



**Technical Report:
Status of Pesticide Management in Southern African
Development Community (SADC) in Relation to the
Rotterdam Convention**

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**Dr. Simon Sithole, SPS/food safety policy advisor
with Ivy Saunyama, Plant Protection Research Institute, Harare,
Zimbabwe**

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Abstract

This paper provides an overview of pesticide management in the SADC in relation to the 1998 Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The Rotterdam Convention is involved in the flow and exchange of information on the management of hazardous pesticides, industrial and consumer chemicals that have been banned or restricted in use due to their adverse effects on humans, animals, wildlife, non-target organisms and the environment. Exporting and importing countries trading in chemicals are jointly responsible for the protection of human and animal health and the environment from chemical hazards. The paper highlights the status of the procedure, and its usefulness to SADC countries. The paper also gives an insight on possible ways of reducing pesticide use. Integrated production and pest management (IPPM) and integrated vector management (IVM) are suggested as cost-effective, sustainable and environmentally friendly strategies for reducing reliance on pesticide use in pest and vector management. It discusses the scope for selective pesticide registration that allows phasing out of high risk products and phasing in low risk products or other environmentally friendly pest management strategies. The paper gives several factors militating against the successful implementation of the PIC procedure. The factors include lack of adequately trained manpower and the financial and capital assets required to enforce pesticide legislation among many others. Drawing on the constraints highlighted in the paper, some recommendations are given on how the donor community can assist SADC as well as how the regional body itself can work to make PIC a reality in the sustainable management of hazardous chemicals and pesticides. In principle SADC countries have interest in harmonizing pesticide registration and phytosanitary procedures and regulations through the implementation of a regional integrated production and pest management programme (IPPM) as a reformed strategy in pest management.

1. Introduction

The Southern African Development Community consists of 14 countries namely Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, Swaziland, South Africa, Tanzania, Zambia and Zimbabwe. The countries are developing at different rates and therefore are at different stages of development. The majority of the people in the Community live in the rural areas where agriculture is the main source of livelihood. The greatest challenge for SADC is the attainment of regional food security in the face of limited scope for increasing land for agricultural purposes. Intensification of agricultural production is the only feasible solution to the need to meet the food requirements of the teeming masses. However, intensification of agriculture and widespread use of high yielding crop varieties often culminate in increased pesticide use and the concomitant social, economic and environmental concerns. Pests, unavailability of healthy seed, erratic rainfall and climatic changes continue to undermine national and regional food security including the desire to realize economic growth and equity. Disease vectors such as mosquitoes and tsetse flies continue to transmit human malaria and cattle trypanosomiasis; respectively. Chemical, cultural, biological, host resistance and integrated pest/vector management (IPM/IVM) are used for the containment of pests and vectors in the region.

Over the years, considerable evidence that accrued indicates that routine pesticide use can cause pest and vector outbreaks, upset of natural ecology,

environmental pollution and harm on human and animal health. Routine and needless application of pesticides stem from the misconception that chemical pesticides can eliminate pests and vectors of diseases. Whenever pesticides become less effective, the tendency is for people to increase the number and quantities of pesticide applications. Unfortunately this practice increases the rate at which pesticide resistance occurs as it eliminates the more susceptible individuals and leaves the resistant survivors to respond (Scott,1990). The impact of pesticides on natural enemies also undermines their long term effectiveness. With the removal of these predators and parasitoids, many pests return at much higher numbers (pest resurgence), and indigenous species, which normally are economically insignificant may now emerge in an important role (secondary pests).

The increase in pesticide use often leads to increased input costs, decline in income with the result that uncontrolled pests and vectors impact more on crops, human and animal health. All these chemical concerns have become an integral part of the social and economic fabric of almost every society across the globe. As such, many international initiatives related to the management of hazardous chemicals have been taken and these include:

- Montreal Protocol,
- FAO Code of Conduct on Distribution and Use of Pesticides,
- Rotterdam Convention on Prior Informed Consent (PIC),
- Biodiversity Convention on the Conservation of Biological Diversity
- Stockholm Convention

In the region, the implementation of these international agreements is hampered by a number of factors including inadequate number of expertise, inappropriate/inadequate infrastructure, training institutions and funding.

2. Policy and legislation

The right policy environment is essential for an effective and efficient pesticide management programme in any country. In SADC there are few countries that have formulated clear-cut policies that reduce chemical and pesticide use, their risks to the environment, human and animal health and reliance on pesticides in the management of pest and vectors. Recent investigations made by this author have indicated that in majority of SADC countries plant protection/ pest management policies have not been documented and yet pest management legislations and regulations exist.

The role played by stakeholders including governments, local formulators, distributors and users is crucial for effective policing and overcoming potential problems associated with improper handling, storage, and use of pesticides. There is need for governments to examine the economic framework supporting the use of pesticides including amongst others price factors; especially pesticide subsidies and credit schemes that encourage farmers to use pesticides. It is absolutely a necessity to research on non-price factors with environmental regulation included.

SADC is currently trying to emphasize the development of a pesticide management regulatory framework aimed at promoting environmental friendly pest and vector management strategies; especially integrated approaches (Giga,1998). It is in this view that SADC plant protection units agreed in February 2002 to pursue regional integration approach aimed at reducing pesticide use in relation to plant protection,

phytosanitary, food safety and trade in agricultural commodities and products. This was a major milestone in policy making at regional level that will lead to reduction in the use of pesticides, cleaner crop production, food safety and biological diversity as a result of reduced environmental pollution. Therefore, this policy expects SADC member governments to support integrated production and pest management (IPPM)/integrated disease vector management (IVM), adopt policies that prioritize agricultural investment in IPPM/IVM and develop a supportive legal institutional framework.

Clearly, there is need for policy reform in support of environmentally sound strategies in pest management such as IPPM (Table1). **Supportive Policy reform should involve the following:**

- National level policy development
- Community level capacity development
- IPPM implementation and rationalization of pesticide registration and use
 - private sector initiatives targeting safe, socially and environmentally sustainable crop production
- Organic pest management
- International Conventions
- Public forum on IPPM
- Policy on SPS/Food safety
- Pesticide residue regulations
- Smart partnerships involving public, private and non-governmental sectors

Therefore, for a general scope of policy framework, the SADC region would like to adopt a holistic approach to policy issues by recognizing local, national and global policy levels, different sectors and their mutual interactions. This includes both public and private sector policies and internal policies of donor and lending institutions. The key policy should promote a shifted from “market in pesticides” towards a “market in environmentally sound pest management.”

It cannot be overemphasized that in the region needs to publish policies on plant protection pesticide management and SPS/Food Safety in order to raise awareness at national and regional levels. Pesticide advertising should conform to guidelines in the FAO Code of Conduct on the Use and Distribution of Pesticides and should be sanctioned by the registration authority.

3. Pesticide use

World-wide, market forecasts show a further increase in pesticide use in the near future if no measures are taken to reduce reliance on pesticides (Sithole, Keswani and Chivinge, 1999). The Rotterdam Convention serves to monitor and control international trade in hazardous pesticides worldwide. Pesticide use has been regarded as a quick and efficient solution to pest/vector problems in the agricultural and public health sectors. Today pesticides are being criticized as an environmental burden as they constitute a health risk to humans, animals, and wildlife and non-target organisms in the environment. Therefore, it is not surprising that pesticide use is now a matter of concern among policy makers, researchers and extensionists in agricultural, and public and animal health sectors in the region. However, currently SADC governments have difficulties in trying to arrest growing tendencies towards dependency on pesticide use. This situation arises probably due to the absence of

incentives for the use of non-chemical pest control measures. Nonetheless, it should be noted that the control of pests with pesticides satisfies only a short-term need.

Table 1: Integrated Production and Pest Management (Modified after Global IPM Facility, 2001)

International Policies	National Policies	Local Pest & Pesticide Management Practices	Pesticide outflows and externalities
<ul style="list-style-type: none"> -IPPC -FAO Code of Conduct -Stockholm Convention (POPs) -Rotterdam Convention (PIC) -Montreal Protocol -Donor policies -Food Safety -Export market demand -COLEACP -Agenda 21 -Conservation of Biological Diversity -Human rights issues -Donor/Bank policies 	<ul style="list-style-type: none"> -Pest management policy -Pesticide legislation & regulations -Sanitary, phytosanitary and food safety legislation and regulations -Biotechnology -Health -Environmental health surveillance -Tariffs and Taxes -Role of civil society -Role of private society -Gender issues (exposure, work distribution etc) 	<ul style="list-style-type: none"> -IPPM -Training/ Education/science & Technology -Funding/ Networking -Pesticide management -Migrant pest management -Plant protection -Import requirements 	<ul style="list-style-type: none"> -Soil contamination/ environmental contamination -Water and air pollution - Pesticide residues in crops -Legal and illegal trade -Chemical /pesticide obsolete disposal operations -Local externalities Public health Occupational health Environment Unsustainable production

3.1 Natural enemies

SADC experts in pest/vector management continue to use pesticides as a primary control tool as has been the case for the past 30 to 40 years.

Owing to social, economic and ecological pressures, there is increasing demand for reduced pesticide use and increased use of no-chemical management tactics. Research scientists, regulatory agencies, legislators and the general public ought to give priority to the use of pesticides that are not toxic to biocontrol agents/natural enemies. Thus the issue of compatibility of pesticides with natural enemies and the non-chemical measures is critical to the improvement of pest/vector management, environmental quality and the management of resistance in pests/vectors. However, Hoy (1985a), Croft (1990) and Metcalf (1994) indicated that the enhancement of compatibility of

pesticides and natural enemies is a complex process and sometimes very difficult but can pay dividends in the long run in improving pest and vector management.

Clearly, research must be instituted to change the way pesticides are developed and registered as part of a strategy to reduce reliance on pesticide use and enhance IPPM and IVM programmes. For example, some pesticides are relatively non-toxic to important natural enemies at low rates but the recommended application rates are high (Hoy, 1985b). Pesticide uses at high rates disrupt effective control of pests/vectors by natural enemies; often leading to additional pesticide applications and thus exerting unnecessary selection for resistance in pest/ vector species. Accordingly, it may be necessary for the label to contain two different directions for use. One rate could be recommended for the traditional strategy of reliance on pesticides for pest/vector management and the lower rate could be recommended for use in programmes that rely on effective natural enemies for pest management. This approach to labeling would reduce the overall number of pesticide applications, rates and selection pressure in the target species in addition to conserving natural enemies in the ecosystem. Some products may be declared unsuitable for development once they have been identified to have adverse effects on natural enemies. Clearly, high risk products are unsuitable for use in IPPM programmes already in place in some SADC member states because they have no adverse effects on human and animal health, wildlife, non-target organisms and the environment.

3.2 Harmonization Process

In SADC, there are on-going harmonization processes including pesticide registration procedures and regulations, SPS/Food Safety and pesticide management. These processes are related to regional integration and enhancement of the agricultural commodities and products from member states and making them competitive at regional and global markets by making them comply with the international export trade requirements. This includes amongst others meeting the world-wide demand by consumers to reducing pesticide residue levels in agricultural produce to acceptable levels that make food safe for human consumption.

3. 2.1 Harmonization of Pesticide Registration

SADC member states have been involved in the process of harmonizing pesticide registration procedures and regulations for the past 7 years. SEARCH Secretariat in Pretoria, South Africa is responsible for organizing meetings that deliberate on the harmonization process. SEARCH aims at making pesticide registration simple and reduce duplication of efforts in generating field efficacy and toxicological data necessary for complete pesticide registration. Pesticide registrars in the region and agrochemical companies are the major participants at SEARCH meetings which have already been held in Zambia, Zimbabwe, South Africa, Kenya, Namibia, Malawi and Tanzania; respectively. The pesticide registration dossier form has already been harmonized and is being implemented in most member states.

Pesticide residues need to be monitored and require technical infrastructure, adequately equipped and staffed analytical laboratories put in place at national and regional levels to ensure pesticide quality control checks on formulations. Pesticide residue levels in agricultural produce should be measured; especially those known to use large quantities of pesticide. Residue level indications are essential in ascertaining

unsafe practices that may have adverse effects on human and animal health and the environment.

Maximum Residue levels are increasingly being used by countries importing agricultural produce as one of the conditions to be met by the exporting country apart from phytosanitary conditions. Agricultural imports with residue levels above those agreed by Codex Alimentarius are often rejected. This points to the need for laboratories to be adequately equipped to enable conduction of analyses and subsequent identification of possible pesticide residues in food, water, soil and body fluids.

SEARCH plans to handle the pesticide residue levels in agricultural commodities and products in relations to regional and international trade. The issue of having a common pesticide registration scheme has not yet been resolved but is been discussed at most of the meetings. The difficulty in resolving this issue probably stems from the fact that member states are at different states of development.

3.2.2 Harmonization of SPS/Food Safety Measures

Over many years, SADC countries have been calling for the harmonization of SPS/Food Safety measures to comply with international standards, guidelines and recommendations of international organizations such as Food Agricultural Organization (FAO) International Plant protection Convention (IPPC), Office of International Epizootics (OIE) and Codex Alimentarius Commission. Recently the SADC started the process by taking an inventory of existing SPS/Food Safety systems in member states that are signatory to the SADC Trade Protocol. An Annex to the Protocol related to SPS /Food Safety has already been completed with funding from USAID. The aim of the Annex is to enhance the regional capability in complying with export requirements of international trade in agricultural commodities and products.

The on-going project related to harmonization is looking at Policy SPS/Food Safety issues that require reform in order to meet the requirements of the global market for agricultural commodities and products from the region to be competitive at major markets such as the EU and USA. At the technical level, laboratories to handle agricultural produce such as testing for pesticide residues for the export market are being assessed for accreditation.

4. International Agreements

Increase in world trade on chemicals/pesticides during the 1960s and 1970s culminated in worldwide concerns about the attendant risks of using hazardous chemicals/pesticides in agriculture. The Code of Conduct on the Distribution and Use of Pesticides was developed in 1985 by FAO and in 1987 UNEP Chemicals developed the London Guidelines for the Exchange of Information on Chemicals in International Trade. In 1989 the Prior Consent procedure was added to control trade in banned, severely restricted chemicals and those with acutely toxic formulations. The PIC Procedure has been unanimously accepted by FAO and UNEP countries including SADC member states, major chemical industry associations and various non-governmental organizations. The implementation of the Rotterdam Convention constitutes a crucial step towards the protection of human and animal health, wildlife, non-target organisms and the environment against risks posed by toxic substances. It relates to international trade or movement of hazardous pesticides, industrial and

consumer chemicals between exporting and importing countries. The Convention legally requires exporters to notify importing countries before exporting these very hazardous chemicals which are subject to bans or restrictions.

Recognizing the PIC Principle, regulatory authorities in the SADC region ban certain pesticides once their uses have been prohibited on account of adverse effects on human and animal health, wildlife, non-target organisms and the environment. The Convention limits trade in extremely hazardous chemicals that should not be exported unless agreed by importing countries participating in the PIC procedure. Certain other pesticides are subjected to limited bans but remain registered for few specific uses. Pesticides in this category have severely restricted uses. A third category is that of pesticides that have certain acutely toxic formulations banned in order to protect human and animal health and the environment.

Essentially, the SADC region recognizes that by preventing the importation / movement of unwanted hazardous substances, the Convention constitutes the first line of defense against potential disasters on humans, domesticated animals, wildlife, non-target organisms and the environment. Indeed through the Convention, countries in the region are able to protect themselves against risks of toxic substances, and to responsibly monitor and control trade in very hazardous substances. Any country participating in the PIC procedure will confidently decide which chemical or pesticide not to import and which one to receive. Similarly exporting countries will know which banned or severely restricted chemicals and pesticide to export to what countries after obtaining consent from importing countries. Thus the Convention empowers importing countries to make decisions on what control actions to take and ensures that countries import pesticides that they can control or manage safely.

5. Regional Integrated Approach to Pesticide Management

The widespread use of pesticides has become questionable particularly with the advent of more ecologically sound and sustainable integrated pest/vector management (IPM/IVM) approach in the SADC region. The region is re-evaluating the need for pesticide use and is investigating into the viability of organically produced crops like vegetables and cotton. High crop yields are being obtained from new high yielding varieties while some of them have significant resistance to pests. However, the high yielding varieties depend on the use of fertilizers and pesticides for the control of pests. Although the search for complementary and alternative methods of controlling pests will continue, use of pesticides in the region will remain essential for the foreseeable future but use will be reduced if the planned initiatives are put in place.

IPM/IVM is a preferred alternative approach for the protection of crops against pests and prevention of human and animal diseases transmitted by vectors. It aims at finding a proper combination of control measures while using pesticides only as an intervention. The current implementation of IPM in the region supports the governments that are signatories to Agenda 21 of the United Nations Conference on Environment and Development (UNCED). Agenda 21 covers the Convention on Biological Diversity (Biodiversity) and Integrated Pest Management movements seeking to conserve the balance of nature by using environmentally friendly pest and vector management strategies.

In recent years the SADC region witnessed a renewed interest in the development and application of alternative methods that are cost-effective, efficient and environmentally friendly and sustainable. IPPM and IVM offer viable options in the crop and animal protection against pests and also in public health delivery systems in relation to vector-transmitted diseases. Countries currently involved in IPM and IVM activities include Uganda, Kenya, Tanzania, Zambia, Malawi, Mozambique, Swaziland, South Africa and Zimbabwe. Studies are at varying stages and implementation is already underway in some countries. IPM and IVM programmes are being executed with the facilitation of various collaborative partners like the Global IPM Facility, FAO, GTZ, NRI, CABI and many others. IPPM programmes are being executed in the region with the major aim of reducing pesticide use without compromising sustainable agricultural production. Plant protection (Pest Management), pesticide management, phytosanitary, food safety and environmental safety, conservation of biological diversity and reduced costs of crop production are all integrated in a system that is holistic like IPPM which meets the demands of consumers.

6. Scope for Selective Pesticide Registration Scheme

The cost of regulatory intervention by any nation with the intent to protect human health can be significant. This is particularly true for developing countries intending to penetrate markets in the developed countries. The EU regulations on harmonized maximum pesticide residue levels (MRLS) impact is a decrease in vegetable exports from Africa by over 60% when compared with regulations adopted at international standard.

The smallholder horticultural sector is an important producer of horticultural produce in the country. Interest by the smallholder sector to participate in the export market has increased tremendously but access to international markets such as the EU and USA markets has proved to be very difficult. The sector has recently made inroads into the foreign markets as standards of production improve. This has brought additional money to the smallholder sector and improved the living standards of the poor people through poverty alleviation.

With intense competition at the market place, the vegetable grower needs to intensify hygiene, quality and food safety requirements through health authorities controlling and increasing responsibility of importers and exporters. In response to harmonized MRLs for pesticides in EU, countries need to produce vegetables that satisfy consumers looking for produce without risks to human health. Producers in are therefore compelled to use approved pesticides in accordance with techniques that conform to the principles of Good Agricultural Practice (GAP) avoiding pesticide residue levels in excess of acceptable MRLs. However, the vegetable producer faces the following problems:

- Harmonization of MRLs by EU set at zero (LOD) analytical level affects vegetable crops due to the absence of toxicological and ecotoxicological data required for the determination of MRLs.
- Clearly, risks of exceeding tolerance levels are high.
- In addition there are numerous crop/ pesticide active ingredients combinations to be considered for the harmonization process and this situation presents monitoring and analytical difficulties to regulatory authorities.

- Importers and distributors may refuse to accept supplies of vegetables in the absence of traceability guarantee on human health and food safety.
- Agro-chemical companies give priority to defending active ingredients of pesticides that have commercial potentials that are commensurate with costs.

Farmers need to change their production practices to enable them to comply with market requirements and regulations especially in the absence of approved pesticides and available analytical procedures or else they fail to comply with market requirements (Giga, 1998). New residue legislation in the EU and USA is driving farmers producing for these markets including exporters from developing countries to move away from old compounds. The market mechanisms are either eliciting positive change or driving some producers out of business where change is not possible due to lack of alternatives.

Thus despite well documented social costs and impacts, the emergence of new methods and technologies, international agreements and despite a large number of successful field cases, change toward the promised large reductions in impact have been slow and have occurred on a limited scale where market and policy drive are supportive. Countries have committed themselves through various treaties, conventions and agreements to reduce the impact of agricultural practices on the environment and to support initiatives moving towards sustainable agriculture. It is important for developing countries to develop indicators and verifiers for farmers, national and international auditors to effectively and continually audit and monitor moves towards safer production and ethical trading.

Most of pesticides used in SADC region are imported as active ingredients, which are then formulated into end use products for pest management. Member states have banned some highly toxic pesticides, identified others for phasing out like DDT, Aldrin, Deldrin, parathion, methyl bromide and captifol because have adverse effects on the health of humans, animals and pollute the environment as they are persistent for a long time in soil. The policy to reduce the number of high risk products works through the registration systems which favour “green pesticides (WHO Class III)”.

The question is whether or not it would be feasible to phase out Class I pesticides from use in crop production once low risk pest management strategies are phased in. The phasing out timeframe could easily be worked out; during which time low risk replacements are registered as a matter of policy. The high risk products without replacements at the elapse of the timeframe, perhaps because of their economic importance in the management of pests of high value crops could be allowed restricted use. This would then be reflected in the legislation and regulations that govern pesticide registration (Saunyama and Sithole, in press).

After phasing out WHO Class I products, WHO Class II pesticide products would be the next to be phased out from the register. Clearly, this category of pesticides would require longer period for them to be replaced by more environmentally sound pest control strategies and compounds with low risk to the health of humans and animals and the environment. The phasing out period could be between 10 and 15 years with the same condition that products with high economic importance are subjected to restricted use in managing a particular pest known to cause serious economic crop loss when highly efficacious and low risk management strategy or pesticide is not available (Saunyama and Sithole, in press).

7. Constraints

Constraints that confound the management of chemicals and pesticides in the SADC region in relation to public health and environment include:

- **Pesticide policy and legislation**

Few countries have working pesticide policy and registration schemes with procedures and regulations governing importation, registration, distribution, storage and use. The situation in the region may be ascribed to the absence of legislation in some countries and the fact that in other, pesticide legislation schemes are not clear-cut in terms of procedures and regulations.

Enforcement

Enforcement of legislation is ineffective because of shortage of trained manpower. This is mostly due to lack of or limited training capacity on registration procedures, regulations, and pesticide analysis for quality control and post-registration activities at higher institutions of learning. Post-registration activities including monitoring levels of pesticide residues in food, drinking water, fruits and environment, pesticide importation, distribution sale, storage, use, occupational safety health and disposal conditions.

- **Labels**

Labels on pesticide containers are often inadequate and not user friendly. Labels are often in English and few include local languages. Labels do not conform to legislation. The use of pictograms in local languages is lacking in most of the countries. As a result users of pesticides rarely read the labels, especially if they have applied the product before and this often leads to under doses or over doses being applied.

Size of container

Pesticide packaging for sale is often inappropriate as they are often packed in large containers that are not suitable for small-scale farmers. Faced with pest problems these farmers purchase more pesticide than their requirements. Some of the pesticide remains unused and this can lead to over dosing when applying the pesticide, wasting of the pesticide, obsolete stockpiles which constitute a risk to the environment. This could lead to contamination of food and drinking water.

- **Use of protective clothing**

Pesticide users rarely put on protective clothing when applying pesticides, partly due to lack of awareness on the potential hazards of pesticide use through contact with skin, ingestion and inhalation. Usually, protective clothing is often unsuitable for use under tropical or sub-tropical conditions. Protective clothing manufactured overseas under temperate conditions is donated to the SADC and Eastern African region where prevailing climatic conditions are different. Even when protective clothing is made locally, it is common that no consideration is given to ensure the clothing material is suitable for use under tropical or sub-tropical conditions. Therefore, it is not surprising that pesticide users often do not wear protective clothing under hot weather conditions prevailing in the sub-region.

- **Awareness campaigns**

Awareness campaigns are rare while promotion of safe use of pesticides is very limited in the majority of countries. This may be related to lack or shortage of trained personnel, training materials and funding.

- **Impact assessment**

In using pesticides, impact assessment on human and animal health, wildlife, non-target organisms and the environment is often not taken into consideration by the users. This may be due to ignorance of potential risks on the part of users, especially in the absence of awareness campaigns. Fully functioning pesticide residue analysis facilities are scarce in the region except in a few countries.

- **Manpower development and training**

The region has inadequate expertise for pesticide registration, residue analysis and monitoring distribution, sale and use. Accordingly the need for manpower development and training in these aspects cannot be overemphasized.

- **Lack of infrastructure**

The region lacks local expertise and facilities for environmentally safe disposal of pesticides. The infrastructure is essential for toxicological studies and pesticide residue analysis.

- **Weak public sector and private sector partnership**

Linkage between government regulatory authorities and agrochemical industry including manufacturers and dealers is weak. For effective chemical pesticide management in the region it is essential that effective smart partnerships be established between regulatory authorities and agrochemical companies or through national agrochemical associations.

- **Pesticide donations**

In times of pest outbreaks when national food security or public health is under threat donations are accepted without due care being taken. This gives rise to over supply and the excess remains unused for a long time leading to obsolete stockpile. This results from overestimation the requirements of the recipient country. It is not unusual for recipient countries to accept unregistered pesticide formulations that may fail to achieve the expected control of the target pest. The recipient countries, especially in emergency situations, often accept unregistered pesticides and thus culminating in obsolete stockpiles in countries that have no registration schemes. In this case the recipient country is unable to advise the donor on pesticide type and other specifications required.

- **Lack of regional approach to pesticide management**

The World Trade Organization (WTO), at a SADC workshop in Windhoek, Namibia, in 1999 stressed the advantage of trading as a block of countries. Recently, the European Union pegged their pesticide residue level in agricultural produce imported into Europe at zero or close to zero for products without established Maximum Residue Levels (MRLs) in importing countries. This is very difficult to achieve as individual countries and yet failure to conform leads to isolation in trade. However, with pooling resources, it is possible for the region to trade as a block. Therefore there

is need for countries in the region to harmonize procedures and regulations governing pesticide management:

- **International agreements**

Failure to take advantage of the FAO Code of Conduct on the Distribution and Use of Pesticides and the PIC Procedure. Registration of a product should be based on its field efficacy under local conditions and its registration for use in the country of origin. The operation of the PIC Procedure operation is not well understood in some member states probably due to lack of or inadequate infrastructure. Some member states have few poison reporting centers and untrained medical staff. Paramedical personnel may not be trained to deal with poison cases in aspects of diagnosis, treating poisoning cases, antidote use and antidotes may not be available in rural areas.

Importation of pesticides is often not documented and therefore no database exists in the majority of the countries in the region. No regional information exchange on pesticides occurs because of lack of a regional structure and thus no sharing of valuable pesticide data among countries.

8. Conclusions and Recommendations

Financing PIC:

Developing countries will need resources to make PIC work, and the Convention contains no specific provision for technical and financial assistance. Both training and financial resources will be needed to help SADC member states and many other developing countries fully implement The PIC procedure.

Role for donors:

Donors can play a role in

- **funding training workshops and exchanges;**
- **supporting the ways of identifying severely hazardous pesticide formulations;**
- **financing poison control centers;**
- **capacity building for chemical management;**
- **ensuring that no pesticide donations are made that contravene PIC and national registration;**
- **supporting agricultural developments which eliminate the use of hazardous chemicals. (www.pan-uk.org).**

The Way Forward

The way forward to reducing use of pesticide is as follows:

- **Reform pesticide registration systems by registering only low risk pesticides**
- **Phase out high risk pesticides. High risk pesticides may be subjected to restricted used only and for high value commodities and products in the absence of safer products or strategies.**
- **Develop IPPM/IVM programmes that are compatible with the use of low risk pesticides**
- **Encourage regionalization of pesticide registration schemes through a harmonization process**
- **Harmonize SPS/Food Safety procedures and regulations**

- **Overall, encourage regional integration through common plant protection strategies and enhancement of the competitiveness of regional agricultural commodities and products in global trade.**

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