Suggested Strategy to Phase-out Highly Hazardous Pesticides in Tanzania

Prepared by

P. O. Box 77266

Dar es Salaam, TANZANIA

Tel: +255 22 2461 052

E-mail: agenda.environment1997@gmail.com

Website: www.agendatz.org

MAY 2021

1. INTRODUCTION

Highly hazardous pesticides (HHPs) are a threat to human health and the environment, with significant impacts on developing and countries in transition. In 2015, more than 100 governments at the Fourth International Conference on Chemicals Management (ICCM4) agreed that HHPs were an issue of global concern and reached a consensus resolution to give priority to promotion of agro-ecological alternatives in the process of implementing the strategy on HHPs developed by the Food and Agriculture Organization, United Nations Environment Program and World Health Organization (FAO-UNEP-WHO).

Reduction and elimination of HHPs and promotion of agro-ecological alternatives would make a significant contribution to achievement of the Sustainable Development Goals (SDGs), particularly SDG2 – Zero hunger; SDG3 – Good health and well-being; SDG6 – Clean water and sanitation; SDG8 – Decent work and economic growth; and SDG15 – Life on land.

It is with this understanding that AGENDA for Environment and Responsible Development (AGENDA), a non-governmental organization registered in Tanzania, found it important to research the use of HHPs in Tanzania. That was done with the aim of informing the government on the situation, and also includes views on a possible strategy that will support the reduction, and ultimately phase-out, the use of HHPs in Tanzania.

Our views are also in-line with the International Code of Conduct on Pesticides Management; the version approved by the 38th FAO Conference in June 2013.

The Code focuses on risk reduction by calling on countries to identify, and if necessary, remove from use, highly hazardous pesticides; emphasizes minimizing the use of pesticides; and strongly recommends the use of integrated vector management for control of vector-borne diseases, among others. See Box 1 below.

Box 1: Prohibition on HHPs

Article 7 of the Code

Section 7.5: Prohibition of the importation, distribution, sale and purchase of highly hazardous pesticides may be considered if, based on risk assessment, risk mitigation measures or good marketing practices are insufficient to ensure that product can be handled without unacceptable risk to humans and the environment.

2. THE PROBLEM IN TANZANIA

The use of HHPs is based on a review of the March 2020 list of registered pesticides for use in the United Republic of Tanzania. Smallholder farmers, as well as large scale farmers, can easily access and purchase pesticides from pesticides distributors and retailers. It is not easy for farmers to understand the threat to health and environment caused by HHPs or realizes that HHPs are among the pesticides they purchase; a similar situation applies to traders of pesticides around the country.

However, from the review we can see that around 56% of the pesticides registered in Tanzania fall in the category of HHPs (see Attachment A). The HHPs are among the active ingredients used in the formulation of pesticides. It has been noted that some of the HHPs appear in more than one pesticide formulation or pesticide trade name. The Pesticide Action Network (PAN) list of HHPs contains a total of 310 active ingredients (all in the HHPs category) and from those, 97, or 31%, appears in the pesticides that have been registered in Tanzania.

The review was in accordance with the Pesticides Action Network (PAN) International criteria (Annex 1), which is found at: http://pan-international.org/wp-content/uploads/PAN_HHP_List.pdf. The PAN list of HHPs is based on classifications by recognized authorities. It was created by compiling information from the World Health Organization (WHO), United States Environmental Protection Agency (US-EPA), the European Union (EU) Commission and the Pesticide Property Database. According to PAN, HHPs have the criteria shown in Annex 1 of this document.

From discussions with farmers groups (namely Imara, Mwilolese, Umoja ni Nguvu and Twende pamoja- all in Mvomero district) in November 2020, AGENDA noted that some farmers use HHPs such as Supercron (Profenofos) (Registration number IN/0603) in tomatoes and other horticultural crops production while others are practicing organic farming. Production in both cases is good, although in the case of organic farming it is more tedious to prepare the concoctions used to address pests and diseases. The farmers find it easy to buy and apply conventional pesticides, though they said with organic techniques they would save money, as the natural remedies/materials are freely available around their areas.

Picture 1: One of the HHPs used by farmers

Organic farming is limited due to challenges related to preparing herbal pesticides. However, farmers explained that they would prefer organic farming to using conventional pesticides, as most herbal plants are available in their localities. The food items shown in Picture 2 are prepared by the farmers groups using organic farm products (in this case orange-fleshed sweet potatoes – *viazi lishe*).

Picture 2: Food items from organic products

Given the inadequate capacity in pesticides management in Tanzania, and the poor conditions related to use of pesticides (particularly by the smallholder farmers), human and environmental exposure to HHPs may have occurred. Unfortunately, not much information is available to relate the use of HHPs to exposure symptoms in Tanzania.

AGENDA has also noted that some of the HHPs used in Tanzania have been banned in some other countries; examples of those are shown in Table 1 below.

Table 1: Some HHPs registered in Tanzania but banned in other countries

S/N	HHP Name	Use	Where and when banned
1.	Acephate	Constituent in 10 formulations. Primarily used for control of aphids and lepidoptera larvae on tobacco, cotton, vegetables and other horticultural crops.	The substance is banned in the EU and in China. It is also banned in Sweden since 1992.
2.	Amitraz	Constituent in 19 formulations. Used to control various insect pests on horticultural crops.	Banned in the EU and several Middle Eastern countries, plus Cambodia.
3.	Bendiocarb	Constituent in 2 formulations - for use against mosquitoes.	Not approved for use in the EU.
4.	Carbaryl	Constituent in 8 formulations- for use against household pests.	The EU and four non-European countries (among them, Mozambique) have banned the

S/N	HHP Name	Use	Where and when banned
			substance.
5.	Fenitrothion	Constituent in 23 formulations. Primarily used against larger grain borer and maize weevil, storage insect pests, and control of insect pests on horticultural crops.	Banned in the EU. Use in Sweden ended before 1995 with the exception of one product approved for grape cultivation until 2007.
6.	Diafenthiuron	Constituent in 4 formulations- for use in horticulture (roses, cabbage, onions, etc.).	Banned in the EU.
7.	Diazinon	Constituent 6 formulations, mostly to control various insect pests on horticultural crops.	Banned in the EU and Mozambique.
8.	Fenvalerate	Constituent in 4 formulations- for use in control of aphids on cabbages, chewing and sucking insects on maize and various crops, fruit worm on tomatoes, etc.	Not approved for use in the EU.

3. SUGGESTED STRATEGIES FOR PHASING OUT HHPs IN TANZANIA

AGENDA suggests the following actions, which, if adopted and implemented by the government in collaboration with relevant stakeholders, could contribute to a large extent in phasing out HHPs in Tanzania.

(a) Preparation or review of a national action plan

A collaborative effort is required to move the agenda of HHPs phase-out forward. Tropical Pesticides Research Institute (TPRI) could initiate and coordinate a process which will engage all relevant stakeholders in preparing or reviewing the national action plan.

The national action plan needs to be based on the following strategies:

(i) Immediately ban highly hazardous pesticides

TPRI could de-register those HHPs that are already registered and stop registering new HHPs. The list prepared by AGENDA (Attachment A) could provide input to the process. De-registration could start with those pesticides with higher health and environment risk, e.g. those already banned in other countries, followed by those with safer alternatives.

As noted above in Table 1, some companies are continuing to produce HHPs, and export them to developing countries even though they are banned in their country of origin because of health and environmental reasons. De-registration of HHPs in Tanzania could start with these ones.

(ii) Implement, monitor and strictly enforce pesticide regulations

There have been cases where un-registered pesticides have found their way into the Tanzanian market. The report by the National Audit Office, 2018 noted this shortcoming as well. That means there is a need to improve the registration and surveillance of the pesticides in the market. The National Audit Office report also noted the presence of illegal importation of pesticides, allowing the use of uncertified pesticides in the country.

(iii) Increase research on alternatives to synthetic pest control and packaging of inputs for organic farming, particularly the herbal pesticides

Both formal and informal research needs to be promoted in support of phasing out HHPs. Farmers have successfully been practicing ecological and organic farming. The research institutions have also tested and approved various non-conventional pesticides and technologies. Concerted effortsare needed to expand research, as well as to validate the results to allow for wider adoption. Limitations on resources could be addressed by allocating more research funds to relevant institutions.

(iv) Promote farming practices that reduce or eliminate the use of synthetic pesticides

Much effort is put on promoting the use of pesticides (particularly the conventional pesticides) to boost productivity, while less effort is put on protecting human health and the environment.

There are already agro-ecological practices that have been proven to work well at the farmer level. Replication of such practices may help in reducing the use of chemical pesticides, including HHPs.

There are efforts from other countries and research centers, i.e. The International Centre for Insect Physiology and Ecology (ICIPE) headquartered in Kenya, which have developed different techniques of integrated pest management (IPM), push-pull technology and other agro-ecological methods. Collaborative initiatives could be initiated with other governments to support faster phase-out of HHPs.

Additionally, there were efforts from the Tanzanian government, which researched and tested the use of non-chemical practices in controlling pests. These have been published at: https://www.kilimo.go.tz/uploads/IPMP_Plan.pdf. Review and promotion of such practices is required.

(v) Routinely conduct risk assessment - supported by accredited laboratory tests -to inform risk reduction strategies

In Tanzania, around 80% of pesticides are used in livestock and agricultural production. From a study carried out with selected onion farmers, it was learned that body weakness, headache, dizziness, irritation, and excessively cold or hot body temperatures were among the pesticide-related symptoms reported by the farmers. These symptoms were due to the consequence of acute and/or chronic effects of pesticides on the central nervous system. There is also a significant misuse of pesticides among pesticide applicators. Routine risk assessment is therefore required to inform regulators and educators on appropriate steps to undertake in managing the risks.

(vi) Promote agro-ecological farming, citizen science and participatory research, as well as increased dissemination of research results for application by farmers

New skills and practices get developed regularly by research institutions and farmers, and some of these have proved to work well. Their wide dissemination to users will support fast transformation of agricultural practices. The Ministry of Agriculture can lead stakeholders in such transformations for the entire agricultural cycle.

(vii) Raise public awareness about pesticides, with a focus on the protection of human health and the environment

A number of non-conventional pesticides have been authorized by TPRI and the Ministry of Agriculture. However, responsible use by smallholder farmers is still limited and awareness creation on their use is necessary. Raising public awareness on the health and environmental benefits of agro-ecological alternatives will also increase the market demand for the products – noting that some customers shun away from some products assuming that they have high pesticides residue.

(viii) Enhance training and extension services capacity

As noted on (vii) above, there is limited use of non-conventional pesticides among the smallholder farmers. This challenge can be overcome by enhancing the training and extension services capacity on formulation and application of herbal remedies. This could be done at the training colleges as well as during employment (on-service training).

(ix) Promote a market for organic products

The government needs to support efforts to promote markets for organic products in the country and outside the country. This may be done through various incentives, such as tax relief, among others. This will eventually push for increased production of organic products, hence improved well-being of farmers and consumers.

SUBMISSION AND DISCUSSION ON THE PROPOSED STRATEGY

This strategy and the list of HHPs registered in Tanzania have been submitted to TPRI by AGENDA for their review and action. There was also a dialogue with the Registrar of Pesticides on the phase-out of HHPs in Tanzania, where the Registrar acknowledged AGENDA's work but could not give specific action items or a date to phase-out HHPs. He went further by saying that the phase-out of HHPs is not something that can happen overnight – it has to be tabled and decided by relevant committees. They have to satisfy themselves on the availability of suitable (effective and safe) alternatives.

ANNEX 1: PAN INTERNATIONAL INDICATORS FOR IDENTIFYING HIGHLY HAZARDOUS PESTICIDES

The following table shows the criteria and sources used by PAN International to identify pesticides considered to be highly hazardous.

Highly acute toxicity
'Extremely hazardous' (Class 1a) according to WHO Recommended Classification of Pesticides by Hazard or
'Extremely hazardous' (Class 1b) according to WHO Recommended Classification of Pesticides by Hazard or
'Fatal if inhaled' (H330) according to the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) or
Long term toxic effects
Carcinogenic to humans according to IARC, US EPA or 'Known or presumed human carcinogens' (Category I) according to the Globally Harmonized System (GHS) or
Probable/likely carcinogenic to humans according to IARC, US EPA or
'Substances known to induce heritable mutations or to be regarded as if they induce heritable mutations in germ cells of humans'. 'Substances known to induce heritable mutations in the germ cells of humans' (Category I) according to the Globally Harmonized System (GHS) or
'Known or Presumed human reproductive toxicant (Category I) according to the Globally Harmonized System (GHS) or
Endocrine disruptor
EU interim criteria 'Suspected human reproductive toxicant' (Category 2) *AND* 'Suspected human carcinogen' (Category 2) according to the Globally Harmonized System (GHS) or
Potential endocrine disruptor according to EU Category 1 of the EU priority list (2004) or
High environmental concern
Pesticides listed in Annex A & B of the Stockholm Convention or meeting the Conventions' criteria or Ozone depleting pesticides according to the Montreal Protocol or
High environmental concern – where two of the three following criteria are met:

P = 'Very persistent' half-life > 60 days in marine- or freshwater or half-life > 180 days in soil ('typical' half-life), marine or freshwater sediment) (Indicators and thresholds according to the Stockholm Convention) *AND/OR*
B = 'Very bioaccumulative' (BCF >5000) or KowlogP> 5 (existing BCF data supersede Kow log P data) (Indicators and thresholds according to the Stockholm Convention) *AND/OR*
T = Very toxic to aquatic organisms (LC/EC 50 [48h] for Daphnia spp. < 0,1 mg/l)
Hazard to ecosystem services
'Highly toxic for bees' according to U.S. EPA (LD50, µg/bee < 2) or
Known to cause a high incidence of severe or irreversible adverse effects
Pesticides listed in Annex III of the Rotterdam Convention or meeting the Conventions' criteria