GUIDANCE on policy-making for Integrated Vector Management

IVM

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World Health Organization

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GUIDANCE
ON POLICY-MAKING FOR INTEGRATED VECTOR MANAGEMENT

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PREFACE

This document is meant to guide people in an advisory or decision-making role in formulating policy on the control of vector-borne diseases. It was prepared at the same time as a handbook on integrated vector management (IVM), which contains background information and lays out a comprehensive operational framework for IVM.

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1. INTRODUCTION

Integrated vector management (IVM) is a rational decision-making process for ensuring optimal use of resources for vector control. The aim of the IVM approach is to make vector control more efficacious, cost-effective, ecologically sound and sustainable, in order to achieve national and global targets for vector-borne disease control. The transition to an IVM approach will require changes within the health sector, in collaboration with other sectors and communities.

Before a government undertakes IVM, it must identify problems, analyse the policy environment and formulate, implement and evaluate policies and their instruments in order to reach its goals and objectives. Policies and policy instruments must then be evaluated and any necessary corrective action taken.

The purpose of this document is to provide guidance to the managers of vector control programmes and others involved in setting policy to support IVM. As IVM requires interdisciplinary collaboration, for the health sector, other public sectors and stakeholders must be involved.

1.1 VECTOR-BORNE DISEASES

Vector-borne diseases are infectious diseases that are transmitted by organisms that include insects, snails and rodents. These diseases represent a heavy burden on people, their families and communities in developing countries. Some of the most debilitating of these diseases are malaria, dengue, lymphatic filariasis, Japanese encephalitis, leishmaniasis, onchocerciasis, schistosomiasis and trypanosomiasis. For example, lymphatic filariasis can cause morbidity for life, while malaria causes the highest mortality, especially among young children and pregnant women. Vector-borne diseases also result in loss of productivity, school absenteeism, aggravation of poverty, high costs for health care and a burden on public health services. Communities are commonly at risk for more than one vector-borne disease.

Disease prevention through vector control is an important component of disease control. Vector control can reduce or interrupt disease transmission, because, without the host - vector contact, these diseases cannot thrive. As no effective medication is available for a number of these diseases, vector control is the only option. It could therefore make a major contribution to reducing the disease burden and alleviating poverty if its full potential were exploited. Lack of an appropriate policy on vector control can lead to inefficient use of resources, ineffective operations and unintended adverse effects on human health and the environment.

There are a number of proven methods of vector control. Vectors have usually been controlled by environmental management, to control breeding through drainage, filling or modifying breeding sites. In the 1950s, attention shifted almost entirely towards the use of insecticides, notably by indoor spraying of DDT, to control insect vectors.

Currently, pyrethroids are the most commonly used insecticide group in public health and the only group used for treating bednets. A number of non-chemical methods of vector control are available, which suppress vector populations and contribute to vector-borne disease control, especially when used in combination with insecticidal methods. They are, however, underused.

1.2 DRIVING FORCES FOR POLICIES

Several factors drive evidence-based policy formulation for IVM (*Box 1*).

Box 1. Reasons for improving policy on vector control

- resistance of vectors to insecticides
- adaptation to changing conditions
- control of several diseases simultaneously
- contributions of other sectors to vector control
- achieving elimination or preventing introduction of disease
- international obligations for vector control
- increased donor funding for vector control

Resistance to insecticides is an increasing problem in vector control because of the reliance on chemical control and expanding operations, particularly for malaria and dengue control. Furthermore, the chemical insecticides used can have adverse effects on health and the environment.

Vector control is often not sufficiently adapted to local or changing circumstances because many countries lack capacity in decision-making for vector control. Such decisions should be based on evidence about the characteristics of local vectors and human behaviour and on the effectiveness of vector control methods. Furthermore, aspects of global change, such as climate change, environmental degradation, water scarcity and urbanization, are affecting the distribution of vector-borne diseases. Vector control must be adapted locally to these diverse and changing conditions and also to community preferences and needs.

Most vector-borne disease control programmes focus on a single disease; however, there are opportunities for controlling several diseases that occur in the same area, thus resulting in greater efficiency and cost savings for vector control.

Other sectors and communities can contribute to the prevalence of vector-borne diseases but are often unaware of this. For example, the agriculture and construction sectors often create conditions favourable for vector proliferation, e.g. by irrigation. Moreover, communities are often not aware that the risk for vector-borne disease is partly or largely determined in their domestic sphere of influence and that they could contribute to vector control and personal protection.

Countries attempting to eliminate disease or to maintain elimination status need a more integrated approach to vector control in order to sustain their achievements. The Stockholm Convention on Persistent Organic Pollutants and World Health Assembly resolution WHA50.13 both called on member states to develop sustainable strategies for vector control that would reduce their reliance on insecticides. Donor funding for operations, research and training for vector control of malaria and other vector-borne diseases has increased substantially in the past few decades, most notably in Africa. The governments of many countries have shown increased interest in vector control because of its potential contribution to achievement of the Millennium Development Goals.

1.3 INTEGRATED VECTOR MANAGEMENT

To improve the efficacy, cost-effectiveness, ecological soundness and sustainability of vector control, IVM approach must be adaptable, based on local evidence and be integrative and inclusive. WHO recommends IVM as the preferred strategy for vector control in preventing and controlling vector-borne diseases. The five elements of an IVM strategy identified in the *Global Strategic Framework* for IVM are listed in *Box 2*.

Box 2. Elements of an integrated vector management strategy

1. Advocacy, social mobilization and legislation

Promotion and integration of the principles of IVM into the development policies of all relevant agencies, organizations and civil society; establishment or strengthening of regulatory and legislative controls for public health; empowerment of communities, etc.

2. Collaboration within the health sector and with other sectors

Consideration of all options for collaboration within and between public and private sectors; application of the principles of subsidiarity in planning and decision-making; strengthening channels of communication among policy-makers, managers of vector-borne disease programmes and other IVM partners

3. Integrated approach

Ensuring rational use of available resources by controlling several diseases concurrently; combination of non-chemical and chemical methods for vector control; integration with other disease control initiatives

4. Evidence-based decision-making

Adaptation of strategies and interventions to local ecology, epidemiology and resources, guided by operational research and subject to routine monitoring and evaluation

5. Capacity-building

After a situation analysis, development of necessary physical infrastructure, financial resources and human resources at national and local levels to manage IVM

The aim of IVM is thus to solve problems in vector control by improving efficacy, cost-effectiveness, ecological soundness and sustainability with sound policies, monitoring and evaluation. This is achieved by evidence-based decision-making, addressing several

diseases at the same time, combining vector control with judicious use of insecticides and involving other sectors and communities. Hence, IVM is a management approach for gradually transforming the system of vector control to an approach that is integrated within the health system at all levels and operates in collaboration with other sectors to reduce the risks for disease transmission. Capacity-building, advocacy and legislation are required to achieve these outcomes. For a more detailed description of the IVM strategy, readers are referred to the accompanying handbook for IVM.

2. SITUATION ANALYSIS

Policy development begins with an analysis of the situation of vector control and vector control services in a country, identifying the problems encountered and analysing the existing policy environment, in order to determine the policies required to solve the problems.

2.1 PARTICIPANTS

Participants from several sectors with the necessary knowledge or representation are indispensible for a valid, acceptable policy. Participation could be passive, such as providing advice to policy-makers, or (preferably) active, with involvement in analysis and decision-making.

Four groups of participants are involved in policy formulation. Politicians ultimately make decisions about policy change within a sector or institution. Bureaucrats know how government structures and institutions function and how they can be used to establish an IVM strategy within the health sector, in collaboration with other sectors. Technical experts bring knowledge and expertise about vector-borne disease control. Civil society organizations represent communities and should voice their interests and concerns.

A government entity, usually the ministry of health, would coordinate and oversee policy formulation. One of the initial decisions taken could be to establish an intersectoral steering committee on IVM. The members of the group could also be involved in policy formulation.

Regional coordination of policy formulation could be beneficial, particularly when the vectors or disease pathogens are found in border areas or when signs of resistance to insecticides or drugs have been seen in neighbouring countries.

2.2 ANALYSING THE PROBLEMS

Before a policy is formulated, the problems and constraints in the current vector control system should be analysed and their causes identified. Problem analysis should result in one or more defined issues. It is part of a comprehensive vector control 'needs assessment', as described by WHO (2009).

To initiate the analysis, one might ask: "What are the constraints to exploiting the full potential of vector control in the country?" After the main problems in vector control have been identified, other questions could be asked, as outline in *Table 1*. The purpose of these questions is to draw attention to issues that might not currently be seen as problems but that might limit the full potential of vector control.

Table 1. Guiding questions, in accordance with the five elements of IVM, to facilitate analysis of problems in the existing system of vector control

Element	Guiding questions
1. Advocacy, social mobilization and legislation	Are current legislation and regulation on pesticide management adequate? Are community-based services a priority? Do communities comply with vector control practices? Are communities aware of their role in vector control?
2. Collaboration within the health sector and with other sectors	Is vector control a high enough priority at ministerial level? Is vector control considered important in district health offices? Are other health divisions involved in vector control? Do activities in other sectors contribute to vector-borne disease risk? Is there high-level support for intersectoral collaboration? Is intersectoral collaboration formalized and facilitated?
3. Integrated approach	Do vector-borne disease programmes interact or collaborate? Which methods of vector control are used? Are there signs of resistance to insecticides?
4. Evidence-based decision--making	What expertise is there for making decisions on vector control? At what level are decisions about implementation made? Does the research being conducted generate useful data for vector control? Is an effective vector surveillance system in place? How strong is the evidence for the effectiveness of vector control methods?
5. Capacity-building	Is the infrastructure for vector control adequate? Is there enough expertise on vector control at central level? Are human resources for vector control available in provinces, districts and villages?

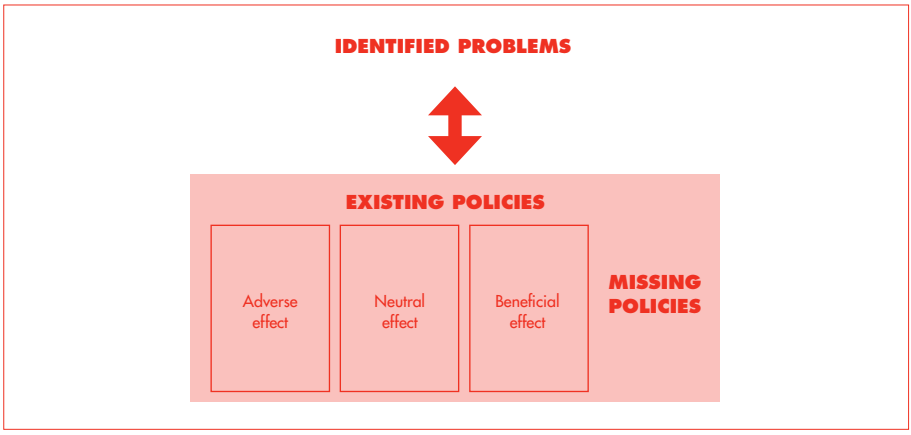
Each constraint has a cause. After the constraints have been identified, cause–effect relations might be elucidated. Each problem should be clearly and concisely defined for future reference.

2.3 ANALYSING THE POLICY ENVIRONMENT

The problems or constraints identified provide the starting-point for policy formulation, which might consist of amending existing policies or creating new ones. In order to determine whether the identified problems require a change in public policy, an examination should first be conducted of the existing policy environment, which comprises all policies for health and other relevant government sectors or institutions that could contribute to reducing the risk for vector-borne diseases (see *Handbook for IVM, section 2.2*).

The relevant policies in the health sector are those for public health, vector-borne diseases and vector control. Also important are policies for vector-borne disease control programmes, community-based programmes and health system reform. Policies and programmes in other sectors could affect the incidence of vector-borne diseases, by unintentionally creating favourable conditions for disease vectors or by increasing contact between people and vectors. A clear example is the agriculture sector, as the use of pesticides and irrigation can influence disease vectors. Other examples are the construction industry, as temporary water pools or building standards can propagate vector breeding, and local government policies on sanitation and education.

Figure 1. Policy analysis: identification of problems in relation to the policy environment, categorized as policies with an adverse, neutral or beneficial effect on vector control, and identification of gaps in the existing policy framework



The relevant policies and programmes can have adverse, neutral or beneficial effects on vector-borne diseases; some have both adverse and beneficial elements, which should be specified. The analysis is carried out by associating the identified problems with the items (or missing items) of the policy environment. In many cases, the problem can be traced to a lack of policy for a specific issue. The outcome of the analysis is identification of gaps, shortcomings and inconsistencies in the public policy framework, which provide the basis for solutions, for example amending, rephrasing or creating policies in support of IVM.

3. POLICY FORMULATION

Policy can be formulated once the problems have been identified, solutions proposed and political openings appear to address the issues. Continuous advocacy on IVM by high-level staff is essential for using political opportunities for policy formulation.

3.1 GOAL, OBJECTIVES AND CRITERIA FOR SUCCESS

The goal of policy formulation should be the long-term expectations in terms of improved vector control and a reduction in the burden of vector-borne diseases. In formulating new policies, the objective of each should be clearly defined; for example, a specific policy might be designed to increase community participation in vector control. In defining the objectives of each policy, the criteria for success should be specified, so that an assessment can be made of whether the objective is being attained or should be modified.

3.2 IDENTIFYING THE POLICY INSTRUMENTS

Government policy can be applied for legislation and regulation, to influence market forces, to guide government spending or programmes support, to influence institutions or to change people's behaviour. Policy is implemented with policy instruments, with which a government gives leadership to a strategy. As the choice of policy depends largely on the practicality of the instruments, they should be identified in advance, in order to provide guidance and motivation for policy formulation.

An IVM strategy involves methodological, technical, structural and intersectoral elements. Consequently, to achieve the intended objectives, a combination of policy instruments may be required. *Table 2* lists various instructive, facilitative, market-based and legislative policy instruments that are available to governments to support IVM.

The list is not exhaustive.

Table 2. Instruments for implementing integrated vector management policy

Type of instrument	Policy instruments
Management	Instructive allocations for capacity-building and career paths Instruction on collaboration among health divisions Instruction on health impact assessment for each sector Review of job descriptions Allocations for monitoring, evaluation and surveillance Allocation and strategic direction for research
Facilitative	Government position statement on IVM Establishment of intersectoral IVM committee Facilitation of interministerial meetings Facilitation of a vector control needs assessment Facilitation of decentralized decision-making Support for community-based services Organization of community awareness and education programmes Organization of incentive programmes for community participation
Market-based	Subsidies or reduced tariffs or taxes on vector control products
Legislative and regulatory	On pesticide management On environmental management

The feasibility of these instruments should be considered in each country; a combination may be required to achieve the objectives. Health impact assessments are recommended by WHO for analysing the possible side-effects of public sector strategies and programmes on human health, in order to involve other sectors in preventing an increased risk for vector-borne diseases.

3.3 PREPARING A POLICY FRAMEWORK ON INTEGRATED VECTOR MANAGEMENT

IVM is a comprehensive strategy covering the five elements listed in *Box 2*. A systematic approach to policy development is needed in order to ensure that all the elements are addressed. A framework can be helpful in preparing a policy on IVM. *Table 3* gives a model of a comprehensive policy framework, which could be adapted to the national situation. For each element, one or more policy objectives could be formulated, depending on the country's existing vector control programme. For each objective, one or more instruments could be considered to implement the policy. For example, the objective of empowering communities to participate in vector control could be met by programmes to increase community awareness or to provide incentives. Some of the instruments listed in *Table 3* might apply to more than one policy objective.

Table 3. Model of a comprehensive policy framework on integrated vector management for adaptation to national situations

Element	Policy objective	Policy instruments
1.Advocacy, social mobilization and legislation	Effective legislation and regulation in place	Legislation, regulation on pesticide management Legislation, regulation on environmental management
	Communities empowered to participate in vector control	Support for community services Community awareness, education programmes Support for decentralized decision-making Incentives programmes
2.Collaboration between health and other sectors	Collaboration achieved within the health sector	Government position statement on IVM Instruction on collaboration among health divisions Review of job descriptions Facilitation of a vector control needs assessment
	Collaboration achieved among sectors	Government position statement on IVM Establishment of intersectoral IVM committees Facilitation of interministerial meetings Instruction of sectors on health impact assessment
3.Integrated approach	Efficient, effective control of several diseases achieved	Instruction on collaboration among health divisions
	Effective, ecologically sound combinations of methods used	Legislation, regulation on pesticide management Legislation, regulation on environmental management Allocations and strategic direction for research
4.Evidence-based decision-making	Strong, up-to-date evidence used in decision-making	Allocations for capacity-building and career paths Support for decentralized decision-making Allocation for surveillance systems Allocations and strategic direction for research
5.Capacity-building	National and local capacity for IVM strengthened	Allocations for capacity-building and career paths Support for decentralized decision-making

3.4 DRAFTING AND REVISING POLICIES

A rational first step is to formulate a general or 'umbrella' policy on IVM at national level, to cover its broad scope. A national IVM policy could itemize the elements of the strategy and indicate the roles of each partner. Thus, vector control programme managers must interact with policy-makers. Once the general policy is available, more specific policies can be formulated that address the objectives, again by interaction with policy-makers. Care must be taken to ensure that new or modified policies are consistent with other public policies.

Policy formulation generally involves research into what would be most effective and acceptable. For each policy, alternative options should be considered and the relative advantages of each option compared in line with the criteria for success. Options can be compared by postulating (or, if time allows, testing) the outcomes of two or more scenarios, for example, one with and one without the new policy in place. Consensus should be achieved if participants favour different options.

3.5 ADOPTING POLICIES

Public policy must be endorsed at a high level if it is to be implemented. Policies that apply only within the health sector require endorsement at ministerial level; an example would be a policy on the control of mutiple diseases. Other policies may involve more than one sector; for example, a national policy on IVM should be endorsed by several ministries or a council of ministers. Once adopted, policies should be disseminated to the pertinent stakeholders.

4. POLICY IMPLEMENTATION AND EVALUATION

4.1 IMPLEMENTATION

A plan for implementing the formulated policies should then be prepared, including the resources required, time frames, milestones and roles and responsibilities (*Box 3*). These aspects are discussed in more detail in the *Handbook for IVM*. Implementation of policy should not be confused with implementation of vector control activities: the former involves only strategic guidance and direction to the overall IVM strategy; actual IVM activities are planned and implemented at local level (not policy level), as IVM is based on bottom-up planning and decision-making.

The policy framework discussed in section 3.3 is the basis for the action plan. Each policy

Box 3. Elements of a plan for implementing integrated vector management

- Defining activities
- Setting priorities on activities
- Securing resources
- Setting time frames
- Identifying milestones
- Determining roles and responsibilities

instrument needed to reach a country's objectives may require a separate plan or they might all be combined into an overall plan. The plan should first define the priority of the objectives and the policy instruments for attaining them. Then, the activities needed to implement the policy instruments are determined, with priority given to those activities that are expected to be most effective in reaching the objectives.

Financial and human resources for each activity must be identified and secured to ensure successful use of the policy instruments. Implementation might be countrywide or begin in pilot districts. Time frames should be set for each activity, to ensure realistic planning and to create accountability. The time frames should be based on considerations such as the schedules of related activities in health and other sectors, when funds will become available and the onset of the disease transmission season.

Milestones or clearly identified achievements help mark the completion of each stage of an activity. For example, a successful consensus meeting could be seen as a milestone towards establishment of an intersectoral steering committee on IVM.

The respective roles in specific activities and responsibilities for components should be agreed upon by the participants or assigned by a coordinating agency. Possible participants in implementation of policy instruments are ministerial or departmental staff, programme staff, public health professionals, research institutions and civil society organizations.

4.2 EVALUATION

The goal of policy formulation and use of policy instruments is to transform the system of vector control into an IVM approach, according to the basic elements of IVM. Use of the policy instruments should be monitored systematically, and their effectiveness for achieving the objectives and overall goal should be evaluated. The results of monitoring and evaluation help to identify gaps, weaknesses and lessons learnt, as a basis for remedial measures.

A detailed framework for monitoring and evaluating the transition from a system of vector control to an IVM strategy, with indicators, is presented in the *Handbook for IVM* (*section 7.1*). Systematic observation of these indicators will indicate progress and whether the expected outcomes have been achieved.

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Integrated vector management (IVM) is a rational decision-making process to optimize the use of resources for vector control. The aim of the IVM approach is to contribute to achievement of the global targets set for vector-borne disease control, by making vector control more efficient, cost effective, ecologically sound and sustainable. Before undertaking IVM implementation, problems should be identified and policies analysed and developed in order to reach the goals and objectives of IVM. This document provides guidance on policy development for IVM.

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