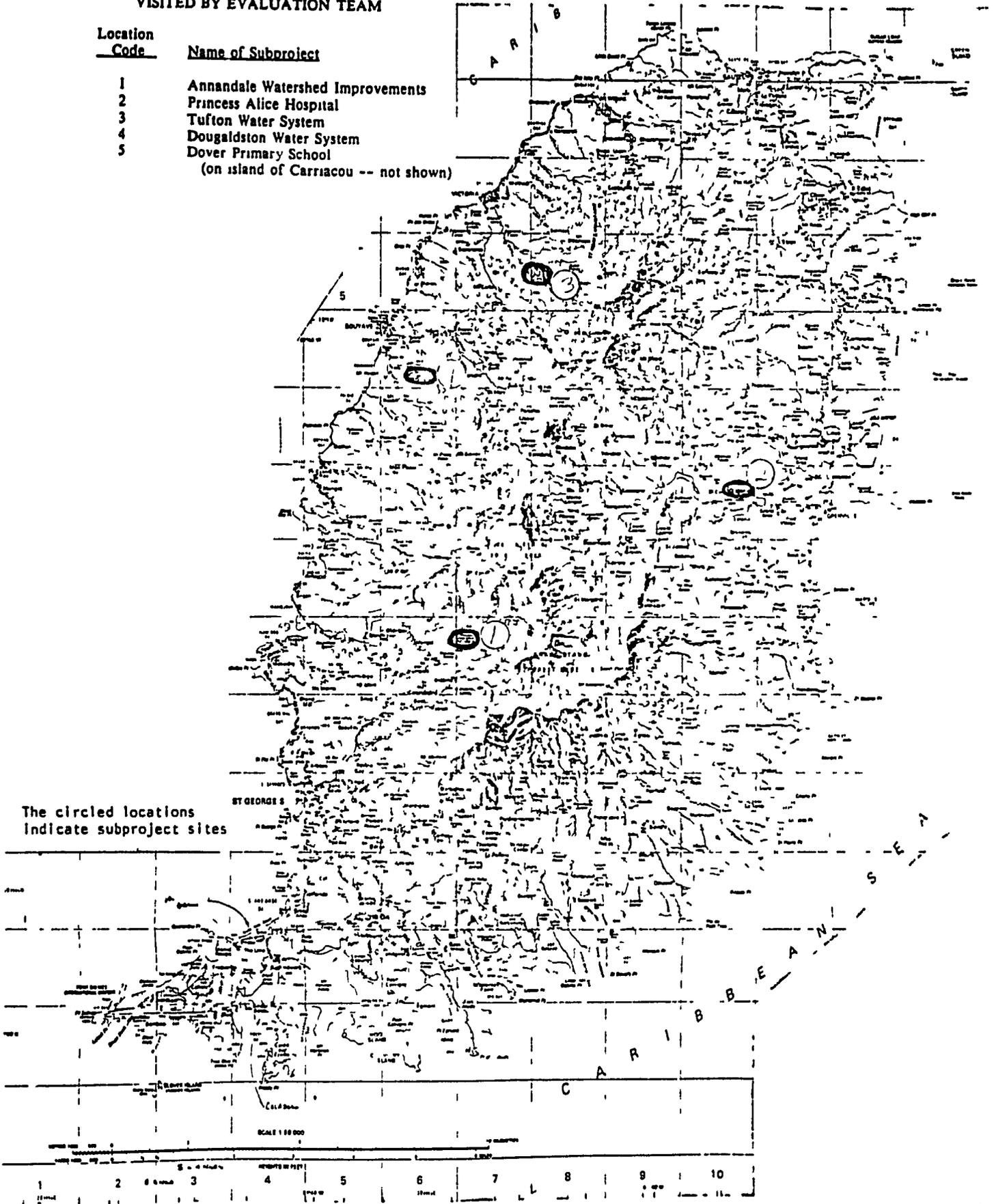


TABLE 14

GRENADA SUBPROJECTS --
SITUATION ON MARCH 31, 1986

	Dover Primary School	Princess Alice Hospital	Annandale Afforestation	Tufton Water System	Dougaldston Water System
Method of Execution	Contract	Contract	Direct Labor	Direct Labor	Direct Labor
Commencement Date	Dec. 1985	Dec. 1985	Dec. 1984	Sept. 1985	Sept. 1985
Projected Completion Date	June 1986	Sept. 1986	Nov. 1987	Aug. 1986	Aug. 1986
Percent of Project Completed	60 percent	65 percent	40 percent	18 percent	--
Person Days of Employment Since Beginning of Project	932	241	4,923	1,325	--
Anticipated Labor Content (percent)	40 percent	40 percent	65 percent	37 percent	37 percent

165+

Order of Visit	Subproject	Date Visited
1	Annandale Watershed Improvements	May 13
2	Princess Alice Hospital	May 13
3	Tufton Water System	May 13
4	Dougaldston Water System	May 13
5	Dover Primary School (Carriacou)	May 14

Descriptions

The Annandale Watershed Improvements consists of land clearing, planting of water-holding species (Blue Mahoe), planting of economic crops (including citrus, cashew, avocados, and spices), rehabilitation of about two miles of access road; construction of an erosion control structure, three retaining walls, a bridge, and a culvert; and establishment of a small tree nursery. This subproject is located about five miles northeast of St. George's adjacent to the Grand Etang Forest Reserve.

The Princess Alice Hospital consists of construction of new buildings and rehabilitation and renovation of older buildings in the main hospital. This subproject is situated in Merbeau approximately two miles from the leeward coast town of Grenville.

The Tufton Water System consists of construction of a sand filter water treatment plant, a small dam intake, and a supply line from the intake to the plant. This subproject is situated approximately two miles southeast from the leeward coast town of Victoria.

The Dougaldston Water System consists of construction of a main 8-inch transmission line from an existing treatment plant to the town of Gouyave, and expansion of the existing treatment plant to include an additional filter. This subproject is situated approximately one-half mile southeast of the leeward coast town of Gouyave.

106

The Dover Primary School consists of reconstruction of an existing building by performing major structural repairs and adding partitions to form several private weather-proof classrooms. This subproject is situated near the northern tip of the island of Carriacou.

Subproject Selection

The five projects were selected from among a longer list identified by the project identification team in January 1984. In August 1984, shortly after project authorization, the Ministry of Planning selected eight projects, which were approved by the government and sent to the CDB for approval. (The Dougaldston Water System was later substituted for another water system project that had appeared on the original list of eight.) The Ministry of Finance used its own criteria (see Annex 3) rather than those developed by the design team to select the list of eight. Three projects were eventually eliminated from this list after redesign, recosting, and discussions with the CDB. In particular, a soil and water program for Carriacou, which was number one on the design team's list, was eliminated after the project had been redesigned and expanded to include several additional elements that made it too large and expensive for the BNTF program.

The building and water systems subprojects appeared to have been well selected in terms of basic human needs, but the team was less certain about the Annandale Watershed Improvements. This subproject appeared to have multiple and, perhaps, competing objectives: conservation of the watershed, development of a hardwood industry, and fruit tree farming. The water resource benefits potentially accruing from afforestation had not been the subject of hydrological tests and had therefore not been well documented.

Design Techniques and Construction Standards

The five subprojects were designed and implemented using two distinct methods. The two building subprojects were designed by private consultants engaged by CDB and were constructed by private contractors. The designs for the other three subprojects were done by government and implementation was also performed through direct government labor.

107X

The two building subprojects, the Princess Alice Hospital and the Dover Primary School, were both renovations and extensions to existing worn out or burned out facilities. The designs were prepared by two engineering consultants. The construction plans and contract documents were adequate for the work proposed. The contract documents for the Dover Primary School and the Princess Alice Hospital provided detailed bills of quantities, which is important in a renovation project as it is easy for contractors to over- or underestimate quantities.

The technical specifications on both projects were sparse in relation to the pressure treating and finishing of wood. In neither instance was pressure treating required even though termite infestation was evident (termite trails on the building walls) at the Princess Alice Hospital. Neither project required injection into the ground of a termiticide to destroy subterranean termites. This appears necessary to prevent any further deterioration of the existing buildings. Chemicals are available that would not cause any problems to students or patients in the hospital. The recent investigation and termiticide treatment of the grounds around the Pogson Hospital in Sandy Point on the island of St. Kitts gives testimony to this fact.

The engineering designs and the construction of the two water systems are the responsibility of the CWC. In both subprojects, construction of the systems began before all design work was completed. For the Tufton Water System, design of site concrete work for the treatment plant was completed and work on this had begun, but there were no drawings for the structural concrete walls and floors, the sand beds, or the dam upstream. The lack of complete plans had apparently caused delays in construction, at Tufton only 18 percent of the work was complete whereas 75 percent of the time allotted in the original schedule had elapsed. Another problem was the absence of plans for a vehicular road to the dams, which will be necessary for periodic maintenance. In addition, the design of both the Tufton and Dougaldston Water Systems concentrated only on treatment and transmission, but it would appear that storage is equally important.

The construction techniques at the two water systems were above average. Structural concrete placement had not yet begun, but concrete cubes were available for testing together with vibrating equipment and slump measuring devices. However, from visual observation, some concrete being poured for the site work appeared to have zero slump although the evaluation team did not use a cone to test the slump.

For the Annandale subproject, there was no evidence of prior design work for the access road bridge under construction or the two completed culverts. The culverts were small and had adequate headwalls, but will wash out if they are incorrectly sized to handle the volume of runoff. The bridge is, in fact, a replacement for one that was washed out. The CDB should ensure that any civil works that are built be properly designed and documented with plans that are signed and sealed by a qualified engineer. A copy of such plans should be filed with CDB prior to any disbursements of funds.

At Annandale, the reservoir behind the dam had not been cleared of debris and a screening device to keep rocks from lodging themselves in the sluice gate was absent. Although the dam was not financed under BNTF, it is an integral part of the overall project to provide water for the southern part of Grenada, of which the control of the watershed through afforestation is an important part.

Adequacy of Procurement Arrangements

Procurement of materials in Grenada was done by the CWC, the Ministry of Agriculture, or private contractors. The CWC was having problems obtaining good sand and coarse aggregate since considerable concrete work around the island was causing local shortages.

Private contractors had encountered some delays in securing material but overall procurement was not a problem in Grenada. The project supervisor was aware of USAID Code 899 and 941 procurement regulations, and the team was assured that compliance was occurring.

LOG⁴

Provisions for Maintenance

The Ministry of Education and the Ministry of Health are responsible for the maintenance of their own facilities. Some discussion has occurred recently about assigning responsibility for the maintenance of these facilities to the Ministry of Communications and Works. No final decision has been made, however, and the ministries to be affected are proceeding with plans to continue maintaining their own buildings. The CWA, which maintains the water systems, receives its budget from monthly user charges and has divided the country into six districts with a maintenance crew for each district.

Grenada has approximately US\$ 57,300 allocated to it to carry out its portion of the maintenance systems development program. No funds have yet been spent on this program. A country maintenance committee is in its formative stages and as such may shortly start to request funds from CDB to commence preparation of the country-wide maintenance plan.

The project supervisor was advised that consultants should prepare maintenance plans for the facilities they designed. One engineering consultant provided a copy of a maintenance plan for the "repairs to the Dover School" (see Annex 8). This plan is simple but effective and can be used as a model for other consultants.

There did not appear to be any special effort to use low maintenance materials in construction, nor was there any specific line item in the annual budget estimates for the maintenance subprojects under construction.

Employment Generation

Some employment data were obtained for all the projects except the Dougaldston Water System. In the latest month, an average of 28 persons were employed in each of the four subprojects, of the 28, one or two per subproject were women. The Dover Primary School and Annandale Watershed Improvements employed no youth, but of the 36 persons employed on the construction of Princess Alice Hospital, 15 were under 21, and of the 28 employed in the Tufton Water System, five

110

were under 21. Since the four subprojects began, wages had been paid for more than 9,000 work days ranging from 932 for the Dover school to 4,923 on the Annandale subproject.

Cost data were not available to calculate labor content, but from observation, it is likely that the projections of labor content provided in the planning documents are fairly accurate. According to these documents, the most labor-intensive subproject is Annandale (65 percent of costs) since the work consists largely of tree planting and road work. The least labor-intensive are the two water systems subprojects (37 percent of costs). It was estimated that the hospital and school would spend 40 percent of their allocation on labor.

Project Management and Reporting

The project supervisor was a Grenadian who had recently returned from Great Britain, where he had spent 27 years employed by the Commonwealth Commission. He was not appointed to his position until April 1985, which made him the last of the BNTF project supervisors to be appointed. He had also not attended the project supervisors workshop in November 1984.

The project supervisor was keeping meticulous accounts and also had a detailed log of the use of his time and of project-related conversations. Perhaps because of his late appointment, certain key documents, including project profiles and reports, were missing from the files. Reports were frequently filed late. As was the case in the other islands, the Grenada project supervisor was experiencing difficulty in obtaining reliable and timely information from the public authorities responsible for subproject implementation.

Other Comments

Grenada is among the needier BNTF countries but is already receiving a great deal of U.S. development assistance in various forms. It is the only Eastern Caribbean country with a resident USAID office. BNTF assistance under the performance program should be aimed at complementing and reinforcing the development financing of USAID and other donors.

111

MONTSERRAT

Brief Description of the Country

Montserrat is a British Crown Colony. Located in the Leeward Island chain, it is the second smallest of the BNTF countries -- 102 square kilometers. The terrain is mountainous with dense tropical vegetation and rugged peaks, the highest of which is 915 meters.

The 1985 population is estimated at 12,000 and population density is 116 per square kilometer. Much of the population lives in and around the capital city, Plymouth, or the northern city of St Johns.

With a per capita income of nearly US\$ 3,000, Montserrat is the most prosperous of the BNTF countries. The economy relies mainly on agriculture, tourism, light manufacturing, and remittances. Principal exports are cattle, cotton products, hot peppers, electronic parts, tropical plants, fresh vegetables, polypropylene bags, and leather. At 7 percent, reported unemployment is the lowest among the BNTF countries.

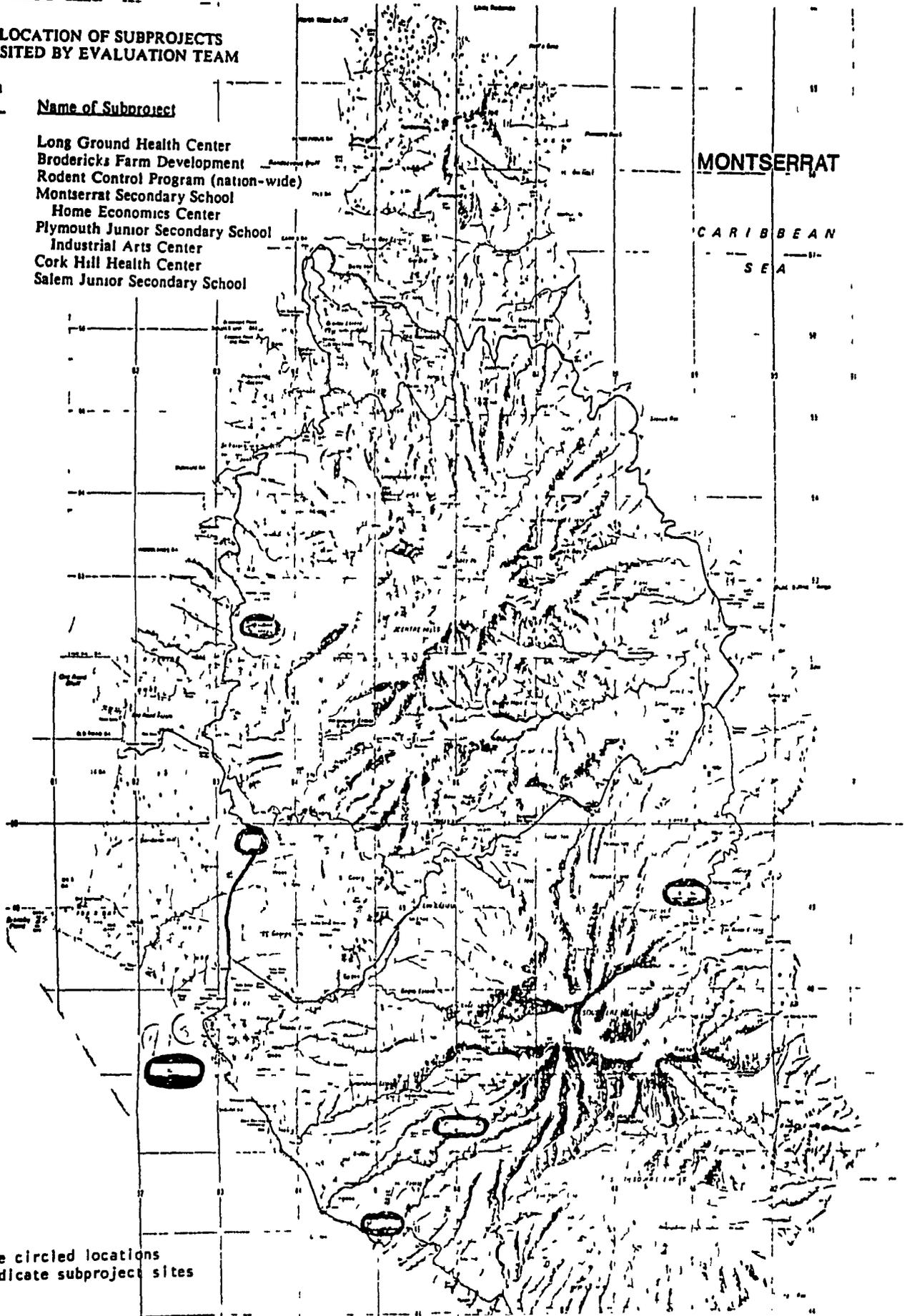
Use of Allocation and Status of Subprojects

Montserrat received an initial allocation of US\$ 400,000 under BNTF and has, to date, received approval for six subprojects with a total estimated cost of US\$ 392,000. One subproject consists of renovations to three separate health clinics; all of these renovations have been completed. Three subprojects involve renovations or building of new facilities at schools: a new industrial arts building at a junior secondary school, alterations and improvements to two classroom buildings at another junior secondary school, and the building of a second story to a home economics building at a senior secondary school. One of the three school building projects is completed, the other two are under way.

The two other subprojects are in the agriculture sector. One is a project to provide irrigation for, and an access road to, government-owned land that is leased by small farmers. The other is a nation-wide rodent eradication program that has

**LOCATION OF SUBPROJECTS
VISITED BY EVALUATION TEAM**

<u>Location Code</u>	<u>Name of Subproject</u>
1	Long Ground Health Center
2	Brodericks Farm Development
3	Rodent Control Program (nation-wide)
4	Montserrat Secondary School Home Economics Center
5	Plymouth Junior Secondary School Industrial Arts Center
6	Cork Hill Health Center
7	Salem Junior Secondary School



The circled locations
indicate subproject sites

not yet begun. The delay in the start-up of this subproject occurred after USAID, because the subproject will involve extensive use of rodenticides, insisted on a thorough environmental assessment and proper training of users of the rodenticides. The assessment has been completed but the training has not yet begun. Although the need for the assessment and the training is altogether proper, it now appears that the delays involved will retard the effective commencement of the project another year because of the yearly feeding habits of the targeted rodenticides. (The best time to lay traps is in August, but training will not have been completed by that month this year.)

Subproject Visitation Schedule and Description of Subprojects Visited

Schedule

The evaluation team arrived in Montserrat on May 29, and immediately visited the Long Ground Health Center situated about nine miles from Plymouth on the windward side of the island. The remainder of the day was spent in the office of the project supervisor reviewing subproject profiles, monthly reports, construction plans, and general correspondence. On May 30, meetings were held with officials of the Ministries of Agriculture, Development, and Health and Education. The subprojects sites visited on May 29 and May 30 were as follows:

Order of Visit	Subproject	Date Visited
1	Long Ground Health Center	May 29
2	Brodericks Farm Development	May 30
3	Rodent Control Program	May 30
4	Montserrat Secondary School Home Economics Center	May 30
5	Plymouth Junior Secondary School Industrial Arts Center	May 30
6	Cork Hill Health Clinics	May 30
7	Salem Junior Secondary School	May 30

1/2/74

Descriptions

The Long Ground Health Center consists of renovation of an existing one-story concrete block-stucco building and addition of a waiting room. This facility is one of three health centers undergoing renovation as part of this subproject. It is located on the windward side of the island about eight miles from Plymouth.

The Brodericks Farm Development includes construction of a feeder road and a catchment box to top an existing spring; installation of 7,900 feet of 3-, 2-, and 1-inch galvanized iron irrigation pipe; and construction of a 50,000-gallon galvanized butyl lined storage tank. This facility is situated about four miles east and slightly south of Plymouth.

Concerning the Rodent Control Program, the project area comprises a considerable portion of the 102 square kilometers of land on Montserrat. The program, which is designed to combat the approximately 30 percent of the island's agricultural harvest that is destroyed by rodents each year, involves education, baiting, and back checking to ensure that the rodent life cycle is broken.

The Montserrat Secondary School Home Economics Center consists of construction of a 2,500 square foot new concrete block-stucco second story over an existing one-story school building comprising four large class rooms to be used as a home economics center. This facility is situated in Plymouth.

The Plymouth Junior Secondary School Industrial Arts Center consists of construction of a multipurpose concrete block-stucco technical workshop to an existing secondary school situated in Plymouth.

The Cork Hill Health Clinics consists of renovation of an existing 780 square foot one-story concrete block-stucco building by adding new facilities. The Cork Hill facility is one of three health clinics undergoing renovations as part of this subproject. It is situated in the village of Cork Hill approximately two and one half miles north of Plymouth

The Salem Junior Secondary School consists of remodeling and equipping a 600 square foot building as workshop space. This facility is situated in the village of Salem approximately five miles north of Plymouth.

Subproject Selection

The project identification team did not visit Montserrat. Rather a list of seven subprojects, with a total value of EC\$ 2,395,700, was drawn up by an engineering consultant engaged by CDB and by Montserratian government officials. The six approved projects are all from this list although costs have been greatly reduced in some cases.

The subprojects appeared to have been well selected in terms of meeting basic human needs. However, the subprojects were mostly concentrated in the southern part of the island, thus neglecting the population in and around the town of St Johns in the north.

The one subproject about which the evaluation team had certain misgivings in terms of need was the Plymouth Junior Secondary School Industrial Arts Center, which, while lodged in a temporary building, was training students on machines (such as electric welding machines and lathes) that did not exist elsewhere on the island. This type of training would appear to encourage emigration rather than expansion of the domestic economy. However, emigration is apparently encouraged on Montserrat as a way to obtain foreign exchange from remittances.

In addition, the Brodericks Farm Development subproject, although a good idea in principle, appears to have been developed with insufficient participation from the 15-20 farmers who will benefit from, but will also have to pay for, the irrigation

1164

works The farmers, whose pipes will be metered, will be required to pay ECS 2 50 per 1,000 gallons to the Land Authority, which is under the Ministry of Agriculture, which will in turn pay the Water Authority. The user fee was apparently established at the insistence of USAID, but the farmers were not consulted about the type of fee, the rates, or their willingness to pay before the system was built In addition, it has not been determined who will be responsible for maintenance of the distribution pipes, many of which are above ground on cattle grazing land.

Design Techniques and Construction Standards

Three of the six subprojects on Montserrat were under construction during the evaluation team's visit.

The three health center renovations were designed by the Ministry of Communications and Works (MCW) Designs consisted of a small plan illustrating the before and after aspect of each center. The materials were purchased by MCW and the work was performed by petty contractors The two centers the team visited were excellent examples of first class workmanship The renovations were structurally sound, functionally correct, and aesthetically pleasing Apparently good supervision was provided by MCW staff members who ensured that supplies were delivered on time and that the petty contractors pursued their work with vigor

The Plymouth Junior Secondary School Industrial Arts Center and the Montserrat Secondary School Home Economics Center extension were designed by a private consultant Final plans and specifications were put out to bid under apparently proper bidding conditions The successful bids were under the allocations The designs of the two subprojects appear to have been well conceived Aluminum roofing material coated with zinc was specified This type of long life-cycle material should be encouraged as it builds in low maintenance structures

The consultant's specifications on treatment of lumber should not be considered adequate in that they only called for treatment with "two coats of approved preservative." A preferred specification is pressure treatment The specifications also did not call for sub-surface treatment of the area under and around the building with a termicide A specification on the quality of the wood finish desired was also

not sufficiently precise to ensure a quality job. Montserratian contractors are accustomed to building high-priced and high quality residential dwellings for foreign retirees. Thus workmanship is up to a higher standard than in other islands. Nevertheless specifications should be very specific, particularly on public buildings, where greater stress on materials can be expected.

The coarse aggregate being used for concrete was very dusty. Minute organic soil particles were present. These materials will not give the finished concrete the strength desired. In addition unwashed beach sand is being used in concrete. Salt in the sand can cause continued concrete problems over the years. Every effort should be made to require that the coarse aggregate and sand be washed with clean fresh water thoroughly before use.

The evaluation team's only structural concern was the use of an open rafter roof support system in two school buildings inspected in Montserrat. The roofs in these buildings are low pitched (between 15 and 20 degrees) and, accordingly, may be subject to considerable uplift during a severe windstorm. In such roof support systems, the joint at the peak where the rafters come together usually acts as a hinge. The joint, which is usually nailed, may open up during a high velocity windstorm. Steel gusset plates placed on each side of the joint that fasten both rafters together with through bolts can be used to provide additional support. A collar brace placed horizontally midway up the slope of each pair of rafters on each side of the rafter and fastened with through bolts will provide considerable additional support. Such braces were, in fact, placed on every third pair of rafters in the roof support system to the Montserrat Secondary School.

The access road at Brodericks used two concrete strips to carry the wheel load, but the thickness of the concrete did not appear adequate. This program was designed by the Ministry of Agriculture, Ponds, Trade, Lands and Housing. Forms should have been used on all edges of each strip. Instead the concrete supply feathered off to meet the existing grade at an angle. Later as trucks traverse such a road, concrete edges will easily break off. In addition there were apparently no joints in the concrete to allow for expansion and contraction. Concrete pavements are not flexible. Design details must provide relief to avoid cracking.

118x

The exterior of the pre-fabricated water storage tank in the Brodericks subproject might better have been manufactured from non-corrosive materials. The Commonwealth Caribbean islands of Nevis and Tortola use hydroglas sectional storage tanks, which will not rust and have no need for protective treatment or constant painting (see Annex 9). Hydroglas is formed by a hot press molding process. The result is a non-corrosive strong consistent panel that is dimensionally accurate and has a smooth surface on both faces. It is excellent for water storage although more expensive than galvanized steel.

The irrigation pipes that were installed were left exposed on the surface of the ground. It would appear best to bury these pipes where possible to avoid damage by animals or equipment.

Overall the design techniques at Montserrat were good and the construction standards above average.

Adequacy of Procurement Arrangements

Montserrat is well stocked with building materials. A considerable amount of residential building construction for foreigners occurs on the island. The desire to use some innovative materials such as aluminum roofing created a problem for the two contractors working on the schools in Plymouth. Despite a waiver permitting off-shore purchases of US\$ 130,000 from Code 899 countries, purchases of aluminum roofing from Canada were disallowed by the engineering consultant, resulting in increased costs to the contractor from Puerto Rican sources. These costs were not calculated into the contractors' bids.

The contractors were buying directly from overseas sources, thus enabling them to expect some savings through the elimination of a middleman. There did not appear to be any tracking of USAID Code 899 and 941 procurement regulations. Each contractor was simply told he should buy from American sources.

There were occasions when local sand inventories became depleted. This problem seems to have been solved, and construction activities have proceeded at a brisk pace.

Provisions for Maintenance

Infrastructure in Montserrat is among the best maintained in the Caribbean. The government and the people cooperate to ensure that the buildings, streets, yards, bridges, and public open spaces are kept neat and tidy. High quality maintenance materials are being used in Montserrat. Aluminum roofing and louvers are almost standard.

The budget is well funded and carefully administered. The Public Works Department of MCW is responsible for all maintenance. All work is accomplished through petty contract. Contractors are eager to work for the government because the established rates are competitive with private industry. All contractors must pre-qualify. Contractors are paid quickly, and, as a result, they produce fast efficient work that is of high quality.

Montserrat will receive approximately US\$ 34,450 as its portion of the maintenance system development portion of BNTF. No funds have yet been spent. It is not anticipated that the buildings constructed under this project will require maintenance for some time since routine repairs are minor when buildings are built well and cared for by the user. In a community that prides itself on cleanliness, maintenance costs actually are lower in the long run since emergency repairs are not normal and facilities are not taken out of production for long periods of time. Nevertheless, one-third of the MCW maintenance budget every year is set aside for emergency repairs. The remainder of the budget is for major repairs or renovations.

The one concern for maintenance on Montserrat that the evaluation team did have involved the maintenance of the irrigation distribution system in the Brodericks Farm Development subproject. Policies for affixing responsibility or for cost-sharing of maintenance of these facilities need to be developed before the system is completed.

120x

Employment Generation

The employment data from Montserrat are unreliable and incomplete. Two subproject reports were more than one month late, and all the reports covered more than one month. One report covered two different subprojects with two different contractors. Another report had no employment data at all. When asked how he obtained the direct labor data for the reports that did contain this information, the project supervisor said they were "guesstimates". None of the reports contained indirect labor information.

For the record, the total number of person-days of employment reported for the four subprojects that did contain such figures was 2,779. No women were reported to have worked on any of the subprojects. One subproject was reported to have employed two youth under 20; the others, none under 20.

Even if a more assiduous attempt had been made to collect reliable employment information in Montserrat, the results would still have been less useful than in the other countries because the reporting form that was used did not contain a line item for "amount spent on wages this month" as did the forms used in all the other islands. It can only be surmised that the forms in use in the other BNTF countries have replaced the older forms that, for unknown reasons, are still used in Montserrat.

Project Management and Reporting

The project supervisor was a Britisher in the employ of the British Overseas Development Administration (ODA). His job with ODA was to serve as the full-time director of public works in Montserrat. The supervisor in Montserrat was the only BNTF project supervisor whose compensation was not at least partially reimbursed by the CDB and who was not working full time in the capacity of BNTF project supervisor. In fact, the supervisor in Montserrat estimated that he was able to devote less than 5 percent of his time to his BNTF responsibilities. The current project supervisor replaced a native Montserratian who had originally been selected as for this job and who had attended the project supervisors workshop in Barbados in November 1984.

The small amount of time that the project supervisor is able to devote to his BNTF responsibilities helps explain the deficiencies in reporting. Effective management of the BNTF subprojects is in fact split between Public Works and the Ministry of Agriculture. The project supervisor has had little time to visit the public works sites and even less time to get involved with the agricultural projects. The constraints on his time explain also perhaps why Montserrat was the only BNTF country in which there were no signs at any project sites advertising the sponsorship of the projects by the CDB and USAID.

Other Comments

Montserrat, with its relatively high per capita income, its high literacy rate (over 90 percent), and low unemployment, is probably in less need of development assistance than the other BNTF countries. Although the Minister of Education believed that she could utilize a great deal more BNTF money to assist in the current educational reform, the permanent secretary of the Ministry of Economic Development was unable to provide a concrete list of projects that would be eligible for BNTF financing.

ST. KITTS AND NEVIS

Brief Description of the Country

The total area of the two federated islands of St. Christopher (St. Kitts) and Nevis is 269 square kilometers with St. Kitts about twice the size of Nevis. The topography of both islands features forested volcanic mountains. The soil on Nevis is more rocky and less fertile than on St. Kitts.

The total population of the two islands is about 45,000 of which just under 10,000 live on Nevis. About 42 percent of the population on St. Kitts lives in and around the capital of Basseterre, otherwise, the population is fairly evenly distributed in small coastal towns around the island. Similarly on Nevis, the largest population concentration is in and around the capital of Charlestown, but the remaining population lives in a number of small communities along the coast, especially to the north.

The economy of St. Kitts is dominated by a single crop -- sugar. Most arable land is planted in cane. The sugar industry is also the largest employer on the island. Principally for this reason, the government nationalized the industry in 1975 when private owners, feeling that the crop was no longer profitable, began neglecting their fields. The second most important economic sector is tourism, which, in contrast to sugar, has been growing in recent years.

Since the cane fields provide seasonal employment for large numbers of workers, good estimates of unemployment are difficult to obtain. The project paper reported an unemployment rate of 12 percent in 1980, but the 1985 CDB Annual Report had no employment figures at all for St. Kitts and Nevis. Internal estimates are provided by the two primary political parties, with the party in power, not surprisingly, issuing much lower estimates (15-25 percent) than the opposition (40 percent). The CDB annual report placed GDP per capita in 1984 at US\$ 1,358.

LOCATION OF SUBPROJECTS
VISITED BY EVALUATION TEAM

pr1

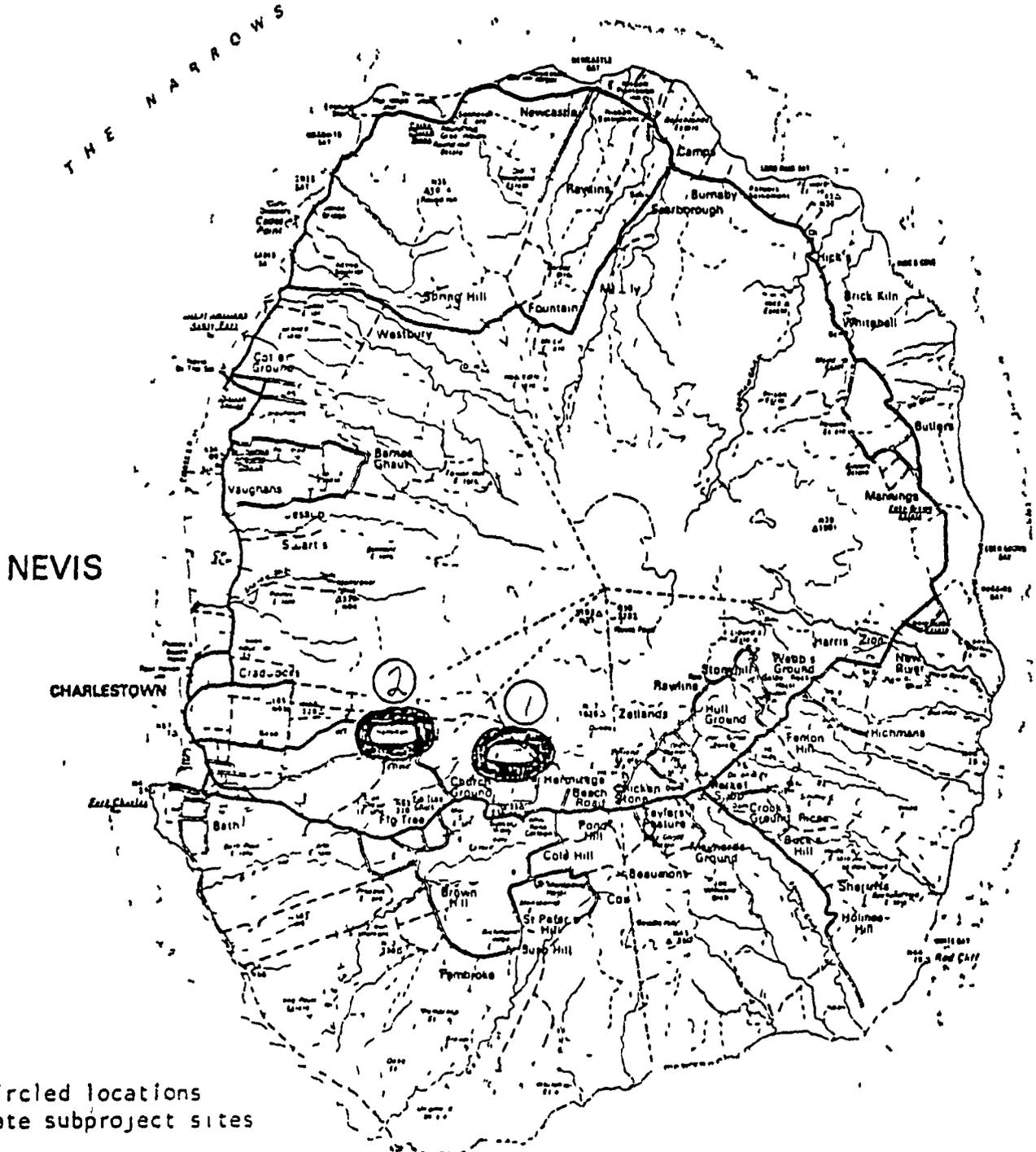
Location Code	Name of Subproject
1	Pogson Hospital
2	Sandy Point School
3	Molineux Primary School
4	Cayon High School
5	McKnight Community Center



The circled locations indicate subproject sites

LOCATION OF SUBPROJECTS
VISITED BY EVALUATION TEAM

<u>Location Code</u>	<u>Name of Subproject</u>
1	Burden Pasture Pipeline
2	Hamilton Charlestown Pipeline



The circled locations indicate subproject sites

175

Use of Allocation and Status of Subprojects

The value of the seven subprojects approved to date for St. Kitts and Nevis is exactly equal to the country's overall allocation -- US\$ 1 million. Two of the subprojects -- both water distribution systems -- are on Nevis. The other five -- rehabilitation and extension of two high schools, one primary school, and a hospital, and construction of a new community center -- are on St. Kitts.

One of the two water subprojects, both designed and built by the Nevis Water Department, is completed whereas the other is nearly completed. The building subprojects on St. Kitts, all designed by engineering consultants and built by private contractors, were under construction at the time of the evaluation, but all except one (the McKnight Community Center) were close to completion.

The evaluation team found no problems with the pace of subproject implementation in St. Kitts and Nevis. The only subproject that was not near completion was the McKnight Community Center, this subproject was delayed in start-up not because of poor management in St. Kitts but because of USAID objections to certain design features.

Subproject Visitation Schedule and Description of Subprojects Visited.

Schedule

The evaluation team arrived on St. Kitts on June 1, 1986. The morning of June 2 was spent with the project supervisor discussing the subproject profiles, monthly reports, construction plans, and general correspondence. In the afternoon, meetings were held with the engineering consultant assigned to oversee the subprojects. On June 3 and June 4, the team visited the following subprojects sites:

12/6/86

Order of Visit	Subproject	Island	Date Visited
1	Pogson Hospital	St Kitts	June 3
2	Sandy Point High School	St Kitts	June 3
3	Molineux Primary School	St. Kitts	June 3
4	Cayon High School	St. Kitts	June 3
5	Burden Pasture Pipelines	Nevis	June 3
6	Hamilton-Charleston Pipelines	Nevis	June 3
7	McKnight Community Center	St Kitts	June 4

Descriptions

The Pogson Hospital consists of renovation and rehabilitation of the existing main hospital building and new construction of an 1,800 square foot one-story concrete block-stucco extension to the existing hospital including 500 square feet of roof. This facility is situated in the town of Sandy Point on the leeward side of St Kitts, 10 miles northwest of Basseterre.

The Sandy Point High School consists of construction of a new 5,364 square foot one-story concrete block-stucco building comprising space for secretarial services, home economics, technical drawing, woodwork, electrical work, mechanical work, and arts and crafts. Like Pogson Hospital, this facility is situated in the town of Sandy Point.

The Molineux Primary School consists of rehabilitation of the existing school building plus construction of a new 4,485 square foot one-story concrete block-stucco building comprising five new classrooms, a workshop, a library, a staff room, and toilet facilities. This school is situated in the village of Molineux on the windward side of the St Kitts about seven and one-half miles north of Basseterre

The Cayon High School consists of rehabilitation of the existing school buildings plus the construction of a new 9,800 square foot partial one-story and partial two-story concrete block-stucco building containing four

classrooms, two science laboratories, and four vocational centers. This facility is located in the town of Cayon on the windward side of the island of St Kitts approximately five miles north of Basseterre.

The Burden Pasture Pipeline consists of installation of approximately 7,000 linear feet of 4- and 2-inch galvanized iron pipelines, together with the necessary valves and fittings, to bring potable water from the Monkey Hill Reservoir through Pond Hill into the Burden Pasture Reservoir and then to distribute this water to the people of Burden Pasture. This pipeline is situated on the island of Nevis about two and one-half miles east of Charlestown.

The Hamilton-Charlestown Pipeline consists of installation of approximately 7,000 linear feet of 4-inch PVC pipeline, together with the necessary valves and fittings, to carry potable water from a reservoir near the area of Hamilton into the city of Charlestown on the island of Nevis.

The McKnight Community Center consists of the construction of a 3,000 square foot building to be used as a multipurpose community center. The building includes a hall with a stage, a kitchen, veranda space, a rest-room, and changing rooms. The center is located in an older, predominantly low income section of Basseterre.

Subproject Selection

In June 1984, 18 subprojects -- 14 for St. Kitts and four for Nevis -- were, following identification by the government and rank ordering using the MCUA by project design consultants, deemed eligible for BNTF funding. Since the total cost of the 18 subprojects was ECS 9,185,741, the government of St Kitts and Nevis was asked to select from among them. Four of the five subprojects that were eventually approved for St Kitts in January 1985 ranked two through five on the original list (The subproject ranked number one was funded by another donor). The fifth subproject on St Kitts, the McKnight Community Center, was not on the original list but is located in the Prime Minister's constituency. Only one of the two subprojects eventually funded for Nevis figured on the original list.

1284

Although USAID's Regional Development Office concurred in the approval of the McKnight Community Center in January 1985, it later raised objections to certain design features, particularly the inclusion of a bar that was supposed to be used to train bartenders

With the possible exception of the community center, all the subprojects in St Kitts and Nevis appeared to have been well selected in terms of meeting basic community needs. Nevis, for example, suffers from a severe shortage of water, usually, water is only available from public sources from 6 A.M. to 11 A.M. The school and hospital rehabilitations and extensions were responding to conditions of dilapidation and overcrowding. The McKnight Community Center is located in a depressed area of town where there is an obvious need for community services. However, at this point it is unclear how the center will be used.

Design Techniques and Construction Standards

The two water systems projects on Nevis were designed and built by the Nevis Ministry of Public Works. The plans were easy to read and were definitive about the location of valves and fittings. The installation work in the field was progressing well. However, several valve boxes on a line that had been completed for some time were missing covers. Every effort should be made by CDB to ensure that subprojects are 100 percent complete before final payment is made.

With a staff of 60, the Nevis Water Department appears to be top heavy with employees. However, it possesses inadequate equipment and for this reason needed to rent a backhoe from a private contractor to dig subproject ditches.

The Nevis Water Department generates only one-tenth of the revenue needed to cover its costs, which could create a temptation to featherbed. Yet since no independent engineer is paid by CDB to observe and certify work conducted on the water projects in Nevis, there is no way to verify that the direct labor expenditures for which claims are made by the Nevis Ministry of Works correspond to actual costs. It should be pointed out, however, that both projects in Nevis have been completed for less than their allocations.

The five building subprojects on St. Kitts were all being supervised by one consultant. The CDB retained the consultant to review a set of designs and quantities prepared by the Government Planning Unit and to make recommendations to ensure that the final product would be in keeping with normally accepted codes of practice and that the preliminary estimates of cost would fall within the allocated end-of-construction costs.

An excellent report on the suitability and adequacy of the design drawings was prepared by the consultant. The report included the following:

- The identification of omissions, and instances of inadequate consideration of design factors and planning matters,
- The collection of information from the ministries directly involved and from members of staff at existing institutions on essential items to be extended and renovated under this program,
- On-site inspection and recording of the existing conditions, and
- The formulation of a set of recommendations to adjust the original designs and renovation schedules where such adjustments were thought to be necessary.

The engineering consultants prepared good construction plans but inadequate bills of materials and technical specifications. They also seemed reluctant to criticize or adequately supervise the work of contractors. An example of this is that rafter-to-ridge-beam clips at Sandy Point High School were not installed even though they were specified on the engineer's plans, and the work at the high school was almost complete on the day of the evaluation team's visit. Workmanship varied a great deal. Three building contractors were providing poor workmanship (louver installation, doors and windows, and some finishing) while two others were doing above-average work.

The selection of contractors for the building project in St. Kitts left much to be desired. From a review of the files it appears that a number of qualified contractors indicated a desire to bid, but only a select group were invited to submit

130X

bids. The government did not require the consultant to prepare a tender report on those that were submitted. Rather the government employed "selective tendering" to determine who would be awarded a contract

Despite the appearance of competition, contract award winners were in fact selected in advance. If bids were not in line with estimates, contractors were coached by consultants and Public Works engineers on how best to revise their bids to come closer to the amount of funds allocated by CDB.

An analysis of contract awards versus original bids revealed considerable deviation. For Pogson Hospital, the contract award on the new work was EC\$ 271,303 lower than the lowest bid. However, at the Cayon High School the contract award on the new work was EC\$ 170,605 higher than the lowest bid.

To remedy this type of problem, the CDB should establish procedures for enforcing its policies for procurement of contractor services prior to the implementation of the performance program. Those procedures should include a consultant's independent written evaluation of bids and the qualifications of bidders prior to the award of a contract. This would help ensure that the CDB's guidelines for procurement are followed. Paragraph 3.11 of these guidelines reads as follows:

The award of a contract should be made to the bidder whose bid has been determined to be the lowest evaluated bid* and who is able to meet the appropriate standards of capability and financial responsibility. Such bidder should not be required, as a condition of award, to undertake responsibilities or work not stipulated in the specifications or to modify his bid price.

Adequacy of Procurement Arrangements

St. Kitts does not have the building activity that the evaluation team observed on Montserrat. However, local supply houses appeared to have sufficient materials on hand to meet the relatively minor needs of the BNTF projects. Nevis was experiencing some delays in obtaining PVC pipe (all of which was coming from the United States).

In general there have been few, if any, problems with procurement of materials in St. Kitts and Nevis. Most materials are acquired from local dealers or government stockpiles; however, as in the other Leeward Islands, there appeared to have been no attempt to monitor the source and origin requirements of USAID Code 899 and Code 941 procurement regulations.

Provisions for Maintenance

The maintenance of public buildings on both St. Kitts and Nevis is the responsibility of the Public Works Department of the Ministry of Communications, Works and Public Utilities on each island.

Maintenance is performed on a logical pre-planned basis. All public buildings are inspected at least once a year to ensure against potential hurricane damage. When other ministries require minor maintenance, the Public Works Department will sometimes provide materials and equipment if the other ministry provides the labor.

The public buildings, although old, have a certain charm. They are kept painted. Doors open properly, windows close, and floors are clean. Funds are budgeted for maintenance and appear to be properly used.

The two water projects on Nevis will be maintained by the Nevis Water Department. The Water Department operates at a deficit primarily as a result of an overburdened employee payroll. St. Kitts-Nevis is one of the few Eastern Caribbean countries that does not have an independent public water authority. The Water Department in Nevis, with a population of about 12,000, has 60 employees whereas the Water Authority in St. Vincent, with a population of about 120,000, has less than 100 employees. But unlike in Nevis, water systems in St. Vincent are operated by an independent water authority.

St. Kitts-Nevis has approximately US\$ 57,300 allocated to it to carry out its portion of the maintenance systems development program. No funds have yet been spent on this program. A country maintenance committee is in the formative stages and as such may shortly start to request funds from CDB to begin preparation of the country-wide maintenance plan.

132x

There did not appear to be any special effort to use low maintenance materials in construction, nor was there any specific line item in the annual budget estimates for the specific subprojects that were under construction.

Employment Generation

The project supervisor in St. Kitts-Nevis was making a conscientious attempt to obtain good employment data from contractors and from the Water Department in Nevis, but had met with little success to date. Several problems were evident

First, employment information from the contractors on St Kitts is usually provided orally; the project supervisor does not actually see the contractors' time sheets. An attempt by the evaluation team to inspect the time sheets at construction sites met with only partial success, some contractors did not have time sheets on site, others had incomplete time sheets. The project supervisor's problems in this regard were multiplied by the fact that on three of the building subprojects two separate contractors were employed, one for the rehabilitation work, the other for the new construction. The supervisor had chosen to submit separate reports for each contractor rather than one integrated report for the subproject. For the Cayon High School, no reports had ever been submitted from one contractor.

Another problem is that the Water Department on Nevis was simply not filing reports on time. The last report filed for one of the Nevis subprojects was for October 1985. An analysis of the data from this subproject shows a labor content of only 10.7 percent, but the probable reason for this is that the ditch work performed during the early stages of this project was done by a backhoe operator, the labor for laying the pipe was probably used later (after the October report was submitted).

There were a number of data problems in the monthly reports. The amount entered for "allocation" was the contract amount rather than the amount allocated by CDB for the subproject. The data on several subproject reports were in round figures, making them suspect. The amount spent on wages in April 1986 for the construction of the Molineux Primary School extension was reported at exactly ECS

24,000 For the rehabilitation of Sandy Point High School, the number of person-days reported for the last month of the rehabilitation was exactly 100 and the amount spent on wages exactly ECS 10,000.

On subprojects where he was able to obtain expenditure figures but only partial direct employment data, the project supervisor calculated the number of person-months employed during the month in the following manner amount spent on wages during the month divided by the number of working days in the month divided by the number of persons employed to get an average daily wage; then, he calculated amount spent on wages divided by the average daily wage to get the number of person-days. The problem with this calculation, of course, is that there is no weighting it ignores the large difference between what is earned by an ordinary laborer and a skilled tradesman.

For the record, seven youth and no women were included in the 141 persons reported to be employed on BNTF subprojects in the latest reporting period. The calculated labor content for the subprojects for which some data were available is as follows

Molineux Primary School

Extension 43.6 percent

Rehabilitation 31.5 percent

Sandy Point High School

Extension 38.1 percent

Rehabilitation 27.0 percent

Pogson Hospital 28.5 percent

McKnight Community Center 28.1 percent

For the reasons mentioned above, however, the data upon which these calculations are made are not considered reliable

1347

Project Management and Reporting

The project supervisor is a hard-working and able retired civil servant, but was faced with numerous management difficulties. He has rarely visited Nevis, for example, and is unable to verify whether the materials ordered for the subprojects or the labor used is what is needed. One problem in this regard has to do with the semi-autonomy of Nevis vis a vis St Kitts.

The process by which contractors are selected in St. Kitts is highly politicized, and the project supervisor is unable to resist the pressures from politicians to steer contracts to favored individuals. This method of contractor selection also makes it difficult for either the project supervisor or the engineering consultant to exercise proper authority over contractors. It is perhaps for this reason that reporting, especially on labor content, is so seriously defective.

The project supervisor is provided with adequate secretarial support and transportation assistance from government.

Other Comments

The government has already begun to compile a list of subprojects for financing under the performance program. These include the rehabilitation of a senior citizen's home, road rehabilitation, a new primary school in St. John's, the rehabilitation of a livestock farm in Nevis, and a water storage project in the town of Tabernacle in St. Kitts. The Planning Unit in which the project supervisor sits identifies some 30 new projects per year.

The need for additional BNTF subprojects in St. Kitts and Nevis is evident, but improvements in contracting and reporting should be made before new subprojects are approved.

ST. LUCIA**Brief Description of the Country**

St. Lucia is the second largest island in the Windward group with an area of 235 square kilometers. The interior of the country is mountainous, the highest point being Mt Gimie (935 meters). The harbor at the capital, Castries, is one of the finest in the Caribbean.

Most of the island's population of 125,000 live in the area of the Castries valley or the southern plains area in and around Vieux Fort. About one-half the population live in rural areas, the other half in towns, the largest of which, with a population of 45,000, is Castries.

The economy is dominated by the agriculture sector, particularly bananas. However, manufacturing and tourism have grown rapidly in recent years and have contributed to an annual economic growth rate of about 4 percent in the early 1980s and a per capita income of about US\$ 1,100. Estimates of unemployment range from 19 percent by the political party in power to 37 percent by the opposition party. The figure given in the 1985 CDB Annual Report is 22 percent.

Use of Allocation and Status of Subprojects

At the end of April 1986, St. Lucia had received approval for and begun construction of 12 subprojects with a total value of US\$ 960,995, or 96 percent of its initial allocation of US\$ 1 million. Six subprojects were water systems that had been designed by and were being constructed through force account by the Water and Sewerage Authority (WASA). The other six subprojects consisted of three health centers, two multi-purpose centers, and one school extension. The designs and drawings for these subprojects were done by the Central Planning Unit (CPU) of the Ministry of Finance and Planning, construction was being done by private contractors.

136X

Six subprojects were approved by CDB and USAID in November 1984, and the remaining subprojects were approved in June 1985. The designs and drawings for many of these subprojects were already completed as they were all done in-house, either by the WASA or the CPU.

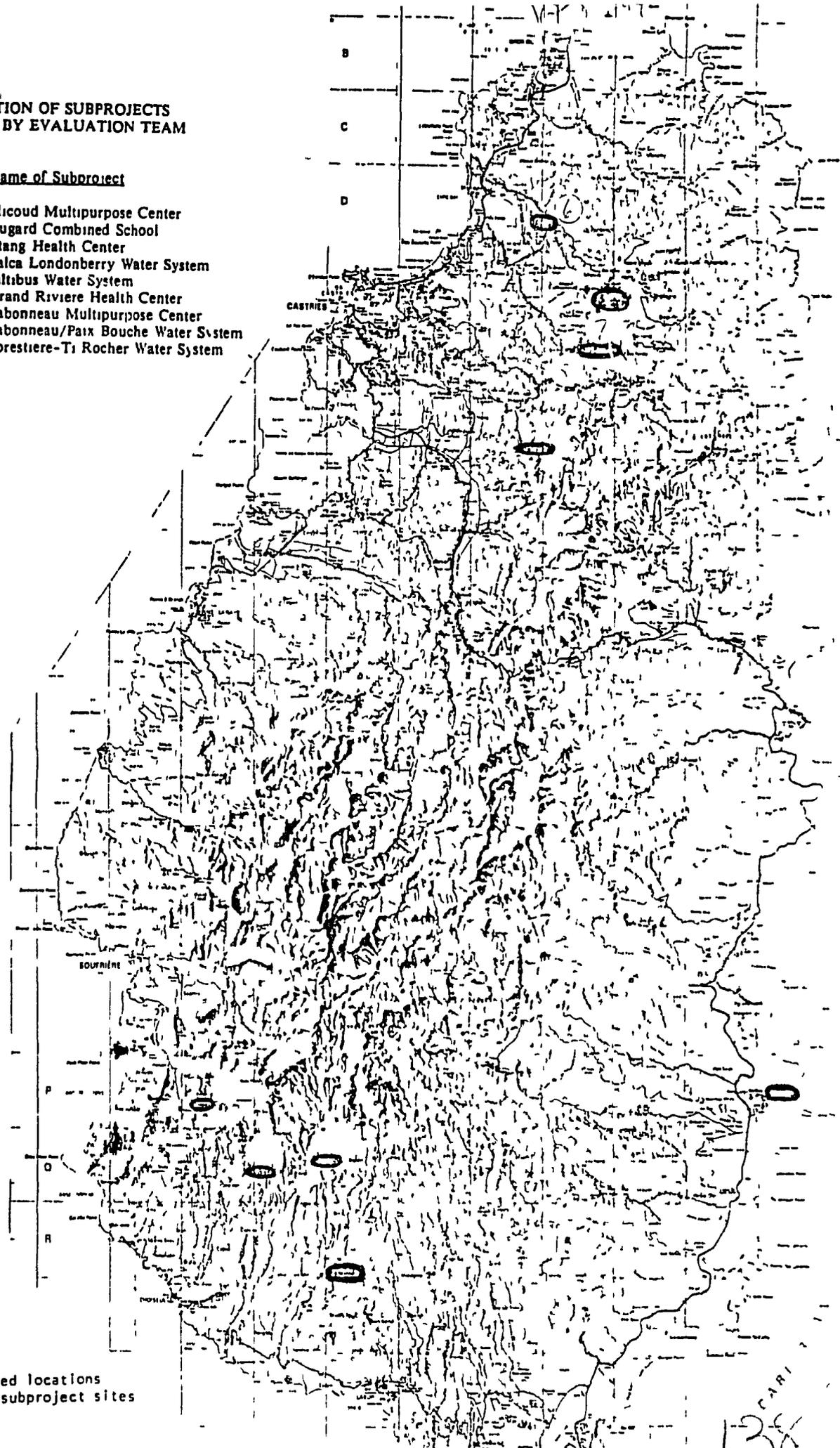
For the building subprojects, the CDB decided to employ engineering consultants to review CPU designs, prepare specifications, bills of quantities, and contract documents, and supervise construction. The selection of the consultants and contractors was accomplished in an orderly and expeditious manner although the process delayed construction start-up by several months. The deputy director for planning in the Ministry of Finance (the head of the CPU) feels that the CPU is fully capable of performing all the normal architectural and engineering functions for the BNTF subprojects and that, therefore, the use of outside consultants to review CPU designs and drawings and to supervise construction is a waste of time and money. He believes that if any approval is needed for CPU designs and drawings this function should be performed by CDB or USAID engineers.

For the water subprojects, the CDB decided that it would not be necessary to engage an outside consultant to review WASA designs, rather the project supervisor, as a graduate civil engineer and as a former employee of WASA, was designated as the supervising consultant for WASA subprojects.

It was possible to proceed with implementation of the water systems subprojects almost immediately after subproject approval because construction was also performed by WASA. Construction work and pipe laying on all but one of the water systems are complete although none of the systems is operational for lack of pressure testing or electricity hook-ups to the pumps. All the water system subprojects took substantially longer to complete than was originally estimated. Construction of the Forestiere-Ti Rocher Water System, for example, began in June 1985 with a projected construction time of six months, but was not completed until March 1986. Construction time on the Babonneau/Paix Bouche Water System was estimated at five months, construction began in November 1985 and it is estimated that as of mid-May 1986 the works are only 55 percent completed.

**LOCATION OF SUBPROJECTS
VISITED BY EVALUATION TEAM**

<u>Location Code</u>	<u>Name of Subproject</u>
1	Micoud Multipurpose Center
2	Dugard Combined School
3	Etang Health Center
4	Balca Londonberry Water System
5	Saltibus Water System
6	Grand Riviere Health Center
7	Babonneau Multipurpose Center
8	Babonneau/Paix Bouche Water System
9	Forestiere-Ti Rocher Water System



The circled locations
indicate subproject sites

138

Construction on all the building subprojects has begun with completion estimates ranging from 10 percent to 60 percent. Contractors for the building subprojects have generally performed well with respect to keeping on schedule. Several of these subprojects are behind schedule, but in most cases the delays are due to the problems associated with CDB and government procurement of imported materials rather than contractor performance.

Subproject Visitation Schedule and Description of Subprojects Visited

Schedule

The evaluation team arrived in St. Lucia on May 18. May 19 was a holiday. On May 20, several meetings were held with the project supervisor and representatives of the Ministry of Finance and Planning, WASA, and engineering consultants to discuss the spatial distribution, design methodology, and construction status of the various subprojects. Subproject profiles, project reports, construction plans, specifications, contract documents, and general file correspondence were reviewed. The subprojects visited by the evaluation team on May 21 and May 22 were the following:

Order of Visit	Subproject	Date Visited
1	Micoud Multipurpose Center	May 21
2	Dugard Combined School	May 21
3	Etang Health Center	May 21
4	Balca-Londonberry Water System	May 21
5	Saltibus Water System	May 21
6	Grand Riviere Health Center	May 21
7	Babonneau Multipurpose Center	May 21
8	Babonneau/Paix Bouche Water System	May 22
9	Forestiere-T1 Rocher Water System	May 22

1394

Descriptions

The Micoud Multipurpose Center involves construction of a new two-story concrete block-stucco building in the village of Micoud consisting of a large assembly hall on the first floor and a library on the second floor. This subproject is situated approximately 25 miles from Castries, on the windward coast of St. Lucia.

The Dugard Combined School consists of construction of a 960 square foot two-story new concrete block-stucco building. This is an extension of an existing primary school in the town of Dugard. This subproject is situated in the southern portion of St. Lucia about seven miles south and east of Soufriere.

The Etang Health Center consists of construction of a 2,140 square foot one-story new concrete block-stucco building, in the village of Etang comprising a waiting room, treatment room, and nurses living quarters. This subproject is situated in the southern portion of St. Lucia about five miles south and east of Soufriere.

The Balca-Londonberry Water System consists of construction of an extension to an existing system by installing approximately one mile of 2-inch PVC pipes between the villages of Balca and Londonberry situated about three miles north of the south coast town of Laborie.

The Saltibus Water System consists of construction of a diversion weir, intake structure, approximately one mile of 4-inch pipe, a booster pump station, and a 20,000 gallon masonry reservoir. This subproject is situated about five miles north of the south coast town of Laborie.

The Grand Riviere Health Center consists of construction of a 2,030 square foot single-story, new concrete block-stucco structure comprising general medical treatment facilities, in the village of Grand Riviere. This subproject is situated about three and one-half miles from Castries.

The Babonneau Multipurpose Center consists of construction of a 5,500 square foot split-level new concrete block-stucco structure in the village of Babonneau, including a library and a large space for adult education, day care, and cultural facilities. This subproject is situated about three and one-half miles east of Castries.

The Babonneau/Paix Bouche Water System involves emplacement of 11,000 linear feet of 6-inch PVC pipe, (between the villages of Babonneau and Paix Bouche) and construction of two booster pumping stations, a 100,000 gallon masonry reservoir, and a 30,000 gallon steel reservoir. This subproject is situated approximately three and one-half miles east of Castries.

The Forestiere-Ti Rocher Water System includes emplacement of 11,000 linear feet of 6-inch PVC pipe and construction of a booster pumping station (between the villages of Forestiere and Ti Rocher). This subproject is situated approximately three miles southeast of Castries.

Subproject Selection

The 12 St. Lucian subprojects were all selected from an original list of 32 subprojects, with a total value of ECS 4,608,400, prepared jointly by the government of St. Lucia and the BNTF project identification team in January 1984. On this list, six of the first 11 subprojects and eight subprojects altogether, as rank ordered by the MCUA, were sports complexes, which were subsequently eliminated from consideration. Of the remaining 24 subprojects, the 12 that were selected by Cabinet on the recommendation of the CPU included the first three in the revised rank ordering and 10 of the first 13. Thus it would appear that the MCUA was respected in the St. Lucian selection process. An inspection of the sites and conversations with targeted users of the systems revealed, moreover, that all the subprojects were responding to critical community needs.

Design Techniques and Construction Standards

Of the nine subprojects visited, three were virtually complete (except for testing) and the remaining six were in various stages of completion. The subprojects visited were a mixture of utility infrastructure (four water systems) and social infrastructure (two health centers and one school).

The water systems were designed by WASA. The health centers and schools were designed by the CPU of the Ministry of Finance and Planning. Construction plans were available on all subprojects. The water system plans were not always representative of the work that was completed; they did not reflect as-built conditions in the field. In one case the removal of a considerable length of (corroded) 2-inch line was not reflected on the drawings. This is indicative of inadequate research during the design phase and resulted in cost overruns. Accurate as-built drawings of underground installations are essential to ensure reliable adequate maintenance in the future.

The schools and health center designs were adequate although some drawings required changes by engineering consultants hired by the CDB. However, the large architectural and engineering staff in the CPU is frequently underemployed. There appears to be a great deal of redundancy and overlap in the design and supervisory functions of the CPU, the project supervisor, the CDB staff, and the engineering consultants.

The construction methods, materials, and equipment that were used in the field were of a high quality. WASA was using tested and reliable methods to build the water supply system. The construction of the 100,000-gallon reservoir at Babonneau, which was under way during the evaluation team's field visit, demonstrated effective and highly skilled use of the placement of reinforcing steel, and the pouring and curing of structural concrete. However, the team was not pleased to see the construction of a steel water storage tank at Paix Bouche. This prefabricated water storage tank might better have been manufactured from non-corrosive materials. The Caribbean islands of Nevis and Tortola are using hydroglas sectional storage tanks, which will not rust and have no need for protective treatment or constant painting.

Hydroglas is formed by a hot press molding process. The result is a non-corrosive strong consistent panel that is dimensionally accurate and has a smooth surface on both faces (see Annex 9).

The quality of building construction in St. Lucia was mixed. At the Micoud Multipurpose Center, the two-story column showed evidence of cold joints and inadequate vibration (honey combing). Apparently, the methodology for pouring ready-mixed concrete (which has just recently been introduced into the Vieux Fort Area) had not yet been perfected. In contrast, the finishing of masonry walls throughout St. Lucia was excellent, and the roof framing and carpentry work appeared to be of a very high quality.

Adequacy of Procurement Arrangements

The subprojects under construction in St. Lucia have a number of procurement problems resulting in delays in construction. WASA is responsible for procuring its own materials from sources outside of St. Lucia. Unforeseen delays in delivery have occurred that have been difficult to pinpoint.

Extensive correspondence occurred concerning the procurement of PVC pipe that was to be purchased from the Certainteed Corporation in the United States. It was essential to obtain pipe with sufficient strength to withstand the high gravity head conditions that exist in St. Lucia. The pursuit of this issue by the project supervisor explains some procurement delays.

The project supervisor has been aggressive in his concern that the water works be constructed in accord with sound construction standards. This was evident in correspondence concerning the siting of the 100,000-gallon water tank at Babonneau. These concerns, while justified, led to procurement delays. Greater care by WASA during the design stage might have resulted in fewer procurement delays.

143X

The health center and school buildings that were designed by the CPU and built by private contractors also were subject to procurement delays. In each instance the Government of St. Lucia with the assistance of the CDB took the responsibility for procuring all materials for the buildings that required delivery from a foreign source. The means of financing was via a letter of credit established in the country of origin.

Almost all purchases, except cement from Barbados, have been through Miami because of the frequent and reliable service from that port. The greater availability of materials in metropolitan Miami and the availability of service representatives give Caribbean buyers an incentive to adhere to USAID procurement policies. However, according to the project supervisor, the banks in Miami were not efficient in processing letters of credit with the result that Miami suppliers were not obtaining payment of their invoices on a timely basis. This led to substantial procurement delays. The project supervisor indicated that a "sight draft" means of paying for materials delivered from Miami has been instituted and now works well. A substantial amount of materials that were processed via sight draft arrived during the evaluation team's visit.

Other BNTF countries have placed the procurement responsibility on the private contractor. This traditional method of procurement appears to be more efficient. Most private contractors have over the years established their own logistical off-shore supply systems. In the performance program, it is recommended that, to the extent possible, private consultants¹ all design work and private contractors perform all procurement functions. The use of the private sector in this manner will allow island governments to concentrate on the roles for which they are better suited-- policy making and regulation.

Provisions for Maintenance

The public buildings and water treatment and storage facilities that were observed on St. Lucia were being maintained well. The buildings and water treatment facilities that are being built under this project are not yet in use, and therefore an analysis cannot be made of the adequacy of the maintenance program.

An effort is under way by the Ministry of Youth, Community Development, Social Affairs, and Sports to develop self-help community groups to assist in the maintenance of the two multipurpose centers. If successful, this will be the first time that community participation in public building maintenance has occurred in St. Lucia.

In 1981 the Ministry of Education and Health was given the responsibility for the maintenance of its own facilities. Each of the other ministries involved in the upkeep of BNTF buildings has scheduled an increase in the budget for 1985-1986 and 1986-1987. The increase is small but, combined with care on the users' part, will assist in securing social infrastructure that should last for many years.

The Central Water Authority (CWA) maintains the water system subprojects. The CWA receives its budget from monthly user charges. Approximately 45 percent of the budget is spent for maintenance of the water systems under its control.

St. Lucia will receive approximately US\$ 57,300 to carry out its portion of the US\$ 650,000 maintenance system development portion of BNTF. A country-wide maintenance committee is in its formative stage.

Employment Generation

The most recent monthly reports (February 28, 1986 for the WASA subprojects and April 30, 1986 for the building subprojects) indicate that a total of 9,994 person-days of employment had been generated by the BNTF in St. Lucia. Of this total, 6,544 were on water systems subprojects and 3,450 on building projects. The reports showed no employment of women and the employment of only one man under 20. However, site visits indicated that there were, in fact, a number of youth employed on the building projects in such capacities as timekeepers and laborers.

The most recent financial data show a total expenditure for all projects of ECS 1,141,686 of which ECS 469,376 was for direct labor (see Table 15). This translates into a direct labor content of 41.1 percent. The labor content of the water systems projects was substantially higher than that of the building projects, the percentages

145x

TABLE 15

LABOR CONTENT -- ST. LUCIA

<u>12 Subprojects</u>	<u>Direct Labor</u>		<u>Total Construction Expenditure (EC\$)</u>	<u>Labor Content (c) (%)</u>
	<u>Person-Days</u>	<u>Wages (EC\$)</u>		
Building Subprojects (6) [a]	3,450	167,948	593,747	28.3
Water Supply Subprojects (6) [b]	<u>6,544</u>	<u>301,428</u>	<u>547,939</u>	55.0
TOTAL	9,994	469,376	1,141,686	41.1

Notes:

- a As of April 30, 1986 -- all construction by private contractors.
- b As of February 28, 1986 -- all construction by the Water and Sewerage Authority.
- c Wages divided by total expenditure.

7/1/86

being 55.0 percent and 28.3 percent respectively. However, the expenditure data for the water subprojects were not up to date and do not reflect the cost of the overseas purchases of pipes and fittings, which, if included, would increase the expenditure on materials and decrease the water systems and overall labor content percentages

The reports indicate that a relatively insignificant amount of indirect employment and wages had been generated by the subprojects, just 293 person-days and ECS 9,501 of wages. Almost all of the indirect employment generation resulted from the building projects

The data on employment generation in St. Lucia were among the most complete in the BNTF countries, but, as with all the BNTF employment data, must be treated with caution. Site visits and inspection of timekeepers records uncovered certain discrepancies between the reported data and the actual data. The project supervisor made regular visits of at least once a month to each project, but did not have a standard form that he required be filled out either by consultants or contractors that would accurately capture employment and other project information. Such a form was said to exist for the water projects, but the major problem in reporting for the water projects was tardiness. The most recent reports on the WASA projects were two months more dated than those for the building projects

Project Management and Reporting

The project management system in use in St. Lucia had several features that were different from those in the other BNTF countries. First, the St. Lucian project supervisor was one of only two graduate engineers among the BNTF supervisors, this training gave him the capability of overseeing the projects from a technical, as well as an administrative, point of view. The project supervisor was currently employed by the CPU and had formerly been employed by WASA, which, it can be assumed, equipped him with a knowledge of the administrative processes of the two key institutions with technical and administrative responsibilities for the BNTF program in St. Lucia. The project supervisor was considerably younger (29) than

10/1/74

the project supervisors in the other countries (except Anguilla), and it is perhaps for this reason that he was the only supervisor whose signature did not figure on project checks.

The project supervisor's frequent visits to project sites were facilitated by the government's monthly payment of a flat sum plus a sum for mileage for the use of the supervisor's personal vehicle for project purposes

As pointed out by the deputy director for planning, the fact that the CPU, WASA, the project supervisor, engineering staff, and engineering consultants were all involved in some aspect of subproject design created the potential for confusion and redundancy of roles. Original designs and drawings were done either by WASA or the CPU but all were subject to modification by one of the other persons or institutions. The engineering consultants have suggested certain design changes in the CPU drawings as have CDB staff. The project supervisor was asked to assume the responsibilities of consultant for the supervision of one building project (the Babonneau Multi-Purpose Center) after the consultant was relieved of his duties by the CDB. The project supervisor was also responsible for certifying expenses for all water systems subprojects although a direct hire WASA employee supervises construction.

Adoption of the deputy director's suggestion that CDB consultants no longer be used to review and supervise construction of the building subprojects would be a clean and easy way to eliminate some of the redundancy. However, it is far from clear that the use of a rather large unit like the CPU, centralized not even in the Ministry of Public Works, but in the Ministry of Finance, is the most effective and efficient way of designing projects. The CPU has a staff of 119 persons, among the professional staff there are 10 economists, 21 town and physical planners, and 23 in the architectural section. It also has a handsome budget, EC\$ 2.5 million in 1985-1986, up from EC\$ 1.2 million in 1983-1984. (These figures may be compared to the 14 staff and EC\$ 249,000 budgeted in 1985-1986 for the building construction and maintenance section of the Ministry of Public Works.) In the days that the evaluation team passed in the architectural section of the CPU, it was apparent that the section was working at far less than full capacity.

WASA is a financially autonomous public authority responsible for the construction, maintenance, and management of all water systems in the country. It has some 15,000 accounts country-wide of which 9,000 are on a meter system. Although it had a large accumulated deficit of EC\$ 2,972,000 in 1984, this figure represented a reduction of EC\$ 166,000 from the previous year as this sum had been transferred from an operating surplus. The operating budget for 1986 was EC\$ 5.05 million of which EC\$ 662,800 was allocated for plant and equipment maintenance. WASA's 1986 capital budget is EC\$ 11,394,000, the largest single source of capital budget financing (EC\$ 3,469,000) is CDB financing (BNTF plus other projects).

WASA's general manager was the project supervisor for the CDB/USAID BHN program in St. Lucia. For the most part, WASA is a technically competent and financially sound organization that has the ability to design, construct, and maintain its own water systems. However, its research and planning capabilities remain suspect. All the BNTF water subprojects have experienced substantial delays in completion and at least two will have cost overruns, these problems stem in part from incomplete construction drawings and inaccurate cost estimates, in part from difficulties in procuring pipe from the United States.

149

ST VINCENT AND THE GRENADINES

Brief Description of the Country

The total area of St. Vincent and the Grenadine Islands (Bequia, Mustique, Canouan, Mayero, Union, and others) is 389 square kilometers. The island of St. Vincent is made up of volcanic rock with its highest elevation the still active volcano of Soufriere (1,234 meters). The country's total population is 125,000 with 95 percent living in the coastal regions of the main island. The largest town is the capital, Kingstown, with a population of 35,000.

The economy is predominantly agricultural. Although the hilly terrain makes farming difficult, the country's volcanic soil is extremely fertile. Agriculture accounts for 90 percent of GDP, with tourism, although on the increase, ranking a poor second. The chief export is bananas.

According to the 1985 CDB Annual Report, the GDP per capita of St. Vincent is US\$ 860, making it the poorest of the BNTF countries. The State Department estimates unemployment at 30 percent.

Use of Allocation and Status of Subprojects

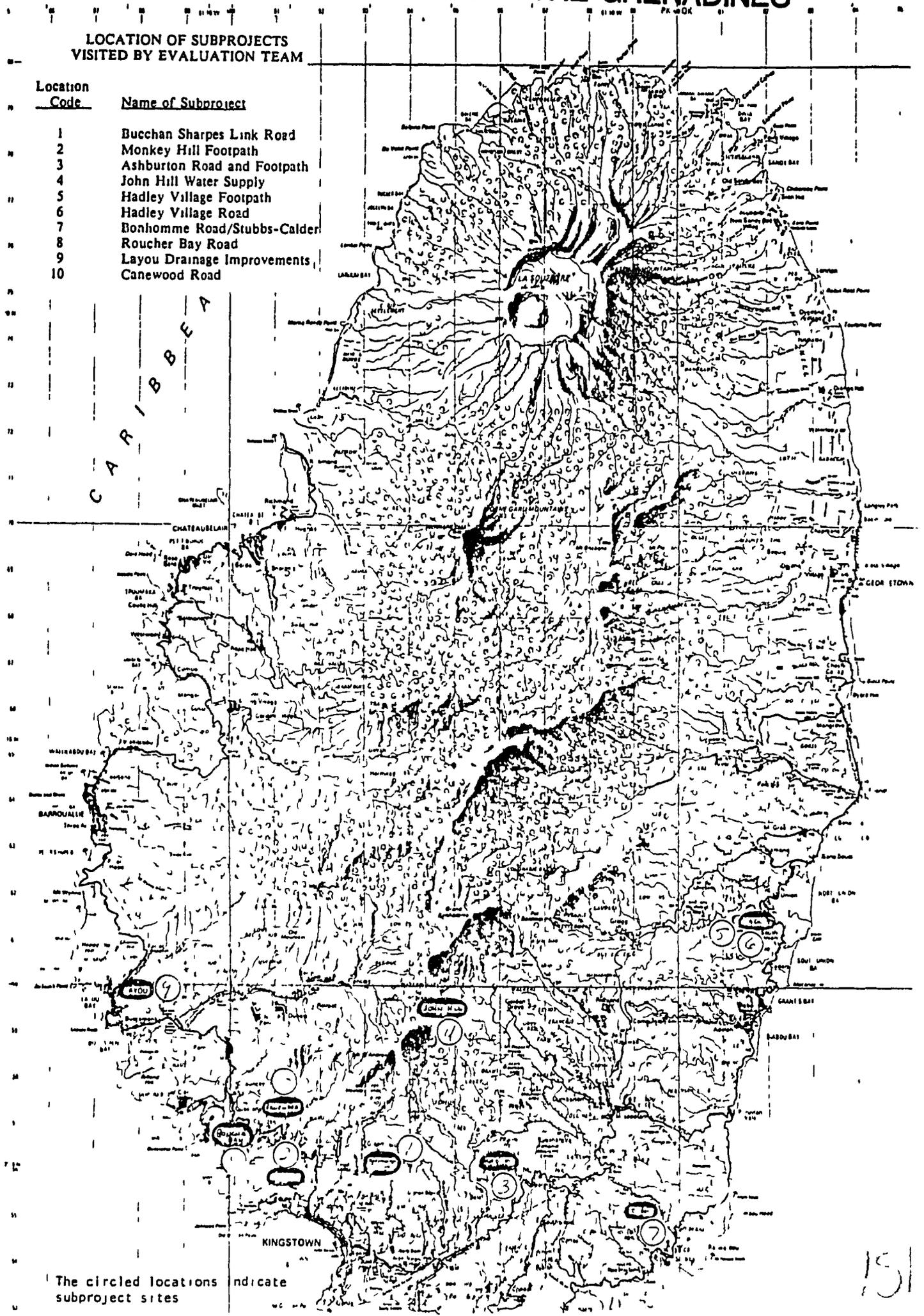
The allocation for St. Vincent is \$1 million. As of April 30, 1986, 15 subprojects with a total budget of \$961,000 had been approved of which 14 were under implementation. Four additional subprojects have recently been submitted by the Government of St. Vincent to the CDB, and if approved, the total allocation will have been accounted for. All subprojects in St. Vincent are being implemented by force account through direct government labor.

Of these 19 subprojects, 15 are aimed at transforming short dirt tracks into paved roads or footpaths. These roads will serve rural and semi-urban areas of a residential, light industrial, or farm-to-market nature. The three other subprojects will construct a water storage tank, a drainage canal, and a water system. The subprojects are dispersed throughout the populated areas of the country, four of the subprojects are in the Grenadines.

ST. VINCENT AND THE GRENADINES

LOCATION OF SUBPROJECTS VISITED BY EVALUATION TEAM

Location Code	Name of Subproject
1	Bucchan Sharpes Link Road
2	Monkey Hill Footpath
3	Ashburton Road and Footpath
4	John Hill Water Supply
5	Hadley Village Footpath
6	Hadley Village Road
7	Bonhomme Road/Stubbs-Calden
8	Roucher Bay Road
9	Layou Drainage Improvements
10	Canewood Road



The circled locations indicate subproject sites

151

Eleven of the 14 ongoing subprojects are completed or almost completed. Four projects have not yet begun as they are awaiting approval.

Subproject Visitation Schedule and Description of Subprojects Visited

Schedule

The evaluation team arrived in St. Vincent on the afternoon of May 14. On May 14 and 15, meetings were held with the project supervisor, the deputy chief engineer in the Ministry of Communications and Works (MCW), and a UN volunteer assigned to MWC as BNTF project engineer to discuss the spatial distribution, design, and construction status of each subproject. Each subproject was discussed in detail, and subproject profiles, monthly progress reports, design schematics, and file correspondence were reviewed. On May 15 and 16 the team visited the following subproject sites

Order of Visit	Subproject	Date Visited
1	Bucchan Sharpes Link Road	May 15
2	Monkey Hill Footpath	May 15
3	Ashburton Road and Footpath	May 16
4	John Hill Water Supply	May 16
5	Hadley Village Footpath	May 16
6	Hadley Village Road	May 16
7	Bonhomme Road/Calder-Stubbs	May 16
8	Roucher Bay Road	May 16
9	Lavou Storm Water Drain	May 16
10	Canewood Road	May 16

Descriptions

The Bucchan Sharpes Link Road consists of construction of 700 linear feet of asphalt surface treated roadway, retaining wall, and a bridge across a small stream. This subproject is located in the Murray Village area about one mile from Kingstown.

1/5/16

The Monkey Hill Footpath consists of construction of 2,800 linear feet of 4-foot wide concrete foot path together with considerable concrete block retaining walls and numerous entrance steps to residences along the route. This subproject is located near Old Montrose, about one mile from Kingstown

The Ashburton Road and Footpath consists of construction of (a) 1,400 linear feet of an asphalt surface-treated roadway, several retaining walls, toe walls, and a large culvert and (b) 1,000 linear feet of a 4-foot wide concrete footpath extending from the end of the roadway to uphill residential dwellings. This project is located near the village of Ashburton about three and one-half miles by road northeast of Kingstown

The John Hill Water Supply consists of construction of 12,000 linear feet of 4-inch ductile iron-water line, repairs to an existing dam, and construction of a check dam (to impede the movement of boulders during storms). This subproject is located about seven miles by road northeast of Kingstown on the Warrararrow River

The Hadley Village Footpath consists of construction of 425 linear feet of a 4-foot-wide concrete footpath on a steep slope. This subproject is located in the Hadley Village and Lowmans area close to the windward road on the east side of the island about seven miles northeast of Kingstown

The Hadley Village Road consists of construction of 2,300 linear feet of 12-foot-wide asphalt surface treated roadway, stone retaining walls, and a large culvert. This subproject is located adjacent to the Hadley Village Footpath

The Bonhomme Road/Calder-Stubbs subproject consists of construction of 4,700 linear feet of a 12-foot-wide asphalt surface treated roadway, retaining walls, drains, curbs, and a large culvert. This subproject is located near the windward road adjacent to Stubbs Bay about six miles from Kingstown

The Roucher Bay Road consists of construction of 600 linear feet of a 12 foot wide asphalt surface treated roadway including drains and curb. This subproject is located near the Agricultural Experiment Station just off the leeward road and near Camden Park Bay about two miles north and west of Kingstown

The Lavou Storm Water Drain consists of construction of 800 linear feet of open channel drain with a concrete bottom and rubble walls. The drain runs from just above the leeward road to the sea through the village of Lavou. This subproject is located about five and one-half miles by road north and west of Kingstown

The Canewood Road consists of construction of 700 linear feet of a 12 foot wide asphalt surface treated roadway with retaining walls and numerous entrances to residences along the route. This subproject is located just off the leeward road about two miles north and west of Kingstown

Subproject Selection

The subprojects that are currently being implemented in St Vincent are almost entirely different from the original list of projects identified during BNTF design. In early 1984, 24 subprojects, with a total value of ECS 11.8 million, were identified by the identification team as meeting BNTF eligibility criteria. The subprojects varied in type from schools and community centers, to roads, coastal protection, and water systems. The cost of most of the projects was in the range of ECS 300,000-ECS 600,000, with a range of ECS 63,000-ECS 1.5 million and an average cost of ECS 493,000.

Following the elections in St Vincent in July 1984, the new government identified an almost entirely new list of much smaller projects (average cost ECS 153,000). Only two projects from the original list were retained: the John Hill Water Supply (originally called the Majorca Water System), and certain village roads in the Grenadines. The remaining projects in the current portfolio are entirely new.

154X

It is not clear on what basis these subprojects were selected although most observers agree that the desire of the new government to carry out subprojects in favored constituencies certainly had an influence. The MCUA was not used either by the authorities in St. Vincent in the selection process (the project supervisor in St. Vincent was first introduced to the MCUA in November 1984) or by the CDB for purpose of project approval

The change in the set of subprojects submitted resulted in considerable delay in the approval process and in the satisfaction of conditions precedent. As a result, the first set of subprojects, consisting of 11 roads and footpaths and a drainage ditch, were not approved by USAID until June 1985. Construction began between August and December 1985 with projected construction schedules ranging from seven to 16 weeks. Almost all of the subprojects encountered substantial delays stemming from long breaks for the Christmas holiday and from a variety of mobilization and procurement problems

All but two of the subprojects are now substantially complete, but the actual elapsed construction time has been more than three times greater than originally projected (362 weeks versus 112 weeks). Two of four road subprojects that were recently approved and one water subproject had just begun at the time of the team's visit and the two others had not yet started. The John Hill Water Supply began in January 1986 and is due to be completed in June with construction time having increased from an originally projected 17 weeks to 22 weeks

Of the 12 completed or ongoing subprojects (excluding the two water systems subprojects for which no data were available), seven necessitated an additional allocation and three encountered small cost overruns (met by the MCW) upon completion

Design Techniques and Construction Standards

All but two subprojects -- the John Hill Water Supply and the Layou Storm Water Drain -- were roads and footpaths. Construction plans were not available for the roads, footpaths, or the storm-water drainage system. Such plans should have shown horizontal and vertical alignment as well as periodic cross sections (usually provided every 100 feet).

The road works observed in the field appeared in general to have a good base course, finished grade, and surface treatment. An exception was the Roucher Bay Road where the base course had failed in several locations because of heavy truck loads from a concrete block plant located at the end of this short road. A lack of construction joints in the footpaths and on the drain bottom could lead to surface cracks later. Unavailability of structural designs for the retaining walls gives some doubt about the adequacy of these walls to retain the road under a heavy moving load. The retaining walls had a good finish of cut stone, which had been joined together with a cement mortar. Adequate weep holes were provided for rear wall drainage. Some of the retaining walls were relatively high (12 feet) and supported the actual road bed. Although rubble stone masonry walls are traditionally used throughout the Caribbean, they may not be as safe as properly designed reinforced concrete walls.

The drainage system provided alongside and underneath the roads appeared to be adequate. However, calculations were not available to ascertain the adequacy of the culverts or the drains to contain the design storm runoff. The Monkey Hill Footpath drain was already blocking up as a result of the erosion of several vertical exposed earth walls that did not have retaining walls built to withstand erosion.

The construction plans for the John Hill Water Supply provided profiles, and details. These plans were well prepared and appeared to be in conformity with accepted engineering standards. The water pipelines installed under this subproject replaced those washed out by the river during a 1981 storm. Data were not available to ascertain whether the washed out 4-inch pipe should have been replaced with a large diameter pipe that might better have met expanded potable water demand.

156¹²

which may have occurred since the 1981 washout. The installation of the 4-inch pipe on a very steep side hill presented considerable construction difficulties. The pipe pedestals under construction on the date of observation were dug deep into the existing soil and accordingly appeared to be able to withstand erosion over time.

Adequacy of Procurement Arrangements

The elapsed construction time on the subprojects was longer than anticipated. Most subprojects however did not have delays resulting from foreign procurement, since road work uses primarily local materials. Some foreign procurement was required on the John Hill Water Supply. This was the only project where some materials delays occurred. In general the procurement arrangements seem adequate and were not unusually cumbersome. There were no problems in meeting USAID Code 899 and 941 procurement regulations.

Provisions for Maintenance

St. Vincent has used most of its initial BNTF allocation on the construction of roads and footpaths. The amount of annual maintenance required on a road depends on use. Most of the roads in this program will not have much use as they are primarily short 'dead-end' roads. The project profile for each road nevertheless estimated the annual recurrent cost for maintaining the stretch of road built under this project. For example, the 700 feet of roadway on the Buccan Sharpes Link Road is estimated to cost EC\$ 3,500 annually to maintain. Road maintenance is an annual budget item for St. Vincent. The newly reorganized road maintenance division of the MCW is divided into four sections: northern section, southern section, crusher sites, and clerical. The southern section will maintain most of the roads in this project.

In driving over a considerable portion of the public roads in the southern half of St. Vincent, the evaluation team was impressed with the high level of road maintenance. The roads traversed, although narrow, were well maintained.

157

The Central Water Authority (CWA) in St Vincent is currently responsible for the maintenance of water systems that include intake sources. Each water source has a full-time caretaker who is responsible for cleaning and inspecting the intakes.

St Vincent has about US\$ 57,300 allocated to it to carry out its portion of the five-point US\$ 650,000 maintenance systems development component of the BNTF project. No funds have yet been spent as the country is in the formative stages of organizing a country-wide maintenance committee to implement this program.

Employment Generation

For the short periods of time that these subprojects are being implemented, a considerable amount of employment is being generated. Through April 30, 1986, wages had been paid for 31,360 work days (these data exclude the water projects for which data were not available). At prevailing wage rates, this translates into approximately ECS 650,00, or 38 percent of cumulative expenditures on these projects.

During the most recent pay period, 379 persons were employed, including 155 women and 23 youth. However, most persons are only employed for very short periods of time. A typical road project might employ two, three, or four petty contractors operating on a task basis, and the work gang working under one such contractor for, say, one stretch of a road, or one retaining wall, would not necessarily be retained for the next stretch or the next wall. Laborers employed in these gangs were typically residents of the area. Several such persons interviewed said that they were unemployed (or self-employed as farmers) before their hiring on the gang and, when the project task was completed, would be unemployed again. Thus, the employment benefits to any single individual were inevitably short lived. No data are available on the total number of individuals employed on these projects, but if a typical worker was employed for, say four weeks, his total earnings would be about ECS 400, or US\$ 154.

1584

Indirect employment generated by these subprojects would be of two types. First would be the labor needed to produce the local materials for the roads, including boulders, aggregate, and concrete blocks. This is estimated to be 100 percent of the direct labor. The second type would be employment on road maintenance, estimated at 10 person-days per road per year. This type of labor is mainly performed by women in St. Vincent as it is low status and low income (less than ECS 10 per day), but should continue throughout the life of the roads.

Project Management and Reporting

Project management in St. Vincent is divided between two government agencies: the MCW and the WSC. Two of the projects -- the John Hill Water System and the Water Storage Tank in Canouan -- are being carried out by the WSC, the remainder by the MCW.

Within the MCW, four individuals are primarily concerned with project management: the project supervisor, who is a former permanent secretary of MCW and who was also project supervisor under the BHN project, the deputy chief engineer, who is a civil servant, the head of the planning and design section who is a UNDP volunteer, and the chief engineer, who is a Vincentian but is paid by USAID under a separate technical assistance program, the first three individuals report to the chief engineer.

The project supervisor is clearly an able, respected, and dedicated individual. Although he is not an engineer, he spends about 40 percent of his time on site inspections. One problem is that he has no allowance, either from the MCW or the CDB, to pay for his transportation and personal expenses on site visits. This means that he usually has to schedule his visits to coincide with those of one of the MCW staff who have ministry vehicles.

Although all the projects in St. Vincent are being carried out under force account, the MCW appears exceedingly thinly staffed to directly execute these projects. The MCW division directly in charge of these projects is the Capital Projects Division (CPD). Within CPD a planning and design section, headed by the

UNDP volunteer, has a staff of 12, however, only five of these individuals are civil servants, the other seven (mainly draftsmen) have not attained the qualifications for civil service appointment although they are employed full-time. The second section within CPD is construction, which has a staff of six only two of whom are civil servants; it is these individuals who must supervise the ministry's construction work throughout St Vincent and the Grenadines

Another division of MCW, also under the chief engineer, is maintenance. This division has a staff of 12 and a 1985-1986 budget of ECS 3.6 million, which is down from ECS 3.8 million in 1984-1985 and ECS 5 million in 1983/84.

Altogether, the MCW has some 60 projects, including the BNTF projects that are the subject of line items in the 1985-1986 capital budget. Although not all of these projects have begun, it is difficult to see how the thinly staffed MCW can carry out these projects under force account

In general the project supervisor's files were orderly and most contained the financial and project progress information needed for adequate project supervision. Almost all the files contained before and after photographs of the various subprojects. However, the files were not uniform in what they contained and some essential information was kept in the files of the deputy chief engineer or the finance section of the MCW rather than in the project supervisor's files. In addition, the project supervisor has had continual difficulty in obtaining the information from the WSC that is needed for proper monitoring and reporting. The project supervisor's files contained neither subproject profiles nor recent monthly reports for the two WSC projects

160

PART FOUR
COMPARATIVE ANALYSIS OF COUNTRY PERFORMANCE

The evaluation team was asked to "rank the countries in terms of performance progress for allocation of funds under the performance program" The rankings were to be based on the following criteria:

- Maintenance performance under current project,
- Labor content achieved in subprojects under the initial allocation,
- Rapidity of implementation under the initial allocation;
- Continued demonstrated need, and
- Population size and unemployment levels

MAINTENANCE PERFORMANCE AND LABOR CONTENT

It is not possible to rank the countries on either of the first two criteria. With respect to maintenance performance, none of the countries has begun to implement the maintenance systems development component so there is no basis on which to evaluate or compare performance. Ongoing maintenance of facilities completed under the BHN program was the subject of an evaluation completed in 1985

With respect to labor content, the conceptual and methodological problems mentioned at length in this evaluation preclude the possibility of any meaningful cross-country comparison. Even if the data collected were reliable, we would have misgivings about basing a judgment of performance on the labor content of subprojects. If labor content is defined as the ratio of expenditure on labor to total subproject expenditure, low-wage countries such as Belize will inevitably have a lower labor content than high wage countries such as Anguilla. If labor content is defined as the ratio of person-days to total expenditure, the converse would be true

161*

Moreover, we do not believe that it is developmentally sound to ask project managers to seek artificially high labor contents at the expense of the most appropriate subproject selection or the greatest subproject efficiency. If a new school is more badly needed than a new road in a particular community, the school should be built even if the road might be more labor-intensive. Furthermore, our observations of factor use lead us to conclude that there is little difference in the methods used to build similar facilities from island to island, which means that, unless it is artificially manipulated, the labor content of similar projects will, adjusted for wage rates, be similar throughout the project area.

RAPIDITY OF IMPLEMENTATION

With respect to rapidity of implementation, the data (percentage completion of subprojects and expenditure of initial allocation) indicate the following rankings:

Very Rapid Implementation	Anguilla
Rapid Implementation	St Lucia St Vincent
Moderate Pace of Implementation	Dominica Grenada Montserrat St Kitts and Nevis
Less Rapid Implementation	Antigua Belize

CONTINUED DEMONSTRATED NEED, POPULATION SIZE, AND UNEMPLOYMENT

Continued demonstrated need is, we suppose, a function of certain objective indicators (such as per capita income, ratio of classrooms to students [if schools are being considered], ratio of health clinics to total population [if clinics are being considered]) and the readiness of government officials to submit new subprojects for the performance program. It is also a function of population size and unemployment, which is the last set of criteria. The problem is that the rankings change a great deal depending on which of these indicators is considered the most important. Belize, for example, is arguably among the neediest countries because it has the

largest population, the second lowest per capita income, and the least developed physical infrastructure. But Belize also had not begun to develop a list of subprojects for the performance program. Anguilla, in contrast, was the only country that had already submitted a subproject for the performance program, but its low population and relatively well-developed physical infrastructure make it less needy on objective grounds than most of the other countries.

Taking all this into consideration, we prefer to combine the last two sets of criteria and offer the following rankings

Neediest	Belize Dominica
Moderately Needy	Antigua and Barbuda Grenada St Kitts and Nevis St Lucia St Vincent,
Less Needy	Anguilla Montserrat

ENGINEERING AND CONSTRUCTION PERFORMANCE

We offer an additional ranking that was not requested but may help in making judgments with respect to allocation. This ranking is based on engineering and construction performance. Within this category are included such factors as quality of plans and designs, fairness and thoroughness of contractor selection, and quality of completed facilities or facilities under construction. For this category the countries are divided into four categories:

Excellent	Belize Dominica Montserrat
Very Good	Anguilla St Lucia
Good	Grenada St Vincent
Fair	Antigua, St Kitts and Nevis

PART FIVE
CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The overall conclusion of this evaluation is that the BNTF is a successful project that should have little problem in achieving its objectives.

Conclusions on particular elements of the project follow.

Project Progress

The BNTF is making excellent progress in infrastructure development. To date, 90 subprojects have been approved for funding of which 37 have already been completed and 33 are under construction. Nearly one-half the total allocation for approved subprojects has been spent and reimbursed by the CDB.

Overall the pace of implementation is satisfactory. The CDB has done a good job of expediting the subproject review and approval process, of engaging engineering consultants, and of making prompt reimbursements of validated project expenditures. Procurement problems have caused short delays in some subprojects. In general, implementation has occurred more quickly when placed in the hands of private contractors than in the hands of public authorities.

Subproject Selection

The project paper stipulated that subprojects would be selected using a complex formula called the Multiple Criteria Utility Assessment, although the door was left open for CDB and USAID policies or host country priorities to override these criteria. The MCUA was used in some countries at the project design stage to determine subproject eligibility but was not used subsequently either by the host country or by the CDB in the subproject review and approval process. Host country political considerations were frequently overriding factors in subproject selection.

16/11/11

The use or non-use of MCUA appeared to have little effect on the quality of subproject selection. In all but a few cases, the subprojects were well selected in terms of their impact on basic community needs. Even if the MCUA had been used more extensively, it would probably have had little influence on selection in terms of development impact since it included no criteria that captured the dimensions of social or economic utility. Sustainability also received short shrift in the MCUA. The cost of recurrent maintenance was included as a MCUA criterion, but omitted were recurrent operating costs for personnel and materials.

Engineering

Engineering consultants have in general done an excellent job of preparing plans and designs and of supervising the construction of BNTF subprojects. When design has been left in the hands of public authorities, the results have been less satisfactory. Some public authorities were doing a good job of planning and design, but for several subprojects no plans existed at all and the plans of other subprojects lacked adequate detail. In particular, the designs of water systems subprojects were frequently inadequate. The most common element that was missing from many water systems was a check dam.

Contracting

The process by which construction contractors were selected varied a great deal by country. Some countries were doing a good job of ensuring that the contracting process was thorough and fair, but the process was seriously flawed in several other countries. Competition was frequently restricted to contractors who held favor with important government officials. Contractors were sometimes selected without competition, in other cases, the contractors with the lowest bid were not selected or contractors whose bids were too high (or too low) were instructed in how to adjust them.

Construction

Overall, the quality of the construction in the BNTF subprojects was outstanding. In every country there were a surprisingly large number of experienced construction contractors and an ample supply of skilled tradesmen. With only a few exceptions, workmanship was uniformly good.

Procurement

Overall, there were few procurement problems of significance. Most contractors, as well as public authorities, were experienced in purchasing construction materials and had well-established links with suppliers. Some countries were having temporary problems in obtaining good sand and coarse aggregate for concrete.

None of the countries was tracking the source and origin of off-shore materials. In the Leeward Islands, there was some misunderstanding about the Code 899 waiver to USAID procurement regulations.

Maintenance

No funds had as yet been spent on the maintenance systems development component of the project. At the initiative of a USAID sociologist from the Regional Development Office, national maintenance committees were in the process of formation in almost every BNTF country. The formation of these committees represents the first step in the implementation of the BNTF maintenance systems development component.

Employment Generation

The evaluation team found it difficult to draw valid conclusions about the employment generated by this project. In most countries the project's employment data were unreliable. Furthermore, the employment that the project was attempting to measure was all short term, the project was not collecting data on the permanent or long-term jobs that might be created by the facilities under construction.

166

Notwithstanding these data problems, the team offers these tentative conclusions based on analysis of data from certain countries whose data were considered to have some reliability.

1 Based on an analysis of data from St. Lucia (which had perhaps the most reliable data on employment and whose wage rates were about average for the Eastern Caribbean), the project will generate only about 59,000 person-weeks of direct employment (perhaps 89,000 counting indirect employment), well short of its target of 154,000 person-weeks

2. Labor content is most affected by prevailing wage rates and has probably been overestimated for most subprojects.

3 Because BNTF subprojects involve mostly construction, which is a traditionally male occupation in the BNTF countries, very little employment has been generated for women. However, the more permanent jobs that will be created once the facilities are in use will probably create a preponderance of jobs for women as they tend to fall into such traditionally female occupational categories as nursing, teaching, and road cleaning

4 Very few youth (under 20) were employed on the subprojects although spot checks by the evaluation team reveal that the number of youth actually employed was probably underreported

Altogether, the project was having little more than a Band-aid effect on the unemployment problem in the Caribbean. If true employment generation is to be maintained as a principal objective of the project, the nature of the project should be changed to emphasize the construction of facilities that would employ large numbers of people on a long-term basis

Project Management and Reporting

BNTF is a well-managed project. The management structure of the project, involving CDB, USAID, project supervisors at the country level, and consulting engineers, is well conceived and operationally sound. Subprojects have been submitted, approved, designed, and implemented as quickly as considerations of quality allow. Project finances have flowed quickly and smoothly so that cash flow has not been a problem.

Project supervisors have all been well selected and are generally effective in their jobs. The one exception is in Montserrat where the project supervisor, whose salary is not reimbursed by CDB, is unable to devote much time to his job because of his full-time responsibilities as chief engineer in the Ministry of Works. In addition, some project supervisors are handicapped by inadequate office and transportation support from their governments.

Reporting has been a problem in several countries. Monthly reports are frequently late, especially when the information must come from public authorities rather than private contractors. Information on the reporting form, particularly that concerning employment, is not interpreted or processed uniformly from country to country. The reporting form itself needs to be revised and explained to make it more usable. There is no systematic tracking of the source and origin of imported materials purchased with BNTF funds and, in the Leeward Islands, there is some misunderstanding about what is allowable under these provisions.

These problems, however, are relatively minor in what is otherwise a well managed and successful project.

1684

RECOMMENDATIONS

1. The CDB and USAID should implement the performance program phase of BNTF as soon as individual countries submit suitable subprojects. It will be necessary, however, to extend the PACD to provide sufficient time for some countries to complete implementation of the performance program.
2. The MCUA should be discarded in favor of a more simplified set of criteria for subproject selection. The most important criteria should be (a) demonstrated need for the subproject, (b) socioeconomic impact, (c) cost per beneficiary or user, and (d) sustainability (including the recurrent costs of maintenance and personnel). Governments should be informed of these criteria before submitting subprojects for approval in the performance program and should be required to submit subproject proposals that explicitly address these criteria.
3. The approved cost (allocation) for a subproject should not be considered a ceiling, but should be subject to revision once more detailed plans, drawings, and bills of quantities have been provided by an engineer.
4. The CDB and USAID should consider discarding the employment objective of this project because (a) the objective is conceptually unsound, and (b) the valid monitoring and evaluation of its attainment may be beyond the means of the project.
5. If the employment objective is retained, several actions should be taken:
 - The CDB and USAID should decide on a definition of labor content;
 - The monthly reporting form should be revised to include a line item for cumulative amount spent on wages to date and on materials to date,¹
 - Instructions on a consistent method of counting number of persons employed should be issued;

¹ During the evaluation, the CDB instructed project supervisors to add these two items to the information it was collecting. The next step should be to revise and reprint the monthly reporting forms.

- Public works managers and contractors should be required to provide signed paysheets and other required information to the project supervisor each month as a condition for honoring claims; and
 - Project supervisors should be thoroughly trained in the data collection methods required for obtaining reliable employment data.
6. The two employment-generation options as well as the definitional and methodological issues raised in the preceding paragraphs should be discussed in the project supervisors workshop scheduled for fall 1986. The project supervisors are well aware of the problems inherent in the collection of employment data, and an exchange of views among them may provide the best source of innovative solutions to the problem
7. USAID's Regional Development Office should decide how important it is to monitor the source and origin of materials procured under BNTF. If it is important, project supervisors should be trained in how to provide this information.
8. The project supervisor in Montserrat should be provided with an assistant to work at least one-half time on the supervision of BNTF projects.
9. The CDB should ensure that all project supervisors are provided with the office and transportation support needed to perform their jobs. Ideally, this support should be provided entirely by the host country governments as their contribution to the project
10. The use of government direct labor for subproject implementation should be discouraged. The CDB should encourage subproject facilities to be constructed by private contractors whenever possible and should also encourage private contractors to be responsible for the procurement of the materials needed in the subproject
11. Engineering consultants should be retained for all subprojects, if not for the actual design, at least for supervision of contractor selection and construction and certification of cost and payment. To the extent that employment data are still collected, the engineers should collaborate with the project supervisors to help collect this information

12. Project supervisors and engineers should be thoroughly informed of CDB requirements for the procurement of contractor services and should be expected to comply with them, particularly with those sections dealing with prequalification of contractors and competitive bidding. Engineering consultants should be required to submit tender reports to the CDB as a condition precedent to disbursement of funds to contractors selected for BNTF subproject implementation

13 The CDB should establish a minimum set of construction standards, which should include such items as pressure treating of wood, and use of termicides and hurricane-resistant materials as a temporary measure while awaiting the issuance of the Caribbean Construction Code

14. To the extent that the budget permits, project supervisor meetings should be held more frequently. Consideration should be given to holding subregional meetings of project supervisors, involving the supervisors for the Windwards in one group and the supervisors for the Leewards in the other, with the supervisor in Belize participating in the Leewards meeting

ANNEX 1
TERMS OF REFERENCE

TERMS OF REFERENCE

A. Objective

The purpose of the contract is to provide the services described in the scope of the work below for a mid-term evaluation of the Basic Needs Trust Fund (BNTF) Project being funded by the Caribbean Development Bank (CDB) and the United States Agency for International Development (USAID).

The BNTF Project was established between CDB and USAID by an agreement dated June 28, 1985. The purpose of the project is to expand and conserve, using labour intensive methodologies, the stock of social and economic infrastructure which is essential to the future growth and the provision of basic services and employment in the Eastern Caribbean Less Developed Countries (LDCs) and Belize. To meet this purpose, BNTF has as its objective the maximization of the utilization of the countries' human resources in support of improvements to the basic economic and social infrastructure which will promote healthy and equitable growth in the region. Project funds are being used to finance a number of high priority sub-projects in such areas as school construction, clinics, rural roads, small water projects and small agriculture projects.

B. Scope of Work

The consulting services required under this contract are an analysis of the project's progress in terms of the anticipated outputs, an identification of implementation problems to date, recommendations to remedy the identified problems and an evaluation of the implementation progress overall and in each country.

173^x

The Consultant will be expected to visit all the participating countries (Anguilla, Antigua, Belize, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent) and to inspect at least 75% of all sub-projects being implemented in each country.

The Consultant will, inter alia, examine -

- amount of time required to design and implement sub-projects;
- adequacy of procurement arrangements, identify specific problems;
- extent to which engineering consultants are being utilised; functional areas in which consultants are working; ability of consulting firms to respond rapidly to requests for specific skills;
- extent to which countries are utilising funds provided for public information programmes regarding employment opportunities under the project relationship to local Ministries of labour; types of advertisement being disseminated via public information system;
- actual numbers of persons weeks of direct and indirect labour being generated as a result of sub-project execution;
- percentage of participating workers who were unemployed during the six-month period prior to initiation of works;
- percentage of participating workers between ages 14-20;
- percentage of women in newly created jobs.

Based on the findings the Consultant will be required to make, as necessary, recommendations for the improvement of project implementation and rank the countries in terms of performance progress for allocation of funds under the performance programme, on the basis of the following criteria -

- maintenance performance under present project;
- labour content achieved in sub-projects under the initial allocation;
- rapidity of implementation under the initial allocation;
- continued demonstrated need;
- population size and unemployment levels.

C. Reports

- (a) The Consultant shall provide six (6) copies of a report which shall provide an overview of the work performed and the resulting findings and recommendations;
- (b) The report shall be submitted, suitably bound in a typewritten form and shall commence with a summary of the report, a statement of conclusions and recommendations followed by the report itself;
- (c) A draft final report is to be issued not later than 45 days after initiation of work and the final report submitted not later than 65 days after initiation of work. Up to ten (10) days are to be allowed for review and approval of the draft report by CDB and USAID.

175

- (d) The final report shall be completed and submitted to CDB within five (5) days after the date on which the Consultant is authorized to proceed with the final report following review and approval.



Development Alternatives, Inc
624 Ninth Street, N W
Sixth Floor
Washington, D C 20001

July 31, 1986

C. P. Gough
Manager, Infrastructure
Caribbean Development Bank
P.O. Box 408 Wildey
St. Michael
Barbados

06-17
1986 no 17

Dear Mr. Gough:

With this letter I am submitting six copies of a final report entitled "Mid-Project Evaluation of the Basic Needs Trust Fund." In response to your letter of July 9, 1986, the final report has been revised considerably from the draft version. I believe you will find that we have made almost all the corrections you requested or have otherwise responded to your comments. We also made some changes of our own. There were some passages, however, that we could not revise as you requested.

With respect to page 19, para 2, non-carcinogenic termicides are now available. Also, since almost all the wood used in construction in the Eastern Caribbean is already imported, it should not be difficult to import pressure-treated wood. The higher initial cost should be easily recuperated in reduced maintenance costs over the years.

With respect to page 20, para 2, the point is that the engineering consultants engaged by the CDB should be responsible to the CDB to ensure that CDB standards and regulations are respected. This means that the consultants should, if they are preparing tender documents and tender reports, require that governments respect the competitive bidding process stipulated in CDB regulations and, if they are authorizing claims, that they authorize payments to contractors or to government agencies only when the work is in conformity with CDB standards and has been completed according to design. Most consultants were doing both these jobs well, but some were not.

177

With respect to your comments about the vehicular road to the dam in the Tufton project (draft page 79, para 2, final report page 90 para 3) and the Annandale dam (draft page 80, para 1, final report page 91, para 3), we feel that in appraising a project for possible financing or in evaluating it later, it is necessary to look at the project from a systems point of view, assessing whether any parts of the system are missing or defective even if these parts are not financed by the particular project under consideration. If the CDB were asked to finance a new roof for a building, for example, the CDB would naturally look at the structural soundness of the entire building to see whether the roof would stay on even though there was no request to finance any improvements or replacements for the rest of the building. We feel that the dam at Annandale (even though, as we said in the draft, it was not financed by CDB) is an integral part of the entire Annandale watershed improvement project. If the dam is defective, the CDB's funding of the access road and the tree planting will not have the results that are intended. In the same way, if a vehicular road to the proposed dam at Tufton is needed in order to ensure proper maintenance of the dam (which is our judgement), then the absence of the road compromises the effectiveness of the dam (which the CDB is paying for). Thus we feel that our comments about the vehicular road at Tufton and the Annandale dam are justified and we have retained them in the final report.

With respect to page 88, para 4 of the draft report (page 102, para 4 of the final report), one contractor showed me pro forma invoices from Canadian and Puerto Rican suppliers demonstrating a substantial difference in prices.

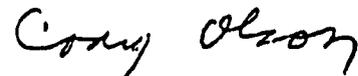
With respect to draft page 97, last para (final report page 115, para 1), there was, unfortunately, a great deal of systematic deviation from CDB contracting requirements and we have an entire file of photocopied documents to substantiate this. We are not charging dishonesty in the sense that anyone accepted bribes or kickbacks (although this is certainly possible), but we are describing a bidding process that consultants hired by the CDB should not have accepted, let alone participated in. The last line of the paragraph in the draft did not say that the total of "contract sums" was identical to the total allocation, but rather that the total cost for "approved subprojects" was identical to the total allocation (both were US\$ 1 million). However, because of the possibility for confusion, we removed this sentence in the final report.

With respect to draft page 122, para 2 (final report page 144, para 4), the point is that no data on the total number of individuals employed are available to the project supervisor by virtue of the fact that lines 8a, 8b, and 8c of the project supervisor's monthly reporting form do not capture this information reliably. It is not possible, for example, simply to add the totals of line 8a for all the months of a project to obtain the total number of different men employed since presumably some of the men employed in one month would also be employed in the next month. (See also page 25 [last para] of the final report.)

We agree that an annex listing the key people interviewed would have been useful, but, unfortunately, we were unable to reconstruct a list that we were confident had not omitted any key person. For fear of offending someone, we decided not to include such an annex.

I trust that this final report meets the needs for which it was commissioned. If DAI can be of further assistance to the CDB in this or any other project, please do not hesitate to call upon us.

Yours Sincerely,



Craig Olson

P.S.: I will be sending along in the next few days a volume containing many of the other photographs taken by Ted Knowles on the trip.

ANNEX 2
EVALUATION TEAM AND ITINERARY

180

ANNEX 2
EVALUATION TEAM AND ITINERARY

The evaluation team consisted of two persons. The team leader was Dr. Craig V. Olson, a social scientist and a full-time employee of Development Alternatives, Inc. (DAI). The second team member was Thaddeus E Knowles, a professional engineer and land use planner who was on temporary duty with DAI for this particular project.

The itinerary of the team leader was as follows:

<u>Day</u>	<u>Date</u>	<u>Leave</u>	<u>Time</u>	<u>Arrive</u>	<u>Arrival Time</u>
Wednesday	7 May	Washington	10 15 am	Barbados	3 30 pm
Sunday	11 May	Barbados	6 30 pm	Grenada	7 25 pm
Wednesday	14 May	Grenada	11:30 am	St Vincent	12 05 pm
Sunday	18 May	St Vincent	12 15 pm	St Lucia	12 45 pm
Thursday	22 May	St Lucia	4 00 pm	Dominica	5:05 pm
Tuesday	27 May	Dominica	12 30 pm	Antigua	1 25 pm
Thursday	29 May	Antigua	11 00 pm	Montserrat	11 15 pm
Sunday	1 June	Montserrat	8 10 am	St Kitts	8 40 am
Tuesday	3 June	St Kitts	2 00 pm	Nevis	2 45 pm
Tuesday	3 June	Nevis	6 00 pm	St Kitts	6 45 pm
Thursday	5 June	St Kitts	10 20 am	Anguilla	10 55 am
Saturday	7 June	Anguilla	7:35 am	Belize	2 00 pm
Thursday	12 June	Belize	11 00 am	Washington	9.30 pm

The itinerary of Mr. Knowles differed slightly in that he started from Orlando, Florida, arrived in Barbados on May 8, and visited the island of Carriacou on May

ANNEX 3
GRENADA SUBPROJECT SELECTION CRITERIA

ANNEX 3

GRENADA
SUBPROJECT SELECTION CRITERIA

SCALE*	1 - 10	1 - 5	1 - 5	1 - 10	1 - 5	1 - 3	1 - 5	1 - 10	1 - 5
CRITERIONS	Employment Generation	Total Cost	skilled Labour Requirement	Number of Beneficiary	Regional Location	O & M costs	Utilization of local Materials	IRR or BC Ratio	Social Impact

* Numbers are assigned in order of importance of the Criterion.

103

ANNEX 4

**TYPICAL NEWSPAPER ADVERTISEMENT USED TO INVITE
PROPOSALS FROM CONSULTING ENGINEERS**

TYPICAL NEWSPAPER ADVERTISEMENT USED TO INVITE
PROPOSALS FROM CONSULTING ENGINEERS

NOTICE

COMMONWEALTH DEVELOPMENT BANK TRUST FUND, PROJECT INITIATION FOR CONSULTANTS PROPOSALS

1. The Caribbean Development Bank (CDB) invites the submission of detailed proposals from consulting firms for the review of designs, preparation of contract documents (suitable for use by contractors or for construction by direct labour from the Ministry of Works), technical inspection and issue of payment certificates with respect to the construction of one or more of the following projects:-

- (a) Construction of a Health Centre at Georgeville, St. George District;
- (b) Construction of a Health Centre at Guinea Grass, St. George Parish District;
- (c) Construction of a Health Centre at Chances, St. George Parish District;
- (d) Construction of an Extension to the Vocational Training Centre in Belize City; and
- (e) Completion of King's Park Primary School in Belize City.

2. Designs for these projects have been prepared by the Ministries of Works and Education and may be perused by arrangement with Mr. G. Vernon, the Country Project Supervisor.

3. Proposals are also invited for the review of specifications and the technical inspection and issue of payment certificates for the construction of an extension of the Belizean Water System to Guatemala Village. This work will be undertaken by direct labour under the supervision of the Water and Sewerage Authority.

4. In addition to the normal services usually provided by consultants in works of this nature, monthly reports to CDB on the progress of the works will be required.

5. Enquiries concerning the projects should be made to Mr. G. Vernon, Country Project Supervisor at the Development Finance Corporation's office at 17 Regent St., Belize City.

6. Participation is limited to firms whose principals are citizens of Belize or nationals or residents of the United States of America.

7. Proposals should include details of the firm's financial statements for the last three years and a list of references of similar work completed in the last three years.

185

ANNEX 5

EXAMPLE OF A PROJECT SUPERVISOR'S MONTHLY REPORT

1.84

ANNEX 5

EXAMPLE OF A
PROJECT SUPERVISOR'S
MONTHLY REPORT

CDB/USAID BASIC NEEDS TRUST FUND PROJECT

COUNTRY PROJECT SUPERVISOR'S MONTHLY REPORT

1. COUNTRY: ~~Kenya~~ 2. MONTH ENDING: ~~10th April 1986~~ ^{10th April 1986}
3. SUB-PROJECT NAME: ~~Construction of~~ ^{Construction of} ~~Primary School~~
4. IMPLEMENTING AGENCY: ~~Ministry of Education~~
5. METHOD OF EXECUTION: ~~Construction~~
6. SUB-PROJECT COMMENCEMENT DATE: ESTIMATED ~~14th October 1986~~ ^{14th October 1986}
ACTUAL ... ~~14th October 1986~~ ^{14th October 1986}

7. FINANCIAL

- (a) Allocation: Original: \$ ~~370,704.7~~ ^{370,704.7} Additional: \$
 (b) Expenditure this reporting period: \$
 (c) Cumulative expenditure to end of period: \$ ~~4,100,000.00~~ ^{4,100,000.00}
 (d) Claims submitted prior to end of period: \$
 (e) Claims submitted this period: \$ ~~2,377.27~~ ^{2,377.27}
 (f) Total claims submitted to date: \$ ~~15,100.00~~ ^{15,100.00}
 (g) Total reimbursement to date: \$ ~~10,049.00~~ ^{10,049.00}

8. DIRECT EMPLOYMENT GENERATION

- (a) Number of men employed: ~~1~~ ¹
 (b) Number of women employed: ~~0~~ ⁰
 (c) Number of youth employed:
 (d) Total number of person-days this month:
 (e) Cumulative number of person-days to date: ~~10~~ ¹⁰
 (f) Amount spent on wages this month: \$
 (g) Amount spent on materials/equipment this month: \$ ~~1,504.00~~ ^{1,504.00}

9. INDIRECT EMPLOYMENT GENERATION

(i) LOCAL MATERIAL USED OR PURCHASED	(ii) VALUE OF LOCAL MATERIAL	(iii) COST OF LABOUR INPUT	(iv) AV. DAILY WAGE OR PRODUCER	(v) NO. OF PERSON- DAYS
Lumber	1,000.00	120.00	40.00	2
" "	"	50.00	50.00	"
" "	1,000.00	40.00	40.00	"
" "	1,000.00	60.00	40.00	"

187

ANNEX 6

BNTF - SUPERVISION VISITS BY CDB STAFF

ANNEX 6

BNTF - SUPERVISION VISITS by CDB STAFF

Officer	Country	Start Date	Duration (days)
Charles	MO	84-10-22	4
Gough	BZ	84-11-26	7
Brathwaite	SV	85-02-05	3
Gough	SV	85-02-05	2
Brathwaite	DO	85-02-26	3
Charles	AN/MO/SKN/AG	85-03-19	10
Brathwaite	SL	85-03-25	3
Gough	SL	85-03-25	3
Gough	BZ	85-04-21	6
Charles	AN/MO/SKN	85-06-17	5
Gough	BZ	85-07-20	7
Brathwaite	SV/GR	85-07-21	5
Brathwaite	SL/DO	85-08-11	5
Charles	AN/MO/SKN/AG	85-08-12	11
Gough	SKN	85-10-08	2
Brathwaite	SL	85-10-15	3
Gough	SL	85-10-15	3
Brathwaite	SV	85-10-22	3
Brathwaite	GR	85-11-05	3
Gough	BZ	85-11-16	6
Charles	MO/SKN/AG/AN	85-11-18	11
Brathwaite	DO	85-11-26	3
Charles	AG	86-01-26	3
Brathwaite	SL	86-01-28	5
Brathwaite	SV	86-02-11	4
Charles	MO/SKN/AN	86-02-23	7
Brathwaite	GR	86-02-24	4
Brathwaite	DO	86-03-18	3
Brathwaite	SL/SV	86-04-21	4
Charles	SKN	86-04-27	5
Brathwaite	GR	86-05-06	3
TOTAL			146

AN-Antigua & Barbuda AG-Anguilla BZ- Belize DO-Dominica
 GR-Grenada MO-Monsterrat SKN-St.Kitts & Nevis SL-St.Lucia
 SV-St.Vincent & the Grenadines

ANNEX 7

**BELIZE PROJECT SUPERVISOR'S EMPLOYMENT GENERATION
AND MATERIALS PROCUREMENT FORM**

261

BELIZE

CJB/USAID BASIC NEEDS TRUST FUND PROJECT

Record of Direct Employment Generation and Purchase of Materials

Sub Project:

Month Endings:

	U	V	W	X	Y	Z	T O T A L S				
No. of Weeks in Month	Dates	No. of People Employed	No. of days Worked on a weekly basis (person days)	wages paid on a weekly basis	Leave wages paid	Average No. of people Employed This Month	No. of Days worked this month	Cumulative Amounts Spent on wages	Total Days Worked To Date	Cumulative Leave Wages Paid	Total Cost of materials For the Month
Week No. 1											
Week No. 2											
Week No. 3											
Week No. 4											
Week No. 5											

VII-1

RECORD OF INDIRECT EMPLOYMENT GENERATION AND PURCHASE OF MATERIALS

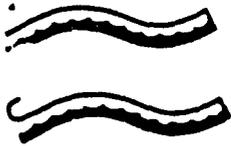
and Project:

Month ending:

1	2	3	4	5	6
Local Material used Purchase	Value of Local Material	Cost of Labour Input	Average Daily Wage of Producer	No. of Person Days (No. of Days worked)	Total Cost Of Local Material Purchase

193

ANNEX 8
MAINTENANCE PLAN:
DOVER SCHOOL,
GRENADA



Joseph John & Associates
Consulting Engineer

P O Box 239
 Tyrrel Street
 St. George's
 Grenada, West Indies



2966

May 20th, 1956

Ref. No.: LE/BMTF 25 05

Permanent Secretary,
 Ministry of Education,
 St. George's.

Dear Madam,

RE: REPAIRS TO DOVER SCHOOL MAINTENANCE PLAN

Repairs to this school under the BMTF project is scheduled to be completed by the end of June 1956. We feel it is timely to recommend a maintenance schedule which should be rigidly adhered to if the full benefit of the programme is to be achieved.

We have to highlight the areas of greatest importance in the maintenance plan:

- Plumbing system
- Main water supply systems
- Termite treatment
- Windows/doors
- Electrical systems

Without a proper and systematic approach to maintenance of the building the results would be:

- High repair cost
- Reduced life of the building
- Possible high accident rate
- Low teacher and student morale
- Reduced productivity

OPERATION:

Maintenance of the building can be categorized into three areas:

- Preventative maintenance
- Scheduled repair work
- Unforeseen repair work

195X

1. PREVENTIVE MAINTENANCE :

This can be described as education, regular inspection of elements in the building, to ensure they are functioning as they are designed to function. Preventive maintenance can:

- Ensure proper use of the facilities in the building
- Prevent problems occurring
- Reduce repair cost
- Detect unsafe problems
- Increase equipment life

It can therefore be seen as the positive approach to effective management of the building.

The cost of preventive maintenance is small and safety is assured.

Hereunder is a schedule of instructions suggested for Preventive Maintenance:

DAILY:

- 10 minutes education programme on the proper use of facilities in the building such as:
 - Water closets
 - Electrical systems
 - Elements of the building
- Inspection of windows and doors for loose screws, defective hinges, broken glass etc. so that immediate repairs can be effected.
- Inspect electrical system for damage or loose wire or broken fixtures so that immediate repairs can be effected.
- Check plumbing systems for foreign material in water closets, blocked sewage pipes and defective flush cisterns.
- Inspect the water supply system for damage rain-water guttering, and broken pipes.

MONTHLY:

- OIL or grease all hinges and locks in doors and windows.
- Check all retinal parts for corrosion.

ANNEX 9 /
THE HYDROGLAS SYSTEM

REPAIRS:

- Insure building against fire and other perils.
- Check for termite attack on timber members.
- Check all materials in building.

PAINT & GLASS:

- Paint entire building.

GENERAL:

All defects identified must be repaired within a period of three (3) days.

Scheduled repairs must be executed within a period of twenty-one (21) days.

Suggested tools to be kept by the school:

- Screw driver
- Oil
- Grease
- Hammer
- Nails
- Trowel
- Cleaning oil

Observe maintenance programme for water pump.

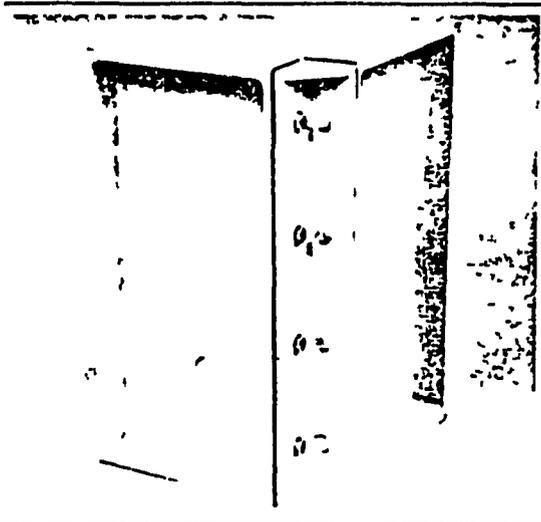
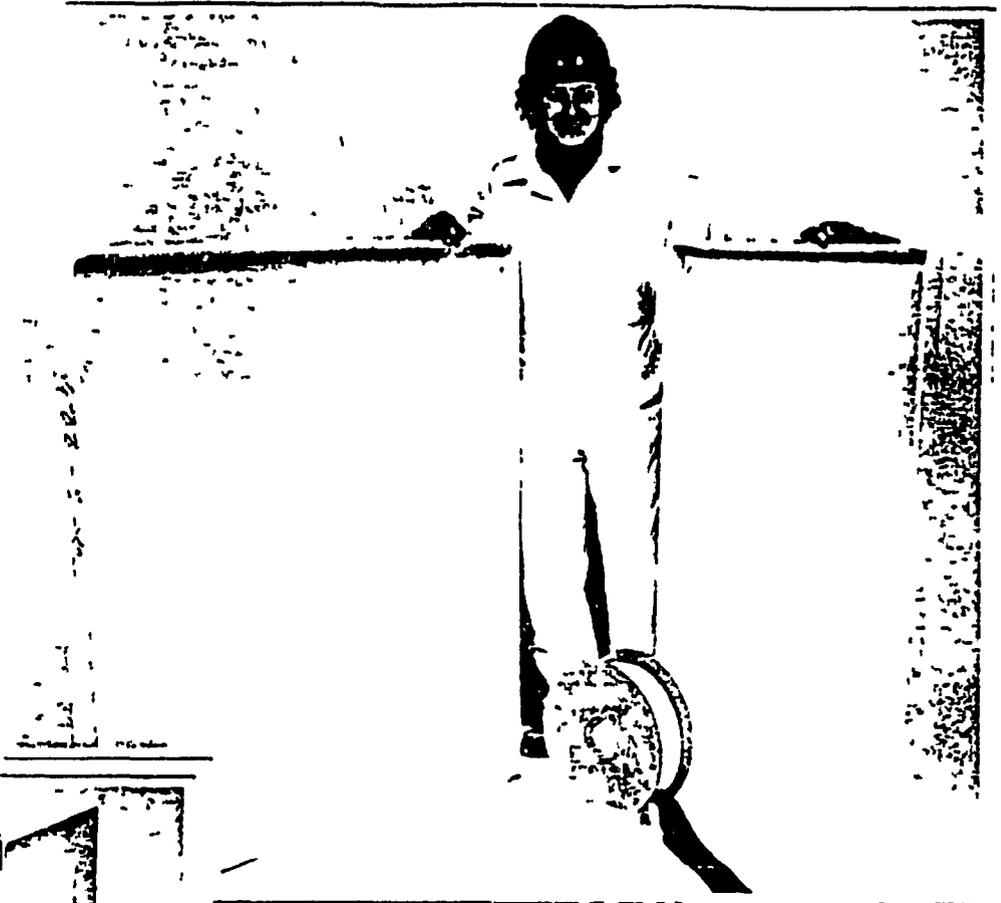
Yours truly,



Joseph J. Jones

cc Cecil Edwards

Hydroglas tank basic components ▷



△ Example of corner angle in position showing sealant strip and fastening method

Hydroglas tanks may be any length or width with a maximum height of 3660mm (12ft) and up to and over 5 million litres (1,100,000 imperial gallons) capacity. They can be erected on flat level concrete bases, on dwarf walls or RSJs, in roof spaces or on the roof, in basements or on towers. Tanks can also be buried to a maximum depth of 2440mm (8ft) provided the base is above the water table. They are designed to withstand the loads imposed by filling to capacity but must not be pressurised.

The basic components are GRP panels and corner angles, bolted together through flanges. A sealant strip especially developed within the company is used to achieve a watertight joint.

Special Uses

Tanks may be suitable at ambient temperatures for light oils such as diesel oil or domestic fuel oil which do not need to be heated and for acid and alkaline liquids within the range pH 2 - 10. Where it is proposed to use tanks for liquids other than water or where water temperatures are likely to exceed those produced by climatic conditions, we will be pleased to advise on their suitability if full details are given.

Compartmented roof top tanks are available which have been designed with piping contained in a dry compartment at the end of the storage tank. The complete unit can be insulated against frost and the system saves the cost, design time and problems of tank rooms on roofs. These tanks are available with a depth of 1220mm (4ft) only.

Specialty designed tanks for domestic use are also available.



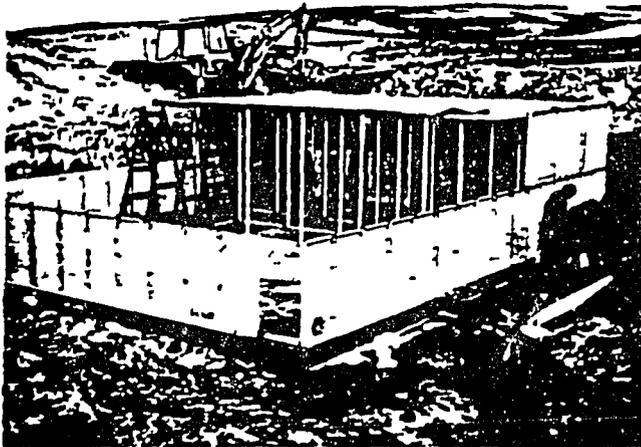
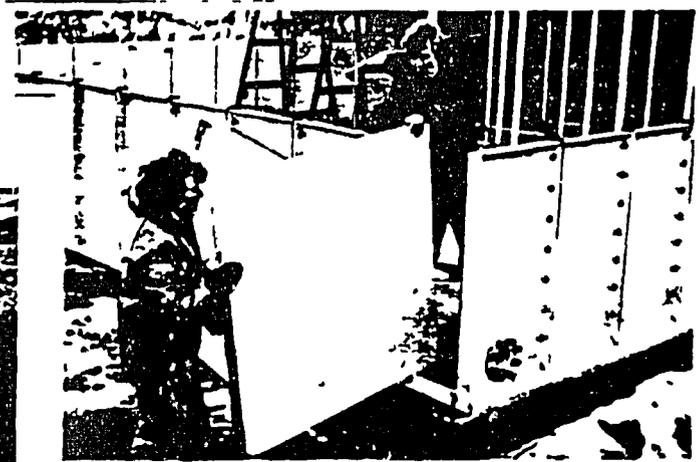
Full range of Hydroglas tanks and accessories

199X



△ Erecting a heavy duty cover in Oman

Manhandling the lightweight panels.▷



△ Assembly is easy even in difficult terrain



△ Site employees can do the work.

The advantages of our hot press moulded GRP panels are many

- Dimensional stability and close tolerance
- Impregnated colouring
- Thermal insulation
- High strength to weight ratio
- Suitability for worldwide climates
- No need for painting or protective treatment
- Will not rust
- Do not support algae, bacteria or fungal growth
- Approved for potable water

Hydroglas tanks are normally completely free of internal ties. The sectional system and the light weight of the panels permits easy storage, transport and assembly even in difficult terrain. Divisions are available if required but for maintenance purposes they can often be eliminated because there is no need to refurbish the panels.

Construction is normally carried out by us or by our appointed agent. For overseas markets we can arrange for a supervising engineer to instruct your own site employees to do this work.

Naturally we offer a technical back-up service to cater for your specific requirements and to ensure that any advice required before dunnig or after installation is quickly and efficiently dealt with

200