

UNCLASSIFIED

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

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222p

CAPITAL ASSISTANCE PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

UNIVERSITY OF THE WEST INDIES - INTEGRATED REGIONAL DEVELOPMENT
CARIBBEAN REGIONAL

AID-DLC/P-2087

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June 12, 1975

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: University of the West Indies - Integrated Regional
Development - Caribbean Regional

Attached for your review are recommendations for authorization of a loan to the University of the West Indies ("Borrower") of not to exceed eight million five hundred thousand United States Dollars to assist in financing the United States dollar and local currency costs of expanding and developing the Borrower's training, research and outreach programs.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee on Wednesday, June 18, 1975; please note your concurrence or objection is requested by close of business on Monday, June 23, 1975. If you are a voting member a poll sheet has been enclosed for your response.

Development Loan Committee
Office of Development Program
Review

Attachments:

Summary and recommendations
Project Analysis
ANNEXES I - V

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UNIVERSITY OF THE WEST INDIES
INTEGRATED REGIONAL DEVELOPMENT

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UNIVERSITY OF THE WEST INDIES: INTEGRATED REGIONAL DEVELOPMENT

SUMMARY AND RECOMMENDATIONS

A. Borrower

The borrower will be the University of the West Indies. On behalf of the University, the proposed loan would be authorized and executed by the Council of the University. The implementing sub-unit will be the U.W.I. Development and Planning Unit.

B. Guarantee

Prior to execution, the proposed loan shall be approved by the University Grants Committee as the representative of the contributing territories who will be responsible for repaying the loan through contributions to the UWI.

Prior to the first disbursement, the Governments of Jamaica, Trinidad and Tobago and Barbados shall each guarantee a portion of the total amount of the loan.

C. Amount and Terms of the Loan

The loan will not exceed \$8.5 million and will be repayable over 40 years including a ten-year grace period on principal. Interest will be at the rate of 2% per annum during the grace period and 3% per annum thereafter. The disbursement period for the construction and equipment categories of loan expenditures is three years. Loan financing for the scholarship program will require a four-year disbursement period.

D. Goal and Purpose

The goal of the project is to improve the overall quality of life in the Caribbean region. The project sub-goal is to strengthen regional and national development activities of the U.W.I. and its contributing territories, especially the less developed states (LDC). ^{1/}

The purpose of the project is to expand and improve U.W.I. development oriented programs in the following categories:

^{1/} The LDC territories of the region are generally considered to include the smaller English-speaking Caribbean Island, Guyana and Belize and to specifically exclude Trinidad and Tobago, Jamaica, Barbados and the Bahamas which are referred to as MDC's.

1. Training - The project will assist the U.W.I. in developing and introducing new curriculum and expanding teaching programs relevant to the developmental needs of the region. To ensure that students from the less development countries (LDC) in the region have access to such U.W.I. training programs the project will provide for a scholarship fund for LDC students.
2. Research - The project will expand the University's capacity for research in certain critical areas and will assist the U.W.I. to realize its full potential as one of the major contributors to the transfer of technology in the region.
3. Outreach - The project will assist the U.W.I. to develop its outreach and extension capabilities and, through organizational changes, will improve the linkages and communication between the University and the regional community it serves.

E. Background

IBRD and OAS studies have identified high and rising unemployment as the most serious socio-economic problem facing the English-speaking Caribbean. Closely interrelated with this problem is the alienation of the younger generation from an agricultural system based on historical colonial patterns and the migration of these youths to urban areas. The high level of unemployment is the major factor contributing to poverty and skewed income distribution resulting in rising crime rates and urban unrest.

More recently, the leaders of the region have increasingly become aware that the agricultural sector and rural development must be given priority if unemployment rates are not to reach even higher levels and the strains on the society to become intolerable. In several states the ultimate viability of the economies could well depend on the revitalization of the agricultural sector. This revitalization must be based on carefully developed long term solutions to the constraints arising from negative cultural attitudes towards work in the rural sector, the shortages of trained agricultural personnel, the lack of adequate incentives in the agricultural sector relative to other economic activity, over-dependence on a few export products, skewed land distribution and tenure arrangements, rising unit production costs, short-comings in government support and pricing policies, and the limited ability of

governments to provide adequate health, education and other services in the rural areas.

Because of the commonalities of development problems and economies of scale in the Caribbean, AID assistance (with the exception of bilateral programs in Jamaica and Guyana) has concentrated on fostering a regional approach to development through support of those indigenous institutions which are uniquely equipped to address these problems. The U.W.I. is one such institution, having, as it does, a large supply of technical expertise which can be turned toward the problems of development.

F. Project Description

1. Research, Training and Outreach Programs - The project involves the expansion and development of certain U.W.I. research and training programs, involving the faculties of Agriculture, Natural Science, Arts and General Studies. The specific programs were selected on the basis of their relevance to regional development. Also included is the expansion and improvement of certain University support services such as a pilot Resource Learning Center and library facilities. The U.W.I. will provide the necessary human and budgetary resources to carry out these programs. AID loan funds will finance the necessary physical inputs, i.e. buildings to house laboratories, libraries, offices, and classrooms, scientific equipment, furnishings, and books. Classroom construction is minimal (4 of total spare frontage) and is related to the specific faculty research and training programs being supported by the loan. In addition, the loan will provide for technical assistance and training in furtherance of these activities.
2. Scholarship Program - The project will include a \$1,000,000 scholarship program for LDC students. The scholarship program will be structured to the maximum extent practicable to increase the development administration capabilities in the LDC territories by providing pre-entry and in-service training for civil servants in such critical areas as public administration, agriculture, economics, etc.
3. Multi-Disciplinary Development Committee - As part of the project the U.W.I. will formally establish a body within the University charged with the responsibility of assisting in the planning, implementing and monitoring of the University's total development related activities. This body will seek to establish linkages and improve communications between the University and the Caribbean community it serves to help ensure that the U.W.I. realizes its full potential for service to the region.

G. Financial Plan

The estimated total cost of the project is \$13.0 million with a U.W.I. input of \$4.5 million (35%) and an AID loan input of \$8.5 million (65%).

1. Proposed Use of Loan Funds - It is estimated that 38% of the loan will be used for foreign exchange expenditures for construction materials and equipment from the U.S. and other Code 941 countries. An estimated 62% of loan funds will be used to finance local currency costs of the project.

The U.W.I.'s input into the project includes a building financed by the Government of Jamaica, operational costs for the implementation of project activities and matching funds for scholarships.

2. Tabular Summary of Financial Plan - The following table shows the project cost breakdown by components and sources of financing:

Summary Financial Plan and Cost Estimate
(U.S. \$000)

<u>Utilization of Project Funds</u>	<u>AID Loan</u>	<u>U.W.I. Contribution</u>	<u>Total</u>
Construction	4,116	305	4,421
Furniture & Equipment	1,750		1,750
TA/training	200		200
LDC Scholarships	500	500	1,000
Staff & other recurrent costs		3,691	3,691
Inflation	1,516		1,516
Contingency	412		412
Total	<u>8,494</u>	<u>4,496</u>	<u>12,990</u>

H. Other Sources of Financing

The IBRD, the IDB and Export-Import Bank have stated they are not interested in financing this program.

I. Views of ARA/LA/CAR

To foster economic cooperation and integration A.I.D. is assisting the Commonwealth Caribbean countries with selective development problems through expanded cooperation with other international lending agencies and regional institutions. The University of the West Indies, which is the principal source of

higher level training in the region, currently has the greatest accumulation of technical expertise in the Eastern Caribbean. As such, it is uniquely suited to serve as a vehicle for the transfer of technology, research and training to its member states. The proposed loan will enable the U.W.I. to become more development-oriented by giving increased attention to its outreach capacity, particularly in the agricultural sector. A concentrated effort with other donors to assist the University is warranted if a broader impact to going to be made on regional development.

J. Statutory Criteria

All statutory criteria have been met. (See Annex I, Exhibit A)

K. Issues

The issues which were raised in the DAEC review of the IRR are contained in a letter dated March 4, 1975, from Mr. J.A. Breen of LA/DR to Dr. A.Z. Preston, Vice Chancellor of the U.W.I. (see Annex I, Exhibit B). Below is a summary of these issues along with references to the specific sections of the CAP in which they are addressed:

- | | <u>Reference</u> |
|--|---|
| 1. Is the U.W.I. a critical element in the development of the region? | Section I - Appraisal of the U.W.I. |
| 2. Will project inputs of Capital and recurrent costs in fact result in expansion and improvement of the development related activities of the University? | Section III - Project Description |
| 3. What institutional mechanism will be established to facilitate a multi-disciplinary approach to the U.W.I.'s development related activities? | Section III.B. - Multi-Disciplinary Development Committee |
| 4. A systematic analysis of training needs will be required. | Section IV.B. - Economic Analysis |

- | | |
|--|--|
| 5. It appears that a larger proportion of loan financed inputs may be justified for the Faculty of Agriculture | Section IV.E. -
Financial Analysis
(Increased from 14%
in IRR to 31% in
CAP) |
| 6. What additional complementary financial contributions to the project can be provided by the MDC's? | Section III.C. -
Scholarship Program |
| 7. What arrangement can be made for the guarantee of the loan? | Summary, Paragraph B-
Guarantee |

L. Recommendations

On the basis of the conclusions of the Capital Assistance Committee that this project is technically, economically and financially sound, it is recommended that a loan be authorized to the University of the West Indies in an amount not to exceed \$8.50 million, subject to the following terms and conditions:

1. Interest and Terms of Repayment - Borrower shall repay the Loan to the Agency for International Development ("AID") in United States Dollars within forty (40) years from the first disbursement under the Loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to AID in United States Dollars, interest at the rate of two (2) percent per annum during the grace period, and three (3) percent thereafter on the disbursed balance of the Loan and unpaid interest.
2. Source and Origin - Goods, services (except for ocean shipping) and marine insurance financed under the Loan, shall have their source and origin in Jamaica, Trinidad and Tobago, Barbados, or in any country included in Code 941 of the AID geographic Code Book. Marine insurance may be financed under the Loan only if it is obtained on a competitive basis and any claims thereunder are payable in freely convertible currencies. Ocean shipping financed under the Loan shall be procured in any country included in Code 941 of the AID geographic Code Book.

3. Local Currency Costs - United States Dollars utilized under the Loan to finance local currency costs shall be made available pursuant to procedures satisfactory to AID.
4. Conditions Precedent to Execution - On or before the execution of the Loan, Borrower shall submit to AID, in form and substance satisfactory to AID, evidence that the University Grants Committee ("UGC") has approved the Program and will provide funds to the Borrower in an amount sufficient to assure the successful implementation of said Program.
5. Conditions Precedent to Initial Disbursement - Prior to any disbursement or the issuance of any commitment document under the Loan, Borrower shall submit to AID, in form and substance satisfactory to AID:
 - (a) A guarantee subscribed and agreed to by each of the governments of Jamaica, Trinidad and Tobago, and Barbados, wherein each of said governments unconditionally binds and pledges itself, that in the event of a default by the Borrower, each shall pay to AID in United States Dollars a proportionate share (as agreed upon by said governments) of:
 - (1) the total AID funds disbursed under the Loan which remains unpaid by the Borrower; and
 - (2) the unpaid accrued interest on 1. hereof;
 - (b) Evidence that Borrower's Development and Planning Unit has designated a person to act as project manager on a full-time basis.

6. Conditions Precedent to Disbursement for Other than Architecture/Engineering Services- Prior to any disbursement or the issuance of any commitment document under the Loan, for the purpose of financing other than architecture/engineering services, Borrower shall submit to AID, in form and substance satisfactory to AID:
- (a) An agreement with the Caribbean Agricultural Research and Development Institute ("CARDI"), which shall set forth inter alia:
 - (1) the institutional relationships between Borrower and Cardi; and
 - (2) arrangements regarding CARDI's use of Borrower's institutional facilities;
 - (b) Evidence of the establishment and composition of the Multi-Disciplinary Development Committee;
 - (c) A time-phased plan setting forth the integration of library and information management services.
7. Conditions Precedent to Disbursement for Specific Categories of Expenditures - Prior to any disbursement or the issuance of any commitment document under the Loan for the purpose of financing each of the following categories of expenditures, Borrower shall submit to AID in form and substance satisfactory to AID:
- (a) Regarding Expenditures for Construction or Renovation of each specific building or group of buildings as determined appropriate by AID:
 - (1) evidence that Borrower holds a clear fee simple interest, or long term leasehold interest in the land upon which such building or group of buildings shall be constructed or renovated;
 - (2) final drawings, construction plans, specifications, bid documents and cost estimates; and
 - (3) an executed agreement with a contractor for the construction or renovation of such building or group of buildings, which agreement and contractor shall be acceptable to AID;
 - (4) a detailed plan setting forth arrangements for the maintenance of the buildings to be constructed or renovated under the loan.

- (b) Regarding Expenditures for the Purchase of Equipment;
 - (1) a time-phased procurement plan, which plan shall set forth the desired delivery date for each item to be procured; and
 - (2) arrangements for implementing the procurement actions;
- (c) Regarding Expenditures for Training and Technical Assistance;
 - (1) a time-phased plan setting forth the implementation of all training activities, which plan shall include inter alia;
 - a. categories of training; and
 - b. duration and estimated cost of each such training activity;
 - (2) a time-phased plan setting forth the implementation of all technical assistance activities, which plan shall include for each such technical assistance activity;
 - a. the scope of work; and
 - b. the duration and estimated cost.
- (d) Regarding Expenditures for the Scholarship Element;
 - (1) a time-phased financial and administration plan for the implementation of the scholarship program;
 - (2) the criteria to be used in selecting students for participation in the scholarship program;
 - (3) the criteria to be used in allocating scholarships among the less developed countries ("LDCs"); and
 - (4) arrangements to induce each scholarship recipient to return to his home territory subsequent to his training, and work in his area of acquired expertise.

(e) Regarding Expenditures for the Construction and Equipping of the Multi-Media Production Center;

(1) evidence that the Government of Jamaica has agreed to furnish a grant to the Borrower of not less than \$305,000 for the purpose of partially financing the construction and equipping of a building to house the Mass Communications Department.

(2) evidence that the Borrower has executed an agreement with a contractor for the construction of a building in which to house the Mass Communications Department.

(f) Regarding Expenditures for the Construction and Equipping of the Food Processing Plant;

(1) a plan which shall set forth inter alia the research and training activities to be carried out, and means of dissemination and utilization of technology developed.

(2) mode of operation including a description of faculty, student and government participation.

8. Covenants -

- (a) Except as AID may otherwise agree in writing, Borrower covenants and agrees to submit to AID, in form and substance satisfactory to AID, evidence that the Borrower has made the corresponding budgetary allocation for the subsequent 12-month period in accordance with the financial plan to be included in the Loan Agreement Annex.
- (b) Borrower covenants and agrees to submit to AID not later than January 1, 1976, and yearly thereafter, in form and substance satisfactory to AID, Borrower's annual audited financial statements for the preceding fiscal year.
- (c) Borrower covenants and agrees to undertake its best efforts to seek funding for continuation of the scholarship program for students from the region's less developed countries at a level not less than that necessary to provide 25 scholarships per annum.

9. Other Terms and Conditions - The Loan shall be subject to such other terms and conditions as AID may deem advisable.

Deputy U. S. Coordinator

Date

M. Composition of the Capital Assistance Committee

Sturgis Carbin	-	Education Specialist,	LA/DR/EST
Thomas Stukel	-	Loan Officer,	LA/DR
James Hawes	-	Agricultural	
		Specialist,	LA/DR
Gerald Wein	-	Economist,	LA/DR/EST
Joaquin Marquez	-	Lawyer	LA/GC
Juan Cabrero	-	Engineer	SEF/ENGR
Kenneth Howe	-	Consultant, Higher	
		Education	
John McLain	-	Consultant, Facilities	
		Utilization	
David Donovan	-	Consultant, Libraries/	
		Information Management	
Reviewed by		Ronald F. Venezia	LA/DR

SECTION I - APPRAISAL OF U.W.I.

A. Background

The University of the West Indies is supported by and serves the following fourteen different territories in the West Indies five of which are independent nations (denoted by *). (See Annex II, Exhibit A

Antigua	*Grenada
*Bahamas	*Jamaica
*Barbados	Montserrat
British Honduras	St. Kitts-Nevis-Anguilla
Br. Virgin Islands	St. Lucia
Cayman Islands	St. Vincent
Dominica	*Trinidad & Tobago

In addition, Guyana is a full participant in the Faculty of Law and by agreement, has a limited number of students in the professional faculties.

The institution came into being as the University College of the West Indies under a British Royal Charter granted on January 9, 1949, and was granted University status under a Royal Charter of Incorporation on April 2, 1962.

In Jamaica the University and its Teaching Hospital occupy a 653 acre site at Mona, in the Parish of St. Andrew some seven miles from Kingston which is leased by their Governing bodies from the Government of Jamaica for 999 years at a peppercorn rent. At Mona are situated the Faculties of Arts and General Studies, Natural Sciences, Medicine, Social Sciences and the School of Education (Western Area). Students read for Special Degrees and General Degrees, Diplomas and Certificates offered by those Faculties and for the First Year course only of the LL.B degree offered by the Faculty of Law. The facilities also include Administration Buildings, Library, a Students Union, four Halls of Residence and houses and flats for members of staff.

In Trinidad the University campus is sited at St. Augustine, some eight miles east of Port-of-Spain. At St. Augustine are the Faculties of Agriculture (formerly the Imperial College of Tropical Agriculture), Engineering, Faculties of Arts and General Studies, Natural Sciences, Social Sciences and the School of Education (South-Eastern Area). The central campus with playing fields and the home farm, covers 116 acres. Another farm which lies some three miles to the west, on the Churchill-Roosevelt Highway, covers more than 300 acres; River Estate, the experimental station of 425 acres of which nearly one-third is under cacao, is 17 miles away to the northwest of Port-of-Spain.

The University in 1963 established its third campus in Bridgetown, Barbados, with the aid of funds for capital expenditure supplied by the British Government. Teaching began in temporary quarters and in 1968 permanent buildings at Cave Hill were opened. At Cave Hill students of the University read for degrees in Arts and General Studies, Natural Sciences and LL.B. degrees. The Faculty of Law in which teaching began in 1970 is situated at Cave Hill, but first year courses are also offered at the Mona and St. Augustine campuses as well as the University of Guyana. The North Eastern Area of the School of Education is situated here also.

Until 1962 degrees were awarded by the University of London under special arrangement with that Institution. Teaching was based on University of London Syllabii modified to meet local needs. Since 1962, when the University College became an independent University students began to read for degrees of the University of the West Indies. The University now offers degree courses in eight faculties: i.e., Agriculture, Arts and General Studies, Education (the Department and the Institute of Education were integrated to become the School of Education in October, 1972), Engineering, Law, Medicine, Natural Sciences and Social Sciences as well as Diploma and Certificate courses in Agriculture, Education, Public Administration, International Relations, Management Studies, Nursing Education, Nursing Administration and Social Work.

In addition to the above faculties, the University has a number of entities that function in a semi-autonomous manner. These are briefly described below:

The Extra-Mural Department

This department (the Department of Extra-Mural Studies) is concerned with adult education throughout the region and is an integral part of the university.

The work of the department is organized through resident tutors in each of the contributing territories, coordinated by a Director at Mona. Allied to the Extra-Mural Department are the Creative Arts Centre, the Social Welfare Training Centre, the Trade Union Education Institute and the Radio Education Unit.

The Social Welfare Training Centre

This Centre undertakes training courses and seminars in Social Welfare for people of the Caribbean Area as well as a two year course leading to the Certificate in Social Work in alliance with the Faculty of Social Sciences. The Centre was constructed by the Government of Jamaica.

Trade Union Education Institute

This Institute runs courses for trade-unionists from the region. Seminars on Industrial Relations for middle management personnel are also organized. The T.U.E.I. is financed through funds from the USA made available to Jamaica through the Agency for International Development.

The Institute of Social and Economic Research (ISER) which has a branch in the Eastern Caribbean was a forerunner to teaching in the Social Sciences and carries out research in various aspects of the economy, society and policy of the Region.

It operates a library and publishes a quarterly journal: Social and Economic Studies.

The Caribbean Food and Nutrition Institute

This Institute has links with the Faculties of Agriculture and Medicine and serves fifteen Caribbean countries from its centres in Jamaica and Trinidad. The Institute develops and supports programmes aimed at practical, economic and realistic solutions to food and nutrition problems in the Region with special emphasis on the nutrition problems of young children. It also offers nine month courses leading to a Diploma in Community Nutrition.

Tropical Metabolism Research Unit

The TMRU is a clinical research unit primarily concerned with the problems of malnutrition. In addition to its research activities it provides postgraduate training in nutrition as well as in other branches of medical research.

The Epidemiological Research Unit

This unit undertakes research throughout the West Indies on the prevalence, incidence and distinctive characteristics of common medical disorders in the region. Like the TMRU, this unit operates under the aegis of the Medical Research Council of Great Britain and was incorporated into the University in 1970. Both units work in close collaboration with the Faculty of Medicine.

Advanced Nursing Education Unit

This unit, which is part of the Faculty of Medicine, runs one year courses for persons who have qualified in general nursing. Certificates in Nursing Education and Nursing Administration are awarded.

A number of institutions are affiliated with the University. The Licentiate in Theology and the Degrees of Bachelor of Arts (Theology) are awarded to students of the Codrington College, Barbados and the United Theological College of the West Indies, Jamaica. The Institute of International Relations (St. Augustine) is also an affiliated institution of the UWI.

The student enrollment for the academic year 1974/75 totals 7,918 full-time and part-time students.

(See Annex II, Exhibit B for additional UWI background information and statistics).

B. U.W.I. Outreach

The U.W.I. contribution to regional development takes many forms. The most obvious of these is the University's role as the region's major indigenous sources of trained manpower.

1. The U.W.I. School of Medicine is the only source of qualified doctors in the region. In addition, it has various programs such as Community Nutrition, Nursing and Public Health which provide needed skills for maintaining and improving health in the region.

The department has been concerned over the years with the interdisciplinary approach to community problems of which health care is only a part. In the belief that an interdisciplinary approach to human problems is advantageous to a university teaching social sciences, medicine and education, and involved in community development programmes through the Extra-Mural Department, the Department of Social & Preventive Medicine, initiated and developed a community "Laboratory" in a nearby low-income semi-suburban, semi-rural community of Hermitage and August Town. This village has a population of about 7,000 and has provided the framework for a series of experimental projects in the field of social development.

It is in this setting that not only medical students but other students, namely, nursing, social welfare, community development and welfare receive some training. These students come from all over the Caribbean, including the less developed countries of the Eastern Caribbean. It was in this setting that the department, in its outreach to the poorest sections of the community, developed the first Community Health Aide Training Programme in the English-speaking Caribbean. The Department of Social & Preventive Medicine further demonstrated its usefulness in a deep rural village

of Jamaica through a collaborative effort, including the Ministry of Health of Jamaica, the Cornell University Medical College and the Department. So successful was this programme that the Government of Jamaica has fully accepted this new category of Health Auxiliaries.

The Department, in its further outreach, has extended the Community Health Aide concept to the smaller islands of the Eastern Caribbean. The Department, in collaboration with the Ministry of Health, Education & Culture, the U.W.I. Department of Extra-Mural Studies, and the Community Health Association, Antigua, has initiated conferences/seminars to be held in Antigua, Leeward Islands, on the same topic. The participants include health and community development personnel from the "grass-roots" level, and various representatives from other Eastern Caribbean Islands of St. Kitts, Montserrat, St. Lucia and St. Vincent.

2. The U.W.I. School of Education at Cave Hill as a link of the University to the smaller territories has sought to bring the resources of the University to the Eastern Caribbean by expanding:
 - a. its work with seven teachers' colleges in the Eastern Caribbean to whom it offers advice and assistance with institutional organization, construction of syllabuses and translating these into curricula, joint sitting and assessment of final year written examinations leading to the award of U.W.I. Certificates, seminars and workshops for principals and staff of these colleges;
 - b. its work with schools through curriculum development projects in language arts, including reading, mathematics and science in collaboration with bilateral and international agencies;
 - c. its research activities in language teaching and learning in particular, the teaching/learning process in general, and measurement and evaluation of teachers' college courses and curriculum development projects;
 - d. its consultancy services to governments on their request.

The seven teachers' colleges in the Eastern Caribbean are affiliated to the School of Education whose personnel work together with college staff in:

- a. making suggestions regarding curricula training procedures evaluation techniques;
- b. holding workshops for tutors at individual teachers' colleges and at School of Education, Cave Hill;
- c. setting and moderating final year examination papers in language arts, mathematics and education;
- d. assessing student teachers during their final practical teaching sessions;
- e. assessing sample of student teachers' individual studies;
- f. recommending student teachers for the award of U.W.I. Certificates.

In addition, student teachers from Montserrat, Anguilla and the British Virgin Islands attend teachers' colleges in Barbados, Antigua and St. Lucia for training.

In-Service training programmes, with which members of the School of Education are associated as resource personnel, are also in operation in those territories where there are no teachers' colleges.

Curriculum Development Projects

Curriculum development projects in language arts, mathematics and science are on-going action research projects which are conducted in collaboration with bilateral and international agencies such as CEDO (not the British Council) and UNESCO/UNICEF/UNDP in Project RLA 142.

These projects involve the initial pre-testing of the student population in project schools in the various territories, the writing of curriculum units by teams of university, teachers' colleges and schools personnel, the testing of these units in project schools, the evaluation, from feed-back supplied by teachers in schools of the suitability of these units both for students and teachers; the re-writing of the final versions of these units.

Two publishing firms in the United Kingdom have signed contracts with the U.W.I. School of Education for copyright regarding the publication of mathematics and science material emanating from these curriculum projects at the junior secondary level. Teachers' guides are included in the science publications. In the case of mathematics, teachers' guides are being supplied by the School of Education.

Table 1 shows the number of schools, teachers and students involved in the Caribbean Mathematics Project.

TABLE 1

Schools, Teachers and Pupils in
Caribbean Mathematics Project
(Eastern Caribbean)

<u>Territories</u>	<u>Schools</u>	<u>Pupils</u>	<u>Teachers</u>
Antigua	7	1069	16
Barbados	5	772	14
Dominica	5	720	15
Grenada	5	870	8
Montserrat	2	330	4
St. Kitts	5	2229	23
St. Lucia	6	1970	22
St. Vincent	4	382	9
	<u>39</u>	<u>8342</u>	<u>111</u>

Explanatory Note for Table 1

This project comprises pupils and teachers of three classes in most schools in which Year 1 and Year 2 and Year 3 curriculum development materials in mathematics at the junior secondary level are being tested. The schools include both urban and rural secondary schools in each territory.

Table 2 shows the number of schools, teachers and pupils involved in the West Indies Science Curriculum Project.

TABLE 2

Schools, Teachers and Students in
the West Indies Science Curriculum Project
(Eastern Caribbean)

<u>Territories</u>	<u>Schools</u>	<u>Pupils</u>	<u>Teachers</u>
Anguilla	1	135	2
Antigua	6	235	7
Barbados	13	5700	42
Dominica	6	1227	12
Grenada	4	779	10
Montserrat	2	230	5
St. Kitts	6	1912	23
St. Lucia	6	1530	15
St. Vincent	10	1700	14
	54	13448	130

Explanatory Note for Table 2

This project also extends to Jamaica, Guyana, Belize and the Cayman Islands and involves a total of 13 territories, 84 schools, 243 teachers and 18,222 students. The statistical data in Table 3 refers to the Eastern Caribbean territories only.

Table 3 shows the number of schools, teachers and pupils involved in the Eastern Caribbean Language Arts Project.

TABLE 3

Schools, Teachers and Students in the
East Caribbean Language Arts Project

Territories	Schools	Pupils	Teachers
Antigua	4	360	6
Barbados	3	160	6
British Virgin Is.	3	240	6
Dominica	3	240	3
Grenada	1	160	3
Montserrat	1	240	3
St. Kitts	1	140	3
St. Lucia	3	480	6
St. Vincent	2	360	3
TOTAL	21	2380	39

Explanatory Note for Table 3

These figures are approximate only, for the same territories the materials are being used in other schools as well. These figures therefore represent a minimum number. This is true for schools classes, teachers and children.

The outreach of the School of Education to schools and teachers' colleges in the Eastern Caribbean is evident. U.W.I. responds to requests from Ministries of Education concerning any special projects - surveys, investigations - on which they might request.

a. Extra-Mural Studies

When the university was established in 1948 very high priority was given to providing an efficiently organized educational service to adults and out-of-school youths. Thus, a separate Department of Extra-Mural Studies was created under the direction of the then Vice-Principal.

The Director is responsible to the Vice-Chancellor and has under him Staff Tutors in Creative Arts, Radio Education, Social Work and Labor Education, and Resident Tutors in all the territories served by the university. In Barbados and Trinidad and Tobago the Resident Tutors are responsible to the respective campus Principals, but keep in close touch with the Director.

Each Resident Tutor is responsible for developing a full programme of adult education in his own territory. In this he is advised by a local Extra-Mural Advisory Committee and works in fairly close relationship with the government and other adult education agencies in the territory. The policy followed by Resident Tutors is within the framework of the general policy of the department, but the lines of development vary according to local conditions and the special skills and capacities of tutors. Besides adult education duties, the Resident Tutor in territories outside of those with their own campuses (i.e., Jamaica, Trinidad and Barbados) often undertakes representational tasks on behalf of the university with the government and the community as a whole.

The Specialist Staff Tutors serve all the territories that contribute to the university, travelling out frequently from homebase in Jamaica. They conduct courses, plan conferences, conduct research and advise Resident Tutors on syllabuses and on the organization of their courses in the field.

The programme of the department can be divided into 2 broad categories -

- the general programme, consisting of classes, courses, seminars and public lectures; and
- the programme of the specialized areas of work, consisting of social work, trade union education, radio education and creative arts.

In response to a clearly identified need the department has been providing classes in a variety of subjects aimed at preparing students for the G.C.E. examinations.

One of the most successful and useful areas of the department's work has been the courses and seminars that it has organized. Courses have been offered in a variety of subjects including Public Administration, Local Government, Agricultural Extension, Human Rights, Social Work, Poetry, Modern Languages, Chemistry, General Sciences, Pharmacy Studies, Industrial Relations, Psychology, Archeology, Anthropology, Secretarial Development, Business Management, Art, Drama, Dance, Adult Education Methods, etc. Conferences

have been held for many - Magistrates, Farmers, Social Workers, Literacy Teachers, Drama Producers, Labor Leaders, Political Leaders, Hotel Workers, Taxi Drivers, Youth Leaders, etc. Some of these have been in-service training courses while in some instances employers sponsored the attendance of employees. A pattern which has emerged is for the department to sponsor a training course until it can be adequately mounted elsewhere. The chart below indicates the size of the extra-mural programme in the LDC's during 1973-74.

	<u>Subjects</u>	<u>Sessions</u>	<u>Enrollment</u>		
			<u>Male</u>	<u>Female</u>	<u>Total</u>
Antigua	17	841	269	600	869
Belize	28	946	176	492	668
Bahamas	9	316	52	179	231
Grenada	5	116	26	59	85
St. Vincent	17	1,062	269	320	589
St. Kitts-Nevis-Anguilla	5	311	105	562	667
St. Lucia	8	290	-	-	217
			897	2,211	3,326

The public lecture series are a means of establishing contact between an inquiring West Indian citizenry and the university. Resident Tutors have used these to introduce university lecturers to the communities they serve. Single lectures have been the most frequent, but specific themes are sometimes dealt with in series of lecture/discussions over periods of from 4 to 8 weeks. The public lecture has been found to be useful in getting the university to focus attention on public matters of moment, sometimes even getting into public controversy with the established order.

In the specialized area, regular courses are offered at the Mona Campus in Social Work (mainly for professional social workers and Public Health Officers), in Trade Union Education (aimed at the voluntary leadership of the rank of Chief Delegate in the trade unions), and in the Creative Arts. The Creative Arts Center, established in 1967, has been used to encourage the Arts in the West Indian community as a whole and to give the young people of the region a sense of pride in their common cultural heritage. The Center has hosted many exhibitions, performances and seminars in the Arts.

4. Involvement of Faculties in Extension Work

All Faculties of the university are involved in extra-curricular activities which provide continuing education facilities to the community. Many of these activities are organized jointly with the Department of Extra-Mural Studies or with appropriate Government Ministries or other bodies.

In the Faculty of Agriculture extension work is carried out by a separate Department of Agricultural Extension which was established in 1969. The work includes, inter alia,

a. providing services at specialist advisory level to support the efforts of governments, particularly in the lesser developed territories, to improve the contribution of agriculture to their economies;

b. organizing, on a regular basis, in-service training programmes for staff in Ministries of Agriculture;

c. the preparation and distribution of a quarterly newsletter and an occasional bulletin series for disseminating information among staff in Ministries of Agriculture.

5. Caribbean Agricultural Research and Development Institute (CARDI)

CARDI, acting through its mandate from the standing committee of Ministries of Agriculture through CARICOM, is expected to begin operations on July 1, 1975 in agricultural research and development activities to serve the Commonwealth countries of the Caribbean. As an autonomous institution it will serve as the principal regional institution to serve Ministries of Agriculture in research and extension activities.

Its relationship with the UWI will involve cooperative working agreements in which the program of operations will be integrated with those of the UWI Faculty of Agriculture, principally, but involving other faculties when desirable to achieve mutual objectives. The working agreement will indicate the terms under which CARDI will occupy faculty of Agriculture facilities, will coordinate its research programs with those of the Faculty of Agriculture, and the use to be made of CARDI professional staff in guiding/advising and teaching post graduate students in their agricultural research. The Faculty of Agriculture expects to provide staff to CARDI to serve on multidisciplinary teams to plan, implement and evaluate CARDI research and development activities in the

region. The agreement will also describe the manner in which CARDI and the Department of Agricultural Extension will establish, occupy and operate the Documentation Information Center for teaching in Extension Methodology and Extension activities to serve the region. The Department of Agricultural Extension will work with CARDI to gather, analyze, prepare data and other information to put it into the proper form for use by literate or illiterate farmers, school children, technicians, administrators, consumers or other specific audiences.

The cooperative program as envisaged by the Faculty of Agriculture and CARDI officials will enable CARDI, although not an administrative part of the UWI, to serve as one of its principal outreach mechanisms.

Caribbean Agricultural and Rural Development Advisory and Technical Services (CARDATS)

The CARDATS program being planned by the FAO/UNDP under auspices of CARICOM is intended to serve some of the Caribbean Region's needs for outreach. This project will provide approximately US\$1.9 million for a five year period. Approximately \$1.7 million will be used for the costs of at least 13 FAO agricultural specialists who will provide technical advice in program planning, feasibility studies, social studies, economic studies, crop production and extension efforts. The CARDATS project anticipates the use of UWI specialists to conduct feasibility studies and training programs for extension personnel in Ministries of Agriculture by payment for these services or the provision of travel costs for participants. The proposal for the CARDATS project also anticipates cooperation of CARDI in development of extension materials and information. The CARDAT project thus is expected to serve as a mechanism for involvement of UWI in outreach.

6. Institute of Social and Economic Research (ISER)

The Institute of Social and Economic Research, a unit of the UWI with special funding by the Ford Foundation carries on an extensive research program. Many of the studies have direct implications for planning and Government policies throughout the territories. Both basic research and policy related studies have been conducted which have considerable significance to policy formation and social change in the Caribbean. Much of the work has been at the macro-level; the structure of societies, national income accounts, demographic data, and plantation economics. More recently, attention is being turned to the analysis of sub-sectors, behavioral relations, motivations and model building. Further work is planned with greater policy relevance to planning for health, social welfare, nutrition, agriculture and the Island economics and business management.

The impact of the research program is carried to the end users in several ways:

- a. Supernumerary Fellowships are granted to enable the Chief research professor to carry out the project in the territory involved. This provides a direct contact with the government agencies involved, the planning groups and the data gathering personnel.
- b. Monographs and research reports are developed exchanged through the library association, professional journals, and sent out to the Territories on a large mailing list. Additional copies are available on request.
- c. A publication program continues to expand with support from Foundation funds. This provides an important outlet for the expression of faculty research. The program at the ISER Center at Cave Hill, Barbados, includes:
 - (1) Series of Occasional Papers
 - (2) Series of Occasional Bibliographies
 - (3) Bulletin on Eastern Caribben Affairs.
- d. The Institute has established connections with non-English speaking research institutions in the Caribbean. Examples are the Haitian Institute (CHISS) and the Institute VIZIOZ. These relationships are maintained through the Association of Caribbean Universities.
- e. The Mass Communications Unit of U.W.I., now being established will make the media immediately available for distribution of information emanating from vital research to all levels of society throughout the Caribbean.

7. Other U.W.I. Outreach

All contributing governments are represented on the University Council. This body deals on a continuous basis with the development of the U.W.I. to serve the region. Thus, there exists at the highest level, a formal link between the U.W.I. and the governments it serves. Although the U.W.I. does not have a formal link with each individual government this does not mean there is a breakdown in delivering to individual governments

development related services, information, techniques, etc. In practice, the linkage is effected in one of several ways:

- a. by direct contact or joint cooperation between Faculty, Department, Academic and the appropriate Government Agency;
- b. by the University having representation on appropriate Government bodies (see Annex II, Exhibit C).
- c. by the publication and distribution of research results.

8. External Studies Program

It is anticipated that a grant project will be developed in FY 76 to establish a pilot external studies program at the U.W.I. Various non-formal, innovative approaches will be explored, such as educational radio, video tape recording, correspondence programs to provide university level education to students in some of the 11 member territories which have no resident campus program. There will be close coordination with the present extra-mural program and will involve the resident tutors as well as the U.W.I. centers located in the various territories.

SECTION II - RATIONALE FOR LOAN

GOAL: The goal of this project is to improve the overall quality of life in the Caribbean Region. The project sub-goal is to strengthen regional and national development activities aimed at improving the quality of life of the poor majority.

Towards the achievement of this goal, the proposed loan project will increase the UWI's capacity to initiate and integrate regional development by permitting expansion and improvement of those programs (i.e., training, research and outreach), which tend to focus the University's considerable expertise on the major social and economic developmental constraints in the Region. During the intensive review an examination was made of a number of UWI's current and proposed training, research and outreach programs in the Faculties of Agriculture, Natural Science, Arts and General Studies and Social Sciences. The objective of this examination was to identify and select for AID support those UWI programs which, with certain catalytic inputs, could make a significant contribution to resolving specific developmental problems in the region.

As a result, the project involves only a minimal amount of classroom construction (approximately 4% of total building space).

The AID project inputs of buildings, equipment, technical assistance, training and scholarships, which are in direct support of the programs shown in Section III, are aimed at developing this long range regional potential of the UWI.

PURPOSE: The proposed loan will seek to assist the UWI in its expanding efforts to provide effective, problem-oriented service to its fourteen (14) contributing territories - spread out over 1,500 miles across the Caribbean Sea - in the identification and resolution of their important development problems. As a regional institution dependent upon the annual contributions of its contributing territories, the UWI is continually faced with the necessity of justifying its relevance to the specific developmental problems endemic throughout the region. In a real sense, the UWI associates its own growth directly with the growth of the region. This symbiotic relationship constantly urges the UWI to target its highly talented resources towards those specific developmental problems which, in many respects, are common-place throughout the lesser developed world, but whose solutions are perhaps unique to the region. To this task, the UWI brings the largest concentration of trained West Indian professionals in the region. It is the university of the region. No other comparable institution exists in the English-speaking Caribbean region. Its unique regional character, fortified by its physical diversification of campuses and specialties, enables it to play a crucial role in addressing the critical constraints, often regional in both source and solution, which beset the English-speaking Caribbean as it emerges from a colonial past.

Since its faculties service students from the diverse contributing territories, its orientation is necessarily regional. Building upon this diversity, and the resultant need for close consultation among all participants in the process, the UWI has also evolved a collaborative approach which favors inter-departmental cooperation in teaching, research, and outreach activities. This interdepartmental cooperation offers great potential for inter-sectoral approach to development. All of the faculties are involved in extension and off-campus activities which provide continuing education and services to those communities and islands which do not have campus facilities. Thus, the UWI is continually directed towards improving the practical content of its education and community service. This constant interaction provides the opportunities through which the UWI directs its energies to solving the problems of the Region.

REGIONAL INTEGRATION: It is anticipated that the project will also also facilitate longer term cooperation among the States of the Commonwealth Caribbean by developing within this key regional institution and its graduates an indigenous capability to systematically analyze key development issues utilizing a multi-disciplinary approach.

Individually, the Commonwealth Caribbean States represent extremely small markets and have vulnerable open economies heavily dependent upon a few exports. In an attempt to overcome the handicaps of their small size, economic fragmentation and external dependence, twelve (12) of these English-speaking states have formed the Caribbean Community (CARICOM) and are seeking to integrate their economies and find regional solutions to their development problems. Separately, most of these states do not have the trained manpower, the resources, or the institutions to meaningfully address their fundamental development problems including those of small farmer agricultural production, nutrition, basic health services, and relevant practical education. The CARICOM Secretariat, the Caribbean Development Bank (CDB), and the University of the West Indies (UWI), are the key regional institutions which are critical to the success of the economic cooperation and integration effort.

The CARICOM Secretariat has the responsibility for formulating integration policies, but in the past they have relied heavily on the faculty of the UWI for assistance. The CDB serves as the development finance institution with emphasis on assisting the less developed of the contributing territories.

IBRD and OAS studies have identified high and rising unemployment as the most serious socio-economic problem facing the Commonwealth Caribbean. Closely interrelated with the alienation of the younger generation from an agricultural system based on historical colonial patterns and the migration of these youths to urban areas, the high level of unemployment is the major factor contributing to poverty and skewed income distribution resulting in rising crime rates and urban unrest. Open unemployment in the region is conservatively estimated at thirteen percent (13%) of the labor force and when "hidden" unemployment is added, the rate rises to seventeen percent (17%). Unless there is a sharp increase in the rate of growth in employment opportunities, the rate of unemployment will continue to grow throughout the next decade. In fact, the rate of increase of the potential work force is expected to be 2.5 times greater during the remainder of the 1970's and well into the 1980's than it was in the 1960's.

The relative statistical prosperity of a few of the Caribbean States which have experienced industrial and tourism development tends to mask the severity of social and economic problems that exist in these dual economies. The industrial and tourism growth and the wage structures associated therewith have tended to lure the younger generation away from the agricultural pursuits in the rural areas and the increase in male unemployment can be attributed closely to the decline in agricultural employment. Consistent with this trend there has been a decline in agricultural production and productivity and in recent years the region has switched from an agricultural surplus to a deficit area currently importing over \$500 million of food products per year.

More recently, the leaders of the region have increasingly become aware that the agricultural sector and rural development must be given priority if unemployment rates are not to reach even higher levels and the strains on the society to become intolerable. In several states the ultimate viability of the economies could well depend on the revitalization of their agricultural sector. This revitalization must be based on carefully developed long-term solutions to the constraints arising from negative cultural attitudes towards work in the rural sector, the shortages of trained agricultural personnel, and adequate incentives in the agricultural sector relative to other economic activity, over-dependence on a few export products, skewed land distribution and tenure arrangements, rising unit production costs, shortcomings in government support and pricing policies, and the limited ability of government to provide adequate health, education and other services in the rural areas.

Development activities in the individual territories must be coordinated so that, at a minimum, they are not duplicative or contradictory, but rather complementary. To do this implies strong regional institutions capable of viewing development and the constraints to development in the overall context of the Caribbean region. There are currently few such institutions in the region, with the necessary physical and human resources, capable of effectively serving as an instrument of change. AID, if it is to have an impact on the overall development of the region, will of necessity have to collaborate closely with these few institutions and rely heavily upon them for the planning and implementation of regional development activities.

SECTION III - DESCRIPTION OF PROGRAM

A. Introduction and Summary

The U.W.I. is becoming increasingly aware of its unique potential for contributing to the development of the English-speaking Caribbean. Thus the University is currently involved in a long range program of reorienting its institutional priorities to better meet developmental needs. Achieving this goal is a slow and difficult process that requires interdisciplinary efforts and cooperation in order to match developmental needs with the appropriate mix of University resources. It can be achieved only if faculty and University management attitudes encourage such efforts and take aggressive steps to identify problems and exploit the resources available to the University in solution of these problems.

The concept of directing the U.W.I.'s resources towards solving the problems of the region is neither unique nor new. The application of that concept, however, differs widely in interpretation and implementation. Resolution of the issue is further inhibited by the nature of governing such an institution. Freedom of individual expression and dissent from any view is both guarded and nurtured by a complex web of inter-dependent, yet highly personalized and locally powerful committees, faculties, institutes, commissions, boards, etc. To ask any such institution to speak with a single voice or march to a single tune is an anathema to the very concept of a university. One can, however, seek to create the conditions and circumstances whereby the competing elements within such an institution are first brought into contact and forced to reckon with their surrounding environment and then encouraged to seek a wider role in effecting the outcome of current problems. There are signs that there is an emerging consensus within the U.W.I. of the need to seek such a wider role.

The U.W.I. has of course, since inception, played an important role in the transfer and adaptation of technology via the more classical University method of academic training in the on-campus classroom. More importantly it has instituted a number of effective programs which tend to focus the resources of the University, in a somewhat less traditional way, on the technical, economic and social problems of the region. The existing extra-mural program, for example, provides non-degree training in the non-campus as well as the campus territories. This is to be eventually complemented by a planned external studies program which will provide off-campus degree training and eventually lead to an "open campus" concept whereby students may earn their degree via correspondence, visiting professors and other media without leaving their home territory. (The FY 76 Congressional Presentation includes a grant financed A.I.D. project which will assist the U.W.I. to establish the initial external studies pilot program in several of the LDCs). These

and other programs, more fully described in Section I above, are evidence of the University's long range commitment to maximizing its involvement in the process of development and serve as specific examples of its efforts to establish meaningful interaction between the University and the regional community it serves.

The proposed loan program contains a number of additional elements that will further the evolutionary process already underway:

1. Multi-Disciplinary Development Committee - The creation of this essential internal body will institutionalize and provide a focal point for University efforts aimed at increasing its overall effectiveness in contributing to development. The committee should provide an added linkage between regional needs and University resources and will thereby help to stimulate more relevant research, curricula and outreach programs.

2. Scholarship Program - The underdeveloped countries in the Caribbean region need leaders with a better understanding of the development process as well as trained and skilled manpower to attack specific problems on a broad front. Graduates financed by the scholarship program will be expected to be able to contribute to the solution of regional development problems.

3. Curricula Development - The loan program will facilitate the University's efforts to restructure its curricula to place stronger emphasis on problem solving. As a result of this emphasis, students can be expected to incorporate into their educational experience more direct participation in and practical understanding of the major problems which face West Indian society.

4. Research - With regard to research there is often a natural tendency for faculty members of any university to prefer "elegance" to "relevance" and to be concerned primarily with publication rather than application. However, the specific types of research resulting from the loan program should have practical application to the economic and social problems of the region. Loan financed inputs should significantly enhance the University's capability for receiving, interpreting and adapting available technology to meet the region's needs. Communication and application of the results of

this research will be facilitated by the Multi-Disciplinary Development Committee through its linkages with national and regional institutions, by CARDI, and by expansion of several key departments including Mass Communications; Linguistics; and Agricultural Extension.

5. Supporting Services - In order to further strengthen the efforts of the U.W.I. in its transition to a development oriented institution, the following supporting services will receive assistance under the Loan:

- Inter-faculty Classroom Center;
- Libraries;
- A Pilot Learning Resource Center; and
- Administration.

6. Technical Assistance/Training - A key element in the program is technical assistance and training which is to be provided for key personnel who will be responsible for the new and innovative areas to be developed (e.g., Pilot Resource Learning Center).

The Intensive Review concentrated on identifying the constraints which the UWI currently faces in its efforts to maximize its contribution to regional development. The areas considered for AID assistance are those for which no other source of assistance is currently available or contemplated. Program inputs thus selected are as follows:

	<u>*Estimated Costs</u>
Multi-Disciplinary Development Committee	0
Scholarship Fund	500,000
Technical Assistance/Training	200,000
Agriculture	2,015,000
Natural Science	1,613,000
Arts/General Studies	433,000
Pilot Learning Resource Center	255,000
Libraries	742,000
Inter-Faculty Classrooms Center	250,000
Administration	558,000

*Contingency and inflation factors not included

B. Multi-Disciplinary Development Committee

The University recognizes that in order to focus its attention and resources more directly on the fundamental long-range goal of contributing to the material development of individual territories and to the quality of life of the Caribbean region as a whole, it will be necessary to create the necessary internal structure. The first step in this process will be the creation within the University of a Multi-Disciplinary Development Committee. At present the University has a Development and Planning Unit which was established for the purpose of strengthening the administration in this area. It has responsibility for:

- 1) monitoring of the academic program of the University through studies of various norms and the maintenance of statistics on student performance, throughput, dropout, etc.,
- 2) establishing and maintaining a body of territorial statistics and establishing working links with ministries and other agencies of governments,
- 3) monitoring of foundation grants and programs,
- 4) preparation of development programs.

The University has decided that the Planning Committee and Estimates Committee, the committee responsible for approval of funding, be merged. The present size of the Planning and Estimates Committee makes it an inappropriate forum for the in-depth discussion required to examine new ideas and develop new programs. A special Multi-Disciplinary Development Committee will, therefore, be established with a commitment to project and carry forward development related activities in the Caribbean region.

The Committee will report to the Planning and Estimates Committee and will be serviced by the Development and Planning Unit, but its membership will be specially designed so as to provide inputs from the various organizations within the University - Faculties, Board for Postgraduate studies, Research and Publication Funds Committee, Institute of Social and Economic Research, Department of Extra Mural Studies - which are involved in and must be concerned with making an input into the various aspects of development-related activities. It will be chaired either by the Vice-Chancellor or the Pro-Vice-Chancellor, Planning. The Committee will, through the Development and Planning Unit, be a linkage with national government agencies, other regional institutions, with business and industries within the region and with International Funding Agencies.

The establishment of the Committee will be effected through the decision of the Planning and Estimates Committee and formally approved by the University Academic Committee. No special by-laws or regulations will be required. The Planning Committee has already been made aware of the proposal to establish this Committee and detailed proposals in relation to membership and terms of reference will be put forward to the next meeting in June, 1975.

No special provision of funds is required for the operation of the Committee since all inter-campus Committees qualify for travel funds. However, this Committee will be placed in the highest category so that its members will be entitled to travel to all the meetings. Meetings will also be facilitated by the present practice of scheduling meetings of important Committees in close proximity.

The present thinking in relation to composition of the Committee and terms of reference are as follows:

Membership

Pro-Vice-Chancellor (Planning) (Chairman)
Principal, St. Augustine
Principal, Cave Hill
Chairman, Research & Publications Committee
Chairman, Board for Postgraduate Studies
Director of I.S.E.R.
Director of Extra Mural Studies

Two or three Deans in rotation, chosen by the Vice-Chancellor
Two members chosen by the Planning and Estimates Committee on the nomination of the Vice-Chancellor.

Annex III, Exhibit A. depicts relationship of the MDDC within the University organizational structure.

Terms of Reference

- 1) To stimulate and project development-related activities within the University;
- 2) To develop, through the Development and Planning Unit, and other University bodies, as appropriate, formal linkages with National and Regional government agencies, other regional institutions, business and industries, and with International Agencies;
- 3) To assist in the planning, coordination, implementation and evaluation of the University's development activities.
- 4) During the first year of operation, the Committee will develop a plan for promoting a multi-disciplinary approach in the University's development related activities.

C. Student Scholarship Program

A special effort will be made to provide an opportunity for the students from the smaller territories to take advantage of the additional facilities and programs which the proposed loan will generate.

The University has been concerned about its regional status and has sought to equalize the opportunity provided for students from outside the campus territories to attend the University. For example, from its inception it has paid the travel costs of students travelling to a campus from another territory. A significant contribution to the training of students from L.D.C.'s has been made since 1966 through the provisions of scholarships by C.I.D.A. Although in the early

years as many as 40 scholarships were awarded each year, escalating costs have now reduced the number to about 20. This program has been successful as judged by the high percentage of students who have returned to their home territories to jobs after graduation (see Section IV B.)

The table below compares the admission to first degree courses for students from the L.D.C.'s over the period 1971-74. The number of students admitted each year has decreased steadily even though the University attempts to give priority to these students. The drop in numbers from 1973-74 is almost entirely attributable to the fall-off in admissions from the three territories in arrears. However, the percentage of admissions compared to the percentage of population is declining and can be directly related to the increase in per capita cost. Because of financial constraints, the University receives notification annually from many L.D.C. Governments that only a certain number will receive Government funding.

1971-1974 Admission to First Degrees from the L.D.C's

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Antigua	29	18	16	14
Belize	13	19	11	11
Dominica	34	17	15	4 *
Grenada	22	36	21	6 *
Montserrat	4	11	13	6
St. K./N/A	17	16	15	14
St. Lucia	23	16	24	30
St. Vincent	26	30	25	12 *
TOTAL	169 (9.7%)	163(9.8%)	140(9.0%)	97 (5.8%)
University Total	1741	1662	1548	1678

*/ Admissions from these territories restricted because no satisfactory arrangement made for the payment of arrears in the subvention.

In light of the above, it is proposed that the loan provide for a scholarship program for the L.D.C.'s with the following features:

- 1) A loan sum of U.S. \$500,000 together with a matching grant of \$500,000 from the University's funds.
- 2) The funds will be available for awards made during the three years of the disbursement period but should provide for the continuation of the awards beyond the disbursement period and up to the end of the three or four year degree courses. Assuming that awards take place in 1976/78 the final disbursement would be made in 1980.
- 3) Priority will be given to awards in development-oriented areas such as Agriculture, Economics, Accounting; the strengthening of the Civil Service infrastructure through Public Administration, Management Studies, Nursing Administration, Social Work - Certificate, Diploma or Degree. The length of the courses may vary from one to four years.
- 4) Awards will be made by the university on the basis of an appraisal of student needs and on the results of competitive examination such as the G.C.E. examinations or the university scholarship examinations, or on the recommendations of the appropriate authorities in the territories.
- 5) The awards will be distributed among the territories roughly according to their population but on the understanding that the number of admissions to first degree certificates and diplomas for the territory from other sources will not fall below the 1974 level. There shall be established a minimum level of admissions for each territory and territories will not become eligible for the awards unless they have reached that minimum level from other sources in the previous year.

The average per capita economic cost projected for 1977/78 is about \$3,000, but this does not take account of expected salary increases.

The present maintenance cost for an academic year for a student living in a University residence is estimated at \$1,700 but the maintenance grant now given to C.I.D.A. scholars is only about \$1,500 and for C.F.T.C. and U.N.D.P. about \$1,200.

If we assume that the average school year will cost \$4,500 (any extra being met by the government or the student) and that each award runs for approximately three years, the sum of \$1 million can be spread over

$$\frac{1,000,000}{3 \times 4,500} = \text{about } 74 \text{ awards}$$

This means that funds should be available for about 25 three-year awards each year or their equivalent.

Assuming that 25 new three-year awards are made each year the total number of awards to be made each year would be 25 in 1976, 50 in 1977, 75 in 1978, 50 in 1979, 25 in 1980, so that the ratio of expenditure of the 1,000,000 would be in the above proportion with a small sum possibly extending to the year 1981/2 for those students who received four-year awards in 1978.

D. Faculty of Agriculture

The Faculty of Agriculture located on the St. Augustine campus in Trinidad is the principal mechanism to serve the training, research and service needs of the agricultural sectors of the Caribbean Region. The Faculty, along with the Faculties of Engineering, Natural Science, Social Science and the Caribbean Agricultural Research and Development Institute (CARDI), have agreed to co-operate in conducting an integrated program in providing for training, research and service needs of the region's rural sector. These needs are both short term and long term in nature, involving the use of existing capabilities and resources, new resources to be added through the AID Loan and a multidisciplinary approach to meeting regional needs and solving regional problems for improving levels of agricultural production in the Caribbean.

The Faculty of Agriculture, supported by the AID Loan, will improve and expand its capability to train agricultural specialists: 1) to conduct basic and adaptive research related to agricultural problems; 2) to perform service-oriented activities of various types to the Caribbean's agricultural and rural sector; and 3) to fill a variety of posts in both the private and public sectors as teachers, engineers, technical specialists, agronomists, horticulturists, government officials, etc.

The Faculty of Agriculture consists of 32 full time teaching and research staff members in the Departments of Agricultural Extension, Agricultural Economics and Farm Management, Biological Sciences, Crop Science, Livestock Science and Soil Science. The present student body totals 225 undergraduates and 66 postgraduates from all of the islands of the Caribbean. The current level of entrants in the Faculty of Agriculture is 90 per year. By 1978 an increase of 110 undergraduates and 9 postgraduates is expected, resulting in enrolments of 335 and 75 respectively. The training of these and future technical agricultural specialists will help meet some of the critical needs for trained manpower in the areas of food production and marketing in the Caribbean.

Students will be trained in a variety of technical subject matter fields during their three year undergraduate and one to three year postgraduate training period. The present course of study is shown in Annex III, Exhibit B. The project will facilitate the development of the following new courses in the Faculty of Agriculture over the 1975/78 triennium:

Second Undergraduate Year

- Pesticide Technology
- Agricultural Communication

Third Undergraduate Year

- Soil and Land Use Survey
- Tropical Field Production
- Ornamental Horticulture
- Weed Science
- Agribusiness
- Commodity Utilization
- Microeconomic theory
- Agricultural Finance and Farm Credit
- Fish Farming and Mariculture
- Biological Conservation
- Environmental Pollution
- Food Policy and Nutrition
- Soil Microbiology

Postgraduate study for the Masters of Science or Doctorate of Philosophy degrees provides opportunities for students to specialize in any of the subject matter fields offered and to conduct original research on specific problems in these fields. To the greatest extent possible, research studies of post-graduate students will be chosen on the basis of solving regional problems of the agricultural production/marketing/consumption system.

The research program of the Faculty of Agriculture is conducted principally by the 32 teaching and research staff members, by postgraduate students and by a staff of 26 scientists of CARDI at the St. Augustine campus. The research program is comprehensive in nature covering a wide spectrum of sub-disciplines or specific areas in agriculture but categorized in the following general groupings:

- | | |
|-----------------|--------------------------------|
| Economics | Grain Legumes (West Caribbean) |
| Extension | Grain Legumes (East Caribbean) |
| Biometrics | Soils |
| Pasture Legumes | Horticulture |
| Livestock | Root Crops |

Data on past and on-going research work has been computerized through the central Computer Facility at the St. Augustine campus so that researchers have access to some of this information through a data retrieval system. Improvements in this system and linkages to central and branch library facilities

are needed to increase the efficiency of data retrieval. Such improvements will be achieved in the future as resources are made available to central facilities for linkages to facilities of the Faculty of Agriculture and other Faculties.

A review of a print out prepared in December 1974 on recent and current research showed a listing of 286 on-going research projects and 89 recently completed research projects on agricultural problems in the Caribbean. Annex III, Exhibit C provides a sample listing of a few of the current research projects included in the computer print out by Department. These types of research projects, while serving post-graduate training needs (if conducted by post-graduate students) also provide many of the answers to the technical, economic, policy and management problems that act as constraints to increasing production, to lowering costs of production and to providing for opportunities to exploit the potential for use of all types of resources in agriculture in the region. As the research program evolves, other specific problem areas will be identified and practical research projects will be designed to solve these problems. The research program thus becomes the basis for the development of information and the provision of technical advice upon which outreach and service activities depend.

Supported by the AID Loan, the Faculty of Agriculture will be engaged in the types of activities that will directly and indirectly affect the rural sector of the Caribbean. Aside from its strengths in performing the training and research functions described above, the Faculty of Agriculture in the past has performed a variety of valuable service functions. Its organizational structure and concepts of commitment combined with an expanded resource base are expected to result in improving its performance in providing services to the rural sector of the Caribbean.

Headquarters of CARDI will be housed in the facilities of the Faculty of Agriculture. CARDI staff members will be directly and cooperatively involved in performance of research activities of the Faculty of Agriculture staff and post-graduate students. Similarly, Faculty of Agriculture staff and postgraduate students will co-operate in a multidisciplinary team approach to assist in many CARDI research and development activities of an outreach nature. Such an approach is considered to be an ideal mechanism to assure that practical research will be conducted and to improve the flow of information and services to the rural sector. This flow will be further assisted by the Department of Agricultural Extension which, in addition to doing research on the communication and motivation aspects of extension, carries out annual intensive two to four week in-service training programs for Caribbean extension workers.

To the degree that such information and services are constraints to increasing agricultural production, the rural sector should be able to perform more satisfactorily in terms of increasing crop and animal agricultural yields per acre, improving quality of production, lowering costs, reducing losses, increasing marketing efficiencies, improving incomes, increasing employment and providing more nutritious food for the entire Caribbean population.

In addition to the physical facilities to be made available to CARDI as a result of this project, the CARDI program will be supported by an AID grant of \$432,720 to establish three outreach activities in three pilot LDC sites in the Caribbean. This program will provide for adaptive research in specific crops to develop technical recommendations on which to base production programs.

These activities will be conducted cooperatively with the Ministries of Agriculture in the three specific locations. In-service training will be provided to extension personnel, farmer demonstrations will be conducted, information will be disseminated through media of several types and production programs in specific crops will be initiated and coordinated by CARDI. Co-operation in this program also is envisaged by the Department of Extension of the Faculty of Agriculture, the School of Education, the FAO/UNDP Regional Project (CARDATS) and the Caribbean Development Bank (CDB).

A priority need exists to promote food processing of locally produced foods to provide better markets for seasonal surpluses, to establish new marketing alternatives to farmers and to provide value added through food processing enterprises in rural areas. Food processing is relatively new in the Caribbean. As part of the project, a Food Processing Pilot Plant Laboratory will be constructed allowing the UWI to adequately train food processing technologists, conduct research to develop appropriate food processing technology and provide engineering and technical assistance to agri-business and rural community type food processing enterprises. The work of the Pilot Plant would include integrated programs in production and processing of local foods on a pilot basis, conducting acceptance tests, marketing tests and economic evaluations of new technology and new enterprises.

In order to carry out the above described activities in the Faculty of Agriculture, the UWI and AID will provide the following project inputs:

ST. AUGUSTINE
(In US\$ thousands)

	<u>UWI</u>	<u>AID</u>	<u>TOTAL</u>	<u>FOR DETAILS SEE</u>
Construction (30,814 sq.ft) ^{1/}	-	1,392	1,392	Section IV C (Pg. 78)
Equipment/Furrishings ^{1/}	-	623	623	Annex III, Exhibit D (Pgs 1-7)
Staff salaries/Cther Recurrent expenditures	736	-	736	Annex IV, Exhibit G (Pgs 10-11)
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TOTAL	<u>736</u>	<u>2,015</u>	<u>2,751</u>	

^{1/} Amounts shown do not include inflation or contingency.

E. Natural Science

The Faculty of Natural Science provides training at the elementary level for students who will enter agriculture, engineering and medicine, as well as training to the B.Sc. degree level from which students enter a variety of employment activities including high school teaching, Government service in technical and admiristrative positions, industry and other elements of the private sector. On the three campuses, there are at present 949 undergraduate students. The academic staff of the Faculty numbers 68.

Although the departments of Chemistry, Physics, Mathematics and Geography are in need of additional laboratory space, the Intensive Review team has selected for assistance Botany, Zoology, Biology and two supporting services in the Natural Science Faculty as they closely support AID's development objectives.

1 Botany - For the past thirty to forty years, there has been active and productive research by statutory bodies and quasi-government institutions aimed at improving yields of a few selected crops such as sugar cane, bananas, coconuts and citrus. However, the recent trend towards diversification of crops and the need to increase the productivity of the domestic food crop sector, in order to reach self-sufficiency and conserve foreign exchange, came at a time when there was little fundamental knowledge of such production under local conditions. The Department of Botany embarked on a research program aimed at increasing food production through:

- a. Efficient use of fertilizers, hormones and water.
- b. Screening and breeding new varieties of high-yield crops suited to local conditions and having increased protein content and quality.
- c. Crop protection particularly against fungal, bacterial and viral diseases.

The research anticipated as a result of this program is directly related to Agriculture or is agriculturally oriented. Six new research projects will be conducted. Listed below are possible areas in which the research will be undertaken:

Water relations in crop plants
Improvement in pineapple yield
Jonifoliol as an antitransperant
Pimento propagation
Plant breeding (soybeans, red peas, Gungo peas)
Citrus diseases
Vegetable and Legume disease
Plant Virus disease

For more detailed description of ongoing and proposed research in Botany see Annex III, Exhibit E.

The Botany Department will enlarge its teaching function at the final year by introducing an additional course to cover such topics as crop physiology, nematology, crop ecology, fresh water ecology and forestry. It is expected that 32 additional students will be accommodated as a result of added facilities.

2. Zoology - The Department of Zoology plays an important role in the elementary training of students who later enter Agriculture and Medicine and in training at graduate and post-graduate levels for students specializing in ecology, entomology, fisheries biology and environmental science. The demand for persons qualified in these fields, all of which are relevant to rural development, has increased greatly with the formation of the Resource Conservation Authority by the Jamaican Government and the requirements of other territories.

There are two aspects of the Zoology department the Intensive Review team has determined to be particularly relevant and support by AID can have a direct effect on rural areas of the territories. These programs are aquaculture and entomology.

- a. Acquaculture - Acquaculture is the cultivation, in controlled farming conditions, of

aquatic organism animals or plants. There are a wide variety of organisms that might be cultured for economic benefit and the University's role is to test species, examine their potential and then interest the Governments or commercial enterprise to adopt.

One of the single greatest difficulties in aquaculture is disease. Work on these diseases and their prevention started in the Bimini Laboratory in the Bahamas, but this Laboratory has closed for lack of funding. Bimini scientists are in contact with UWI to see if facilities in Jamaica could be used to continue these studies.

Consistent with the off-shore and deep water potential of all the countries of the region, oysters, lobsters, crabs and shrimp would be investigated during the first three years.

Oyster: Demonstrate the feasibility of rearing oyster larvae, settling them artificially and growing in open water.

Lobster: Determine the ecological requirements of juveniles, work out mechanisms for making artificial collectors and transferring these juveniles to pond culture. Note: It is not yet possible to culture lobster larvae (The West Indian Spiny Lobster) on an economic basis. Physiological research based on hormone treatment is needed to find a way of shortening the larval cycle.

Crabs: Work out the life history, find sources of eggs and bring them through culture to young crabs.

Freshwater Shrimp: Determine the ecological requirements and culture problems of two species of shrimp and make suggestions on how to avoid heavy losses in culture.

Frogs: Find ways of culturing frogs.

Mullet: Mullet provide a useful entry into fin-fish culture. A good deal is known about their culture elsewhere and in three years it should be possible to work out the feasibility of culture. Armed with this experience scientists could then proceed forward to studies on other species of fin-fish.

b. Entomology - The training of entomologists and the dissemination of information about insect pests is particularly related to plant and forest protection. The aims of the program are to:

- 1) Conduct fundamental research on the control of tropical insect numbers.
- 2) In relation to (1) above, to conduct research on the population dynamics and control of pests of agricultural crops and forest pests.
- 3) Conduct toxicological studies on insect pests with reference to resistance to pesticides.
- 4) Conduct studies on nutrition and disposal of insect pests.

Entomology is based in the Department of Zoology and, like fisheries biology, provides an open-ended project for the training of graduate students as well as conducting basic and applied research. The present staff in entomology consists of a taxonomist, a population ecologist and a physiologist with interests in toxicology. Below are three specific examples of research that will result from this project.

- 1) Population control in the Fiddler Beetle, a pest of citrus, in which the larval form burrows into the soil and feeds on the roots. Previous work has been done in the Department of Zoology on this pest and the life cycles of five species are fairly well-known, but control measures depend on a more detailed knowledge of the larval form. The new project will attempt to culture larvae on artificial media so that their nutritional requirements may be studied as a prelude to new control measures. The project will involve one staff member and one graduate student (full-time). It will require at least three years of study.
- 2) A study of cattle ticks. Cattle ticks are estimated to do over one million dollars worth of damage by their effect on the hides of animals which would normally be used in the leather trade. Jamaica today has to import a great deal of its raw hides for tanning because so much of the locally produced

article is unfit for industrial use. The project aims at finding proper methods of control either through natural, chemical or integrated methods. The project will involve one staff member and two graduate students.

- 3) Studies on the pests of stored products with special reference to their nutrition. Hundreds of thousands of dollars worth of damage is done every year due to the activities of pests in stored products. Intensive study is needed of these, of their biology and particularly of their nutritional requirements before proper control measures can be implemented.

Increased laboratory space as a result of this project will permit an additional 55 students to be accommodated.

3. Biology - The Faculty of Natural Sciences (Cave Hill) is comprised of three departments; Chemistry, Mathematics and Physics. At present, Biology is administered by and located in Chemistry. Thus, both Chemistry and Biology are under severe pressure for space. At present teaching in Biology is provided during the first two years of the four year degree program. The extension of the program to the final two years will be implemented during the years 1975-76 and 1976-77. For this purpose it will be necessary to provide an additional floor to the Biology building which has recently been completed with funds provided by the Overseas Development Administration (U.K.). This will release the present space in Chemistry now being used by Biology.

The most significant contributions made by the University at Cave Hill is the provision of basic training. The facilities of the Science Faculty have also been put to extensive use by local groups - through programs sponsored by the Extra Mural Department of the University - in pursuit of pre-University and para-professional qualifications. Such groups include technicians, nurses, teachers and public health inspectors.

Biology is the single Life Science taught on the campus at Cave Hill. The present program is carried on by two full time members of the academic staff with an enrollment of 45 students. In the past, students who started their undergraduate work at Cave Hill transferred to other campuses because there was no follow through with continuing programs. The expansion of the present Biology facility will not only improve the service function to the professional faculties, but positively effect the growth rate of the student population and enhance the research opportunities in areas vital to the Eastern Caribbean Region.

4. Central Analytic and Food Science Laboratory - The Faculty of Natural Science has placed high priority on filling the need for upgrading its analytic laboratory which provides for common use of analytic instruments for teaching and research by various Departments and other Faculties. The centralization of analytical skills teaching and analytical research requiring expensive scientific instruments will provide for considerable savings by preventing duplication of equipment purchases.

The Central Analytic Laboratory will (1) provide for upgrading the quality of research; (2) provide for analytic services of many types to Caribbean entities, such as Ministries of Health, Agriculture, standard boards, etc., needing such services but lacking facilities of their own; (3) initiating additional undergraduate and post-graduate analytic courses; and (4) initiation of in-service programs for technical personnel outside the University who require upgrading of analytical skills.

As a result of this program component the following is expected to be achieved:

- (a) improvement in the quality of teaching and research in analysis technology through use of more up-to-date scientific equipment;
- (b) conduct of increased number of analyses through use of more efficient equipment;
- (c) initiation of new coursework in analytic technology to undergraduates/graduates;
- (d) initiation of provision of analytic services to Ministries of Agriculture, Health, standards boards, private industry, etc.
- (e) enable the conduct of new types of analyses via new instruments.

The Food Science Laboratory will be used for teaching approximately 10 students each year in a Diploma Program beyond the Bachelor of Science level. This program would provide specialized training for people to be employed in food processing, manufacturing and marketing firms, food research and advisory entities, the UWI, agricultural and technical colleges and schools. The program would initiate, strengthen and develop research and development work in food storage and processing and would be involved in dissemination of information in food and nutrition. The Diploma Program would offer teaching and practical work in:

- (a) Food Production (general principles of production of major food crops);
- (b) Food Storage (principles and practices of storage of vegetables, fruits, root crops, etc.)
- (c) Food Chemistry and Nutrition (chemical composition of foods);
- (d) Food analysis (introduction to the total analysis of foods);
- (e) Food Processing (technology of food processing, including evaporation, canning, freezing, dehydration, sterilization, pasteurization, distillation, fermentation, etc.);
- (f) Food Microbiology (technology of micro organisms in food and effects upon quality.

Support to this proposed program is desirable in view of its low cost and high value in providing valuable skills to the food processing sub-sector. The following is expected as a result of this project:

- (a) training of 10 students per year in Diploma Program of Food Technology;
- (b) program of research and development of food storage and processing initiated;
- (c) series of documentation/information developed in food storage and processing;
- (d) dissemination of information on food and nutrition;
- (e) courses offered in new subject matter areas of food processing leading to Diploma

5. Electronics Maintenance Unit - An Electronics Workshop Building will be included under AID loan funding to provide centralized maintenance faculties and services for the modern scientific instrumentation of the Central Analytic Laboratory. Since this modern equipment consists largely of electronic components, there is a need to provide sophisticated fault-finding instrumentation to keep the analytic equipment in proper operating condition. The services of infrequently travelling representatives of several scientific instrument manufacturing companies have not been satisfactory. As a result the Mona Campus of UWI has had to rely largely on the senior staff members of the various faculties to personally attempt to repair instruments when they become non-operational. To help resolve this problem the Mona Campus has established a facility which houses a staff of 5 technicians to provide for maintenance of laboratory equipment. These facilities are not adequate to cope with the increasing demand for services. The results are an unacceptably long time period for repairs to be made, disruptions in teaching and research schedules and costly inefficiencies.

In view of the investment to be made to the Central Analytic Laboratory and its equipment, it is appropriate that corresponding investment be made to assure proper and timely maintenance of this equipment. Once established the existing staff of the Electronics Maintenance Unit will be able to improve the quality of instrument maintenance, establish a standard and calibration facility, establish a capability for circuit design, assist post graduate students in instrument repair and design work and initiate programs of training in electronics at the undergraduate and post graduate level.

As a result of this program component the following is expected to be achieved:

- (a) involvement of graduate students in repair and construction of instruments;
- (b) repair of equipment more timely and less costly and of better quality compared to period prior to existence of resources through AID loan.
- (c) standard and calibration facility established.
- (d) capability of circuitry design and construction established.
- (e) program of instrumentation conducted at undergraduate and post-graduate level.

The following table is a summary of the inputs to the Faculty of Natural Science:

MONA

	<u>UWT</u>	<u>AID</u>	<u>TOTAL</u>	<u>FOR DETAILS SEE</u>	
Construction (20,700 sq ft) ^{1/}		844	844	Section IV C.	(Pg 73)
Equipment/Furnishings ^{1/}		508	508	Annex III, Exhibit D	(Pgs 8-12)
Staff salaries/Other Recurrent expenditures	<u>1,061</u>	—	<u>1,061</u>	Annex IV, Exhibit G	(Pg 4)
TOTAL	<u>1,061</u>	<u>1,352</u>	<u>2,413</u>		

CAVE HILL

	<u>UWI</u>	<u>AID</u>	<u>TOTAL</u>	<u>FOR DETAILS SEE</u>	
Construction (5,000 sq ft) ^{1/}		180	180	Section IV C	(Pg 82)
Equipment/Furnishings ^{1/}		81	81	Annex III, Exhibit D	(Pg 13)
Staff salaries/Other Recurrent expenditures	<u>252</u>	—	<u>252</u>	Annex IV, Exhibit G	(Pg 8)
TOTAL	<u>252</u>	<u>261</u>	<u>513</u>		

^{1/} Amounts shown do not include inflation or contingency.

F. Faculty of Arts and General Studies

The Faculty of Arts and General Studies of each of the unives of the U.W.I. make a direct contribution to the development of the human resources of the Caribbean Region. This contribution is made in essentially three ways:

1. The teaching program and the cooperative programs with other schools and faculties in the preparation of teachers for secondary schools;
2. The research and teaching programs in the areas of language and linguistics;
3. The dissemination of information gained through research to all levels of society through training programs and mass communications.

The major sources of graduates for the teaching service in the secondary schools are Arts and General Studies and Natural Science Faculties. This is mainly because these include the subjects which are normally taught in the secondary schools. A few engineering and agriculture graduates join the teaching profession, but most of these go into private industry and the Civil Service. Thus, the teaching of Agricultural Science in the high schols is usually done by biologists rather than agriculturalists. Language studies for these teachers are taken in the Faculty of Arts and General Studies.

Two specific departments in the Arts and General Studies Faculty have been selected for assistance in the proposed loan: (1) Linguistics and (2) Mass Communication.

1. Linguistics

To attain the objective of improved language communication throughout the islands, it is necessary to intensify the research in the relevant areas of language activity and attitudes and also to train and inform teachers and other appropriate categories of public personnel in up-to-date and relevant language skills. The following research program will be carried out.

- a. Research in Caribbean Dialectology.
- b. Investigation into problems of teaching languages in Creole language situations.
- c. Research in oral traditional literature in non-English speaking Caribbean.

d. Research into conditions of creative language skill development.

There will be an expansion of course offerings to include:

- (1) English as a Foreign Language;
- (2) Advanced Caribbean Dialectology;
- (3) English Language with a linguistic bias for prospective teachers.

2. Mass Communications

In attempting to meet the development communication needs of the Caribbean, the mass communications department would function in cooperation with the departments of agriculture, social work, education, natural science and management studies in the following areas:

- a. Disseminate information directly related to development in the Caribbean, resulting from U.W.I. research in the disciplines mentioned above;
- b. Assist Caribbean governments in implementing communication strategies for adoption of innovations in agriculture, health and nutrition;
- c. Conduct research on the effectiveness of various communication strategies for engaging rural populations in a participative change process.
- d. Conduct regional workshops in development communication designed to train extension workers in communication.

The building for the mass communication department will be provided by the Government of Jamaica. However, the AID Loan will extend this building to include; (1) a Multi-media Production Unit, and (2) University Printery.

The Diploma Program (31 students) in Mass Communications, already in progress, will use the Unit as a laboratory. A three-year degree program is planned to begin in October, 1976, with an enrollment of twenty (20). At least half of the students accepted in the Degree Program will be from territories outside of Jamaica. The Multi-Media Production Unit will be an important component in the training program for future personnel on newspaper staffs, radio and television work, and advisors to Government agencies on communication media. The following new courses will be introduced:

- 1976 - Communication Principles and Practices;
- 1977 - Writing, Production and Programming for Audio;
- 1978 - Writing, Production and Programming for Visuals;
- 1978 - Communication in Society.

(1) Multi-Media Production Unit - The value of audio-visual equipment and materials has been established. Within the Mona Campus audio-visual aids are already in use in various departments, but lack of facilities for production of materials limit their use. While some materials may be obtained from abroad they are very often not relevant to local requirements and invariably expensive. The Multi-media Production Unit of the Mass Communications Center will develop and produce teaching aids, pamphlets, tapes, leaflets and recordings not only for the Mona Campus but for the extra-mural activities, and other agencies in the dissemination of information to the Caribbean Region. This Unit will serve as a demonstration center for the production and use of audio-visual materials and the staff will participate in regional courses and workshops for extension personnel

(2) Printery - Facilities for printing, duplicating, etc., are necessary to assist on-going programs and to expand the outreach facilities of the U.W.I. The proposed printing facility will permit the production of new, inexpensive materials for teaching and curriculum development for use outside the University as well as research reports and evaluation studies for use by the governments and departments of the region.

The School of Education and the Mass Communications Unit would use the printing facility in their training programs.

The Caribbean Medical Journal and the Caribbean Quarterly are substantial academic publications now being published commercially. Other Faculties wish to begin publication of similar journals in order to disseminate their research findings more widely than possible at present. A large number of other University publications are now printed commercially and could be printed better and faster by the proposed campus facility. These publications include departmental and faculty informational and instructional brochures and lecture hand-outs. The growing interest in lecture hand-outs could lead to inexpensive instructional texts covering the first year programs, and which would be of value to the LDCs of the region.

In cooperation with the Master Printers Association, it is planned that six handicapped individuals will be selected for a two-year on-the-job training program. The present shortage of skilled printers is due both to migration and lack of apprentice opportunities. This training plan, involving 12 people over each two-year period would be focused directly on specific needed skills.

Inputs to the Faculty of Arts and General Studies are as follows:

	<u>MONA</u>			
	<u>UWI</u>	<u>AID</u>	<u>TOTAL</u>	<u>FOR DETAILS SEE:</u>
Construction (9,000 sq ft) ^{1/}	305	279	584	Section IV C
Equipment/Furnishings ^{1/}	-	154	154	Annex III, Exhibit D
Staff Salaries/ Other Recurrent expenditures	<u>580</u>	<u>-</u>	<u>580</u>	Annex IV, Exhibit G
TOTAL	<u>885</u>	<u>433</u>	<u>1,318</u>	

^{1/} Amounts shown do not include inflation or contingency.

G. Supporting Services

1. Inter-Faculty Classroom Centre

The Inter-Faculty Classroom Centre with its lecture theatre, language laboratory, seminar rooms and offices, is the first stage or phase of the development of a full-scale learning resource centre. The ultimate goal is the establishment of a Centre in which there is brought together in a complex of facilities all the teaching and learning resources which will enable the student to maximize his learning at the least possible cost in time and formal instruction. This first building (6000 sq.ft.) is the beginning of the full development of such a Centre. Although the U.W.I. requested a complete centre including audio-visual rooms and laboratories - a total of 20,000 sq. ft. - the review team, considering the objective of the loan and other proposed projects of the University decided to recommend the inter-faculty classroom building as a first unit to be established. To promote the study and research in language, linguistics, and the many dialects prevalent in the territories, the language laboratory is included.

With its proximity to the Mass Communications Centre and its Multi-media complex, and the full cooperation of all faculties on the campus, the future Learning Centre will provide students with materials such as slides, tapes, films, readers, monitors and work spaces where he can learn at his own level and rate. The total environment encourages the student to take more responsibility for his own learning activities. The language laboratory included in this first unit, will provide tapes for language study and practice in various dialects of the territories and provide the student with a supervised extension of the learning activities from his classes in language and linguistics. Units of packaged learning materials and modules to assist both teachers and students from all faculties will be a part of the learning resources available.

2. Libraries

The University Libraries of U.W.I. under the direction of the University Librarian, support the teaching, research, publication and outreach programs of the University. The libraries, their branches and the libraries of the institutes and law schools on each campus are inter-linked in varying degrees depending on the historical development of the respective campuses and the attitudes of the faculty and administration.

Instruction in the use of the library as a learning tool is provided regularly to the large number of students who attend the campus from the other islands of the territory. The development of library services in these other islands is due in some part to the library experience of administrators while students on the university campuses. A Library School professor at Mona is planning a research project which it is hoped will obtain some measure of the impact of exposure to campus library services on library development in the region.

University Centres with modest book collections exist on Antigua, Grenada, St. Vincent, St. Lucia and St. Kitts. The main Library at Cave Hill selects, purchases, processes for the shelves and ships material to the centres. This centralized procurement activity for the University Centres is anticipated to increase in the future.

The professional library staff is active in the local library association's efforts to develop library services in Barbados.

Two members of the Main Library staff work on the National Bibliography, which identifies new books and research materials suitable to meet the information needs of Barbados and other regions of the Caribbean.

The Main Library is a depository for United Nations documents and under the conditions of the depository, make such documents available to all who desire to see them.

The proposed expansion is a modest proposal which will provide minimal but acceptable assignable space for readers, book stacks and work areas to service the increased enrollment from 940 to 1500 during 1975-81.

Effectiveness of the added space and accompanying staff increase can be measured by: the increased number of visitors to the library; increased loan of materials; nature and number of reference and research questions answered; significant shifts in the quantity and sophistication of requests, and the rate of success in providing the desired information. Also, the increased amount and of special listings, bibliographies, selective dissemination activities can be measured and their quality evaluated.

The library system on each of the campuses is linked to one another by international mail, cable and telephone service. Linkages to other resource centres in the region and to international networks are at present through international mail and telephone service.

The libraries of each campus reflect the strengths of their parent institutions and supplement one another. The St. Augustine libraries have unique, strong collections in tropical agricultural, natural sciences and engineering; the Cave Hill libraries have demonstrated outreach capabilities with the University Centres, and the Mona Campus has substantial research materials on the Caribbean region.

The desirability of consolidating the administration and resources of libraries and learning resource centres has been recognized. Ways are being sought to develop an integrated media support program and an integrated intra and inter-campus information transfer system with significant linkages to international networks. Initial efforts to develop an information infrastructure for the University have been made coincident with the analyses of the Loan Project.

The three campus librarians are collectively seeking innovative use of technology to meet the information needs of the three campuses and of the region. The St. Augustine campus will probably serve as a laboratory for information management practices for the other libraries and for development of pilot programs in automation of services for subsequent adaptation at the other campuses.

a. Cave Hill Library

The Main Library of the Cave Hill campus supports and participates directly in outreach programmes, providing research and borrowing privileges to individuals concerned with the economic and social development of Barbados and of the Caribbean region. The Library has made special efforts over the years to acquire at least one copy of all significant research material published in the region and to inform interested individuals of the library's holdings.

Full borrowings privileges are extended to teachers at Erdiston College and at the teacher training institute. Students at Erdiston College and all secondary school teachers may use the campus library resources within the main library building.

The Community College provides sixth form education, necessary for admission to the University, to students from the poorer rural areas which do not have a sixth form education. The Library staff works closely with the College, aiding in strengthening the College's book collections, and making the resources of the University Library available to both teachers and students.

- Bindery Space and Equipment - Scarce and highly useful research materials, such as Jurisprudence of the West Indies, is being lost from the libraries because it is not bound. Rapid, reasonably priced, dependable binding, adequate for library usage, is not available in Barbados.

The Librarian of the Cave Hill Campus has described the binding situation of the region in detail and the cost effectiveness of in-house binding in Annex III, Exhibit F. The rationale is supported by the UNDP representative at the Mona Campus and substantiated by two CIDA experts who recently completed bindery workshops at the three campuses.

Training will be provided under the technical assistance provisions of the loan for the person selected to supervise the Bindery.

b. St. Augustine Library

Current service strives to satisfy information needs of the region in selected subject fields through its reference service, including the compilation of bibliographies, loan and photocopy of research materials. With the publication of the catalogue of the unique collection in tropical agriculture formerly held by the Imperial College of Tropical Agriculture, demand for, and opportunity to extend information services to agriculturalists in the region and world-wide will increase. At the same time it is proposed that the library should become the national centre for the world Agricultural Information Service - Agris - and through its association with the Agris/Agrinter programmes provide vital links with major information networks. This information linkage will aid the library in contributing to agricultural and rural development in the region.

Included in the plan for using the enlarged library building is a phased development of suitable automated systems in support of the growth of the library's division for Science and Technology. Initial development work on a pilot automation project in the library is underway in cooperation with the Computer Centre.

The St. Augustine library's strategic location in association with large holdings in Agriculture and with the Faculties of Agriculture and Engineering provides a suitable laboratory for research and development of an integrated information system in which the University libraries play a key role.

Microfilming equipment requested in the AID loan proposal will be used to film scarce research materials on the Caribbean which are deteriorating and cannot be bound and loaned because of their poor condition. Copies of these materials will be available on loan or for sale to research workers and scholars. Special reports, theses and other research materials on the region, which will not be of general interest, will be included in the microfilming program. It is anticipated that the microfilm operator and the interchangeable camera heads could travel to the other campuses to copy similar material of their regions.

The Library maintains and intends to strengthen its contacts with institutions and individuals in the region, including the University's Extra-Mural Department tutors and government officials of the region. Through contacts with the general public, the Library provides a link between the University and those individuals outside formal education programs.

3. Pilot Learning Resource Center (Cave Hill)

The Faculty of Arts and General Studies, including the Social Sciences, in addition to its teaching programs performs a service function to other Faculties, Institutes and the Department of Extra-Mural Studies. A Learning Resource Centre, including a language laboratory is envisioned as serving the entire campus, and where appropriate, agencies outside the University. It is conceived as a complex integrating the functions and activities of:

- a. The language laboratory with its primary emphasis on language teaching and learning; and
- b. The Multi-Media production/resource centre with its primary emphasis on the outreach activities and functions of the School of Education.

In support of the total campus and Eastern Caribbean programs at Cave Hill, it is proposed that a Pilot Learning Resource Centre be established. In addition to all the teaching-Learning facilities envisioned for the Centre, it will also include a Language Laboratory, which will be utilized by students enrolled in two new course offerings - Linguistics and Language Learning; and Introduction to Sociolinguistics. The functions and program of the proposed Centre are planned as follows:

Functions:

- a. To provide materials for learning at the student's own level, either for use in the Centre or privately - books and non-book materials such as slides, tapes, films, projectors of various sorts, video-tape monitors and other machinery for viewing and listening.
- b. To supply on loan and to assist in producing materials for use by academic staff and students from all Faculties and the School of Education.
- c. To supply audio-visual resources for students of education at all levels, schools, teachers' colleges, university and other tertiary educational institutions, both in Barbados and in other non-campus Eastern Caribbean territories.
- d. To assist secondary teachers and training college staffs from Barbados and the Eastern Caribbean who come to campus individually or in controlled groups for help in curriculum development and teaching techniques.
- e. To provide course or packaged material, such as audio tapes, slides, specimen objects prepared particularly for the production of training kits for use by teacher trainers, student teachers and Ministry of Education personnel in Barbados and non-campus territories.

The activities of the Learning Resource Centre will include in addition to those stated above as functions, service by the Research and Development Section of the School of Education in teacher training, curriculum development, seminar and workshop activities with teachers, teacher trainers and principals of educational institutions in Barbados and the eight Eastern Caribbean territories. Reports of conference and the results of research and development studies will be disseminated through Extra-Mural Centres and Mass Media throughout the IDC's.

4. Administration

Since the function of the Central Administration is to service the academic program of the University, changes in these programs brought about by the proposed loan has an effect on the workload and personnel requirements of the administration. It is anticipated that during the disbursement period of the loan, an additional 55 staff members will be employed. It follows that additional support personnel and space will be required. Coupled with a present shortage of administrative facilities a modest increase is to be provided at each campus for conference rooms, offices, store rooms, records rooms, file rooms, machine rooms, and ancillary rooms.

The table below summarizes the project inputs for University support services:

ALL CAMPUSES

	UWI	AID	TOTAL	FOR DETAILS SEE
Construction (38,000 sq ft) ^{1/}		1,421	1,421	Section IV C
Equipment/Furnishings ^{1/}		384	384	Annex III, Exhibit D
Staff Salaries/Other Recurrent expenditures	<u>1,062</u>	—	—	Annex IV, Exhibit G
TOTAL	<u>1,062</u>	<u>1,805</u>	<u>2,867</u>	

^{1/} Amounts shown do not include inflation or contingency.

5. Technical Assistance/Training

Within the Loan, \$200,000 is allocated for sixty-three (63) man-months of technical assistance and training. This is a critical element considering the various components that are new and innovative within the Loan. The Learning Resource Centre will require a new talent to supervise its operation. This is also true of the Multi-media Production Unit; the Central Analytic Laboratory and Printery.

As the University proceeds to develop its capacity to better serve the region, the professors and graduate students must have exposure to, and interact with, other institutions in the United States and nearby countries. Twenty-three (23) man-months are provided for this purpose.

In attempting to develop the U.W.I. as a National Centre for the World Agricultural Information Service - agris - and developing the library where it provides a service to faculty and students through inter and intra campus linkages, twelve (12) man-months of technical assistance by an information management specialist will be utilized. An additional ten (10) man-months of technical assistance will be provided in the area of research and evaluation.

The preliminary plan for technical assistance and training is shown in table I below:

TABLE I
TRAINING/TECHNICAL ASSISTANCE

	1976 MM	1977 MM	1978 MM	Estimated Cost
<u>TRAINING:</u>				
Director, Learning Resource Center	3			9,000
Supervisor, Language Lab	4			12,000
Manager, Printery-Bindery	2			6,000
Chief, Multi-media Production		6		18,000
Supervisor, Central Analytic Lab.	1			3,000
Librarian, Information Management	2			6,000
Professor/Student Exchange		10	13	69,000
<u>TECHNICAL ASSISTANCE:</u>				
Information Management Spec.		6	6	42,000
Research (Teaching)			6	21,000
Evaluation/Consultant			4	14,000
TOTAL	12	22	29	200,000

SECTION IV .. PROJECT ANALYSIS

A. Administration and Management Analysis

1. Administrative Structure and Officers of U.W.I.

a. Structure:

The organisation and administration of the University are set out in its Charter, Statutes, Ordinances and Financial Code, and in various Regulations and Standing Orders.

By the Charter, the Authorities of the University are declared to be the Council, the Senate, the Guild of Graduates and such other bodies as may be prescribed by the Statutes. The business of the University is managed by a number of committees which derive their authority from the Council and the Senate (see Annex IV, Exhibit A).

The Council is the governing and executive body, with special responsibility for the control of finance. Its composition represents six separate interests - governmental, academic staff, administrative, Guild of Graduates, students and the general public in the persons of the Chancellor's nominees. Between meetings of the Council its powers are exercised by a Committee known as the Finance and General Purposes Committee which itself delegates certain powers to Campus Finance Committees.

The powers of the Council include the following:

- (i) To provide the buildings, premises, furniture and equipment and other means required for carrying on the work of the University.
- (ii) To borrow money on behalf of the University.
- (iii) To enter into, vary, carry out and cancel contracts on behalf of the University.

The academic authority of the University is the Senate. It consists of the Officers of the University (see appendix), representatives of Faculties and Departments, non-professorial representatives of academic staff, and student representatives. Its powers which are set out in the UWI Statutes, include the following:-

- (i) To determine the academic policy of the University and to advise the Council on the provision of facilities to carry out that policy.

- (ii) To direct and regulate the teaching, instruction and examinations within the University.
- (iii) To award Degrees, Diplomas, Certificates and other distinctions.
- (iv) To prepare estimates of expenditure for submission to the Council.
- (v) To formulate, modify or revise subject to the control of the Council, schemes for the organization of the Faculties, Schools, Institutes, Departments, Centres, or other units of learning and research of the University.
- (vi) To promote and administer the extra-mural, external and extension work of the University.

There is also a Standing Joint Committee of Council and Senate, which was set up in 1971 for the purpose of dealing on a continuous basis with the development of the University. This body gives detailed consideration to important questions of policy before they reach the Council. Most of the powers of the Senate have been delegated to the University Academic Committee (UAC). On Campus matters the UAC devolves powers on Campus Academic Boards which operate through a series of sub-committees including Campus Faculty Committees. On Faculty matters the UAC devolves powers on Faculty Boards. The Senate also operates through Matriculation Board, Board for Examinations. On general inter campus matters UAC operates through several Committees and Boards dealing inter alia with University Planning and Estimates, Matriculation, Undergraduate Awards, Examinations and Postgraduate Studies.

There are at present eight Faculties (see Annex IV, Exhibit B) each headed by a Dean appointed by the Senate on the nomination of the Board of the Faculty from among the members of the Faculty. The Faculty Board, of which the Dean is Chairman, is charged with the management and control, within the general academic policy determined by the Senate, of all matters relating to the education, teaching and research in the subjects of study assigned to the Faculty by the Senate. Within the Faculty, subjects or groups of subjects are assigned to Departments or Divisions, each headed by a member of the Faculty.

Four of the Faculties - Arts and General Studies, Education, Natural Sciences and Social Sciences span all three campuses. Each of the other four Faculties is based on a single campus - Agriculture and Engineering at St. Augustine, Law at Cave Hill and Medicine at Mona. However, the first year of the Law degree may also be read at Mona and St. Augustine and at the Turkeyan Campus of the University of Guyana and the final year of the Medical degree may be done at centres in Barbados and Trinidad and Tobago.

It will be seen from the foregoing that the University operates through a committee system of management.

b. Officers

The Statutes define the Officers of the University as the Chancellor, Vice-Chancellor, Pro-Vice-Chancellor, Treasurer, Pro-Vice-Chancellors, Campus Principals, University Registrar, University Bursar, University Librarian and Deans of Faculties (see Annex IV, Exhibit C).

The Chancellor is appointed by the Council and presides at its meetings; the post is an honorary one.

The Vice-Chancellor is appointed by the Council after consideration of a report from a Joint Committee of the Council and the Senate appointed for the purpose. He is the executive head of the University, Principal of the Mona Campus and ex-officio Chairman of the Senate. The office of Pro-Chancellor is honorary and has been vacant since 1970, having had one occupant for about six years. The office of Treasurer, also honorary, has never been filled. There are five Pro-Vice-Chancellors - two are the Campus Principals of the Cave Hill and St. Augustine campuses; one has special responsibility for planning; one assists the Vice-Chancellor in the discharge of his duties as Principal of the Mona Campus; and one assists the Vice-Chancellor with his other duties. The Registrar is Secretary of the Council and of the Senate and their several Sub-Committees. The Bursar has responsibility for the general administration and control of the financial affairs of the University. The Librarian has responsibility for the coordination of the Library Services of the University. Reference has already been made to the Deans of Faculties.

2. Capacity of Implementing Sub-Unit

The University Development and Planning Unit, which was responsible for preparation of the UWI loan proposal, will have direct responsibility for execution of the loan project. The Planning Unit currently has six staff members:

1. Director
2. Senior Project Officer
3. Educational Statistician (temporarily vacant)
4. Resident Architect
- 5 & 6. Two Project Officers (one vacancy being filled)
7. Public Relations Officer
8. Administrative Assistant

In order to effectively carry out the administrative requirements of the proposed project one new staff member will be added to the Planning Unit. This person, or one of the existing staff members, will be designated as full-time project manager for this project under the direction of the Head of the Unit.

The Planning Unit was established in order to strengthen the University's administration in the area of planning its future growth and development and includes in its portfolio the responsibility for reporting on grants from Foundations and other Donor sources. Planning Unit staff have thus acquired considerable experience in the preparation and implementation of University development plans. For example, in recognition of the lack of a comprehensive manpower study for the region, the Planning Unit has initiated its own studies to help ensure that University development is consistent with the needs of the contributing territories. In addition, this Unit completed, with the help of contractors, long range master plans for the physical expansion of each of the three campuses.

The Planning Unit will be assisted in carrying out its responsibilities by a number of other University entities:

- The Bursar's office will assist in procurement matters and in contracting for engineering, construction and professional technical assistance services and will be responsible for overall project accounting.
- University legal counsel will assist in contract preparation and other legal matters.
- Student Services will assist in the planning and operation of the Scholarship Programme and with follow-up studies.

- The MDDC will assist in monitoring and evaluation of the programmatic aspects of the project (i.e., Research, training, and outreach).

B. Economic Analysis

1. Brief Summary of Economic Conditions

The diversity of the Caribbean countries which participate in the U.W.I. is readily apparent from reference to a few basic economic indicators. A breakdown of the sectoral composition of GDP (shown in Table 1-a, Annex IV) shows, for example, that agriculture's contribution ranges in importance from 3% in Antigua, to 46% in Belize. Nevertheless, agriculture and tourism can be said to form the backbone of much of the region's economic activity. The petroleum industry also plays an increasingly crucial role in Trinidad and Tobago.

Most of the region is feeling the adverse impact of the current economic recession in the United States and in other developed countries and of the worldwide inflation which has been prevalent for several years. Almost every Government in the region (with the notable exception of Trinidad and Tobago), feels itself to be under unusually severe financial constraints.

Table 1-b, Annex IV, provides estimates of per capita income as of 1971. Comparison of such figures with other parts of the world may be particularly hazardous for the small Caribbean countries because of the extraordinarily high import content of consumption, and the resulting high cost of living which lowers the real income of almost all socio-economic classes.

The performance of the agricultural sector has been generally poor. Table 1-c, Annex IV, shows a trend toward the increasing importation of foodstuffs. For the period 1960 to 1970/73, each of the countries for which data was obtained at least doubled the dollar value of food imports and in the case of Jamaica nearly tripled it. One of the principal factors underlying this trend is revealed in Table 1-d, Annex IV, which shows total and per capita agricultural production in Jamaica and Trinidad and Tobago. Total agricultural production has declined in absolute terms in both countries. In each case, the index of per capita production was also lower in 1974 than for 1960. The decline in total and per capita production appears to have reached a low point in 1973. In the case of per capita production, the 1974 level is still 25% less than the 1960 level.

2. University Training Requirements: The Demand for High-Level Manpower

As might be expected, the percentage of the West Indian labor force with post-secondary education is extremely low. Table 1-e, Annex IV, shows the number of degree and diploma holders in the labor force of the 14 Caribbean Commonwealth countries. As the table indicates, only 1% of the region's labor force are university graduates.

The low educational level of the West Indian labor force is both a cause and an effect of the level of economic development. Since it is customary to regard economic development as the ends and educational development as a means, we will focus our attention on the extent to which the low level of educational development may cause or adversely affect economic underdevelopment.

While shortages in the supply of high level manpower are known to have detrimental effects on overall economic growth, there may be considerable variation in the effects between productive sectors and between socio-economic groups. Those industries, such as medical services, which have the highest percentage of highly educated workers are most obviously vulnerable to shortages in trained personnel. Yet even in agriculture where the percentage of university graduates in the employed labor force is relatively low, the lack of highly qualified people to act as leaders and innovators may severely retard productivity.

Few attempts have been made to study the Caribbean labor markets and to assess the economic impact of surpluses or shortages at different classes of labor. Because of the lack of comprehensive studies of the manpower situation, an effort was made during the intensive review to check various indicators of the existing demand for university trained people. The team reviewed data on the employment of U.W.I. graduates, on unemployment, on vacancies in public service, and on the number of work permits issued to foreigners. While it was necessary in all cases to utilize incomplete data, the emerging picture seems clear in most aspects.

Employment of U.W.I. Graduates - Information on the employment of U.W.I. graduates is collected by questionnaires sent to the graduates about three months after they leave the university. Responses to the questionnaires were available only from the two larger campuses. Moreover, many graduates do not respond to the questionnaires, and the University's follow-up is irregular. Placement Officers speculate that graduates do not respond because they are satisfactorily employed locally and do not desire assistance from the Placement Office. An alternative explanation could be that they fail to respond because

they have left the region. In an attempt to clarify this question, a follow-up search for 1974 Jamaican graduates was conducted during the intensive review. Seventy-five percent of the graduates were located. Of these none were unemployed and only three graduates were known to have left the region. (These results are summarized in Table 2, Annex IV.

Good results were also obtained from a tracer study of 144 graduates who had received Canadian Government (CIDA) scholarships to study at the U.W.I. The scholarships were available only to students from the LDC's. Although students were not bonded to return to their home territories, most do so. Of the 144 graduates, 81 were working in their home territory, 15 were working in other territories of the West Indies, 5 were not working, 12 had left the region and 31 were not traced.

Interviews were also held with the Placement Officers at each of the U.W.I. campuses. Each expressed the opinion that graduates have little or no difficulty obtaining employment, although the type of employment and the salaries available sometimes do not meet the graduates' expectations. This is particularly true for graduates in the Natural Sciences whose best employment opportunities are frequently in secondary teaching. Recent increases in teachers' salaries have reduced dissatisfaction in this area.

Some evidence was found of difficulty in placing graduates in Trinidad and Tobago. These reports seemed to be isolated causes and did not suggest any fundamental problem in employing graduates. Moreover, the Trinidad and Tobago economy has not yet responded to the dramatic jump in its oil earnings which have more than doubled total Government revenues. Once the Government begins to expand its ongoing programs and its investment activities, the need for highly trained people will increase rapidly.

Unemployment - Current information on unemployment in the Caribbean region is not available for the smaller territories and is not generally considered very reliable for the larger territories. Nevertheless, such information can provide a rough indication of the size and nature of the unemployment problem.

Jamaica's unemployment, probably the most severe in the region, was officially estimated at 22.4% in October, 1973. Unfortunately, most of the available information in the case of Jamaica is too aggregative to indicate anything about possible unemployment of high-level manpower.

Data from the Government of Trinidad and Tobago shows that 11% of the labor force was unemployed and seeking work at the end of 1973. Data on unemployment by educational qualification (Table 3,

Annex IV) indicates that there was negligible unemployment among university graduates. Of approximately 5,100 university graduates, only about 100 indicated that they were out of work and seeking employment at the end of 1973.

Vacancies in Public Service - Lists of current vacancies in the public service were obtained for the three territories where U.W.I. campuses are located. However, several factors suggest that the number of vacancies for university graduates in the public sector is probably understated in these lists. First, when positions for highly trained personnel remain vacant, there is a tendency not to create new posts of that type which otherwise would be established. Second, many otherwise vacant posts may be filled for foreigners recruited directly by the governments or provided through some foreign aid program. British Development Division figures show that about 200 professionals are provided to the West Indies through that scheme alone, and hundreds of foreign teachers, doctors and others are recruited directly by the West Indian Governments. Finally, it is evident that a large number of posts have been and are being filled with unqualified personnel because qualified staff are not available. These factors suggest that the following information on vacancies in the public service probably includes only a fraction of the real shortages.

The official list of current (April 1, 1975) vacancies in the Barbados public service shows 807 vacancies, roughly 8% of some 10,000 established posts. A review of the vacant posts showed that a minimum of 70 jobs (9%) could be filled only by graduates and that a total of 130-140 (or 8%) should be filled by graduates. This demand pertains only to the regular civil service; vacancies in statutory bodies which employ an estimated 5,000 persons would be additional.

The number of vacancies for graduates in the Jamaican and Trinidad and Tobago public services is much greater. In Trinidad and Tobago there were an estimated 418 graduate level vacancies in September, 1974. In Jamaica, authorities estimated that there are 300-400 vacancies for graduates plus another 445 posts for graduate teachers that must be filled in 1975. The Jamaican Government sends recruiting teams overseas to hire various types of high level personnel.

The data suggests that despite the substantial number of foreign professionals employed in public service posts, there are a considerable number of unfilled posts for graduates. Over time the West Indies will not only need to fill these posts, to replace foreign expatriates, to meet the needs caused by attrition (i.e., deaths, retirements, and disabilities), but the total demand

for graduates for public services will increase as the respective economies grow, as public services are expanded, and as job qualifications are raised.

Vacancies in the Private Sector: Work Permits Issued - Estimating the number of vacant jobs in the private sector is difficult under the best of circumstances. Most employers do not register their vacancies with employment bureaus, and surveys of employers frequently yield responses of dubious validity. Compared with such instruments, viewing work permits issued to foreigners as an indication of manpower shortages in the private sector is a highly conservative approach. Since many, and probably a large majority of the existing vacancies are not filled in this manner, the number of work permits issued may grossly understate current shortages of high level manpower.

The intensive review team was able to secure information on the number and type of work permits issued for the three larger territories. In Barbados, the Government has been issuing 500-600 work permits annually. While permits may be issued for periods up to three years, Government authorities estimate that the average is two years and that half to two-thirds are university graduates. This means that at any one time there are 1,000-1,200 foreigners working in Barbados and that 500-800 are graduates.

The Jamaican Government reports that there were 3,654 work permits in force on January, 1975, and that of these 1,998 (54.7%) were for professional, technical, and related workers. Since many of the workers in this class and a smaller percentage of other classes are university graduates, the total number of foreign graduates under work permits is probably at least 2,000.

In Trinidad and Tobago there were 1,442 work permits issued in 1974. Data were not available to indicate what percentage of these were for graduate-level employment. Given the expense of bringing workers from overseas and the Government policy of giving work permits only when nationals are not available it is probable that at least half were university graduate level. If as in Barbados the average length of time a person with a work permit stays is two years, there would be 1,400-1,500 foreign graduates working in Trinidad and Tobago at any given time.

Totaling the estimated number of graduates employed in the three territories under work permits and adding 20% for the LDC's suggests that the number of vacancies filled in this manner is between 4,690-5,160. If we deduct 20% on the assumption that they are West Indians working outside their respective home territories, the number of non-West Indian graduates under work permits would be around 4,000.

The preceding paragraphs have considered various indicators of the effective demand for university graduates in the West Indies. These have included employment of U.W.I. graduates as indicated by tracer study and by the experience of placement officers, indexes of unemployment by educational qualification, vacancies in established posts in public service and work permits as an indication of vacancies in the private sector. These indicators suggest that there is currently a shortage of West Indian high-level manpower in the region.

The Effect of Overseas Training and Emigration - Data on the number of West Indians known to be studying in the United States, U.K., and Canada in 1970/71 is presented in the Table 4, Annex IV. The table shows that there were 5,166 West Indians from the contributing territories that were studying overseas in 1970/71. More recent figures for the U.S. show that about 3,700 students from the contributing territories (excluding the Bahamas*) were studying in the U.S. in 1974. Of these 40% were from Jamaica, 23% from Trinidad and Tobago, 5.5% from Barbados and 31.5% from the LDC's. The large majority are believed to be in universities. It appears that the number of West Indians studying in the U.S. has increased about 5% since 1970/71. The total number of West Indians in overseas universities is probably between 5,000-6,000.

About 75% of these overseas students are undergraduates and will stay at least four years. Perhaps 20-25% graduate and enter the labor force annually. This suggests that the number of West Indians graduating overseas and entering the labor market (in the West Indies or overseas) is probably between 1,000-1,500 annually. Adding this to the output of the U.W.I. suggests that 2,100 to 2,600 West Indians graduates are entering the labor force annually.

Unfortunately, because of emigration, the West Indies cannot count on anywhere near that number of graduates entering the labor force in their own countries. Despite the availability of employment opportunities at home, the brain drain from the West Indies may well take an average of half the annual production of graduates. One study of emigration from Jamaica in fact estimated that the net outflow of Jamaican graduates in 1967 and 1968 probably exceeded total production of Jamaican graduates in those years.

The U.S. and Canada are the primary recipients of West Indian emigration. The number of West Indian immigrants entering the U.S. in FY 1974 totaled 23,812. Records are not kept showing the education level of immigrants, but it is known that 1,071 were classified as "Professional, Technical and Kindred Workers". If only half of these

* The figure reported for the Bahamas is 3,076. Since the Bahamas is clearly a special case, it was excluded from this discussion.

were graduates, and the graduates in other categories and emigrating to Canada and the U.K. were added, the total emigration might well be half the West Indian graduates produced in 1974.

The emigration rate of West Indian students who study overseas is generally conceded to be much higher than for U.W.I. graduates. A study of 165 Jamaicans who graduated from Howard University between 1960-1964 found that only 47 (or 28%) were residing in Jamaica. The same study suggested that 80% of the Jamaicans that graduate overseas stay overseas. Of 445 Jamaican U.W.I. graduates from the same period, 69% were residing in Jamaica. The partial data on the employment of recent U.W.I. graduates suggests that the percentage of U.W.I. graduates staying in the West Indies may be rising.

The West Indian Governments continue to give considerable numbers of overseas scholarships, but try to limit these to disciplines not offered at the U.W.I. Since the cost of sending a student overseas is generally substantially higher and the likelihood of him working in the West Indies is much lower if he studies overseas, training West Indians at the U.W.I. is clearly a more efficient alternative.

Summary - There appears to be considerable indication of a shortage of high-level manpower in the West Indies. While some scattered reports of difficulty in placing graduates were detected, these reports appear not to reflect any basic problem of absorptive capacity nor are the modest expansions sought through this program likely to create such problems in the future. Any dramatic change in the number of West Indian graduates emigrating would have a large impact on the West Indian labor markets. The key factor determining emigration levels appears to be the immigration policies of the developed countries. West Indian Governments have little effective control over emigration.

Because of the limited data and analyses available and because of the dynamic nature of labor markets, these tentative conclusions may become quickly outdated. It is essential that the U.W.I. obtain and analyze periodic information about the demand for its graduates and for its other services. While much of the responsibility for providing information on the labor markets may properly belong to the Governments of the region, the University must provide its own information if the Governments fail to do so. The University could usefully increase its contacts with a broad range of public and private sector institutions and with its own graduates as an initial step towards gearing its outputs to changing development requirements and strengthening its planning and placement functions.

3. Research and Outreach Activities

As has been described in Section I, the U.W.I. offers a broad range of development-oriented research and outreach activities. Although the effects of these programs do not lend themselves to quantification, it is clear that most of these activities potentially offer considerable economic benefits to the region.

A review of ongoing and planned research activities reveals a high proportion of practical research designed to increase efficiency in existing industries and lay the ground work the profitable development of new industries. Of particular significance is the potential of agricultural research. Numerous projects are designed with the objective of finding and applying technological improvements to the region's crops. Other projects, involving economists, sociologists, and agronomists, are designed to find ways of overcoming economic and cultural constraints to increasing the output, efficiency and marketing of agricultural products.

The U.W.I. is cognizant of the fact that the economic benefits accruing from these and other research activities depends upon the eventual application of significant results. As is the case in most universities, the results of agricultural research are published and disseminated to university students. Moreover, at the U.W.I. these research results are frequently provided through the University's extensive field contacts to Ministries of Agriculture, to government extension agents, and to farmers. To the extent that the proposed loan encourages agricultural and food research projects, there should be long range benefits in terms of increased overall agricultural production, higher farm incomes, and lessen the reliance on imported food stuffs.

Another U.W.I. activity of considerable economic interest is the extra-mural program. Whereas most universities in developing countries limit themselves to post-secondary, academic-oriented educational programs, the U.W.I. has organized a broad offering of non-university technical courses. In 1973-74 these courses were offered throughout the region and enrolled more than 8,000 students. The extra-mural program is helping to expand the supply of middle-level manpower and to upgrading the skills of existing semi-skilled workers. These training activities should enable firms to fill these existing vacancies, to increase production and develop new productive activities.

4. Efficient Utilization of University Resources

Several indicators have been studied to determine whether the university makes efficient use of its physical, human and financial resources. Because of the nature of proposed program, greatest attention was given to an analysis of the utilization of existing and planned physical facilities. U.W.I.'s performance in this regard was compared with U.S. university standards and found to be quite acceptable. A detailed description of this analysis can be found in Exhibit D , Annex IV.

Two frequently used indicators of the utilization of university teaching staff are the average teaching load and student/staff ratio. The U.W.I. normal teaching load is just under ten hours per week - a level which is slightly lower than in most U.S. universities. A ten hour teaching load is believed to be rather common for British style universities which the U.W.I. resembles. Nevertheless, given the financial situation of the university and of most of the participating territories, we believe the university might try to reduce operating expenditures or to increase enrolments by raising teaching loads by a modest amount. (Such a move would be most unpopular with the teaching staff, but would be well received by the participating Governments).

The University's Development and Planning Unit has recently done studies of teaching loads in Natural Sciences and in Arts and General Studies, and Social Sciences. These studies have led to some improvements in the allocation of teaching staff.

Statistics on the student/staff ratio for each U.W.I. faculty are shown in the following table and compared with averages for U.K. Universities.

Student/Staff Ratio 1974/75

	<u>Mona</u>	<u>St. Aug.</u>	<u>Cave Hill</u>	<u>U.K.</u>
Arts	) 13.0	) 13.1	) 14.3	9.1)
Social Sciences	)	)	)	10.9 10.0
Education	10.9	9.3	7.8	11.6
Biological Scs.	)	)	)	5.9
Mathematics	) 11.6	) 12.1	) 9.0	9.4) 7.5
Physical Scs.	)	)	)	7.1)
Agriculture		10.8		7.1
Engineering		10.6		7.9
Medicine				
Pre-Clinical	10.0			9.9
Clinical	4.4			5.3

As can be readily observed, the U.W.I. compares favorably with British universities in all areas except Education and Clinical Medicine. It also compares favorably with U.S. universities where the average student/staff ratio in 1970 was about 9.8. The U.W.I. plans modest decreases in the student/staff ratio by 1977/78 in most academic departments.

Another indicator of internal efficiency of an educational institution is the percentage of students that complete the prescribed program and the length of time it takes them to do so. U.W.I. statistics show that performance in this regard is good, particularly for full-time students that enter the University after having successfully completed 'A' levels.* Data collected in early 1975 shows that of the students who entered at the 'A' level in 1970 and who thus should have graduated in September 1973, 64% did so, 13% graduated six months to a year later, another 13% were still advancing toward graduation and 10% had dropped out. There was a much higher drop out rate (41%) among students who entered after 'O' levels** and took evening classes or a preliminary year. (Information on degree performance is show in Table 5 , Annex IV)

Estimates of the average cost per student are shown in Table below. These costs compare favorably with U.K. and U.S. universities. As in all universities, U.W.I. costs vary considerably among the academic disciplines, Natural Sciences, Engineering and Medicine costing more than Arts and Social Sciences.

Table

U.W.I. Average Cost Per Student

<u>Faculty</u>	<u>Per Capita Cost (US\$)</u>				
	<u>1971/72</u>	<u>1972/73</u>	<u>1973/74</u> ^{b/}	<u>1974/75</u> (est.) ^{a/}	<u>1977/78</u> (proj.)
Agriculture	3012	N.A.	3039	2612	3152
Arts & General Stds. & Social Sciences	1268	1467	2093	2153	2551
Education	1467	1717	2534	2553	2963
Engineering	1817	2149	2873	3094	3669
Law	1768	1828	2548	2600	3000
Medicine- PreClinical	2068	2788	3267	3586	3924
Clinical	3593	3687	4502	5296	7090
Natural Sciences	1593	2119	2550	2777	2994

^{a/} Pre-agriculture year transferred from Natural Sciences to Agriculture

^{b/} All costs increased in 1973/74 because of faculty salary increases

Source: U.W.I. office of Planning and Development, April, 1975

* Exam taken after five years of high school.

** Exam taken after three years of high school.

5. Effects on Income Distribution

Shortages of highly skilled manpower have various direct and indirect effects on the distribution of income within the Caribbean area. Aside from the employment generated in the construction industry and a small number of additional professors, administrators, laboratory technicians and others hired by the University, an expansion in the University system most directly affects those additional students who are thereby provided with an opportunity to obtain university training. The students who complete a degree are virtually assured of an income several times the national average.

Educational opportunity in the Caribbean, as perhaps in all developing and developed countries, is highly correlated with income. Despite the lack of family income data on West Indian university students, one can be quite sure that the great majority come from the highest income quartile. A small number may come from the second quartile. Few students from families in lower half of the income distribution are likely to have a home environment and school opportunity which permits them to be among the small percentage of the relevant age group that qualify for university entrance. A modest expansion in university enrolments is thus unlikely to directly benefit low income families.

The availability of scholarships and student loan schemes can help students who are somewhat lower on the income ladder to share in the direct benefits. Both have played an important role in the development of the U.W.I. National loan programs supported by the I.D.B. are working in Jamaica and Trinidad-Tobago, and a similar program is planned for Barbados. The Caribbean Development Bank has also made funds available to the LDC's for student loans. A list of CDB loans and disbursements is provided in Table 6 , Annex IV.

The indirect effects of an expansion of the U.W.I. upon income distribution are far more complex and, unlike the direct effects, may be quite beneficial to low income groups. A recent study in Jamaica concluded that it is in fact the low income groups that suffer most as a result of shortages in high-level manpower. Shortages of high-level manpower raise the relative salaries of those in the shortage categories and thus raise the prices of goods and services requiring that manpower. Particularly serious in the Jamaican context has been the negative effect personnel shortages have had on the level and quality of educational and health services. Government efforts to provide these services to all citizens have been severely weakened by the shortage of qualified teachers and doctors and by the sharp upward pressure on the salaries of these types of workers. Particularly in medicine, the wealthy groups in society have bid away almost the entire available supply of services leaving the poor with little or no health services.

A similar situation was reported in a UNESCO study in Trinidad and Tobago where the provision of agricultural services to the poor had been adversely affected by the lack of high-level manpower. Shortages of drainage engineers and agricultural extension and credit officers delayed irrigation schemes, agricultural credit programs, and other services to the farming community. The emphasis given in this program to the university's Agriculture Faculty is intended, along with the programs of CARDI and other institutions, to increase services and productivity in that sector where the lowest per capita incomes are traditionally found.

Studies of Jamaica and Trinidad and Tobago have also credited the shortage of qualified professional, technician and managerial personnel with generating much of the unemployment among the relatively plentiful unskilled and semi-skilled workers. The deleterious effects high-level manpower shortages have on productivity make existing enterprises less profitable and discourage new investments.

The UNESCO team in Trinidad and Tobago reported that many firms had found it necessary to put unqualified people in vacant positions and to spend considerable funds on industry training programs. The study also found that the recruitment of foreigners drove up wages not only in shortage categories for which foreign professional and technical personnel were required, but, because of labor union efforts to protect the real incomes of their members led to wage increases in non-shortage categories as well.

Another important aspects of the distribution question has to do with the spread of benefits between the Caribbean territories. To date, benefits have been distributed on the basis of financial support. Each Caribbean government has generally provided what the U.W.I. refers to as the "economic costs" for its own students. The "economic costs" are the costs/students for the academic program (i.e. not including room, board, travel and miscellaneous expenses), less a small tuition fee. The four MDC's (Barbados, Jamaica, Trinidad and Tobago and the Bahamas) have had about 86% of the student body and thus paid that percentage of the costs. The LDC's have provided about 13% of the student body and revenue* while non-West Indies territories have provided 1% of the students and revenue. The focus of the research activity has followed similar trends, most of it being carried out in the MDC's. Recently there has been a slight decrease in LDC participation. Presently 11% of all enrolments are from the LDC's and only 3% of the new admissions in 1974/75 are from the LDC's.

* Excluding grants from CIDA, Ford Foundation, etc.

In order to reverse this trend and provide more of the benefits to the LDC's, the University and AID will each provide U.S. \$500,000 for scholarships to LDC students. It is anticipated that 70/75 scholarships will be provided. (A full description of this program can be found in Section III.)

The proposed loan program will also permit an expansion in the the U.W.I.'s research and outreach programs, many of which offer potential benefits for low income groups. This is particularly evident in the services provided in the agricultural sector where average per capita incomes are low and have been falling. Research and extension activities which lead to improvements in the efficiency of production, processing, and marketing should tend to increase the incomes of individuals employed in those activities.

Additional direct benefits to lower income groups will be derived from many of the extra-mural programs and other outreach activities. Hotel workers, taxi drivers, farmers, and other groups have benefited from extra-mural courses specifically designed to their needs. The University is expected to continue these and other programs which assist sub-professional groups throughout the region.

C. Facilities Analysis

An analysis of the present use of existing building space and the need for additional space to meet current and future space requirements has been made at all three of the UWI Campuses.

Calculations for space requirements were based primarily on standards of the Western Interstate Commission for Higher Education (WICHE) of the U.S.A. To verify that standards used were applicable to the University of West Indies the "Planning Norms for University Buildings" of the University Grants Committee (UGC) of the United Kingdom and the University of West Indies (UWI) Space Standards were also used.

There are no significant differences among these various sets of standards except the amount of space allocations for offices and storage which appear to be insufficient in the UWI standards. An examination of the offices indicate that adequate space has not been allowed in the past so the UWI norms are being revised to counteract this deficiency.

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The following table indicates the type and square footage of facilities to be constructed under the program. The proposed loan emphasizes research and teaching laboratories, supporting office space and libraries. Only approximately 4% is allocated to classrooms. The total square footage to be financed (102,055 sq.ft) was reduced from a requested amount of 208,000 sq.ft. and reflects the analysis and negotiations carried out in the intensive review.

FACULTY OR PROGRAM	LABORATORIES		OFFICES	CLASSROOMS	OTHER Ancillary Library Printery, etc.	TOTAL
	Research	Teaching				
Natural Science	9,955	12,850			2,950	25,755
Arts/						
General Studies			2,700			2,700
Media Production					4,000	4,000
Printery					2,500	2,500
Inter-Faculty Center		1,200	300	3,800		5,300
Agriculture	23,600		4,800		2,400	30,800
Administration			13,000			13,000
Learning Resource Center					4,200	4,200
Library					13,800	13,800
TOTAL	<u>33,555</u>	<u>14,050</u>	<u>20,800</u>	<u>3,800</u>	<u>29,850</u>	<u>102,055</u>

The analysis of floor space requirements used the current and projected enrolment figures for each faculty of each UWI campus listed in the official report "Projection of University Enrolments to 1980/81."

Floor space requirements, expressed in assignable square feet (ASF), excluding such space as halls, stairways, walls, etc., were calculated at each campus by faculty in the following (WICHE) categories: (1) classrooms, (2) class laboratories, (3) research laboratories, (4) office and conference facilities, (5) study facilities, and (6) special use, general use and support facilities. In all cases these estimations subject to variation based on demonstrated need. WICHE standards logically provide a range of values rather than a precise value for space requirements. For the purpose of estimating needs here the middle of the range of values were used. For example, WICHE recommends 0.80 to 1.20 assignable square feet per weekly student hour a student is scheduled in a classroom during the week. For convenience the middle of the range value of 1.0 was used in estimating UWI space needs.

Three points of time were used in this study: the current year, 1974-75, and the next two triennia, 1977-78 and 1980-81. (UWI budgets are allocated on a triennium basis therefore their calculations of expansion are also based on a triennium).

Procedures used in calculating the additional space needed simply was to subtract the existing assignable square feet of space of the particular category from the calculated need in terms of WICHE (middle value) standards. This procedure does not take into account the condition or actual useability of the existing space. This is of particular importance where the buildings are old or where a space is being used for a purpose other than that which it was designed (for example, a hall or stairwell converted to office space). Another factor of importance is the size and complexity of the University of the West Indies. In some space categories the assignable square feet tends to be greater, on a percentage basis, for smaller institutions than for larger ones. For example, the need for central administration space tends to be as great for small institutions as for larger ones.

The more complex a university is the greater the space needs tend to become. The University of West Indies is a complex institution for its size since it is the only major university in the West Indies serving fourteen separate countries with diverse needs and interests.

A further consideration is that UWI operates on the "British system" of instruction, which is different from the U.S. Although this does not change the overall space needs the allocation of space may vary, for example the use of a faculty member's office space as a place to tutor students or to work with them in research activities (office cum laboratory).

In spite of the fact that a good case could be made logically for greater than average space allowances, the tendency is to make conservative space allocations in terms of WICHE standards.

In general, it may be stated that a shortage of space prevails at all campuses in most faculties and for most types of facilities, compared to standard norms. Furthermore, the space that is being used, in some cases, is of a quality or condition that would be considered unacceptable in most universities of the U.S.

It can be stated that all building spaces requested by UWI and being recommended for funding by the USAID loan are needed in order for the University to carry out its mission adequately. It can

also be stated, that the addition of these facilities will enhance the operation of the University and increase the probability of the University achieving its goals of serving the needs of its constituent countries and people.

A detailed analysis of space needs for the University of West Indies is contained in Annex IV, Exhibit D. A summary of space needs of the applicable categories verifying the need for the building facilities recommended for funding by the USAID loan follows:

MONA CAMPUS

1. Construction Recommended

Table 1

Faculty	Facility	Rooms or Stations	Square Feet
A. Natural Science	Zoology Lab	2	8,000
	Botany Lab	2	5,555
	Central Analytical Lab	1	4,400
	Screened Greenhouse	1	2,000
	Maintenance Lab	1	950
	Sub-Total			20,905
B. Arts and Gen. Studies	Staff Conf. Room	1	350
	Staff Offices	10	1,000
	Duplicating Rm.	1	150
	Transcription Rm.	1	150
	Restrooms	2	300
	Storage Room	5	750
Sub-Total			2,700
C. Material Production			4,000
D. University Printery			2,500
E. Inter-Faculty Classroom Center	Classrooms, lecture hall, audio-visual, language lab		6,500
F. Administration	Offices, storage, etc.		6,000

2. Space Needs Analysis Summary and Verification of Need

a. Natural Science

(1) Analyses of Space Needs for Science Laboratories

Table 2

Need for Natural Science Laboratories Space			
MONA CAMPUS	1974-75	1977-78	1980-81
Enrolment in Natural Science Classes Full-time Equivalent Students (FTE)	1066	1146	1335
Laboratory Space Needed at 64.4 sq. feet per FTE	63650	73802	85974
Shortage of Space (space needed less 38,287 existing sq. ft.)	25363	35515	47687

(2) Verification of need for building space recommended for loan financing.

U.W.I. requested a total of 37,415 square feet of space for Natural Science laboratories at Mona Campus. As indicated in Table 2 above, this would take care of existing needs and the needs for 1977-78, but there would be a shortage of space by 1980-81.

On the basis of space needs alone, the entire amount of space would be justified for the 1980-81 target date. However, in terms of program the team recommends only 17,955 square feet of science laboratory space plus 950 square feet for a maintenance laboratory and 2,000 square feet for a greenhouse which is justified in terms of its intended purpose rather than enrolment.

The total amount recommended for funding will not meet the current needs in total but will provide a major impetus for those programs most related to meeting the food needs of the people of the West Indies.

b. Arts and General Studies

(1) Analysis of Space Needs for Office, Conference and Service Facilities

Data in terms of assignable square feet of space for offices, conference rooms and service facilities is not readily available. As already indicated, however, the U.W.I. standards for such facilities have been inadequate. A personal inspection reveals an inadequate amount of service facilities such as filing and storage rooms, work rooms, etc. The UWM Development Plan for Mona Campus, a master plan developed by a commercial planning firm, indicates a current 5% shortage of office space campuswide. The analysis of space needs therefore is based on the anticipated increase in teaching and clerical staff assuming full utilization of existing space and not allowing for any existing shortage.

The projections of additional teaching faculty are based on an increase of one faculty member for each ten additional students. Increases in clerical staff are based on the ratio of one additional clerical person for each six additional teaching faculty.

As indicated in Table 3 there will be a need for 4,500 square feet of office and related space in 1977-78 and for an additional 4,800 square feet (a total of 9,400) by 1980-81.

Table 3

Arts and Social Sciences Office, Conference and Service Facilities Needs				
MONA Campus	Student Increase	Teaching Staff Incr. (1 to 10)	Clerical Staff Incr.(1 to 6 fac.)	Additional Space Needs (150 sq.ft. per person)
1977-78	264	26	4	4,500 sq.ft.
1980-81	271	27	5	4,800 sq.ft.
TOTAL	533	53	9	9,300 sq.ft.

(2) Verification of need for building space recommended.

U.W.I. requested a total of 4,400 square feet of floor space for offices, conference and service facilities for the faculties of Arts and General Studies, and Social Science. Notwithstanding the fact that there is already a shortage of space this would be sufficient to meet the needs in 1977-78.

On the basis of demonstrated need the total amount requested could be approved. However, based on program analysis the Arts and General Studies programs would have the most direct impact on the West Indies people in terms of meeting the needs of the rural sector. The 2,700 square feet of office and related space for Arts and General Studies (see Table 1) is therefore recommended for funding.

Although this will not meet the total needs for Arts and General Studies by 1980-81 (Arts and General Studies is about equal with Social Science in terms of enrolment so about half of the total needs is Arts and General Studies) it will provide a major improvement in the management facilities of this program.

c. Integrated Classroom Center

(1) Analysis of Space Needs

The proposed integrated classroom centre is a classroom building (lecture and seminar facilities) for all faculties (except law and medicine). The needs analysis therefore is based on the needs of all faculties for classroom space.

Based on the calculation of 11 square feet of classroom space per full-time equivalent student enrolment, Mona Campus is currently short about 5,000 square feet. This shortage will double by 1977-78 and triple by 1980-81. This does not include additional support service facilities needed. See Table 4.

Table 4

Need for Classroom Space - Mona Campus				
Faculty	Existing Classroom Space	Estimated Shortage of Space (sq.ft.)		
		1974-75	1977-78	1980-81
Arts & Social Science	14,425	-3,605	-7,509	-10,490
Education	2,825	+ 9	- 937	-1,795
Natural Science	10,272	-1,454	-2,350	-4,413
Total	27,522	-5,050	-10,796	-16,698

(2) Verification of need for building space recommended

The total request for classroom space by U.W.I. for the Mona Campus is 15,810 square feet and an additional amount of 8,882 square feet support services. This is less than what will be needed by 1980-81. However, since Loan funds are to be directed at programs that contribute most directly to the development of the rural sector, only parts of the total University program are appropriate for funding.

A total of 6,000 square feet including support service facilities (class laboratories, offices, and workrooms) is recommended by the team for funding. This will not fulfil the total needs but it will provide a substantial addition in classroom facilities for the University.

d. Administration

Analysis of space needs for Administrations Facilities

The space request for the central administration at the Mona Campus is minimal and will primarily serve the Planning Unit; Student Affairs; Bursary. The 6,000 square feet will be for offices required for alleviating present crowded condition.

Planning Unit	2,400	square	feet
Student Affairs	600	"	"
Bursary	2,500	"	"
Conference Room	500	"	"
TOTAL	6,000	"	"

ST. AUGUSTINE CAMPUS

1. Construction Recommended

TABLE 5

Faculty or Program	Facility	Rooms or Stations	Square Feet
A. Agriculture	Research Labs		
	Micro-biology	3 staff 2 grad.	520
	Animal Nutrition	2 staff 2 grad	400
	Grad Students	20	1,600
	Agronomy	1	500
	Plant breeding	1	600
	Plant Pathology	1	400
	Virology	1	200
	Nematology	1	500
	Analytical	1	500
	Photo-graphy	1	150
	Soil Physics	1	600
	Offices & Staff		
	Offices cum jobs	26	4,802
	Agriculture Ext.		5,000
Food Processing		2,400	
Ancillary	60%	12,642	
Sub Total			30,814
B. Library	Library - Reading rooms and stocks		6,300
C. Administration	Offices and Serv.		5,000

2. Space needs Analysis and Verification of need.

a. Agriculture

(1) Analysis of space needs for Research Laboratories and Office Facilities

In calculating the floor space needs for the Faculty of Agriculture it is assumed that the present 1 faculty member and 8 students will continue to prevail (this includes research faculty). The space for teaching laboratories is based on an estimated need of 56 square feet per full-time equivalent student. The need for research labs is based on 1,000 square feet per faculty member involved in research, including full-time and part-time. The shortage of space is based on existing space of approximately 11,056 square feet of teaching labs and approximately 30,710 square feet of research and graduate labs which is deducted from the total needs.

Based on the analysis of present and future needs for laboratory and office space there is currently a shortage of both classroom and research laboratories. This, of course, will become more severe as the enrolment increases unless additional space is provided. A shortage of office space will also exist by 1977-78. Laboratories and faculty offices are dealt with together because they are used somewhat interchangeably. According to WICHE space analysis recommendations it is desirable to make allowances for one to offset the other. A summary of space needs is provided in Table 6.

TABLE 6

FACULTY OF AGRICULTURE - SUMMARY OF FLOOR SPACE NEEDS								
Year	FTE Student Enrolment	FTE Faculty	Net Space Needs Teaching Labs	Net Space Needs Research Labs	Total Lab Space Needed (Teaching & Research)	Lab Space Shortage	Office & Conf. Space Needs	Office Space Shortage
1974-75	243	32	13,608	22,000	44,608	7,352	4,900	-
1977-78	353	44	19,768	44,000	63,768	22,902	6,600	200
1980-81	420	55	23,520	55,000	78,520	37,754	8,250	1,850

(2) Verification of need for building space recommended

The total request by the Faculty of Agriculture is 30,814 square feet of floor space, of which 5,400 is for an Agricultural extension program, since this is a separate program in addition to the instructional program of the faculty it is not included in the above calculations but is justified in terms of the outreach service it will provide.

Since all of this space is needed to carry out the Agricultural thrust of U.W.I. the entire amount is recommended for funding. This will not meet the total needs but it will make a major impact on the development of research and service facilities related directly to the production of food in the West Indies.

b. Library

(1) Analysis of Floor Space needs for Library, Reading Rooms and Stacks

The Library space needed is calculated in three components: (a) Stack space, (b) study space and (c) Processing plus (d) ancillary spaces. Stack space is calculated at 0.1 square feet per volume (book). Study space is calculated at 30 assignable square feet for 25% of the PTE student enrolment. Processing is calculated at 5% of the stocks and study space. Ancillary is calculated at 40% of the other three areas.

The St. Augustine library now contains 167,774 volumes and has a total area of 47,664 square feet. Based on the above data, the floor space needs were calculated and are summarized in Table 7.

TABLE 7

ST. AUGUSTINE LIBRARY SPACE NEEDS						
Year	Stack space 0.1/volume	Study Space	Process- ing	Ancil- lary	Total	Additional Space Needed
1974-75	17,000	16,515	1,675	14,076	49,266	1,598
1977-78	22,000	21,015	2,150	18,666	63,831	15,567
1980-81	27,000	25,500	2,625	22,050	77,175	29,511

(2) Verification of need for building space

The U.W.I. request is for 6,300 square feet for reading room, stack area and related offices. This will be slightly less than half of the library needs by 1977-78.

The entire amount is recommended for funding.

c. Administration

(1) Analysis of space needs for offices, conference rooms, and general use facilities.

The space request for the central administration is for a total of 5,000 square feet to house the following:

Conference room	1,600	
Offices	1,465	
Committee rooms	450	
Circulation	1,410	
		<hr/>
TOTAL	4,925	Sq. Ft.
		<hr/>

Personal inspection of facilities revealed general over-crowdedness and a lack of adequate facilities. All space allocations are needed and are within the U.W.I. standards (and generally below the WICHE standards).

(2) Based on the personal inspection and the indicated need for floor space for present and to be added staff, the request appears to be minimal but will facilitate the administration of the University

CAVE HILL CAMPUS

1. Construction Recommended for Funding

Faculty or Program	Facility	Rooms or Stations	Square Feet
A. Natural Science	Biology Lab	54	2,160
	Prep and Tech room	1	366
	Storeroom	1	127
	Research Labs	2	362
	Spec. Museum	1	181
	Special purpose room	1	508
	Washroom & Toilet	2	317
	Corridor		233
	Stairs		186
	Other space		574
Sub Total			5,008
B. Learning Resource Centre	Lang. Lab.		1,050
	Gen. Resource etc.		2,500
	Circulation	20%	710
C. Main Library			7,500
D. Administration	Offices & Serv.		2,000

2. Space needs analysis and verification of need

a. Natural Science

(1) Analysis of space needs for Laboratory and support facilities

The number of square feet needed for science laboratories is calculated on the basis of 64.4 square feet per full-time equivalent student in the science program.

The present assignable square feet for science laboratories is 12,790. The calculated needs for additional square feet are indicated in Table 8.

TABLE 8

Year	Enrolment	Total ASF Needed	Additional Space Needed
1974-75	195	12,548	-
1977-78	265	17,066	4,276
1980-81	330	21,252	8,462

(2) Verification of need for building space recommended for approval by the USAID team.

The U.W.I. request for 5,000 square feet of space which includes ancillary space as well as support facilities is less than that needed in 1977-78 and considerably less than the space needed in 1980-81.

b. Learning Resource Centre

(1) Analysis of space needs for Language Laboratory and General Resource Centre

The facility is justified in terms of the program itself rather than by any set formula. The number of square feet per person, however, is standard. According to WICHE standards the space allowable is 25 to 35 square feet per station. It is calculated at 25 square feet. (800 Sq.Ft. for 32 stations). The recording studio, projection room and maintenance area are also calculated at minimum levels.

Based on demonstrated need as ascertained from personal interview of staff involved the need for this facility is justified.

c. Main Library

Analysis of space needs for Library

(See II,B,1 for procedure used to calculate Library requirements)

CAVE HILL LIBRARY SPACE NEEDS						
Year	Stack Space	Study Space	Processing	Ancillary	Total	Additional Space Needed
1974-75	5,530	7,462	650	5,457	19,099	6,973
1977-78	6,763	9,562	816	6,856	23,997	11,871
1980-81	7,996	11,250	962	8,083	28,291	16,165

The request for 7,500 sq.ft. of library space is approximately sufficient to cover the present needs. However, the economics of scale dictate the addition of a third floor to the present building. Therefore, space estimated for the 77-78 triennium will not be loan funded.

d. Administration

(1) Analysis of space needs for offices and supporting facilities

Personal inspection indicated the conditions are very crowded and very inadequate. Hall space, stairwell and other space is being used. A total of 6 additional staff is anticipated.

(2) Verification of need for building space recommended for approval by the USAID team

The request of 2,000 square feet, is modest. It will help to relieve the congestion but the amount of space will still be below WICHE standards and probably below U.W.I. standards.

Staff Offices	700	Square Feet
Bursary	400	" "
Student Affairs	450	" "
Secretariat	450	" "
TOTAL	2,000	" "

D. Engineering Analysis

1. General Description

The Engineering related portion of the proposed project consists of the design, architectural and engineering drawings, specifications and bid documents for various buildings in the Cave Hill, St. Augustine and Mona Campuses of the U.W.I.; and the construction of such buildings.

A general description of the proposed construction program follows: (Details see Annex IV, Exhibit E)

a. Cave Hill Campus, Barbados

(1) Natural Science (Biology) Building - A second floor addition to an existing one storied structure. This addition will comprise a gross floor area of approximately 5,000 square feet. The type of construction will consist of reinforced concrete columns and roof slab; concrete block walls and partitions; various finishes for floor depending on functions of allocated space; painted walls, partitions and ceilings; and customary windows, doors, plumbing and electrical fixtures.

(2) Library - A third floor addition to an existing two storied structure. This addition will comprise a gross floor area of approximately 7,500 square feet. The construction system and finishes will be similar to the Natural Science Building second floor addition. The proposed addition will be air-conditioned.

(3) Administration and Learning Resource Center - A two storied structure linked to an existing building. The first floor which will have a gross floor area of approximately 3,502 square feet will house the Learning Resource Center. The second floor will have the same gross floor area as the first, will house the Administration and the language laboratory. The total gross floor area will be approximately 7,004 square feet. The type of construction will be essentially the same as the other proposed buildings with the exception that this will have spread footings, grade beams and first floor slab on grade. Selected areas will be air-conditioned.

b. St. Augustine Campus, Trinidad

(1) Agriculture Buildings - These will consist of two two storied structures comprising a gross floor area of approximately 30,814 square feet. There will be a main building comprising approximately 28,414 square feet to house agricultural extension services,

agronomy, plant breeding, plant pathology and nematology. The other and smaller building will house a food processing plant. This building will have a gross floor area of 2,400 square feet. The type of construction will consist of reinforced concrete spread footings, grade beams, first floor slab on grade, second floor and roof slabs, beams and columns. The exterior walls and interior partitions will be of concrete block. The floor finishes will vary depending on functions of allocated space. Exterior walls and interior partitions will be cement rendered and painted. Customary plumbing and electrical fixtures will be used. Selected areas will be air-conditioned.

(2) Administration Building - A two storied structure comprising a gross floor area of approximately 4,812 square feet. The type of construction and finishes will be essentially the same as for the Agriculture building.

(3) Library - A one storied horizontal addition to an existing Library building - this extension will comprise a gross floor area of approximately 6,300 square feet. The type of construction and finishes will be essentially the same as for the other proposed buildings and the architectural aspects will be suitable for its function. This building will be air-conditioned.

c. Mona Campus, Jamaica

(1) Administration Building - This structure consists of a three storied horizontal addition to an existing two story building. The first floor space will be left open with no floor nor walls to enclose it. This space will be landscaped pending its future finishing. The visual impression of the structure will be that of a two story structure on stilts. The gross floor area of the second and third floors will be approximately 6,000 square feet. The type of construction will consist of reinforced concrete spread footings, ground beams, columns, beams, floors and roof slabs; concrete block exterior walls and dry wall partitions; polished terrazo floor finish; rendered and painted exterior wall finishes; accoustic tile suspended ceiling; aluminum windows and main doors; customary plumbing and electrical fixtures; and air conditioning.

(2) Botany Building - A one storied structure comprising a gross floor area of approximately 5,555 square feet and a separate greenhouse comprising 2,000 square feet of floor area. The type of construction for the main structure will be essentially the same as for the Administration Building with the exception that the partitions will be of concrete block. There will be no accoustic ceiling and building will not be air-conditioned.

(3) Zoology - A two storied extension to existing laboratory. The gross floor area will be approximately 8,000 square feet. The type of construction will be essentially the same as for the main Botany building.

(4) Central Analytical and Food Science - A two storied structure comprising a gross first floor space of 1,913 square feet and a second floor gross floor space of 2,339 for a total gross floor space of 4,252 square feet. The type of construction will be essentially the same as for the buildings described above. Since the first floor area is smaller than the second floor area, there will be an unenclosed area at the first floor level.

(5) Electronics Workshop - This is a two storied addition to an existing laboratory. The extension will comprise a gross area of 945 square feet. The type of construction is essentially the same as for the other proposed buildings.

(6) Arts and General Studies - This is a two storied extension to the Faculty of Arts and General Studies. The extension will comprise a gross area of approximately 2,642 square feet. The type of construction will be essentially the same as for the proposed Administration building described above. However, this structure will have a slab on grade for the first floor.

(7) Multi-Media Production Unit and Printery - A one storied structure comprising a gross area of approximately 6,500 square feet. This building will eventually be linked to a proposed Media Center Building to be built with funds from the Government of Jamaica. The structural system will be essentially the same as for the other buildings. However, the exterior walls will be cavity walls, the structure will have soundproof doors, the wall finishes will be acoustic tiles and the ceiling will consist of acoustic tile. The air-conditioned system will be a special low noise system with return ducts.

(8) Inter-Faculty Classroom Center - A two storied structure comprising approximately 6,148 square feet of gross floor space. The structural system will be essentially the same as that of the buildings described above. However, the first floor will be finished with terrazo tiles.

2. Construction Costs

The estimated cost of A & E services and construction are shown in the "Financial Plan". The estimated costs are based upon the construction cost of similar structures at the present time to

which contingency and inflation factors have been added considering the recent inflationary trends in the construction industry. The cost of construction is estimated at \$5,763,000. It is anticipated that 21 percent of this will be foreign exchange cost and 79 percent local costs.

3. Technical Feasibility

The sites on which the construction program is to be undertaken are within the land owned or long-term leased to the University.

All types of structures proposed as well as their locations are in accordance with the master plans of land use for the campuses.

The sites are on rolling ground with no drainage or flooding problems. There is adequate accessibility as per master plans for all sites. The physical soil characteristics at proposed sites are similar to those on which similar structures to the ones proposed have been built. These existing structures have not exhibited any undesirable structural behavior. No problems are anticipated with the foundation and structural systems proposed.

There is electric power, water distribution line, sewage collectors and open storm sewer collectors adjacent to sites. There are experienced and capable A & E firms and contractors in the region capable of undertaking the architectural and engineering design, construction supervision and construction of the proposed projects. No shortages of construction labor and materials are anticipated. The estimated cost of construction program when compared with the cost of recent similar construction appears reasonable. Each campus has an existing Maintenance Department with the experience and the organization to undertake the maintenance of the additional facilities proposed.

4. Engineering Implementation Plan

Final design, cost estimates, bid documents and construction supervision will be performed by an A & E firm or firms to be retained by the U.W.I. pursuant to a Request for Technical Proposal.

The construction will be undertaken by successful pre-qualified bidder or bidders pursuant to the publication of synopsis and issuance of bid invitations.

A projected schedule from publication of the Request for Technical Proposal to termination of construction is provided in the implementation plan under "Events Related to Construction."

5. Environmental Analysis

An environmental assessment of the proposed construction program indicates that there will not be any adverse environmental impacts.

For the environmental assessment of the proposed action see Annex IV, Exhibit F.

6. Engineering Conclusions

a. The proposed construction program is technically feasible.

b. The preliminary drawings, outline specifications and cost estimates submitted have been reviewed and considered adequate to satisfy the requirements of Section 611 of the Foreign Assistance Act.

E. Financial Analysis

1. Summary Cost Estimate and Financial Plan

The total foreign exchange and local currency costs of the project, and the proposed sources of financing are shown in the following table:

	(in thousands US\$)								
	A.I.D.			U.W.I			TOTAL		
	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total
1. Agricultural Programs	840	1,175	2,015		736	736	840	1,911	2,751
2. Natural Science Programs	749	864	1,613		1,313	1,313	749	2,177	2,926
3. Arts, General Studies Programs	190	243	433	24	861	885	214	1,104	1,318
4. Library Development	298	444	742		358	358	298	802	1,100
5. Pilot Resource Learning Center	145	110	255		97	97	145	207	352
6. Inter-Faculty Classroom Center	93	157	250				93	157	250
7. Administration	164	394	558		607	607	164	1,001	1,165
8. Scholarship Program		500	500		500	500		1,000	1,000
9. Technical Assistance/ Training	200		200				200		200
Sub-Total	2,679	3,887	6,566	24	4,472	4,496	2,703	8,359	11,062
Contingency Factor	90	322	412				90	322	412
Inflation Factor	453	1,063	1,516				453	1,063	1,516
GRAND TOTAL	3,222	5,272	8,494 ^{1/}	24	4,472	4,496	3,246	9,744	12,990

^{1/} For purposes of the loan say \$8.5 million.

2. Project Disbursements by Year

The following table presents projected disbursements by major project input:

	(In thousands of US\$)						
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>TOTAL</u>
<u>AID:</u>							
Construction ^{1/}	964	3,200	1,599				5,763
Equipment/ Furnishings ^{2/}	273	703	1,055				2,031
Technical Assist- ance Training	39	72	89				200
Scholarship Program		120	190	190			500
Sub-total	1,276	4,095	2,933	190			8,494 ^{3/}
<u>U.W.I.</u>							
Construction		305					305
Staff & Other Recurrent	327	840	1,160	1,364			3,691
Scholarship Program			40	140	210	110	500
Sub-Total	327	1,145	1,200	1,504	210	110	4,496
TOTAL	<u>1,603</u>	<u>5,240</u>	<u>4,133</u>	<u>1,694</u>	<u>210</u>	<u>110</u>	<u>12,990</u>

^{1/} Projection includes contingency and inflation factors.

^{2/} Projection includes inflation factor.

^{3/} For purposes of the loan, say \$8.5.

3. Summary of Capital Inputs

The following table presents a summary of capital inputs by campus and by discipline:

<u>Capital Inputs</u>	(In thousands US\$)			<u>Total</u>
	<u>Jamaica (Mona)</u>	<u>Trinidad (St. Augustine)</u>	<u>Barbados (Cave Hill)</u>	
1. <u>Agriculture</u>				
Construction Costs		1,210		1,210
Architect/Engineer		182		182
Equipment & Furnishings ^{1/}		623		623
Sub-Total		2,015		2,015
2. <u>Natural Science</u>				
Construction Costs	734		162	896
Architect/Engineer	110		18	128
Equipment & Furnishings ^{1/}	508		81	589
Sub-Total	1,352		261	1,613
3. <u>Arts/General Studies</u>				
Construction Costs	243			243
Architect/Engineer	36			36
Equipment & Furnishings ^{1/}	154			154
Sub-Total	433			433
4. <u>Library</u>				
Construction Costs		284	233	517
Architect/Engineer		42	26	68
Equipment, Furnishings, Books ^{1/}		100	57	157
Sub-Total		426	316	742
5. <u>Pilot Learning Resource Center</u>				
Construction Costs			139	139
Architect/Engineer			15	15
Equipment & Furnishings ^{1/}			101	101
Sub-Total			255	255

<u>Capital Inputs</u>	(In thousands US\$)			<u>Total</u>
	<u>Jamaica (Mona)</u>	<u>Trinidad (St. Augustine)</u>	<u>Barbados (Cave Hill)</u>	
6. <u>Inter-Faculty Classroom Center</u>				
Construction Costs	161			161
Architect/Engineer	24			24
Equipment & Furnishings ^{1/}	65			65
Sub-Total	250			250
7. <u>Administration</u>				
Construction Costs	182	180	73	435
Architect/Engineer	27	27	8	62
Equipment & Furnishings ^{1/}	27	15	19	61
Sub-Total	236	222	100	558
<u>Total Capital Inputs</u>	2,271	2,663	932	5,866
Contingency Factor (10% of Construction & A/E)	152	192	68	412
Inflation Factors: ^{3/}				
Construction (32%)	422	536	194	1,152
A/E (16%)	32	40	11	83
Equipment (16%)	122	118	41	281
GRAND TOTAL	2,999	3,549	1,246	7,794^{2/}

^{1/} Includes cost of consultant to assist in procurement, estimated at 3% of equipment cost.

^{2/} Excludes non-capital inputs of \$700,000. For purposes of loan, say \$7,800,000.

^{3/} In computing the inflation factor for the costs of equipment and the services of the consulting Architect/Engineer it was estimated that the general increase in price levels in the three campus territories and Code 941 countries would approximate 10% per year. Assuming a steady rate of disbursements over the three year disbursement period, the net effect of this would be an approximately 16% increase in project cost.

The inflation factor used for construction costs, i.e., 32%, represents the weighted average of the anticipated increase in construction costs computed individually for each of the campus territories. Within the next six months it is expected that new long term wage agreements for construction labor will be executed in each of the territories granting estimated increases of 65% in Jamaica and 50% in Trinidad and Barbados. Applying these rates to the labor component of construction costs (estimated at 40%) and the general rate of 16% to the materials, overhead and profit component results in the following composite rates: Jamaica-35%; Trinidad and Barbados-30%.

4. Analysis of U.W.I. Contributions

The U.W.I. and its contributing territories will be financing three major inputs to the project, i.e., partial financing of a mass communications building, matching funds for the scholarship program and the recurrent costs of staff, utilities, supplies, maintenance, etc., necessary to execute the project.

Through a grant from the Government of Jamaica the U.W.I. will be constructing a building to house the Mass Communications Department. This building will be joined with AID's input of a Multi-Media production unit and Printery to form an integrated complex for carrying out the planned program for improving development communication in the Caribbean.

The U.W.I. will also provide \$500,000 or 50% of the funds for operation of the scholarship program. Scholarship awards will be made to approximately 75 recipients over a three year period. Since students selected in the third year of the program will require financing over a 3-4 year period, the final disbursement for the program will be 5-6 years after it is initiated. In view of this, it was agreed that AID and the GOG would share in the cost of the program through separate financing of individual scholarships rather than by disbursing on a pari passu basis. AID could then finance the earlier scholarships and disburse its contribution within three years of initiation of the program. The U.W.I. would begin disbursements in the second year of the program and would covenant to continue disbursements until all the available scholarships had been granted and the recipients had completed their studies.

The major contribution of the U.W.I. will be the recurrent operating cost required to carry out the proposed training, research and outreach activities. The method of calculating these costs was to first project the anticipated U.W.I. professional and semi-professional staffing requirements by discipline. This projection was used to compute the total cost of recurrent expenditures by applying the average annual U.W.I. cost per staff member (including salary, support staff, research funds and overhead costs) to the number of positions (see Annex IV, Exhibit G). Because many of the project activities are to a large extent dependent upon the loan financed buildings and equipment being in place, full U.W.I. staffing will not occur until the fourth year. This element of the U.W.I. contribution was therefore calculated over a four year period.

5. Alternative Sources of Financing

The U.W.I., in planning its long range expansion program, is looking primarily to three donor agencies for Capital Assistance: Inter-American Development Bank (IDB); Canadian International Development Agency (CIDA); and AID.

CIDA's ongoing assistance to the U.W.I. constitutes a five year program (1972-77) totalling \$10 million in grant funds. The funds were initially earmarked for several broad areas of capital and technical assistance including Management Studies, the School of Education, the Faculty of Engineering and the Faculty of Agriculture. To date \$3.5 million of CIDA funds have been formally committed to specific projects. The only Faculty receiving mutual assistance from both AID and CIDA is Agriculture. While only a small portion of the CIDA input to Agriculture has been firmly committed, it is expected that CIDA funds will be used primarily to expand facilities (e.g., teaching labs and classrooms) for teaching programs in Agri-business, Home Economics, Nutrition, Biochemistry and Microbiology. This would be complementary to AID's input to the Faculty of Agriculture consisting of research labs and office space for the Department of Extension and CARDI.

The U.W.I. has applied to the IDB for \$32 million of loan financed capital assistance primarily for expansion of its programs in Engineering, Medicine and Hotel Management and Tourism, and construction of student residence halls and cafeterias. The inputs proposed for AID financing specifically excluded the areas included in the UWI request to the IDB for capital assistance.

The proposed AID assistance has been discussed with both the IDB and CIDA and it has been agreed to seek continued consultation and coordination of the three major donor inputs in order to ensure complementarity of assistance.

The IDB, World Bank and Export-Import Bank have indicated they are not interested in financing any of the specific project elements proposed for AID financing.

6. Justification for Use of AID Loan Terms

The U.W.I. is operated as a non-profit institution and, as with most public universities, has a very limited income generating capacity of its own. Income from tuition fees and other miscellaneous sources amounts to only 6% of its total expenditures. Donations and contributions from outside sources account for another 22%. The majority of its income (i.e., 72%) comes from the contributing territories.

For the contributing LDC's, the U.W.I. represents the only prospective source of University level training and other University services within the region. Given their low per capita incomes and small populations none of these territories could individually support an institution of the breadth and quality of the U.W.I. The MDC's likewise, though to a lesser degree, would find it uneconomic to support separate national institutions. The continuing financial support for the U.W.I. by the territories of the region indicates an awareness of this fact.

However, because of the internal demands for capital for national development in each of the contributing territories, it has been difficult for the U.W.I. to obtain sufficient financing for the infrastructure inputs needed to fully realize its potential for service to the region. The contributing territories have financed approximately \$12.6 million of the capital assets of the U.W.I. (see Annex IV, Exhibit H). The bulk of this came from the three campus territories of Jamaica, Trinidad and Tobago and Barbados which contributed approximately \$3.4 million, \$7.8 million and \$0.6 million respectively for capital facilities. However, additional capital investment is needed (see subsection C above, "Facilities Analysis"). In view of this need and the nature of the institution and its importance to development of the region, concessional financing at the terms indicated appears fully appropriate.

7. External Debt Service Capacity

A review of the most recent (7/31/74) audited financial statements of the U.W.I. (see Annex IV, Exhibit I) indicate that the debt service requirements of the proposed loan should place no undue burden on the University or its contributing territories. To date, the capital requirements of the U.W.I. have been met primarily by grants from the Colonial Development and Welfare Fund, the campus territories, or other donors. The proposed loan would be the first long-term debt financing undertaken by the University.

During the grace period of the AID loan the effect of the debt service requirements on operations would be minimal. After 100% of the loan has been disbursed, the interest payments would amount to less than .8% of total annual University expenditures.

The basis upon which territorial contributions to the U.W.I. are calculated is the annual per student economic costs. Thus, ultimately, the debt service capacity of the U.W.I. is dependent upon the willingness of its contributing territories to absorb an increase in the per student cost figure, resulting from external loan financing. Currently, the economic costs per student range between \$1,700 to \$3,300 depending on the Faculty (excluding Medicine, which is \$4,600). The impact of the AID loan service costs on these figures would be small. After full disbursement of the loan, there would be an initial increase of approximately \$27 per student and, as enrollments expanded during the grace period this amount would decline. Assuming enrollments reached at least 10,000 students by the end of the grace period, the per student cost of servicing the AID loan would reach a maximum of approximately \$52 when the first payment of principle became due. In view of the relatively small increase in the economic cost per student required, it would appear that prospects for repayment are good.

F. Role of Women in the Project

Women will be engaged in the project as students, teachers, research workers and administrators, on the same basis as men. The University of the West Indies has never practiced discrimination in its admission policies, and women currently constitute approximately forty percent (40%) of the total student enrolment. They presently represent about sixty percent (60%) in the Faculty of Arts and General Studies. The percentage of females in Medicine is thirty percent (30%) at the undergraduate level, and fifty-seven percent (57%) at the postgraduate level. This compares favorably with most other countries and reflects the preponderant position of women in the West Indian society as an important force in the labor market, as breadwinners and often effective heads of the family unit.

As regards staffing at the U.W.I., conditions of service are non-discriminatory and the proportion of women employed as members of the academic and senior administrative staff has been rising steadily. Currently women account for nearly sixteen percent (16%) of academic staff on all three UWI campuses.

Section V. - PROJECT IMPLEMENTATION

A. Implementation Timetable

1. Events related

to loan documentation

Target date

- Loan Authorization 5/31/75
- Approval of Loan by University Grants Committee 6/30/75
- Negotiation and execution of Loan Agreement 6/30/75 - 7/31/75
- Condition precedent to First Disbursement met 9/31/75

2. Events related to construction

- Publication of Request for Proposals for consulting architect Engineer 7/31/75
- Execution of contract with consulting architect/engineer 11/1/75
- Completion of final designs and "invitation for Bid" document for construction contractor 5/15/76
- Bid Documents approved by AID and synopsis publicized for pre-qualification 5/30/76
- Invitation for Bids 7/15/76
- Execution of contract with construction contractor 9/30/76
- Construction initiated 10/30/76
- Construction completed 6/30/78

3. Events related to Procurement of Equipment

- U.W.I. submits for AID approval, a detailed list of equipment to be procured showing desired delivery dates over three year project period. 11/30/75
- U.W.I. executes agreement with U.S. purchasing agent to implement all procurement under loan. 12/15/75
- AID approves equipment list for first years orders and purchasing agent initiates procurement action. 12/31/75
(equipment list will be updated and approved annually as part of annual review)

4. Events related to Technical Assistance/Training

- U.W.I. submits, for AID approval, a time phased plan for technical assistance and training 9/31/75
- AID approves plan and U.W.I. initiates action for contracting technical advisory services and arranging training programmes for U.W.I. staff 10/31/75
- First contract advisors on campus. First training program for U.W.I. staff initiated. 1/31/76

5. Events related to establishing Scholarship Fund

- U.W.I. submits for AID approval, a detail plan for operation of LDC scholarship fund. 11/31/75
- AID approves plan and University begins selection process for scholarship recipients 1/31/76
- First scholarship recipients begin studies 10/15/76

6. Events related to Multi-Disciplinary Development Committee (MDDC)

- U.W.I. submits, for AID approval, a plan for establishment of the MDDC showing organization, functions, responsibilities, authorities, etc. 9/31/75
- AID approves plan and U.W.I. initiates necessary action to establish MDDC 10/31/75
- Necessary, ordinances, regulations etc. establishing MDDC formally approved by appropriate U.W.I. body. U.W.I. initiates required recruitment action for MDDC staffing 11/31/75
- MDDC begins operations 12/31/75

7. Events related to Research training and Technical services program.

- UW.I. begins recruitment of required additional staff for first year of program. 6/30/75
- New staff begin work. Introduction of new courses for first year of program. Research programs underway. 10/1/75

B. Administrative Arrangements

1. UWI Administrative Arrangements

Overall coordination of project activities and the submission of periodic progress reports to AID will be the responsibility of the University's Planning Unit. Within the Planning Unit one staff member will be assigned as project manager with specific responsibility for administration and monitoring of the project on a day to day basis. The project manager will, in consultation with the Director of the Planning Unit, initiate and follow-up on administrative actions within the Planning Unit and other UWI functional offices (e.g., Bursar's Office, Student Services etc.) as appropriate. The Multi-disciplinary Development Committee (MDDC) will play a major role in the administration of the project by providing the Planning Unit with policy guidance relative to the project to help ensure that overall project objectives will be achieved and by coordinating other development related activities of the University with the activities of this project. In addition, the MDDC will assist the Planning Unit with the evaluation of the project on the part of the UWI.

The specific project elements will be administered by the UWI as follows:

- (a) Construction - The UWI Bursar's office, assisted by the University's Resident Architect (attached to the Planning Unit) and legal counsel will be responsible for contracting the services of Consultant Architect(s)/Engineer(s) as considered appropriate. The Architect(s)/Engineer(s) will then prepare final construction plans and bidding documents for all three campus and administer the bidding and selection process for the construction contractors. The consulting Architect(s)/Engineer(s) will supervise construction of the planned facilities.
- (b) Procurement of Equipment - The magnitude of equipment procurement contemplated under the project will require a large administrative effort in order to ensure compliance with AID regulations. After reviewing with the UWI its administrative capacity relative to the implementation and monitoring of such a procurement plan it is recommended that the UWI contract for the services of a U.S. purchasing agent, or other appropriate contractor, to assist in the procurement of loan financed equipment. The UWI Planning Unit in conjunction with the recipient sub units and the contractor will be responsible for

developing equipment specifications and a schedule of desired delivery dates (to be phased with the construction schedule). Based on this schedule the purchasing agent will implement procurement in accordance with the Capital projects guidelines. It is estimated that these services will be 3-5% of the equipment cost.

- (c) Training/Technical Assistance - A three year training/technical assistance program will be developed by the Planning Unit in conjunction with the individual recipient sub units of the UWI (i.e., Faculties, Library, Language Lab, Learning Resource Centre etc.). Examples of the types of training and technical assistance to be included in the program are shown in Section III above. In addition, to the extent funds are available, UWI may request authorization for special short-term student and professor exchange visits in furtherance of development-related research projects. Requests for such exchange visits will be made by the individual faculties to the Planning Unit. The MDDC will give general guidance in establishing the priorities for the use of the training/technical assistance funds. Contracting of staff for technical assistance will be handled by the Registrar's office (Registry).
- (d) Scholarship Program - Plans for the operation of the Scholarship Program will be drawn up by the Planning Unit and after AID approval, will be presented to the appropriate UWI Committees for formal approval. The Office of Student Services (Student Affairs section of the Registry) will provide the necessary administrative support to the Board for Undergraduate Awards for selection, processing, monitoring and other activities related to the operation of the Program and will assist the Planning Unit with follow-up studies on scholarship recipients.

2. AID Administrative Arrangements

AID Project monitoring and evaluation will require a number of inputs including those of a loan officer, education specialist, engineer, contract specialist, legal advisor etc. As a regional project AID/W will have primary responsibility for providing these inputs, Review and approval of bid documents, contracts, work plans (e.g., for procurement, training technical assistance, scholarship program); issuance of letters of implementation; receipt of progress reports; issuance of letters of commitments and disbursements and all other activities related to execution of the loan and

compliance with loan provisions will be handled in AID/W. Initiation and coordination of these activities will be the responsibility of a two man project team consisting of the LA/DR loan officer and education specialist. This team will call upon the other AID/W offices as appropriate (e.g., Engineering, General Counsel, Contracts, Controller) to assist in carrying out the AID/W monitoring and evaluation responsibilities. To the extent practicable the bilateral AID Mission in Jamaica may, on an ad hoc basis, be able to assist AID/W in monitoring the project, however, the Mission should not be directly charged with such responsibility without adequate consideration of staffing requirements.

3. Disbursement Procedures

Disbursements of loan funds will be for four basic categories of expenditures: (1) Construction, (2) Procurement, (3) Training/ Technical Assistance and (4) Scholarship Program.

The foreign exchange costs of the engineering and construction contracts will be disbursed through the letter of commitment/letters of credit procedure. Local costs for these contracts will be disbursed under separate DRA's.

The foreign exchange costs of offshore procurement of equipment will be disbursed through the letter of commitment/letter of credit procedure. A limited amount of furnishings and equipment may be procured locally for which a separate DRA will be established.

Technical assistance and training will be primarily a foreign exchange cost. However because of the relatively small amounts involved for each of the individual activities in this category, the letter of commitments/letter of credit procedures will not be used. Instead a separate DRA will be established to reimburse the University for such expenditures made in accordance with the overall technical assistance/training plan.

The scholarship program involves only local costs and disbursements and will therefore also be made under a separate DRA. Reimbursement will be computed on the basis of the current "Economic" and "Maintenance" cost factors for each student involved in the program.

Under each of the above described DRA's the UWI may request an advance of funds, the amount of which to be determined by the projected rate of disbursements for each category of expenditures. Disbursement of funds under the several DRA's will be based on periodic UWI submissions of individual "Requests for Reimbursement" for each cost category.

During intensive review AID and the U.W.I. examined the possibility of using the Fixed Amount Reimbursement method for disbursements. It was concluded that in view of the significant amount of construction (\$5.8 million) the U.W.I. did not have sufficient working capital to finance this element of the project through to completion. In order to complete construction in a reasonable time period it will be necessary to construct all the buildings concurrently. Therefore, it was not feasible to define specific construction sub-projects which could be undertaken sequentially thereby reducing working capital requirements.

Furthermore, the University would have difficulty meeting the foreign exchange element of construction estimated at \$1.2 million.

4. Procurement Procedures

All loan financed goods and services will have their source and origin in AID geographic code 941 countries or in the three campus territories Jamaica, Trinidad & Tobago, Barbados and will be procured in accordance with all other AID regulations governing loan financed procurement.

Final equipment lists showing delivery schedules (time phased with the construction schedule) will be submitted by the UWI for AID approval. These will be up-dated annually as part of the annual review exercise.

5. Reporting Requirements

Because of the regional nature of the project, with responsibility for monitoring and evaluation vested in AID/W, comprehensive and timely reporting will be a critical element to project administration. In view of this, the following reporting requirements are recommended:

- a. Project Inputs - The UWI should submit monthly reports to AID on the financial status and progress of the following project inputs:
 - (i) Construction (prepared by consultant architect/engineer.)
 - (ii) Equipment Procurement.
 - (iii) Technical Assistance and Training.
 - (iv) Staff recruitment.
 - (v) Scholarship Program

- b. Project Outputs - The UWI should submit semi-annual reports to AID to include information on the following:
- (i) Activities and minutes of meetings of the MDDC.
 - (ii) New development related research undertaken, research projects completed and instances of application of research results to development problems within the region.
 - (iii) New courses introduced which serve development needs in the region.
 - (iv) Course offerings and number of students enrolled in UWI sponsored seminars, workshops or classes carried out in LDC territories either through the Department of Extra-Mural Studies or other departmental programs.
 - (v) Activities and programs of Department of Agricultural Extension.

C. Evaluation Plan

1. An annual evaluation of the Loan shall be conducted beginning approximately one year after the initial disbursement of funds.

2. Evaluation of the project shall be the joint responsibility of the Multi-disciplinary Development Committee and AID/W. If they so decide, AID/W or the U.W.I. can call on outside assistance in the conduct of the evaluation. For example, outside resources may be needed to measure the effect of increased university effort in training, outreach and service to the LDC's.

3. The evaluation of project performance and effect, shall in the first instance, be based on the project design and indicators contained in the Logical Framework (See Annex V) It is to be emphasized that the evaluation need not be limited to those aspects but many include others as deemed desirable.

4. The Multi-disciplinary Development Committee of the U.W.I. accepts responsibility for the collection of data required for the annual evaluation.

(A)

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CHECKLIST OF STATUTORY CRITERIA

(Alliance for Progress)

In the right-hand margin, for each item, write answer or, as appropriate, a summary of required discussion. As necessary, reference the section(s) of the Capital Assistance Paper, or other clearly identified and available document, in which the matter is further discussed. This form may be made a part of the Capital Assistance Paper.

The following abbreviations are used:

FAA - Foreign Assistance Act of 1961, as amended.

FAA, 1973 - Foreign Assistance Act of 1973.

App. - Foreign Assistance and Related Programs Appropriation Act, 1974.

MMA - Merchant Marine Act of 1936, as amended.

BASIC AUTHORITY

1. FAA § 103; § 104; § 105;
§ 106; § 107. *Is loan being made*

This loan is being made to assist the Caribbean Region in the areas of education, public administration and human resources development.

a. for agriculture, rural development or nutrition;

b. for population planning or health;

c. for education, public administration; or human resources development;

d. to solve economic and social development problems in fields such as transportation, power, industry, urban development, and export development;

AID 1240-2 (5-74)

e. in support of the general economy of the recipient country or for development programs conducted by private or international organizations.

COUNTRY PERFORMANCE

Progress Towards Country Goals

2. FAA § 208; §.251(b).

A. Describe extent to which country is:

(1) Making appropriate efforts to increase food production and improve means for food storage and distribution.

(2) Creating a favorable climate for foreign and domestic private enterprise and investment.

A number of Caribbean regional institutions (e.g. the University of the West Indies, the Caribbean Development Bank, and the Caribbean Agricultural Research and Development Institute), as well as the National Governments in the Region are carrying out programs aimed at increasing food production and improving facilities for food storage and distribution in the Region.

In general, while governments in the Region are currently seeking greater control over their own natural resources, the climate for foreign and domestic private enterprise and investment in the Region is favourable.

AID 1240-2 (8-74)

(3) Increasing the public's role in the developmental process.

Development programs in the Region, on both the national and regional levels are generally aimed at increasing the public' role in the developmental process.

(4) (a) Allocating available budgetary resources to development.

The territories in the Caribbean Region have been allocating considerable available budgetary resources to both national and regional development.

(b) Diverting such resources for unnecessary military expenditure (See also Item No. 20) and intervention in affairs of other free and independent nations.) (See also Item No. 21)

Military expenditures by the National Governments in the Region are minimal.

(5) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.

Caribbean territories are making progress toward respect for the rule of law, freedom of expression and of the press, and recognition of the importance of individual freedom, initiative and private enterprise as evidenced by the absence of press and other censorship and the encouragement of initiating and private enterprise in agriculture, industry and housing. Some progress is being made in political reforms such as tax collection improvements and land tenure arrangements.

(6) Adhering to the principles of the Act of Bogota and Charter of Punta del Este.

Not applicable

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(7) *Attempting to repatriate capital invested in other countries by its own citizens* Repatriation of capital invested abroad is generally not a problem in the territories of the Region.

(8) *Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.* The current efforts being made by the Caribbean territories towards economic co-operation and integration are indicative of its determination to take effective self-help measures.

B. Are above factors taken into account in the furnishing of the subject assistance? Yes

Treatment of U.S. Citizens by Recipient Country

3. FAA § 620(c). *If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?* There is no evidence of any such debt owed to a U.S. citizen by a Caribbean government.
4. FAA § 620(e)(1). *If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?* There is no evidence that any such action has been taken by Caribbean governments.

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5. FAA § 620(o); Fishermen's Protective Act. § 5. *If country has seized, or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters,*

Not applicable

a. *has any deduction required by Fishermen's Protective Act been made?*

b. *has complete denial of assistance been considered by A.I.D. Administrator?*

Relations with U.S. Government and Other Nations

6. FAA § 620(a). *Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba?*

No Caribbean territory provides assistance to Cuba nor do flag carriers of these territories carry Cuban cargoes.

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7. FAA § 620(b). *If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?* The Secretary of State has determined that none of the contributing Caribbean territories are controlled by the international communist movement.
8. FAA § 620(d). *If assistance is for any productive enterprise which will compete in the United States with United States enterprise, is there an agreement by the recipient country to prevent export to the United States of more than 20% of the enterprise's annual production during the life of the loan?* Not applicable
9. FAA § 620(f). *Is recipient country a Communist country?* No contributing Caribbean territory has a communist government.
10. FAA § 620(i). *Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?* No contributing Caribbean territory is involved in such activities.
11. FAA § 620(j). *Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction by mob action, of U.S. property?* Damage or destruction of U.S. property by mob action has not occurred in any of the Caribbean territories.

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13. FAA § 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, in convertibility or confiscation, has the A.I.D. administration within the past year considered denying assistance to such government for this reason? N/A
13. FAA § 620(n). Does recipient country furnish goods to North Viet-Nam or permit ships or aircraft under its flag to carry cargoes to or from North Viet-Nam? No contributing Caribbean territory furnishes goods or permits ships or aircraft under its flag to carry goods to North Vietnam.
14. FAA § 620(q). Is the government of the recipient country in default on interest or principal of any A.I.D. loan to the country? Neither the U.S.I. nor any Caribbean territory is in default on interest or principal of any AID loan.
15. FAA § 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? No contributing Caribbean territory has taken such action.
16. FAA § 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operational Year Budget? N/A

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17. FAA § 481. Has the government of recipient country failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?

The Caribbean territories have taken adequate steps to prevent such activities.

18. FAA, 1973 § 29. If (a) military base is located in recipient country, and was constructed or is being maintained or operated with funds furnished by U.S., and (b) U.S. personnel carry out military operations from such base, has the President determined that the government of recipient country has authorized regular access to U.S. correspondents to such base?

Not applicable

Military Expenditures

19. FAA § 620(a). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PPC/RC).)

Not applicable

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CONDITIONS OF THE LOAN

General Soundness

20. FAA § 201(d). *Information and conclusion on reasonableness and legality (under laws of country and the United States) of lending and relending terms of the loan.*
21. FAA § 251(b)(2); § 251(e).
Information and conclusion on activity's economic and technical soundness. If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to A.I.D. an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?
22. FAA § 251(b). *Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.*
23. FAA § 251(b). *Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.*

The terms of the loan are reasonable and legal under the Charter and Statutes of the University and the laws of the United States.

The proposed project is considered to be economically and technically sound, and there are assurances that funds will be used in an economically and technically sound manner. The University has submitted an application for the loan.

The loan will be approved on behalf of the contributing Caribbean territories by the University Grants Council. Such approval will involve a commitment on the part of these territories to provide sufficient funding to the University to permit repayment of the loan.

No other free-world financing appears to be available for this project.

AID 1240-2 (5-74)

24. FAA § 611(a)(1). Prior to signing of loan will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the United States of the assistance?
- The financial and engineering plans necessary to carry out the project have been obtained and a reasonable firm estimate of the cost to the U.S. has been made.
25. FAA § 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of loan?
- No further legislative action will be required within the Caribbean territories for accomplishment of the loan purposes.
26. FAA § 611(e). If loan is for Capital Assistance, and all U.S. assistance to project now exceeds \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?
- This is a Regional Project for which there is no responsible Mission Director. However, AID concludes that the UWI is capable of effectively maintaining and utilizing the project.

Loan's Relationship to Achievement of Country and Regional Goals

27. FAA § 207; § 251(a); § 113. Extent to which assistance reflects appropriate emphasis on: (a) encouraging development of democratic, economic, political, and social institutions; (b) self-help in meeting the country's food needs; (c) improving availability of trained manpower in the country; (d) programs designed to meet the country's health needs;
- This project will have a direct impact on improving the availability of trained manpower in the Region and integrating women into the economy of the Region. It should also contribute through the research activities, to the Region's ability to meet its food needs.

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(e) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or
(f) integrating women into the recipient country's national economy.

28. FAA § 209. Is project susceptible of execution as part of regional project? If so why is project not so executed? Project is regional in nature and will be executed on a regional basis.
29. FAA § 251(b)(3). Information and conclusion on activity's relationship to, and consistency with, other development activities, and its contribution to realizable long-range objectives. The activity is consistent and complementary to other development activities in the Region and will contribute to the long-range development of the Region.
30. FAA § 251(b)(7). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth. The project will directly contribute to the achievement of self-sustaining growth of the Region.
31. FAA § 209; § 251(b)(8). Information and conclusion whether assistance will encourage regional development programs, and contribute to the economic and political integration of Latin America. The U.W.I. is one of the strongest Regional institutions in the Caribbean and is making significant contributions to the integration of the Caribbean.

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32. FAA § 251(g); § 111. *Information and conclusion on use of loan to assist in promoting the cooperative movement in Latin America.* Not applicable
33. FAA § 251(h). *Information and conclusion on whether the activity is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its annual review of national development activities.* The activity is consistent with the recommendation of CEPACIES.
34. FAA § 281(a). *Describe extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the country, through the encouragement of democratic, private, and local governmental institutions.* The loan will increase the outreach and training capabilities of the Region's major institution of higher learning and thereby contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the Region.
35. FAA § 281(b). *Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.* The project recognizes and is designed to accommodate the particular needs, desires and capabilities of the people of the Region.

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36. FAA § 601(a). Information and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.
- The project, by promoting the transfer of technology and the development of human resources, will contribute directly to improving the technical efficiency of industry, agriculture and commerce and should indirectly contribute to increasing the flow of international trade and the fostering of private initiative and competition.

37. FAA § 619. If assistance is for newly independent country; is it furnished through multilateral organizations or plans to the maximum extent appropriate?
- Not applicable

Loan's Effect on U.S. and A.I.D. Program

38. FAA § 251(b)(4); § 102. Information and conclusion on possible effects of loan on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.
- The proposed loan will not have an adverse effect on the U.S. economy or areas of labor surplus. The loan will not adversely effect the U.S. balance of payments position.
39. FAA § 252(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.
- \$8,000,000 of loan funds will be used to procure goods and services from private enterprise.

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40. FAA § 601(b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
- Private U.S. firms will be invited to bid on the engineering and construction services contracts to be financed under the loan.
41. FAA § 601(d). If a capital project, are engineering and professional services of U.S. firms and their affiliates used to the maximum extent consistent with the notional interest?
- Any engineering or professional services financed under the loan may be provided by U.S. firms or their affiliates.
42. FAA § 602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and services financed by the loan.
- U.S. small business will be ensured the opportunity to participate in the furnishing of goods and services under the loan.
43. FAA § 620(h). Will the loan promote or assist the foreign aid projects or activities of the Communist-Bloc countries?
- No.
44. FAA § 621. If Technical Assistance is financed by the loan, information and conclusion whether such assistance will be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on
- Such technical assistance as may be provided under the loan will be contracted from private enterprise or from U.S. Universities.

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whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.

Loan's Compliance with Specific Requirements

45. FAA § 110(a); § 208(e). Has the recipient country provided assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the Loan is to be made? Yes .
46. FAA § 112. Will loan be used to finance police training or related program in recipient country? No.
47. FAA § 114. Will loan be used to pay for performance of abortions or to motivate or coerce persons to practice abortions? No.
48. FAA § 201(d). Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter? Yes.
49. FAA § 604(a). Will all commodity procurement financed under the loan be from the United States except as otherwise determined by the President? Yes .
50. FAA § 604(b). What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price? Procurement under the loan will be by competitive bidding.

AID 1240-2 (5-74)

51. FAA § 604(d). *If the cooperating country discriminates against U.S. marine insurance companies, will loan agreement require that marine insurance be placed in the United States on commodities financed by the loan?* Marine insurance will be procured in the U.S. where applicable.
52. FAA § 604(e). *If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?* No agricultural commodity or product is being financed under the loan.
53. FAA § 604(f). *If loan finances a commodity import program, will arrangements be made for supplier certification to A.I.D. and A.I.D. approval of commodity as eligible and suitable?* Not applicable
54. FAA § 608(a). *Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.* The loan agreement will so provide.
55. FAA § 611(b); App. § 101. *If loan finances water or water-related land resource construction project or program, is there a benefit-cost computation made, insofar as practicable, in accordance with the procedures set forth in the Memorandum of the President dated May 15, 1962?* Not applicable

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56. FAA § 611(a). *If contracts for construction are to be financed, what provision will be made that they be let on a competitive basis to maximum extent practicable?* The loan agreement will require that contracts for construction be let on a competition basis to the maximum extent practical.
57. FAA § 612(b); § 636(h). *Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the United States are utilized to meet the cost of contractual and other services.* The U.W.I. is making a substantial contribution to the project. No U.S. owned foreign currency is available for the project.
58. App. § 113. *Will any of loan funds be used to acquire currency of recipient country from non-U.S. Treasury sources when excess currency of that country is on deposit in U.S. Treasury?* No.
59. FAA § 612(d). *Does the United States own excess foreign currency and, if so, what arrangements have been made for its release?* No.
60. FAA § 620(g). *What provision is there against use of subject assistance to compensate owners for expropriated or nationalized property?* Not applicable. Loan is not to a government.

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61. FAA § 620(k). If construction of productive enterprise, will aggregate value of assistance to be furnished by the United States exceed \$100 million? Not applicable
62. FAA § 636(i). Will any loan funds be used to finance purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States, or any guaranty of such a transaction? No vehicles will be purchased under the loan.
63. App. § 103. Will any loan funds be used to pay pensions, etc., for military personnel? No.
64. App. § 105. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms? Yes.
65. App. § 107. Will any loan funds be used to pay UN assessments? No.
66. App. § 109. Compliance with regulations on employment of U.S. and local personnel. (A.I.D. Regulation 7). These regulations will be complied with.

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67. App. § 110. Will any of loan funds be used to carry out provisions of FAA §§ 209(d) and 251(h)?

No.

68. App. § 114. Describe how the Committee on Appropriations of the Senate and House have been or will be notified concerning the activity, program, project, country, or other operation to be financed by the Loan.

The proposed loan was included in the Congressional Presentation for FY 1975. Special notification will be required as the amount now proposed differs from the amount shown.

69. App. § 601. Will any loan funds be used for publicity or propaganda purposes within the United States not authorized by the Congress?

No.

70. MMA § 901.b; FAA § 640C.

(a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed with funds made available under this loan shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.

The loan agreement will so require.

(b) Will grant be made to loan recipient to pay all or any portion of such differential as may exist between U.S. and foreign-flag vessel rates?

No.

1975

Dr. Aston Z. Preston
Vice-Chancellor
University of the West Indies
Assembly Hall
Kingston 7, Jamaica

Dear Dr. Preston:

On January 30, 1975 AID's Development Assistance Executive Committee (DAEC) of the Latin America Bureau formally reviewed the UWI request for AID loan assistance as presented in the attached Intensive Review Request. As you know, this was a preliminary review for the purpose of determining whether AID would proceed in the development of the proposed loan. I am pleased to report that the DAEC has now authorized an "intensive review" which constitutes the second phase in the development of the loan involving a detailed study of the financial, engineering, technical and programmatic aspects of the loan project.

During the DAEC review, considerable discussion was given to the exact purpose of the AID loan, especially in light of current legislation governing AID which requires that U.S. assistance focus on the critical problems in those functional sectors which affect the lives of the poor majority of the people in the developing countries, i.e., food production, rural development and nutrition, population planning and health, education, public administration and human resource development. Highest priority is given to those undertakings which seek to directly improve the lives of the poorest segment of the population and their capacity to participate in the development process. It was concluded that in order to justify AID support it would be necessary to demonstrate in specific terms the UWI's role as a critical element in the development of the region based on its capacity to perform training, research and technical assistance outreach activities relevant to the needs of the poorer elements of the societies it serves.

Dr. Aston Z. Preston

The particular type of AID assistance which is being requested, primarily physical infrastructure and equipment, and its relationship to the UWI's outreach capability was also considered by the DAEC. The basic rationale of the project proposal is that given additional AID financed space and equipment combined with increased recurring expenditure inputs from the UWI, the result would be a significant expansion and improvement of the development related activities of the University. While the DAEC felt this was a valid assumption for purposes of the preliminary review, it charged the project committee with establishing this cause/effect relationship in specific, quantifiable terms during the intensive review. In our view, this will require the elaboration, by faculty and/or program, of a specific three-year research and development outreach program. We would expect the UWI to prepare detailed listings of ongoing and planned research, training, and technical assistance projects which are aimed at identifying and solving development problems of the region, especially those involving the poorer segments of society. For each of these projects we would request the UWI to set forth the budgetary and manpower resource allocations necessary to accomplish the above, and in the process, reserve and reward faculty time devoted to research and specific outreach activities. Furthermore, we would request the UWI to establish the institutional mechanisms to facilitate a multi-disciplinary approach to the above program. This would include the establishment of a mechanism to review the projected program, evaluate its progress and problems, accept and qualify requests for new assistance efforts, and make recommendations for changes or improvements.

AID would further request the UWI, as part of the Loan Agreement, to covenant the accomplishment of the above program within the three-year period. This would include the allocation of specific and increasing recurrent expenditures for outreach activities. These programs and covenants would provide appropriate and timely benchmarks against which AID and the UWI could measure progress towards achievement of one of the project's ultimate purposes, i.e., to increase the UWI's capacity to carry out research and extension relevant to the developmental needs in the region.

Concurrent with the development of the foregoing programmatic aspects of the project it will be necessary to develop details relative to the physical project inputs, i.e., buildings and equipment. The relative needs of the individual faculties for

Dr. Aston Z. Preston

buildings and equipment will, to a large extent, be directly dependent upon the various project and program activities which the UWI forecasts over the three-year project period as well as the training needs of the region. Because of this we also envision the need for a systematic analysis of training needs of the territories in the region relative to the UWI's capability to provide for these needs. Such an analysis will therefore be included as part of the intensive review process. In addition, to ensure a rational educational program, we will wish to establish what steps will be taken by the UWI to initiate a more comprehensive assessment of manpower requirements for the region. Finally, prior to final determination on new physical facilities we will wish to assist the UWI carry out an analysis of existing space and equipment utilization.

We would like to note that, based on the DLDC's initial review of the University's proposal, and our desire to give special attention to the problems of increasing food production and to the development problems of the least-developed states, it appears that a larger proportion of loan financed inputs may be justified for the Faculty of Agriculture. We would consider this faculty, and others dealing with rural development problems, as having a priority within the program. We expect, however, that this issue will be further explored during the intensive review.

Once the nature, need and extent of the physical inputs have been well defined it will be necessary to prepare, at a minimum, preliminary engineering/architectural schematic layouts showing:

1. Building site layouts (present and future), showing grading, access, utilities, parking, drainage, etc.
2. Typical floor plans for present construction showing classrooms, offices, lecture halls, labs, utility rooms, etc.
3. Typical building elevations for present construction showing type of construction, soils data, foundations, etc.
4. Listing of equipment and furnishings, essentially non-fixed for laboratories, lecture halls, classrooms, and offices.
5. Implementation Plan - Proposed methods of contracting for architects/engineers, construction and construction inspection together with time schedule.

Dr. Aston Z. Preston

6. Maintenance Plan - Present and proposed maintenance organization together with proposed budgeting.

In addition we will need to establish a reasonably firm and detailed estimate of construction and equipment costs.

We would also wish to explore with the UWI the need for obtaining substantial additional "complementary" financial contribution to the project from those member states which have adequate financial resources to provide such a commitment. Ideally, this might be stated in terms of a certain percentage of the project's total investment requirements. Consideration might be given to the establishment of a scholarship program or other means to assure that students from non-campus member countries, particularly the LDCs, will have access to the UWI's facilities. Specific contributions to outreach activities in the LDCs is another possibility. We would be receptive to considering any alternative approaches which the UWI may wish to suggest.

Finally, we will want to discuss with the UWI the question of a loan guarantee. We recognize that the regional status of the University may present some complications in this regard. We would therefore attempt to be as flexible as possible in arriving at a mutually acceptable mechanism for securing the loan. We would appreciate any initial thoughts or suggestions you may have on this issue as well.

We are tentatively scheduling the intensive review for March and are now in the process of developing a plan for implementation of the intensive review. Attached is a list of basic data which the University can begin to collect prior to the arrival of the AID team. We would hope to work closely with the UWI staff and provide whatever assistance we can in gathering the necessary information for the loan paper. We will be in contact with you soon to firm up a mutually convenient schedule.

Sincerely yours,

John R. Breen
Director
Office of Development Resources
Bureau for Latin America

Attachments: A/S
CC: USAID/Kingston
USAID/Guyana

American Embassy/Port of Spain

Drafted by: LA/DR:TWS:Rufel:RFVenezia:bjb:2/28/75

Clearances: LA/DR:BSidman _____ SER/ENGR:CStevens (draft) _____
MBrown _____ LA/GC:ILevy (draft) _____
SApplegate (draft) _____ PPC:BOdell (info) _____
SCarbin (draft) _____ AA/LA:HKleine _____
JHawes (draft) _____ LA/OPNS:CUyehara _____
LA/CAR:WWheeler (draft) _____
LMacary (draft)

LOAN AUTHORIZATION

Provided From: FAA Section 105 Funds (Education and Human Resource Development)
University of the West Indies: Integrated Regional Development

PURSUANT to the authority vested in the Deputy U.S. Coordinator, Alliance for Progress, by the Foreign Assistance Act of 1961, as amended ("the Act") and the delegations of authority issued thereunder, I hereby authorize the establishment of a Loan ("Loan") pursuant to Section 105 of the Act and in furtherance of the Alliance for Progress, to the University of the West Indies ("Borrower") of not to exceed eight million five hundred thousand United States Dollars to assist in financing the United States dollar and local currency costs of expanding and developing the Borrower's training, research and outreach programs.

- I. Interest and Terms of Repayment - Borrower shall repay the Loan to the Agency for International Development ("AID") in United States Dollars within forty (40) years from the first disbursement under the Loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to AID in United States Dollars, interest at the rate of two (2) percent per annum during the grace period, and three (3) percent thereafter on the disbursed balance of the Loan and unpaid interest.
- II. Source and Origin - Goods, services (except for ocean shipping) and marine insurance financed under the Loan, shall have their source and origin in Jamaica, Trinidad and Tobago, Barbados, or in any country included in Code 941 of the AID geographic Code Book. Marine insurance may be financed under the Loan only if it is obtained on a competitive basis and any claims thereunder are payable in freely convertible currencies. Ocean shipping financed under the Loan shall be procured in any country included in Code 941 of the AID geographic Code Book.

- III. Local Currency Costs - United States Dollars utilized under the Loan to finance local currency costs shall be made available pursuant to procedures satisfactory to AID.
- IV. Conditions Precedent to Execution - On or before the execution of the Loan, Borrower shall submit to AID, in form and substance satisfactory to AID, evidence that the University Grants Committee ("UGC") has approved the Program and will provide funds to the Borrower in an amount sufficient to assure the successful implementation of said Program.
- V. Conditions Precedent to Initial Disbursement - Prior to any disbursement or the issuance of any commitment document under the Loan, Borrower shall submit to AID, in form and substance satisfactory to AID:
- A. A guarantee subscribed and agreed to by each of the governments of Jamaica, Trinidad and Tobago, and Barbados, wherein each of said governments unconditionally binds and pledges itself, that in the event of a default by the Borrower, each shall pay to AID in United States Dollars a proportionate share (as agreed upon by said governments) of:
1. the total AID funds disbursed under the Loan which remains unpaid by the Borrower; and
 2. the unpaid accrued interest on 1. hereof;
- B. Evidence that Borrower's Development and Planning Unit has designated a person to act as project manager on a full-time basis.

VI. Conditions Precedent to Disbursement for Other than Architecture/Engineering Services- Prior to any disbursement or the issuance of any commitment document under the Loan, for the purpose of financing other than architecture/engineering services, Borrower shall submit to AID, in form and substance satisfactory to AID:

- A. An agreement with the Caribbean Agricultural Research and Development Institute ("CARDI"), which shall set forth inter alia:
 - 1. the institutional relationships between Borrower and Cardi; and
 - 2. arrangements regarding CARDI's use of Borrower's institutional facilities;
- B. Evidence of the establishment and composition of the Multi-Disciplinary Development Committee;
- C. A time-phased plan setting forth the integration of library and information management services.

VII. Conditions Precedent to Disbursement for Specific Categories of Expenditures - Prior to any disbursement or the issuance of any commitment document under the Loan for the purpose of financing each of the following categories of expenditures, Borrower shall submit to AID in form and substance satisfactory to AID:

- A. Regarding Expenditures for Construction or Renovation of each specific building or group of buildings as determined appropriate by AID:
 - 1. evidence that Borrower holds a clear fee simple interest, or long term leasehold interest in the land upon which such building or group of buildings shall be constructed or renovated;
 - 2. final drawings, construction plans, specifications, bid documents and cost estimates; and
 - 3. an executed agreement with a contractor for the construction or renovation of such building or group of buildings, which agreement and contractor shall be acceptable to AID;
 - 4. a detailed plan setting forth arrangements for the maintenance of the buildings to be constructed or renovated under the loan.

- B. Regarding Expenditures for the Purchase of Equipment;**
1. a time-phased procurement plan, which plan shall set forth the desired delivery date for each item to be procured; and
 2. arrangements for implementing the procurement actions;
- C. Regarding Expenditures for Training and Technical Assistance;**
1. a time-phased plan setting forth the implementation of all training activities, which plan shall include inter alia;
 - a. categories of training; and
 - b. duration and estimated cost of each such training activity;
 2. a time-phased plan setting forth the implementation of all technical assistance activities, which plan shall include for each such technical assistance activity;
 - a. the scope of work; and
 - b. the duration and estimated cost.
- D. Regarding Expenditures for the Scholarship Element;**
1. a time-phased financial and administration plan for the implementation of the scholarship program;
 2. the criteria to be used in selecting students for participation in the scholarship program;
 3. the criteria to be used in allocating scholarships among the less developed countries ("LDCs"); and
 4. arrangements to induce each scholarship recipient to return to his home territory subsequent to his training, and work in his area of acquired expertise.

E. Regarding Expenditures for the Construction and Equipping of the Multi-Media Production Center;

1. evidence that the Government of Jamaica has agreed to furnish a grant to the Borrower of not less than \$305,000 for the purpose of partially financing the construction and equipping of a building to house the Mass Communications Department.
2. evidence that the Borrower has executed an agreement with a contractor for the construction of a building in which to house the Mass Communications Department.

F. Regarding Expenditures for the Construction and Equipping of the Food Processing Plant;

1. a plan which shall set forth inter alia the research and training activities to be carried out, and means of dissemination and utilization of technology developed.
2. mode of operation including a description of faculty, student and government participation.

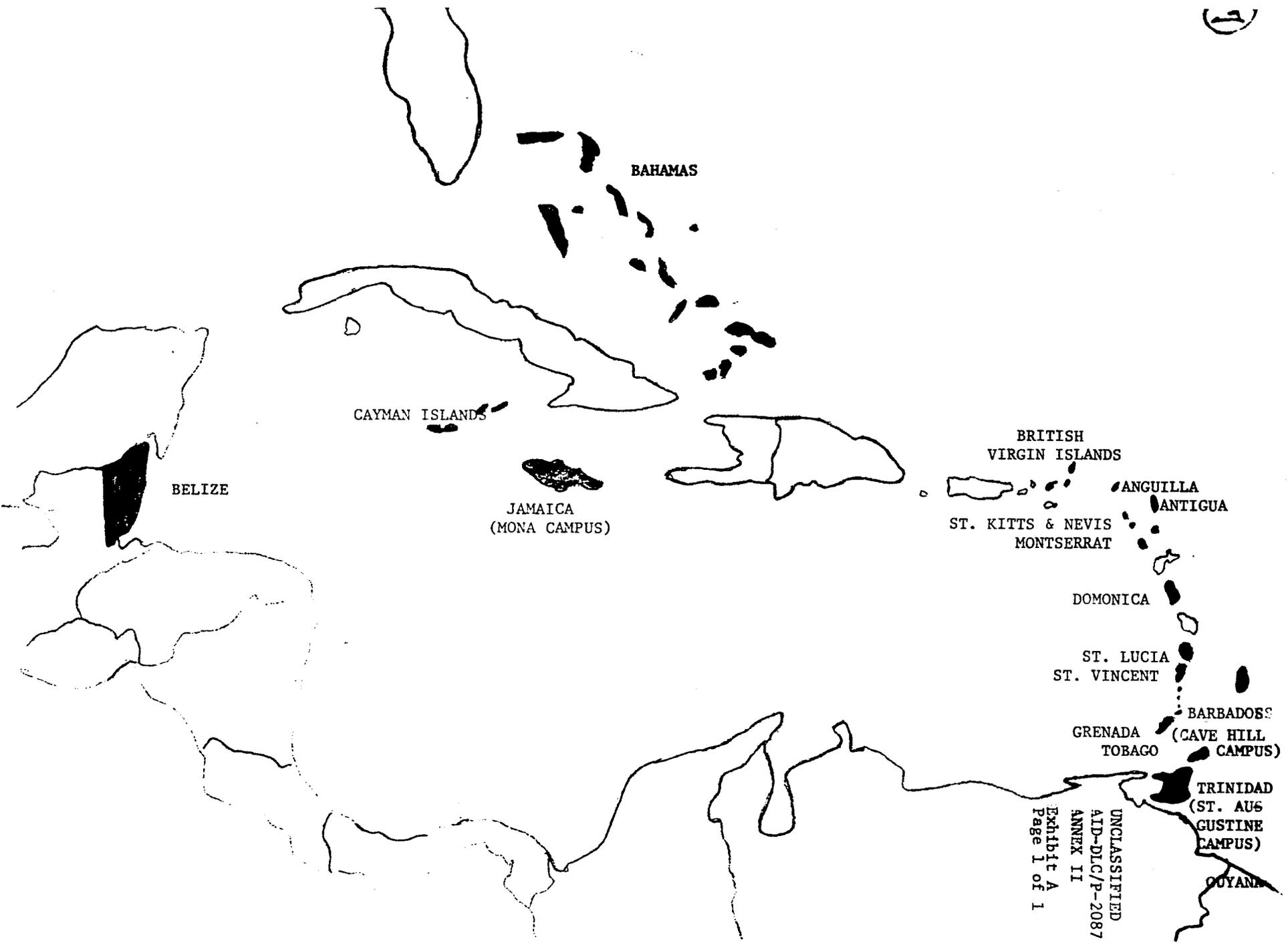
VIII. Covenants -

- A. Except as AID may otherwise agree in writing, Borrower covenants and agrees to submit to AID, in form and substance satisfactory to AID, evidence that the Borrower has made the corresponding budgetary allocation for the subsequent 12-month period in accordance with the financial plan to be included in the Loan Agreement Annex.
- B. Borrower covenants and agrees to submit to AID not later than January 1, 1976, and yearly thereafter, in form and substance satisfactory to AID, Borrower's annual audited financial statements for the preceding fiscal year.
- C. Borrower covenants and agrees to undertake its best efforts to seek funding for continuation of the scholarship program for students from the region's less developed countries at a level not less than that necessary to provide 25 scholarships per annum.

IX. Other Terms and Conditions - The Loan shall be subject to such other terms and conditions as AID may deem advisable.

Deputy U. S. Coordinator

Date



BAHAMAS

CAYMAN ISLANDS

BELIZE

JAMAICA
(MONA CAMPUS)

BRITISH
VIRGIN ISLANDS

ANGUILLA
ANTIGUA

ST. KITTS & NEVIS
MONTSERRAT

DOMONICA

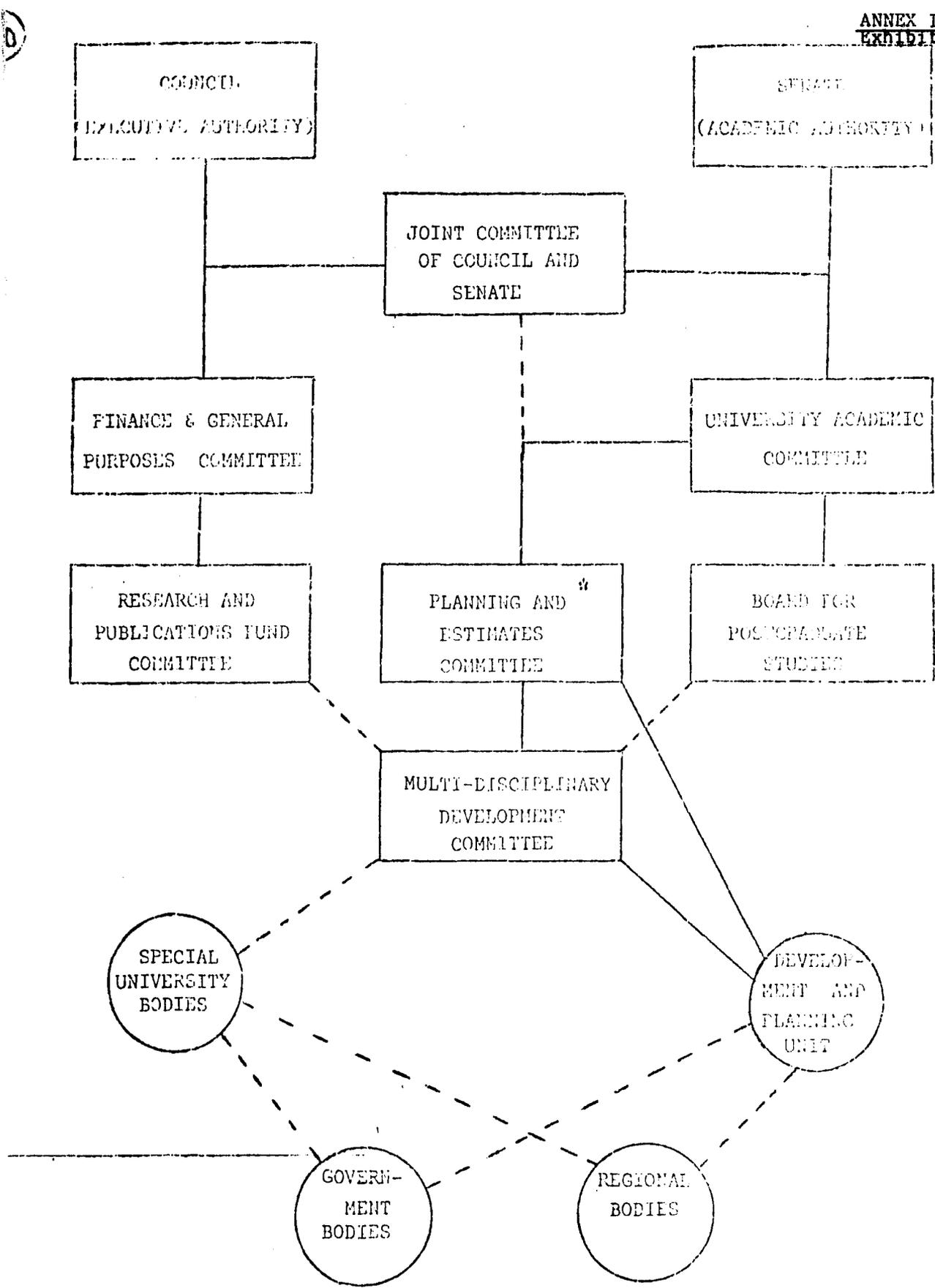
ST. LUCIA
ST. VINCENT

BARBADOSS
GRENADA
TOBAGO (CAVE HILL
CAMPUS)

TRINIDAD
(ST. AUS
GUSTINE
CAMPUS)

GUYANA

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ANNEX II
Exhibit A
Page 1 of 1



* Proposed new committee amalgamating the present Planning Committee and Estimates Committee.

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ANNEX III
Exhibit B

FACULTY OF AGRICULTURE - COURSES OFFERED

Second Undergraduate Year

Geology, soil minerology and pedology
Soil Physics, soil conservation and water conservation
Soil chemistry and plant nutrition
Fertilizer technology
Plant Physiology
Crop Science
Crop Production
Animal Physiology and Anatomy
Animal Nutrition I
Animal Health I
Macroeconomics
Farm Management I
Statistics and Field Experimentation
Plant Biochemistry
Animal Biochemistry
General Biochemistry
Genetics and Plant Breeding
Genetics and Animal Breeding
West Indian Soils, Soil Surveys, Land Use Planning
Land Surveying, irrigation and drainage technology
Farm Management II
Farm Methods
Special Projects
Scheduled Field Work
Agricultural Policy and Development
Pesticide Technology
Agricultural Communication

Third Undergraduate Year

Agricultural Extension and community development II
Agricultural mechanization
Milk, meat and egg production
Plant Pathology
Entomology
Root-soil relations
Soil Science
Crop physiology
Production of field crops
Production of plantation crops
Tropical horticulture
Forage agronomy
Crop biochemistry, processing and storage

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ANNEX III
Exhibit B

Crop and animal protection
Applied animal physiology
Animal nutrition II
Animal health II
Population genetics
Milk and meat technology
Agricultural policy and planning
Agricultural extension and community development II
Agricultural marketing
Agricultural organization
Soil and Land Use Survey
Tropical Fruit Production
Ornamental Horticulture
Weed Science
Agribusiness
Commodity Utilization
Agricultural Development
Microeconomic Theory
Production Economics
Statistics and Field Experimentation
Agricultural Finance and Farm Credit
Human Nutrition and Food Technology
Fisheries
Fish Farming and Mariculture
Forestry
Biological Conservation
Land Development Engineering
Farm Buildings
Environmental Pollution
Soil-water Relations
Farm Methods
Food Policy and Nutrition
Special Projects
Scheduled Field Work
Soil Microbiology
Computer Science

ANNEX III
Exhibit C

FACULTY OF AGRICULTURE

Examples of
On-going Agricultural Extension Regional Projects with special
outreach significance for the rural poor

1. Annual intensive two to four week in-service training programmes for Caribbean extension workers.
2. Windward Islands Extension Communication Research Project

As an effort to enhance the communication of agricultural knowledge, base-line studies of a sociological nature are providing an analysis of the rural communities. Improvements will then be applied by change agencies, including extension officers and community development personnel.
3. Factors affecting adoption behaviour of foodcrop farmers of the Crown Lands Development Programme.
4. Factors which motivate coffee farmers to adopt new practices.
5. An Evaluation of the 'Farmers' Field Competition' as an Extension Technique in Trinidad.
6. Reference Group influences in the Adoption of Farm Practices between two ethnic Groups in Trinidad.
7. Agricultural Cooperatives in Trinidad and Tobago - A Socio-Historical analysis of their Development and their role in Agricultural Development.
8. The effects of Social and Economic Factors on the success of the Subsidy Programme in Agricultural Development.

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ANNEX III
Exhibit C

FACULTY OF AGRICULTURE

Examples of
On-going Agricultural Economics Regional Projects with special
outreach significance for the rural poor

1. Performance of Selected Marketing Boards in the Caribbean.
2. Local Food Staples and West Indies Economic Development.
3. The Determination of Research Priorities in a Changing Agricultural Economy in the Commonwealth Caribbean.
4. Comparative Economics of Root Crop Production in Selected Countries of the Commonwealth Caribbean.
5. The Demand for Meat in the Commonwealth Caribbean.

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ANNEX III
Exhibit C

FACULTY OF AGRICULTURE

Examples of
On-going Grain Legume Regional Projects with special
outreach significance for the rural poor

1. Breeding of day-neutral pigeon pea varieties suitable for cultivation under a row crop system.
2. Study of the drought resistance characteristics of pigeon peas including evaluation of the micro-climatology of crop canopies (row crop).
3. Study of pigeon pea rusts
 - (a) Search for resistant varieties
 - (b) Study of methods of chemical control
4. Physiological studies on yield determinants in pigeon peas.
5. Study of Nitrogen fixation and evaluation of Rhizobium strains in pigeon pea cultivars.
6. Development of a pigeon pea harvester.
7. Development of a pigeon pea sheller for green pods.

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ANNEX III
Exhibit C

FACULTY OF AGRICULTURE

Examples of
On-going Biometrics Regional Projects with special
outreach significance for the rural poor

1. Experimental Design and Analysis under Limited Resources.
2. The Contribution of Optimal Plot characteristics to Field Experimentation.
3. Continuous Recording of Food Crop Information.
4. A manuscript on Tropical Field Experimentation.
5. Pigeon pea modelling: determining a model to describe the behaviour of the pigeon pea plant.
6. The establishment of a statistical computer program Library.

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FACULTY OF AGRICULTURE

ANNEX III
Exhibit C

Examples of
On-going Horticulture Research Projects with special
outreach significance for the rural poor

Breeding tomatoes for resistance to

- (a) Fusarium wilt
- (b) Bacterial wilt
- (c) Tomato mosaic virus.

Investigation of the factors which suppress flowering of tomatoes grown out of season.

Investigation of diseases of yam, tannia, dasheen and vegetable crops.

Chemical control of the bud worm Hellula on cabbage.

Control of soil insects using tomato as the crop.

Studies on the effects of cover crops, soil amendments, fallow and rotation on nematode populations and crop yield.

Studies on the plant parasitic nematodes associated with

- (a) Onion in Barbados
- (b) Tomato in Montserrat
- (c) Bodie beans in Trinidad
- (d) Vegetable crops in Trinidad.

Development, growth and control of nut grass, Cyperus rotundus (often called the world's worst weed).

Investigations in pollination and fruiting in avocado.

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FACULTY OF AGRICULTURE

ANNEX III
Exhibit C

Examples of
On-going Livestock Science Research Projects with special
outreach significance for the rural poor

Crossbreeding and development of the Barbados Black Bally sheep as a mutton-producer.

Evaluation of dwarf laying birds for poultry egg production.

Feeding of ground whole sugarcane to cattle, sheep and goats.

Use of agricultural wastes (e.g. rejected bananas, citrus) or by-products (e.g. wheat middlings, etc.) for replacing of expensive concentrate rations for pig (pork) production.

Development of inexpensive forage dryers for making hay for forage-based ruminant feeding systems.

Development of integrated vegetable/livestock farming units or enterprises using improved technology and efficient planning (including marketing) - on small areas of land - for example, orchard crops and pigs.

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FACULTY OF AGRICULTURE

ANNEX III
Exhibit C

Examples of
On-going Forage Legume Research Projects with special
outreach significance for the rural poor

Comparative pasture character of twenty legumes native to Belize,

Grazing trials with forage legume/grass in Belize.

Rhizobia relationship with native legumes in Antigua and Trinidad.

Collecting, classifying and assessing pasture quality of native legumes in Belize and Antigua.

The effects of imported and local Rhizobium strains on the nodulation and nitrogen fixation by certain forage legumes.

The nutrient requirement of several forage legumes and the effects of certain nutrient elements on the nitrogen fixation by legumes.

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ANNEX III
Exhibit C

FACULTY OF AGRICULTURE

Examples of
On-going Root Crop Regional Projects with special
outreach significance for the rural poor

1. Agro-economic evaluation of Root Crop Production in Barbados and St. Kitts.
2. Agro-economic survey of Root Crop Production in Jamaica (L.D.C.'s completed).
3. Introduction and screening of Dioscorea trifida and Manihot esculenta cultivars from the Caribbean and South American Region.
4. Physiological Studies of the determinants of high yield in Root Crops.
5. Studies on development of new methods of utilising Root Crop tubers.
 - (a) In composite flours for
 - (1) Bread baking
 - (2) Instant yam
 - (b) In Breakfast foods
 - (1) Flakes
 - (2) Porridge
6. ~~Investigations of virus diseases of yams in the Caribbean.~~

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FACULTY OF AGRICULTURE

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Examples of
On-going Soil Research Projects with special
outreach significance for the rural poor

ANNEX III
Exhibit C

Soil Chemistry and Fertility

Efficient use of nitrogen fertilizers and nitrogen transformations in West Indian soils using isotopic nitrogen.

Nature, properties and contribution to soil productivity of organic matter in West Indian anedepts.

Trace element status of soils from the West Indian volcanic islands.

The study of the physical factors of mechanical impedance, soil water availability and soil aeration on root growth, root distribution and plant growth.

Effects of tillage and deep liming of acid clay soils on soil physical properties, root growth and crop productivity.

The effect of various rhizobial species on nodulation and nitrogen fixation in Cajanus cajan and some forage legume plants.

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St. Augustine.

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AID-DLC/P-2087ANNEX III
Exhibit DEQUIPMENT LIST

<u>A. FACULTY OF AGRICULTURE (ST. AUGUSTINE)</u>		Estimated Cost	
	<u>Quantity</u>	U.S. \$	
(1) <u>Agronomy</u>			
Drying ovens	(2)	1,400	
Balances (top-loading)	(2)	2,500	
Soil Sterilizer		1,200	
Mist Propagator		4,000	
Greenhouse (50' x 40')		30,000	
Utility van		7,000	
		<hr/>	46,100
(2) <u>University Field Station</u>			
Tractor with accessories		15,000	
Forage harvester		5,000	
Rotovator		3,000	
Irrigation pumps, lines and sprinkler heads		10,000	
Merrytiller		800	
Drainage improvement materials		5,000	
		<hr/>	38,800
(3) <u>Soil Science</u>			
Emission spectrograph with accessories		30,000	
Prefabricated cold room (10' x 8' x 8')		10,000	
Differential thermal analysis equipment		16,000	
Tri-axial compression test equipment		8,000	
Greenhouse (40' x 20')		12,000	
		<hr/>	76,000

ANNEX III
Exhibit D

(4) <u>Livestock Science</u>	<u>U.S.\$</u>
Fat extraction apparatus	(3) 3,000
Crude fibre condensers	(3) 2,500
Macro-Kjeldahl apparatus (with hood)	(1) 4,500
Shaking apparatus ('wrist action')	(1) 300
Stirrers (magnetic with hot plate)	(2) 500
Reagent dispensers	300
Clamps, holders, stoppers, timers	200
Calorimeter bomb (double seating) and accessories	(1) 725
Analytical balances	(3) 3,000
Top-loading balances	(2) 2,000
Vacuum oven	(1) 1,000
Muffle furnace	(1) 500
Incubators with thermostat	(2) 1,500
Homogenizer	(1) 450
pH meters	(2) 800
Temperature programmer for 104 Pye-chromatograph	(1) 800
Freeze dryer	(1) 1,000
Basic milk testing equipment (including small centrifuge)	1,000
Basic carcass evaluation and meat testing equipment	1,500
Refrigerator	(1) 1,500
Ultra-low temperature cabinet	(1) 3,500
Bacteriological hood	500

31,075

ANNEX III
Exhibit D

(5) Central Analytical Laboratory

	<u>U.S. \$</u>
Centrifuge (high sample capacity for automated analysis)	7,000
Concentration recording system for existing auto-analyzer	5,000
Data printer	2,500
Automatic absorption spectrophotometer	10,000
Amino acid analyzer	20,000
Module for allowing liquid chromatography on existing auto-analyzer	10,000
	54,500

(6) Plant Pathology

Binocular microscope	(1)	1,000
Small autoclave	(1)	375
Incubators	(3)	3,000
Centrifuge (medium speed)	(1)	1,000
Continuous flow centrifuge with accessories	(1)	1,250
Drying oven	(1)	600
Spore sampler (with pump)	(1)	300
Fraction collector	(1)	1,250
Water baths (with thermostats)	(2)	1,000
Reciprocating rotary shaker	(1)	750
Lyophilizer	(1)	750
Thin layer chromatographic equipment		500
Radio active chromatographic scanner	(1)	5,000
Microtome	(1)	1,750
		<u>18,525</u>

- 4 -

ANNEX III
Exhibit D

(7) Photography Laboratory

		<u>U.S. \$</u>	
Enlarger and accessories		1,500	
Glazing machines	(2)	600	
Photomicrographic light meter		250	
Nikon F camera with light meter and close up rings	(1)	600	
Slide duplicator	(1)	150	
Slide projector with screen	(1)	500	
Wide angle lens for Nikon	(1)	150	
Telephoto zoom lens	(1)	400	
Refrigerator	(1)	1,000	
Polaroid camera system	(1)	1,300	
Filters	(6)	50	
		<hr/>	6,500

(8) Plant Breeding

Incubators	(2)	2,500	
Refrigerator	(1)	1,000	
Deep Freeze	(1)	1,500	
Seed storage cabinets	(6)	1,062	
Top-loading research balance	(1)	400	
Hand-operated precision seed drills	(2)	500	
Additional optical, accessories for present microscope		1,000	
Electrophoresis system	(1)	2,500	
Repairs to screened greenhouse (for controlled breeding)		7,000	
		<hr/>	17,462

ANNEX III
Exhibit D

(9) Agricultural Extension

		<u>U.S. \$</u>	
Closed-circuit broadcasting training unit		9,000	
Video tape recording console		600	
Movie camera with zoom lens		1,000	
Daylight slide projector with cassette for field demonstrations		400	
Offset camera for platemaking machine		5,000	
Storage cabinets plus air-conditioners for cold storage		3,000	
		<u>19,000</u>	

(10) Virology

Microscope	(1)	2,500	
Centrifuge (1800 rpm)	(1)	2,500	
Ultra-centrifuge	(1)	26,000	
Growth chambers	(2)	13,000	
Serology equipment		5,000	
		<u>49,000</u>	

(11) Nematology

Multiple tally tabulators	(6)	600	
Compound microscope with projection equipment	(1)	3,000	
Reciprocating reaction incubator	(1)	1,200	
Vertical autoclave	(1)	1,250	
Analytical balance	(1)	200	
		<u>6,250</u>	

ANNEX III
Exhibit D

(12) Biological Sciences

		<u>U.S. \$</u>
Fluorometer	(1)	10,000
Automatic Gamma counter		15,000
Scintillation counter		15,000
Research microscopes	(2)	10,000
Potter tower		1,500
Balances - Mettler and microbalance		5,000
Dissecting microscopes	(2)	1,500
Insect collecting apparatus		1,500
Haematocrit centrifuge		500
Extension arms and magnifiers with eliminators		<u>500</u>
		60,500

(13) Applied Entomology

Binocular microscope		1,000
Insect collecting apparatus		2,000
Incubators	(2)	2,000
Insect physiology equipment		2,000
Insect toxicology equipment		<u>2,000</u>
		9,000

(14) Marine Biology Equipment

Winch and depth meter	(1)	425
Biological dredge	(1)	127
Peterson grab	(1)	265
Gravity corer	(1)	325
Eckman dredge	(1)	204

ANNEX III
Exhibit D

(14) Marine Biology Equipment (cont'd)

Salinometer	(1)	1,800
Clarke Dumpus Plankton Sampler	(1)	800
Time depth recorder	(1)	450
Alpha bottles	(5)	740
Reversing thermometers	(3)	405
Oceanography field kits	(2)	600
Portable current meter	(1)	1,200

\$7,341

(15) Food Processing Plant

188,200

(16) Furnishings

166,874

(AGRICULTURE-ST.AUGUSTINE) - GRAND TOTAL

\$794,927 /1

1 Final equipment list will be reduced to \$605,000.

ANNEX III
Exhibit D

B. <u>FACULTY OF NATURAL SCIENCE (MONA)</u>	<u>Quantity</u>	<u>U.S. \$</u>
(1) Mistpropagator with concrete benching		6,000
Neutron Probe		7,200
Solarimeter	(2)	400
Thermohygrograph	(2)	240
Recording Rain Gauge		200
Pan Evaporimeter	(2)	250
Flame Photometer and filters		650
Top Pan Balance	(2)	1,650
Colorimeters	(2)	240
Light Meters	(2)	220
pH Meter Portable		200
Remote Temperature Probe		200
Small Plough		700
Small Rotavator		500
Small Planter		250
Spraying Equipment (boom sprayers, etc.		200
Overhead Irrigation Equipment		1,500
Hand tools, etc.		500
Orbital Shaker		1,250
Sterile Cabinet		3,000
Forced air drying oven	(2)	1,500
Shaker bath, shallow form		650
Electrophoresis apparatus & accessories		700
Chart recorder	(2)	1,000
D. C. power supply 0 - 12V		150
Oxygen analyzer for gases and liquids		1,000
Low temperature incubators (3)		2,100
Furnishings		19,500
		<hr/>
Botany sub-total		53,150

UNCLASSIFIED

(2) ELECTRONICS WORKSHOPANNEX III
Exhibit DElectronic Equipment

	<u>Quantity</u>	<u>Estimated Cost U.S. \$</u>
Function Generator H.P.	(1)	\$ 700
Function Generator Mod 128	(1)	700
Oscilloscope Tektronix 466	(1)	5,700
Dual Power Supplies	(4)	800
Digital Voltmeter	(3)	2,100
Pulse Generator HP 8010A	(1)	2,000
Kepko Logic Circuit Supplies	(4)	1,600
Digital Counter 80108	(2)	2,800
R.F. Generator 865 A	(1)	1,200
Simpson 314	(4)	1,200
Ava VIII Multimeter	(4)	200
Valve Tester	(1)	1,200
Transistor Testers	(2)	1,300
Electrostatic Voltmeter E84	(1)	1,100
C.L.R. Bridge	(1)	1,300
Test Chamber	(1)	2,500

26,220Support Systems

Printed Circuit System	(1)	3,000
Camera and Photographic System	(1)	2,500
Vacuum Pump 7LDG/1LM	(1)	
Dip Tank & Cleaning Facilities	(1)	2,000
Metal Bender (Tabletop)	(1)	200
Coil Winding Machine	(1)	3,500
Engraving Machine	(1)	1,000
Desks	(4)	1,000
Filing Cabinets	(4)	400
Drawing Board & Acc.	(1)	500
Technical Data Storage	(2)	800
Storage Cabinets Instruments	(3)	2,400
" " Stock	(1)	750
Tools & Acc.	(1)	1,000

\$19,650

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ANNEX III
Exhibit D**(4) ZOOLOGY**

80	Stools	\$1,600
72	Dissecting Microscopes	22,500
72	Microscope Lamps	2,250
72	Metal Water-baths	1,125
	Film Loop Projector	250
	Mettler Balance	1,500
	pH Meter	450
2	Top Loading Balances	1,500
	General Equipment (Dissecting trays, glass- ware, etc.)	3,000
60	Stools	1,200
60	Microscope Lamps	1,800
10	Constant temp. water baths and racks	3,500
12	Oscilloscopes	6,000
2	(small) Environmental chambers	9,000
10	Micromanipulators (Prior)	1,500
1	CO ₂ Analyzer, Model 2050	600
9	Student CO ₂ Analyzers, Model 2000	522
9	Water-jet Filter Pumps	1,800
2	Spectrophotometers (Spectronic 20)	1,014
2	Flame Photometers	1,500
2	Mettler Balances	2,470
1	Centrifuge	1,000
50	Compound Microscopes	15,000
1	Bomb Calorimeter	1,000

Zoology Sub-Total 104,281

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ANNEX III
Exhibit D(5) CENTRAL ANALYTICAL AND FOOD SCIENCE LAB

1.	Mass Spectrograph	\$100,000
2.	X-ray Fluoremeter	25,000
3.	U.V/VIS Recording Spectrophotometer	25,000
4.	Fluorescence Spoectrophotometer	20,000
5.	High Pressure Liquid Chromatograph	20,000
6.	Food Science Equipment	10,000
	+ Furnishings @ 15% of building costs	27,720
7.	Liquid Nitrogen Supplier	16,000
8.	Air Pollution Analysis	6,000
9.	Water Analytical Equipment	2,000

Central Analytical & Food
Science Lab Sub-Total \$251,720

Natural Sciences (MONA) Grand Total \$494,000

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ANNEX III
Exhibit DC. FACULTY OF NATURAL SCIENCE (Cave Hill)Biology

	<u>Quantity</u>	<u>Estimated Cost U.S.\$</u>
Calculators, pocket	10	600
Calculators, large	1	1,000
Balances Analytical	4	2,640
Furnace	1	440
Waterbaths, Shaking & Accessories	2	968
Waterbaths, Circular	2	396
Kymograph with stimulators attached	4	1,072
Nerve chamber and accessories	4	352
Chromatography apparatus	2	880
Colony Counter	2	440
Heating Mantles, electrothermal	6	528
Microphotographic apparatus	1	660
Cinephotography & Microdissection apparatus	1	1,100
Museum Specimens	Various	2,200
Display Cases for Specimens		1,320
Tissue Processor	1	1,100
Oscilloscopes	2	616
Scintillators	1	1,080
Scaler	1	1,100
Animal Cages	20	1,320
Spectrophotometers	1	352
Flame Photometer	1	836
Vacuum pump	1	330
Filtration equipment	1	1,760
Dual Viewing Microscopes	2	3,720
Microtoma Jung	1	1,200
Centrifuge (high speed)	1	2,000
Lamps U.V.	2	700
Autoclave (electrical)	1	900
Polarizing accessory kit	1	900
Phase contrast accessory kit	1	900
Fluorescent accessory kit	1	900
Microtome with binocular scope	1	1,300
Blenders waring (1 glass & 1 metal)	2	100
Electric stove + oven with thermostat	1	700
Inverted microscope	1	300
Glassware		6,000
Furnishings		33,000

Natural Sciences (Cave Hill)- Grand Total

\$79,110

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ANNEX III
Exhibit D**D. FACULTY OF ARTS AND GENERAL STUDIES (MONA)****(1) Linguistics**

Portable tape recorders	5	500
Portable tape recorders (Hi-Fi)		1,600
Portable tape recorders (nagra)	1	1,600
Transcription trolley		2,000
Spectrograph		7,500
Oscillograph		3,000
Cameras	3	1,500
Cine-cameras	3	1,500
Duplicator		800
Photocopy		
Stapling machine		500
Collator		720
Gestafax		2,000
Typewriters	6	5,000
Furnishings		12,900
		<hr/>
Sub-Total		38,180

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ANNEX III
Exhibit D**(2) Multi-Media Production Center****Equipment**

(a) <u>VTR and sound recording</u>	<u>Sq. Ft.</u>	
Production console	8,000	
TV cameras	4,250	
Lighting	2,000	
Editing and mixing	8,000	
Microphones etc.	1,500	
Audio turntable and ancillaries	1,200	
Accessories and spares	3,000	
Still cameras and accessories	3,000	
Film cameras	10,000	
Tape recorders	3,000	
Film accessories	500	
	<hr/>	44,450
(b) <u>Photo lab/darkroom</u>		
Enlargers, copiers, processing		3,000
(c) <u>Projection and playback</u>		
Projectors, TV slide and strip projectors		5,000
(d) <u>Graphics</u>		
Light and draughting tables vertical camera etc.		4,000
	<hr/>	
Sub-Total		56,450

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ANNEX III
Exhibit D(3) Printery (MONA)

1, 13½ x 20" multilith, (one color, one side)	10,500
Perfect binding equipment	12,000
Trimming equipment	8,000
1 Collator (6 station, 15 x 17" sheet maximum)	19,000
1 Stapling machine (flat and saddle, up to 1" thick)	4,000
1 Photocopying machine	1,400
	<hr/>
Sub-Total	\$54,900

Arts and General Studies (MONA) Grand Total \$149,530

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ANNEX III
Exhibit D**E. INTER-FACULTY CLASSROOM CENTRE (MONA)**

Tape recorders	9	3,600
Turn table		600
Record players	4	1,200
Recording booth	6	6,000
Laboratory console	1	15,000
Casette duplicator	1	2,000
Film projector 16mm	3	3,000
" " 35mm	1	1,500
Overhead projectors	3	675
Film strips projectors	3	600
Slide projectors	4	800
Furnishings		28,000

Grand Total

62,975**F. LEARNING RESOURCE CENTER (Cave Hill)**

Language Laboratory		46,290
Tape Recorder		420
Overhead Projector		90
Slide Projector		100
Movie Camera		300
Movie Projector		1,100
Xerox		2,500
Furnishings		46,900

Grand Total

97,700

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ANNEX III
Exhibit DG. LIBRARY (ST. AUGUSTINE)

	<u>U.S. \$</u>	
Shelving	48,000	
Reneodex serial record cabinets (6)	2,500	
Roneodex tables (3)	400	
Photocopying machine	2,500	
Microfilm Equipment	15,000	
Microfilm readers	800	
Microfilm Storage Cabinets	400	
Tables and Chairs	9,500	Accommodation for 120 readers
Desks (6)	1,400	} Accommodation for additional staff
Work Tables (9)	1,800	
Chairs (10)	720	
Typists' chairs (2)	250	

Library (St. Augustine) Grand Total 97,070

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ANNEX III
Exhibit D

I. ADMINISTRATION (ST. AUGUSTINE)

A.B. Dick Copier	\$2,100
Savin Photocopier	1,750
Rx-Rotary Duplicator	1,200
6 Electric typewriters	4,450
3 Calculators	1,800
1 Electric Stenciller	1,800

Grand Total	\$15,000
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J. ADMINISTRATION (CAVE HILL)

3 Electric typewriters	2,700
1 Calculator	600
4 Filing Cabinets	650
2-card punch IBM	7,000
Furnishings	5,000

Grand Total	\$17,510
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K. ADMINISTRATION (MONA)

Furnishings	Grand Total	26,000
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ANNEX III
Exhibit E

BOTANY RESEARCH

(i) Efficient Use of Fertilizers, Hormones and Water

(a) Pineapple Project

Early in 1970, the Agricultural Development Corporation, Jamaica, identified the annual need for fresh pineapple fruit for the local and export market to be between 150,000 and 200,000 tons. It was also envisaged that an equal amount of fruit could be used in local industry to produce tinned slices and chunks, pineapple juice, candied pineapple, etc. However, expansion of pineapple production could not be contemplated as this was not economically viable in view of the low average yield of 5 tons per acre which obtained in Jamaica.

Some preliminary work has been carried out by the Department of Botany aimed at increasing the yield of pineapple. The pineapple was grown in different types of soil using various levels of nitrogenous and potash fertilizers. For certain combinations, a yield of 18-28 tons per acre was realized. The results of these experiments also indicated that the yield might be further improved to reach 30-40 tons per acre with the right application of potash fertilizers, the correct plant population, the successful flower induction using appropriate hormones and the effective control of ants and nematodes.

The research programme should give answers to the last points raised here and in particular to the level of potash fertilizers, plant population and flower induction to realize the target yield.

(b) Study of Water relations in crop plants

The damaging effects of even temporary water deficits on plant growth and yield are well-known. In the Caribbean area, which is prone to unpredictable drought periods, lack of water is a serious constraint on agricultural development and food production. The crops which are grown on irrigated land tend to be in the traditional export group (sugar, bananas) and there are indications that water-use efficiency in these crops is low. It is significant that even with limited use of irrigation, agriculture already consumes 70% of the public water supply in Jamaica.

Research in progress in this Department is focused on some of the important parameters of water use in a banana plantation. The aims

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ANNEX III
Exhibit E

of the proposed programme are :

- (a) To promote efficient use of existing water supplies.
- (b) To identify methodologies for studying plant water relationships in field conditions of the West Indies.
- (c) To identify characteristics of drought tolerant or resistant crop varieties.
- (d) To rationalise existing dry-farming practices.
- (e) To assist in the development of water conservation and distribution systems which are not too capital intensive nor energy-intensive.

(c) Vonifoliol - a potential antitranspirant

Studies by K. Stuart and L. Coke have shown that this substance has an activity similar to that of abscisic acid in promoting stomatal closure. If this substance could be used without retarding growth or causing toxicity, then it could be useful in regulating water loss from plants and so provide another weapon in the fight to improve water use efficiency in agriculture and horticulture.

(d) Pimento Propagation

In recent years, propagation of pimento by grafting of seedlings to branches of high yielding trees of proven desirability has become a popular practice. However, this method takes a long time (between 18-24 months) from seed germination to reach a stage when the grafted seedling could be planted in the field. With this long time lag it becomes difficult to supply the demand for about 10,000 plants per year (to plant 100 acres; 50 acres on government lands and 50 acres on private properties).

The solution could be overcome if it were possible to use cuttings for vegetative propagation. However, it has been shown that pimento cuttings are hard to root under natural conditions. The use of hormones to initiate roots has been sought and a large number of hormones at different concentrations and with various methods of application have been used. However, success of the early trials has been limited and more work with the same and other hormones need to be undertaken. Further investigations should establish the rooting procedure, methods of potting the rooted cuttings and their subsequent hardening.

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ANNEX III

Exhibit E

(ii) Screening and Breeding New Varieties

(a) Plant Breeding

The importance of breeding high yielding varieties with improved protein quantity and quality cannot be overstressed. There is an on-going programme in the Botany Department breeding soybeans for protein improvement as well as for selection of varieties suited for local conditions. It is hoped to enlarge the programme to include other species such as Gungo Peas, Red Peas and Alfalfa.

(b) Plant Tissue Culture

The propagation of entire plants from isolated cells or small pieces of tissue in artificial culture media is called cloning. This technique is potentially very useful in plant improvement.

- (a) to rapidly propagate elite varieties
- (b) to produce large numbers of mutations by chemical or radiation mutagenesis
- (c) to provide a less costly alternative (or supplement) to field museum plots for conserving germ plasm. Plant breeders need to maintain a large number of options to meet ever-changing challenges of disease organisms and market requirements.

Tissue culture methods have been useful in the development of early-yielding dwarf varieties of temperate zone fruit trees. The scarcity of such varieties among certain important or potentially important tree crops (Mango, avocado, starapple, pimento) is an important obstacle to the development of modern orchards for the small to medium farmer in hilly areas.

(iii) Crop Protection

Specific areas in which the Botany Department is presently involved and could take a leading role in plant pathological research developments in the future are :

- (a) Coconuts. Research in coconuts is undertaken and coordinated by the Research Department of the Coconut Industry Board. The production of copra is presently undergoing a severe decline, largely as a result of disease. This decline must be reversed to overcome the need for importing

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ANNEX III
Exhibit E

oils to meet the local demand for edible oil and margarine and of soap industries. The most serious disease in Jamaica is lethal yellowing which is killing an estimated 200,000 trees per annum in a remaining population of approximately 3 million of the susceptible Jamaica Tall variety. The industry has relied heavily on overseas technical aid (F.A.O. and U.K. - O.D.A.) to attempt to combat and understand this enigmatic disease; staff and research students of the Botany Department continue to be deeply involved in joint collaborative efforts on this project. There is scope for much additional work in electron microscopy, disease physiology and insect vector studies of lethal yellowing and provision must be made for training personnel to take over when the present O.D.A. programme is terminated.

The replacement of susceptible Jamaica Tall by resistant Malayan Dwarfs and more recently other hybrids, has given rise to other new disease problems, the most prominent of which is a seedling leaf spot which under severe conditions is apparently causing up to 30% mortality in seedlings up to 3 years old. This leaf spot is presently being studied full time by one research student. This and other disease problems of coconuts will require personnel for at least five more years.

(b) Citrus. There are a number of disease conditions in Jamaican citrus for which adequate information and control measures are not known. These include (probably several) virus disease(s) (see remarks below on virus diseases) and several fungal diseases, the causes of which are generally known but for which adequate control is rarely obtained, e.g. knot disease of limes and ortaniques and root stocks of rough lemon. The Botany Department has previously been involved in citrus pathology but is not so at present.

(c) Vegetable and Legume Disease. With the demands for greater self sufficiency and consequent conservation of foreign exchange, Jamaica is now cultivating a large number of new crops and expanding the production of others from a previously peasant agricultural base. These include a number of traditionally temperate vegetable crops, e.g., potatoes (in which self-sufficiency has already been obtained) cabbage, cauliflower, onions, carrots, cucumbers, lettuce, egg plant, beetroot and also legumes for both animal and human consumption, e.g. peanut, soybean, pigeon pea, red pea and in addition to these, corn. As these crops become intensively grown, disease problems which are already obvious in some are almost certain to develop. These include diseases known in temperate regions for which known combat measures may or may not be applicable to the local circumstances and also diseases not previously known or of little consequence in the temperate regions. Those diseases caused by fungi and bacteria are generally more easy to control but it is probable that an increasing number of problem diseases

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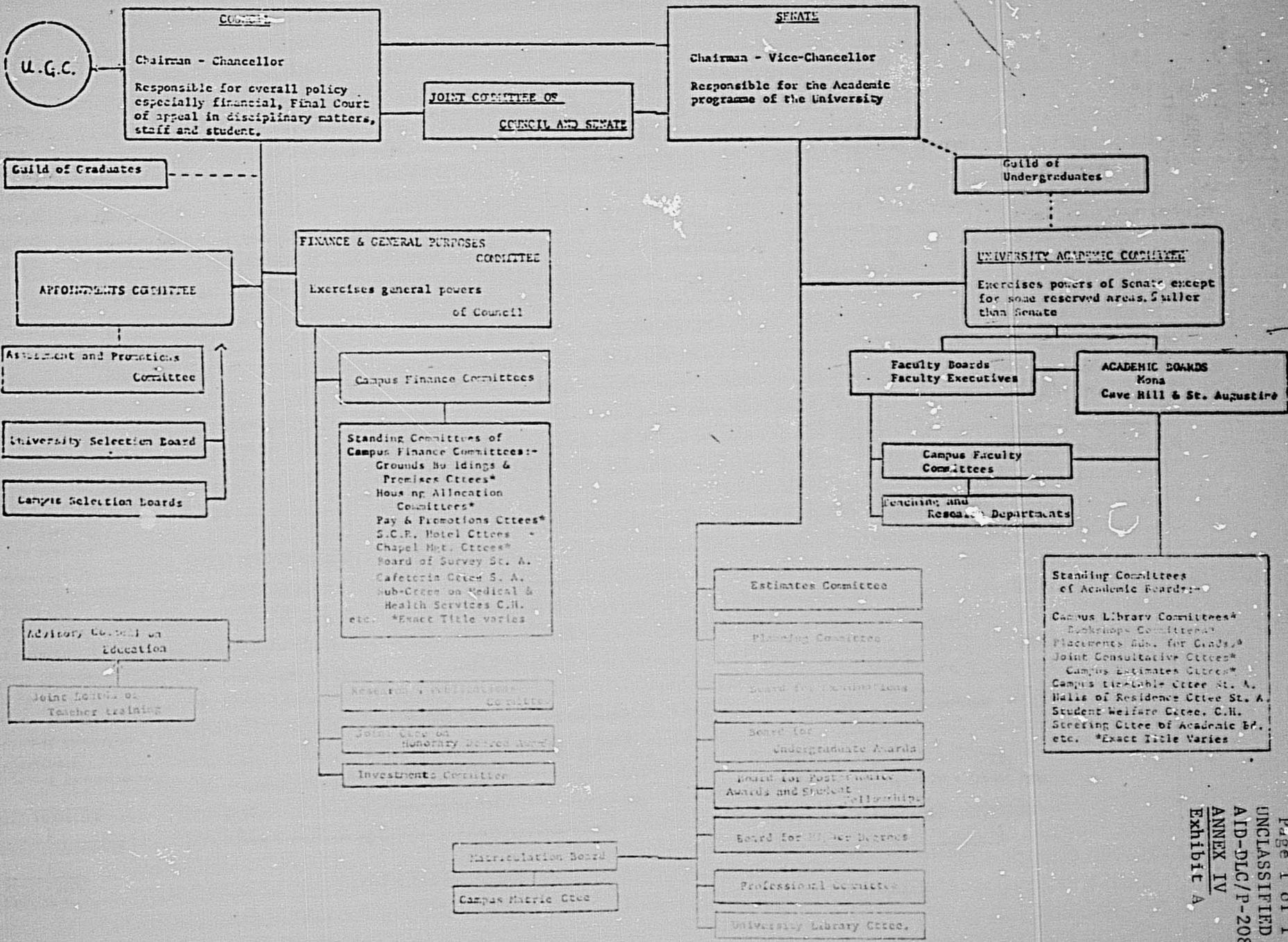
Exhibit E

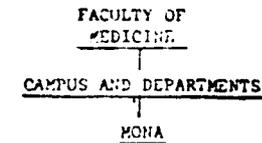
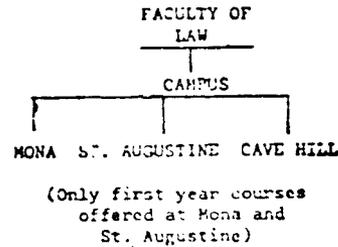
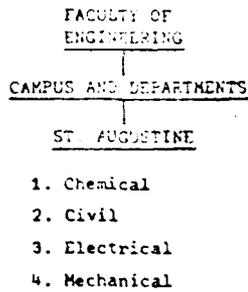
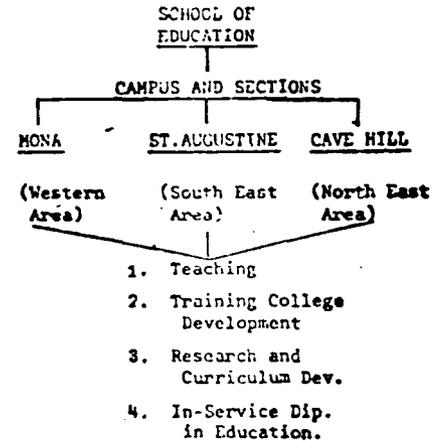
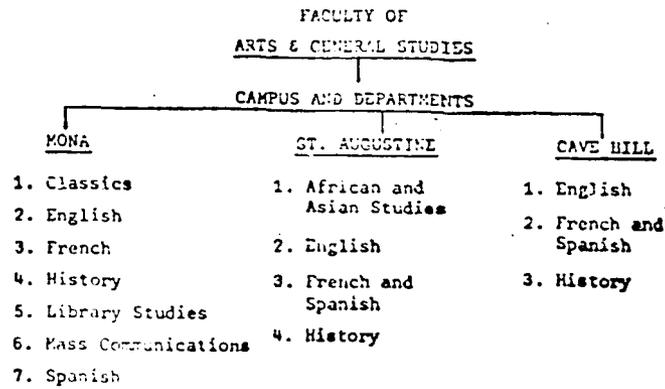
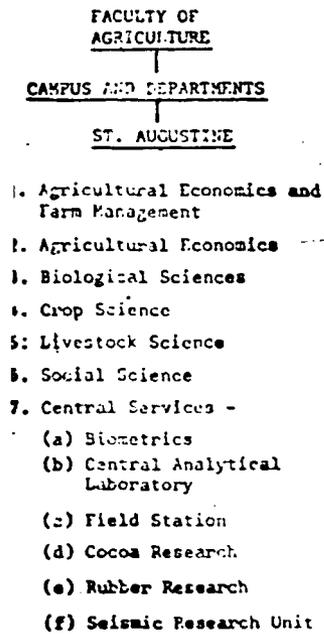
will be caused by viruses. At present the Botany Department is investigating the nature and inheritance of resistance of peanut varieties to rust and other leaf spot diseases (the major limitation on the expansion of this crop) and is also involved in die-back problems in onions. There is much scope for further involvement in this field.

(d) Tobacco, flowers, non-traditional fruits and nuts, ornamentals. With increasing awareness of the value of these crops for local consumption and as potential export crops they are being planted on an increasing scale. There is scope for much closer collaboration between U.W.I. and the Plant Protection Division of the Ministry of Agriculture who presently undertake advisory and research aspects of diseases of these plants, particularly in those areas in which the department's technical facilities are superior to those of the Ministry.

(e) Plant Virus Diseases. At present in Jamaica there are no adequate facilities or trained personnel for the identification or investigation of viruses that cause plant disease. As a result, this very important area of plant pathology has been sadly neglected and advice on the control of virus diseases is often impossible, or, at best, an inspired guess based upon slender scientific evidence. Many disease conditions presently exist in Jamaica which on the basis of symptomatology have been attributed to viruses. As has been suggested above, these are likely to be of increasing significance in the future. A laboratory for routine identification of plant viruses and for research investigations into them and their methods of survival and spread is urgently required. Such a laboratory could operate in conjunction with existing or proposed facilities within the UWI, e.g. electron microscopy, growth chambers, general plant physiology apparatus, but would in addition require the provision of laboratory space, a screened greenhouse and preparation room for insect vector studies and apparatus including an ultra microtone and accessories for the preparation of sections for electron microscopy, preparative ultra centrifuge, low speed centrifuge, and facilities for the serological identification of viruses.

"MAIN UNIVERSITY AND CAMPUS COMMITTEES"

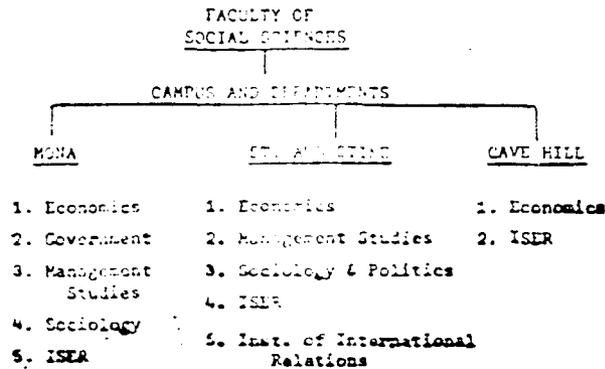
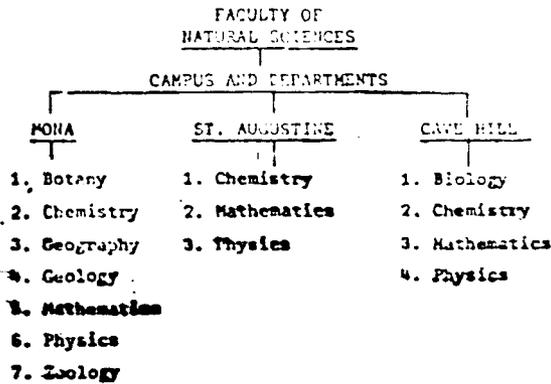




1. Anatomy
2. Biochemistry
3. Medicine
4. Microbiology
5. Obstetrics & Gynecology
6. Paediatrics
7. Pathology
8. Pharmacology
9. Physiology
10. Psychiatry
11. Social & Preventive Medicine
12. Surgery
13. Tropical Metabolism

DEPARTMENT OF EXTRA-MURAL STUDIES

1. Antigua
2. Bahamas
3. Barbados
4. Belize
5. Dominica
6. Grenada
7. Jamaica
8. Montserrat
9. St. Kitts/Nevis/Anguilla
10. St. Lucia
11. St. Vincent



ANNEX IV
Exhibit

OFFICERS OF THE UNIVERSITY

Vice-Chancellor

Mr. A. Z. Preston, JP, LLB, FCA, FCCA, FCIS, FREconS.

Pro-Vice-Chancellors

Mr. S. L. Martin, KSc, ARCS, DIC, FRIC -
Principal, Cave Hill Campus

Prof. L. E. S. Braithwaite, BA -
Principal, St. Augustine Campus

Prof. L. R. B. Robinson, MA -
Pro-Vice-Chancellor (Planning)

Dr. F. R. Augier, MA, PhD.

Prof. G. C. Lalor, BSc, MSc, PhD.

University Registrar

Mr. C. E. Jackman, MA, Dip. Ed.

University Bursar

Mr. H. C. Holness, JP, FCIS, FAIA.

University Librarian

Mr. K. E. N. Ingram, BA, MPhil, FLA.

Deans of Faculties

Agriculture - Dr. E. F. Iton, BSc, PhD, Dip.Agric.Sc.

Arts & General Studies - Dr. A. D. Drayton, BA, PhD.

Education - Prof. R. N. Murray, BA, MA, Dip. Ed.

Engineering - Prof. G. M. Richards, MSc, PhD.

Law - Prof. A. R. Carnegie, BA, MA, Barrister-at-Law

Medicine - Dr. M. M. Ragbeer, MB, BS, DCH, MRCPath.

Natural Sciences - Dr. C. E. Seaforth, BSc, PhD.

Social Sciences - Dr. R. L. Williams, MSc, PhD.

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Exhibit F

Environmental Assessment

The proposed action consists of the construction of various buildings at the Mona, Cave Hill and St. Augustine campuses of the University of the West Indies in Kingston, Bridgetown and Port of Spain respectively.

The construction program at Mona would consist of structures to house Administration, Botany Department, Zoology, General Services and Food Science, Audio Production and Printery, Electronics Workshop, Staff Tutorial and an Interfaculty Classroom Center.

The construction program at Cave Hill would consist of structures to house Administration, the Biology Department and a Library.

The construction program at St. Augustine would consist of structures to house the Agriculture Department, Administration and a Library.

Description of Sites

The Mona Campus in Kingston covers some 600 acres of land. A further 53 acres tract which was incorporated by a law passed by the legislature of Jamaica is used by the University Hospital. The land is held by the University and the University Hospital under separate 999-year leases from the Government of Jamaica at a pepper corn rent.

The Mona Campus is physically isolated from Kingston since it is located on the periphery of the city within a cul-de-sac enclosed by Dallas and Long Mountains. The campus is also confined by a number of topographical and man made features which limits movement and the possibilities of expansion. The principal linkage between the campus and Kingston is Mona Road which is joined to the city road system near Matilda's Corner at Liguanea.

At the campus the visual environment is dominated by the surrounding mountains. In the middle ground are the densely treed Dallas and Long Mountains. Neither shows much, if any, habitation. With its extensive areas of grass and clumps of trees the Mona Campus has the character of park land.

The Cave Hill Campus in Bridgetown, Barbados is attractively and conveniently located approximately half a mile from the west coast of the country, and forms part of the southern sector of the Cave Hill Master Plan published in 1974. The campus is approximately 4 miles from the center of Bridgetown from which the most convenient access is via Highway I and University Crescent. The campus can also be reached via Free Hill, which connects to Highway I south of the campus, and from Crazettes and Rock Dundo to the east, again via University Crescent.

The area surrounding Cave Hill comprises mainly middle-income housing,

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Exhibit F

particularly to the north and east, and low-income housing to the south, around Free Hill. Certain areas have been subdivided for residential purposes, but construction of individual dwellings has been sporadic and much open land remains undeveloped.

The St. Augustine Campus at Port of Spain, Trinidad is located about 9 miles from this city. The main campus comprises 133 acres of slightly rolling ground. In addition to the main campus the University owns a 300 acre university farm and a 50 acre residential section close to the main campus.

Environmental Impact of Proposed Action

Due to the nature of the proposed action in relation to the environment in which the action will take place no detrimental effects are foreseen as follows:

1. The type of foundation construction contemplated at a site of slightly rolling ground topography will result in an insignificant amount of earth moving. This in turn will result in no soil erosion nor in sedimentation or contamination of water courses.
2. The buildings will be located in areas where vegetation will not be destroyed or affected.
3. The air quality will not be affected since no fumes or air contaminants will be generated by the construction and function of the proposed building.
4. Wild life will not be affected since environmentally sensitive wooded areas will be left untouched.
5. No significant additional vehicular traffic is foreseen since the construction program is primarily to improve overcrowded conditions at the campuses.
6. No historical nor archeological sites will be affected. The ruins of a historical aqueduct and a sugar mill at the Mona Campus will be protected and will not be detrimentally affected by the construction program.
7. No people will be displaced by the proposed action since the sites are not occupied at present and are areas for expansion designated for that purpose in the Master Plan of Land Use for each campus.
8. The sociological effects of the construction program will be beneficial since the location of building will be such that will

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ANNEX IV

Exhibit F

result in the creation of higher density as provided in the "Development Plans" and this in turn will result in an atmosphere conducive to better social intercourse. The "Development Plans" have recognized the need for higher density development.

ANNEX IV
 Exhibit G

ANALYSIS OF U.W.I. RECURRENT COST INPUT (US\$)

	<u>75/76</u>	<u>76/77</u>	<u>77/78</u>	<u>78/79</u>	<u>TOTAL</u>
<u>MONA:</u> Nat.Science	76,750	286,000	325,350	373,000	1,061,100
Arts/General Studies	-	-	76,140	90,240	166,380
Administration	55,750	84,240	87,480	103,680	331,150
Printery	46,625	48,490	145,800	172,800	413,715
	<u>179,125</u>	<u>418,730</u>	<u>634,770</u>	<u>739,720</u>	<u>1,972,345</u>
<u>ST.AUG:</u> Agriculture	75,750	183,820	218,160	258,560	736,290
Library	-	52,520	54,540	64,640	171,700
Administration	12,500	45,500	47,250	56,000	161,250
	<u>88,250</u>	<u>281,840</u>	<u>319,950</u>	<u>379,200</u>	<u>1,069,240</u>
<u>CAVE HILL:</u> Nat.Sc.(Biol). Learning Resou- rce Center	33,750	66,820	69,390	82,240	252,200
Library	-	-	44,280	52,480	96,760
Library	19,375	39,500	57,800	69,800	186,475
Administration	6,250	32,760	34,020	40,220	113,250
	<u>59,375</u>	<u>139,080</u>	<u>205,490</u>	<u>244,740</u>	<u>648,685</u>
<u>UNIVERSITY TOTAL</u>	<u>326,750</u>	<u>839,650</u>	<u>1,160,210</u>	<u>1,363,660</u>	<u>3,690,270</u>

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ANNEX IV
Exhibit GPROCEDURE ADOPTED FOR OBTAINING ESTIMATESOF U.W.I. RECURRENT COSTS

1. For each Staff member at lecturer/senior lecturer level add the following:

Salary	J\$ 7,968	
Pension	797	
National Ins.	52	
Housing Allowance	1,594	
Passages/ research & travel grant	3,350	
	<u>13,761</u>	
Secretarial Support Staff	758	
Office & General ex- penses	500	
Departmental Supplies	1,000	
Maintenance of buildings & equipment, cleaning ma- terials, light, water & plumbing	500	
	<u>16,519</u>	
Library/ Admin/ Computing @ 10%	1,652	
	<u>J\$ 18,171</u>	= US\$20,200 (existing wage rates)

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ANNEX IV
Exhibit G

2. For each administrative assistant, laboratory technician etc. add US\$4,200 - US\$5,000 for salary and pension.

3. In order to allow for wage increases which are now being negotiated, figures derived as above are inflated by 25%, 30%, 35% and 60% respectively to give estimates for 75/76, 76/77, 77/78 and 78/79.

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ANNEX IV
Exhibit GMONA

	<u>75/76</u>	<u>76/77</u>	<u>77/78</u>	<u>78/79</u>
<u>Botany</u>				
Senior Lecturer	1	1	1	1
Lecturer	-	1	1	1
Technician	-	1	1	1
Recurrent Costs (existing wage rates)	20,200	44,600	44,600	44,600
<u>Zoology</u>				
Senior Lecturer	-	1	1	1
Lecturer	-	1	1	1
Technician	2	4	6	6
Recurrent Cost (existing wage rates)	8,400	57,200	65,600	65,600
<u>Chemistry</u>				
Lecturer	1	2	2	2
Lecturer	-	2	2	2
Technician	3	5	7	7
Recurrent Costs (existing wage rates)	32,800	101,800	110,200	110,200
<u>Electronics</u>				
Jr. Elec. Eng.	-	1	1	1
Technician	-	2		3
Recurrent Costs (existing wage rates)	-	16,400	00	20,600
<u>TOTAL - NATURAL SCIENCES</u>				
	61,400	220,000	241,000	241,000
Add expected wage increases	15,350	66,000	84,350	132,000

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ANNEX IV
Exhibit GMONA75/76 76/77 77/78 78/79Materials Production

Manager (Lecturer grade)	-	-	1	1
Operator (sound)	-	-	0.5	0.5
Cameraman	-	-	0.5	0.5
Technician	-	-	0.5	0.5
Graphic Artist	-	-	0.5	0.5
<hr/>				
Recurrent Costs (existing wage rates)	-	-	32,000	32,000

Language Laboratory

Lecturer	-	-	1	1
Teaching Ass't.	-	-	1	1
<hr/>				
Recurrent Costs (existing wage rates)			24,400	24,400

TOTAL-- ARTS AND GENERAL STUDIES

	-	-	56,400	56,400
Add expected wage increases	-	-	19,740	33,840
<hr/>				
US\$	-	-	76,141	90,240

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ANNEX IV
Exhibit GMONA

75/76 76/77 77/78 78/79

Central Administration

Accountant/ Project Officer (Lectr. Grade)	2	3	3	3
Admin. Ass't.	1	2	2	2
<hr/>				
Recurrent Costs (existing wage rates)	44,600	64,800	64,800	64,800
Add expected wage increases	11,150	19,440	22,680	38,880
<hr/>				
US\$	55,750	84,240	87,480	103,680
<hr/>				

Printery

Recurrent Costs (existing wage rates)	37,300	37,300	108,000	108,000
Add expected wage increases	9,325	11,190	37,800	64,800
<hr/>				
US\$	46,625	48,490	145,800	172,800
<hr/>				

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ANNEX IV
Exhibit GMONAUniversity PrinteryRecurrent Estimates
(Preliminary)

Mamaican Dollars (J\$)

		<u>75/76 and 76/77</u>		<u>77/78/78/79</u>
Chief Printer	(1)	10,000	(1)	10,000
Ass't. Chief Printer/Proof Reader			(1)	6,000
Compositors/ Operators	(1)	5,000	(3)	15,000
Pressman	(1)	2,500	(3)	7,500
Technician/ Photographer		-	(2)	3,500
Apprentices		-	(2)	4,000
Clerk/Typist	(1)	2,000	(1)	3,000
Attendant	(1)	<u>1,500</u>	(1)	<u>1,500</u>
		21,000		50,500
Pension & National Insurance		2,350		5,670
Maintenance		750		3,000
Cleaning, water, light & plumbing		1,500		6,000
Office & general expenses		500		2,000
Department supplies		<u>7,500</u>		<u>30,000</u>
		J\$33,600		97,170
		J\$37,300		108,000

Note: The above does not provide for wage increases currently being negotiated.

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ANNEX IV
Exhibit GCAVE HILL

	<u>75/76</u>	<u>76/77</u>	<u>77/78</u>	<u>78/79</u>
	<u>Natural Sciences (Biology)</u>			
Professor	1	1	1	1
Lecturer	-	1	1	1
Technician	-	1	1	1
Recurrent Costs (existing wage rates)	27,000	51,400	51,400	51,400
Add expected wage increases	6,750	15,420	17,990	30,840
US\$	33,750	66,820	69,390	82,240

	<u>Learning Resource Centre</u>			
Lecturer	-	-	1	1
Multilith Operator	-	-	1	1
Graphic Artist	-	-	1	1
Technician	-	-	1	1
Recurrent Costs (existing wage rates)	-	-	32,800	32,800
Add expected wage increases	-	-	11,480	19,680
US\$	-	-	44,280	52,480

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ANNEX IV
Exhibit CCAVE HILL

	<u>75/76</u>	<u>76/77</u>	<u>77/78</u>	<u>78/79</u>
	<u>Natural Sciences</u> <u>(Biology)</u>			
Professor	1	1	1	1
Lecturer	-	1	1	1
Technician	-	1	1	1
Recurrent Costs (existing wage rates)	27,000	51,400	51,400	51,400
Add expected wage increases	6,750	15,420	17,990	30,840
US\$	33,750	66,820	69,390	82,240

	<u>Learning Resource Centre</u>			
Lecturer	-	-	1	1
Multilith Operator	-	-	1	1
Graphic Artist	-	-	1	1
Technician	-	-	1	1
Recurrent Costs (existing wage rates)	-	-	32,800	32,800
Add expected wage increases	-	-	11,480	19,680
US\$	-	-	44,280	52,480

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ANNEX IV
Exhibit GST AUGUSTINE

	75/76	76/77	77/78	78/79
<u>Library</u>				
Senior Ass't. Librarian	-	2	2	2
<hr/>				
Recurrent Costs (existing wage rates)	-	40,400	40,400	40,400
Add expected wage increase	-	12,120	14,140	24,240
<hr/>				
US\$	-	52,520	54,540	64,640
<hr/>				
<u>Administration</u>				
Senior Ass't. Registrar	-	1	1	1
Accounting Supervisor	1	1	1	1
Admin. Ass't.	1	1	1	1
<hr/>				
Recurrent Costs (existing wage rates)	10,000	35,000	35,000	35,000
Add expected wage increases	2,500	10,500	12,250	21,000
<hr/>				
US\$	12,500	45,500	47,250	56,000
<hr/>				
<u>Agriculture</u>				
Food Processing	1	2	2	2
Research equivalents	1	2	3	3

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ANNEX IV

Exhibit G

ST AUGUSTINE - continued

Agriculture	1	1	1	1
Economics				
Biometrics		1	1	1
Lecturer		1	1	1
<hr/>				
TOTAL (with increase)	75,750	183,820	218,160	258,560

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SOURCE OF FUNDS FOR BUILDINGS & EQUIPMENT TO 31ST JULY, 1974
(U.S.\$)

	TOTAL	JAM. GOVT.	TRINIDAD GOVT.	BARBADOS GOVT.	OTHER W.I. GOVTS.	C.D.W.	OTHER SOURCES
MONA: Bldgs. & Equipment	16,300,009	2,280,882	1,760,753	358,330	517,265	9,886,097	1,496,682
ST. AUGUSTINE: Bldgs. & Equipment	13,098,461	574,030	5,644,336 ^{/1}	167,570	93,244	4,485,037	2,134,244
CAVE HILL: Bldgs. & Equipment	2,660,557	548,286	427,893	98,507	150,611	913,030	522,230
TOTAL U.S.\$	32,059,027	3,403,198	7,832,982	624,407	761,120	15,284,164	4,153,156

/1 Includes \$4,321,211 for the John F. Kennedy Building complex on the St. Augustine Campus which was financed by the U.S. Government as part of the Chaguaramas Naval Base Agreement with the Government of Trinidad & Tobago

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ANNEX IV
Exhibit I

UNIVERSITY OF THE WEST INDIES
INCOME AND EXPENDITURE ACCOUNT
FOR THE YEAR ENDED JULY 31, 1974
(In Jamaican Dollars)

1972/73
J\$

1973/74
J\$

INCOME

	West Indian Governments:		
10,156,205	General	13,330,201	
127,103	Others (Seismic Research)	<u>127,609</u>	13,457,810
110,000	United Kingdom		80,000
30,155	C.D.& W. Contribution to I.S.E.R.		<u>47,251</u>
31,630	Contributions from Associations & Companies		600
	Grant from Polio Research Funds of		
13,932	London for Surgery		<u>10,973</u>
	Contribution from University Hospital		
	for Pathological & Microbiological		
	Services		532,858
393,437	Tuition and Examination Fees		563,810
493,146	Interest on Investments		169,289
161,450	Administration & Common Service Fees		280,227
151,120	Special Funds for Departmental Expenditure		3,390,176
2,082,808	Miscellaneous Income		<u>61,270</u>
<u>150,962</u>			<u>4,997,630</u>
13,910,003			18,594,279

LESS: EXPENDITURE

1,104,048	Administration:		1,593,182
	Salaries - Senior Staff	479,446	
	Superannuation	131,727	
	Wages of Clerical, Accounting		
	& Other Staff	<u>982,009</u>	
8,745,343	Departments		11,811,296
190,776	I.S.E.R.		236,306
279,411	Extra Mural		363,816
<u>13,531,286</u>	<u>3,131,703</u> Central Expenses		<u>3,981,710</u>
370,717			607,960
37,370	<u>LESS:</u> Provisions & Non-Recurent Expenditure:		370,665
	Revotes		229,061
	Triennial Equalisation Fund		416,604
	Local Costs - Canadian Aid Programme		<u>225,000</u>
291,347	Net Balance 1973/74 - Deficit		(262,636)
<u>(441,390)</u>	<u>LESS:</u> Deficit brought forward		<u>(150,043)</u>
<u>(150,043)</u>	Accumulated Deficit at 31/7/74		<u>(412,739)</u>

UNIVERSITY OF THE WEST INDIES
BALANCE SHEET AS AT JULY 31, 1974
 (In Jamaican Dollars)
SOURCE OF FUNDS

Page 2 of 2
 UNCLASSIFIED
ANNEX IV/Exhibit I

<u>1972/73</u>	<u>GRANTS AND FUNDS</u>	<u>1973/74</u>
J\$		J\$
30,203,918	C.D. & W. & Other Capital Grants including donations	32,686,287
242,349	Endowment Funds	237,837
1,761,436	Appeal Funds:	1,746,238
	University	1,435,271
	Hospital	<u>310,967</u>
3,613,859	Special Project Funds	3,493,317
2,786,797	Reserves and Provisions	2,923,202
	<u>INCOME & EXPENDITURE ACCOUNTS</u>	
(84,245)	Special Accounts:	(424,791)
	Appeal Income	415,953
	Halls Income (Deficit)	(771,708)
	University Field Station (Deficit)	<u>(69,036)</u>
	General Account	
(150,043)	Net Deficit at 31/7/74	<u>(412,739)</u>
<u>38,374,061</u>	<u>Total Grants, Reserves & Other Funds</u>	<u>40,249,351</u>

EMPLOYMENT OF FUNDS

<u>2,504,044</u>	Net Current Assets:		3,460,162
167,392	Stores	333,649	
1,562,547	Accounts Receivable	1,794,345	
932,212	Advances & Work in Progress	346,545	
<u>1,006,115</u>	Cash & Bank Balances	<u>3,979,907</u>	
3,668,766		6,454,446	
<u>1,164,722</u>	<u>LESS: CURRENT LIABILITIES</u>	<u>2,994,284</u>	
8,075,092	<u>INVESTMENTS</u>		7,935,875
	Appeal Funds	1,171,267	
	Endowment Funds	237,837	
	Special Projects & Other Funds	5,483,504	
	Capital Funds	<u>1,043,267</u>	
<u>26,994,925</u>	<u>CAPITAL EXPENDITURE</u>		<u>28,853,314</u>
<u>38,374,061</u>	<u>TOTAL ASSETS</u>		<u>40,249,351</u>

SECTORAL SHARES OF GROSS DOMESTIC PRODUCT AT FACTOR COST CARIFTA COUNTRIES, 1970

	Antigua	Barbados	Belize	Dominica	Grenada	Guyana	Jamaica	Montserrat	St. Kitts Nevis Anguilla	St. Lucia	St. Vincent	Trinidad & Tobago
Export Agriculture	) 3.0	9.9	) 48.4	18.5	19.5	) 19.6	2.3	0.7	23.0	16.0	12.9	) 7.6
Domestic Agriculture	)	4.8	)	13.9	13.1	)	5.8	15.0	6.0	12.1))
Mining & Quarrying	)	10.1	)	)	)	19.3	15.2	)	)	)	)	20.4
Manufacturing	)	2.8	) 2.4	) 8.1	) 3.3	12.4	13.6	) 1.6	) 1.9	) 3.6	) 3.8	17.2
Construction & Engineering	23.4	10.1	12.3	9.5	7.7	8.0	11.7	18.1	8.8	19.2	10.2	4.4
Public Utilities	2.9	7.6					1.5	1.6		2.3	2.5	5.8
Distribution	14.2	26.0	9.0	7.2	14.0	11.6	14.2	15.5	10.8	16.4	16.1	18.5
Transport & Communication	4.0	15.6	5.6	3.8	3.6	6.0	7.2	1.6	2.8	33.1	3.2	
Public Administration	13.2	4.1	10.1	19.0	16.0	13.4	8.4	22.1	19.8	17.8	17.7	11.1
Ownership of Dwellings	6.4		3.5	11.6	7.7	2.3	2.8	7.3	5.4	8.8	9.2	3.7
Financial Institutions	4.6	)	)	2.3	4.3	3.5	5.8	5.7	4.2	3.6	4.6	3.8
Hotels, Restaurants etc.	19.2	) 11.8	) 4.8	1.3	5.8	) 3.9	) 11.5	6.0	8.5	3.3	3.5	7.5
Miscellaneous Services & Professions	6.2	)	)	4.3	5.1	)	)	4.7	5.0	3.8	4.3	
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: The Caribbean Community "A Guide", Caribbean Community Secretariat, 1973

COMPARATIVE DATA ON SELECTED CARIBBEAN COUNTRIES

	Area sq. km.	Population mid-1971 '000	Population density per. sq.km.	GNP at market prices 1971 \$US xM	GNP per capita 1971 \$US	Population growth rate 1965-71	GNP per capita growth rate 1965 - 71
Jamaica	10,962	1,901	173	1,370	720	1.3	3.5
Barbados	430	244	567	160	670	0.5	4.9
Trinidad and Tobago	5,128	1,030	201	970	940	0.9	2.5
Guyana	214,969	732	3	300	390	2.5	3.3
<u>Eastern Caribbean Group</u>							
St. Lucia	616	114	185	40	370	2.4	3.6
St. Vincent	388	98	253	20	230	1.7	1.9
Grenada	344	110	320	40	330	2.5	1.7
Dominica	751	78	104	20	310	2.6	0.6
Antigua	442	65	147	30	410	1.6	4.2
St. Kitts/Nevis/Anguilla	357	62	174	20	340	0.2	3.6
Montserrat							

Source: UNESCO 11/74

ANNEX IV - Table 1B

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IMPORTATION OF FOODSTUFFS
(U.S. \$millions)

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ANNEX IV - Table 1C

	1960	1968	1969	1970	1971	1972	1973
Belize	3.8			8.5			
Jamaica	41	70	72	83	92	113	
Trinidad and Tobago	41	44	53	52	57	69 ^P	80 ^P

Source: AID Economic Data Book

P - Preliminary

AGRICULTURAL PRODUCTION

A. Indexes of Total Agricultural Production (1961/65 = 100)

Country (Total Prod.)	1960	1965	1967	1968	1969	1970	1971	1972	1973	1974
Jamaica	95	107	99	95	89	86	89	90	85	89
Trinidad-Tobago	101	104	97	107	112	97	91	85	89	102
<u>B. Per Capita Prod.</u>										
Jamaica	100	102	94	89	83	78	79	79	73	75
Trinidad-Tobago	112	99	89	97	107	87	85	93	78	81

Source: AID Economic Data Book

WORKING POPULATION* OVER 14 BY LEVEL OF EDUCATION

		Total	None	Sch. Leave	GCE(O) 1 or 2	GCE(O) 3 or 4	SC,GCE (O(5, A)1	GCE(A) 2 or more	Dip. No.	Degree %	Other	N/S
Barbados	M	50413	41896	2573	838	1044	1549	318	539	752	421	483
	F	32074	25746	1632	839	1083	1350	147	362	198	516	201
	T	82487	67642	4205	1677	2127	2899	465	901	950	1.2	937	684
Belize	M	25192	19957	3417	295	184	248	45	281	286	227	252
	F	5684	3352	1378	250	147	107	16	160	86	186	2
	T	30882	23309	4795	545	331	355	61	441	372	1.2	413	254
Br.Vir. Is.	M	2808	2056	276	26	29	71	18	107	107	100	18
	F	1007	578	184	33	33	41	5	64	17	48	4
	T	3815	2634	460	59	62	112	23	171	124	3.2	148	22
Cayman Is.	M	2200	1706	88	18	16	64	17	53	71	160	27
	F	1186	799	88	16	17	34	4	39	19	155	15
	T	3386	2505	176	34	33	98	21	92	90	2.7	315	42
Dominica	M	12233	10900	688	68	80	157	17	150	109	120	4
	F	7159	5846	711	94	99	118	13	73	40	165	3
	T	19452	16746	1399	162	179	275	30	223	149	0.8	285	4
Grenada	M	16086	14571	261	144	184	309	59	136	152	142	121
	F	9715	8507	273	178	191	271	19	38	35	141	62
	T	25801	23078	434	322	375	580	78	174	187	0.7	290	183
Jamaica	M	324534	293583	3508	124	2264	5262	1028	2640	3658	6429	2838
	F	153473	122886	2181	37	2630	5081	705	2745	1456	6950	1242
	T	478007								5114	1.1	

* Persons who worked for most of the twelve months preceding the Census in the production of goods and services within the country.

Montserrat	M	2409	1959	206	20	18	45	9	41	49	18	4	
	F	1269	929	161	26	23	30	7	41	19	15	16	
	T	3678	2888	367	46	41	75	16	82	68	1.8	33	60
St. Kitts/ Nevis	M	7657	6382	457	94	82	122	28	120	96	254	18	
	F	4598	3565	379	105	100	122	13	83	24	198	8	
	T	12225	9947	836	199	182	244	41	203	120	1.0	452	26
St. Lucia	M	16975	14707	1224	97	122	193	35	162	180	231	24	
	F	9095	7051	1297	99	120	163	21	68	45	222	9	
	T	26070	21758	2521	196	242	356	56	230	225	0.9	453	33
St. Vincent	M	13509	12077	464	150	157	236	17	158	104	81	65	
	F	7266	5159	478	127	125	170	19	78	25	0.6	58	27
	T	20775	18236	942	277	282	406	36	236	129	0.6	139	92
Trinidad & Tobago	M	167915	137538	6687	1587	2053	7629	1197	2404	2292	3782	1846	
	F	55366	38762	2715	993	1421	5652	630	1428	587	2627	551	
	T	222381	176300	9402	2570	3474	13281	1827	3832	2879	1.3	6409	2397
Turks & Caicos Is.	M	966	810	39	5	55	13	4	42	32	13	3	
	F	492	380	41	17	6	5	3	23	2	13	2	
	T	1458	1190	80	22	11	18	7	65	34	2.3	26	5
All Terri- tories	M												
	F												
	C	930,417							10441	1.1			

Note: Antigua and Banamas not included.
Source: 1970 Census

Placement of U.W.I. Graduates 1973 and 1974

		Teaching	Govt. Service	Private Sector	Postgrad. or U.W.I. Staff	Total Employed	Left Region or Unemployed	No Available Information	Total Number Graduated
Mona Campus	1972 <u>a/</u>	87	70	63	34	260	6 <u>c/</u>	52	312
	1973 <u>a/</u>	70	32	21	9	132	2	313	447
	1974 <u>a/</u>	108	66	30	34	238	3	80	321
St. Augustine Campus	1973	81	44	37	15	177(+14) ^{b/}		166	357
	1974	56	47	35	14	152	5	204	361

a/ U.W.I. Jamaican graduates only.

b/ Type of employment not known.

c/ Left for either U.S., Canada, Bahamas, Guyana or Trinidad and Tobago.

Source: U.W.I. statistics

Unemployment by Educational Qualifications, Dec. 1973

Trinidad and Tobago

	<u>Labour Force</u>	<u>Total Unemployed</u>	<u>Unemployed and Seeking Work</u>	
			<u>No.</u>	<u>% of A₁</u>
No Education	15,000	1,000	400	3
Kindergarten	6,500	800	500	8
Standard 1-2	14,900	1,400	800	6
Standard 3-5	80,300	12,400	7,900	10
Standard 6-7	168,600	31,400	19,600	12
Secondary (GCE not obtained)	68,400	16,900	11,300	18
University	5,100	200	100	2
Educated overseas	700	-	-	-
Others	2,500	100	-	-
Not Stated	<u>2,600</u>	<u>200</u>	<u>200</u>	<u>6</u>
Totals	389,000	65,900	41,700	11

Source: Labour Force, Publication No. 24, Central Statistical Office;
Government of Trinidad and Tobago.

WEST INDIAN STUDENTS STUDYING AT UNIVERSITIES IN
U.S.A., CANADA, AND U.K. - 1970/71

		Bahamas	Barbados	Honduras	Br. Cayman, Turks & Caicos Is.	Jamaica	Leeward Is. (incl. BVI)	Trinidad	Windward Is. (excl. Barbados)	Total Contributing Territories	Guyana	Contributing Territories + Guyana
<u>UNITED STATES OF AMERICA¹</u>												
UNDERGRAD	DEGREE	370(1)	77(2)	92(2)	10	1100(20)	181	664(9)	124(1)	2,618(35)	650(3)	3,268(38)
	NON-DEGREE	6	9	6		71(1)	4	34		134(1)	38	172(1)
	TOTAL	376(1)	86(2)	98(2)	10	1171(21)	185	702(9)	124(1)	2,752(36)	688(3)	3,440(39)
POSTGRAD.	M.Sc.	17	37(1)	12		164(3)	14	78(1)	9	331(5)	70	401(5)
	Ph.D.	5	6	1		60(1)	4	34	6	116(1)	23	139(1)
	Other ²	10	13	1		162(3)	15	130(2)	14	345(5)	60	405(5)
	TOTAL	32(1)	56(3)	14(2)		386(28)	33	242(12)	29(1)	792(47)	153(3)	945(50)
TOTAL		408	142	112	10	1557	218	944	153	3,544	841	4,385
<u>CANADA</u>												
UNDERGRAD.		78	61	23		210	54	536	62	1,024	210	1,234
POSTGRAD.		6	21	1		84	9	145	10	276	44	320
TOTAL		84	82	24		294	63	681	72	1,300	254	1,554
<u>UNITED KINGDOM</u>												
UNDERGRAD.		17	29	9	1	55	12	64	10	197	71	268
POSTGRAD.		11	20	6	1	31	11	35	10	125	27	152
TOTAL		28	49	15	2	86	23	99	20	322	98	420
<u>TOTAL* - U.S.A., CANADA, AND U.K.</u>												
UNDERGRAD.		471	176	130	11	1436	251	1302	196	3,973	969	4,942
POSTGRAD.		49	97	21	1	501	53	422	49	1,193	224	1,417
TOTAL		520	273	151	12	1937	304	1724	245	5,166	1193	6,359

1. Numbers in brackets refer to those students who were not identified by type, but were proportionately allocated; these numbers are included in the preceding figures.

2. Includes postgraduates who were not reading for a degree, or whose degrees were unspecified, or who were seeking professional qualification.

Sources: (a) Open Doors - 1971; (b) Statistics Canada (unpublished); (c) Commonwealth Universities Yearbook 1972, Appendix 11.

Degree Performance3-Year Courses - 1970 Admissions

Degree	No. Admtd	Dropouts	Graduated In		Total	%	Ongoing
			3 Yrs.	4 Yrs.			
			<u>MONA</u>				
Arts & G.S.	115	8	69 (7)	17 (1)	86	74.8	21
Social Scs.	72	-	50 (10)	3	53	73.6	19
Law*	24	1	21 (8)	2	23	96.0	-
Natural Scst	80	8	43 (12)	11 (1)	54	67.5	18
			<u>ST. AUGUSTINE</u>				
Arts & G.S.	78	14	44 (11)	16	60	76.9	4
Social Scs.	43	6	36 (8)		36	83.7	1
Law*	18	2	15 (6)	1	16	88.9	
Natural Scst	53	9	31 (12)	5	36	67.9	8
Agriculture	42	9	22 (4)	9 (2)	31	73.8	2
Engineering	70	7	50 (15)	11 (2)	61	87.1	2
			<u>CAVE HILL</u>				
Arts & G.S.	41	3	22	9	31	75.6	7
Law	34	4	29	1	30	88.2	-
Natural Scst	9	-	2	1	3	33.3	6
Total	679	71	439	86	520	76.6	88

4-Year Courses - 1969 Admissions

Degree	No. Admtd	Dropouts	Graduated In		Total	%	Ongoing
			3 Yrs.	4 Yrs.			
			<u>MONA</u>				
Arts & G.S.(Evg.) ⁺⁺	63	23	28 (3)	5	33	52.4	7
Natural Sc.(Prelim) [#]	86	31	38 (2)	9	47	54.7	8
			<u>ST. AUGUSTINE</u>				
Arts & G.S.(Evg.) ⁺⁺	107	46	36	12 (2)	48	44.9	13
Natural Sc.(Prelim)	46	22	7	9	16	34.8	8
			<u>CAVE HILL</u>				
Arts & G.S.(Evg.) ⁺⁺	49	18	14 (1)	7	21	42.9	10
Natural Sc.(Prelim)	28	17	9 (1)	-	9	34.6	2
Total	379	157	132	42	174		48

5-Year Courses - 1968 Admissions

Degree	No. Admtd	Dropouts	5 Yrs.	5½ Yrs.	6 Yrs.	Total	%	on-going
Medicine	109	16	67	11	11	89	82.0	4

Notes: @ Numbers in brackets refer to those obtaining first class or upper second Honours.

* Students spend only Year 1 at Mona and St. Augustine and transfer to Cave Hill.

These include students who transferred from Natural Sciences to Year 1 Medicine.

+ Admissions and Degree passes for these students include those obtained through transfers to Engineering and Agriculture - other 3-year courses - but not Medicine.

++ Degree passes include those in Social Sciences and possibly Law in the case of transfers.

Note - students in B.Ed. not included as special entry requirements.

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ANNEX IV - Table 6Student Loan Funds from the
Caribbean Development Bank

		(U.S.\$)
	<u>Obligated</u>	<u>Disbursed</u>
Antigua	\$ 50,000	\$ 5,000
Dominica	100,000	24,309
Grenada	100,000	5,000
Belize	120,000	-
St. Kitts	100,000	6,319
St. Lucia	100,000	17,567
Br. Virgin Is.	100,000	28,053
St. Vincent	100,000	70,803
Montserrat	50,000	-
Cayman Is.	60,000	-
Totals	<u>\$880,000</u>	<u>\$157,051</u>

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes: (A-1)</p> <p>GOAL -Improvement in quality of life within the rural areas of the Caribbean Region</p> <p>SUB-GOAL - To strenghten regional and national development activities aimed at improving quality of life in the region.</p>	<p>Measures of Goal Achievement: (A-2)</p> <ul style="list-style-type: none"> - research results are being applied in the territories - increased proportion of UWI graduates employed in civil service positions relating to Development Administration. - increase in the number of grants from assistance agencies and foundations directed at improvement of rural life. - Territories in the region increasingly regard the UWI as a key element to development in the region 	<p>(A-3)</p> <ul style="list-style-type: none"> - reports from various departments of UWI - Government statistics - UWI follow-up survey of graduates <p style="text-align: center;">UWI Planning Committee</p>	<p>Assumptions necessary for purpose to contribute to achievement of sub-goal:</p> <ul style="list-style-type: none"> - National governments emphasize programs, policies and incentives aimed at development. - LDC students financed by scholarship program will return to home territory and be employed in development administration activities.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose: (B-1)</p> <p>expand and improve UWI development oriented programs in the following categories:</p> <ol style="list-style-type: none"> 1. training 2. research 3. outreach 	<p>Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)</p> <ul style="list-style-type: none"> - enroll 500 students in new development related courses - initiate approximately 40% research projects directly affecting LDC territories - conduct 8 activities in less developed territories related to local development plans - expand the Extra-Mural program to reach 9,000 out-of-school adults - The MDDC is actively engaged in identification of development problems and is instrumental in focusing University resources on such problems 	<p>(B-3)</p> <ul style="list-style-type: none"> - UWI records including: - Department reports - University Awards committee - University publications - Institute of Social and Economic Research - Annual report of Extra-Mural Department - Minutes of meetings of Multi-Disciplinary Development Committee 	<p>Assumptions necessary for Outputs to Produce Purpose:</p> <ul style="list-style-type: none"> - UWI will continue to operate to operate as a regional institution - UWI will continue to emphasize development activities - UWI (through the Multi-Disciplinary Development Committee) will be able to improve linkages between UWI and national governments and other regional institutions

**PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK**

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Outputs: (C-1)	Magnitude of Outputs: (C-2)	C-3:	Assumptions necessary for inputs to produce outputs:
- Increased professional staff	- Increase in faculty from 545 in 1975 to 615 in 1978	- University appointments committee	- Inflation will not exceed the rate projected in the financial plan
- Increased physical facilities	- 30,800 sq ft Agriculture 25,700 " " Natl Sci	- physical inspection and report of A & E	- UWI will receive sufficient funds from contributing territories to finance the required additional staff and other recurrent costs
- New and revised curriculum oriented toward development	9,000 " " AGGS 38,000 " " Supporting Services	- UWI course catalogue	
- Staff Development	- 20 additional development related courses offered.	- minutes of meetings of Multi-Disciplinary Development Committee	- UWI will be able to recruit competent staff
- Multi-Disciplinary approach to development related activities	- 41 MM of training completed in selected areas by 1978	- Agriculture Development reports	
- Expansion and improvement of research activities directed at solving development problems	- Multi-disciplinary Development Committee established and in operation	- UWI semi-annual progress reporting on project outputs	
- Increase in number of graduates trained in areas related to development administration	- 10 Multi-Disciplinary teams serving outreach needs with NARI	- Annual program review	
	- 75 additional LDC students as a result of scholarship program.		

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PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEAS. OF VERIFICATION
Project Inputs: (D-1)	Implementation Target (Type and Quantity)	(D-3)
<u>AID</u>	<u>AID</u>	
Loan Financing for:	<u>CAPITAL INPUTS</u> (Not including Inflation & Contingency)	- UWI Annual audited statements
- Buildings	-Agriculture \$2,015,000	- UWI Monthly project financial reports
- Equipment/Furnishings	-Natural Science 1,613,000	- AID Controller's records
- Technical Assistance/ Training	-Arts & General Studies 433,000	- Minutes of UWI Committee meetings
- LDC Scholarship Program	-Supporting Services 1,805,000	
<u>UWI</u>	<u>NON-CAPITAL INPUTS</u>	
- Buildings	-Technical Assistance Training 200,000	
- Recurring expenditures for staff and other operating expenses	-LDC Scholarship Program 500,000	
- Administrative actions to establish Multi-Disciplinary Development Committee	<u>UWI CAPITAL INPUTS</u>	
	-Arts & General Studies 305,000	
	<u>NON-CAPITAL INPUTS</u>	
	-Agriculture 736,000	
	-Natural Science 1,313,000	
	-Arts & General Studies 580,000	
	-Supporting serv. 1,062,000	
	-LDC Scholarship Program 500,000	

ANNEX V

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