



International Code of Conduct on Pesticide Management

Guidelines on licensing of public health pest control operators



November 2015

International Code of Conduct on Pesticide Management

Guidelines on licensing of public health pest control operators

World Health Organization
Geneva, 2015

WHO Library Cataloguing-in-Publication Data

International code of conduct on pesticide management: guidelines on licensing of public health pest control operators.

1.Pesticides - standards. 2.Pest Control. 3.Licensure. 4.Public Health. 5.International Cooperation. I.World Health Organization. II. Food and Agriculture Organization of the United Nations.

ISBN 978 92 4 150992 3

(NLM classification: WA 240)

© FAO and WHO, 2015

All rights reserved. Reproduction and dissemination of material in this information product for educational or other non-commercial purposes are authorized without any prior written permission from the copyright holders provided the source is fully acknowledged. Reproduction of material in this information product for resale or other commercial purposes is prohibited without written permission of the copyright holders. Applications for such permission should be addressed to:

Chief, Electronic Publishing Policy and Support Branch
Communication Division
Food and Agriculture Organization of the United Nations (FAO)
Viale delle Terme di Caracalla
00153 Rome, Italy
E-mail: copyright@fao.org;
or
WHO Press
World Health Organization
20 Avenue Appia
1211 Geneva 27, Switzerland
Fax +41 22 7914806

Requests for permission to reproduce or translate WHO publications should be addressed to WHO Press through the WHO web site (http://www.who.int/about/licensing/copyright_form/en/index.html).

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations or of the World Health Organization concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO or WHO in preference to others of a similar nature that are not mentioned.

All reasonable precautions have been taken by the World Health Organization and the Food and Agriculture Organization of the United Nations to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization or the Food and Agriculture Organization of the United Nations be liable for damages arising from its use.

This report contains the collective views of an international group of experts and does not necessarily represent the decisions or the stated policy of FAO or of WHO.

WHO/HTM/NTD/WHOPES/2015.5

Contents

Abbreviations	v
1. Introduction	1
2. Objectives, scope and coverage of the guidelines	1
3. Definitions	1
4. Legislation	2
5. Practical aspects of licensing of pest control operators	3
5.1.1 General	3
5.1.2 Administrative arrangements	3
5.1.3 Types and categories of licenses	4
5.3.1 Licensing of pest control operator businesses or employers	6
5.3.2 Licensing of pest control operators	9
5.3.3 Licensing of assistant pest control operators	13
6. Role and responsibilities of the licensing authority	14
6.1 Enforcement of licensing regulations	14
6.1.1 Inspectors	15
6.2 Maintenance of public list of licensed pest control operators	15
6.3 Training courses, subject matter and examinations	15
6.3.1 Training courses	15
6.3.2 Examinations	16
6.4 Medical surveillance	16
6.5 Maintenance of impartiality – ethical issues	17
7. Offences	17
8. Penalties	17
References	19
Annex 1. Typical application form for pest control operator business or employer licence	21
Annex 2. Typical application form for pest control operator licence	23
Annex 3. Typical report on pest control operations	24
Annex 4. Typical application form for assistant pest control operator licence	25

Annex 5.	Typical list of subject matter for pest control operator (Category A) certification course	26
Annex 6.	Typical list of subject matter for assistant pest control operator certification course	27
Annex 7.	Typical list of subject matter for pest control operator fumigation (Category B) certification course	28

Abbreviations

APCO	assistant pest control operator
DOSH	Department of Occupational Safety and Health
FAO	Food and Agriculture Organization of the United Nations
IVM	integrated vector management
PCO	pest control operator
PCOE	pest control operator business or employer
PCOLD	pest control operator licensing division
PPE	personal protective equipment
WHO	World Health Organization

1. Introduction

Pesticides are widely used by pest control operators (PCOs) for the control of vectors, pests of public health importance, stored product pests, structural pests such as termites and wood-boring insects, as well as weeds along highways and public places. The use of pesticides in close proximity to the human population by PCOs who are untrained, lacking in competence and unregulated in many countries is of great concern. Such uncontrolled pest control activities not only affect human health and at times even kill but also cause adverse environmental effects and shorten the period of availability of much needed pesticides due to resistance.

In a global survey carried out by the World Health Organization (WHO) on the public health pesticide registration and management practices of WHO Member States in 2010 (1), only 70% of the 106 reporting countries required PCOs to be licensed or certified.

The importance of PCOs in pesticide management is internationally recognized and is one of the entities addressed in the International Code of Conduct on Pesticide Management (2). Clause 6.1.3 of the Code, which specifically refers to PCOs, states that “Governments should establish regulatory schemes such as licenses or permits for pest control operators”.

Given the importance and prevailing situation of the pest control industry in many developing countries and to encourage compliance with the Code, the FAO/WHO Joint Meeting on Pesticide Management at its seventh meeting (Geneva, October 2013) recommended that a guidance document be prepared to assist Member States as well as the PCO industry in addressing the issues and challenges related to the industry.

This guide is intended to provide countries that have yet to require PCOs to be licensed with practical information on implementing their own licensing schemes. Additionally, even for countries reporting that they require PCOs to be licensed, the document will also provide helpful guidance in reviewing and strengthening national PCO licensing schemes.

2. Objective, scope and coverage of the guidelines

This guide is intended to assist governments of Member States in the implementation of a licensing scheme for regulating PCOs as well as to assist the pest control operator industry in implementing best practices to ensure an orderly, efficient pest control industry for the protection of consumers, human health and the environment.

The guide applies only to PCOs who provide their services in or around premises and public places; it does not cover pest control services in the agriculture and forestry sectors.

3. Definitions

Fumigant: a chemical which, at a required temperature and pressure, can exist in a gaseous state in sufficient concentration to be lethal to a given pest organism (3).

Inspector: an officer who is authorized under the pesticide law of the country to enforce the provisions of the law, including removing pesticide samples from the market and prosecuting in cases of non-compliance (4).

Medical surveillance: the monitoring of a person for the purpose of identifying changes in health status due to occupational exposure to chemicals hazardous to human health (5).

Personal protective equipment: any clothing, materials or devices that provide protection from pesticide exposure during handling and application.

Pest control operator: any person or company that applies pesticides as a profession (2).

Pre-placement medical examination: a medical examination performed for all employees who are new or transferred to jobs with special requirements in order:

- to evaluate the health status of employees to ensure that they are physically and mentally fit to perform the job and/or to wear the personal protective equipment provided;
- to establish a baseline record of physical condition that may later be important for stating if a health impairment had preceded employment or could have been caused by the workplace; and
- to detect physical defects or disease that may be treated at an early stage (6).

Premises: buildings, or parts of a building or land where or around which a building is situated, aircraft, motor vehicles, ships and rail coaches.

Re-entry interval: the interval at which a treated area must not be re-entered by unprotected persons, including members of the public, after the application of a pesticide.

Responsible authority: the government agency or agencies responsible for regulating the manufacture, distribution or use of pesticides and, more generally, for implementing pesticide legislation (2).

4. Legislation

A prerequisite for effective implementation of a licensing scheme for PCOs is the provision, under a country's or region's principal Act on the control of pesticides, to make regulations for the industry. Administrative certification of PCOs without the appropriate legislative provisions for control is often inadequate. The scope of the regulations on the control of PCOs may vary among countries or regions; in many countries it is common to regulate only those persons who apply pesticides in or around premises (see definition above) and public places, which is also the scope of this guidance document.

Regulations on PCOs should include provisions to:

- define the scope of the regulations;
- define the terms used in the regulations;
- stipulate the authority that implements and enforces the regulation;

- stipulate the types of licences as well as the procedures, requirements and conditions that are required for the issuance of such licences;
- stipulate the fees and validity period for the licence;
- stipulate the procedures for renewal and replacement of licences;
- stipulate the obligations and responsibilities of licensees, including for record-keeping, transportation, the use only of pesticides approved for their intended purposes, storage of pesticides and disposal of pesticides and empty containers, and appropriate application of other non-chemical methods of pest control;
- stipulate the responsibilities of employers (e.g. for the provision of vehicles, personal protective equipment (PPE) and regular medical risk surveillance);
- stipulate the details of training and examinations required before and after issuance of licences;
- stipulate what constitutes an offence under the regulations and the penalties for any non-compliance (monetary, revoking license, etc.);
- stipulate the powers for enforcement; and
- stipulate any transitional arrangements for the operations of existing PCOs on the coming into force of regulations.

5. Practical aspects of licensing of pest control operators

5.1 General

Pest control operators can be government employees or employees of private firms. These individuals deal with a variety of pests in private homes, public places, industrial and commercial premises as well as in human service locations such as schools and hospitals. As PCOs often apply pesticides in close proximity to people, responsible local authorities must ensure that PCOs do not jeopardize the health and well-being of humans and the environment while carrying out pest control operations effectively, efficiently and safely through a well-managed and enforced licensing scheme.

Those PCOs working in the private sector should be encouraged to form an association among themselves to promote, among others, self-regulation and best pest control practices. This would also facilitate better communication between the regulators and the PCO industry as a whole.

5.2 Administrative arrangements

As licensing of PCOs is part of the legislative control of pesticides of a country, the responsible authority (see definition above) should establish a division under its administration to implement and enforce the provisions of the PCO licensing regulations. In addition to the responsibility for implementing and enforcing the PCO licensing regulations, the PCO licensing division (PCOLD) of the responsible authority should also be responsible for the training and certification of PCOs.

The PCOLD should be provided with sufficient funds as well as numbers of qualified officers to carry out the administrative aspects related to licence applications, training and certification. To optimize the use of human resources the staff of the authority responsible

for the licensing of retailers and other enforcement activities should also be designated and deployed, with appropriate training, to carry out inspections and enforcement of PCO regulations.

A number of initiatives exist to encourage and promote regional harmonization of public health and agricultural pesticide registration in Asia, Latin America, the Caribbean, sub-Saharan Africa, East Africa, southern Africa and the Pacific (7). For largely the same reason (i.e. to share limited resources such as manpower, expertise and finance) as the initiative to harmonize registration requirements, regional bodies such as the Association of Southeast Asian Nations, the Comunidad Andina de Naciones [Andean Community], the Caribbean Community and the Common Market, the Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel [Permanent InterStates Committee for Draught Control in the Sahel], the Southern African Pesticide Registrars Forum and the East African Community should also endeavour to collaborate in this area of pesticide management if it has not been done.

Developing regulations collaboratively would be an efficient way to share resources. Information exchange among Member countries of a region on issues related to PCO regulation would also facilitate more effective control of PCOs. Member countries of a regional grouping could collaboratively develop the PCO regulations and scheme for use in the region. Training of regulatory personnel as well as PCOs could also be carried out collaboratively to share limited resources. Countries should, however, individually implement and enforce the regulations themselves but could use the existing regional collaboration for information exchange to enhance implementation of the licensing regulations.

5.3 Types and categories of licences

The different approaches to the licensing of PCOs depend on the stage of development in the management of pesticides as well as the resources available in the country. However, any approach selected should be pragmatic, effective and take into account the resources available in the country.

All PCOs, whether individuals or companies, should be licensed. Individuals who are licensed PCOs should only be permitted to operate under a licensed PCO company to ensure greater accountability and facilitate their control by the responsible authorities. For developing countries, which often have limited resources, the following three types of licences could be considered:

- pest control operator business/employer (PCOE) licence
- pest control operator (PCO) licence
- assistant pest control operator (APCO) licence.

In addition to the above, it would be prudent to create different categories of licence to address the difference in complexities, technical expertise and risks involved in different pest control operations. The licence for the use of more toxic pesticides such as fumigants which also require more specialized expertise in their application should be categorized differently from the use of low toxicity pesticides.

For pragmatic reasons, particularly in developing countries, two categories of licence would be appropriate.

- Category A licences should be issued to PCOs who are only authorized to carry out general pest control operations (without the use of fumigants) in and around premises such as human dwellings, public places, food-handling establishments, public or private institutions, warehouses and any other structures; and
- Category B licences should be issued to PCOs who are authorized to use fumigant pesticides intended for example for raw agricultural commodities, processed foods, nonfood commodities, transport vessels, commodity processing facilities and commodity storage structures.

The category under which PCOs are authorized to operate depends on their ability to fulfil the requirements for each category. For Category A licences, the PCO should attend the prescribed course for general pest control and have passed the mandatory examination. Similarly for Category B licences, the PCO should attend the prescribed course on fumigation and have passed the mandatory examination. This system of categorization would enable those PCOs in developing countries who are licensed only to carry out general pest control operations (that is, without fumigation) an opportunity to operate legally while ensuring better control over the use of fumigants which require more specialized expertise and training in their use.

5.3.1 Licensing of pest control operator businesses or employers

To ensure accountability and more effective control of PCO activities, companies and government departments or agencies that carry out pest control activities, as defined under the scope of these guidelines, should be licensed. An individual who wishes to operate as a self-employed PCO should set up a PCO company and apply for a PCOE licence in addition to the PCO licence.

5.3.1.1 Procedure for application for PCOE licence

The PCOLD should ensure that the procedure for applying for a PCOE licence has been developed and is well publicized. National guidelines for the licensing of all types of PCOs should be prepared for the information of stakeholders.

Applications for a PCOE licence should be made in the prescribed form (see Annex 1 for a typical application form) with the relevant documents and payable fees attached and submitted to the PCOLD for consideration.

The PCOLD should ensure that the following requirements have been met at the time of the application for a licence.

- The applicant has submitted all other relevant permits or licences as required by the local authorities to operate a company.
- The applicant has submitted a copy of the insurance policy of comprehensive coverage for liabilities of the company and all of its employees.
- The applicant has submitted the name and licence number of at least one person in a supervisory position who holds a valid PCO licence for the category for which they have applied.

The PCOLD should evaluate the application and carry out the necessary inspections for compliance with licensing requirements, as provided for under the regulations, before

making a decision to approve or not approve the application. Inspections of the premises where pesticides and application equipment are stored should also be carried out to ensure compliance. Similarly, vehicles used in pest control operations should be inspected for compliance. A reasonable timeframe should be set for this process and the applicant informed accordingly. The licence should then be issued if the application has been found to be complete and acceptable. If an application is not acceptable, applicant should be informed of the reason for non-acceptance to enable the applicant to take the necessary corrective actions.

In many countries the government, particularly the health ministry and municipalities, often apply substantial quantities of pesticides to control vectors of public health importance as well as nuisance pests. Some countries have opted to exempt such government departments from the requirements of the licensing regulations and allow the respective departments to regulate their pest control operations. If a government decides to adopt this option it should be specified in the regulation. However, for better and more uniform control of PCO activities, it would be prudent to require such government departments or agencies to be regulated also under the licensing regulations, although certain procedures and conditions may be modified to suit local situations. Under such situations, heads of relevant government departments or municipalities should then apply for the PCOE licence.

5.3.1.2 The PCOE licence and its conditions

The PCOE licence should contain the name and address of the licensee, the address of the store, the licence number, the validity period of the licence, the name(s) of the licenced PCO(s) under its employment, and the category and conditions of licence including those stated below.

Licences issued should clearly specify the responsibilities of the licensees and the conditions under which they should abide including to:

- commence pest control operations only after the issuance of licence;
- keep pest control application notification records for (x) years;
- keep records of pesticide use for (x) years;
- secure an appropriate store for storing pesticide application equipment, pesticides and other materials for pest control operations (see Box 1 for details on store requirements);
- keep an inventory of pesticides, pest control equipment including number and type of equipment;
- ensure that pest control equipment is properly calibrated and maintained;
- make available the above records for auditing by the PCOLD;
- have all safety data sheets of pesticide products used readily available and accessible to workers;
- provide approved vehicle(s) for pest control operations (8) (see Box 2 for requirements);
- provide PPE that is suitable, clean and operational for use during pest control operations (see Box 3 for requirements);
- provide training for employees in pesticide application and the use of PPE, including the selection and maintenance (and, where appropriate, when to discard disposable PPE);

- ensure that fumigation operations take place only if they have been issued with a Category B licence and that operations are supervised by a PCO with a Category B licence;
- have in place an insurance policy of comprehensive coverage for liabilities of the company and all of its employees, with respect to death, injury or property damage arising out of any one incident (the amount of the insurance should be decided by Member States);
- keep accurate employee records;
- inform the PCOLD of any change of address;
- have in place standard operating procedures for routine activities carried out by employees;
- conduct routine medical surveillance or risk assessment of employees and make available records of the medical surveillance for auditing purposes; and
- comply with all licence conditions; failure to do so would result in the revoking or suspension of the licence.

Box 1. Store for pesticides, equipment and materials

Licensed pest control operator businesses or employers should have in place a store for the proper storage of pesticides, equipment and materials. Such a store should:

- be secure and locked at all times when not in use;
- be clean, well ventilated and well lit;
- be clearly identified with appropriate signage;
- be equipped with a suitable and well maintained fire extinguisher (dry powder or CO₂ type) and be easily accessible (preferably outside by the entrance);
- be stocked with suitable cleaning material for chemical spillages and kept in an easily accessible location. This includes a spare pair of gloves and materials to contain liquids and prevent spills such as commercial absorbent materials (hydrated lime or dry sand);
- be stocked with warning placards to indicate pesticide application, re-entry interval or other hazards; and
- have in stock safety data sheets for each of the chemicals stored and should be readily available for use in an emergency.

Box 2. Vehicles used in pest control operations

Any vehicles used in pest control operations should meet the following requirements.

- The vehicle should, among others, be labelled with the name, address, telephone number, a statement that it is carrying hazardous chemicals and a valid licence number of the licensed pest control operator business or employer.
- The vehicle should have a separate, well ventilated cabin for storage of chemicals and contaminated clothing or equipment. These materials should not be stored or transported in the driver's cabin.
- The part of the vehicle where the pesticide is stored should be able to contain the pesticide in the event of a leakage or spillage.
- A list of all chemicals with safety data sheets should be kept in an easily accessible location in the vehicle.
- A well maintained fire extinguisher (dry powder or CO₂ type), within the expiration date, should be kept in an easily accessible location.
- The entire vehicle should be clean and free from pesticide residue.
- Suitable clean-up materials for chemical spillages should be carried at all times. This includes a spare pair of gloves and materials to contain liquids and prevent spills such as commercial absorbent materials (e.g. hydrated lime or dry sand).
- Emergency telephone numbers should be clearly displayed in a prominent location (such as secured to the windscreen or dashboard).

Box 3. Personal protective equipment

The following personal protective equipment (PPE) should be made available during pest control operations:

- appropriate and well maintained respirators with spare cartridges;
- clean long-sleeved overalls;
- washable hats;
- eye and face protection such as safety glasses, goggles and a face shield or full-face respirator;
- chemical-resistant boots, aprons and gloves;
- soap, towel and at least 10 litres of clean water;
- an adequately stocked first aid kit;
- a spare change of clothing for use in an emergency; and
- suitable containers for contaminated items.

Note: Licensed pest control operators should ensure that appropriate PPE is worn for every pesticide application operation to reduce the risk of health effects from long-term low dose exposures to multiple chemicals. Regular visual checking should be carried out to ensure that PPE is not damaged and that specialist equipment, such as respirators, should be checked in accordance with the manufacturer's recommendation.

5.3.1.3 Renewal of PCOE licence

A PCOE licence is valid for (y) years (for example, 3 years). Licensees should be required to submit their applications for the renewal of their licence (x) months before expiry. The licence should only be renewed if all conditions have been complied with.

5.3.2 Licensing of pest control operators

All employees of companies or government departments operating under the PCOE licence who apply pesticides should be certified by the PCOLD. PCOs must pass the prescribed PCO certification examination as one of the prerequisites for obtaining a licence.

Any individual who wishes to perform pest control work for hire must, in addition to being licensed, be employed by a licensed PCOE.

5.3.2.1 Requirements for application for PCO licence

The basic educational requirements for submission of an application for a PCO licence vary from country to country. More developed countries often require an applicant to possess a university degree or college diploma as a minimum educational requirement to be eligible as a PCO, but this may not be practical in less developed countries, which may require only a secondary-school qualification. However, some basic application requirements that could be used for the licensing of PCOs include that:

- The applicant should be at least 18 years of age and a citizen or permanent resident of the country prior to taking the PCO certification examination.
- The applicant should possess the minimum educational qualification (the minimum qualification in some countries is secondary-school graduates while in others it could be college or university graduates, but this requirement should be decided by the responsible authority based on the local situation).
- The applicant should have attended the prescribed course and passed the mandatory certification examination as stipulated by the PCOLD.
- The applicant should possess the required practical experience in pest control (to be decided by the authority based on the local situation).

5.3.2.2 Procedure for applying for PCO licence

Applicants for a PCO licence who have met the necessary prerequisites should submit the completed prescribed form (see Annex 2 for a typical form) to the PCOLD with two recent coloured photographs (size 3.5 x 5 cm) and other relevant documents (copy of educational qualifications, citizenship certificate and PCO certification). The PCOLD, on receipt of the application, should process the application within the set timeframe and inform the applicant of the outcome of the application in a timely manner.

5.3.2.3 Conditions for issuance of licence

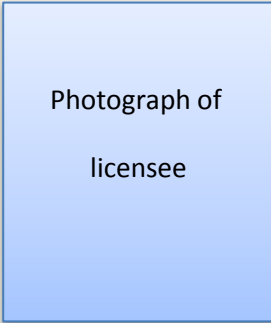
The applicant, in addition to fulfilling the prerequisites of attending the prescribed course(s) and passing the mandatory certification examination(s), should also fulfil the following conditions before a PCO licence can be issued.

- Applicants should undergo a pre-placement medical examination for risk assessment monitoring and submit the report to the PCOLD.
- Applicants should pay all fees within (x) months of the examination date to obtain the licence or be required to re-take the examination.

A licensee whose original licence has been lost, stolen or destroyed should provide all relevant documents to the licensing authority for consideration in the issuance of a replacement licence.

5.3.2.4 The PCO licence and its conditions

PCOs must easily prove to their clients that they are licensed in the course of their work as well as during inspections by the PCOLD. For practical reasons, a PCO licence is usually issued in the form of a badge which can be worn by the licensee for identification purposes and should contain, among others, the information as shown in Box 4.

Box 4. Pest control operator licence	
Name of authority issuing licence	
Name of licensee	
Licence number	
Validity period of licence	
The licensee is authorized to carry out:	
a) Category A pest control operations	
b) Category B pest control operations	
[indicate category of licence issued]	
The licence shall be worn by the licensee during pest control operations.	
Signature of authorized officer of pest control operator licensing division [date]	

As the licence badge is small it is not practical to include the other conditions of the licence that are issued in writing together with the badge. The written section should include the following.

(a) General

The licensee should:

- not permit, or require, another person to carry out pest control activities, if the other person is unlicensed;
- give pest control advice to occupiers of the premises;
- inspect the premises thoroughly to identify the pest problem and ensure that integrated vector management (IVM) principles are applied in the management of the pest;
- ensure that pesticides, if used, are those registered by the responsible authority of the country for the intended purpose (it is an offence to use any pesticide that is not registered for its intended use);
- disclose the chemical used to the occupier, clearly state re-entry interval and post signage of control activities in appropriate languages;
- provide supervision up to a maximum number of two assistant pest control operators (APCOs) at any one time;
- prepare a report on the pest control operation carried out (see Annex 3 for typical report) and provide a copy of the report to the client;
- ensure that a copy of the report is given to the client, filed by the licensed PCOE and a copy retained for the PCOs own records;
- ensure that, if operating under a Category B licence, the PCO should not be working alone and that any co-worker(s) should also be using the appropriate PPE.
- report to the PCOLD if the licence is lost and apply for a replacement licence;
- notify the PCOLD of any poisoning and spillage incidences; and
- comply with all licence conditions; failure to do so would result in the revoking or suspension of the licence.

(b) Vehicles

The licensed PCO should ensure that any vehicles used in pest control operations are approved and meet the requirements as stated in Box 2.

(c) Application equipment

The licensed PCO should ensure that any pesticide application equipment meets the following requirements. The equipment should:

- be clean, well maintained and free from pesticide residue;
- be regularly calibrated; and
- be secured to the vehicle to prevent it from moving during transport.

(d) Personal protective equipment

Licensed PCOs should always read the pesticide labels and follow the instructions carefully. Following the safety precautions and using specified PPE are particularly important for PCOs to prevent unacceptable exposure to pesticides. Such equipment should be selected, used and maintained correctly to ensure its effectiveness (see Box 3 for PPE requirements).

(e) Washing and storage of equipment and pesticides

Licensed PCOs should ensure that pesticide-contaminated items are washed separately from domestic laundry. They should also ensure that pesticides and application equipment are properly stored in the approved stores and transported in approved vehicles (see Box 1 and Box 2).

(f) Signage on pest control operation

Licensed PCOs should accordingly advise their clients on the precautions to be taken as well as the re-entry interval after the application of pesticides. Appropriate signage should be posted at strategic places, such as entrances of treated premises, to warn the public before the re-entry interval has expired.

(g) Disposal of waste and empty containers

Licensed PCOs should avoid the generation of waste. Spray solutions should not be prepared in excessive amounts. Pesticide containers should be triple rinsed and crushed before disposal and the rinsate used in the spray solution. They should follow the instructions on pesticide labels in their proper disposal. Licensed PCOs should follow the laws of the country in the disposal of unwanted pesticides and containers and not put at risk or endanger the lives and safety of humans and animals or contaminate the environment including waterways or water supply. For details on the proper management of pesticide wastes and empty pesticide containers, reference to the guidelines published by FAO and WHO (9,10) would be useful.

(h) Clean-up of spillages and leakages

If a pesticide leaks or spills, licensed PCOs should take appropriate and immediate action to contain the spillage or leakage following national guidelines. The spilled material should be disposed of appropriately. The incident should then be reported to the PCOLD.

5.3.2.5 Renewal of PCO licence

Licensees should submit their applications to renew their licence (x) months (for example, 2 months) before expiry.

To ensure that PCOs remain proficient, the PCOLD should require that PCOs attend refresher courses conducted or authorized by the PCOLD at specified intervals (e.g. once every 2 years, before renewal of a licence). The certificate of attendance of the refresher course could be used as a prerequisite for renewal of the PCO licence. Some countries require that PCOs not only re-attend refresher courses but also pass the examination for recertification.

The PCOLD should renew the licence if all requirements have been met in a timely manner to ensure that the work of the PCO is not jeopardized.

5.3.3 Licensing of assistant pest control operators

Individuals who are not as qualified to operate as PCOs may be hired as workers to assist them in the less technical work. Hence another type of licence, the Assistant Pest Control Operator licence, should be created to meet this demand. To perform pest control work for hire, the licensed APCO should be employed by a licensed PCOE and work under the supervision of a licensed PCO.

5.3.3.1 Requirements for application for APCO licence

The basic requirements before submission of an application for an APCO licence should include the following.

- The applicant should be at least 18 years of age and a citizen or permanent resident of the country prior to taking the licence examination.
- The applicant should possess the minimum educational qualification (to be decided by the licensing authority based on the local situation).
- The applicant should have attended the prescribed course and passed the mandatory examination as stipulated by the licensing authority.
- The applicant should have undergone and passed a pre-placement medical examination for risk assessment monitoring.

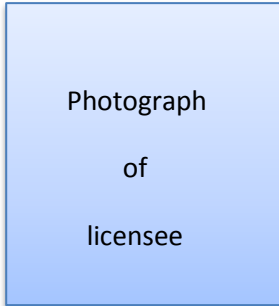
5.3.3.2 Procedure for application for APCO licence

The process of application for an APCO licence is similar to that of a PCO licence except that the requirements are those shown above under section 5.3.3.1. Applicants must submit the completed form (see Annex 4 for a sample of a typical form) to the PCOLD for consideration.

5.3.3.3 The APCO licence and its conditions

Applicants, on fulfilling all requirements, are licensed as APCOs for a (x)-year period.

Similar to the PCO licence, the APCO licence should comprise the badge licence as shown in Box 5 and a written section detailing the conditions of the licence.

Box 5. Assistant pest control operator licence	
Name of authority issuing the licence	
Name of licensee	
Licence number	
Validity period of licence	
The licensee is only authorized to carry out pest control work under the supervision of a licensed pest control operator. The licence should be worn by the licensee during pest control operations.	
Signature of authorized officer of pest control officer licensing division [date]	

Other conditions of the licence, which are issued in writing together with the above badge licence, include that:

- licensees should strictly work only under the supervision of a licensed PCO;
- licensees should keep a log book on work carried out recording the pest identified, the method of control used, the name of pesticide if used, the concentration of spray solution the application method, the PPE used and any other relevant observations and hours worked for future inspection and for supporting application for upgrading to the PCO licence;
- licensees should report to the PCOLD if their licence is lost or destroyed and apply for a replacement licence; and
- licensees should comply with all licence conditions.

5.3.3.4 Renewal of APCO licence

Licensees should be required to submit their applications for the renewal of their licence (x) months before expiry.

To ensure that APCOs remain proficient, the PCOLD should require that APCOs attend refresher courses at specified intervals. As for the PCO licence, attendance at such refresher courses could be made a prerequisite for renewal of the licence.

5.3.4.6 Upgrading to PCO licence

Provision should be made for the upgrading of a licensed APCO to a licensed PCO. To be eligible for a PCO licence, a licensed APCO must have actively worked as an APCO for a minimum of (x) years, as well as successfully completed the prescribed course for PCOs and passed the mandatory examination.

6. Role and responsibilities of the licensing authority

The role of the PCOLD is to ensure that pest control activities are properly carried out by PCOs and do not adversely affect consumers, the general public and the environment. The responsibilities of the PCOLD are to effectively implement and enforce the provisions of the PCO regulations.

To avoid confusion and disruption of PCO services, the PCOLD should ensure that sufficient planning, time and arrangements such as training and certification have been made for existing PCOs before the licensing regulations come into force.

6.1 Enforcement of licensing regulations

The enforcement function of the PCOLD is crucial to discourage contraventions of the regulations that negatively affect the general public and the environment. Without effective inspections, investigations and enforcement, the objective of protecting public health and the environment would not be attainable.

As regulators the PCOLD must ensure that its conduct is lawful. It is imperative therefore that it is provided with adequate, well-trained personnel to effectively enforce the provisions of the PCO regulations.

6.1.1 Inspectors

Adequate numbers of qualified inspectors with powers to inspect, investigate and enforce the provisions of the regulations should be appointed to serve the PCOLD. The PCO licensing regulations should make provisions for inspectors to have powers to:

- inspect the premises of the PCOE and take relevant samples for further action including prosecution;
- inspect the vehicles of the PCOE;
- inspect the records of licensees;
- observe pest control operations by licensed PCOs;
- investigate complaints, accidents or pesticide spillages;
- impose ‘on-the-spot fines’ for minor offences (optional); and
- carry out prosecution cases for major offences in a court of law.

Inspectors should prepare reports of their inspections and investigations for the information, review and subsequent actions by the management of the PCOLD.

The PCOLD should have powers to suspend, cancel or withdraw licences issued for contravention of the licensing regulations or conditions of licensing. Such action should be taken only after a thorough review of the report of the inspector.

There should also be provisions for appeal against suspension, cancellation or non-issue of licence.

6.2 Maintenance of public list of licensed pest control operators

The PCOLD should maintain a list of all licensed PCOEs, PCOs and APCOs and make it available to the public, preferably via the Internet, to enable consumers to verify whether a pest control operator is licensed.

6.3 Training courses, subject matter and examinations

The PCOLD is responsible for conducting certification courses for PCOs and APCOs. For practical reasons the PCOLD should identify expertise in other organizations or academic institutions to assist it in conducting the courses. Such courses should be conducted based on the provisions of the licensing regulations and emphasize the practical aspects of pest management. Examples of subject matter are shown in Annex 5 for PCOs and in Annex 6 for APCOs. Member countries should incorporate subject matter of importance and relevance to them.

6.3.1 Training courses

Training courses should:

- be conducted by the PCOLD or jointly with an organization or institution appointed by the authority¹;

¹ Conducting courses jointly with an appointed institution would enable the PCOLD to overcome personnel and expertise shortages by using the available resources of the collaborating institutions. Fees collected from the participants of the course could be used to pay for the expenses incurred in the organization of the course.

- include information on the subject matter to be covered as well as the schedule, location and cost;
- be reviewed from time to time to ensure that latest developments and best practices in pest control are included in the training; and
- be well publicized.

Fumigants are highly toxic and require trained personnel for their application. Any PCO handling fumigants for the control of pests such as in raw agricultural commodities, processed foods, nonfood commodities, transport vessels, commodity processing facilities and commodity storage structures should, among others, be required to attend a prescribed course designed specifically for fumigators and to have passed the mandatory examination (see Annex 7 for a typical list of subject matter that should be included in the course) before the approval and authorization to carry out any fumigation work.

Licensed PCOs should be thoroughly familiar with application procedures, safety equipment, first-aid treatment and disposal procedures.

6.3.2 Examinations

The PCOLD, in addition to conducting courses for PCOs and APCOs, should also be responsible for conducting the certification examinations. Examinations should be held at least once a year but their frequency should be decided by the PCOLD based on demand. The PCOLD should widely publicize the details of the examination including the dates and location as well as how to apply to take part in the examination, preferably at least 6 months before the examination is held. It would be expedient to make this information available on and to download the application form from the Internet.

6.4 Medical surveillance

The PCOLD is responsible for ensuring that licensed PCOEs take the necessary steps to safeguard the health and well-being of PCOs and APCOs while carrying out their work. Many countries have implemented legislation on occupational safety and health to safeguard the health and welfare of workers. Under such legislation the employer, among others, is responsible for providing a medical surveillance programme for its workers.

The PCOLD, for practical reasons, could use the medical surveillance programme developed under the legislation on occupational safety and health when licensing PCOs and APCOs. PCOs and APCOs should undergo pre-placement medical examinations to, among others, establish a baseline record of physical condition that may in future be important for stating whether a health impairment preceded employment or was caused by the workplace. Periodic medical examinations (preferably 6 monthly) should also be carried out.

Reports of medical surveillance of PCOs and APCOs carried out under the legislation on occupational health and safety, if available, should be accepted by the PCOLD in the licensing process. If these reports are not available the PCOLD in collaboration with the PCOE should arrange for medical surveillance to be carried out. An example of a medical surveillance programme for a worker using organophosphate is given in the Guidelines on medical surveillance published by the Department of Occupational Safety and Health, Ministry of Human Resources, Malaysia (5).

6.5 Maintenance of impartiality – ethical issues

The integrity of any authority responsible for licensing is of utmost importance to ensure effective, efficient regulation of PCOs. To maintain impartiality and promote transparency and integrity the PCOLD should form a committee to evaluate and approve applications for licence. There may also be a need to put in place a system that allows for close supervision of staff including inspectors to ensure that the provisions of the regulations are fairly enforced. Inspectors could be relocated to different locations of responsibilities from time to time. Training of officers of the PCOLD should cover policies relating to public officials, including official policies on conflict of interest and ethics.

The PCOLD should at all times be consistent and fair in its decisions and actions. The PCOLD could prepare guidelines for its enforcement officers on the penalties for different violations. For example, for a minor first offence, a written warning should be issued. The PCOLD should also address the issue of conflict of interest in the guidelines.

Provision should be made under the regulations for any complaints related to the professional conduct of an inspector or staff of the PCOLD to be heard. The responsible authority should put in place a system to investigate the complaints and take the necessary follow-up actions.

PCOs should form an association among themselves to promote the professionalism of members; this would also facilitate cooperation between the industry and the regulators. The PCO association could introduce a code of ethics which, among others, could require members to provide pest control services safely, efficiently and with due consideration for their possible effects on the environment. In addition, the code of ethics should emphasize the importance and use of IVM as well as avoiding the misuse and overuse of pesticides in their pest control operations.

7. Offences

Licensees should be made well aware of what constitutes an offence so that they do not contravene the law, and it should be clearly spelt out in the regulations and guidelines. Industry should be encouraged to self-regulate through effective educational programmes, which could be jointly organized by the PCOLD and the industry.

Licensees should at all times ensure that they comply with and fully understand the conditions of their licences, which should be specified in writing in the licences, as well as their responsibilities when carrying out pest control operations.

The PCOLD should also ensure effective enforcement of the regulations to discourage offences being committed under the regulations.

8. Penalties

Penalties for non-compliance with the provisions of the licensing regulations should be clearly stipulated in the legislation to avoid confusion and loss of creditability of the responsible authority.

The provisions for penalties in licensing regulations are essential but they should be fairly enforced to encourage self-regulations by the industry. Penalties imposed for non-compliance should be sufficiently heavy to discourage non-compliance. Minor non-compliance could be dealt with verbally or by written warnings and followed up with fines, suspension or revocation of licence.

To save the costs of going to court, some countries have implemented on-the-spot fines for minor offences that can be imposed by the inspectors, but strict caution is required to ensure there is no abuse of the process.

References

1. Public health pesticide registration and management practices by WHO Member States: report of a 2010 survey. Geneva: World Health Organization; 2011 (http://whqlibdoc.who.int/publications/2011/9789241501217_eng.pdf?ua=1; accessed November 2015).
2. International Code of Conduct on pesticide management (2013 revision). Rome: Food and Agriculture Organization of the United Nations; 2013 (http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Code2013.pdf; accessed November 2015).
3. Manual of fumigation for insect control. Rome: Food and Agriculture Organization of the United Nations; 1989 (<http://www.fao.org/docrep/x5042e/x5042e00.htm>, accessed November 2015).
4. Harmonized glossary on terms and definitions for the guidelines in support of the Code of Conduct. Rome: Food and Agriculture Organization of the United Nations; 2011 (http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Glossary_March_2011.pdf, accessed November 2015).
5. Guidelines on medical surveillance. Putrajaya: Department of Occupational Safety and Health, Ministry of Human Resources, Malaysia; 2001 (http://www.dosh.gov.my/index.php?option=com_docman&task=cat_view&gid=16&Itemid=179&lang=en, accessed November 2015).
6. Guidelines on occupational health services. Putrajaya: Department of Occupational Safety and Health, Ministry of Human Resources, Malaysia; 2005 (http://www.dosh.gov.my/index.php?option=com_docman&task=cat_view&gid=16&Itemid=179&lang=en, accessed November 2015).
7. Report of the 7th FAO/WHO Joint Meeting on Pesticide Management and 9th session of the FAO Panel of Experts on Pesticide Management, 15–18 October 2013, Geneva. Rome: Food and Agriculture Organization of the United Nations and Geneva: World Health Organization; 2013 (http://www.who.int/whopes/recommendations/Seventh_FAO_WHO_JMPM_2013.pdf?ua=1, accessed November 2015).
8. Guidelines for pest control operators in Victoria. Melbourne: Department of Health, State of Victoria, Australia; 2010 ([http://docs.health.vic.gov.au/docs/doc/BFC7E550C11A387CCA25798900166FD0/\\$FILE/guidelines-pestcontrol-operators.pdf](http://docs.health.vic.gov.au/docs/doc/BFC7E550C11A387CCA25798900166FD0/$FILE/guidelines-pestcontrol-operators.pdf), accessed November 2015).
1. Guidelines on management options for empty pesticide containers. Rome: Food and Agriculture Organization of the United Nations; 2008 (http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/Containers08.pdf, accessed November 2015).
2. Guidelines for the management of small quantities of unwanted and obsolete pesticides. Rome: Food and Agriculture Organization of the United Nations; 2001

(http://www.fao.org/fileadmin/user_upload/obsolete_pesticides/docs/small_qties.pdf, accessed November 2015).

Annex 1. Typical application form for pest control operator business or employer licence

For Office Use Only

Licence Number:

1. Name of Company:
2. National/local authority Company licence number:
3. Address:

City

Province/Territory/State

Country

Postal code

Mailing address

Telephone/cellular number (including area code and extension)

E-mail address

Fax number (optional)

4. Store information

(State address if different from above. If operating out of more than one physical location, attach a separate list that identifies each location and includes the name, and licence number and validity period of the PCO in-charge for each location.)

5. Vehicle information

Vehicle registration number:

Does the vehicle have a separate and well ventilated cabin for storage of chemicals and equipment and contaminated clothing? (Tick where applicable)

Yes

No

6. Name of Company owner/manager
7. Pest control activity (tick where applicable)

- General pest control (excluding fumigation) (Category A)

- Fumigation (Category B)

8. Provide the names, licence numbers and category of licensed pest control operators employed by the company for each category applied. (Attach separate list if required)

9. I hereby attach the following to support this application:

- Certified copy of company licence
- Certified copy of insurance policy

- Certified copy of licence of PCO(s) working in the company
- Fee payable.

I, the undersigned, hereby declare that, to the best of my knowledge, the information contained herein and the information submitted in support of this application are complete and accurate, and that I am aware of the penalties against providing false information.

(Signature of applicant)

Name (print)

Position

Company stamp

Date

Annex 2. Typical application form for pest control operator licence

For Office Use Only

Licence Number

First name: Middle initial: Last name:

Date of birth: Place of birth: Citizenship:

Educational qualification (attach certified copy of certificate):

PCO certification (attach copy of certificate where relevant):

Work experience in pest control activities:

Address

City: Province/Territory/State:

Country: Postal code:

Telephone/cellular number (including area code and extension):

E-mail address:

Fax number (optional)

Category of licence applied (tick where applicable)

- General pest control (excluding fumigation) (Category A)

- Fumigation (Category B)

I attach the following to support my application:

1. Two (2) recent colour photographs of size (3.5 x 5 cm) of myself, one of which has been countersigned as a true likeness
2. Certified copy of educational qualification
3. Certified copy of document to show my citizenship
4. Fee payable

I, the undersigned, hereby declare that, to the best of my knowledge, the information contained herein and the information submitted in support of this application are complete and accurate, and that I am aware of the penalties against providing false information.

Applicant signature

Name (print)

Date

Annex 3. Typical report on pest control operations

(To be made on the letterhead of the PCOE)

(Licensed Pest Control Operators should record details of pest control activity on completion of the operation. One copy of this report is to be given to the client before leaving the premises, a second copy for filing by the Pest Control Operator Business/Employer (PCOE) while the third is for the client's record. This report should bear the letterhead of the licensed PCOE with the valid licence number.)

1. Date pest management activity was carried out:
2. Address of premises where pest management activity was carried out:
3. Description and type of premises or place, e.g. factory, office, silo, ship hold or residence, where pest control activity was carried out;
4. Name and contact details (telephone number or other contact details) of the owner, occupier or other person requesting the activity;
5. State the purpose of the pest management activity [including description of pest situation (type, density) and justification for the control option chosen]:

6. Pesticide(s) used:

Active ingredient	Trade name/registration no. and batch no. of product used	Method of application	Concentration of diluted solution used	Rate of application	Total amount of diluted solution used

7. Start and finish time of pest control operation:
8. Registration number of vehicle:
9. The client has been advised on the pest management activity including precautions to be taken as well as the re-entry period. (Tick whichever is applicable)

Yes

No

Comments (if any):

I/We declare that the above information is true and correct:

Signature of PCO
Name
Licence No.
Date:

Signature of APCO (if applicable)
Name
Licence No.
Date:

I acknowledge receipt of the above report.

Signature of client
Name
Date

Annex 4. Typical application form for assistant pest control operator licence

For Office Use Only

Licence Number

First name: Middle initial: Last name:

Date of birth:

Place of birth: Age:

Citizenship:

Educational qualification (attach certified copy of certificate):

APCO certification (attach copy of certificate):

Work experience in pest control activities:

Address

City Province/Territory/State

Country

Postal Code

Mailing Address

Telephone/Cellular Number (including area code and extension)

E-mail address

Fax Number (optional)

I attach the following to support my application:

1. Two (2) recent colour photographs (size 3.5 x 5 cm) of myself, one of which has been countersigned as a true likeness
2. Certified copy of APCO licence
3. Certified copy of document to show my citizenship
4. Fee payable

I, the undersigned hereby declare that, to the best of my knowledge that the information contained herein and the information submitted in support of this application is complete and accurate and I am aware of the penalties against providing false information

Applicant signature

Name (print).....

Date

Annex 5. Typical list of subject matter for pest control operator (category A) certification course

The subject matter, among others, should include the following:

1. Pesticide laws and regulations of the country;
2. General information about pesticides including their importance, pesticide formulations, selecting an appropriate chemical control strategy, and safe handling and use of pesticides¹;
3. Symptoms of pesticide poisoning, first aid and decontamination;
4. Integrated pest or vector management;
5. Biology/ecology of major pests and their public health/economic importance and their identification;
6. Pesticide application equipment used in the public health sector; effective, quality-assured pesticide applications;
7. Personal protective equipment;
8. Re-entry intervals;
9. How to read and use Safety Data Sheets;
10. Operational procedures, preparation of spray materials and precautions;
11. Proper handling of pesticides including disposal of unwanted pesticides and containers as well as spill prevention and management;
12. Management of vectors, pest of public health importance, stored product pests and structural pests such as termites (including their life-cycles, susceptible stages, sites/habitat identification etc. of these pests);
13. Disinsection of aircrafts, ships, rail coaches and vehicles, etc.;
14. Record-keeping of operations;
15. Familiarity with the Code of Conduct and accessing technical guidelines as well as national guidelines on matters related to pest control operators;
16. There should be provisions for those who wish to carry out pest control activities using fumigants to be required to undergo special training and examination on fumigation.

(Based on local situations, other subject matters could be included as part of the syllabus.)

¹ See Pesticides and their application, for the control of vectors and pests of public health importance, 6th edition. Geneva: World Health Organization; 2006 (http://whqlibdoc.who.int/hq/2006/WHO_CDS_NTD_WHOPES_GCDPP_2006.1_eng.pdf?ua=1, accessed November 2015).

Annex 6. Typical list of subject matter for assistant pest control operator certification course

The subject matter should include:

1. General information about pesticides including pesticide formulations, selecting an appropriate chemical control strategy and safe handling and use of pesticides
2. Pesticide application equipment used in the public health sector
3. Operational procedures, preparation of spray materials and precautions; quality and effective application of pesticides
4. Biology/ecology of major pests and their public health/economic importance and their identification
5. Personal protective equipment
6. Re-entry intervals
7. How to read and use Safety Data Sheets
8. Proper handling of pesticides including disposal of unwanted pesticides and containers
9. Record-keeping of operations
10. Familiarity with national guidelines on matters related to pest control operators and accessing them

(Based on local situations, other subject matters could be included as part of the syllabus.)

Annex 7. Typical list of subject matter for pest control operator fumigation (category B) certification course

The subject matter should include:

1. Types of fumigation:
 - space fumigation
 - soil fumigation
2. Common fumigants (properties, formulations, uses, applications, precautionary measures including personal protective equipment and disposal)
3. Advantages and disadvantages of fumigation
4. Factors that affect effectiveness of fumigation
5. Practical aspects of fumigation (including hands-on practical training):
 - planning and preparation
 - safety considerations:
 - personnel
 - personal protective equipment
 - re-entry interval and signage
 - storing, handling and disposal of fumigants
 - handling spills and leaks
 - Pre-fumigation and fumigation period
 - Post-application operation including aeration procedure
 - Computing amount of fumigant needed
 - Tarpaulin fumigations
 - Warehouse fumigation
 - Chamber fumigation
 - Vehicle fumigation (railroad cars, truck trailers and ships)
 - Silo fumigation

