Health hazards for plant quarantine and pesticides inspectors in Tanzania

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Introduction

Plant quarantine and pesticides inspectors are responsible for inspecting plants and plant materials for import into or export out of the country. This is in compliance with Tanzania’s quarantine policy, whereby only clean plant materials may be imported in order to avoid the introduction of exotic pests. Also it is an international obligation under the International Plant Protection Convention (IPPC) of FAO, 1951, stating that clean plant materials be exported to other countries (1). According to Plant Protection Act 1997, only authorized pesticides products may be imported. Therefore, pesticide inspectors inspect pesticides entering the country at entry points (such as Dar es Salaam and Tanga harbours), international airports (e.g. Dar es Salaam and Kilimanjaro), and land border posts (for example, Namanga, Tunduma and Sirari). Inspectors are also responsible for conducting post-registration surveillance to ensure that pesticides are handled, used, distributed, and stored in a safe manner and that they conform to the registration requirements under which the permit was granted (2).

The inspection activities conducted involve a number of health hazards for inspectors, as they are always exposed to a number of pesticides and other related occupational exposure risks when conducting their inspections. Such health hazards can be divided into physical, chemical, biological and social hazards.

Some plant quarantine and pesticides inspectors are not aware of the health hazards associated with their daily activities. As a result, they do not take the necessary precautions to prevent or minimize the problems which could occur when handling plant materials or pesticides.

This paper highlights some of the health hazards associated with inspectorate activities. It gives recommendations as to what precautions to take in order to minimize these health problems or occupational hazards.

Work environments for plant quarantine and pesticide inspectors

In carrying out their inspection activities, plant quarantine and pesticide inspectors work at various places in different environments. They are placed at entry points such as harbours, airports, and land border posts and at post entry plant quarantine stations. They also work or carry out inspections in greenhouses, pesticide retail shops, stores and godowns.

Occupational health hazards facing plant quarantine and pesticide inspectors

Physical hazards

Entry points are points of arrival for plant materials and pesticides being imported into the country. They are also points of exit for materials going out of the country. Such points include airports, harbours, seaports, lake ports and land borders. Inspectors stationed at airports are exposed to much noise from flying and landing airplanes. Noise may cause harmful effects to inspectors, including hearing defects, hearing loss, annoyance, and sometimes mental fatigue (3). To minimize such exposure, inspectors may be advised to protect themselves by wearing ear protectors, e.g. ear plugs.
ear muff, communication headsets and helmets. Exposure can also be minimized by having inspectors rotate so that one person is in the area with intense noise for only a limited period of time.

Airports involve other hazards, too. They have many other vehicles moving about. These vehicles include forklifts, lorries and other machines for loading and unloading containers. When moving about, inspectors may be run over by such vehicles, resulting in injuries, fractures, permanent disabilities or even death.

At harbours, sometimes inspectors climb high heights, on ladders, to inspect trucks, ships, containers and silos. Falling may result in physical injuries, fractures, bruises, dislocation, or even death.

Plant quarantine inspectors inspect flowers in greenhouses during the active growth season, to monitor the existence of pests of quarantine importance before export. Sometimes the temperatures in greenhouses are too hot, and this may cause heat-related disorders. Inspectors should take the necessary precautions when in greenhouses. If need be, the inspection may be carried out in the morning or late afternoon when the weather is rather cool.

At the same time, cut flowers are kept in cold rooms immediately after harvest, and after grading when ready for export. Inspectors conduct inspections in cold rooms, inspecting flowers before export. Inspection in cold rooms exposes inspectors to hazards related to cold and wet conditions, such as common cold and pneumonia (4).

**Chemical hazards**

Inspectors are exposed to pesticides and chemicals in their work. Plant quarantine inspectors inspect seeds and other plant materials being imported or exported. Such materials are sometimes treated with insecticides or fungicides at the place of origin. During inspection, pesticides can be inhaled, or they can sometimes come into direct contact with the skin. Inspection is also carried out in fields and greenhouses, where heavy spraying with pesticides takes place to control different pests and diseases, such as spider mites, thrips, whiteflies, powdery mildew and nematodes. Inhalation of pesticides may lead to the development of respiratory ailments, e.g., bronchitis, rhinitis and asthma. Direct contact with the skin may cause skin irritation and allergies.

Imported seeds are plated and observed in the laboratory for the presence of pathogens; for instance, fungi, bacteria and viruses. During this aspect of their work, inspectors are always at risk of exposure to pesticides from treated seeds, laboratory chemicals and solvents. The plated seeds are kept under ultraviolet (UV) light to enhance spore formation for fungal pathogens. Direct exposure to UV light may lead to cancer of the eyes and skin if the inspector is not protected (5). Protective gear, e.g., a face shield or glasses, laboratory coats, eye goggles and gloves, should be provided and used in the laboratory.

At entry points, pesticide inspectors sample pesticide consignments for laboratory analysis. During sampling, inhalation or skin contact with pesticides is a common health hazard that may cause eye problem, skin allergies and respiratory problems. Pesticides are also inspected in retail shops and stores. When entering such premises, the inspector may inhale substances causing respiratory problems. When checking other details, e.g. expiry dates, quantity and registration status, the inspector physically handles pesticide containers. Sometimes spills occur, due to leakage or mishandling of the containers. As a result, he or she comes into direct skin contact with pesticides; this may result in skin allergies and other dermal problems. It is advisable for any inspector, when performing such activities, to wear proper protective gear such as gumboots, overcoats, gloves, respirators or masks.

Inspectors carry out inspection of goods in order to check the effectiveness of pesticides after fumigation. Inhalation of fumigation gases can cause asthma and other respiratory problems, e.g. damage to the lining of the lungs (6). In some cases, death may occur if the residual air concentration is too high. At harbours, inspectors inspect arriving containers which are fumigated before sealing. When opening the containers, unless he/she is well protected, the inspector is always the first person to inhale the arising fumes.

**Biological hazards**

Plant quarantine inspectors carry out inspection in the field and open quarantine sites to inspect various plant materials for export as well as those which have been imported into the country. This work is important for monitoring the presence of quarantine pests during active growth. Inspection of roses, exported mainly to European markets, is also done in greenhouses.

During field activities, inspectors are always at risk of insect and snake bites. Snake bites may inject venom, which at times can be fatal. Sometimes inhalation of pollen and fungal spores can cause respiratory allergies.

**Social hazards**

Due to flight schedules, inspectors who are stationed at international airports work on night shifts or stay at work until late hours. This also applies to inspectors who are stationed at border posts; e.g. Namanga, Sirari and Tunduma, where lorries with pesticide consignments and plant materials cross the border at late hours.

Most of the inspectors are not provided with accommodation at or near the workplace. Likewise, sometimes transport may not be available for those working until late hours. When returning home at night, inspectors are exposed to the risk of attack by bandits and even rape for female workers.

**Conclusion**

Plant quarantine and pesticide inspectors in Tanzania are exposed to a number of health hazards, such as occupational diseases, direct deaths and injuries due to the nature of their work. As in many other developing countries, in Tanzania the information on occupational and work-related hazards is not well documented. Thus inspectors, like most workers in other sectors, are not aware of the health hazards to which they are exposed. Owing to the lack of both information and awareness, it is very difficult to think of the necessary precautions to take when performing inspection activities. Other losses, incurred through the high costs resulting from disease-related absences from work, treatment, and disability and survivor benefits, go unnoticed due to lack of
awareness, poor record-keeping and inadequate notification systems.

To minimize health hazards and the consequent indirect costs, the following would be necessary:

- When first employed, inspectors should be well instructed and trained as to the health hazards they are likely to be exposed to. For those who are at work, it is worth thinking of creating awareness as to what health hazards are included in their work. This will definitely promote awareness of the precaution actions one should observe before or when doing inspection.

- Personal protective equipments should be provided to all inspectors, who should be strongly advised to use them whenever they go on inspections. If protective gears are properly used, inspector will have a reduced risk of accidents or exposure to workplace hazards. Additionally, the severity of any accident or occupational disease that does occur will be diminished.

- Protective gears include, among others, respirators and canisters for different gases, overalls, boots, warm jackets, goggles, gloves, helmets, face masks and detectors with accessories. For those working in fumigated areas, gas detectors should be provided. These will be used to detect any toxic fumes before inspector enters the premises.

- Inspectors working until late hours or on night shifts should be provided with transport or accommodation near or at the place of work.

- It is also recommended that inspectors should be checked regularly in order to determine the extent of exposure to various pesticides and, where possible, to take necessary actions before the situation worsens.

- First aid kits should be provided at all places of work, and proper instruction on how to use them should be given.

- Finally, it is important to keep proper records on occupational and work-related hazards, not only for inspectors but for all other workers. This will help create awareness of the existence of such health hazards and will promote advance preventive measures.

References


International Conference on Occupational Health Services 2005

OHS2005

25–27 January 2005, Marina Congress Center, Helsinki, Finland

Occupational health services (OHS) aim at preventing ill health and injuries at work and at promoting and maintaining the health and work ability of employees. While in industrialized countries many health and safety risks at workplaces have been eliminated and the overall health and safety situation has improved, traditional risks are still prevalent in many developing countries. The evolving work life, with the onset of the information society, has brought about new kinds of occupational hazards. The novel requirements imposed on OHS will also be discussed in Helsinki.

The aim of the Conference is to discuss the coverage and the relevant contents of occupational health services. This includes the current status of OHS, how the activities are carried out in practice, what are their health and economic impacts, how vulnerable groups and high-risk sectors are taken into consideration, and what kinds of training, education and human resource management are required to provide the services, and to develop them further.

Abstracts

Deadline for abstract submission is 30 September 2004.

Organizers

The Conference is organized by the Finnish Institute of Occupational Health and the Ministry of Social Affairs and Health.

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Afr Newslett on Occup Health and Safety 2004;14:7–9