CAYMAN ISLANDS GOVERNMENT

JOB DESCRIPTION

Job Title: Director
Department: Mosquito Research & Control Unit
Job Holder: Vacant
Reports to: Chief Officer
Ministry: Health, Environment, Culture & Housing

1. JOB PURPOSE

To direct the department which comprises the following divisions: Research and Development, Operations and Administration; Aircraft. To ensure that a vibrant programme of scientific research is developed and targeted towards the advancement of mosquito control techniques, to monitor the presence of mosquito-borne diseases and to prevent the introduction of disease vectors. To ensure that sound scientific principles are employed in mosquito control operations conducted in accordance with prescribed guidelines and in compliance with the highest safety standards. To oversee all administrative functions including budgetary control, Financial Management Initiative matters and Output Reporting.

2. DIMENSIONS

MRCU budget is approximately CI$6m. Existing staff complement of the Department is 40 as follows:

1 Director - vacant
1 Deputy Director – Research & Development Division
1 Deputy Director – Operations & Administration Division - vacant
1 Licensed Aircraft Engineer
1 Chief Pilot
1 Senior Research Officer – Entomology - vacant
1 Senior Research Officer – Applications - vacant
1 Safety & Compliance Officer - vacant
1 Senior Superintendent - Operations
1 Superintendent/Senior Research Officer, Sister Islands
1 Finance & Administration Manager
1 Pilot
1 Assistant Aircraft Engineer
2 Senior Disease Prevention Officers - Vacant
2 Laboratory Technicians
1 Senior Heavy Equipment Operator
2 Executive Officers
1 Accounts Officer
1 Aviation Support Technician
16 Disease Prevention Officers
Mosquito control is conducted on all three Cayman Islands. The activities of MRCU are diverse and complex and include low-level aerial applications of insecticide, heavy equipment operations in mangrove swamps and continual modification of control strategies to ensure safe and responsible implementation. Many of these activities place a high degree of liability on the post holder.

3. PRINCIPAL ACCOUNTABILITIES

The Director is accountable for the overall direction of the department, with direct responsibility for line management of the heads of the three divisions: Research & Development, Operations and Administration, and Aircraft.

1. Preparation of budget submissions, costing and reporting requirements for the Department. Coordinate all aspects of financial control, accounting and reporting procedures under the auspices of the Financial Management Initiative, for the Department as a whole. Ensure that preparation of Quarterly and Annual Reports, costing analyses and expenditure controls conform to required procedures. The ongoing development and improvement of Departmental Outputs and outcomes.

2. Oversight of the Safety & Compliance Officer responsible for managing health & safety matters within the Department, both in regards to workers’ health and safety and with respect to pesticide use and public health considerations. Ensure that all operations, including aerial and ground applications of insecticides, heavy equipment and laboratory practices, are conducted in full compliance with prescribed safety regulations.

3. Oversight of the following functions of the Research & Development Division:
   a. Design, coordination and implementation of the Department’s programme of biological research, aimed at an improved understanding of varied aspects of mosquito biology, including disease transmission, blood-feeding behaviours, reproductive strategies and DNA research;
   b. Vector Control Programme (disease prevention), involving Port Disinsection (spraying of all incoming vessels and aircraft to prevent introduction of exotic species), Survey (manual inspection and treatment of premises to identify and control disease vectors), and Ovipot Surveillance (monitoring presence and distribution of disease vectors by means of island-wide network of egg-trapping devices). Conducted on all three islands;
   c. Direct applied research in Applications Technology, in close liaison with the Senior Research Officer (Applications) and Aircraft Section, investigating the physics and engineering aspects of spray-cloud dynamics, droplet sizing and characterisation, spray drift and deposition, as well as monitoring the efficacy of insecticide applications;
   d. Ground Larviciding Programme – involving larval inspections in mangrove swamps and pasture areas, mapping of breeding sites using GPS and LIS technology, the utilisation of specialist application equipment – and give guidance to staff as to the choice of insecticides to be used, as well as logistical support to field-crews;
   e. Technical Development – the advancement of mosquito control methods – by adopting the findings of research projects (biological and applied), and by
collaborating with international agencies and academic institutions, in order to
develop long-term planning of control strategies and the direction of future research;
f. Laboratory testing for insecticide resistance in mosquito populations using
bioassays, biochemical tests and DNA analyses, and provide thereby an early
warning of incipient resistance, and coordinate key aspects of the *Insecticide
Resistance Management Plan*;
g. *Pesticide Residue Monitoring Programme*, ensuring that cistern water and
other samples are collected according to established protocols, and liaise with
specialist testing laboratories overseas. Ensure that reports of findings are
produced in a timely manner, and provide periodic recommendations as to the
continuation or expansion of the programme; and
h. Collection (including measurement and recording) of all scientific data, both
routine and experimental, and ensure the proper storage of raw data sets. Supervise appropriate analysis of data and ensure that reports are prepared
providing clear interpretation of results and conclusions reached, such that the
scientific work of the Department is readily accessible.

4. Oversight of the following functions of the Operations & Administration Division:
   a. Plan and implement all aspects of mosquito control operations, including aerial
      spraying, ground ULV applications, aerial and ground larviciding, as well as
      heavy equipment activities involved in physical control measures;
b. Oversight of the Operations & Administration Division’s Superintendent/SRO,
      Sister Islands, with respect to field operations conducted on Cayman Brac and
      Little Cayman;
c. Implement a *Public Outreach Programme*, developing appropriate educational
      material and utilising suitable media outlets, to promote community awareness
      of the Department’s activities and policies, particularly addressing issues of
      public concern, such as the use of pesticides and public health;
d. Develop policies for the long-term planning of mosquito control strategies
      which take account of future trends in control methods overseas, changing
      public perceptions at home and abroad, and internationally recognised
      standards of practice;
e. Oversee a broad-based policy of environmental protection as it relates to
      mosquito control, and ensure that all operations are designed and conducted in
      such a way as to minimise impact on the natural environment. Liaise with
      overseas organisations such as the US Environmental Protection Agency and
      American Mosquito Control Association on environmental awareness, and
      ensure that MRCU is in compliance with appropriate regulatory requirements;
f. Coordinate appropriate staff training programmes, both in-house and external,
      particularly in areas such as pesticide use and safety. Devise a workable policy
      of *Staff Development*;
g. On-going development of a comprehensive *Operations Manual* for all aspects
      of the Department’s functions and in the preparation of *Standard Operating
      Procedures*, incorporating safety regulations governing aerial operations and
      aircraft engineering procedures, and assist in the development of medium and
      long-term Departmental Plans;
h. Maintenance schedules for the Department’s vehicle fleet and heavy equipment
      machinery, ensuring that agreed schedules are correctly adhered to. Ensure
      that small-engine machinery and insecticide application equipment are cared
      for and stored properly, and that all equipment is maintained with readiness
      capability; and
i. All functions of the Operations & Administration Section, in addition to subjects related to FMI, and provide support to relevant staff members, including the Sister Islands Section, on miscellaneous matters to do with personal emoluments, pensions and general administration.

5. Oversight of the following functions of the Aircraft Section*:
   a. Selection of products to be aerially applied, selection and mapping of treatment areas and determining timing of aerial applications;
   b. Provision and monitoring of aerial applications technology to ensure optimal use of all products aerially applied;
   c. Provision of pesticide resistance monitoring and management for all products aerially applied; and
   d. Authorisation of all aerial application flights.

*Note the Accountable Manager of the department, the Chief Officer of the Ministry, has the oversight over all other aspects of the Aircraft section.

6. Accountable for all legal affairs relating to the Department and in the drafting of new legislation and regulations as may become necessary. Provide advice to the Chief Officer as to legislative changes that may take place from time-to-time in jurisdictions such as the US and UK, and which may have implications for mosquito control in the Cayman Islands.

7. Prepare reports and scientific publications for the Ministry and other Government Departments, and, where appropriate, for informing the international scientific community on issues concerned with Cayman’s mosquito research and control.

8. On-going development of a comprehensive Operations Manual for all aspects of the Department’s functions and in the preparation of Standard Operating Procedures, incorporating safety regulations governing aerial operations and aircraft engineering procedures, and assist in the development of medium and long-term Departmental Plans.

9. Provide scientific and technical advice to the Department’s Research Group on topics relevant to particular study areas, and undertake efforts to procure additional information as requested by the Group. Oversight of the subscriptions to relevant scientific journals and affiliations to professional organisations.

10. Oversight of the Research & Development Division’s function as Departmental focal point for all computing matters, providing advice on the suitability of specialist software and equipment, the Department’s web site and social media.

11. Any other duties that may be delegated by the Chief Officer from time-to-time.

### 4. ORGANISATIONAL CHART

Please refer to attached chart.

### 5. BACKGROUND INFORMATION

The Mosquito Research & Control Unit is charged with the responsibility of protecting residents and visitors from mosquito-borne diseases and the irritation of mosquito biting. To achieve this, the Department employs a wide range of control measures.

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techniques under a professional regime of Integrated Pest Management, and also conducts scientific research with the aim of increasing the efficiency and effectiveness of control measures. As a result, mosquito control in the Cayman Islands is a multi-disciplinary activity combining expertise in insecticide application technology, mosquito biology and biochemistry, molecular biology, the dynamics of water/swamp interactions, as well as knowledge of pesticide regulatory protocols. Furthermore, control operations must be conducted in a manner that is both environmentally responsible and beneficial to public health. The activities of MRCU are essential in supporting the local tourist economy and in promoting a superior quality of life in the Cayman Islands.

6. KNOWLEDGE, EXPERIENCE AND SKILLS

The post holder must have a Master's degree in the Biological Sciences, preferably Zoology or a related subject. A PhD in Entomology or a related field would be advantageous.

Must have at least ten years’ experience in the control of pests, and with insect disease vectors in the tropics, with at least five years’ experience in a management capacity of a vector control programme.

Proven organisational, administrative and personnel management skills.

The post holder is expected to have a thorough knowledge and understanding of international and regional pesticide regulations.

The post holder must have excellent written and oral communication skills, the ability to prepare and present public lectures and seminars, and be capable of providing official advice on a range of issues concerned with mosquito control. The post holder should have experience in the preparation and implementation of public outreach programmes, preferably in communicating scientific matters to the general public. Experience and/or qualifications in conducting training or teaching courses is desirable.

The post holder will be required to establish a professional and credible profile, both personally and for the Department.

The post holder is expected to have, or be capable of acquiring, knowledge and skills for some or all of the following: practical experience and/or qualifications in the safe use and handling of pesticides, the training of staff, insecticide application techniques, mosquito ecology and bionomics, insect biochemistry, the principles and techniques of molecular biology, statistical expertise in handling scientific data and computer applications of GIS mapping software.

7. ASSIGNMENT AND PLANNING OF WORK

The post holder will undertake work within broad guidelines, objectives and time-frames in accordance with priorities agreed in consultation with the Chief Officer.
8. SUPERVISION OF OTHERS

The post holder has responsibility for the management and supervision of at least 40 staff at any one time, in accordance with the policies and guidelines issued by the Cayman Islands Government and the Chief Officer. The job requires daily staff contact at all levels.

The Director is responsible for the direct supervision and performance management of the Deputy Director, Research & Development, the Deputy Director, Operations & Administration, the Safety & Compliance Officer, the Chief Pilot and the Licensed Aircraft Engineer. The Director leads the management team which comprises the Deputy Directors, the Chief Pilot, the Licensed Aircraft Engineer, the Finance & Administrative Manager, the Senior Research Officers, the Senior Superintendents, and the Safety & Compliance Officer. The management team assists the Director with the formulation of policy and the delivery of programmes and meets weekly with the Director to ensure compliance with the overall strategic direction of the Department.

9. OTHER WORKING RELATIONSHIPS

The post holder will have frequent contact with Ministry staff and with other Government Departments. The Director must establish close working relationships with senior staff in the Ministry to facilitate ongoing dialogue in order to achieve the aims of the Department. This includes the Chief Officer, and Deputy Chief Officer, Senior Policy staff, and the Chief Financial Officer.

Additionally, the post necessitates frequent contact with representatives from partner agencies such as the Public Health Department, the Department of Environment, the Department of Environmental Health, and other entities within the various Ministries of the Government, as well as other interested community groups also occurs as required in order to enhance service delivery.

In addition, regular contact will be maintained with international research and technical institutions such as the Pan American Health Organisation, the US Centers for Disease Control, the American Mosquito Control Association, the World Health Organisation, the Caribbean Epidemiology Centre and individual University departments.

10. DECISION MAKING AUTHORITY AND CONTROLS

The post holder has the authority, as Head of Department, to make decisions within general policy guidelines and agreed budget. The post holder will consult with the Chief Officer on non-routine matters; however, he/she is expected to work independently within the guidelines of this job description and the Policies and Procedures Manuals of Cayman Islands Government and the Ministry of Health, Environment, Culture and Housing. The Director assumes full responsibility for budgetary matters of the Department as well as HR Authorities as delegated by the Chief Officer in accordance with the Public Service Management Law.

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11. PROBLEM/KEY FEATURES

The post requires a thorough understanding of a modern approach to mosquito control and current issues surrounding the subject, and an awareness of the politics as well as the science of pest management, particularly with respect to concerns over pesticide use and public health, and environmental protection.

The highest standards of aircraft maintenance and the overall safety of aerial operations are of paramount importance. Health and safety protection for employees directly involved in insecticide applications, as well as safety considerations for the general public, are key features.

Devising practical and economic mosquito control measures in the face of rapid changes in human settlement patterns and population growth, as well as changes in the relative proportions of different mosquito species.

Contingency planning against the threat of introduction of mosquito-borne diseases, the introduction of disease-vector mosquito species, and the possible development of insecticide resistance in mosquito populations.

Designing mosquito control strategies that take full advantage of technological advances, whilst ensuring that best professional practices are maintained and any impact on the natural environment is minimised.

12. WORKING CONDITIONS

The post holder may be required to work outdoors in all weather conditions, as the job necessitates. The post holder may be required at times to apply insecticides, ensuring that such applications are correctly formulated and that appropriate personal protective equipment is employed. The post holder will be required to work outside normal working hours on occasion, and must be available on call at all times in case of emergency.

AGREED:

JOB HOLDER

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SIGNATURE

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DATE

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CHIEF OFFICER

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DATE

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