

OPERATIONAL AND SCIENTIFIC NOTES

ELEMENTS OF A VECTOR CONTROL PROGRAM

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ABSTRACT. Eleven elements of a vector control program are proposed. They are: Program Administration, Facilities and Equipment, Vector Surveillance, Disease Detection, Control Activities, Public Education/Relations, Intergovernmental Coordination/Environmental Planning, Records/Reporting/Evaluation, Research, Emergency Preparedness and Training/Continuing Education.

Several publications regarding the composition of mosquito and/or vector control programs have been produced by the American Mosquito Control Association. "Organization for mosquito control," AMCA Bulletin No. 4, February 1961, is one of these excellent publications. Although somewhat dated, it offers much useful general information needed to start a mosquito control program and where one might get help in this endeavor. In 1973, Hatch et al. published "Guidelines for measuring proficiency as an aid in mosquito abatement program assessment," which was intended to be a guide to officials for evaluation of their mosquito control programs. It was also meant to be used as an aid in organizing a new program to be evaluated later. This publication offered 9 major areas with values assigned to each element under each area. Magu (1981) published "A survey of the administration, organization and operation of American mosquito control agencies," which includes results of a survey of 154 mosquito control agencies. This article gives a good overview of these agencies and offers what might be considered an average U.S. mosquito control program. In May 1987, R. Sjogren and M. Genereaux wrote "Mosquito control to fit your town," published by Zoecon Industries and later (1990) reprinted as AMCA Bulletin No. 4, "Organization for mosquito control." This book is excellent and it was written for those who would like to develop mosquito control programs in areas where there are no formal mosquito abatement districts in operation from which they can get advice. It outlines very specifically what to do, when to do it and how to do it.

Each of the publications mentioned above had specific orientations. This article is focused toward updated guidelines to political, administrative or other persons involved in establishing or evaluating a vector control program. Unlike Hatch et al. (1973), however, no scoring points are offered for each of the elements. Therefore, the importance of individual elements is left to

the evaluator because local conditions may dictate elements of higher importance in many instances.

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ELEMENTS OF A VECTOR CONTROL PROGRAM

I. PROGRAM ADMINISTRATION.

The management of a vector control agency.

- A. Goals and Objectives. Performance and capabilities in the identification and control programs of vectors, diseases and pests.
 1. Write mission statement with clear goals and objectives.
 2. Document program plans based on objectives that identify what and when they will be accomplished during the year.
- B. Policy/Advisory Board. A board (appointed, elected or advisory) will provide an excellent adjunct to the program with advice on program, policy and politics.
 1. Elect or appoint commission members to set policy and advise.
 2. Convene regular meetings with program administration.
 3. Review budget/financial statement, staffing, with written agenda and minutes.
- C. Staffing. One of the most important elements of a program, especially the management positions. The manager/director must have experience

in these programs, at least a bachelors degree, some technical background with the highest ethical standards, and above all integrity. Technicians with a variety of skills are an integral part of the successful control program.

1. Outline job descriptions listing qualifications and responsibilities for administrators, entomologists, technicians, etc.
 2. Define number of positions by title, job description, duties, salary and benefits to include an organizational chart.
 3. Deliver a handbook to each employee with program overview, mission, goals and objectives with clear rules and regulations.
- D. Financial. The financial plan for the agency is essential for ongoing operations, cash flow and financial responsibility.
1. Define revenue source for program.
 2. Prepare an annual budget with monthly financial statement.
 3. Schedule an annual audit by a C.P.A.
- E. Risk Management/Safety. This is an area of increasing interest where cost may be reduced with data analysis and corresponding accident/safety programs.
1. Review insurance needs on an annual basis.
 2. Outline clear safety guidelines and accident reporting procedures.
 3. Assess accident reduction programs, analyze losses from accidents and review policy accordingly.
- F. Legislation. It is imperative that the program be established on a sound legislative basis.
1. Clearly define and delimit legislation that gives powers and duties of program.
 2. Clearly identify methods of obtaining new legislation.

II. FACILITIES AND EQUIPMENT.

This element provides the means to complete the goals and objectives. Sage purchasing and preventive maintenance protocols for facilities and equipment are other absolute requirements for an effective program.

- A. Facilities. Provide appropriate housing for personnel, equipment and supplies.

1. Centrally locate accommodations for dispatching of work crews.
 2. Provide adequate space for each function, administration, laboratory, field crews, lockers, showers, maintenance, training, etc.
 3. Construct legally acceptable and proper toxic and hazardous materials storage facilities.
 4. Provide adequate space for equipment storage and maintenance.
 5. Conduct annual inventory of facilities, equipment and supplies.
- B. Equipment. Appropriate tools for each job.
1. Provide adequate office, laboratory, field and communication equipment.
 2. Acquire vehicles and/or aircraft for different program uses as well as specialized control activities.
 3. Schedule preventive maintenance programs for vehicles and equipment calibration.
 4. Establish a regular vehicle replacement schedule.

III. VECTOR SURVEILLANCE. This is one of the key elements of a program. It provides a measure of the effectiveness of the program and helps determine goals and objectives standards.

- A. Ongoing vector population surveillance.
1. Organize equipment/maps/manpower for surveillance.
 2. Sample various life stages.
 3. Develop accurate records of immature (e.g., larval) and adult habitats to guide control operations.
 4. Produce reports listing records of species, source, date, numbers, sampling method, etc.

IV. DISEASE DETECTION. An element entirely dependent on local conditions, which determines quality and quantity of control efforts. Often it is a function of how much the program can afford or on a surveillance system that is affordable.

- A. Effective placement of a disease detection program to monitor vector-borne diseases.
1. Establish a liaison with public health laboratories and other concerned agencies to determine human cases of vector-borne diseases.
 2. Positioning appropriate detection programs to determine disease transmission in vector or reservoir populations.

3. Appropriate sufficient resources (financial, manpower, equipment) in the disease detection program.

V. CONTROL ACTIVITIES. Establish a policy to guide control operations that will use the most effective yet environmentally sensitive methods and incorporating integrated pest management practices. Vector surveillance activities should assist in guiding these activities.

A. Environmental Management. This is also called source reduction, accomplished in compliance with appropriate environmental and other legal regulations and in cooperation with agencies that assist with this work.

1. Vector sources are mapped, sampled and targeted for elimination.
2. Acquire sufficient funding, manpower, engineering and laboratory equipment available for vector/pest elimination.
3. Develop positive and good working relationships with public and private owners of the sources.
4. Produce an effective water management program to eliminate or alter sources.

B. Biological Control.

1. Mosquito fish or native fish may be used for control.
2. Habitat enhancement program for mosquito feeding fish.
3. Other biological agents are being used or considered.

C. Chemical Control.

1. Legal and appropriate chemicals to be employed on vector/pest sources.
2. Chemicals, other materials and methods to be applied by certified technicians.
3. Proper methods and materials to be employed in environmentally sensitive areas.
4. The use of proper application equipment, the training of personnel, keeping of accurate records, adherence to safety standards, etc., are the highest priority.

D. Legal.

1. Comply and adhere to established codes and ordinances for legal elimination of vector sources.
2. Develop an active enforcement program to eliminate sources and/or larval habitat on a long-term basis.
3. Cooperate with other agencies on source elimination.

VI. PUBLIC EDUCATION/RELATIONS. This element must be given a high priority with identified funding and personnel.

A. Public education is an identified, funded program element in the agency's budget.

1. Effectively assign manpower, equipment and supplies to the public education element.

B. Written program (with goals and objectives) for public education.

1. Establish regular news (electronic and print) media contact.

2. Provide routine vector control education to schools.

3. Make presentations to civic, homeowner and environment groups.

4. Set up exhibits at fairs and other public affairs facilities.

C. Routinely distribute educational literature to each of the above groups.

D. Provide courteous customer service by phone or in person.

E. Evaluate new educational techniques for the program.

VII. INTERGOVERNMENTAL COORDINATION/ENVIRONMENTAL PLANNING. Many problems regarding areas of mutual concern may be solved through meeting with involved agencies.

A. Routinely contact local, state and federal governments for cooperation and participation in control efforts.

B. Establish preventive planning meetings by vector program staff with environmental planning/development staffs of local government.

C. Review environmental impact statements/reports for vector/pest consequences.

D. Routinely cultivate wildlife/environmental groups' liaisons.

VIII. RECORDS/REPORTING/EVALUATION. Essential to program evaluation and for determination of goals and objectives achievement.

A. Keep, compile and report data pertinent to operational, technical, financial and maintenance activities.

B. Summarize annual report data and relate to goals and objectives.

C. Analyze data to evaluate effectiveness of program.

D. Computerize all data being collected.

IX. RESEARCH. Dependent upon local conditions and funding. Is there applied or basic research being performed on local vector biology and control needs?

- A. Incorporate applied or basic research results into program as needed.
- B. Provide an overview of research design, statistical methods and research work to provide competency.

X. EMERGENCY PREPAREDNESS.

There has to be a written plan on how to deal with disease situations and natural disasters and also identifies the responsible agency that coordinates and communicates with the public.

- A. Develop vector surveillance and disease detection systems that provide an early alert to potential emergency conditions.
- B. Key control actions to specific situations.
- C. Establish a reserve fund for emergency situations.

XI. TRAINING/CONTINUING EDUCATION. A mandated element for certified personnel.

- A. Provide mandatory training for FIFRA certified technicians each year.
- B. Establish training programs for the agency with sufficient budget.

- C. Attend professional and society meetings.

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