HUMAN RESOURCE DEVELOPMENT
FOR ENVIRONMENTAL HEALTH PROFESSIONALS
OF CARICOM COUNTRIES

THREE-STEP TRAINING PROGRAMME

Office of the Caribbean Program Coordination
PAHO/WHO, Bridgetown, Barbados

CARICOM
HUMAN RESOURCE DEVELOPMENT
for
ENVIRONMENTAL HEALTH PROFESSIONALS
of
CARICOM COUNTRIES

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1. INTRODUCTION

The Heads of Government since 1989 have promoted the free movement of skilled professionals across the Caribbean Community. This is supported in the revised Treaty of Chaguaramas, Protocol 2, which deals with the establishment of goods and services and the establishment of equivalency of qualifications to support free movement (Article 35e).

Several initiatives have already been set in train in the Region to address the issue of assessing equivalency, with a focus on harmonisation of training programmes. The development of a Regional Accreditation Agency and National Accreditation agencies have been proposed and accepted by the Ministers of Education (199---) and the 199--- Meeting of the Council for Human and Social Development (COHSOD).

Draft model legislation is currently under review in Member States on the “Caribbean Community Accreditation Agency” and the” National Accreditation Council (Agency) Bill”.

Meetings of Tertiary Level Institutions and Ministries of Health of CARICOM Member States in 1994, 1995, 2000 and 2002 have defined the skills and competencies of the Environmental Health Assistant (EHA), the Environmental Health Officer (EHO) and the Environmental Health Specialist (EHS). The Meetings also defined curricula and credit
hours utilising the Qualifications Framework accepted by the CARICOM Education Sector.

The conclusion of the “First Caribbean Workshop on Institutional Development of Environmental Health Units”, held in Barbados during 13-15 March 2000, suggested a wider definition of environmental health, recognising that the environmental health determinants are affected as much by decisions and actions in other sectors as by the actions of environmental health personnel. Additionally, The Pan American Health Organisation (PAHO) has identified several components of Food Safety and Vector Control activities for which Environmental Health Officers have been given responsibility at the national level. What is done in housing, nutrition, urban and regional planning, and transportation - to mention some prominent examples – shapes the type of challenges that environmental health programmes must address. As a result, the meeting has recommended that all supervisors and officers serving in specialised areas should have a B.Sc. degree.

Subsequently in September 2000, CARICOM held a consultation for the harmonisation of Environmental Health Training Programmes. Institutions and other concerned agencies, which attended this consultation, recommended the courses, which should comprise Core, General Education and Supplementary Courses at the level of the Associate Degree. They also recommended that the Regional Training Institutions upgrade their academic programmes to the Bachelor’s degree.

1.1. Basic Training in Environmental Health

Four educational institutions in the Caribbean provide the basic training for Environmental Health Officers. They are the Barbados Community College (BCC) in Barbados, The College of Science, Technology and Applied Arts of Trinidad & Tobago (COSTAATT), University of Technology (UTECH) in Jamaica and the University of Guyana (U.G). The current curriculum is in general a two-year programme awarding an Associate Degree with the exception of UTECH, which offers a four-year BSc. degree.
Graduates of these programmes are trained as generalists with the curricula embracing almost all areas of environmental health including food hygiene, vector control, health promotion/health education, epidemiology, microbiology, communicable disease control, technical drawing, building science, health legislation, health administration, water quality control, wastewater management and solid waste management.

1.2. Changing Challenges of Environmental Health Practitioners

The current proposed “Three-Step Training Programme” is designed to firstly enhance the management of Environmental Health Programmes in CARICOM states. At the same time, it would enhance the calibre of persons working in the Environmental Health field in CARICOM states. During the period 1960-1990, Caribbean Environmental Health Professionals performed relatively well by being able to respond adequately to the existing challenges. Such challenges were narrow in scope and could easily be managed within the existing centralised structure. Most of their activities were focused on operational tasks such as premise inspection, quality control and health education.

However, the range of responsibilities of the Environmental Health Practitioners has expanded considerably over the last two decades. This has been in response to the new challenges posed by expansion of the national food industries, the endemicity of the *Aedes aegypti* mosquito and high transmission of the dengue fever and other vector-borne diseases, the global market economy (WTO), the rapid expansion of tourism, the transhipment of waste, and the emergence of new communicable diseases. These new challenges have thus created a demand for the refocusing of training programmes to deal with issues such as food safety, air quality, vector control, health education/promotion, solid waste management and environmental health impact assessment.

The functions of the Ministries of Health have become more oriented to policy and programme planning, with special focus on:
- Assessment and management of environmental health risks,
- Establishment of protocols, procedures and standards,
- Development of communication strategies,
- Review of legislation and regulations,
- Coordination of activities between government and private entities.

1.3. Declining Economy in the CARICOM Member States

In general, the economic development of the CARICOM Member States has been significantly affected during the past five years by the intensification of global competition with the universal trend towards trade liberalisation. Of specific relevance to the region, has been the World Trade Organisation (WTO) ruling of 1997 against the European Union system of issuing preferential licenses to banana exporters from African, Caribbean and Pacific (ACP) countries. As a result, the economy of most of the countries has become more dependent on tourism, while major effort is underway to diversify national economies toward the expansion of the financial and other service sectors. The decline of the national economies has impacted negatively on the capacity of the countries to continue to finance training abroad. This has resulted in fewer persons being trained and a growing number of untrained persons being recruited to carry out functions of the Environmental Health Officer.

A restructuring of the Environmental Health Curricula among Caribbean Regional Environmental Health Institutions can foster well for delivering a degree program at the Bachelor’s level that would also serve as a framework for creating the platform for better leadership in all Environmental Health matters.

1.4. Proposed Response to the Human Resource Challenge

To reverse the trends of the growing number of untrained staff and to enhance the quality of the human resource, it is necessary to reform environmental health training programmes. It is envisioned that harmonized curricula among the various institutions
mentioned above, would serve to facilitate easy access of CARICOM nationals to a unified structured programme. Such a programme would allow for the equivalency of qualifications that would permit a free movement of CARICOM nationals intra-regionally.

However it is possible that there remains the challenge of inadequate numbers of personnel. It is therefore essential to find a way of ensuring adequate numbers of qualified personnel become available for service among CARICOM Member States.

Multiple internal discussions within PAHO and discussions with other concerned agencies like the Caribbean Environmental Health Institute (CEHI), Caribbean Community (CARICOM) and the Caribbean Development Bank (CDB) have resulted in this new proposed training strategy that will provide an opportunity to address the human resource constraint issues.

This proposal, which is intended to lead to a B.Sc. Degree, will be established in three phases and is referred to as the “Three-Step Training Programme”. Optimally, it will take a full-time student four years to complete the programme. Nevertheless, the programme is designed to facilitate students who wish to complete the programme with breaks between the steps.

In the consultation meeting of June 19-21, 2002, representatives of the Ministry of Health, Antigua, Ministry of Health, Barbados, and of the regional education institutions BCC, COSTAATT, UG, UTECH and UWI considered, finalized and endorsed the Three-Step Training Programme (Consultation with the Educational Institutions on a PAHO Proposal for Human Resource Development on Environmental Health Units). This meeting agreed on competencies for Environmental Health personnel at each level and frameworks for Steps One and Two. It also approved the establishment of a Task Force to complete harmonization of existing training programmes and to carry out other necessary tasks in preparation for implementation.
1.5. Programme Objectives

Taking into account that the implementation of the “Three-Step Training Programme” will introduce a cost-effective approach to the training of Environmental Health professionals, this project presents several benefits. The principal objective of this Programme will be the enhancement of the management of the Environmental Health Program in CARICOM States.

The specific objectives will be:

1. Facilitation of the restructuring of the Environmental Health Curricula of the Caribbean Regional Environmental Health Training Institutions to deliver the B.Sc. Degree in Environmental Health.
2. Introduction of a harmonized curriculum for Environmental Health Training in the Caribbean thereby facilitating the establishment of equivalency of qualifications to support free movement of professionals.
3. Increasing access to CARICOM nationals to a harmonized, structured, training Programme in Environmental Health.
4. Enhancement of the caliber of persons working in the field of Environmental Health in CARICOM countries.
5. Improvement in the capacity of Environmental Health Units to provide leadership in Environmental Health matters.
2. DETAILS ON THE IMPLEMENTATION OF THE “THREE-STEP TRAINING PROGRAMME”

**STEP III**

**CAMPUS:**
- UG
- COSTAAT
- BCC
- UTECH

**STEP II**

- DL for countries without training institutions
- On campus for countries with Training Institutions
- 5 CXC + AA competencies + Level One Skills + Basic Science Courses

**STEP I**

- In-country training
- Didactic Setting
- Modular in country without resources or conventional
- DL for countries without training institutions
- On campus for countries with Training Institutions
- 5 CXC

- Or Equivalent

**Didactic Setting (DS)**

- Distant Learning (DL)
- AA + Stipulated GPA + Specialization pre-requisite

- 3 CXC – Mathematics, English, Science
- Or Mature Student + Experience (27 yrs+)

- 2 CXC or Equivalent
- English + Science
- Or Experience will be considered
Prior to implementation, the programme curriculum will be defined by a consortium of academic institutions of the sub-region, already involved in environmental health training. Principally, the consortium will comprise the University of the West Indies (UWI), BCC, COSTAATT, UTECH, and UG. Each training institution will be designated to lead one of the professional orientations (to be defined by the consortium), based on its capacity, and on this basis will be approved for the delivery of selected courses. It is expected that the courses will be provided in the classroom setting and/or through Distance Education.

2.1. Step I

The courses in this phase will include a science core as well as an introduction to food hygiene, communicable diseases, health care system delivery, vector control, health education, communications and ethics. The Step I training will be done in-country either continuously or in modular form. The focus is two-fold; to provide the graduate with the requisite skills of the EHA and to meet the matriculation requirement for entry into Step 2 programme. The proposed entry requirements for the EHA are 2 passes at the CXC (General)/GCE O Level [English Language and (Mathematics or one Science subject)]. Persons qualifying as mature students and employed by the Ministry of Health will be considered for entry into the EHA programme. On completion of the first phase of the programme the successful student will be awarded the Environmental Health Assistant (EHA) Certificate.

2.2. Step II

It is estimated that this programme will take two years for completion at which time the successful students will be awarded an Associate Degree. This will enable them to work as Environmental Health Officers in the Ministries of Health or other government or
private agencies. The second phase training is the foundation for entry into Step III. The courses of the second phase, in addition to on campus delivery by Tertiary Level Institutions (TLIs) could be provided through Distance Education to students not resident in the countries where these TLIs are located.

2.3. Step III

The third phase training programme is expected to deliver courses through on campus training as well as through distance education. This phase will have a duration of approximately 2 years. The successful student of this phase will be awarded a B.Sc. Degree. The training will allow for specialisation in Occupational Health and Safety, Vector Control, Food Safety, Environmental Health Engineering and Epidemiology in the first instance.

3. INTERNSHIP

The internships will be an integral part of the training at Steps II and III. These are defined in Annex D as part of the curriculum.

4. REGISTRATION OF ENVIRONMENTAL HEALTH OFFICERS

Currently only Jamaica requires that environmental health personnel be registered to practice. It is recommended that all Member States ensure that these personnel are registered for practice. It would therefore be necessary that the requisite legislation be enacted.

Registration of the various categories of health personnel was recommended by the 1997 Special Meeting of Ministers of Health as integral to the free movement of skilled personnel across the CARICOM Region.
In November 2000, the “Meeting on the Harmonisation of Environmental Health Training Programmes” recommended that the Environmental Health Officers be registered in each CARICOM Member State in order to standardize and regulate professional practice, protect the public and EHO professionals.

The meeting also recommended that EHOs be re-registered periodically and that re-registration be based on the acquisition of continuing education credits. One mechanism for the acquisition of the continuing education credits could be seminar/training activities offered as part of the General Meeting programme of the professional association.

The Meeting articulated the following regional guidelines for registration of EHOs:

i) Registration should be included in the legislation of each CARICOM Member State. For Example the “Profession Allied to Medicine Act” or similar Acts in each country.

ii) Continuing Education credits should be defined by the professional association and accepted regionally.

iii) The utilisation of continuing education credits for re-registration should also be included in the legislation.

iv) A Code of Ethics and Mission Statement should guide the performance of the regional professional association.

v) The training programmes should be harmonised across the Region; and

vi) The basic academic requirement for registration should be the Associate Degree/Diploma or BSc.
The Meeting also recommended that the Jamaican model be utilised and that the Professional Association, Ministry of Health, TLI’s and Employing Agencies should be part of the supervisory structure.

The requirements for registration are shown in Annex F.
5. CONDITIONS FOR IMPLEMENTATION

It is anticipated that Step I would be conducted in-country either though the Ministry of Health or under the aegis of a training institution already existing in country.

Step II would continue to be offered at the four TLIs already conducting the training programmes in environmental health. Additionally, modules could be developed to offer training through distance education by TLIs which have the capacity and facilities.

Step III would be offered by TLIs as part of their on campus programme.

The challenges of delivering the training programmes would be the capacity of the training institutions to arrange for the relevant attachments and internship placements as well as develop distance education modules. For non-campus territories, it would be necessary to have in place tutors with expertise as well as the necessary supervisors in the internship attachment.

5.1. Country Requirements for the Three Step Programme of Environmental Health training in CARICOM Member States

There are several conditions which need to be satisfied to enable CARICOM Member States to effectively deliver the training programmes at the three levels.

These include:

- Human resources to deliver, co-ordinate and supervise the programmes.
- Physical facilities for classroom training and conduct of laboratory practicals.
- Resources for field assignments e.g. equipment, solid waste management sites, vector control units, etc.
- Transportation for students to field sites.
Resources for delivery of on campus and distance education programmes e.g. teaching aids, computers, UWIDECS- type facilities.

Recognised/accredited training institutions in which programmes are conducted.

Other issues include:

- The overall cost of the programme.
- Who will pay for training (students or governments?)

The above issues need to be investigated in order to assess the readiness of countries to conduct these training programmes.

It is recommended that an evaluation exercise be conducted in each CARICOM Member State so that the feasibility of the three step process be assessed.

6. GENERAL RECOMMENDATIONS

i) The Preliminary proposal be circulated to all CARICOM Ministries of Health for feedback.

ii) An evaluation be conducted to assess the capacity of Member States to deliver the programmes at the three levels.

iii) The Registration process for the Environmental Health Officer be articulated using the Jamaican model.

iv) The necessary legislation for registration be enacted in CARICOM Member States.
v) The harmonisation of Step 3 be done at a later stage utilising specialist expertise. All four TLIs, namely, UTECH, BCC, COSTAATT and UG be involved in the process.
6.1. Three-Step-Training Programme Table  (to be approved)

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<th>STEP</th>
<th>AWARD</th>
<th>LOCATION OF TRAINING</th>
<th>DURATION</th>
<th>METHODOLOGY</th>
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<tr>
<td>Step 1</td>
<td>Certificate (EHA)</td>
<td>In-country</td>
<td>12 months</td>
<td>Didactic setting</td>
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<td>Step 2</td>
<td>Associate Degree (EHO)</td>
<td>TLI</td>
<td>2 years</td>
<td>Distant Learning/On Campus</td>
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<tr>
<td>Step 3</td>
<td>B.Sc. degree (EHS)</td>
<td>TLI</td>
<td>2 years</td>
<td>On Campus</td>
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7. ANNEXES

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7.2. Annex B – Framework and Course Description – Step I

7.3. Annex C – Framework and Course Description – Step II

7.4. Annex D – Internship – Step II and III


7.6. Annex F – Registration of Environmental Health Officers

8. ANNEX A

SKILLS AND COMPETENCIES
OF VARIOUS LEVELS OF ENVIRONMENTAL HEALTH PERSONNEL
SKILLS AND COMPETENCIES OF VARIOUS LEVELS OF ENVIRONMENTAL HEALTH PERSONNEL

- Communicate orally and in writing to community members, supervisors and field personnel.
- Write basic reports (completing forms, following formats, etc).
- Identify basic environmental health problems.
- Recommend solutions for identified problems.
- Perform basic premises inspection activities.
- Use basic equipment/instruments related to Vector Control and Occupational Safety and Health.

8.1. Environmental Health Officer

- Establish a baseline profile of a community.
- Identify actual and/or potential environmental health problems in the community.
- Assess underlying causes of problems identified.
- Record, interpret and report findings.
- Determine an order or priority for action.
- Develop appropriate alternative strategies for addressing problem(s).
- Plan and implement, in collaboration with the community and others, appropriate health promotion activities.
- Monitor, evaluate and modify as necessary, health promotion activities.
- Mobilise necessary resources to be used in health programmes.
- Respond to complaints.
- Serve generally as a resource person.
- Conduct epidemiological and other research and present results.
8.2. Environmental Health Specialist

- Demonstrate competence in all basic level requirements.
- Demonstrate knowledge and practice in areas of specialty.
- Develop, implement and evaluate programmes within a specialty.
- Conduct research in specialty areas
- Interface with other specialists in his/her own and also related fields
- Assist training of environmental health personnel in related fields

8.3. Supervisory Specialist

- Demonstrate competence in all the basic level requirements as well as in at least two areas of specialty.
- Supervise and motivate staff.
- Apply theoretical and practical skills in the principles and techniques of supervision.
- Demonstrate skills in project formulation and management.
- Develop, implement and evaluate research projects.
- Identify needs for staff development and be involved in strategies for remediation.
- Serve as a resource person.
- Guide research activities.

8.4. Managerial Specialist

- Demonstrate extensive experience and training embracing all of the foregoing.
- Advise on environmental health issues at the top level of decision-making and in addition:
  - develop specialisation in policy issues
  - plan and implement programmes
  - formulate/initiate policies in specialist areas
9. ANNEX B

FRAMEWORK AND COURSE DESCRIPTIONS

STEP I
### FRAMEWORK AND COURSE DESCRIPTION FOR STEP I

#### 9.1. FRAMEWORK FOR STEP I – ENVIRONMENTAL HEALTH

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<th>SEMESTER I</th>
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<tr>
<td><strong>COURSE TITLE</strong></td>
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<tr>
<td>Intro. to Environmental Health</td>
<td>Vector Control II</td>
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<tr>
<td>Technical Report Writing</td>
<td>Drafting Techniques</td>
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<tr>
<td>Intro. to Computers</td>
<td>Waste Management II</td>
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<td>Waste Management I</td>
<td>Water Quality</td>
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<td>Health Education</td>
<td>Premises (Practicum)</td>
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<tr>
<td>Communicable Disease Control</td>
<td>English &amp; Communication*</td>
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* Since CXC English or Equivalent is a matriculation requirement, the General Education English course applicable to Step 2 can be done here.

**Comment:**
There are 12 courses per semester. This is potentially 12 final examinations. Representing a not very student friendly situation at the end of a semester.

**Recommendation:**
As far as possible, timetable the one-credit courses for 3 hrs per week. This allows these courses to ‘run off’ in 5 weeks, with the final exam right after. In this programme, 4 one-credit courses would be run off by week 10, and two more by week 15. Six Courses, including two one-credit courses, would run for the 15 weeks of the semester with final exam taken during the official examination period.

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**COURSE DESCRIPTIONS FOR STEP I**

**9.2. SEMESTER I**

**9.2.1. BASIC INTRODUCTION TO ENVIRONMENTAL HEALTH**

**Course Description**
This course is designed to give students a basic introduction to environmental health. The course provides the student with knowledge and skills relating to primary health care concepts, the Caribbean health promotion charter, principles and sub-sectors of environmental health and the administration framework of the various ministries of health. It also deals with the role of the Environmental Health Officer.

**9.2.2. TECHNICAL REPORT WRITING**

**Course Description**
This course is designed to assist students to develop appropriate skills in technical report writing with specific reference to the work setting. It will highlight the types of reports and appropriate formats.
9.2.3. INTRODUCTION TO COMPUTERS

Course Description
This course provides basic knowledge of the hardware and software components of the microcomputer. It introduces students to the use of the computer as a study and work tool.

9.2.4. VECTOR CONTROL I & II

Course Description
Vector Control I & II will provide the student with the necessary skills and basic concepts of vector control. These concepts and skills include biology, life cycle, identification and control techniques for the vectors of public health significance.

9.2.5. WASTE MANAGEMENT I & II

Course Description
Waste Management I & II are designed to provide the students with a basic understanding of waste management and explain the role the officer in waste management. In these courses, solid waste management, excreta disposal and on-site waste will be covered.

9.2.6. HEALTH EDUCATION

Course Description
This course is designed to enable students to develop basic health education programmes to address environmental health issues in the community.
9.2.7. COMMUNICABLE DISEASES CONTROL

Course Description
This course is designed to provide the student with an overview of communicable diseases. The student will be able to describe diseases according to the signs and symptoms, host, infectious agents, place of occurrence, reservoir, mode of transmission, incubation period, period of communicability, susceptibility and methods of control for the purpose of prevention.

9.2.8. OVERVIEW OF LEGISLATIVE FRAMEWORK

Course Description
This course will introduce the students to the legal framework that guide practice. It also introduces students to the local, regional and international perspective with respect to public health legislation. It is designed to instruct student in the correct use of the Health/Environmental Acts.

9.2.9. MATHEMATICS I

Course Description
Mathematics I & II will be conducted at the level of the CXC general proficiency. They will teach basic mathematical skills to those who do not possess such skills and provide reinforcement to those student who have already reached this level. Emphasis will be placed on developing problem solving skills.
9.2.10. CHEMISTRY I

Course Description
Chemistry I and II are designed to provide the student with a foundation in chemistry equivalent to the CXC general proficiency level. They will provide the student with an awareness of chemistry in the context of environmental health.

9.2.11. BIOLOGY I

Course Description
Biology I & II are designed to provide the student with a foundation in biology equivalent to the CXC general proficiency level. They will provide the student with an awareness of biology in the context of environment health.

9.2.12. PHYSICS I

Course Description
Physics I & II are designed to provide the student with a foundation in physics equivalent to the CXC general proficiency level. They will provide the student with an awareness of physics in the context of environment health.
9.3. SEMESTER II

9.3.1. VECTOR CONTROL II

Course Description
Vector Control I & II will provide the student with the necessary skills and basic concepts of vector control. These concepts and skills include biology, life cycle, identification and control techniques for the vectors of public health significance.

9.3.2. DRAFTING TECHNIQUES: INTRODUCTION TO ENVIRONMENTAL HEALTH MAPPING

Course Description
This course will help the student to acquire the skills and competencies to map geographic areas and draw simple sketches of environmental health significance. It introduces the students to the basic geometric and other tools involved in the estimation of distances.

9.3.3. WASTE MANAGEMENT II

Course Description
Waste Management I & II are designed to provide the students with a basic understanding of waste management and explain the role the officer in waste management. In these courses, solid waste management, excreta disposal and on-site waste will be covered.
9.3.4. INTRODUCTION TO FOOD SAFETY

Course Description
This course will provide students with information relevant to the identification of factors that contribute to food borne disease outbreaks. It exposes the student to the correct practices involved in the storage, preparation, display and service of safe food, sanitising, and the inspection of food establishments.

9.3.5. WATER QUALITY

Course Description
This course provides an awareness of the basic principles of water treatment processes, water-borne diseases, water quality standards, guidelines and parameters relating to sampling and testing. In addition, the course gives students the opportunity to observe such systems in operation wherever possible.

9.3.6. PREMISES INSPECTION (PRACTICUM)

Course Description
This course is designed to equip students with knowledge and skills required for the effective and efficient evaluation of the environmental health status of premises. It also provides the basis for the control of undesirable factors which may be identified during inspections.

9.3.7. ENGLISH AND COMMUNICATION

Course Description
This course is designed to enhance the student’s reading comprehension, written expression and oral communication skills. It reviews grammar rules and the principles of structuring sentences, paragraphs and essays. It also seeks to help students improve their speech habits and understand the basics of effective oral
communication. (The General Education English course as required in EH Step 2 should be offered here. CXC English is part of the entry requirements for Step 1, indicating that students will be ready for this College level English course. Those successfully completing it will be exempt in EH Step 2. It is recognised that institutions may have their own compulsory General Education English Course.)

9.3.8. MATHEMATICS II

Course Description
Mathematics I & II will be conducted at the level of the CXC general proficiency. They will teach basic mathematical skills to those who do not possess such skills and provide reinforcement to those student who have already reached this level. Emphasis will be placed on developing problem solving skills.

9.3.9. CHEMISTRY II

Course Description
Environmental Chemistry I and II are designed to provide the student with a foundation in chemistry equivalent to the CXC general proficiency level. They will provide the student with an awareness of chemistry in the context of environmental health.

9.3.10. BIOLOGY II

Course Description
Biology I & II are designed to provide the student with a foundation in biology equivalent to the CXC general proficiency level. They will provide the student with an awareness of biology in the context of environment health.
9.3.11. PHYSICS II

Course Description
Physics I & II are designed to provide the student with a foundation in physics equivalent to the CXC general proficiency level. They will provide the student with an awareness of physics in the context of environment health.
10. ANNEX C

FRAMEWORK AND COURSE DESCRIPTIONS

STEP II
## FRAMEWORK AND COURSE DESCRIPTIONS FOR STEP II

### 10.1. FRAMEWORK FOR STEP II - ASSOCIATE DEGREE IN ENVIRONMENTAL HEALTH

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Hours Theory</th>
<th>Hours Practical</th>
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<td>Epidemiology</td>
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<tr>
<td>Chemistry</td>
<td>3</td>
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<td>45</td>
<td>Nutrition &amp; Community Health (including Communicable and Non-Communicable Diseases)</td>
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<td>Mathematics</td>
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<td>45</td>
<td>Building Science/Technical Drawing</td>
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<td>Computer Awareness</td>
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<td>Waste Management</td>
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### Semester II

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<td>Environmental Biology (Microbiology, Ecology and Plant Biology)</td>
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<tr>
<td>Occupational Health and Safety (including First Aid)</td>
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<tr>
<td>Biostatistics/Research Methods</td>
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<tr>
<td>Oral Presentation</td>
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<td>Health Education (including Needs Assessment)/Health Promotion</td>
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<td>Water Quality</td>
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10.2. SEMESTER I

10.2.1. INTRODUCTION TO ENVIRONMENTAL HEALTH

Course Description
This course is designed to give students a basic introduction to environmental health. The course provides the student with knowledge and skills relating to primary health care concepts, the Caribbean health promotion charter, principles and sub-sectors of environmental health and the administration framework of the various ministries of health. It also deals with the role of the Environmental Health Officer.

10.2.2. PHYSICS

Course Description
The course focuses on those areas of physics deemed to be of specific relevance to the Public Health Inspector. Basic principles are examined which form the basis for discussing the application of physical principles. Investigative and experimental skills are critical to the understanding of physics. Various equations are used to solve problems.

10.2.3. CHEMISTRY

Course Description
This course is divided into four sections: Inorganic, Organic, Physical and Analytical. 

Inorganic: This section is designed to introduce the student to some of the fundamental concepts required in the study of Inorganic chemistry.
**Organic Chemistry**: This section will provide students pursuing the Environmental Health Programme with the basic knowledge of the chemistry of carbon and its compounds.

**Physical Chemistry**: This section exposes students to the basic concepts of physical chemistry. It involves seven topics, which allow participants to discover as much as possible about the behaviour of matter, and how it applies to their field of study.

**Analytical Chemistry**: This section is designed to help students master basic laboratory techniques.

### 10.2.4. MATHEMATICS

**Course Description**
The aim of this pre-calculus course is to provide a fundamental quantitative orientation and logical reasoning skills which students of the University of Technology, Jamaica can broadly apply both to undergraduate and post-graduate experiences. Specifically, it builds on, and provides applications of mathematical topics already learnt at the secondary level.

### 10.2.5. COMPUTER AWARENESS

**Course Description**
The course is intended to introduce the student to the basic features of a computer system. It will also provide the student with “hands on” experience in relation to the use of the computer. The competence developed by the student will enable him/her to use various software packages.
10.2.6. FUNDAMENTALS OF WRITING

Course Description
The course is designed to increase the student’s capacity to read and write material critically at tertiary level. Beliefs about reading are explored. Attention is given to strategies for reading including how paragraphs function in revealing the central issues and the main ideas in the selection of supplementary reading. It is also designed to help students to read attentively, improve concentration and retention, distinguish between fact and opinion, evaluate and interpret what is read and master the discipline’s vocabulary. *(A General Education course that treats objectives and content as found in FUNDAMENTALS OF WRITING is required in EH Step 2. It is recognised that Institutions may have their own compulsory General Education offerings.)*

10.2.7. CARIBBEAN POLITICS AND SOCIETY

Course Description
The course furnishes a historical background on the political movement in the Caribbean region. It also focuses on the constitutional structure and systems of government within the Region. Global and regional issues which impact on the Member States will be given prominence. *(A General Education course that treats objectives and content as found in CARIBBEAN POLITICS AND SOCIETY is required in EH Step 2. It is recognised that Institutions may have their own compulsory General Education offerings.)*
COURSE DESCRIPTIONS FOR STEP II - ASSOCIATE DEGREE IN ENVIRONMENTAL HEALTH

10.3. SEMESTER II

10.3.1. ENVIRONMENTAL BIOLOGY

Course Description
This course is designed to expose the student to a basic understanding of the relationship between animals and the environment. It introduces students to concepts of ecology including ecosystems, population dynamics and principles of ecological research methods, showing the harmful effect of man on his environment and vice versa.

10.3.2. OCCUPATIONAL HEALTH AND SAFETY

Course Description
The course emphasizes the dynamic relationship between man’s health and his work environment. More specifically it seeks to identify hazards, determine their impact on human health and how such hazards may be prevented and controlled within the legal and administrative framework. It also provides broad based information on the principle of first aid and enables students to quickly assess any emergency situation which may arise in the workplace. Practical exposure will be gained from visits to work stations. At the conclusion of the course, participants will be able to develop and implement programmes for the promotion of worker’s health in both public and private enterprises.
10.3.3. BIOSTATISTICS AND RESEARCH METHODS

Course Description
This course is designed to cover mainly descriptive statistics with some elementary inferential statistics. Focus will also be placed on research methods with a specific approach to the definition and solution of work problems.

10.3.4. ORAL PRESENTATION

Course Description
This course focuses on helping students improve their speech habits and develop strategies for effective oral communication. At the end of the course, students should have learnt how to assimilate information by effective listening, express themselves orally and use a wide variety of audio or visual aids to facilitate the communication process in the public as well as business setting. (A General Education course that treats objectives and content indicated in the Course Description is required in EH Step 2. It is recognised that institutions may have their own compulsory General Education offerings.)

10.3.5. HEALTH EDUCATION/HEALTH PROMOTION

Course Description
This course gives an overview of the philosophy, principles and practice of health education in the promotion of the health of individuals and communities. It also provides concepts and models of health promotion including international, regional, and national policies, charters and declarations, as well as issues and barriers to health promotion are explored. At the end of the course the student will be able to apply the concepts of health education and health promotion to foster community health
10.3.6. WATER QUALITY

Course Description
This course provides background information on water sources and characteristics, factors influencing water demand, the development of water resources and the evaluation of the treatment process. It further provides a working knowledge concerning required and recommended drinking water standards and the assessment of water against these standards.
Course Description

In this course the emphasis will be placed on pathogenic organisms found in food. The students will participate in laboratory activities from which they will gain practical exposure. It also emphasizes food quality control as the mechanism for the prevention of food borne illnesses and food spoilage. Participants will acquire practical experience by visiting and inspecting various food handling premises.

10.4.2. EPIDEMIOLOGY

Course Description

This course provides a basis for disease surveillance, prevention and control. There is integration of scientific principles and elements of research methodology and biostatistics with epidemiology in determining levels of health of the individual, family and community in an effort to prevent disease and promote health.

10.4.3. NUTRITION AND COMMUNITY HEALTH

Course Description

This course is designed to provide students with a scientific approach to assessing the health status of a community. The approach will include identifying subgroup(s) at risks; monitoring relationships in the community between needs and services and resources and consumer demands. It will also include planning intervention health programmes and evaluating their results. The social, cultural, psychological and environmental factors contributing to health problems will be taken into consideration in assessing and
planning programmes for the community. The importance of nutrition to people’s health status will be emphasized.

10.4.4. BUILDING SCIENCE/TECHNICAL DRAWING

Course Description
This course is designed to familiarise the student with correct practices of building construction in relation to health and well being. Elements of technical drawing and sanitary plumbing will also be addressed. Students will be equipped to prepare accurate three-dimensional diagrams; read, interpret and criticise simple working drawings as well as identify hazards in the building environment.

10.4.5. WASTE MANAGEMENT

Course Description
The course emphasizes the various aspects of solid and liquid waste management from the point of generation to the point of disposal. Hazardous waste management is also included. Practical exposure will be gained by visiting waste disposal treatment sites. Participants will be able to develop and implement waste management programme at the community level.
10.5. SEMESTER IV

10.5.1. INTRODUCTION TO PSYCHOLOGY

Course Description
Through applications to real world situations, learners will explore some basic theories and concepts that constitute a sound general knowledge of western psychology. Learners will gain a deeper understanding of human similarities and differences and ultimately gain insight into themselves. This introductory course seeks to stimulate learners to engage in further extensive and independent exploration of the fascinating world of psychology. (A General Education course that treats objectives and content indicated in the Course Description is required in EH Step 2. It is recognised that institutions may have their own compulsory General Education offerings.)

10.5.2. ENVIRONMENTAL HEALTH ADMINISTRATION/LEGISLATION

Course Description
The course focuses on laws, regulations and conventions which are related to the practice of environmental health. Students will be able to correctly interpret and use relevant legislation. The course will also give an hierarchy of the health services with respect to management, principles of supervision, leadership, planning, organising, time management and management of human and other diseases.
10.5.3. DISASTER PREPAREDNESS

Course Description
The course is designed to introduce participants to disaster preparedness and contingency planning for the purpose of investigation. Emphasis will be placed on the steps of the Emergency Planning Process.

10.5.4. FOOD SAFETY II

Course Description
The course is designed to equip the students with competencies and skills in meat, fish and milk hygiene in order to ensure the safe supply of the products for human consumption. The student will gain practical experience through involvement in the inspection process of these foods.

10.5.5. VECTOR CONTROL

Course Description
The course emphasizes biology, public health importance and methods of control of arthropods, rodent and other vectors. Students will actively participate in laboratory and field exercises as a means of translating theory into practice.

10.5.6. INSTITUTIONAL HEALTH

Course Description
The course focuses on the relationship between man’s health and the various dwelling units, institutions and other types of premises which he may inhabit. The student will evaluate the facilities, operations and services provided for the promotion of health and welfare of occupants and/or clients.
11. ANNEX D

INTERNSHIP – STEP II & III
ANNEX D

INTERSHIP GUIDELINE FOR ENVIRONMENTAL HEALTH TRAINING PROGRAMMES

Duration: ONE SEMESTER
Number of Credits: 10
Number of credit hours: 500 practical hours
7 hr days, five days a week, including seminar time

11.1. INTRODUCTION

The internship in environmental health is a structured and supervised practical experience which provides a training opportunity for the academically qualified student to apply his/her knowledge of environmental health theory and utilise the skills acquired during the didactic aspect of the programme to an actual work setting. The work setting will comprise of a specific geographical area as well as specific points of exposure outside the area.

11.2. AIMS

? To provide practical experience for academically qualified environmental health students.
? To provide professional experience in the work setting.
? To refine and extend the competencies needed by professional environmental health officers.
? To provide the intern opportunities to participate as a member of the Health Team, discharging the duties of an Environmental Health Officer.
11.3. SPECIFIC OBJECTIVES

? Identify health problems in the relevant work settings.
? Conduct survey to obtain baseline information of the community.
? Prioritise health problems in the area to which they have been assigned.
? Plan strategies and develop programmes for the solutions of selected problem(s) through community participation.
? Prepare and present proposed programme to training institution.
? Execute basic functions of the Environmental Health Officer
? Observe procedures in specialised areas.

11.4. COMPONENTS OF INTERNSHIP

The internship period will focus on the following general areas:

- Project
- Routine Activities
- Specialised activities

*Project*

? Scientific Selection of study area
? Scientific Survey of selected sub-area
? Collate and analyse data
? Identify priority problems
? Present findings
? Select problem(s) for project
? Develop project plan
? Present plan
Routine Activities
- Premises inspection
- Record keeping
- Report writing
- Health education/health promotion
- Complaint investigation
- Attendance at meeting

Observation of Specialised Activities
- Investigation and reporting on communicable diseases
- Collection of water and food samples for bacterial analysis.
- Inspection of food premises, schools, hotels and other public buildings
- Meat inspection
- Port Health
- Occupational Safety and Health
- Vector Control
- Other

11.5. STRUCTURE OF SEMINARS

Seminars will be conducted for the interns and their supervisors at the beginning and during the course of the internship as indicated below:

1. Seminars for supervisors at beginning of internship
2. Seminar for all interns at beginning of internship
3. One seminar at week 10 of semester.
11.6. RESPONSIBILITIES OF INTERN

The responsibilities of the intern will be to:

- Adhere to code of conduct of workplace
- Co-operate with supervisor
- Perform tasks by specified time

11.7. EVALUATION OF INTERN

The intern will be evaluated in the following three areas, using the EH Internship Instrument 1 (Annex 1):

- Project
- Routine Activities
- Specialised Activities

11.8. INPUT OF TRAINING INSTITUTION

The intern will be assigned a supervisor from the training institution who will guide the academic aspect of the programme and have overall responsibility for the internship programme.

11.9. RESPONSIBILITIES OF FIELD SUPERVISOR

The Field supervisor, who provides the technical guidance, is responsible for assisting, monitoring and evaluating the overall development of competencies of the student during the internship period. He/she will be responsible for the completion and submission of the assessment report on the intern.

The supervisor should provide guidance by:

i) reviewing with the intern the requirements of the internship.
ii) ensuring adherence to all standard procedures related to the intern’s activities.

iii) Observing student in the execution of his activities.

iv) Conducting process evaluation for the student in order to take corrective action for any deficiencies.

v) Periodically review the activities of the intern and jointly access with intern the progress being made.

vi) Being available for consultation by the intern on a regular basis.

vii) Meeting with the training supervisor from the training institution to discuss student’s progress.

viii) Making special reports to the training institution in case of any difficulty encountered.

ix) Facilitating the activities relating to the internship including arranging visits to special facilities outside of the assigned geographical area as needed and providing the intern with required background information for his/her assignments. and

x) Rating the student on his/her performance in the various areas in accordance with the agreed guidelines.

11.10. EVALUATION OF THE INTERNSHIP

The internship programme will be evaluated by the intern as well as his/her supervisor utilising the EH Internship Instruments 2 and 3 shown in Annexes 2 and 3.
11.10.1. Attachment I

EH Internship Instrument 1

INSTRUMENT FOR EVALUATION OF INTERN BY SUPERVISOR

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>POINTS ALLOCATED</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Management skills (40 points)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Demonstrate understanding of pertinent policies, legislation and of professional vocation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Plans work programme with due regard for available resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Demonstrates aptitude for time management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 Organises work to ensure efficiency and effectiveness.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 Identifies clearly the problems requiring attention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6 Ranks problems according to acceptable priority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.7 <strong>Formulates methodology for implementation of plans/programmes aimed at the solution of problems identified</strong></td>
<td><strong>To be removed</strong></td>
<td></td>
</tr>
<tr>
<td>1.8 Consults with health team for guidance and/or coordination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9 <strong>Implements plans consistent with overall national, regional, and local plans/programmes</strong></td>
<td><strong>To be removed</strong></td>
<td></td>
</tr>
<tr>
<td>1.10 Evaluates implemented plans/programmes to determine results</td>
<td><strong>To be removed</strong></td>
<td></td>
</tr>
<tr>
<td>2 Health Team Participation (40 Points)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1 Participates, as a member of the Health team, in developing and implementing environmental health plans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Demonstrates willingness and ability to work with others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 Displays leadership qualities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Communicates clearly - both verbally and in writing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5 Generates practical and technically sound ideas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Shows due regard for the opinions and ideas of other team members</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Health education (60 points)</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>Develops good working relationship with members of the community.</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Identifies needs for Health Education based on problems found in the area.</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Selects target groups according to problems and/or needs identified.</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>Plans educational programmes based on problems/needs identified.</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>States objectives of the educational programmes clearly and specifically.</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>Selects appropriate literature/teaching aid for educational programme.</td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>Employs appropriate educational strategies based on the particular problems tackled and the target group to be reached.</td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>Presents accurate information re the topic being taught.</td>
<td></td>
</tr>
<tr>
<td>3.9</td>
<td>Uses teaching aids appropriately and effectively.</td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>Communicates clearly at a level appropriate for learners.</td>
<td></td>
</tr>
<tr>
<td>3.11</td>
<td>Demonstrates skills in gaining and holding the attention of learners.</td>
<td></td>
</tr>
<tr>
<td>3.12</td>
<td>Evaluates the effectiveness of educational programme.</td>
<td></td>
</tr>
</tbody>
</table>

Premises Inspection (60 points)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Establishes rapport with householders, proprietors, employees etc.</td>
</tr>
<tr>
<td>4.2</td>
<td>Carries out inspection using a concise methodology.</td>
</tr>
<tr>
<td>4.3</td>
<td>Displays tact, discretion and impartiality in dealing with environmental problems and sensitive issues.</td>
</tr>
<tr>
<td>4.4</td>
<td>Evaluates findings of inspection and investigates objectively.</td>
</tr>
<tr>
<td>4.5</td>
<td>Clearly identifies environmental deficiencies, with due recognition of possible problems to the householders, proprietors, employees etc.</td>
</tr>
<tr>
<td>4.6</td>
<td>Applies appropriate corrective measures based on professional judgement, principles and legislation.</td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>-------------</td>
</tr>
<tr>
<td>4.7</td>
<td>Produces an acceptable level of output on a daily basis.</td>
</tr>
<tr>
<td>4.8</td>
<td>Undertakes follow-up visits based on the urgency of the situation.</td>
</tr>
<tr>
<td>4.9</td>
<td>Clearly records findings and action taken.</td>
</tr>
<tr>
<td>4.10</td>
<td>Prepares relevant reports, submitting same punctually.</td>
</tr>
<tr>
<td>5</td>
<td>Special Inspection and Investigations (60 points)</td>
</tr>
<tr>
<td>5.1</td>
<td>Displays interest in the monitoring of special environmental health conditions.</td>
</tr>
<tr>
<td>5.2</td>
<td>Demonstrates skills in and knowledge of meat, poultry, milk and other foods.</td>
</tr>
<tr>
<td>5.3</td>
<td>Indicates clearly aptitude for the control of food handling premises.</td>
</tr>
<tr>
<td>5.4</td>
<td>Indicates the ability for precise decision-making.</td>
</tr>
<tr>
<td>5.5</td>
<td>Refers matters requiring attention of designated officer/supervisors for appropriate action.</td>
</tr>
<tr>
<td>5.6</td>
<td>Demonstrates proficiency in monitoring Water Quality Control, Occupational Health and Housing as related to public health.</td>
</tr>
<tr>
<td>5.7</td>
<td>Displays awareness of pollution problems, and some likely effects on the environment.</td>
</tr>
<tr>
<td>6</td>
<td>Records and Reports (40 points)</td>
</tr>
<tr>
<td>6.1</td>
<td>Demonstrates knowledge and understanding of routine records and reports required.</td>
</tr>
<tr>
<td>6.2</td>
<td>Keeps clear, concise, accurate and up to date account of all official activities.</td>
</tr>
<tr>
<td>6.3</td>
<td>Submits required reports on time.</td>
</tr>
<tr>
<td>6.4</td>
<td>Shows communicative skills and innovation in the preparing/presenting reports.</td>
</tr>
<tr>
<td>6.5</td>
<td>Demonstrates ability for proper utilisation of data compiled.</td>
</tr>
<tr>
<td>6.6</td>
<td>Utilises relevant, current data, presenting same as graphical displays in varied settings.</td>
</tr>
</tbody>
</table>
Comments of Supervisor: To include:

a) General deportment (10 points)
b) Relationship with staff and community.
c) Attendance and punctuality.
d) Attitude towards work and supervision.
e) Integrity.

(Comments should be written on separate sheets, signed by both Intern and Supervisor and attached to this form).

---------------------------------    ---------------------------------
Signature of Intern     Signature of Supervisor
EH Internship Instrument 2

INSTRUCTIONS

Students are required to complete the evaluation form for submission to the training institution.

Rating Scale:
1 = strongly disagree
2 = disagree
3 = neutral
4 = agree
5 = strongly agree

<table>
<thead>
<tr>
<th>No</th>
<th>Item</th>
<th>Rating Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Student was adequately prepared for internship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Goals and objectives of internship were clearly stated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Internship provided adequate scope for application of theory</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>Agency had adequate capacity to facilitate internship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Timeframe for internship was adequate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Internship was adequately facilitated by agency</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Rating instrument used was appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Supervisor was readily available for consultation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Problems encountered were satisfactorily addressed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Quality of guidance by supervisor was satisfactory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Supervisor served as a professional role model for student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Evaluation of the student by supervisor was fair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Student received timely and effective feedback on performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Overall quality of internship was satisfactory</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
**11.10.3. Attachment III**

**EH Internship Instrument 3**

**ENVIRONMENTAL HEALTH PROGRAMME**  
**INTERNSHIP**

**STUDENT EVALUATION BY SUPERVISOR**  
**(INSTRUMENT)**

**INSTRUCTIONS**

Intern supervisors are required to complete the evaluation form for submission to the training institution.

**Rating Scale:**
1= strongly disagree  
2=disagree  
3= neutral  
4=agree  
5=strongly agree

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item</th>
<th>Rating Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Student was adequately prepared for internship</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2</td>
<td>Student received adequate support from assigned agency</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3</td>
<td>Programme goals and objectives were realistic</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4</td>
<td>Consultation with training institution was adequate</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5</td>
<td>Student possessed required capacity to undertake programme</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6</td>
<td>Timeframe for internship programme was adequate</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7</td>
<td>Rating instrument used was appropriate</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>8</td>
<td>Overall quality of programme was satisfactory</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

**Comments**

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Recommendations
12. ANNEX E

PROPOSED FRAMEWORK FOR STEP 3
12.1. PROPOSED FRAMEWORK FOR STEP 3

Baccalaureate Degree in Environmental Health with the following specialisations:

- Environmental Health Engineering
- Epidemiology
- Food Safety
- Occupational Health and Safety
- Vector Control

12.1.1. ENVIRONMENTAL ENGINEERING

Course Description
This specialization is designed to provide the student with the skills and competencies, practical application of sanitary engineering theory and principles for comprehensive environmental control. Areas covered are Water Supply Engineering, Air pollution, noise control and radiation protection, Environmental Epidemiology, Solid waste Management and Liquid Waste Management.

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Credits</th>
<th>Hours (Theory)</th>
<th>Hours (Practical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Health Management</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Analysis</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Health Impact Assessment</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biostatistics And Research Methods II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Systems</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Credits</th>
<th>Hours (Theory)</th>
<th>Hours (Practical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply Management</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air pollution, noise control and radiation protection</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Epidemiology</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid waste Management</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Waste Management</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practicum</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12.1.2. EPIDEMIOLOGY

Course Description
This specialization is intended to provide the student with the necessary skills and competencies to assess the relationship between exposure and outcomes in health against the background factors of bias, confounding and chance. Emphasis will be placed on the following areas of epidemiology: study design, advanced statistics, communicable and non communicable diseases, and surveillance.

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Health Management</td>
<td>3</td>
</tr>
<tr>
<td>Risk Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Health Impact Assessment</td>
<td>3</td>
</tr>
<tr>
<td>Biostatistics And Research Methods II</td>
<td>3</td>
</tr>
<tr>
<td>Information Systems</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Design in Epidemiology</td>
<td>4</td>
</tr>
<tr>
<td>Advanced statistical methods in Epidemiology</td>
<td>4</td>
</tr>
<tr>
<td>Epidemiology of Communicable diseases</td>
<td>4</td>
</tr>
<tr>
<td>Epidemiology of Non-communicable diseases</td>
<td>4</td>
</tr>
<tr>
<td>Environmental Epidemiology</td>
<td>2</td>
</tr>
<tr>
<td>Epidemiological Surveillance</td>
<td>3</td>
</tr>
<tr>
<td>Practicum</td>
<td>10</td>
</tr>
</tbody>
</table>
12.1.3. FOOD SAFETY

Course Description
This specialization provides the student with an advanced knowledge of Food safety. Students will explore in depth food chemistry and processing technology, food microbiology, hazard analysis critical control systems and the regulatory framework governing food industry. It provides the skills necessary for planning, implementing and evaluating quality control and quality assurance programmes in the management of the food industry.

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Credits</th>
<th>Hours (Theory)</th>
<th>Hours (Practical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Health Management</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Analysis</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Health Impact Assessment</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biostatistics And Research Methods II</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Systems</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Semester II</th>
<th>Credits</th>
<th>Hours (Theory)</th>
<th>Hours (Practical)</th>
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<tbody>
<tr>
<td>Food Chemistry,</td>
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<tr>
<td>Food Processing Technology</td>
<td>4</td>
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<td></td>
</tr>
<tr>
<td>Food Microbiology</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazard Analysis Critical Control Systems</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epidemiology of Food borne Diseases</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory Framework</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practicum</td>
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<td></td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>46</strong></td>
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<td></td>
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</tbody>
</table>
12.1.4. OCCUPATIONAL HEALTH

Course description

The programme is designed to Provide a strong foundation in Occupational Health and safety. Graduates will be familiar with and will be able to apply the principles of

- exposure assessment and industrial hygiene (essential for evaluating assessment in epidemiological studies),
- Occupational Health policy (essential in understanding and influencing the uses of epidemiological data),
- toxicology (essential in relating epidemiologic results to evidence), and
- safety (essential in reducing injury morbidity and mortality).

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Credits</th>
<th>Hours (Theory)</th>
<th>Hours (Practical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Health Management</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Analysis</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Health Impact Assessment</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biostatistics And Research Methods II</td>
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<td>Information Systems</td>
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<tr>
<td>Semester II</td>
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<tr>
<td>Epidemiology of Occupational Health</td>
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<tr>
<td>Exposure Assessment</td>
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<td>Industrial Hygiene</td>
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<tr>
<td>Occupational Toxicology</td>
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<tr>
<td>Occupational Health and Safety Management</td>
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12.1.5. VECTOR CONTROL

Course Description:
This programme provides advanced knowledge and skills in a wide range of the aspects of Vector Control. More specifically the graduate will be able to translate theory into practice by designing, planning, implementing and evaluating Vector control programmes at community and national levels.

<table>
<thead>
<tr>
<th>Semester I</th>
<th>Credits</th>
<th>Hours (Theory)</th>
<th>Hours (Practical)</th>
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<tr>
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<td>Risk Analysis</td>
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<td>Environmental Health Impact Assessment</td>
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<td>Biostatistics And Research Methods II</td>
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<td>Information Systems</td>
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<table>
<thead>
<tr>
<th>Semester II</th>
<th>Credits</th>
<th>Hours (Theory)</th>
<th>Hours (Practical)</th>
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<td>Ecology of Arthropod Vectors of Public Health Significance</td>
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<td>30</td>
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<tr>
<td>Ecology of Vertebrate Vectors of Public Health Importance</td>
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<td>Epidemiological Principles and Control of Vector borne diseases (include entomological research)</td>
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<tr>
<td>Organisation and Management of Vector Control Programme (Integrated Vector Management)</td>
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<td>Control of Vectors</td>
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<tr>
<td><strong>Practicum</strong></td>
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13. ANNEX F

REGISTRATION OF ENVIRONMENTAL HEALTH OFFICERS
REGIONAL GUIDELINES FOR THE REGISTRATION OF ENVIRONMENTAL HEALTH OFFICERS

13.1. INTRODUCTION

The registration of all Health professionals was recommended by the Conference of Ministers of Health in 1997 and will be used to facilitate the free movement of persons across the CARICOM region.

13.2. BACKGROUND

Since 1994, the region has been exploring the harmonisation of training programme in the areas of environmental health and medical laboratory technology. It was recommended that common regional guidelines be developed to facilitate the acceptance of the environmental health officer from one Member State in all CARICOM Member States.

As part of these recommendations it was stated that professional associations should work in concert with Ministries of Health to facilitate the process and that the issuing of licenses and their renewal be considered as part of the process. It was also accepted that continuing education should be necessary both for the renewal of licenses as well as maintenance of membership with the professional associations.

However the reduced capacity of the national professional associations and the dormancy of the regional one has led to the recognition that these associations need to be strengthened in order to ensure effectiveness of the regional registration process. Some discussions have already been started with the Caribbean Environmental Health Institute (CEHI) who has promised to utilise its meetings to facilitate dialogue among representatives of national associations on Environmental Health.
To date, only the country of Jamaica has a legal requirement that all environmental health officers be registered before they are allowed to practice and this is reflected under their Act on the “Professions supplementary to Medicine”. However some countries such as Trinidad and Tobago and Barbados have started to examine the issue and are moving towards getting their Paramedical Acts amended to include Environmental Health Officers.

13.3. RATIONALE FOR REGISTRATION

The rationale for registration of Environmental Health Officers include:
1. the standardisation and regulation of professional practice;
2. the protection of the public through ensuring that environmental health officers have a minimum set of competencies before being allowed to practice.
3. The protection of EHO professionals
4. The enhancement of image of the profession.

13.4. GUIDELINES FOR REGISTRATION

The following guidelines were agreed upon by the Task Force:

i) The basic academic requirement for registration should be the Associate Degree/ Diploma/ BSc until 2005 when the BSc should be the entry requirement for new members into the profession.

ii) The training programmes of all Tertiary Level Training Institutions should be harmonised by 2005.

iii) Training programmes should be based on regionally and internationally acceptable standards of education and practice for environmental health.

iv) Continuing education credits should form the basis for annual re-registration or licensure.

v) Continuing Education credits should be defined jointly by the professional associations, training institutions and ministries of health across the region.
vi) Registration should be included in the legislation of each CARICOM country, possibly included in the Professions allied to Medicine or similar Act in each country.

vii) The utilisation of continuing credits for re-registration should also be included in the legislation.

viii) Registration is required for the completion of the academic programme.

13.5. PRE-REQUISITES FOR THE REGIONAL REGISTRATION PROCESS

The Task Force recommends that the following actions be taken to guide the registration process:

i) investigate the status of the regional and national associations in all CARICOM Member States.

ii) investigate the status of the registration process in all CARICOM Member States.

iii) advocate through the Minister of Health or other appropriate mechanism for inclusion of the EHO in the registration legislation.

iv) follow up with CEHI (and PAHO) the reformulation of the regional professional association.

v) commence the identification of definition of continuing education credits.
14. ANNEX G

REPORTS OF TASK FORCE
14.1. REPORT OF TASK FORCE FOR THE DEVELOPMENT OF HARMONIZED CURRICULA FOR THE THREE-STEP PROPOSAL FOR TRAINING OF ENVIRONMENTAL HEALTH PROFESSIONALS OF CPC COUNTRIES (July 26, 2002)

14.1.1. BACKGROUND

The Task Force was established to advance the process of harmonizing the curricula for the Environmental Health Human Resource development in the region.

Subsequent to the Consultation meeting of June 19-21, 2002 (Consultation with the educational institutions on a PAHO proposal for Human Resource Development on Environmental Health Units), the Task Force was constituted as follows:

- Representatives from three training institutions
- Representative of Ministry of Health - Barbados
- Technical Advisor, Environmental Health
- Representative of CARICOM
- Curriculum Specialist

14.1.2. COMPOSITION OF TASK FORCE

The Task Force comprised:

- Mr. Verrol Scott, BCC
- Mr. Albert Skair, COSTAATT
14.1.3. TERMS OF REFERENCE

- Agree and complete the program curriculum and course content for Step Two and Step Three.

- Integrate into the project document the condition and strategies upon which the three step-training program can serve as the framework for the development of training of Environmental Health professionals. This included refining and editing the project document to incorporate the missing background information and the major agreements of the 19-20 June, 2002 meeting.

- Define the guide to be followed by the training institutions to determine the equivalency of three basic CXC, necessary to ascend to step 2 training program.

- Agree on/define the instrument to be used for evaluation of country capacity: minimum asset and resources requirement by country desirous to undertake the delivery of step 1 program.
14.1.4. EXPECTED DELIVERABLES

The deliverables requested of the Task Force by PAHO at the Briefing Meeting were as follows:

- Completed curriculum with all course syllabi for Steps Two and Three
- Curriculum background document detailing rationale, strategies, framework, Three Step Proposal and other required elements
- Instrument for evaluating capacity of countries to offer Step One
- Guidelines for establishing equivalency to CXC entry requirements, and
- Framework for Registration of Environmental Health personnel of the region

The Task force noted that Step One curricula had only been outlined and a lot of work still needed to be done. It was therefore agreed that this first level of the proposed curricula would be one of the deliverables. The Task Force did not deem the matter of equivalence one for further discussion, since Step One is specifically designed to provide entry to Step Two.

14.1.5. UNDERESTIMATION OF THE UNDERTAKING

A total of 8 programme structures and over 100 detailed syllabi were required to achieve the objective subsumed in the first stated deliverable and in the agreement to complete Step One. Both PAHO and the Members of the Task Force underestimated the undertaking – a mammoth task even for the team of members of the highest calibre.
14.1.6. **RESOURCES**

- The members of the Task Force were satisfied with the physical equipment and facilities (rooms, computers, projector etc.) put at their disposal.

- The human resources available were less than adequate. The secretarial support person was excellent in her response to our demands, but it was unsatisfactory that the team had to share her with her normal duties. A specialist in word processing and related tasks would have relieved the task Force members to attend to their specialist task of curriculum development.

- There was need for specialists to help to advance Step Three. In one instance of Step Two, the Task Force found it necessary to call in a specialist in order to accomplish a task. Mrs. Donna Bynoe-Arthur, Chemistry specialist, BCC gave us her services in completing chemistry components for Steps Two and Three.

- The time available was only a fraction of that needed to produce the deliverables. There was no day that the team worked less than 12 hours.

- Given the degree of discussion required to arrive at consensus, much more time was needed to complete the exercise

14.1.7. **MODUS OPERANDI**

In order to move the process ahead at optimum pace, the Task Force often worked in sub-groups. Step One activities were attended to consistently by a sub-group, so was the background document. Step Two had its dedicated sub-group, but benefited from the continuous and very necessary input from other members.
14.1.8. ACTUAL OUTPUT

The background document has been completed, except for the cosmetic editing (including the editing and collating of annexes) to ready it for presentation to stakeholders.

Twenty of the twenty-four syllabi for Step One have been developed, except for the elements *Instructional Methods*, *Assessment* and *Resource Texts*. Limitations of time allowed the entire Task Force to vet only five of the Step One syllabi. The content and objectives of the others have been identified and need only to be structured.

There are course descriptions for all courses of Steps One and Two. Thirteen of the twenty-six syllabi of Step Two have been harmonized. Elements from two other syllabi from the three institutions present have been brought together for another (2) syllabi *in progress*.

The framework for the Internship for Step two has been formulated.

The parameters for determining the capacity of countries to deliver the programmes have been identified.

14.1.9. RECOMMENDATIONS

The Task force recommends that

Follow-up meetings be held to complete the harmonization/development of the proposed curricula.

Specialists be recruited to facilitate the development of step Three specialized courses
The University of Guyana be represented in follow-up meetings

Secretarial services be dedicated to the meetings.

A realistic time be allotted to tasks.

Mr. Joseph Inniss, Chairman

Mr. Verrol Scott
Mr. Tyrone Applewhite

Ms. Sandra Plummer
Mr. Naphtali Williamson

Mr. Albert Skair
Dr. Karen Springer
14.2. REPORT ON PAHO TASK FORCE FOR THE DEVELOPMENT OF HARMONIZED CURRICULA FOR THE THREE STEP PROPOSAL FOR TRAINING OF ENVIRONMENTAL HEALTH PROFESSIONALS OF CPC COUNTRIES - DECEMBER 13, 2002

14.2.1. BACKGROUND:

The first session of the captioned Task Force was held July 22-27, 2002, at the Caribbean Program Coordination Office of the Pan American Health Organization in Barbados. The members of the Task Force succeeded in breaking the back of the giant task they had undertaken by:

a) bringing more than thirty courses of Steps One and Two to near completion,
b) setting out working guidelines for the development of Step Three,
c) setting out guidelines for determining country capacity to deliver the three steps,
d) drafting an Internship framework for Steps Two and Three and
e) preparing the background document for presentation to CARICOM and other stakeholders.

Session Two of the Task force was held at Caribbean Program Coordination office of the Pan American Health Organization December 9 -13, 2002. Reinforced by the inclusion of Mr. Grosvenor of the University of Guyana, the Task Force, now with representation from four major regional institutions, got down once more to its task of harmonizing the curricula designed to improve the Environmental Health Human Resource Development of the region.
14.2.2. TERMS OF REFERENCE:

1. Completion of Harmonization (Curricula -- Step 2)

Finalize Step Two by completing the harmonization of the content of the remaining eleven courses listed in the Step Two Programme Structure.

The eleven courses are:

(1) Computer Awareness
(2) Caribbean Politics and Society
(3) Environmental Biology (microbiology, ecology and Plant Biology)
(4) Nutrition and Community Health (including Communicable and non-communicable diseases)
(5) Building Science and Technical Drawing
(6) Waste Management
(7) Introduction to Psychology
(8) Environmental Health Administration / Legislation
(9) Disaster Preparedness
(10) Food Safety II (meat, fish, milk and poultry)
(11) Institutional Health (including transport and recreation)

2. Guidelines for the Internship (Steps 2 & 3)

Complete the design of the Internship to include its components as well as evaluation

3. Completion of the Programme Structure for the Step 3 Specializations

Complete programme structures showing courses for each of the five specializations for Step Three to complement the core courses already agreed on for the following five Bachelor’s level specializations:
4. **Framework for Registration for Environmental Health Professionals**

Formulate a draft Framework for Registration for Environmental Health Professionals in the region.

14.2.3. **RESOURCES**

It should be noted that the secretarial support person was excellent in her response to our demands. However, it was unsatisfactory that the team had to share her with her normal duties. A dedicated specialist in Word Processing would have relieved the Task Force members of secretarial demands so these could dedicate themselves to their specialist task of curriculum development.

Dr. Lloyd Webb, Veterinary Public Health Advisor of the Pan American Health Organization, assisting with the specialist area of Food Safety, gave invaluable assistance in this regard.

Assistance was also provided by Dr. Mung (Epidemiology Advisor), Mr. Marco Suarez (Vector Control Advisor) and Mr. Harry Philippeaux (Environmental Health Advisor) all of the Pan American Organization and Mrs. Allison Leacock (Occupational Health and Safety Officer) of the Ministry of Labour.
14.2.4. MODUS OPERANDI

It was agreed that three of the eleven outstanding courses in Step 2 (Computer Awareness, Caribbean Politics and Society and Introduction to Psychology) did not fall within the purview of the Task Force. Furthermore, it was recognized that institutions offering Step 2 would more likely than not have these courses in their General Education curriculum, and would not be disposed to offering courses developed by outsiders.

The Task Force worked feverishly to complete the task within the specified time, working an average of twelve hours each day. In order to move the process ahead at optimum pace, the Task Force worked in sub-groups. The subgroups were dedicated, each member and each group freely sharing their wealth of information and ideas to move the task forward. The subgroups regrouped so that consensus could be reached with respect to the output of each subgroup.

14.2.5. ACTUAL OUTPUT

i) Harmonization of all Step 2 Environmental Health courses was completed. The curriculum should shortly be ready for to stakeholders.

ii) The Internship design was completed based on the Jamaican model.

iii) A draft programme structure for each of the 5 specializations of Step 3 was prepared.

iv) A draft framework for Registration of Environmental Health Professions in the region was outlined.
14.2.6. THE WAY FORWARD

Session Two concluded with a wrap-up in which personnel of the Caribbean Program Coordination office of the Pan American Health Organization in Barbados (Dr. Jean Yan, Dr. H. Philippine, \& \& \&) joined Task Force members. This joint session reviewed progress in the Environmental Health HRD initiative and pooled resources to plot the way forward. Major points on the path are as follows:

- Distribution of the first draft of the “Human Resource Development for Environmental Health Professionals of Caricom Countries” document to task force members and Caricom member countries (January 22, 2003)

- A draft proposal for USAID funding for Step 1 will be prepared (April, 2003)

- Reactivation of Environmental Health Associations in Caricom countries (February 2003)

- Feedback on the programme from ministries and academic institutions in each Caricom member country (February 15, 2003)

- Submission of the project document to Caricom’s Council for Human and Social Development for endorsement (April 2003)

- Implementation by the major tertiary institutions in the region which undertake training in environmental health (After April 2003)

- Selection of two/three person teams (members of the Task Force) to evaluate the capacity of each country to implement distance learning in 2003 (Step 1)

- Recruitment of specialists by PAHO to further develop the specialized courses in Step 3 by 2004
Harmonization of training programmes of all Tertiary Level Training Institutions by 2005

The basic academic requirement for registration should be the Associate Degree/Diploma/ B.Sc. until 2007

The B.Sc. should be the entry requirement for new members in the profession (After 2007).

14.2.7. CLOSE OF SESSION TWO

The PAHO personnel present and members of The Task Force expressed their mutual appreciation of each other’s contribution to the development of Environmental Health Human Resources in the region. There was a general expression of excitement, positive anticipation and confidence that the extensive investments of time, energy and commitment would finally yield the long projected dividends.