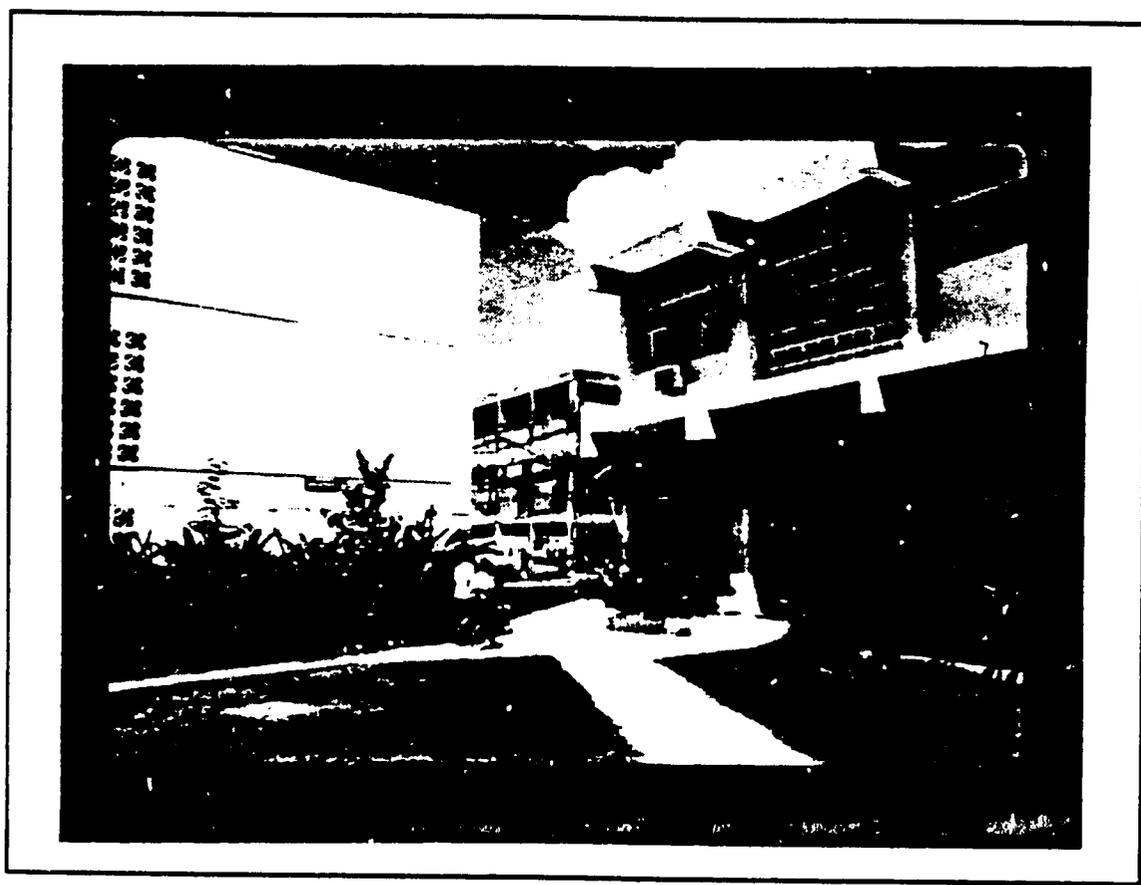


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# **The College of Arts, Science and Technology** **An Assessment of Capabilities**



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## Project Identification Data Sheet

1. Country: Jamaica
2. Project Title: CAST Building Department Institutional Support and Training Project
3. Project Number: 532-0117
4. Project Dates:
  - a. First Project Agreement: August 30, 1985
  - b. Final Obligation Date: FY 1985
  - c. Most recent Project Assistance Completion Date: September 30, 1989.
5. Project Funding:

a. A.I.D. Bilateral Funding (grant)	US\$ 350,000
b. Other Major Donors	US\$ —
c. Host Country Counterpart Funds	US\$ 117,000
Total	US\$ 467,000
6. Mode of Implementation:  
Various host country and A.I.D. direct Contractors.
7. Project designers: U.S.A.I.D./ Jamaica and the College of Arts, Sciences and Technology.
8. Responsible Mission Officials:
  - a. Mission Director(s): Bill Joslin
  - b. Project Director(s): Jack Hjelt/ Carol Brown
9. Previous Evaluation(s): None.

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## Executive Summary

In September, 1989, the U.S.A.I.D. Mission in Jamaica solicited proposals for an assessment of the current and potential capabilities of Jamaica's College of Arts, Science and Technology. The Mission selected *Community Consulting International* of Washington, D.C. to serve as the international consultant, working with Dr. Errol Miller, Professor of Teacher Education at the *University of the West Indies*. This evaluation, entitled **An Evaluation of A.I.D.'s Urban Sector Technical Assistance Project and an Assessment of the Current and Potential Capability of the College of Arts, Science and Technology**, incorporates the work of Stephen Silcox (CCI) and Errol Miller (UWI), and includes an evaluation of A.I.D.'s Urban Sector Technical Assistance Project [Number 532-0117]. Messrs. Silcox and Miller conducted the evaluation in Jamaica in September and October. This draft includes reactions to draft conclusions presented in the field.

The U.S.A.I.D. Mission in Jamaica has provided support in recent years for the College of Arts, Science and Technology, particularly to develop staff, provide in-service training, and support commodities purchase to enhance Jamaican capacity to strengthen the capacity of urban institutions to plan and manage urban growth. This was to be accomplished by increasing the supply of trained manpower for the construction industry and professions related to urban development. Problems to be addressed by the project included: staff recruitment, retention and development, insufficient equipment and inadequate instructional materials. The activity of addressing these constraints was specifically supported by a \$350,000 project with CAST begun in August, 1985 and ending September 30, 1989.

The purpose of the evaluation is two-fold: (1) to evaluate the Urban Sector Technical Assistance Project upon its completion (9/30/89); and (2) to assess the overall capability of CAST in order to determine what assistance could be given to further improve its ability to provide the types and quality of professionals needed at this time. The evaluation was conducted by a team consisting of a U.S. urban development professional and a Jamaica educational expert. This team collected data, interviewed CAST staff and participants, U.S.A.I.D. officials, Employers of CAST graduates and officials from the Ministry of Education and Labor & Labor Research Center.

CAST was established by the Government of Jamaica in March, 1958, as Jamaica's post-secondary technical education institution. Since 1986 CAST has been governed by a Council of 15 members appointed by the Minister of Education. The College has seven departments [Commerce, Engineering, Building, Institutional Management, Computing, Laboratory Science and Teacher Training] and a number of college-wide service centers [Library, Entrepreneurial Center, Academic Staff Union and the Student Association]. The departments provide full-time, part-time, summer, night and modular courses. Programs range from 2 to 6 years, with degrees at the Masters Level and assorted certificates. The largest department is Commerce, with

2,169 students; the smallest is the Computer Science Department with 308 students currently. Teaching staff consist of full-time and part-time instructors. Many courses are designed to meet specific needs of key institutions, such as the Jamaica Institute of Bankers, Air Jamaica, Alcan, Bureau of Standards, Caribbean Castings and Engineering, Ltd, and others.

The Entrepreneurial Extension Center was established with Canadian aid funds in 1987 to assist in marketing viable student projects and helping graduates to start their own small enterprises. Approximately 240 persons have taken modular courses from the Center. The Library building covers 17,000 square feet and provides seating for 300 persons. The stock includes 37,000 volumes, 200 periodical titles, in addition to a computer-based learning facility and a Media Lab.

The CAST Staff Union (CASU) represents the College's academic staff. The Student Association represents the views and interests of the students. The CAST Educational Foundation was incorporated in 1988 and represents a private sector attempt to provide the College with endowment funds in light of declining financial support from the government. A full-time manager is scheduled to begin in November, 1989.

*Major strengths of CAST include:*

- Responding to national and regional manpower needs, particularly in response to direct contact from professional and industry groups.
- Providing technical education directly related to the world of work for mid-level management and technicians for both the private and public sectors.
- Offering innovative and flexible solutions to training needs, both to graduates of secondary schools and to professionals in the field.
- Providing an alternative to the University of the West Indies and foreign higher educational institutions as a route to higher professional accreditation in certain technical and applied science areas.
- Developing new courses and awards, based on a philosophy of clear articulation of curricula and standards, to provide opportunities for enhancement of professional growth.
- Utilizing aid from different sources to strengthen and improve CAST's overall capacity to meet Jamaica's manpower training needs.
- Maximizing the use of all its resources, human and material, to present courses twelve months per year and twelve hours per day.

*Weaknesses include:*

- Staff recruitment and retention
- Maintaining programs in certain specific areas which, due to fiscal, staffing and other restraints, limit CAST's ability to continue
- Research and Development (limitations on this due to overworked staff)
- Space limitations and shortages of modern equipment
- Library volumes, professional journals and other resource materials

CAST has made good use of aid resources, particularly in: Curriculum development using foreign and local consultants; building programs to expand classroom and special purpose space; in-service training programs; acquisition and use of equipment; staff development training programs (particularly long-term training); and scholarships for awards and courses of study at CAST.

Future plans of CAST include: expansion of certificate, diploma and degree programs; increased activity of the CAST Foundation to raise funds and generate income for scholarships, college programs, infrastructure, staff advancement and programs; increased and improved facilities, infrastructure and equipment; expanded regional role; increased research and development activities; further development of entrepreneur-oriented courses and support activities; and increased linkages with industry, commerce and professional groups as well as with other educational and training institutions.

There are several areas of critical need at CAST. They include the need:

1. To augment existing methods (i.e., scholarships, training programs, consultancies and housing programs) used to recruit and retain qualified staff as well as to develop new methods or avenues for the same purpose.
2. To increase classroom space and to modernize equipment.
3. To provide greater student support, e.g., through grants and housing, particularly for foreign students.
4. To expand outreach programs, such as those already developed for Community Colleges and Spanish Town, in order to meet the needs of students outside metropolitan Kingston.

**End of Project Status:** The project was implemented within the planned period. Outputs of the project included: four seminars organized and sponsored by CAST (four weeks each); attendance of Building Department

staff at seminars conducted by MIT (Massachusetts), Commonwealth Association of Surveyors and Land Economists (Barbados), Association of Societies of Architects, and a regional housing conference (Barbados). Two graduates received long-term degree training and both have positions on the staff of the Building Department; establishment of an in-service training program for building inspectors, with 64 persons attending the Seminars over 4 years; a summer institute was held in each of the four years of the project and will be continued by the Building Department; six technical manuals were produced and placed on sale to the construction industry and the CAST students; the Building Department purchased equipment and established the materials and structures testing laboratory; and the School of Architecture was established as the first and only facility in the Caribbean for the training of architects.

The lessons to be learned from U.S.A.I.D. assistance to CAST are summarized as follow:

- 1) CAST has the capacity to effectively implement projects within the planned time-frame. Its methods are efficient, avoid bureaucracy, and are flexible.
- 2) CAST has a clear vision of where it is headed, with good understanding of how to use foreign donor assistance to its best advantage in meeting its own goals. Donor agencies should understand CAST's agenda.
- 3) Not all activities proposed by Donors and the Administration are perceived as in the interest of the staff and Council. Consequently, project planning could benefit from a wider involvement of CAST characters.
- 4) External assistance can help institutions critical need for long-term development to continue to grow and develop during periods of economic recession. Fundraising efforts such as the Foundation can assist CAST in not becoming dependent on external sources for continue growth and development.
- 5) Its areas of operation and its quality of staff, equipment and operational strategies provide tremendous potential to earn additional revenue from outside sources.
- 6) The provision of staff training programs appears to be an effective strategy for assisting in staff recruitment. Staff offered long-term training generally return to take up their posts after their training is completed.
- 7) A.I.D. funding conditions can reduce the intended effectiveness of staff development programs proposed for CAST, e.g. the staff at CAST is not totally Jamaican.

*Recommendations:*

- Utilize CAST for training in additional areas of expertise. With some support in the development of curriculum, CAST can offer a wide variety of courses.
- Support professional development of CAST staff. Scholarships and professional training will aid in the recruitment and retention of personnel.
- Link support for new construction and equipment to the provision of new courses and income generating activities.
- Provide technical assistance to the CAST Foundation to strengthen the economic base of the College. Fund-raising techniques and seminars would be particularly helpful for future full-time staff.
- Offer consulting opportunities for CAST staff with appropriate U.S.A.I.D. projects. Once organizational and legal issues are resolved and a professional services unit is established, CAST can provide large scale consulting services.
- Develop additional scholarships for local and regional students to meet specific industry needs and project goals. Scholarships for low-income students can encourage the development of small scale enterprise.

## **Background**

The College of Arts, Science and Technology (CAST) is Jamaica's center for post-secondary technical education in commerce, engineering, building, institutional management, computing, laboratory science and teacher training.

Over the years, U.S.A.I.D. Jamaica has supported CAST in a number of areas, both directly and indirectly. This institutional assessment of CAST comes at the end of an *Urban Sector Technical Assistance Project* [No. 532-0117] which has been implemented over the past four years. This project provided a grant of \$350,000 to support staff development, in-service training and commodities purchased to enhance CAST capability to provide trained manpower for the construction industry and professions related to urban development.

In conjunction with the ending of this project, the U.S.A.I.D. Mission for Jamaica considered it to be an appropriate time to look at CAST's overall capabilities to determine what, if any, further assistance might be given to CAST in order to improve its capacity to respond to Jamaica's current trained manpower needs. It was also desired that a multi-sectoral approach be used in analyzing CAST, since under the Mission's *Human Resource Development Strategy*, assistance to tertiary institutions will be determined on a sectoral basis. At the same time, U.S.A.I.D./Jamaica wanted to assess the effectiveness and sustainability of the programs developed under Project

532-0117 and to relate lessons learned from that project to directions of possible future support of CAST.

## **Scope of Work**

The **objective** of this consultancy was to assess CAST's current and potential capabilities as a training institution and to identify what assistance, if any, U.S.A.I.D. could provide to strengthen that capability. Within the context of this overall assessment, the Mission also wished to assess the effectiveness and sustainability of the *Urban Sector Technical Assistance Project*.

To accomplish this task, two consultants were retained by the Mission to perform this assessment, namely, Dr. Errol L. Miller, Professor of Teacher Education at the *University of the West Indies* in Jamaica and Stephen C. Silcox, an Associate Consultant for *Community Consulting International* in Washington, D. C.

These consultants spent 12 days in Jamaica in late September and early October 1989 reviewing relevant background documents and interviewing CAST and U.S.A.I.D. officials as well as other persons in the public and private sector who could provide insight into CAST's role in Jamaican higher education. Before Mr. Silcox returned to Washington, D. C., both consultants met with the administration of CAST and with U.S.A.I.D. officials to discuss the consultants' preliminary findings and to receive comments regarding the perceived validity of these findings.

The output of this consultancy is a report, jointly written by the consultants which should provide the Mission with a better understanding of CAST's role in the Jamaican educational community. This report deals with this

institution's strengths and weaknesses, major constraints in achieving its objectives, examples of how CAST has utilized U.S.A.I.D. and other foreign donor assistance effectively, lessons learned from the implementation of Project 532-0117 and other assistance provided by U.S.A.I.D., potential programmatic areas where U.S.A.I.D. might consider future support for CAST, and types of support which should prove most effective.

U.S.A.I.D. officials pointed out that no funds have been identified as currently available for CAST. However, if programmatic areas were identified in which CAST and U.S.A.I.D. interests coincided, there might be a possibility of funding specific elements to allow CAST to provide services relative to specific projects in various sectors of the Mission portfolio.

The first draft report, incorporating sections written by both consultants, was submitted to the Mission on November 5, 1989. This final report incorporates response from comments by U.S.A.I.D..

## History of CAST

The College of Arts, Science and Technology was established by the Government of Jamaica in March, 1958. The idea of the College had first arisen from recommendations made by the *Economic Policy Committee* established by Governor Edward Denham during 1938 in the aftermath of the riots of that year. The original proposal was for the establishment of a Jamaica School of Science which would provide higher scientific education in Jamaica. The Plan for Post-Primary Education, 1946, expanded the idea and proposed an Institute of Arts and Sciences.

The new institution was established as part of reforms of the educational system in 1957. These 1957 reforms rank among the most far reaching attempts to restructure the Jamaican education system. These reforms followed the transfer of education from the control of Colonial administrators to direction by the elected representatives through the newly established Cabinet system of self-government and parliamentary democracy. Specifically this establishment of this new institution was part of the provision made for the promotion of technical education which included the creation of technical high schools which would function as feeder schools to the new College, as the traditional high schools would feed the newly established regional university. The new institution was first named the *Kingston Technical College*, then the *Institute of Technology* and finally in 1959 the *College of Arts, Science and Technology*. CAST has never offered programs in the craft or fine arts fields. So far, its programs have been restricted to the science and technology fields.

## **Governance of CAST**

Like every institution in Jamaica that falls under the Ministry of Education, CAST is governed by the Education Act and the Code of Regulations; its Scheme was established under the Act and the Code.

The College of Arts, Science and Technology Scheme of 1959 was repealed and replaced by the College of Arts, Science and Technology Scheme (Approval) Order of 1986. Under this Scheme, CAST is governed by a Council of 15 members appointed by the Minister of Education who also names the Chairperson. The Scheme specifies that the President and five other persons representing the College community shall be members of the Council, and that the remaining nine shall be comprised of seven persons appointed by the Minister, and one representative each from the Ministry of Education and University of the West Indies.

The Council is the governing authority of the College. It is the employer of all College staff including the President. The Council therefore has the power to hire and fire staff of all categories within the general provisions of the Code of Regulations. The Council is responsible for the financial management of the institution including its accounts, investments, property and other business and is required to make annual audited returns to the Ministry of Education. The Council is empowered to regulate all student matters but must, before doing so, consult with the President. The Council must approve the Curriculum and any additions or changes after consultation with the Academic Board. The same holds true for all Examinations held by the College. In the case of charging fees to students, the Council must

obtain the prior approval of the Minister. The Council has the authority to award degrees, diplomas and certificates.

Each member of the Council is appointed by the Minister for a period not exceeding three years. The Minister has the power to revoke the appointment of any or all Council members at any time.

The Scheme prescribes the establishment of an Academic Board whose function it is to recommend to and advise the Council on all academic matters. This includes all College programs and the curricula and examinations related to them. The President is the Chairperson of the Board whose membership consists of the heads of the main branches of study, not more than five academic staff members approved by the Council, and one representative of the student body.

Both the Council and the Academic Board of the College are functioning as prescribed by the CAST Scheme. Both are served by standing committees which have been set up to monitor and perform critical areas of the work of both bodies. In the opinion of long standing members of the Council, the Council has functioned mainly as the body that approves programs and projects developed by the President and Academic Board. There have been very few instances in which the Council has initiated actions. Rather it has guided, restrained and approved actions proposed by the College community through the appropriate channels. Where programs proposed are outside the provisions of the Government subvention, the Council has given its approval only where the means of financing the ventures are clearly identified and secured through proper agreements. In large measure, the

CAST Council has functioned very much like a Board of Regents of an American College. It has approved the broad directions of the institution as proposed by the professional staff led by its chief executive, the President. The details of both planning and implementation of projects and programs are the responsibility of the academic staff directed by the President.

CAST has been fortunate to have had a long-serving, dynamic and determined President who has worked unceasingly for the development and improvement of the institution. The Council's confidence in the President, coupled with his considerable capabilities, have worked clearly to the advantage of CAST.

## **Description of Current Programs by Departments**

CAST is currently organized into seven subject departments. In addition, there are a number of entities which serve the College as a whole. These include the Library, the Entrepreneurial Center, the CAST Academic Staff Union and the Student Association. A brief description of the current operations of these departments and entities is presented below.

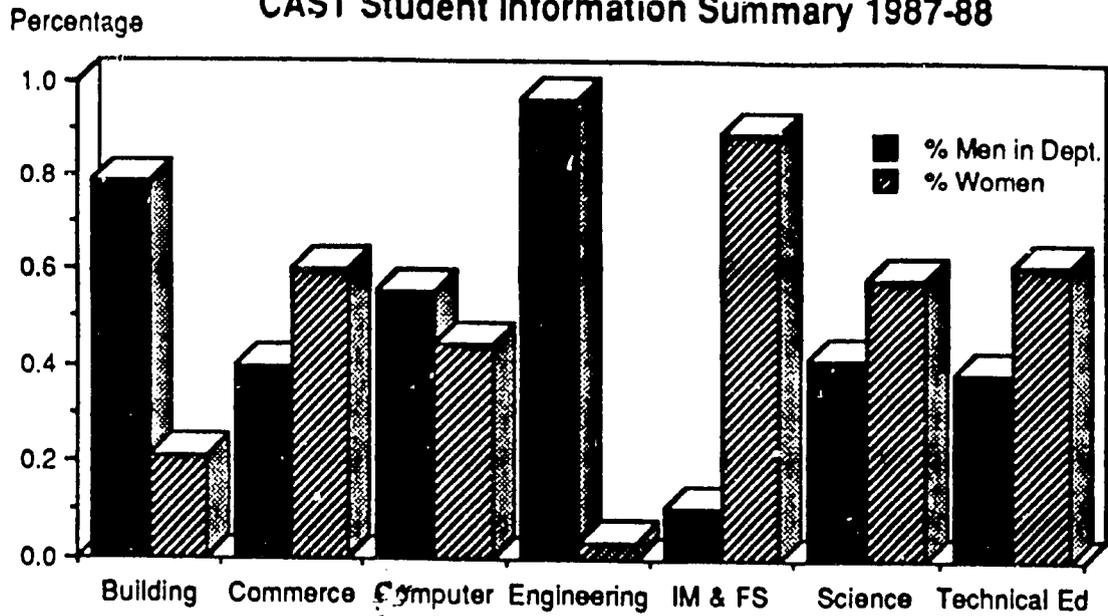
### **Building Department**

The programs offered by the Building Department are in the field of construction, land surveying, land economy and valuation surveying, architectural technology, planning technology and quantity surveying. They are designed to meet the needs of a wide variety of occupations in the construction industry and associated professions. The department offers full-time, part-time and modular courses leading to 2 year certificates and 3 year diplomas as well as a masters degree course in architecture which began in 1988/89. The degrees provided are Masters Degree in Architecture at the end of six years with an interim first degree in Environmental Design after four years. Building Department enrollment for the current year is as follows:

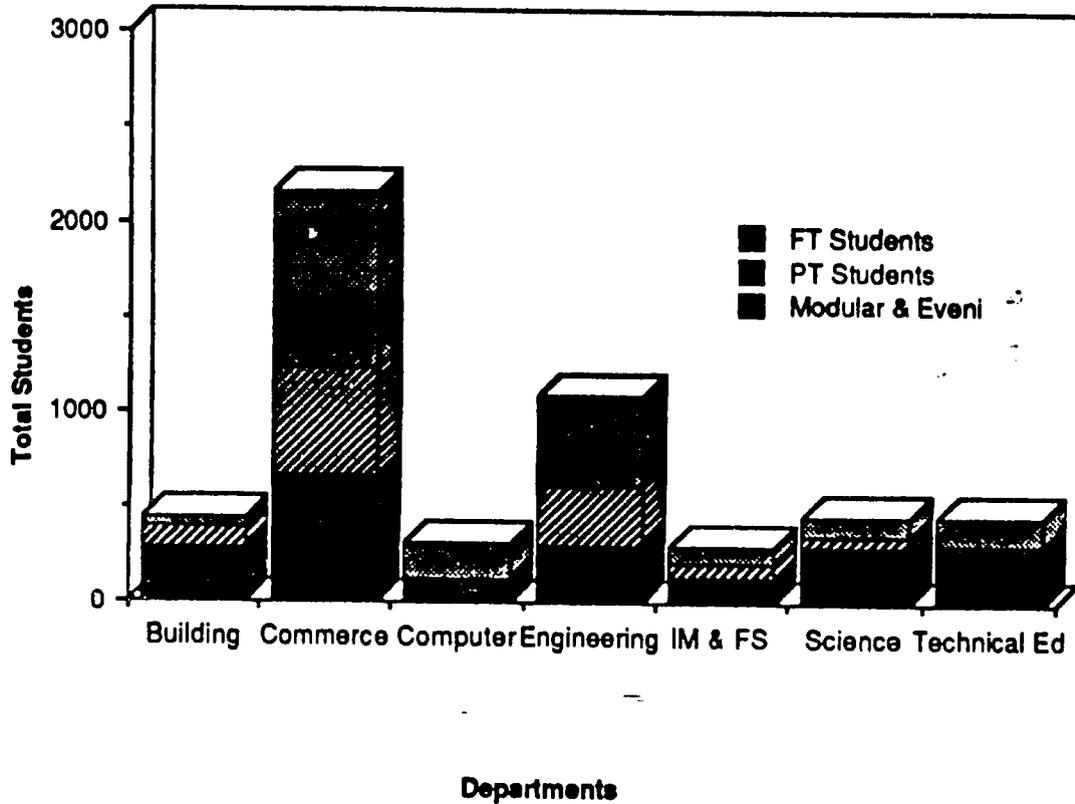
<b>Full-time</b>	<b>280</b>
<b>Part-time</b>	<b>110</b>
<b>Modular</b>	<b>50</b>
<b>Total</b>	<b>440</b>

[Gender disaggregated enrollment and staff data are not available for any department for academic year 1989-1990, but can be found in the Annexes for the academic years 1987-1988 and 1988-89.]

## CAST Student Information Summary 1987-88



## Breakdown of Enrollment at CAST



These two graphs breakdown the student enrollment information for each department of the College of Arts Science and Technology by gender and by part\_time, full time, and evening students.

The department is composed of 17 full-time staff and 20 part-time staff. In addition to their regular teaching duties, some of the staff are providing technical services to the College in the design and construction supervision of new classrooms and other building additions on the CAST campus.

In response to the pressure for physical space in the department, the general construction course was transferred to the community colleges last year and merged with the pre-engineering course. New courses added were a certificate course for estate agents as well as a part-time land economy and valuation course.

The department provides modular courses for industry and government agencies on a regular (e.g., the Jamaican Defense Force), and on an ad hoc basis. The close ties with the professional associations in the construction industry and the recognized quality of education in the department have led to a number of summer courses as well. These include the in-service training course for government building inspectors as well as the Summer Institute which were supported by the U.S.A.I.D. project.

The soils and materials laboratory was opened last year and provides a means not only of training students in testing procedures, but also serves as a means of generating income for the department since both private contractors and government agencies may now use this laboratory rather than the Bureau of Standards. It is claimed that this lab is the best in the country, courtesy of equipment donated by both U.S.A.I.D. and the Canadian International Development Agency (CIDA).

The strengths of the department are seen to be in the areas of developing new courses and programs which are serving the construction industry, and in the quality of its staff. Major weaknesses cited were in staff retention and space limitations.

The department is currently in the process of planning for a new building which would house the department, and be particularly designed for architecture and planning courses. Thirty students were enrolled in the architectural degree program for its first year and it is expected that an additional 30 students will enroll this year. Other new directions include continued efforts to establish a professional services unit and the provision of new modular courses.

The constraints on achieving the above objectives include funding for the new building (although it is anticipated that CIDA may be interested) and the resolution of various legal and organizational issues relative to the establishment of a professional services unit.

Regarding the ability of the Building Department to sponsor and carry out short-term courses especially for shelter and urban development professionals, the following points should be noted:

1. The Building Department does not have the physical facilities to offer such courses during regular terms. Such courses would need to be scheduled during vacation periods, unless the facilities of the Department were augmented.
2. The department and the College have a well known history of providing short-term programs on request from agencies and professional associations. It has developed a participatory mechanism for the planning of courses even outside of its previous experience.

Given this record and infrastructure there is every reason to believe that, if requested, the department could mount short-term training courses for the Caribbean RHUDO.

3. Given the staffing constraints within the department and depending on the size and frequency of the courses proposed, it may be necessary to provide additional resources for both the coordination and teaching of the proposed courses.

### **Commerce Department**

The Commerce Department is responsible for training in the various business disciplines. The department is structured to emphasize the major functional areas of commerce and industry so that persons graduating from the department will be equipped to fill middle management positions.

The department has both diploma and certificate courses. It has 3 full-time courses in banking, business administration and secretarial science. It also has an extensive array of part-time and evening courses. The subject areas for these courses are as follows: accounting; business studies; business administration; industrial management; secretarial studies (both bilingual and legal); chartered secretary; certified professional secretary; marketing; personnel management; supervisory management; and, senior secretarial studies. It is important to note that the Commerce department has gone to great lengths to link its course offerings with professional certification. This has involved consultation with international and local professional associations to develop the proper curriculum for these courses.

In addition, the department contributed 20 short courses to the college's summer course program in the areas of accounts, law, personnel

management, typewriting and secretarial skills, costing, auditing, small business training skills, communication skills supervisory management, investment and industrial training. In-house training programs are also arranged.

The outreach program involves the teaching of courses at the 4 community colleges in Jamaica in the areas of business administration and banking.

The Commerce department has, by far, the largest enrollment in the College with a total of over 2,000 students. The breakdown for the academic year 1988-89 is shown below.

Full-time	660
Part-time	574
Evenings	<u>935</u>
<b>Total</b>	<b>2,169</b>

The staff for the academic year 1987-88 consisted of 22 full-time and 64 part-time lecturers. There has been a problem with a decline in the full-time staff in recent years. Two volunteer lecturers sponsored by the Nigerian Government are currently working at the College.

The department also operates a business services center which was begun in 1986. The center was set up to give secretarial students a chance to work in an office situation where they would have to deal with the public as clients. It also provides a source of income for the department. The center is equipped with 10 computers and a laser printer, and is furnished as an executive office.

Strengths of the department include: the relevance of the subject matter to manpower needs in the commerce and industry sectors; and, the design of courses which meet the needs of both employers and employees, in terms of flexible scheduling of classes and tying coursework to professional certification.

In terms of future plans, the department is currently developing a degree program in banking with the cooperation of the Jamaica Institute of Bankers. It would also like to expand its evening course offerings to satisfy demand and to generate more income in the form of student fees. The shortage of classroom space hampers this effort, however.

The main constraints on the department are the shortage of full-time staff, problems with staff retention, severe classroom and office space limitations and the need to increase and modernize business equipment, particularly computers.

### **Computer Science Department**

The Computer Science Department is the smallest department of the College. It has a staff of seven full-time lecturers and one part-time. Its enrollment is as follows:

<b>Full-time</b>	<b>110</b>
<b>Part-time</b>	<b>8</b>
<b>Evening</b>	<b>190</b>
<b>Total</b>	<b>308</b>

The Computer Science Department currently offers certificate and diploma courses as follows:

1. *Diploma in Computer Studies.* This course is full-time and requires two calendar years. As such, it is sequenced differently from other diploma courses of the College. The students are prepared to be programmers and system analysts.
2. *British Computer Society Examination—Part 1.* This is a two year part-time professional course and requires that students have at least one year's experience in the computer industry.
3. *Certificate in Computer Studies.* This program is offered as an evening program and is of two years duration. It is the equivalent of the first year of the diploma course. Students performing well in this course may be admitted into the second year of the diploma course.

In addition to the certificate and diploma courses of the department, the Computer Science Department teaches students for the commerce and technical education departments as well as courses in computer literacy to all students of the College.

The strengths of the department are the technological relevance of its graduates, reasonably well-equipped laboratories and its core of full-time staff. Since this department does not rely on part-time staff to teach its courses, its greatest weakness is that the staff is overworked.

The constraints under which the department operates include having no classrooms of its own and the lack of a building specially designed for computer sciences.

Future directions of the department include offering degree programs in computer studies.

## **Engineering Department**

The basic aim of the Engineering Department is to provide training and education to Jamaicans to meet the industrial and technological needs of the country in the engineering disciplines.

The department offers full-time diploma courses of 3 years duration and part-time 3 year certificate courses. The full-time courses are in the areas of electrical engineering (both in power and in electronics & telecommunication), mechanical engineering (both production and plant), and instrument technology. The part-time coursework is in the areas of air conditioning and refrigeration, electrician technician (power), mechanical technician (plant & production), telecommunication technician and higher technician (in the above 4 areas). In addition, a pre-engineering course is conducted in the community colleges in the evenings and a course providing an electrician's license is held in the evenings. Finally, modular courses are provided, chiefly in telecommunications and electronics, although others can be designed to fill the needs of special groups.

The department has held both continuing and special courses for Air Jamaica, Jamaica Telephone Company, Alcan, Bureau of Standards, Caribbean Castings and Engineering, Ltd, and others.

The department also runs the Energy Center, which is described in more detail in a subsequent section of this report.

The enrollment for the academic year 1988/89 was as follows:

Full-time	300
Part-time	318
Evenings	27
Modular	<u>446</u>
<b>Total</b>	<b>1,091</b>

The department is staffed by 22 full-time and 12 part-time lecturers. This department has both full-time staff recruitment and staff retention problems. The department head resigned over the summer to work for a Jamaican industrial company. The Nigerian government is also providing two lecturers in electrical engineering.

The quality of education offered by the department is reflected in the great demand for its graduates. But this strength is a reflection of the demand for engineers in Jamaica and is also a weakness, since it causes the problems with staff recruitment and retention.

The department plans to develop a degree course in mechanical engineering. It also hopes to expand the full-time staff through programs such as the Adjunct Faculty Scheme, direct secondment of staff from Jamaican companies and direct contributions from companies to assist in paying staff.

The key constraints on the department include the staffing problems as limitations on space and equipment.

## **Entrepreneurial Extension Center**

The Entrepreneurial Extension Center was established with the assistance of a grant of C\$999,450 from the Canadian International Development Agency (CIDA) and administered by the Association of Canadian Community Colleges. The grant covered activities in both the Commerce Department and the Entrepreneurial Extension Center. The center was officially opened in February 1987 and was established to assist in the marketing of viable student projects and helping graduates to start their own small enterprises. Over the past two and one half years, however, it was decided that the center should provide outreach activities as well in order to attract and train small scale entrepreneurs outside the academic community.

The center currently offers five modular courses for a fee ranging from J\$500 to 650. The five courses consist of 12 sessions, are conducted in the evening and have the following titles:

1. *How to start a small business in Jamaica . . . and succeed* (8 courses held)
2. *Marketing for small business* (3 courses held)
3. *How to operate a successful retail store* (1 course held)
4. *How to develop your business . . . for growth* (1 course held)
5. *How to advertise and promote profitably* (No course held to date)

Approximately 240 persons have taken these courses during the past two years. The courses are taught by people who started small businesses themselves. The students were mainly between the ages of 30 and 39 and most are either employees who want to start their own small business or people who have a small business who want some formal education to help

them improve their businesses. Most of them have not had any education beyond the secondary level. The minimum class size is 15 students.

The center also offers business services through its enterprise center on campus. This offers temporary office facilities and research material to persons who are starting up a small business. Counseling is also provided as needed. The center offers a facsimile service to businesses as well.

The income generated from the above activities for the past two years was as follows:

FY 87/88 - Revenues	J\$109,000
Net Profit	37,000
FY 88/89 - Revenues	J\$223,000
Net Profit	89,000

The center was set up with the cooperation of five departments—commerce, engineering, building, computer, and science. The center serves to assist these departments in the marketing of their services to the general public. For example, it assists the Building Department to market its soils and materials testing laboratory, the Commerce Department to market its business services center, the Computer Center to offer its computers for rent to businesses outside class time, and the Energy Department to market its alternative energy applications. —

The strengths of the center are that it is providing assistance to other departments in marketing activities, providing entrepreneurs outside the College with opportunities to start and improve their small businesses, and that it is forward-looking in terms of keeping abreast of new developments

in entrepreneurial activities in Jamaica and offering services to meet needs in this sector.

The key weaknesses of the center are its shortage of staff (2 professionals and 2 secretarial) and that it is not yet self-supporting.

Future directions of the center are to set up a *Technipark* on campus which would have a building designed to offer sufficient space and facilities to serve as an *incubator* for new production technologies for small and medium-sized businesses. This would have the advantage of getting technical assistance from the Engineering Department since it would be close to the College. The center would also like to expand its curriculum to meet more local small business needs. In addition, it could take a more active role in marketing the services of the College in order to provide supplementary income both for the College and faculty.

Key constraints that prevent the center from achieving some of its goals are limited staffing and space, the need for more equipment and telephone lines, and the use of audio-visual materials which come from North America and need modification to make them applicable to Jamaica.

### **Institutional Management and Food Science**

This department has programs geared to provide qualified persons for supervisory work in the areas of management as it relates to hospitals, hotels, restaurants, cafeterias and other food service institutions. It has 3 year diploma courses in dietetics/nutrition and in institutional and catering

management. It also has 2 year certificate courses in baking technology, child care & development, general catering, pastry making, clothing & fashion, and food service organization and supervision. This department also teaches some courses for the Health Science degree program administered by the Science department. It conducts a summer program in conjunction with the U. S. Wheat Associates and the Jamaican Bakers Association.

Enrollment for the school year 1988/89 was as follows:

Full-time	131
Part-time	79
Evening	84
<b>Total</b>	<b>294</b>

The staff consists of nine full-time and two part-time lecturers.

The strength of the department is its relevance to the institutional food service sector. With the exception of those taking the dietetics/nutrition course, who usually go to work for government, graduates have no problem getting good-paying jobs in the private sector.

Future directions of the department involve expansion into the tourism sector. Plans include courses in food & beverage management, culinary arts and front desk management (including computerized reservation systems). These courses could be held in the Community College in Montego Bay with technical support from CAST. The department has a U.S.A.I.D.-funded linkage with Hocking Technical College in the U. S. and would work with Hocking and the Jamaican Tourist Board to establish these courses. It is

recognized that these courses must be coordinated with courses offered by HEART in Runaway Bay to prevent duplication.

In addition, it is felt that catering activities by the department could help to generate income for the department. However, space limitations are a constraint to these activities.

### **Library**

In 1985, the College Library moved into a new building provided under a World Bank project. The building covers approximately 17,000 square feet, has two floors and provides seating accommodation for 300 persons. There are three reading rooms for students, two small seminar rooms and a reading room for lecturers. The Resource Center on the first floor, which includes a Media Lab, houses a variety of audio-visual equipment and materials for classroom instruction and library use. Computer-based learning facilities are also available. Exhibitions on various topics, mounted by various department and other groups, are frequently on display in the library.

The library's stock includes approximately 37,000 volumes, 200 periodical titles and a large collection of pamphlets and clippings. 34,781 books were loaned to staff and students during the 88/89 academic year. The library participates in the National Information System and is the focal point for the College Libraries Information Network and is a member of the Science and Technology Information Network. The archives of the College are also kept in the library. A training course in Basic Skills in library Management was

organized for library assistants by the College Libraries Information Network and held at CAST last year. There were 30 participants from Jamaica and other Commonwealth islands. The course was financially self-supporting.

The library has 4 professional posts, of which only 2 are currently filled. There is a substantial problem in the non-competitiveness of salaries offered to librarians in the College. The professionals are assisted by 4 library assistants, 1 audio-visual technician and two former HEART trainees. Cataloging and ordering are done using computer programs.

The library is open from 8:30 a.m. to 9 p.m. weekdays and from 10 a.m. to 4 p.m. on Saturdays during the term. Summer hours are from 9 a.m. to 7 p.m. weekdays. Library skills are taught to new students during their orientation to the College. There are also special classes for groups with needs in engineering and statistics data.

The strength of the library is its new building and space available for a multiplicity of library-related activities. Its key weaknesses are the uncompetitive salaries for professional librarians and a shortage of books and periodicals.

As for future plans, the Head librarian would like to increase the number of both the volumes and professional journals to bring the library up to par with standards established for colleges of CAST's size. In addition, she would like to have circulation computerized to allow for on-line book searches and a computerized check-out system.

The constraints in reaching the goals of the library are its understaffing and funding for increasing print media.

### Science Department

The Science Department offers a wide variety of full-time, part-time, evening and modular programs. Its current enrollment is as follows:

Full-time	300
Part-time	50
Evening	50
Modular	<u>58</u>
<b>Total</b>	<b>458</b>

The staff employed to teach these students number 33 full-time and 15 part-time lecturers. In addition to teaching departmental courses, the staff teach all the science and mathematics courses required by students of other departments.

The full-time program consists of a variety of diploma and certificate courses set out briefly below.

1. Diplomas in the *Health Sciences: Pharmacy and Medical Laboratory Technology*.
2. Diploma in *Chemical Technology*.
3. Certificate in *Medical Records*.
4. Certificate in *Laboratory Technology*.

The diploma programs are of three years duration, while the certificate programs are of two years duration.

Courses available through the evening program include G.C.E. Advanced level in the basic sciences and mathematics, the Certificate in Laboratory Technology and Special Certificates in Microbiology, Science Laboratory Management and Techniques, Biostatistics and Integrated Science.

Courses available through the Summer Modular Program include the following:

- a. The *Certificate in Basic Statistics* designed for employees in public and private sector organizations engaged in processing statistical information.
- b. The *Certificate in Health Services Management* designed for persons promoted to middle management positions in the health services but who have had no previous training or experience in management.
- c. The *Degree in Health Sciences*. Degrees are offered in seven disciplines: pharmacy, medical technology, environmental health, dietetics and nutrition, radiography, physical therapy and nurse/anesthesia. The modules are conducted over three summers. Module 1 represents the Multi-disciplinary core. Module 2 separates those who will pursue careers in management from those whose will pursue teaching careers. Module 3 is devoted to the student's area of specialization.
- d. In-service training course in water and wastewater operation and maintenance leading to a Grade D Waterworks Operations Certificate. This course was established in 1974 with assistance from the Pan American Health Organization with Caribbean Development Bank support. The average enrollment is between 36-40 students who are employed by waterworks companies in Jamaica and other islands. The course has a 6 week duration.

The strengths of the Science Department are: that it is offering a variety of courses and programs in the health sciences and other applied sciences that are vitally needed; it has developed modes of delivery convenient to the clientele the College is seeking to serve; and that its programs serve not only Jamaica but the entire Caribbean region.

The weaknesses of the department are that it does not have the specialized laboratories it needs for the teaching in some areas; it cannot pay qualified laboratory technicians needed to maintain and operate the several laboratories; its budgetary provisions are inadequate to cover the costs of the materials it uses; and it is unable to retain academic staff. Under the World Bank Program of assistance to the College, eight fellowships were granted for staff training in 1983. Although all initially returned to posts in the College, only one remained on staff in October 1989.

The department has only recently embarked on the degree program and only the first year has been completed. This represents its new direction for the immediate future.

The major constraints under which the department operates include the constant cycle of training, retraining and non-retention of academic staff and support staff in the laboratories; inadequate facilities in terms of laboratories and equipment; and, the limited library collection of journals and books available to staff and students.

#### **CAST Staff Union**

The CAST Staff Union (CASU) represents the academic staff of the College. Its mandate includes securing better pay and conditions of service, promoting staff development and professionalism and resolving problems that may arise periodically.

From the union's point of view, the role of CAST is to meet the manpower needs of the country and the region in the applied sciences and technology and to provide an alternative to the University of the West Indies. It views the strengths of the College as being its flexibility in levels of entry of students and its responsiveness to the needs of special interest groups with a minimum amount of red tape. The main weaknesses of the College as seen by CASU are too great a reliance on part-time staff, not enough time available for enrichment encounters with students and the failure of physical facilities to keep pace with the development of programs in the College. The need for a large central examination hall was cited as an example of the latter weakness. The main constraints, in CASU's opinion, are the shortages of staff and student housing accommodation.

CASU is of the view that although CAST has been making great strides in tertiary education, official recognition has not been forthcoming. CASU's vision is that of CAST becoming a regional polytechnic university properly financed and staffed with a status on par with the University of the West Indies.

### **CAST Student Association**

The Student Association represents the views and interests of students of the College. The president and secretary of the association expressed the following viewpoints.

1. The role of CAST is to provide properly trained persons for the work force and to respond to the society's demand for technical training.

2. CAST's strengths are that it offers the best education available outside of UWI, produces graduates who have little trouble finding jobs and provides education relevant to the needs of modern society.
3. Weaknesses of the institution cited were that some programs are very crowded and this reflects a need to drop some courses; the recovery rate after failure is too slow; the quality of teaching is not consistent throughout the various departments and programs.
4. The constraints under which the College operates includes inadequate student housing accommodation; the transportation system for students who have to commute is very unreliable; the problem of retention of staff manifests itself in lack of continuity in teaching; and the physical facilities in several departments are inadequate.
5. New directions for the College should include the development and expansion of the degree programs in all areas in which the College now operates. It is also felt that greater official recognition for the College that would improve the remuneration of the lecturers as well as CAST graduates.

### **Technical Education Department**

The Technical Education Department is established to train teachers for technical high schools in the following six subject areas: business; secretarial sciences; home economics; mechanical engineering; construction; and, electrical engineering. The department currently offers full-time and in-service programs leading to the award of diplomas and degrees. The enrollment is as set out below:

Full-time	280
In-service diploma	30
In-service Degree	<u>150</u>
<b>Total</b>	<b>460</b>

The Department is organized into three divisions; humanities, business education and computer studies, and applied sciences and technology. There are 36 full-time members of staff. In addition to teaching the

departmental courses the staff of this department is responsible for teaching all the English Language and general studies required of students in the other departments of the College.

The full-time diploma program is three years in duration. The content of its curriculum and examinations are determined by the Joint Board of Teacher Education of the University of the West Indies of which CAST is a member. The in-service program covers the same content and the students are assessed by the same examinations. The only difference from the full-time program is the duration of the in-service period, which is six years. The degree programs are done on an in-service basis requiring three summers as well as seminars during the regular term. Only diploma graduates are admitted to the degree program.

The strengths of the Technical Education Department are that it is reasonably well equipped and reasonably well staffed. Its major weakness is its difficulty in getting suitably qualified students in the areas of mechanical, construction and electrical engineering.

The new directions which the Department is currently pursuing can be summarized as follows:

1. The Joint Board of Teacher Education has requested that CAST work along with the Vocational Training Development Institute to upgrade its certificate program to the diploma level through a joint CAST/VDTI program.
2. To provide staff development opportunities by organizing with the University of Southern Illinois to have the greater part of its M.Sc. degree in occupational education delivered at CAST; and to have the credits in this program recognized by UWI.

3. Organizing an outreach program involving five secondary schools in the vicinity of CAST with the aim of creating centers of excellence in technical/vocational education at the secondary level.
4. Initiating a pilot program to train secondary school teachers of computer studies.
5. To develop the Curriculum Research and Resource Center. The goals of the center include: promoting and coordinating research into all aspects of the delivery and content of technical and vocational education; developing and disseminating curriculum materials; and, maintaining a collection of documentary materials on technical and vocational education from all possible sources.
6. Developing a humanities curriculum to serve all departments and all students of the College.

The constraints on the department in delivering its current programs as well as the development of new programs are twofold. First, there is limited classroom and laboratory facilities to accommodate the degree programs that have been implemented since 1982. Second, there is difficulty in retaining senior staff.

## **CAST Educational Foundation**

The Foundation was incorporated in 1988 during the 30th anniversary celebrations of the founding of CAST. It represents a private sector attempt to provide the College with endowment funds with which to sustain and enhance its development in the context of declining financial provisions from government, arrears in payments to the College and increasing overdrafts at the bank.

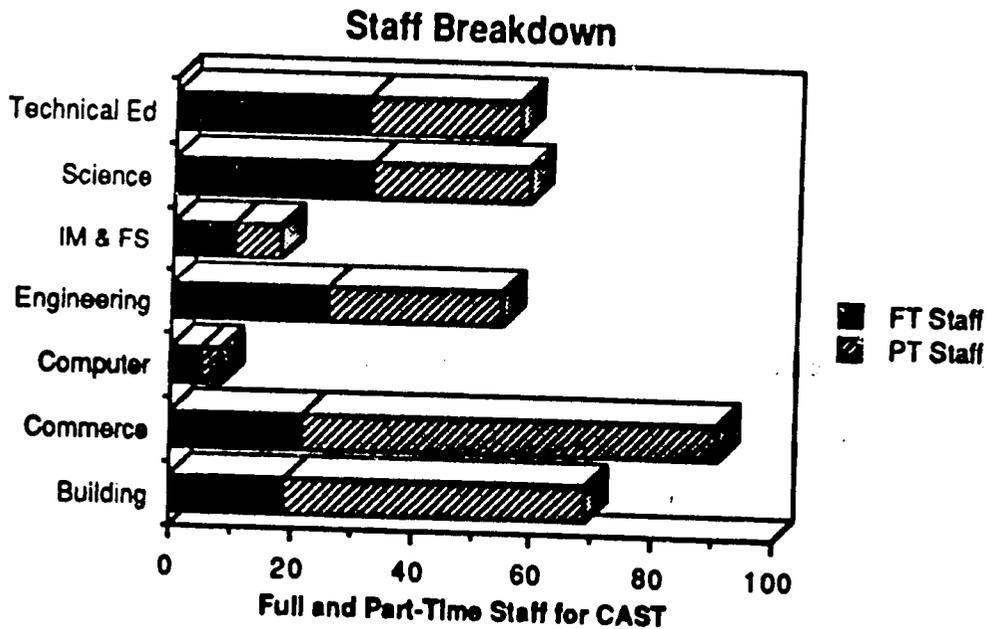
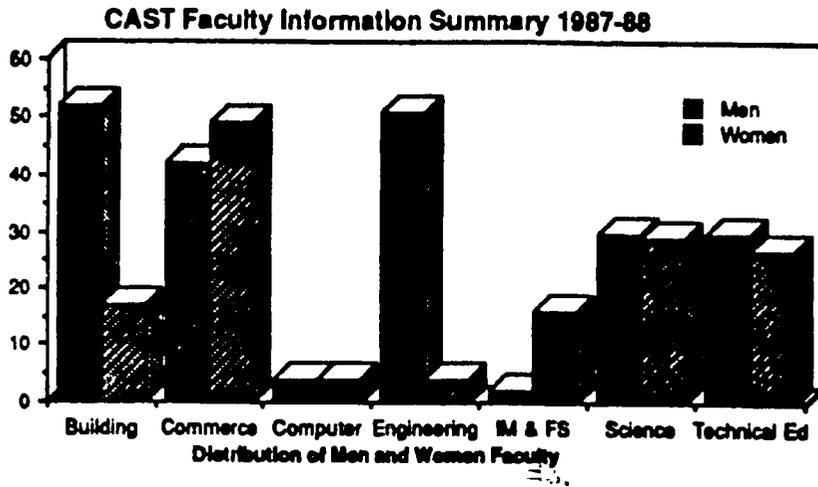
Four companies initially committed contributions to the Foundation of \$50,000 dollars per year for three to five years. These companies were Carreras, Petrojam, Shell and Grace Kennedy. Other similar contributions are being solicited. In addition, the Foundation has received approximately \$60,000 from the relatives and friends of Sara Frankel for the purpose of memorial scholarships. [Ms. Frankel was the Regional Housing and Urban Development Director for the Caribbean Office of the Office of Housing and Urban Program, U.S.A.I.D. She was killed in a car accident in Kingston, Jamaica, in 1988.] The Foundation will also receive over \$2,000,000 from the U.S.A.I.D. Emergency Rehabilitation Project grant through the sale of equipment to the Jamaica Telephone Company.

Efforts are now being made to organize past students and other interested persons into *Friends of CAST* and to charge them with the specific task of raising funds. These efforts are being initially concentrated in the U.S. and Canada.

Since the Foundation will operate on the interest from its endowments, it has allowed a year to elapse before beginning to engage in activities which will involve expenditures whether in the form of operating expenses or assistance to the College.

The Foundation has taken all the necessary steps to appoint a full-time manager as of November 1, 1989.

These are still early days for the Foundation. Its initiators are still finding their way in raising funds and creating the organization and managerial framework in which the Foundation will operate. Still to be developed are policies which will guide disbursement of funds. A major exercise will be the integration and rationalization of the Foundation with income-raising ventures which existed before the creation of Foundation. At the moment, the Foundation represents an addition to the landscape of CAST. Its operations and work will, however, need to be integrated and systematized so that it becomes an organic entity within CAST.



These two graphs reflect the staff distribution by department for the College of Arts Science and Technology. They chart the departments' faculty resources desegregated by gender and full time and part time faculty.

## **Role of CAST in the Educational System**

CAST was established in 1958 by the Jamaican Government to perform mandated roles. Over the years it has acquired other roles. At the present time the roles of CAST in the Jamaican educational system and society can be summarized as follow:

1. To help to meet middle-level manpower training needs of the Jamaican economy for persons in the fields of applied sciences and technology.
2. To provide leadership in meeting the training needs in applied sciences and technology as well as in developing modalities of delivery suitable to the diversity of demands for such training.
3. To help supply the regional needs in applied sciences and technology for trained personnel for the middle-levels of the regional economies by allowing access to students from other Commonwealth Caribbean countries.
4. To assist various para-professional and professional groups to improve their competence and status by offering them educational opportunities beyond levels that were previously available to and expected or required of them.
5. To complement, support and provide alternatives to the University of the West Indies in offering degree programs in the fields of applied sciences and technology. CAST was established by the government in 1958 to meet the middle-level manpower training needs of the Jamaican economy through certificate and diploma programs in the applied sciences and technology. This remains its primary role. Accordingly, courses at the certificate and diploma levels are the mainstay of the college's programs. By virtue of its position in the educational system and as a result of its responsiveness to demands made for training by commerce and industry, CAST has assumed a leadership role in education and training in the fields of applied sciences and technology.

The role CAST plays in promoting the interests of several para-professional and professional groups has emerged from two sets of considerations. First, the "Jamaicanization" of training opportunities which previously were not available locally. This begun by the training of technicians at the certificate

and diploma level and has now been extended to the degree level, for example, in the training of technicians in architecture and more recently in the training of architects. The same process has occurred in the health sciences. Second, CAST's responsiveness to requests for the development of training opportunities by the various para-professional and professional groups. The College has developed a mechanism for responding to these requests; namely, advisory committees have been established which permit the participation of the various groups in the planning of the proposals intended to satisfy the request. Once the proposals are approved, the College acts with the minimum amount of bureaucratic delay. CAST's regional role has evolved because of three principal factors:

- a. Caricom Ministers of Education and the governments they represent have agreed to open their national institutions at the tertiary level to nationals of the respective Caricom countries without payment of the full economic costs of such training;
- b. CAST offers programs in the applied sciences and technology that are not available in any other Caricom country;
- c. The satisfaction of regional governments, industry and commerce with the graduates that CAST has produced.

CAST's emergence as an alternative to UWI, in some areas, arises from two different sets of circumstances:

(1) UWI does not offer degrees in several areas in which CAST has been offering certificates and diplomas. By offering degree programs in these areas, CAST is beginning to operate in the gaps in the UWI coverage of several disciplines at the tertiary level.

(2) The traditional clientele that UWI caters to has been high school leavers with "A-level" qualifications. UWI has had a tangential relationship with certificate and diploma graduates from tertiary institutions. The number of CAST graduates admitted to UWI annually is limited compared to the numbers who are potentially eligible. Many CAST graduates have gone to North America to obtain degrees. While the diploma allows them to complete degrees in eighteen months to two years, with the increasing costs of such education and the devaluation of the Jamaican dollar, this route has been severely restricted in the recent past. By offering degree programs to its diploma graduates, CAST is not competing with UWI since its is not affecting the flow of high school leavers to the university. At the same time it is opening up opportunities for its own graduates in circumstances where they are likely to become increasingly frustrated.

The directions listed above are functional and programmatic. While all sections of the CAST community share this vision, they also include in their vision of the future of CAST notions about its status as a tertiary institution. The essence of this vision is that of CAST becoming the national and regional Polytechnic University. This view is widely shared by the entire College community, including the Administration, CASU, the Student Association, members of the Foundation and the College Council. The assumption is that if the College is so named and regarded, it will have a status equal or equivalent to UWI and this would bring about, among other things, the reclassification of the staff resulting in higher emoluments than those paid to staff in other tertiary institutions in Jamaica.

Two observations need to be noted about CAST's vision of its future status. First, this vision is rooted in the British tradition popularly labeled the Binary system of higher education. At the same time Jamaican education has been moving away from British forms and structures. As such, the CAST vision is seeking to perpetuate traditions that the rest of the system seem to be moving away from. Second, CAST's insistence that it be treated differently from the rest of the tertiary system with respect to pay and conditions of service, has been the source of a great deal of conflict over the decade since it was first raised. How the controversial issues related to this vision will be resolved is still uncertain.

## **Strengths of CAST**

1. Responding to national (and to some extent, regional) manpower needs, particularly in response to direct contact from professional and industry groups.
2. Providing a source of technical education directly related to the "world of work" for mid-level management and technicians for both the private and public sectors.
3. Offering innovative and flexible solutions in a wide range of skill areas to training needs, both to graduates of secondary schools and to professionals in the field.
4. Providing a local and regional alternative to the University of the West Indies and foreign higher educational institutions as a route to higher professional accreditation in certain technical and applied science areas.
5. Developing new courses and awards, based on a philosophy of clear articulation of curricula and standards, to provide opportunities for enhancement of professional growth.
6. Utilizing aid from different sources to strengthen and improve CAST's overall capacity to meet Jamaica's manpower training needs.

7. Maximizing the use of all its resources, human and material, to present courses twelve months per year and twelve hours per day.

### **Weaknesses of CAST**

1. Staff recruitment and retention
2. Maintaining programs in certain specific areas which, due to both fiscal, staffing and other restraints, limit CAST's ability to continue
3. Research and Development (limitations on this due to overworked staff)
4. Space limitations and shortages of modern equipment
5. Library volumes, professional journals and other resource materials

### **Areas where CAST has utilized aid well in the past**

1. Curriculum development using foreign and local consultants.
2. Building programs to expand classroom and special purpose space.
3. In-service training programs.
4. Acquisition and use of equipment.
5. Staff development training programs (particularly long-term training).

6. Scholarships for awards and courses of study at CAST, e.g., the scholarships provided through the Basic Schools Project.

### **Future directions of CAST**

1. Expansion of certificate, diploma and degree programs, in response to expressed needs of professional and industry representatives and as an alternative to centrally planned approaches.
2. Increased activity of the CAST Foundation to raise funds and generate income for scholarships, college programs, infrastructure, staff advancement and programs, and other activities which will serve the interests of CAST.
3. Increased and improved facilities, infrastructure and equipment.
4. Expanded regional role.
5. Increased research and development activities.
6. Further development of entrepreneur-oriented courses and support activities.
7. Increased linkages with industry, commerce and professional groups as well as with other educational and training institutions.

### **Critical areas of need at CAST**

1. To augment existing methods (i.e., scholarships, training programs, consultancies and housing programs) used to recruit and retain qualified staff as well as to develop new methods or avenues for the same purpose.
2. To increase classroom space and to modernize equipment.
3. To provide greater student support, e.g., through grants and housing, particularly for foreign students.
4. To expand outreach programs, such as those already developed for Community Colleges and Spanish Town, in order to meet the needs of students outside metropolitan Kingston.

## **Evaluation of Project No. 532-0117.01**

The *CAST Building Department Institutional Support and Training Project* was begun in August, 1985 with the overall goal of strengthening the capacity of Jamaican urban institutions to plan and manage urban growth. The strategy adopted to achieve this overall goal was that of strengthening the capacity of the CAST Building Department to train technicians, para-professionals and professionals. The Project also sought to assist in addressing the problems of staff recruitment, retention and development, insufficient equipment and inadequate instructional materials. In order to achieve these objectives, the Project provided technical assistance, training and commodities.

At the end of the Project it was envisaged that the following outputs would have been obtained:

1. **Strengthened Training Capacity at CAST:** approximately eight lecture/seminars would have been held; at least three graduates would have received long-term degree training and all three would have assumed positions on the staff; approximately nine staff members would have had short-term training or research opportunities.
2. **In-service training programs mounted:** up to 45 public officers would have received in-service training through CAST;
3. **Summer Institute established:** a functioning Summer Institute would have been established at CAST.
4. **Professional Services Unit established:** a unit would have been established to effectively market departmental services.
5. **Technical and Curriculum Manuals produced:** approximately six manuals would have been developed and produced for use by the Department and for sale to the construction industry.

6. Commodities and Publications acquired: new and refurbished equipment would have been acquired and put into operation and recent materials would have been acquired for the Department Library.

It was agreed with the Mission that, taking into consideration the need for an overall assessment of CAST and the limited time available, this evaluation would consist of an assessment of the end of Project status relative to the anticipated outcomes plus some reflections on the lessons learned.

### **Assessment of the End of Project Status**

To begin, it should be noted that the Project was implemented within the planned period, August 1985 to September 1989. The actual outputs of the project are presented below with comments regarding why some planned outputs were not achieved.

#### *1. Strengthened Training Capacity at CAST.*

Over the life of the Project, four Seminars were organized and put on by CAST. Two were organized for the academic staff of the College during two different school years while two seminars were organized for Real Estate practitioners seeking to comply with the requirements of the recently enacted Real Estate Act. These seminars for the Real Estate practitioners were conducted during two summers and were of four weeks duration each.

Staff members of the Building Department attended four Seminars/Conferences conducted by: the Massachusetts Institute of Technology in Cambridge, Massachusetts; the Commonwealth Association of Surveyors and Land Economists meeting in Barbados; the Association of Commonwealth

Societies of Architects meeting in the Eastern Caribbean and a regional Conference on Housing held in Barbados.

Two graduates have received long-term degree training and both have positions on the staff of the Building Department. One graduate studied Civil Engineering at City College, New York and has already taken up her position on the staff of CAST. The other graduate studied Architecture at Howard University, Washington D.C., and is scheduled to take up his post in the Department in November, 1989.

No short-term training or research opportunities were provided out of the Project funding. Two factors seemed to have accounted for this outcome. First, due to escalation of the cost of university education in U.S. Universities over the life of the Project, funds originally allocated for short-term training were re-allocated to meet the increased costs incurred in the long-term training. This escalation in long-term training costs also resulted in two, rather than three, graduates being trained. Second, the staff of the Building consists of several non-Jamaicans who were disqualified by reason of nationality from being beneficiaries of the short-term training facility. It was both difficult to find short-term training programs in the U.S. as well as to find Jamaican staff who could make use of the very limited opportunities that were available.

## *2. In-service Training Program.*

An In-service Training Program for Building Inspectors was established. A three week Seminar was held in each of the four years of the Project. A total of 64 persons attended the Seminars over the four years, 48 of whom were

sponsored through the Project. CIDA and the United Nations Development Program funded a number of Caribbean participants. The enrollment of the program is shown below:

**TABLE 1**  
**Enrollment in the In-Service Program**

<u>Year</u>	<u>Total Enrollment</u>	<u>Jamaica</u>	<u>Rest of Caribbean</u>
1986	9	5	4
1987	11	10	1
1988	17	17	0
1989	<u>27</u>	<u>16</u>	<u>11</u>
<b>TOTAL</b>	<b>64</b>	<b>48</b>	<b>16</b>

The topics covered in the Seminar included Town Planning Approval Procedures; Technical Aspects of Construction Engineering; Precautionary Measures to Resist Natural Hazards; and, Principles of Management. The main mode of instruction was lecture and discussions supported by a few site visits.

On the whole, participants appeared to be satisfied with the course as offered. In their opinion, the content was particularly relevant to their responsibilities. They were impressed by most of the lecturers in terms of both knowledge of the subject matter and presentation. Some participants were of the view that a few presentations were boring because they were not particularly well prepared. However, this did not detract from the overall worthwhile aspects of the course. Some were of the view that there should have been more time spent on the sites visited. One participant suggested that sites affected by some natural hazard could have been selected to demonstrate some of the points made in the lectures. A significant number

were of the opinion that the course should have been longer in order to cover some of the topics in greater depth.

Participants were unanimous in praise of the usefulness of the course. They all wish to see it continued. The increasing numbers that enrolled in succeeding years seem to give evidence of the increasing popularity of the course. The participants interviewed reported that they had applied several of the ideas presented in the course. They also spoke of improvements in their level of confidence especially in making site visits. This was particularly so for the younger and more inexperienced participants. The participants interviewed also drew attention to the fact that Hurricane Gilbert underscored the relevance and importance of the in-service course for building inspectors and other personnel in the construction industry.

The Building Department has expressed its intention to continue the In-service seminar on an annual basis.

### *3. Summer Institute.*

A summer institute was held in each of the four years of the Project. The themes on which the Institutes focused were: Planning and the Maintenance of Facilities and Infrastructure; Financing and the Development Process; Tourism and Physical Development in the Caribbean; and, Natural Hazards and the Human Habitat.

Judging from the manuals produced, as well as the comments of CAST and U.S.A.I.D. personnel, it would appear that the first two Summer Institutes were of a distinctly higher quality than the latter two. The first two

institutes benefitted from the participation of the University of California, Berkeley, and an impressive cast of major actors in the construction industry in Jamaica as well as specialists from bilateral and multi-lateral agencies. The same diversity and quality of participation did not appear to have been sustained in the latter two institutes.

At least three factors seem to have contributed to the observed differences between the institutes. First, the novelty of an inter-sectorial forum seems to have attracted the participation of high level professionals in the field. Second, the topics also seemed to have attracted somewhat different audiences. Third, summer institutes mounted out of local resources and limited to local personnel may not have been as attractive to the industry as institutes supported by external funding which permitted the participation of overseas professionals. It may therefore be unreasonable and unrealistic to expect that CAST, operating on local resources alone, will be able to match their own efforts when operating with external support.

Nevertheless, the Summer Institute appears to have established a name for itself in the Jamaican construction industry. It has done so mainly on two counts. First, it offers professionals from the different disciplines in the field an inter-sectorial forum in which to exchange ideas. Second, it has sought to relate technology to the Jamaican context in terms of its development and directions.

The Building Department has expressed its commitment to continue the Summer Institute on an annual basis.

#### **4. *The Professional Services Unit.***

The professional services unit to market professional services of the staff and students in the Building Department was not established during the life of the project. Several factors seem to account for this:

- a. **Legal liability issues—**Setting up a professional services unit of the Building Department of CAST performing professional tasks in the construction industry could make the College liable for any faulty work done by the various individuals concerned. As a governmental educational institution, CAST officials were concerned that the College was not mandated to accept such liability, particularly since the responsibility might ultimately fall on the government. The Council cautioned against acting until this legal issue was resolved.
- b. **Professional ethics issues—**The different professional groups to which staff in the Building Department belong have different ethical codes with respect to the marketing and advertising of their services. The architects, in particular, appeared to have had great reservations about the establishment of a unit which might advertise its services in a manner which could violate their professional ethics.
- c. **Organizational issues—**The liability problem might be alleviated though the incorporation of the professional services unit as an independent company. However, the matter of marketing professional services was not an issue limited only to the Building Department. Other departments of the College are potentially able to market their services.

Should the company be solely a creature of the Building Department or rather of the College as a whole? In addition, it is thought by some that to be able to use the CAST name would provide additional status which would be helpful in obtaining contracts. There are several pros and cons to each alternative. The issues attendant on these have so far not been resolved.

- d. *Individual versus institutional* benefits issues— Some individuals in the Building Department had been marketing their services effectively prior to the project and might have seen no advantage in formalizing their efforts. Formalizing the consultancy efforts could bring with it increased taxation as well as unwelcome control of their activities. The College administration, on the other hand, would like some formalization of these services because it is of the view that the College is not gaining either recognition or remuneration from these individual arrangements. This issue has yet to be resolved.
- e. *Competition/Institutional support* issue— Some believe that CAST could lose a considerable amount of goodwill among the professional groups for which it trains personnel if it begins to compete with them for prize contracts in the market-place. Small jobs or helping to meet excess demand in boom-times are not likely to attract attention. A continuing competitive presence in the market place could pose some problems.

A professional services unit presupposes team work and group effort. Because of the high turnover of staff in the Building Department, including its leadership, staff members have tended to work on an individual basis.

Team work seems only now beginning to develop, particularly through the Department's construction efforts in the design and supervision of new construction on campus. The idea of some entity similar to the professional services unit had existed at CAST before the Project under review. The Project placed it firmly and officially on the CAST agenda of institutional development. The life of the Project was not long enough to enable the various substantial issues and problems to be satisfactorily resolved. This lack of implementation to date does not mean that the unit or some similar institution may not be established in the future, however.

Four factors seem to ensure that further efforts will be made to resolve the issues involved. First, the creation of the CAST Educational Foundation opens up the possibility of incorporating the unit as part of the Foundation itself or as a subsidiary company or as a unit within a subsidiary company. Second, some members of the department who have gained considerable experience and expertise in winning small individual contracts are now desirous of tendering for larger contracts that require group involvement and formal status as a recognized body. Third, improved teamwork in the department seems to be providing the solidarity needed to resolve critical issues. And lastly, the administration appears to be open to finding ways to resolve the various issues.

##### *5. Technical Manuals*

Six manuals were produced as required by the Project Agreement, four in conjunction with the Summer Institutes and two others. The manuals have been put on sale to the construction industry and to CAST students. Sales to

date have gone much better to CAST students than to the construction industry. The Building Department is seeking assistance for marketing the manuals as well as in producing more manuals with Caribbean content.

#### *6. Commodities and Publications*

The CAST Building Department purchased equipment and established the materials and structures testing laboratory. In addition, using a consultant employed through a CIDA Project, a laboratory manual was written for the students who will be instructed in the different courses. The laboratory has been opened and is now fully operational. Recently, the Bureau of Standards has calibrated the machines, thus allowing the department to offer testing services to contractors as well as to assist the Bureau with respect to its current overload of work. The department has been earning revenue through these services. The materials laboratory is now one of the best equipped in the region. It should be noted that CAST combined assistance from U.S.A.I.D. and CIDA in the establishment of this lab. CIDA donated equipment left over from its Montego Bay Airport Project to this material testing lab. All the funds allocated to the purchase of commodities were used to acquire equipment. None was used for the purchase of publications.

#### *7. The School of Architecture*

The School of Architecture was an outcome that was not anticipated in the Project Agreement but was permitted and facilitated in subsequent modifications as the project unfolded. Using project funding, the department employed a Jamaican consultant who, in addition to teaching

courses, developed the proposal and curriculum for the School. This consultant, in discharging her mandate, worked with an Advisory Committee set up by the College which included eminent architects in Jamaica and other Caribbean countries. The College also took advice from the Commonwealth Association of Societies of Architects.

The project also provided the School of Architecture with office and classroom equipment and furniture. This included specialized drawing equipment and furniture.

The School of Architecture is the first and only facility in the Caribbean Commonwealth for the training of architects in this region and, therefore, has not only created a new professional training capacity in Jamaica but also in the region. The idea of a School of Architecture at CAST was first proposed in the late 1970s. After much consultation, including the participation of the Commonwealth Association of Architects and the Commonwealth Board on Architects, formal proposals were put forward in the Ivor Smith Report of 1984. CAST utilized the opportunities presented by the project to translate these proposals and plans into operational programs to inaugurate the School of Architecture.

## **Indirect U.S.A.I.D. Assistance**

In conducting this exercise, the assessment team was made aware of instances of U.S.A.I.D. assistance to CAST which came indirectly through projects with other Jamaican institutions. These were: the Energy Project with the Ministry of Mining and Energy; the Basic Skills Project with the Ministry of Education; and, the Emergency Rehabilitation Project.

### *1. The Energy Center*

The Energy Center of the Engineering Department of CAST was started in 1981 under the name of the Solar Energy Institute. This formalized and built on funding from the Organization of American States for work on solar energy as well as on work that had been done by interested staff on an individual basis over a number of years. Between 1983 and 1987 the Center received assistance from A.I.D., mainly in the form of equipment. In 1985 the name was changed to the CAST Energy Center. While the A.I.D. assistance has ceased, the Energy Center continues to exist and to operate, albeit at a much reduced level. The Center currently has three professional members on staff who, in addition to their work in the Center, teach between five to six hours per week in the Department. The Center has now standardized its designs of solar cells used for cooling, pumping and drying purposes. It is currently fabricating and selling these units. Income from this source covers most of the operational costs, excluding the salaries of the professional staff.

The reduced level of activity in the Center has to be related to the fall in oil prices and the subsequent loss of interest in developing alternative forms of

energy. This has resulted in reduced support for the activities that constitute the essence of the existence of the Center. The continued operation of the Center despite these reversals indicates that the Engineering Department and the College administration have a strong commitment to this area of activity regardless of assistance by external funding.

### *2. The Basic Skills Project*

The Basic Skills Project with the Ministry of Education has brought benefit to CAST's Technical Education Department in the form of staff development, scholarships for students and equipment. The project is still in progress. Two staff members have been given long-term training at Oklahoma State University to read for the bachelor's and master's degrees respectively. Both have returned and re-joined the staff of the department. The project also provided 30 scholarships to students to be trained at CAST as teachers in the fields of mechanical, electrical and construction engineering. This has helped CAST to attract students to these areas. The 30 students graduated as teachers in July 1989 and have all taken up teaching jobs in secondary schools. The majority have been employed in technical high schools.

The project also gave CAST office equipment and equipment for material testing for construction. From this and other equipment the department has created the Curriculum Research and Resource Center.

### *3. The Emergency Rehabilitation Project*

Following Hurricane Gilbert and through the Emergency Rehabilitation Project, U.S.A.I.D. offered the Jamaica Telephone Company assistance to

acquire some heavy duty equipment to facilitate its recovery from hurricane damage. In return for equipment received from U.S.A.I.D., the telephone company made off-setting, compensatory grants to CAST. The value to CAST will be the Jamaican dollar equivalent of U.S. \$760,763 paid in a number of installments. The first installment has been paid and remaining installments are scheduled to be paid by the end of 1990. The grant to CAST will be divided between the College and the Foundation,

*4. Participant training for CAST students.*

In addition to the above project-related assistance, U.S.A.I.D. has also sponsored participant training for CAST students. Two students were sent on long-term training to the United States and one on a short term course.

## **Lessons Learned From U.S.A.I.D. Assistance To CAST**

The lessons to be learned from U.S.A.I.D. assistance to CAST can be summarized as follows:

1. CAST has the capacity to effectively implement projects within the planned time-frame. It uses assistance efficiently. It responds to requests with a minimum of red tape and bureaucracy. CAST has developed participatory mechanisms in dealing with professional associations, private sector agencies and companies and public sector institutions. This gives CAST a flexibility which enhances its potential as an intermediary between donor agencies and their intended beneficiaries, in the delivery of services.
2. CAST appears to have a clear vision of where it is going. CAST also seems to be cognizant of how to use foreign donor assistance to its best advantage in achieving its own ends. In this regard it seems doubtful that CAST would accept assistance simply because it was available. This feature of the institution seems to ensure its ongoing commitment to activities for which it seeks or receives funding. To ensure the best results, donor agencies which intend to support CAST through project or program support would do well to understand CAST's agenda in order to clearly establish the most effective means of support and aid.
3. Not everything proposed by donor agencies and the CAST administration as being in the interest of the staff and the institution will necessarily find immediate favor with the staff and the Council.

This seems to suggest that project planning could benefit from a wider involvement of persons within CAST, especially with respect to matters related to staff development and welfare.

4. External assistance can help institutions critical need for long-term development to continue to grow and develop even during periods of economic recession and reduction of financial support. The years 1985 to 1989 included years in which there were significant reductions in real terms of government support to educational institutions. Most schools and colleges experienced painful retrenchment of programs or curtailment of planned developments. Through U.S.A.I.D. projects and assistance from other agencies, CAST was cushioned to some extent from potential reversals. Hopefully, with the creation of the Foundation and the growth of endowment funds, CAST will not become dependent on external sources for its continued growth and development.
5. The professional areas in which CAST operates, the quality of its staff, its equipment and its operational strategies confer on it a tremendous potential to earn additional revenue from outside sources. The extent to which this potential is realized depends to a great extent on the ways in which several critical issues are resolved relative to the distribution of benefits between individuals and the institution and how CAST will relate to the market place. These issues must first be resolved internally. External interventions may be feasible only after these issues have been resolved.

6. The provision of staff training programs appears to be an effective strategy for assisting in staff recruitment. Staff offered long term training generally return to take up their posts after their training is completed.
  
7. A.I.D. funding conditions can reduce the intended effectiveness of staff development programs proposed for CAST. For example, the staff at CAST is not totally Jamaican. Conditions of funding which restrict the nationality of the recipient to Jamaicans can become problematic for project outcomes. While CAST is a Jamaican institution, it has been acquiring an increasingly regional character. This problem is unlikely to diminish since the diversity of nationalities at CAST is not restricted to the staff. Some recognition of the growing regional character of CAST may need to be reflected in the parameters within which projects are required to operate.

## **Manpower Needs and CAST Programs**

Jamaica does not currently educate and train a sufficient number of its citizens through formal tertiary education. Only about four per cent of the 18 to 24 year old age cohort are enrolled in tertiary institutions offering recognized credentials. There is, therefore, a general shortage of professionals and trained manpower from local sources. CAST's programs are in the fields of business, secretarial skills, applied sciences and technology. Its programs train personnel for occupations in the Hospitality Industry, Institutional Management, Construction, Engineering, Health Sciences, Chemical Technology, Computers and Technical Education. These all coincide with areas of great need for trained manpower and professionals. There are particular areas in business where the College also prepares personnel for fields in which there are great shortages, for example, accountancy and finance.

One method of addressing the manpower training needs of the Jamaican economy is through educational and training plans based on manpower surveys. This approach has been tried in Jamaica and found wanting. Apart from the difficulties in forecasting manpower training needs and of anticipating shifts and trends in the economy, which is so dependent on external influences, Jamaica does not have a centrally planned economy. Consequently, centrally planned training schemes have not been particularly successful.

In order to avoid the problems of over-supplying some occupations with the resulting unemployment of graduates, and the under-supplying of other

occupations, CAST has developed an interactive process of consultation with business, industry and professional associations which has provided the information base on which its admissions practices and course offerings have been shaped. Through this process a diversity of training needs has been presented to the College which has responded with a matching diversity of delivery modalities. It is in this context that the wide variety of full-time, part-time, evening and modular programs must be interpreted. The College has now developed strategies where its lecturers will go to the firms where the students are employed to deliver part of the course in the context of the workplace. To date, this interactive consultative approach used by CAST in meeting the manpower needs of the Jamaican economy has been working quite satisfactorily.

## **Directions of the Mission in Relation to CAST Current Programs and Future Directions**

This section of the report is based on the Human Resource Development Strategy Statement (HRDS), March 30, 1989, and the Country Development Strategy Statement (CDSS) FY 1989-93, the Mission, June 1988. Those documents present the policies and objectives which are meant to serve as the basis for the various programs and projects that the Mission supports and funds over the next four year period. This section relates specific goals and objectives in those documents to areas and activities in which CAST is either active or would like to be active.

The Human Resource Strategy was an attempt to integrate education and training concerns and activities into the various sectors in which U.S.A.I.D. is either involved or contemplating involvement. The Country Development Strategy emphasized three themes as a basis for sustained growth:

1. More effective development of human capital;
2. Expansion of domestic and international markets; and,
3. Increased opportunities and broader participation.

The HRDS presents four major goals for the Mission and relates objectives to accomplish those goals. Specific goals and objectives which appear to relate to possible support for CAST activities are as follows:

Goal #1 - To help increase the achievement of internal performance standards.

Objective #1- The recruitment and retention of more qualified teachers.

Objective #2 - The improvement of instructional facilities availability and their maintenance.

Objective #4 - The implementation of the curriculum needs to be made more systematic across subject areas and consistent among schools.

Goal #3 - The promotion of enhanced social and economic mobility.

Objective #2 - Reduced general subsidization and increased targeted subsidization at the tertiary level.

Goal #4- Increasing the efficiency of public and private resource utilization in the production of human capital skills.

Objective #1 - Mobilization of greater amounts of personal, community and employer funds.

Objective #5 - Better utilization of public and private sector facilities and personnel.

The Human Resource Strategy notes that the CDSS targets U.S.A.I.D. resources along two tracks—improvement of basic education, and improving the mobility of labor within a changing economic environment. It further states that U.S.A.I.D. will provide assistance aimed at improving the responsiveness of secondary technical education and management education at the tertiary level to a labor market requiring managers in emerging manufacturing and service industries.

Sections of the CDSS which relate to possible support of activities at CAST are excerpted below:

Jamaican labor has the potential to develop in the medium term in the more remunerative service sectors such as data and information processing. At

present, however, training in these areas is sub-optimal because private firms are reluctant to undertake investment in training for fear of losing employees to competitors. **A role is therefore indicated for public support for training in these sectors. The training should be specifically targeted and demand driven, which could provide greater employment, earnings and access to opportunity.** [p.9]

Shortages of key medical and technical personnel plague the public health care system, principally because of low salary levels. [p.19]

All (tertiary education institutions) are underfunded and, **with the exception of CAST,** give too little emphasis to applied instruction and research. [p.23]

The key to further economic growth is reduction of market constraints and **development of human capital.** [p.27]

The Mission will support non-traditional crop exports by helping to increase market share through support services to improve productivity and **marketing efficiency.** [p.37]

[To strengthen the private sector] Programs will focus on three areas: Increasing exports of agriculture and manufactured goods and **tourism services. The Mission will continue to furnish technical assistance and training to expand export opportunities and finance tourism action plans and town planning for tourist areas.** [p.39]

The Mission will investigate methods to **expand technical assistance in marketing and production for medium and small business through a variety of institutions**, including those with a broad impact. [p.40]

The Mission will increase **access to opportunity for women** primarily through programs for **education [skills training]**, health, voluntary family planning and **private sector [availability of business opportunities]**. [p.43]

There is a continuing need to **broaden the availability of better quality education**, health services and housing. [p.44]

The new health sector project will help finance experimental activities which go beyond privatization of specific support services to **management of hospitals and possibly to primary care**. [p.48]

U.S.A.I.D. will re-design and augment housing and infrastructure programs to collaborate with the National Water Commission (NWC) on sectoral policy reforms including:

Broadening access of low-income housing to piped water and sewer supply . . . NWC will have to reconsider technologies to provide lower cost water, such as community standpipes.

Adopting maintenance programs and budget. Programs should be established to detect water and sewer leaks, make repairs, and provide routine maintenance. [p.50]

At the post primary level U.S.A.I.D. will continue formal and non-formal skill training to impact economic growth and employment. U.S.A.I.D. will enhance efficiency and relevancy of skill training by linking to labor force requirements . . . and by **providing improved training to teachers and teacher trainers, particularly for formal skills training.** [p.54]

## **Areas of Activity where CAST and U.S.A.I.D. Interests Appear to Coincide**

This section highlights certain areas of current or future activity at CAST which appear to be worth further in-depth exploration to determine if U.S.A.I.D. might be interested in supporting those activities. These areas of activity appear to be consistent with U.S.A.I.D.'s goals and objectives as expressed above. They were identified through consultation with key persons at CAST and at U.S.A.I.D.. The areas of activity are listed according to the departments at CAST involved in the activities.

### **Building Department**

- Plan and conduct short courses on urban development topics of Caribbean interest for the RHUDO for the Caribbean.
- Construction of an Architectural Center to provide sufficient suitable space for the architecture courses and relieve pressure on classroom space for other classes in the department.
- Provide In-Service training for middle management and operations personnel at the Jamaica Water Commission to assist in training needs relevant to U.S.A.I.D.'s activities in the rationalization of water supply and wastewater systems. This training could build on the course in the Science Department funded by the Pan American Health Organization for the past 10 years which awards a Grade D Waterworks Operators Certificate to graduates.

## **Science Department**

Develop U.S.A.I.D. training activities in the health sector utilizing the Health Sciences Degree program to train middle management in health management. This program has already begun and uses a multidisciplinary, team-building approach which appears to be in line with projects contemplated by U.S.A.I.D. in the sector.

Assist the department to develop a course for drug counselors in conjunction with current courses offered in the pharmaceutical area. Assist with the development of environment and chemical process technology training programs in order to meet emerging national and regional manpower needs in these two areas.

## **Institutional Management**

Assist CAST to develop a standardized training program in the hotel and restaurant area. This would be done in conjunction with training programs currently operated by HEART. It is envisioned that the Community College in Montego Bay would administer the program with assistance from CAST to provide for greater articulation within the educational system for tourism training activities.

## **Engineering Department**

Assist in the development of production technologies, particularly for small and medium-sized businesses, by the creation of "incubator" factories near the campus. This could be part of a Techni-Park project and would be developed with the cooperation of the Entrepreneurial Extension Center at CAST.

Provide for the dissemination of information on solar energy technologies developed in the Energy Center to farmers and others in rural areas.

Assist in the marketing of solar energy and other new energy applications and equipment, with the assistance of the Entrepreneurial Extension Center.

Provide assistance to set up a Resource/Projects Work Center which would do research and development in electronics and telecommunications.

## **Technical Education Department**

CAST has been asked by the Joint Board of Teacher Education to work with the VTDI to rationalize and integrate the VTDI certificate into the CAST curriculum and award system. This will involve upgrading the VTDI certificate to diploma level. Assistance may be needed in this area.

Assist in the development of a pilot program in business studies using computer technologies.

### **Computer Department**

To provide assistance in the form of a design-built computer center to provide additional space for classroom teaching as well as greater opportunities to generate income through on-site rental of computers to businesses and specially-designed courses for specific businesses to upgrade computer skills of employees.

### **Commerce Department**

Provide professional training opportunities to staff and recent graduates to attract and retain qualified staff and to keep abreast of modern developments in their areas of specialization.

Assist in the construction of additional classroom and office space (administrative and academic).

Develop the capacity for assistance to the agricultural sector in Jamaica to improve marketing efficiency, both domestically and for exports. Assist in providing computers for staff training and for preparation of software packages for instruction.

### **Library**

Provide grants to acquire additional books, journals and other resource materials to bring the library up to standard with other similar institutions.

## **Entrepreneurial Extension Center**

To coordinate efforts with CIDA to increase income generating activities for the Center and to develop other programs reaching the small entrepreneurs.

Scholarships could be provided to low-income entrepreneurs who want to develop their own businesses, but cannot afford the courses currently offered to the public by the Center on, "How to start a small business" and other courses directly related to small enterprise management. These scholarships could give priority to low-income women starting their own businesses.

Additional facilities and equipment could be provided to the center to be used by entrepreneurs on a fee basis to get their small-scale business up and running.

Technical assistance could be provided to assist the Center to work with other departments to develop their respective income generating activities through the preparation of business and marketing plans as well as involvement in the marketing of these activities.

Further technical assistance could be provided to adapt resource and teaching materials to make them directly applicable to the Caribbean. Additional assistance could be provided to develop curriculums to meet local small scale entrepreneurial needs. Use of local consultants would be encouraged in all of these possible TA areas.

## **Recommendations for Future Support of CAST**

This section is based on an analysis of CAST's use of aid in the past and describes the overall strategy to be pursued in supporting specific activities such as those mentioned in the previous section.

1. U.S.A.I.D. should consider utilizing CAST for training in areas which might be relevant to other projects in which U.S.A.I.D. is active. CAST has demonstrated its substantial capacity to grow into new areas of instruction if given the support of local industry, commerce and professional groups. Oftentimes, all that may be needed is assistance in obtaining the expertise and the staff time to devote to the development of the curriculum for the additional courses. The establishment of the School of Architecture is an excellent example of this type of support.
2. Support to CAST in the form of scholarships and further professional training for staff is an effective means to help with staff recruitment and retention. In order to maintain the quality of education at CAST which is essential to the development of the Jamaican economy, this type of assistance is very important until a long-term solution to these problems is reached.
3. Assistance in the form of construction of new classrooms or other space and new equipment should be specifically related to augmenting CAST's capacity to either introduce new courses and/or to provide for additional income generating activities.
4. U.S.A.I.D. should continue to find ways to support the development of the CAST Foundation in order to broaden the economic base of support for the College. Some technical assistance might be considered to help the Foundation develop its fund-raising capabilities, both within and outside Jamaica. Scholarships to courses on fund-raising for Foundation staff, particularly relative to a higher education institution could be useful once the Foundation has hired some full-time staff.
5. U.S.A.I.D. should try to integrate opportunities for staff at CAST to augment their incomes through acting as local consultants for projects funded by U.S.A.I.D. when this is feasible. Although certain organizational and legal issues need to be resolved relative to the establishment of a professional services unit, use of CAST staff on an individual basis in the meantime should not be excluded. Likewise, possibilities of future income generating activities on a larger scale

once those issues are resolved might serve as an incentive to resolve those issues more quickly.

6. Further scholarships for local and regional students at CAST should be considered, particularly where those scholarships help to meet overall manpower needs or specific project goals. Scholarships for low-income persons to take advantage of CAST educational opportunities, particularly in the area of small scale enterprise development, should be a priority.

## **Conclusion**

In conclusion, it is hoped that the recommendations made and programmatic areas suggested will serve as a basis for developing future support for CAST's activities. It is only through the exploration by U.S.A.I.D. and CAST staff of these and other areas of cooperation that both institutions' objectives may be met. Other possibilities will most likely occur during the mutual exploration of the abovementioned ideas.

CAST has proven itself to be an effective Jamaican educational institution which is greatly assisting the development of Jamaica. Cooperation between CAST and U.S.A.I.D. to further that development is to be encouraged.

## **LIST OF ANNEXES**

- 1. Law revising the scheme for CAST in 1986**
- 2. Organizational chart proposing the establishment of CAST as a polytechnic**
- 3. Profile of tertiary/higher institutions in Jamaica**
- 4. List of persons interviewed**
- 5. List of documents reviewed**
- 6. Student Information Summary 1987-88**
- 7. Student and Staff Summary 1988-1989**
- 8. Student Summary 1988-1989**



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**JAMAICA GAZETTE**  
**SUPPLEMENT**

PROCLAMATIONS, RULES AND REGULATIONS

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THE EDUCATION ACT

**THE COLLEGE OF ARTS, SCIENCE AND TECHNOLOGY SCHEME (APPROVAL) ORDER, 1986**  
In exercise of the power conferred on the Minister by section 13 of the Education Act, and of every other power hereunto enabling, the following Order is hereby made:—

1. This Order may be cited as the College of Arts, Science and Technology Scheme (Approval) Order, 1986.

2. The College of Arts, Science and Technology Scheme, 1986, set out in the Schedule hereto approved and shall take effect from the date of publication of this Order in the *Gazette*.

SCHEDULE

(Paragraph 2)

THE EDUCATION ACT

*The College of Arts, Science and Technology Scheme, 1986*  
In exercise of the powers conferred upon the Minister by sections 9 and 13 of the Education Act and of every other power hereunto enabling, the following Scheme is hereby made:—

Short title.

1. This Scheme may be cited as the College of Arts, Science and Technology Scheme, 1986.

Interpreta-  
tion.

## 2. In this Scheme—

"Academic Board" means the Board of Studies constituted under paragraph 15;

"academic staff" means the teaching staff of the College;

"approved course of study" means any course of study provided by the College;

"chairman" means the chairman of the Council, and includes any person appointed to act temporarily as chairman;

"the College" means the College of Arts, Science and Technology situated at Papine in the parish of St. Andrew;

"the Council" means the Council of the College established under paragraph 3;

"President" means the person appointed under paragraph 9;

"recognized body" means any body whose degrees, diplomas certificates or other awards are recognized by the Council;

"the Registrar" means the person appointed under paragraph 9.

Establish-  
ment of  
Council.

3.—(1) There shall be established for the purposes of this Scheme, a body to be called the Council of the College of Arts, Science and Technology which shall be a body corporate to which the provisions of section 28 of the Interpretation Act shall apply.

(2) The Council shall consist of fifteen members appointed by the Minister of whom—

- (a) one member shall be the President;
- (b) one member shall be a representative of the Ministry of Education;
- (c) one member shall be a representative of the University of the West Indies and shall be nominated by the Vice-Chancellor of that institution; and
- (d) five members shall be appointed from persons appearing to the Minister to be representatives of the College community;
- (e) seven members shall be appointed from among persons appearing to the Minister to be suitably qualified for such appointment.

(3) The appointment of every member of the Council shall be evidenced by instrument in writing, and such instrument shall state the period of office of the member which shall, subject to the provisions of this Scheme, not exceed three years.

(4) Every member of the Council shall be eligible for reappointment.

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(5) The Minister shall appoint a chairman and a vice-chairman from among the members of the Council and in the case of the absence or inability to act of the chairman the vice-chairman shall perform the function of chairman.

(6) If any member of the Council other than the chairman or vice-chairman is absent or unable to act, the Minister may, subject to paragraph 3 (2), appoint any person to act in place of that member.

(7) Any member of the Council other than the chairman may at any time resign his office by instrument in writing addressed to the Minister and transmitted through the chairman and from the date of receipt by the Minister of such instrument, that member shall cease to be a member of the Council.

(8) The chairman may at any time resign his office by instrument in writing addressed to the Minister and such resignation shall take effect as from the date of receipt by the Minister of that instrument.

(9) Any member who fails to attend meetings of the Council for a continuous period of six months without excuse acceptable to the Council or, as the case may be without being granted leave of absence from the Council, shall cease to be a member of the Council.

(10) The Minister may at any time revoke the appointment of any member of the Council.

(11) If any vacancy occurs in the membership of the Council, such vacancy shall, subject to paragraph 3 (2), be filled by the appointment of another member.

(12) The chairman shall preside at meetings of the Council, and if the chairman and the vice-chairman are absent from a meeting the members of the Council present shall elect one of their number to preside at the meeting.

(13) The Council shall, subject to the provisions of this Scheme, have power to regulate its own proceedings.

(14) The names of all members of the Council and every change in the membership thereof shall be published in the *Gazette*.

**Powers and  
duties of  
the Council.**

4.—(1) The Council shall be the governing authority of the College and shall, without prejudice to any other power conferred by this Scheme, have the power to appoint such advisory committees as it deems necessary.

(2) It shall be the duty of the Council to manage and maintain the College as a college for providing full-time and part-time training in the fields of Arts, Science and Technology.

- (3) In particular, and without prejudice to the generality of sub-paragraph (2), it shall be the duty of the Council—
- (a) to determine, in consultation with the President of the College, the staff requirements of the College;
  - (b) to make arrangements for the holding of examinations leading to the award by the Council or any recognized body, of degrees, diplomas, certificates or other awards to persons who have pursued an approved course of study at the College;
  - (c) to determine, after consultation with the Minister, emoluments for the various categories of staff;
  - (d) generally to manage, subject to the provisions of this Scheme, the financial affairs of the College including its accounts, investments, property and other business.

**Accounts  
and audit.**

- 5.—(1) The Council shall keep proper accounts in relation to the business of the College and proper records in relation to such accounts, and shall prepare annually a statement of accounts in a form satisfactory to the Minister, being a form which shall conform with the best commercial standards.
- (2) The accounts of the College shall, subject to sub-paragraph (3), be audited annually by an auditor appointed in each year by the Council with the approval of the Minister.
- (3) The audit of the accounts shall be conducted under such arrangements and in such manner as may be approved by the Auditor-General and the members, officers and servants of the Council shall grant to the person conducting the audit access to all the books, documents, cash and securities of the Council and shall give to him on request all such information as shall be within their knowledge in relation to the operation of the College.
- (4) The auditor's fees and any expenses of the audit shall be paid by the Council.
- (5) The Council shall, within four months after the end of each financial year of the College—
- (a) send the statement of its accounts referred to in sub-paragraph (1), to the Minister together with a copy of any report made by the auditor on that statement and on the accounts of the Council;
  - (b) prepare and submit to the Minister, a general report of its proceedings during such financial year and such report shall contain information relating to the programme of activities of the College for the financial year following that to which the report relates.
- (6) The financial year of the College shall be the period of twelve months ending on the 31st day of July in any year.

Estimates.

6. The Council shall, on or before such date as may be specified by the Minister in each year, submit to the Minister for approval its estimates of revenue and expenditure in respect of the next ensuing financial year of the College.

Procedure and meetings.

7. (1) Subject to the provisions of this paragraph, the Council shall meet at such times as may be expedient for the transaction of its business but such meetings shall not be less than once every quarter.

(2) The chairman may at any time call a meeting of the Council and shall call a special meeting within ten days of the receipt of a written request for that purpose addressed to him by any four members of the Council.

(3) A quorum of the Council shall be six.

(4) The decisions of the Council shall be by a majority of voters and, in addition to an original vote, the chairman or other person presiding at a meeting shall have a casting vote in any case in which the voting is equal.

(5) Minutes in proper form of each meeting of the Council shall be kept.

(6) The validity of the proceedings of the Council shall not be affected by any vacancy amongst the members thereof or by any defect in the appointment of any member thereof.

Seal and execution of documents.

8.—(1) The seal of the Council shall be kept in the custody of the chairman or the Registrar and shall be affixed to instruments pursuant to a resolution of the Council in the presence of the chairman or any other member of the Council, and the Registrar.

(2) The seal of the Council shall be authenticated by the signatures of the chairman or any other member of the Council authorized to act in that behalf and the Registrar and such seal shall be officially and judicially noticed.

(3) All documents, other than those required by law to be under seal, made by the Council and all decisions of the Council, may be signified under the hand of the chairman, or any other member of the Council authorized to act in that behalf, or the Registrar.

Appointment of staff.

9.—(1) The Council may, with the prior approval of the Minister, appoint and employ on such terms and conditions as it thinks fit, a president, such number of vice-presidents as the Council considers necessary, and a Registrar.

(2) The Council may, after consultation with the President, appoint and employ on such terms and conditions as it thinks fit, such academic staff as it considers necessary for the College.

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(3) The President may appoint and employ on such terms and conditions as he thinks fit such other officers and servants as he may deem necessary for the College.

(4) The President may, if he thinks fit delegate any of his functions under this Scheme.

(5) A delegation made pursuant to sub-paragraph (4) shall be revocable by the President and no such delegation shall prevent the performance of any function by the President.

**Curriculum.**

10. The general curricula and scheme of examinations for students shall be approved by the Council after consultation with the Academic Board.

**Degrees, diplomas, etc.**

11. The Council shall, on the recommendation of the President, confer any degrees, diplomas, certificates or other marks of distinction on students of the College who have pursued courses of study approved by the Council and have passed such examinations or other tests as may from time to time be required by the Council.

**Regulations for admission of students.**

12. The Council may—

- (a) after consultation with the President, make regulations relative to all academic matters pertaining to the College; and
- (b) with the prior approval of the Minister, determine the fees to be charged in respect of such admission to the College.

**Duties of President.**

13.—(1) The President shall exercise general authority over the staff of the College and shall be responsible for the maintenance of discipline in the operation of the College.

(2) The President may suspend, or, as the case may be, after consultation with the Council, expel any student from the College if, in his opinion, there is just and reasonable cause to do so.

**Duties of Registrar.**

14. The Registrar shall—

- (a) carry out the function of Secretary to the Council, the Academic Board, and any committee appointed by the Council under this Scheme; and
- (b) carry out such other duties as may be assigned to him by the Council or the President.

**Composition, powers and duties of Board.**

15.—(1) The Academic Board shall consist of—

- (a) the President, who shall be chairman of the Academic Board;
- (b) such members of the academic staff as are directly in charge of the main branches of studies;
- (c) not more than five other members of the academic staff approved by the Council on the recommendation of the President; and
- (d) a representative of the student body.

(2) The Academic Board may make recommendations to the Council on all matters affecting the academic programme of the College.

(3) It shall be the duty of the Academic Board to assist and advise the President in relation to such matters as the Council may specify from time to time.

(4) The Academic Board may in its discretion, consult with or seek the advice of, persons who are not members of staff of the College nor members of the Council and such persons may be invited to meetings of the Academic Board for that purpose.

(5) The Academic Board shall have the power to regulate its own proceedings.

Power of Minister to give directions.

16.—(1) The Minister may, after consultation with the chairman give to the Council directions of a general nature as to the discharge by the Council of its functions in relation to matters appearing to the Minister to affect the public interest, and the Council shall give effect to any such directions.

(2) The Council shall afford the Minister all facilities for obtaining information with respect to the property and functions of the Council and shall furnish the Minister with such returns, accounts and other information with respect thereto as he may, from time to time, require.

(3) The Minister shall have the power from time to time to make by-laws for the better carrying out of the provisions of this Scheme and shall consult with the Council in the exercise of such power.

Protection of members.

17.—(1) No member of the Council shall be personally liable for any act or default of the Council done or omitted to be done in good faith in the course of the operations of the Council.

(2) Where any member of the Council is exempt from liability by reason only of the provisions of this paragraph, the Council shall be liable to the extent that it would be if the member was a servant or agent of the Council.

Remuneration of members.

18. There shall be paid to the chairman, vice-chairman and members of the Council, such remuneration whether by way of honorarium, salary or fees, and such allowances as the Minister may determine.

Service of documents.

19. Service of any document upon the Council shall be executed by delivering it to, or sending it by registered post addressed to the Registrar at the office of the Council.

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Revocation 20. The College of Arts, Science and Technology Scheme, 1959, is hereby revoked.

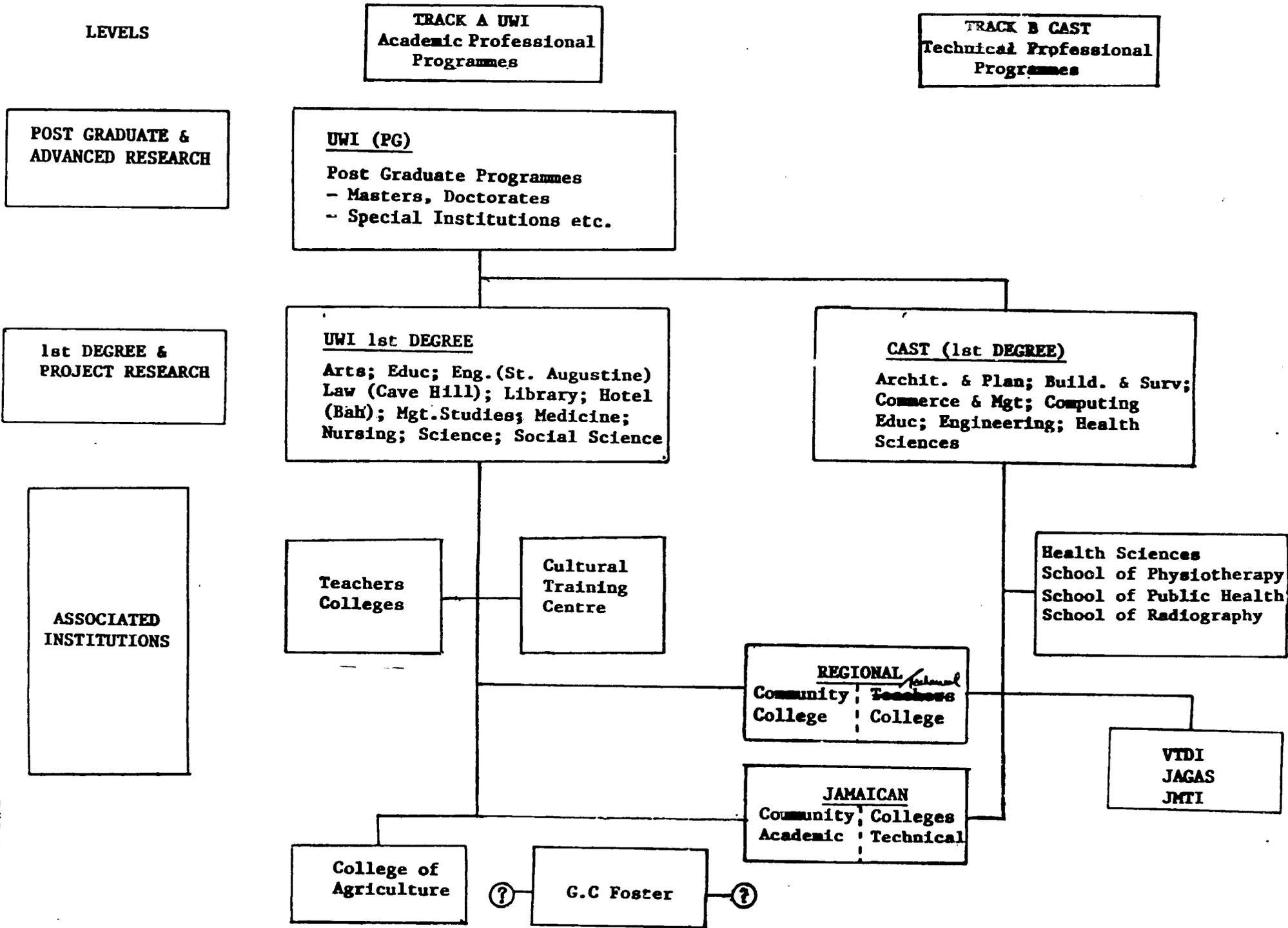
Made at Kingston this 14th day of March, 1986

MAVIS G. GILMOUR,  
Minister of Education.

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**HIGHER EDUCATIONAL LINKAGES IN JAMAICA**  
**GOVERNMENT FUNDED**

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A PROFILE OF TERTIARY/HIGHER INSTITUTIONS

ANNEX#3

NO.	ENROLMENT	SCHOOL TYPE	ENTRY EXAMS & REQUIREMENT	PROGRAMME DESCRIPTION	LEAVING EXAMS	* SCHOOL STATUS 1 = HIGHEST
4	2,113	Community Colleges	CXC, GCE "O" Level	Academic PreUniversity skill oriented - Community needs	GCE "A" Level College exams	Next to CAST 2 1
8	2,695	Teachers' College	CXC, GCE "O" Level	Training to teach at Early Childhood, Primary and Secondary levels	JBTE	Depend on the colleges status; depend on the status given to teacher general-ly 4
1	204	College of Agriculture	CXC, GCE "O" Level	Training covers most aspects of agriculture		Uncertain
1	200	Cultural Training Centre	College Entrance Exam, CXC, GCE "O" Level, Interview, Audition, JSC	Skill training in all cultural areas, eg., Dance, Music, Drama, Art. Teachers' certificate in specific area	JBTE, College Exam	Very prestigious in cultural circles in the Caribbean 3
1	150	G.C. Foster	CXC, GCE "O" Level	Training in all areas of sports, teacher, coaches	JBTE	Considered as a teachers' college 4
1	3,208	C.A.S.T.	CXC, GCE "O" Level	Technical training in most area of industry. Teacher training also offered. Degree offered	College exam. JBTE, overseas	Most prestigious of the tertiary institutions 1
1	5,000	U.W.I. Mona, Cave Hill St. Augustine	CXC, GCE "O" & "A" levels, Teachers Diploma	Academic oriented, offer undergraduate and post graduate training	U.W.I.	Most prestigious of all institutions

\* Parents/student assessment

SOURCE: Research Section, M.O.E., 1986

## **LIST OF PERSONS INTERVIEWED**

### **U.S.A.I.D.**

William Joslin, Director  
Marilyn Zak, Deputy Director  
Lane Smith, RHUDO Assistant Director  
George Deikun, RHUDO Regional Housing and Urban Development Officer  
Carol Brown, RHUDO Project Officer  
Maureen Webber, RHUDO Training Officer  
Robert Dubinsky, RHUDO  
William Charleson, Head, Office of Education & Human Resources  
Rebecca Cohn, Head, Office of Health, Nutrition & Population  
Ruby Baker, Office of Program & Economic Planning  
Charles Mathews, Head, Office of Engineering & Energy  
Patricia Lerner, Project Development Officer

### **CAST**

Dr. Alfred Sangster, President  
Gloria Hamilton, Vice-President  
Patrick Cameron, Head, Building Department  
G. Blankson, Building Department  
C. Wolff, Building Department  
A. Young, Head, Commerce Department  
Dr. L. Lawrence, Commerce Department  
D. Fuller, Head, Computer Science Department  
N. Clato-Day, Acting Head, Engineering Department  
Dr. K. Murphy, Engineering Department  
U. Lambert, Head, Institutional Management Department  
G. Roper, Head, Science Department  
M. Lee, Science Department  
K. Christian, Head, Technical Education  
S. Glasgow, Manager, Entrepreneurial Extension Center  
H. Salmon, Head Librarian  
M. Taylor, President, CASU  
R. Douglas, President, Student Council

## **LIST OF PERSONS INTERVIEWED (continued)**

### **CAST Council**

L. Robinson, Sr. Vice-President, UWI, and former chairman of CAST Council  
N. Sadler, Member, CAST Council

### **CAST Foundation**

Mabel Tenn, Member, Board of Directors, and CAST Council

### **Ministry of Education**

Mrs. Graham, Head, Tertiary Education Department  
Mrs. Dyer, Head, Technical Education Department

### **Students of In-Service Training**

4 Former Students of the In-Service Training Course conducted by the  
Building Department for Building Inspectors

**LIST OF DOCUMENTS REVIEWED**

U.S.A.I.D., Project Proposal & Project Grant Agreement for Urban Sector Technical Assistance Project No. 532-0117

U.S.A.I.D., Country Development Strategy Statement for Jamaica, FY 1989 - 93

U.S.A.I.D./Jamaica, Human Resource Development Strategy, March 30, 1989

U.S.A.I.D., Jamaica Shelter & Urban Services Policy Project Paper, Project No. 532-0149, Loan No. 532-HG-013. June 30, 1988

CAST, Prospectus, 1987-89

CAST, President's Report at the Annual Graduation Ceremony, 18 March, 1989

CAST, Summer Institute, Building Dept., 1989, "Natural Hazards & the Human Habitat"

CAST, Summer Institute, Building Dept., 1988, "Tourism & Physical Development in the Caribbean"

CAST, Summer Institute, Building Dept., 1987, "Financing & the Development Process"

CAST, Publications for the Caribbean, Vol 1, David Gregory-Jones, "Site Planning for the Caribbean - An Introduction"

CAST, "CAST - New Horizons, Proposals for Restructuring and Development, (submitted to the Ministries of Education, Finance & Public Service, January 1988

CAST, Academic Staff Handbook

Teape-Johnson Ltd., "An Analysis of Labour Market Structures & Operations", U.S.A.I.D./Jamaica, Jan. 1989

Teape-Johnson Ltd., "An Analysis of Education & Training Institutions, U.S.A.I.D./Jamaica, Jan. 1989

Teape-Johnson Ltd., "An Analysis of the Comparative Labour Force Characteristics, U.S.A.I.D./Jamaica, Jan. 1989

A

BREAKDOWN OF STUDENT MEMBERS 1987 - 88

Table 3

DEPARTMENT		YEAR				FTE	WOM	Total (Un-weighted)	Number of Men	Number of Women	NON-NATIONALS		
		1	2	3	4						Men	Women	Total
BUILDING	FT	68	86	58	-	212	212	212	178	34	56	15	71
	PT	-	61	20	9	30	30	98	85	9	-	-	-
	EV	-	-	-	-	-	-	-	-	-	-	-	-
	Total	68	147	78	9	242	242	310	263	43	56	15	71
COMMERCE	FT	238	206	182	-	626	626	686	198	428	15	21	36
	PT	226	155	86	-	142.3	142.3	427	207	220	-	-	-
	EV	454	226	78	-	-	222.6	728	319	409	-	-	-
	Total	918	587	326	-	768.3	1020.9	1811	724	1087	15	21	36
COMPUTING	FT	33	42	-	-	75	75	75	40	35	3	3	6
	PT	4	2	-	-	2	2	6	5	1	-	-	-
	EV	-	-	-	-	-	-	-	-	-	-	-	-
	Total	37	44	-	-	77	77	81	45	36	3	3	6
ENGINEERING	FT	122	96	91	-	309	309	309	292	17	11	1	12
	PT	123	94	45	33	98	98	295	299	6	-	-	-
	EV	62	32	12	-	-	37.3	112	110	2	-	-	-
	Total	307	222	151	33	407	444.3	716	691	25	11	1	12
IN & FS	FT	53	39	47	-	139	139	139	9	130	-	11	11
	PT	46	50	-	-	32	32	96	20	76	-	-	-
	EV	7	27	-	-	-	21.3	64	3	61	-	-	-
	Total	106	146	47	-	139	192.3	299	32	267	-	11	11
SCIENCE	FT	121	64	57	-	242	242	242	91	151	1	9	10
	PT	-	-	-	-	-	-	-	-	-	-	-	-
	EV	36	25	-	-	-	20.3	61	32	29	-	-	-
	Total	157	89	57	-	242	262.3	303	123	177	1	9	10

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BREAKDOWN OF STUDENT NUMBERS 1987 - 88

Table 3

DEPARTMENT		YEAR				FTE	WSM	Total (Un-weighted)	Number of Men	Number of Women	NON-NATIONALS		
		1	2	3	4						Men	Women	Total
TECHNICAL EDUCATION	FT	101	101	99	-	301	301	301	128	173	6	14	20
	PT	21	20	-	-	13.7	13.7	41	4	37	-	-	-
	EV	-	-	-	-	-	-	-	-	-	-	-	-
	Total	122	121	99	-	314.7	314.7	342	132	210	6	14	20
GRAND TOTALS	FT	736	634	534	-	2176.3	2553.5	1904	936	968	92	74	166
	PT	420	362	131	42	-	-	999	610	345	-	-	-
	EV	359	343	93	-	-	-	992	467	520	-	-	-
TOTALS UNWEIGHTED		1715	1339	758	42	-	-	3894	2013	1841	92	74	166
TOTAL FTE		876	754.6	577.6	14	-	-	2222.3	1139.4	1085	92	74	166
TOTAL WSM		1062.3	868.9	608.6	14	-	-	2553.8	1295.0	1259	92	74	166

DISTRIBUTION OF NON-NATIONALS

Total by Territory

Antigua	15	Ethiopia	1	Panama	1
Anguilla	6	Grenada	19	St. Kitts/Nevis	5
Barbados	8	Guyana	3	St. Lucia	23
Belize	11	Haiti	2	South Africa	1
BYI	2	India	1	Trinidad	10
Britain	0	Montserrat	7	Turks & Caicos	5
Dominica	15	Nigeria	1		

Total: 166

Sponsors

CIDA	92	Anguilla Govt.	
CFTC	21	Barbados Govt.	1
UK/WITS	17	Belize Govt.	0
PAHO	1	St. Vincent Govt.	0
BIC		Turks & Caicos Govt.	0
Dutch SIR	6	UNDP	1
Govt. of Ja.	1	UNESCO	1

Total: 166

## STUDENT INFORMATION SOURCE

Table 2

DEPARTMENT	Students % of Total			Total %	Men/Women In Dept.		Non-Nationals %	Teaching hrs. done In Dept. % of Total	S T A F F						% Teaching done by	
	FT	PT	EV		% Men	% Women			FT Numbers			PT Numbers			FT Staff	PT Staff
									% Men	% Women	Total	% Men	% Women	Total		
BUILDING	70.2	29.8	-	100	70.8	21.1	71/23.5	18.3	14	5	19	38	12	50	43	57
COMMERCE	34.6	23.9	41.9	100	40.0	60.0	36/2.0	24.07	8	14	22	34	39	69	24	76
COMPUTER	92.6	7.4	-	100	95.6	44.4	6/7.4	1.99	2	3	5	2	1	3	62.9	37.9
ENGINEERING	43.2	41.2	19.6	100	96.5	3.5	12/1.6	24.90	25	1	26	26	3	29	47	53
IN & FS	46.3	32.2	21.5	100	10.7	89.3	11/3.7	6.11	0	10	10	2	6	8	56	44
SCIENCE	79.9	-	20.1	100	41.6	58.4	10/3.3	11.14	16	17	33	14	12	26	60	40
TECHNICAL EDUCATION	88.0	12.0	-	100	38.6	61.4	20/3.8	13.93	11	21	32	19	6	25	56	44
TOTAL	49.4	24.8	25.8	100	52.2	47.8	166/4.3	100.00	76	71	147	135	75	210	41	59

CAST Summary of Students and Staff 1988-1989

ANNEX #7

Department	Students Status				Staff full time			Staff part time		
		men	women	% women	men	women	% women	men	women	% women
Building	FT	181	39	18%	9	3	25%	27	5	16%
	PT	61	16	21%						
	Evening									
	Modal	14	5	26%						
Commerce	FT	200	460	70%	18	22	55%	11	16	59%
	PT	232	342	60%						
	Evening	289	606	68%						
	Modal									
Computer	FT	43	47	52%	1	6	86%	2	0	0%
	PT	4	1	25%						
	Evening									
	Modal	64	83	56%						
Engineering	FT	283	17	6%	19	1	5%	26	3	10%
	PT	312	6	2%						
	Evening	27	0	0%						
	Modal	444	2	0.50%						
IM&FS	FT	13	118	90%	0	10	100%	2	5	71%
	PT	17	62	78%						
	Evening	7	77	92%						
	Modal									
Science	FT	87	168	66%	15	15	50%	13	17	57%
	PT									
	Evening	33	26	44%						
	Modal	29	68	70%						
Technical ed	FT	136	180	57%	9	20	69%	6	6	60%
	PT									
	Evening									
	Modal	38	145	79%						

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## CAST Student Summary 1988-1989

	A	B	C	D	E	F
1		Full Time	Part Time	Evening	Modular	Total
2	Building	220	77		19	316
3	Commerce	660	574	935		2169
4	Computing	90	5		66	242
5	Engineering					
6	regular	300	318	27	446	1091
7	modular	404 students in 20 modular courses, 39 students in degree courses				
8	IM&FS	131	79	84		294
9	science	255		59	97	411
10	Technical Ed.	113 students in 3 degree courses				
11	Administration					
12	Total	1972	1053	1065	810	5021

-04-