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## 25 THE STATE OF SCIENTIFIC INFORMATION SYSTEMS IN THE BAHAMAS

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Communication systems in the Bahamas, both written and oral, are moving in a positive stream - especially in education.

The conditions imposed by the geography of the country are quite different from most other Caribbean countries, in that the Bahamas is an archipelagic country composed of 700 islands covering an area of over 160,000 square miles. Transportation routes for materials and the organizational structure of the Ministry of Education and Culture often times cause problems with communications.

Innovative programs, 90% of the time originate in New Providence, the Capital of the country, and spread out to the other twenty-three inhabited islands and cays.

Scientific information in the Bahamas is presently being disseminated via the Ministry of Education and Culture, the College of the Bahamas, the Ministry of Agriculture and Fisheries, the Ministry of Health, the Bahamas National Trust and several scientific industries.

This paper will focus the means through which materials are disseminated in the Ministry of Education and Culture. This is the major system through which most scientific materials are disseminated in the Bahamas.

### Meetings

1. General meetings with all Science Teachers from both Government and Independent schools on the island of New Providence are held during each school term - a total of three per year. At the initial meeting held in August which is an Orientation Workshop, teacher review curriculum guidelines and current information related to the field are presented.

Teachers are encouraged to join and actively participate in Curriculum Development and/or Renewal Committees. Each school has at least one representative on each of the subject committees.

2. Heads of Science Department meetings are held each month with the Education Officer. The purposes of these meetings being:-

- (a) to discuss progress of Curriculum Development Committees;
- (b) to present current professional literature;
- (c) to review textbooks;
- (d) to discuss problems that might exist within the various departments;
- (e) to plan In-service Teacher Training Workshops; and
- (f) to devise New Approaches to teaching

Heads of department are encouraged to meet with science staff members at least twice per month in order to inform them of recent developments as well as to plan, organise and implement matters related to the school science program.

3. Family Island Staff meetings are held with Family Island Science Teachers throughout the country during the visitations of the Education Officer (Science). Each island is encouraged to establish Curriculum Committees so that developments in Curriculum may be continuous throughout the school year.

4. Assistant Director of Education meetings are held weekly, each Thursday morning. The Education Officers are often-times invited to these meetings in an attempt to inform the Assistant Directors and the Director of Education with current occurrences in their area and to solicit their aid and support in carrying out proposals that are approved.

#### Communication of Materials to Science Teachers Throughout the Family Islands

Residing on each of the major Family Islands are District Education Officers. These persons serve as the Ministry of Education and Culture's representatives on the particular island to which they are assigned. They are responsible for conveying the Ministry's policies and seeing to it that they are carried out.

Good communication involves input as well as output by each individual involved.

It is through the District Education Officer that developments in Science are distributed to Science staff members living on the Family Islands. These officers carry or send the materials to the Principals and Science teachers. Any input that teachers have to contribute toward materials sent from Ministry's Headquarters are submitted to the Science Officer through the District Education Officer.

The Science Officer then presents the materials to relevant committees on the island of New Providence.

On several of the Family Islands, the District Education Officers serve as the chair agent between the Ministry and scientific institutions located on the islands for which they are responsible.

Circulars related to different activities in science education are sent to the District Education Officer. Also student textbooks, teacher resource materials and supplies lists and catalogues.

Only in cases of urgency are materials sent directly to the teacher in which case, it has to be sent through the Principal. Telephone calls and telegrams are also made and/or sent.

Family Island Science teachers, when in New Providence during a holiday, visit the Office of the Education Officer (Science) in order to receive needed information. New materials and developments are presented and discussed during these meetings.

Official minutes of all communications made are sent up the line of command to the Senior Officers for information purposes or for actions to be taken.

#### Writing Workshops

Since 1975, Principals of both Government and Independent schools have cooperated well in releasing science teachers from their normal teaching duties when requested by the Ministry of Education and Culture to participate in Writing Workshops.

These are Workshops that are needed primarily for producing Curriculum materials. They are normally of three to five days duration and are held in the Science Resource Centre. Teachers have easy access to resource information in the subject disciplines for which there are developing materials. The Resource Library has over 300 volumes of resource books.

#### In-Service Teacher Training Workshops

The location of science teachers throughout the country on twenty-three (23) different islands causes duplication of some of the activities related to the communications of scientific developments. This causes the process of communication to be long and tedious. Materials are sent from the Ministry to the District Education Officer who issues such to the teacher via the Principal. The teacher then submits comments, evaluation or recommendations to the Principal who then submits such to the District Education Officer who then forwards materials to the Education Officer (Science) through the Permanent Secretary. This, often times, takes from 3 weeks up to 6 weeks. Therefore, in 1973, In-Service Teacher Training Workshops for Family Island teachers were initiated.

The first type being the Primary In-Service Teacher Train-

ing Workshops which were initiated as a means of:-

1. Presenting to the teachers, especially on the Family Islands, sample materials that might be selected for use in a Primary Science Program in the Bahamas;
2. Providing a situation in which teachers might develop teaching skills that would enable them to test and evaluate these sample materials that might be selected to be incorporated in a Primary Science Program;
3. Acquainting teachers with background information on specific scientific topics that are to be developed into teaching units for the Primary Science Program; and
4. Encouraging teachers, especially those with little or no science background, to incorporate their scientific knowledge gained with other class subjects.

The Workshops were conducted by members of the Primary Science Committee and the Education Officer for Science. Local arrangements on the Family Islands for In-Service Teacher Training Workshops in Science are made by the District Education Officer. They include release of teachers, location of Workshop site, providing transportation and living accommodation for the visiting Officer. All materials to be used in the Workshop are transported to the island by the Officer, except for materials that may be found locally.

Summer In-Service Workshops in Agricultural Science were started in 1975 in an attempt to acquaint teachers who were interested in starting programs in Agriculture with enough knowledge and skills to do so. Specialist Officers from the Ministry of Agriculture and Fisheries as well as the Education Officer for Science and local crop and live-stock farmers taught the sessions of this one month course. Both lecture and practical laboratory work sessions were held in the Science Laboratory and in the fields. Members of the Bahamas Agricultural Research and Training for Agricultural Development (BARTAD) Staff located on the island of Andros also gave valuable input. Another was held in 1976 and participants included Agriculture Science Specialists teachers who were not familiar with tropical Agriculture as well as interested teachers and farmers.

The In-Service Course on the Bahamian Marine Environment was held in 1976. This, being necessary, was to equip teachers to improve their teaching skills with a unit entitled the same that is a part of the General Science Syllabus. Fisheries Officers shared their knowledge in teaching these sessions as well as experts from the Ministry of External Affairs who acquainted teachers with "The Laws of the Sea".

### Science Radio Broadcasts

In an effort to enlighten and broaden scientific knowledge in general, a Science Radio Broadcast Committee was formed in 1973. Ten scripts were developed and presented centering around the Unit topics found in the Bahamas Junior Certificate Syllabus.

These scripts were broadcast throughout the country but have been discontinued because of more pressing developments in the field of Science. Hopefully, by 1978, the Committee will be reactivated and more scripts produced and broadcasted.

Through the services of the Broadcasting Division of the Learning Resources Unit, half-hour radio programs related to current occurrences in Science Education are made once each term. Last term, the Low Cost Science Production Seminar/Workshop and the Agricultural Science Centre in New Providence were featured and this term, the Third Bahamas Science Exhibition will be featured twice within one week - once on Thursday and again on Sunday, both being done during prime radio time.

### Bahamas Information Services

It is now a policy of my Government that any materials that are to be placed in the Press media, with the exception of educational radio broadcasts from the Ministry of Education and Culture, must be issued by the Bahamas Information Services. Therefore, any educational scientific news releases must come into Ministry Headquarters and be forwarded through the Public Relations Officer of the Ministry to Bahamas Information Services, the official publicity agent of Government. Only when programs are covered by an official member of Bahamas Information Services is this procedure unnecessary.

### Science Exhibition

In 1972 and in 1974, very successful Science Exhibitions were held that served not only to develop an increased public awareness of the place and need for Science and things scientific in today's world, but these exhibitions also served as a meeting ground for young scientific minds from all over the Commonwealth.

The participation of private enterprise not only exposed students to the possibilities and the need for scientists in the future, but it served to reassure industry that the Ministry of Education and Culture was cognizant of their needs in these areas and was training our young people to be qualified to fill some of these needs.

Both served as a stimulating educational experience for all in that they:-

- (a) provided students at all levels with an

opportunity and incentive to pursue their own scientific interests;

- (b) increased the awareness of students about the many topics of Science and its teaching potential in the Bahamian environment;
- (c) served as a meeting point for an exchange of ideas about Science education;
- (d) provided an opportunity for the general public to gain an insight into the role of Science and its relevance to the Bahamian way of life; and
- (e) provided everyone with an opportunity to witness that learning and enjoyment of life are compatible.

These Exhibitions were sponsored under the auspices of the Ministry of Education and Culture in cooperation with the Ministries of Health, Agriculture and Fisheries and private scientific firms and Organizations. Scientists from the public as well were invited to present lectures, seminars and demonstrations. The Third Bahamas Science Exhibitions is to be opened officially on April 25, 1977.

These Exhibitions were organized by the Science Exhibition Committee that is composed of one representative from each participating school, Ministry, firm and organisation.

The Exhibition is at present non-competitive. Schools throughout the country, also, stage individual Science Exhibitions throughout the year.

#### Science Resource Centre

In May 1975, it was found necessary to have a Central Supply Depot to store and distribute kits, booklets and other scientific apparatus to schools throughout the Commonwealth. Therefore, the Science Resource Centre was established. The services of the Centre are:-

- (a) to serve as a site for In-Service Teacher Training Workshops for teachers of Science;
- (b) to serve as a Science Service Centre (Repair of broken equipment);
- (c) to serve as a Central Supply Centre for the loaning of Science materials (kits, audiovisual aids equipment, chemicals, professional literature and resource textbooks, etc.);
- (d) to serve as a meeting place for Science teachers and other scientists and science educators in the community for discussions related to problems encountered in the

teaching of the subject; and

- (e) to serve as a site for demonstrations of new or unfamiliar apparatus in science.

Presently, the Centre is not opened full time, but persons desirous of using the services of the Centre are able to do so when requests are made. It is hoped that once the services of a full-time technician are available, it will be opened full-time.

#### Donor Agencies

There are located in the Bahamas, scientific firms and organizations that published educational materials - Bahamas Oil Refining Company (BORCO), Syntex, Mortons Salt, The Bahamas National Trust, BARTAD, Shell and, etc.

Publications are sent to schools from these institutions via the Education Officer (Science). Of particular mention is The Bahamas National Trust which invited the Ministry of Education and Culture to cooperate with its Educational Committee in developing a Conservation Guide and slide shows related to Units in the General Science Syllabus.

Scientific films, filmstrips and slides are loaned to schools through the institutions stated above as well as the American, Jamaican and Canadian Embassies. Scientific materials received in the Ministry of Education and Culture from the British Council, the Caribbean Regional Organization of Associations for Science Education (CROASE) other Ministries and colleges and universities abroad are duplicated when received and if necessary, distributed to science staff members throughout the country. These are accompanied by a circular which is the official covering medium for materials being issued to all schools. Materials are forwarded to both Government and Independent schools.

#### Conclusion

Some of the major problems that are encountered in attempting to disseminate scientific materials to science teachers throughout the Bahamas are:-

- (a) the slowness of the bureaucratic structure in having circulars approved;
- (b) the inefficiency of materials arriving to the responsible officer immediately after their arrival in the office;
- (c) the slowness of the mail service throughout the country; and
- (d) the lack of efficiency in passing the materials on to the concerned teacher once it arrives at the school rather than waiting until the due date or filing the materials and forgetting that they exist.

It is hoped that with the formation of an Association for Science Education in the Bahamas, swifter communication among science staff members throughout the country and also among the territories will come into existence. More direct communication among such persons without having to go through the bureaucratic structure should improve the existing situation.



A typical small group discussion in progress during the workshop preparatory to reporting to plenary session.



Participants in plenary session.