Problems and challenges with the application of pesticides in developing countries - from the point of view of the GIZ – a national developing organization

by

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INTERNATIONAL WORKSHOP
ON THE SAFE USE OF PESTICIDES IN COCOA
AND HARMONIZED LEGISLATION FOR FOOD SAFETY
25 – 27 January 2011; Kuala Lumpur, Malaysia
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The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Established on 1 January 2011, GIZ brings together under one roof the long-standing expertise of DED, GTZ und InWEnt.

Our registered offices are in Bonn and Eschborn.

Working efficiently, effectively and in a spirit of partnership,

we support people and societies in developing, transition and industrialised countries in shaping their own futures and improving living conditions.
Purpose of the organisation

**GIZ’s** purpose is to promote international cooperation for sustainable development and international education work.

As a 100% federally owned, public-benefit enterprise, we support the German Government in achieving its development policy goals.
GIZ worldwide

- GIZ operates in more than 130 countries worldwide.
- GIZ employs approximately 17,000 staff members worldwide, more than 60% of whom are local personnel.

In addition there are:

- 1,135 technical advisors
- 750 integrated and 324 returning experts
- 700 local experts in partner organisations
- 850 weltwärts volunteers
Every year some 500 million tonnes of chemicals are produced, used and processed worldwide.

20% of the chemicals produced worldwide (ILO) are used in developing countries, but 70% of all accidents involving toxic chemicals occur in developing countries.

50% of all workplace accidents occur in agriculture - it is one of the most hazardous occupation.

Pesticides must be used more safely and responsibly!
The major risk is the exposure to pesticides and other agrochemicals.

1.3 billion workers are active in agricultural production worldwide.

The WHO estimates that 3 million people are poisoned by pesticides every year, most of them in developing countries.

Every year some 20,000 of these die.
As the consequences of this knowledge, the German Government through the German Ministry of Technical Cooperation (BMZ) supports the international community with a number of activities, like

- the implementation of environmental and agricultural projects and programs in developing countries,
- to reduce the risks for the farmers by using pesticides promoting safe use programs for farmers,
- to improve/secure the quality of agricultural commodities (consumers safety / pesticide residues)
- protection the environment and the health of the public and
- to implement social standards and ecological standards for local farmers.
GIZ safe use elements

- Principle of pesticides use
- Procurement of pesticides
- Classification & safety aspects
- Integrated pest management
- Container Management
- Disposal of obs. pesticides
- Safe use of pesticides
- Social & ecological standards
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GIZ safe use elements
GIZ basic principles for safe use of pesticides

All GIZ projects dealing with pesticides have to follow this basic requirements,

- To purchase and to use only pesticide registered in the EU / Germany

- To ensure that the user/farmer are following the specific application requirements and conditions of pesticides, like timing, weather conditions, site harvest interval etc.

- to use only equipment for the application which is suitable for the used pesticides and which is properly calibrated.
GIZ basic principles for safe use of pesticides (2)

- Training - agricultural employers / farmers must assure that untrained workers receive basic pesticide safety information before they enter a treated area on the establishment.

- Safety - to secure that the staff is using proper personal protective equipment (PPE), like:
  - gloves, overall (apron),
  - goggles
  - boots, face shield or
  - (dust) face masks
GIZ principles for safe use of pesticides (3)

- To follow the basic hygiene rules (no eating and drinking during work, washing the hand and changing the cloth after working with pesticides).

- To avoid contamination of staff and others in the vicinity of application.

- Avoid contamination of water ways.

- Protect nearby sensitive plants if necessary.
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GIZ Procurement of Pesticide and Biocides

A specific purchasing procedure has been established together within GIZ projects to secure

- that only pesticides and biocides are purchased which are registered according to the EU regulations.

- This procedure is to be used regardless of whether the product is being purchased locally or through the head office.

- The purchase of pesticides that contain active ingredients included in any of the annexes A, B or C of the Stockholm Convention (POPs) is prohibited.
GIZ Procurement Pesticide and Biocide (2)

The purchase of pesticides and biocides classified as highly or extremely hazardous for end-users (WHO class Ia and Ib pesticides) is prohibited.

- **Registration** - in countries in which there is an official registration requirement, only substances that have actually been registered may be procured.

- **Labelling** - should be done in the local language as stipulated in the Code of Conduct. (FAO).

- **Information** - the relevant material safety data sheets (MSDS) and a contact address in case of emergency must be provided on each label.
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Training in Classification & Safety aspects

GIZ agricultural projects are contains also training in

- Good Agricultural Praxis (GAP) and the Code of Conduct (FAO)
- safe application techniques
- calibration of praying equipment
- safety aspects / work safety

for

- farmers farmer and farmer associations
- pesticide dealers
  (as multiplication factor for farmers)

Projects can be carried out as public private partnership projects with the industry or national/international agencies.
GIZ safe use elements

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Integrated pest management (IPM)

is the preference method of the GIZ

- to reduce or minimize as much as possible the use and application of synthetic pesticides,
- to protect the environment,
- to reduce the health risks for the farmers and
- and secure the quality of agricultural products.

(pesticide residues)

IPM is an environmentally and effective sensitive approach to pest management that relies on a combination of common-sense practices.
Integrated pest management (IPM) (2)

IPM is a the prevention measure of the FAO,

- The International Code of Conduct on the Distribution and Use of Pesticides of the Food and Agriculture Organization (FAO; Rome) demand prevention in agriculture,

- The preferred prevention tools is the Integrated Pest Management (IPM) approach.

- IPM can help to prevent stockpiles of pesticides as it can reduce the overuse of and dependency on pesticides.
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Container Management System (1)

The very large numbers of empty pesticide containers left lying in the fields because of the lack of collection and disposal facilities which constitute acute potential hazards for people and the environment due to the left-over of toxic pesticides in the containers.

Farmers are faced with the problem with the

- lack of collection schemes and
- disposal facilities for the elimination of the
- empty pesticide containers.

They remaining of the pesticides in the containers are endanger the

- soil, water and atmosphere
- and, finally, the health of the public, especially of children.
Container Management System (2)

Intermediat Storage and Compacting Station

Collecting Point

Collecting Point

Collecting Point

Collecting Point
Container Management System (3)

Disposal Chain: Step 1  Return of the empty containers to Collecting Points
Container Management System (4)

- **Raw - Mill**: Aluminum glass
- **Calcinator**: Plastics
- **Rotary Kiln**: Liquids: wash water solvents containing (liquid) pesticides
- **Main Burner**: (coal dust)
- **Material Flow Container Material**: 
  - Dust: powdery pesticides
  - ~ 20 °C
  - ~ 900 °C
  - > 1,600 °C

Temperature notes:
- Main Burner: 1,600 °C
- Calcinator: 900 °C
- Raw - Mill: 20 °C
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Obsolete pesticides disposal

Obsolete pesticide stockpiles are often
- poorly stored and the containers corrode and leak.
- In uncontrolled storage facilities, chemicals from different products may react together to create a toxic gases or uncontrolled reactions

These pesticides are a danger
- to human health, to those persons living near to these stores,
- the pesticides leak into the soil and pollute agricultural lands and ground water.
Obsolete pesticides disposal (1)

- are highly toxic and highly dangerous substances that pose a direct threat to human health.

- among the pesticides that have been used in the past are the organochlorinated (OC) pesticides belonging to the group of Persistent Organic Pollutants (POP) of the Stockholm Convention;

- these are thought to pose the highest health and environmental risks due to their toxicity, persistence and bioaccumulation potential.
The final treatment of waste consists of transformation processes to modify the (hazardous) characteristics of the original waste. The treatment methods can be subsumed under the following categories,

- Physicochemical treatment
- Biological transformation
- Thermal treatment

Example: Co processing in cement plants
Disposal of obsolete pesticides (4)

Example: DDT Disposal Tanzania – 100 tons DDT – stored in an unsecured depot in a village → Risk for the public and environment

Project Implementation

Problem Identification
- Inventory
- Financing
- Project Planning
- Notification

Capacity Building /Training in
- Inventarization / Safeguarding / Disposal
- Prevention
- Pesticide Management

Lesson learned
GIZ safe use elements

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Social and ecological standards

GTZ is combing the technical parts of the safe use projects with social and ecological standards to support the farmers in developing countries.

- to improve the quality of the agricultural products and production,
- to protect the health of the public and of the environment and
- to enhance the social and economical standards of the local farmers.
Social and ecological standards (2)

- **Quality** - Improving the cultivation techniques and quality measurement of the agricultural production and products to get better prices / better life and social conditions.

- **International markets** – Support the agricultural cooperatives to introduce (international accepted) standards to get better products which leads to better access to the (international) markets.

- **Organisation** – Support the formation of producer groups (farmer associations) to strengthen the farmer's position against wholesale dealer/industry
Social and ecological standards (3)

- **Hygiene and health** – Help to improve the hygiene and health conditions of the farmers in developing countries by improving the sewage and domestic waste systems and to improve the health system in the villages.

  Key aspects are the HIV and Malaria diseases.

- **Environment** – Support the use of (permitted) fertilizers and pesticides through special training teams in the villages to reduce the use of pesticides to protect the environment and, to minimize the risks for the workers.
Social and ecological standards (4)

Example:  PPDC Project Cote´d Ivories - Improvements for the cocoa farmers

- Promotion of Sustainable Cocoa Production (PPDC) a public private partnership project to improve the well-being of smallholder cocoa farmers with Krafts Food and Amajaro Trading Ltd., a cocoa and coffee trading company, a local company as private partner and

- GIZ and US AID as public partner

- 6000 farmers were trained to improve production of a quality cocoa through the application of a sustainable practice according to the international accepted Rainforest Alliance Sustainable Agricultural Standard.
Social and ecological standards (5)

Example:  PPDC Project Cote´d Ivories - Improvements for the cocoa farmers;

- to improve the **quality** of the cocoa through sustainable cultivation techniques,
- to get access to the **International market**
- support the **organization** of the smallholders
- to improve the **hygiene and the health** of the farmers
- support the **certification of the cocoa**
- and to **open the international market** for the farmers and
- to **get more income** for farmers.
- 2005 to 2009
Conclusion

1. “Safe Use of Pesticides” can be used as a modular system depending on the different needs.

2. GIZ is cooperating with different partners organisations depending on the need and situation (PPP projects, cooperation with national/international partners)

3. The “Safe Use of Pesticide” activities of the GIZ is generally focused international chemical conventions as well as the “FAO International Code of Conduct on the Distribution and Use of Pesticides”

4. “Safe Use of Pesticides” activities helping to protect the health of the public, the environment and the agricultural production and improving the social and ecological conditions of the farmers.
Terima kasih

Thank you very much