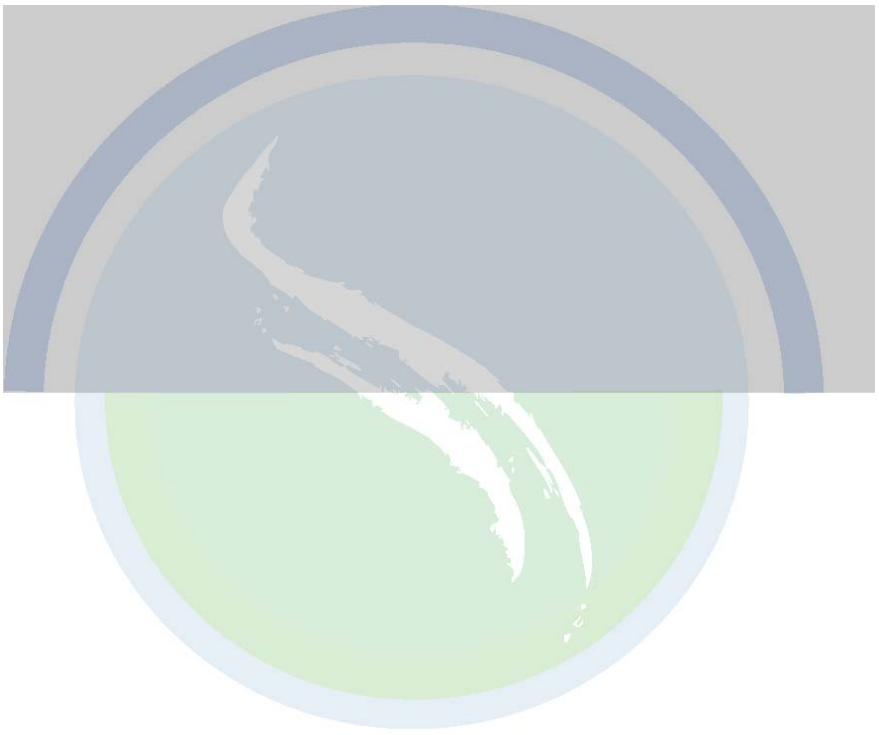
International Code of Conduct on the Distribution and Use of Pesticides

Guidelines on Developing a Reporting System for Health and Environmental Incidents Resulting from Exposure to Pesticide



World Health Organization

FIAT PANIS

AUGUST 2009

The Inter-Organisation Programme for the Sound Management of Chemicals (IOMC) was established in 1995 following recommendations made by the 1992 UN Conference on Environment and Development to strengthen cooperation and increase international coordination in the field of chemical safety. The participating organizations are the Food and Agriculture Organization of the United Nations (FAO), the International Labour Organization (ILO), the Organisation for Economic Co-operation and Development (OECD), the United Nations Environment Programme (UNEP), the United Nations Industrial Development Organization (UNIDO), the United Nations Institute for Training and Research (UNITAR) and the World Health Organization (WHO). The World Bank and the United Nations Development Programme (UNDP) are observers. The purpose of the IOMC is to promote coordination of the policies and activities pursued by the participating organizations, jointly or separately, to achieve the sound management of chemicals in relation to human health and the environment.

This publication was developed in the IOMC context. The contents do not necessarily reflect the views or stated policies of individual IOMC participating organizations.

E-ISBN 978-92-5-106831-1 (PDF)

Table of contents

ABBREVIATIONS 4

DEFINITIONS 5

1. INTRODUCTION 6

1.1 Background 6
1.2 Purpose of guideline 7
1.3 What is a pesticide incident reporting system? 7
1.4 Why is pesticide incident reporting system important? 7
1.5 The primary goal and objectives of a pesticide incident reporting system 8
1.6 Scope 9
1.7 Who should collect and receive the information? 9

2. INFORMATION COLLECTION 10

2.1 Background information 10
2.2 Data sources 10
2.3 Human health incident information 11
2.4 Environmental incident information 12
2.5 Investigation of incidents 14
2.6 Quality of data 14

3. RECORDING AND REPORTING INCIDENTS 15

3.1 Reporting forms 15
3.2 Recording incidents and record-keeping 15

4. ANALYSIS 16

4.1 Introduction 16
4.2 Data evaluation 16
4.3 "Weight of evidence" analysis 17

5. FOLLOW-UP 17

REFERENCES 19

ANNEXES 21

Annex 1 – WHO Pesticide Poisoning Surveillance Questionnaire 22
Annex 2 – WHO Pesticide Exposure Record 27
Annex 3 – Rotterdam Convention reporting form for human health incidents 28
Annex 4 – Rotterdam Convention reporting form for environmental incidents 34

Abbreviations

CRC Chemical Review Committee

DNA Designated National Authority

EIRF Environmental Incident Report Form

FAO Food and Agriculture Organization of the United Nations

GHS Globally Harmonized System of Classification and Labelling of Chemicals

NGO Non-governmental Organization

PER Pesticide Exposure Record

PIC Prior Informed Consent

SHPF Severely Hazardous Pesticide Formulation

WHO World Health Organization

Definitions

Acute toxicity means an adverse effect occurring within a short time of administration or absorption of a single or repeated dose given within a short time (24 hours or less).

Case means a record of exposure or possible exposure of an individual to a pesticide. Each case record contains information obtained one or more communications or incident reports, and includes information about a pesticide incident resulting in adverse effects to human health or the environment.

Environmental incident means an incident of pesticide use causing adverse field effects to fish, wildlife, aquatic invertebrates, bees, or non-target plants.

Exposure means contact between a living organism and a pesticide, which may or may not lead to a poisoning.

Hazard means the inherent property of a substance, agent or situation having the potential to cause undesirable consequences (e.g. properties that can cause adverse effects or damage to health, the environment or property).

Incident means an event leading to exposure or potential exposure to a pesticide(s). An incident has the potential to involve multiple victims (e.g., by fire, flood, spill, product contamination, algae bloom, other). For the purposes of these guidelines, an incident relates to a pesticide–related illness and injury to man and the environment.

Pesticide means any substance or mixture of substances intended for preventing, destroying or controlling any pest, including vectors of human or animal disease, unwanted species of plants or animals causing harm, or otherwise interfering with the production, processing, storage, transport or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs, or substances which may be administered to animals for the control of insects, arachnids or other pests in or on their bodies. The term includes substances intended for use as a plant growth regulator, defoliant, desiccant or agent for thinning fruit or preventing the premature fall of fruit, and substances applied to crops either before or after harvest to protect the commodity from deterioration during storage and transport.

Poison means a substance that can cause disturbance of structure or function, leading to injury or death when absorbed in relatively small amounts by human beings, plants or animals.

Poisoning means occurrence of damage or disturbance caused by a poison, and includes intoxication.

Risk is a function of the probability of an adverse health or environmental effect, and the severity of that effect, following exposure to a pesticide.

Guidelines on Developing a Reporting System for Health and Environmental Incidents Resulting from Exposure to Pesticides

1. Introduction

1.1 Background

The *International Code of Conduct on the Distribution and Use of Pesticides* (hereinafter the Code of Conduct) was first adopted by the Food and Agricultural Organization of the United Nations (FAO) in 1985 with the objective to establish voluntary standards of conduct for all public and private entities engaged in or associated with the distribution and use of pesticides, particularly where there is inadequate or no national legislation to regulate pesticides. A revised version of the Code of Conduct was adopted in 2002, and represents a globally accepted standard of conduct relating to the distribution and use of pesticides [1].

The Code of Conduct calls for actions to reduce health and environmental risks. Among these actions the Code of Conduct specifically recommends that governments should[1]:

> ***5.1.3*** *carry out health surveillance programmes of those who are occupationally exposed to pesticides and investigate, as well as document, poisoning cases;*
>
> ***5.1.6*** *utilize all possible means for collecting reliable data and maintaining statistics on the World Health Organization (WHO) health aspects of pesticides and pesticide poisoning incidents, with the objective of establishing the WHO harmonized system for identifying and recording such data. Suitably trained personnel and adequate resources should be made available to ensure the accuracy of information collected;*
>
> ***5.1.9*** *utilize all possible means for collecting reliable data, maintaining statistics on environmental contamination and reporting specific incidents related to pesticides;*

Due to the complexity of the circumstances of exposure to pesticides, the adverse effects on either humans or the environment are often not attributed to pesticides and can be difficult to isolate from other factors. Many sophisticated systems rely on a precise medical diagnosis of a pesticide exposure and effect and provide clinical evidence that a specific exposure to a single product caused a specific effect. While establishing cause/effect relationship should always be aimed for, it is recognised that the resources to implement such systems are generally unavailable in developing countries, at least in the first stages of establishing an incident reporting system. It is, nevertheless, possible to develop a modest, yet systematic approach to information collection that will improve the utility of the information for risk reduction purposes. Implementation of a reporting system based on these guidelines should be considered an important first step in a risk reduction program [2, 3, 4].

[1] Numbers refer to the relevant articles in the Code of Conduct

1.2 Purpose of guideline

The purpose of this guideline is to assist governments in taking the first step in the development and establishment of a basic reporting program for pesticide incidents, which have been defined here as situations where pesticide exposure has resulted in a health or environmental problem. The information collected can be used to minimize adverse impacts on human health and the environment through appropriate pesticide risk reduction measures. Information on incidents should be provided to pesticide regulatory authorities as a means of strengthening national decision making on pesticides.

The guideline provides directions on how to collect information about pesticide incidents, the type of information that should be collected, and how to analyze the data in order to determine if the use of a pesticide requires further risk mitigation actions or further in-depth monitoring. The function of collecting and reporting information is a shared responsibility of the user community, medical staff and other health-care providers, agricultural workers, pesticide industry and government officials. Ideally, agriculture, health and environmental government agencies should all be involved in collection and analysis. However, it is recommended that a national government establish a central point to then receive the information from the various sources and prepare analytical reports.

Incident information could be used in the context of the Rotterdam Convention on the Prior Informed Consent Procedure (PIC) for Certain Hazardous Chemicals and Pesticides in International Trade (hereinafter the Rotterdam Convention). If a country is a Party to the Rotterdam Convention, implementation requires the government to identify a Designated National Authority (DNA). The DNA may use the incident data to submit a proposal under Article 6 of the Convention regarding severely hazardous pesticide formulations causing problems under conditions of use in a country.

1.3 What is a pesticide incident reporting system?

A pesticide incident reporting system is based upon surveillance and monitoring activities that collect information in a systematic way about illnesses, injuries or adverse environmental effects from pesticide exposures. The information collected should be useful to determine what risk management options may be necessary. Reporting on pesticide poisoning may be integrated into a broader poisoning or health monitoring system. It is not necessary to have a separate system, yet certain characteristics of pesticide poisoning recognition are unique and can benefit from targeted surveillance. In general, the prevention or minimisation of unacceptable adverse effects is the main objective of pesticide management and having field data which reflects actual conditions of use can contribute to the development of targeted risk reduction measures. The data collected should support action to control risks.

1.4 Why is pesticide incident reporting system important?

A pesticide incident reporting system is important because the information can be used to understand whether a pesticide can be safely used in the locality, or whether it can be used with additional control measures. An investigation into a pesticide incident can determine the likely cause or provide a description of the circumstances which contributed to the pesticide incident. A description of the circumstances of the incident will include information on how the pesticide was used and whether appropriate precautions or protections were in place, such as those precautions specified on the product label. In addition, the investigation should determine whether the protections are commonly available and feasible to practice in the locality, and whether users are aware of them.

For instance, an investigation can identify whether a pesticide illness event arose despite use according to the pesticide label, or whether it was because of a violation of label instructions, or whether the

label instructions were unclear, confusing, inaccurate, or in an inappropriate language or whether the label instructions were not available to the user.

Incident reports may reveal similar problems associated with a particular pesticide active ingredient or type of product formulation. Analyzing data on pesticide incidents may reveal certain repeated patterns, which can reveal if the product was habitually used inappropriately, whether changes are needed to the instructions for use, product design, or types of protective equipment/clothing to accompany product usage. Information gathered during an investigation of a pesticide incident may determine that certain populations are at greater risk, or certain geographic areas, and whether activities associated with the exposure and subsequent illness can be modified to prevent illness in the future.

Information about the exposure and use scenarios can support a determination of whether it is possible to use the product safely under common conditions of use in a locality. Sharing and publicizing information about verified pesticide incidents can be extremely helpful in preventing similar incidents elsewhere, as well as in learning better, more effective techniques for pesticide use and management [5, 6, 7].

1.5 The primary goal and objectives of a pesticide incident reporting system

The primary goal of a pesticide incident reporting system is to alert the health and environmental authorities about the risks that pesticides may pose to human health and the environment under certain conditions and to inform the national pesticide regulatory authority about the possible need for risk mitigation measures.

Public health and environmental objectives

- reduce the incidence of acute pesticide related illness, injury, or adverse health and environmental effects;
- identify clusters/outbreaks of pesticide-related illness, injury, or adverse health and environmental effects;
- identify high-risk populations;
- protect vulnerable populations (including women, children, and unborn children).

Pesticide management objectives

- identify problems and research needs;
- identify high-risk pesticide products as well as high risk use practices;
- evaluate the effectiveness of prevention and regulatory efforts;
- collect data and information to support the development and implementation of management and control measures;
- minimize availability of spurious, outdated, deteriorated or illegal pesticide products.

1.6 Scope

The reporting system described here is designed to identify:

- incidents of acute human health effects related to pesticide exposure; and
- adverse environmental effects of pesticide exposure, such as wildlife mortality, water contamination or damage to agricultural crops near pesticide applications or as unintended consequence of a pesticide application.

It is not designed to address chronic health effects, such as cancer, reproductive outcomes, or immunologic and neurological effects of long term exposure.

Use of pesticides for suicide or attempted suicide is a serious problem in many agricultural communities in developing countries [8, 9]. While the focus of these guidelines is on incidents related to the pesticidal uses, information on suicides (intentional exposure) needs to be collected and must be clearly identified as such. Frequent use of a pesticide for suicide may indicate that more extensive controls on its ready availability may be needed [10, 11].

1.7 Who should collect and receive the information?

The responsibility for collecting and reporting incident information should be shared among many different stakeholders, as all have a vested interest in improvements in public health and environmental protection, as well as pesticide management. The sectors and stakeholders include, but are not limited to, public health, agriculture, pesticide industry, environmental and public interest groups. All sectors should be encouraged to report, and to learn about the type of information that should be reported. While the collection of information should be shared among all relevant sectors, it is highly recommended that Governments consider the establishment of a central contact point for the receipt of the information, referred to in the rest of this guideline as the Report Officer.

If a country has more than one reporting system involving different government departments or stakeholders, coordination and appropriate information exchange among the systems should be encouraged. Ideally, the Report Officer should serve as a central point of information on incidents or monitoring activities relating to human poisoning or environmental contamination, and should have the capacity to analyze the data. Subsequently, the Report Officer should have the responsibility to bring the need for possible risk reduction measures to the attention of the responsible authority for pesticide regulation and management. The Report Officer should also serve as a repository of research and studies undertaken in the country on any aspect of human pesticide poisoning or environmental contamination, including both acute and long-term aspects.

Consistent with the Code of Conduct, statistical information about pesticide incidents should be made publicly available. The Report Officer should take steps to communicate relevant information about the incidents to the public, except for personal data and other data which might identify individuals. Analysis of the results of incident investigations should be included in public reports.

The Report Officer may be located in the department of health, environment or agriculture, a poisons control centre or other suitable organization. The location should be selected on the basis of accessibility, effectiveness and cost efficiency. Costs will include administration and overhead, staffing, public communications and awareness-raising, records maintenance. While different departments may have some similar responsibilities, it is essential that all information be shared, and accessible to any agency that may need it.

Some countries have found it extremely difficult to dedicate the resources to a national incident reporting system. As an alternative, or as complementary to a robust system, a number of communities and organizations have developed a structure for self-surveillance to enable pesticide users to record impacts on their own health [12]. Such grass-root level initiatives can provide a valuable adjunct to incidents reporting activities and help reduce pesticide exposure incidents. It should be noted, however, that self-surveillance data are by definition biased and should therefore be analysed with specific care or segregated from other data. Model forms have been developed for both literate and non-literate pesticide sprayers to record health impacts after pesticide application. It is important that any form used is adapted to national conditions and that care is taken to ensure it is culturally appropriate.

2. Information collection

2.1 Background information

These guidelines recommend a "weight of evidence" approach to pesticide incident evaluation. Therefore, in order to make well informed decisions about whether a pesticide can reasonably be associated with the reported adverse health or environmental effects, both general and specific background information provide the context for specific incident reports.

General background information on a national or regional level provides a useful baseline. It includes:

- pesticides available and in common use in the country – active ingredients and product formulations;
- pesticide import and national sales statistics; preferably product specific;
- types of crops treated.

Specific data on products include:

- basic chemical and toxicological profile of the pesticides available in country and their known effects [e.g. 13, 14];
- products known to be used in the locality;
- common and recognized patterns of use in the locality;
- type of recommended treatment of poisoning and whether it is commonly available [e.g. 15, 16].

2.2 Data sources

Incident reports may originate from many different institutions or individual persons, but a number of primary sources should, if available, always be taken into account. They include:

- notifications from medical practitioners;
- death certificates;
- data gathered by poison control centres;
- data from government ministries which have responsibilities for labour (work-related morbidity and mortality); agriculture (crop protection related morbidity and mortality); public health (vector

control related morbidity and mortality); environment (incidents of environmental contamination or adverse environmental effects);

- information on suspected poisoning cases collected by emergency telephone hot-lines, either operated by a national poison control centre or individual pesticide companies.

Governments may consider requiring all companies selling pesticides in the country to provide a contact point, with a telephone number, to provide information on treatment of poisonings that result from exposure to their products. These "hot-lines" could also collect information about environmental contaminations and emergencies and ideally, suggest immediate responses that should be taken. The companies should submit the information to the Report Officer.

2.3 Human health incident information

A human health pesticide incident is a situation where the use of a pesticide has resulted in an adverse human health effect, such as a poisoning or illness. An incident involving a single or multiple individuals, as well as single or multiple exposures, can form the basis of a report. The information collected should include as much of the recommended data elements as possible, and while every effort should be made to produce a complete report, a report should not be withheld if it is not entirely complete [17].

"Poisoning" and "illness" are terms that refer to acute and sub-acute adverse effects or injury resulting from pesticide exposure. Specific symptoms or adverse effects differ, depending on the type of pesticide involved in the incident. Mild illnesses from pesticide exposure are frequently characterized by non-specific signs and symptoms, mimicking flu and other common illnesses. Responses to exposure may also be due to the odour or other irritant properties of the pesticide products as opposed to actual systemic intoxication/poisoning. Acute illness may be mild and symptoms may include: skin burns or rash, headache, dizziness, or flu-like symptoms. Symptoms of severe cases of pesticide poisonings include: serious systemic illness, affecting the gastrointestinal, respiratory, cardiovascular systems, as well as neurological effects and death. It should, however, also be borne in mind that non-specific health effects could mistakenly be attributed to pesticide exposure. A prime example is heat stroke.

The basic categories of information that should be collected are related to the identity and characteristics of the pesticide, the exposure scenario, and a description of the individual affected [18].

a) *Identity and characteristics of the pesticide*

- commercial name of the pesticide product;
- common or chemical names of the active ingredient;
- physical characteristics of the formulation (liquid, gas, dust, granular formulation);
- percentage of active ingredient in the formulation;
- chemical type (e.g., organophosphates, carbamates); presence of other products;
- registrant/supplier/distributor; batch number; registration number (if available); date of expiry or shelf life and date of manufacture.

b) *Exposure details*

- date, time, location of exposure (e.g. farm, field, home);
- application rate, in case of exposure in the field;
- route of exposure (e.g. dermal, inhalation);

- duration and frequency of exposure;
- circumstances of exposure (e.g. occupational or intentional);
- number of people involved in the incident;
- environmental conditions (e.g. temperature, wind);
- description of specific use pattern and common conditions of use;
- observed conditions of pesticide use, handling or storage in the area affected, where applicable, including capacity of spray operators to take precautionary measures (training, literacy, facilities).

The circumstances of exposure are a rough guide to the amount of pesticide absorbed by the individual. For instance, exposure to spray drift which had been properly diluted for field application is not likely to convey a large dose unless exposure has been prolonged. Spills of concentrated technical material onto the skin or clothing may well represent a large dose of pesticide unless the contamination is promptly removed. Brief dermal exposure to foliage residues is not likely to lead to poisoning, but prolonged exposures may well do so.

c) *Characteristics of the individual, whose susceptibility can be influenced by: age, sex, diet, general health (e.g. presence of pre-existing illness)*

Some persons may have increased susceptibility to acute pesticide poisoning. Children may be more susceptible because of differences in organ system function and body composition. Children may also have behaviour patterns that might increase exposure (e.g. crawling on floors where pesticides have been applied, putting objects in their mouths). Persons with asthma or other respiratory disease may also be more susceptible to adverse effects despite proper pesticide application.

d) *Description of adverse effects*

It is important to include in the report some description of the type of adverse effects that were observed. By way of example, adverse effects may include: dizziness, headache, blurred vision, tremors, or convulsions. These symptoms can be easily observed by non-medical personnel.

2.4 Environmental incident information

When pesticides are purposefully released into the environment, contamination or untended harmful effects can occur. An environmental incident can be defined as the contamination of land, water and/or air by a pesticide causing the temporary or permanent impairment or mortality of non-target organisms or biological processes. The contamination route can take any number of forms, including during use of the pesticide; spills during mixing and loading or storing; fires at storage facilities. The following are some examples of possible environmental incidents:

- the poisoning of birds or other wildlife that ingest granular insecticides used for soil treatment. Such incidents may result from the application method (e.g. broadcast application rather than injection into the soil) or from the behaviour of non-target organisms (e.g. scavenging of granules or carcasses that had ingested a pesticide);
- the poisoning of aquatic organisms due to the contamination of a stream, pond or fishery. Such incidents may occur as a result of transport incidences or if sufficient buffer zones between treated areas and waterways were not observed;
- the severe disturbance of non-target populations (e.g. honey bees, earthworms, beneficial insects);
- damage or injury to non-target flora or fauna near a pesticide application site.

Environmental contamination incidents should be rapidly investigated to assess potential impacts on the environment, including habitats, water, soil, biodiversity, wildlife, and domestic animals. Humans may be affected by exposure to contamination in the environment as well.

As with the case of human health incidents, the collection of as much information as possible will be helpful in assessing whether the pesticide in question has been used appropriately. The basic categories of information that should be collected are related to the identity and characteristics of the pesticide, the exposure scenario, and a description of geographic area or wildlife affected [19].

a) *Identity and characteristics of the pesticide known to have been recently used in the area*

- commercial name of the pesticide product;
- physical characteristics of the formulation (liquid, gas, dust, granules);
- common or chemical names of the active ingredient; percentage of active ingredient in product;
- chemical type (e.g. organophosphates, carbamates);
- presence of other compounds.

b) *Exposure details*

- full description of the treated area and location, including, if possible, maps;
- dates, season or time period when the incident or adverse impact took place and if relevant or known, the weather conditions;
- whether the incident or adverse effect took place as a result of a single incident or was the result of multiple applications;
- whether the incident or adverse effect resulted from diffuse sources (spray drift, volatilisation, surface run off, leaching), or point sources (tank or container filling and mixing, spillages, transport, pesticide storage areas, run off from treated surfaces or animals, washings and waste disposal);
- the application method responsible or common in the area (hand, backpack, aircraft);
- observed conditions of pesticide use in the area affected, where applicable, including capacity of spray operators to take precautionary measures (training, literacy, facilities).

c) *Description of adverse effects*

- observed adverse effects and environment affected (land, water);
- specific adverse effects on non target populations (local flora and fauna, cattle, birds, fish, invertebrates).

2.5 Investigation of incidents

It may be necessary for the Report Officer to investigate the reports for additional information or verification. The Report Officer may do so him/herself, or the investigation may be carried out by other specialized staff, e.g. from a poison control centre, an environmental laboratory or other expert institutions. The case investigation process includes all case-related activities beginning with the collecting the initial information for the incident report and ending with the submission of the report.

The main objectives of the investigation process are as follows:

a) obtain sufficient information to determine whether the reported illness/injury is a pesticide-related illness and injury;

b) verify the information provided in the incident reports;

c) determine the availability and appropriateness of medical or emergency response to incident;

d) determine if aspects of the exposure scenario require additional broader public health intervention or environmental response;

e) provide information about the hazard and relevant prevention measures to affected individuals and worksites or environmental area where the incident occurred.

2.6 Quality of data

Ideally, standardized and consistent data elements, based upon a commonly understood definition of a pesticide incident, or a case, is fundamental to the quality and utility of the data. Similarly, the procedures used to collect the information as well as the transparency of the process may determine if the data can be used at all. In reality, the sources of data are varied, as does the original purpose of the data collection, since the purpose of the data collection determines the specific data collected. However, all those sources of information should be consulted to contribute to a "weight-of-evidence" analysis.

Factors that can help determine the quality of the information are:

- the confirmation of the identity of the active ingredient(s);
- consistency among multiple reports and sufficiency in details of specific reports;
- whether the effects observed correspond only to pesticides, and in particular to the toxicology profile of the pesticide concerned (if known);
- the extent to which uniform, standard guidelines were used in data collection.

Incident investigations may be carried out to ensure greater data quality and reliability.

3. Recording and reporting incidents

Governments should consider whether reporting is a mandatory requirement, and if so, who should be required to submit the report of a suspected pesticide poisoning or pollution incident, either as part of a general poisoning reporting system or only for pesticide-related cases. Either way, individuals in the agriculture or public health fields, in the medical institutions and in pesticide distribution and sales, should be made aware of, and ideally trained on, any applicable requirements and the procedures for submitting incident reports.

3.1 Reporting forms

A country may develop its own form for incident reports, or may use one of the examples provided in this document as Annexes. In any case, the country should promote the use of a single form, in order to collect consistent information on the incidents, although the use of different reporting forms should not be a cause to discard the incident information. Data elements may be extracted, as appropriate, and should include the type of information described in Chapter 2, above. The reporting form should also have a section which describes how the information was collected.

The Rotterdam Convention has developed two reporting forms – one for human health incidents and the other for environmental incidents and which are included here as Annex 3 and 4. The forms cover most of the data elements described in Chapter 2 on information collection. They may serve as useful models for a national reporting form.

Other reporting systems are available, and may be considered for use in national systems (e.g. the WHO Pesticide Poisoning Surveillance Questionnaire (Annex 1) or the WHO Pesticide Exposure Record (PER), WHO INTOX data management system (Annex 2)). Many poison control centres have their own poisoning reporting forms and records.

Regardless of what type of form is used, the instructions to the person completing the form should include a statement which indicates that completion of every data element on the form should be aimed for, but if not possible, should not be an impediment to submitting an incident report to the appropriate national Report Officer. Even incomplete reports can provide valuable information.

3.2 Recording incidents and record-keeping

The Report Officer should establish and maintain an appropriate national recording system for pesticide incidents and monitoring activities. For certain information a computer database may be maintained to record details of investigations and reports. The relevant information on health impacts would reflect that gathered in the report forms, and any follow up information of treatment, recovery and fatalities. A separate database and recording system should be maintained for environmental incidents and monitoring.

In addition to maintaining records of the incidents, it is just as important to maintain records on how the information was collected, and who submitted the reports. The processes used to investigate cases, enter and analyze data, are integral to a successful surveillance program. Process documentation also serves as guidance to all those involved in incident investigations. Procedures for entering reports into the data system, mechanisms to prevent duplicate entries, and management of discrepancies in information when a report is received from multiple sources should all be included in the process documentation.

4. Analysis

4.1 Introduction

The Report Officer should strive to gather background information periodically from all primary and/or secondary sources at regular intervals and ensure hospitals, health care facilities, universities, research institutes, Non-governmental Organizations (NGOs), pesticide and food industries report periodically. The Report Officer should become familiar with several factors that are key to determining the validity of incident reports, such as:

- common conditions of use which result in exposures; location and circumstances;
- active ingredients and products responsible for most poisonings in the locality;
- effects of poisoning associated with those pesticides.

There could be a large variability in terms of data quality among these sources. Since there is likely to be a lack of clinical results documenting specific symptoms, a "weight of evidence" approach to the analysis of incident data is recommended. However, it is essential that the analysis process itself be transparent and all factors taken into account during the analysis be well-documented.

4.2 Data evaluation

Analysis of incident reports should take into consideration the following issues.

a) **Verification of the incident**. The reported incidents should be related to pesticide exposure, and the product involved should be identified. The reported symptoms of the pesticide poisoning should be associated with the known effects of the particular substance. In cases not reported by a health care professional, the incident report could include information from several different individuals who observed the symptoms of the individual(s) involved.

b) **Accuracy of information**. Multiple witnesses or reports that have consistent information about an incident can help verify any one incident, but care should be taken to ensure that the data are not skewed by multiple reports of the same incident.

c) **Adequacy of details**. Standard reporting formats should be encouraged, so that the same type of information can be collected on each incident, but partial information should not be rejected, provided it contains the pivotal information.

It may be difficult to identify a causal link between the poisoning case or observed environmental effects and the use or emission of a particular pesticide. This can be the case, for instance, when pesticide use or emission does not occur in the same location as the observed effect, or if there is a time lag between the release and the exposure. Also, the presence of the pesticide may no longer be measurable at the location of the exposure, because it degraded or has washed downstream.

Therefore, it is important that the responsible authority carries out a careful, orderly assessment of the information on the incident, or requests an expert body to carry out such an assessment. Use of models for environmental fate may be helpful, if available and if personnel have been trained in their use. The main objective of the assessment is to establish the likelihood of a causal association between pesticide use or emission on the one hand and the observed effects on the other. Guidance on establishing causality is available elsewhere both for suspected human poisoning incidents and environmental impact cases [20, 21, 22, 23]. Information about usage in other countries may also be useful for comparative purposes.

4.3 "Weight of evidence" analysis

A "weight of evidence" analysis is a process by which multiple sources of information related to details of an incident are consulted, and by taking all factors into consideration and weighing their relative importance, a reasonable and supportable conclusion can be reached [24, 25]. For the purposes of an incident reporting system, a "weight of evidence" analysis is intended to reach a determination that a pesticide, and the way in which it was used, is the cause of the health or environmental problem. A simplified way to think of it is to keep in mind the equation: hazard + exposure = risk. An analysis should verify the inherent toxicity of the pesticide product (the hazard), describe the how the pesticide was used or the circumstances of its release into the environment (exposure), and come to a conclusion about the risk presented by the incident. Internationally recognized databases and other sources of information should be employed to help verify the accuracy of any one incident report.

The base line of an incident analysis is the information gathered during an investigation of a pesticide incident that has caused, or is thought to have caused, an adverse health or environmental effect. Secondly, the incident report can then be supplemented by other sources, such as the toxicity classification of the product and its known health effects and poisoning symptoms. Basic toxicity data on the products implicated should be able to establish the hazard part of the equation. Reference could be made to the list of pesticides that have been classified by WHO according to the hazard classification criteria [26] and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) [27].

Information on the characteristics of the product formulation, whether it was used as a powder or liquid, for instance should be included in this base line hazard information.

A complete description of the exposure scenario is an important element of the incident report, since this information will influence the type of risk mitigation measures that the national pesticide authority may impose. Information on the application method; the location of the application; the climate conditions at the time are all factors that should be taken into account when characterizing the exposure scenario.

A thorough "weight of evidence" analysis will take into account all available information, cross checked with reliable data bases, to determine the likelihood that the cause of the incident was the pesticide associated with it. Taking all this information into account, an authority may come to the conclusion that use of a specific pesticide is highly likely to have resulted in the reported adverse health or environmental effect. The "weight of evidence" analysis that is extremely well-documented and references multiple sources of information establishes a level of confidence and could be the basis for a regulatory review to determine if additional risk mitigation measures are necessary.

5. Follow-up

As stated in the introduction to this document, the primary purpose of collecting information about pesticide incidents is to determine whether risk mitigation measures are necessary. Well-analyzed information, with documented reports, should serve as the basis for action.

Care should be taken to avoid incident investigations and report writing from becoming an end in itself. An effective incident monitoring system should be able to support a *culture of intervention*, in which the "data are put to work."

Therefore, it is of great importance that the Report Officer can provide information and risk mitigation advice to the pesticide regulatory authorities, both in the field of compliance monitoring and

enforcement as well as in pesticide registration. Such direct mutual feedback between incident monitoring on the one hand and regulatory decision making on the other should ensure that risk reduction measures can be implemented rapidly, when needed.

References

[1] **FAO.** 2002. *International Code of Conduct on the distribution and use of pesticides* – Revised version. Adopted by the hundred and twenty-third session of the FAO Council in November 2002 (reprint 2005). FAO, Rome, Italy. [Available at: http://www.fao.org/agriculture/crops/core-themes/theme/pests/pm/code/en/]

[2] **OECD.** 1996. *Activities to reduce pesticide risks in OECD and selected FAO Countries*. Document No. OCDE/GD(96)121. Organization for Economic Co-operation and Development, Paris, France.

[3] **OECD.** 2006. *Report of the OECD pesticide risk reduction steering group. The second risk reduction survey*. Document No. ENV/JM/MONO(2006)14. Organization for Economic Co-operation and Development, Paris, France.

[4] **WHO.** 1990. *Public health impact of pesticides used in agriculture.* World Health Organization, Geneva, Switzerland.

[5] **London L & Bailie R.** 2001. Challenges for improving surveillance for pesticide poisoning: policy implications for developing countries. *International Journal of Epidemiology* 30: 564-570 pp.

[6] **Murray DM, Wesseling C, Keifer M, Corriols M & Henao S.** 2002 Surveillance of pesticide-related illness in the developing world: putting the data to work. *International Journal of Occupational and Environmental Health* 8**:** 243-248 pp.

[7] **WHO.** 2006. *Safer access to pesticides: community interventions.* World Health Organization, Geneva, Switzerland.

[8] **Bertolote JM, Fleischmann A, Eddleston M, Gunnell D.** 2006. Deaths from pesticide poisoning: a global response. *British Journal of Psychiatry* 189**:** 201-203 pp.

[9] **Bertolote JM, Fleischmann A, Butchart A, Besbelli N.** 2006. Suicide, suicide attempts and pesticides: a major hidden public health problem. *Bulletin of the World Health Organization* 84(4): 260-261 pp.

[10] **Bertolote JM, Fleischmann A.** 2008. Suicide by self-poisoning with pesticides: the need for action. *Suicidologi* 13(1): 15-17 pp. [Available at: http://www.med.uio.no/ipsy/ssff/english/articles/prevention/BertoloteAndFleischmann.pdf]

[11] **Manuweera G, Eddleston M, Egodage S & Buckley NA.** 2008. Do targeted bans of insecticides to prevent deaths from self-poisoning result in reduced agricultural output? *Environmental Health Perspectives* 116(4)**:** 492-495 pp.

[12] **Murphy HH, Phung Hoan N, Matteson P & Morales Abubabkar ALC.** 2002. Farmers' self-surveillance of pesticide poisoning: a 12-month pilot in northern Vietnam. *International Journal of Occupational and Environmental Health* 8**:** 201-211 pp.

[13] **EXTOXNET.** EXtension TOXicology NETwork. Provides toxicology related information on pesticides, including Pesticide Information Profiles (PIPs) and Toxicology Information Briefs. [Available at: http://extoxnet.orst.edu]

[14] **IFCS.** 2008. *Acutely toxic pesticides: a global guide to resources.* Intergovernmental Forum on Chemical Safety, Geneva, Switzerland [Available at: http://www.who.int/ifcs/champions/acute/en/index.html]

[15] **UNEP.** 2006. S*ound management of pesticides and diagnosis and treatment of pesticide poisonings: a resource tool.* United Nations Environment Programme, Geneva, Switzerland. [Available at: http://www.chem.unep.ch/Pesticides/PesticideResourceTool/default.htm]

[16] **Reigart JR & Roberts JR.** 1999. *Recognition and Management of Pesticide Poisonings.* Document No. EPA 735-R-98-003. Office of Pesticide Programs, US Environmental Protection Agency, Washington DC, USA. [Available at*:* http://www.epa.gov/pesticides/safety/healthcare/handbook/handbook.htm]

[17] **NIOSH.** 2005. *Pesticide related illness and injury surveillance – a how-to guide for state-based programs.* National Institute for Occupational Safety and Health, Cincinnati, USA. [Available at: http://www.cdc.gov/niosh/topics/pesticides/]

[18] **Thundiyil JG, Stober J, Besbelli N, Pronczuk J.** 2008. Acute pesticide poisoning: a proposed classification tool. *Bulletin of the World Health Organization* 86(3)**:** 205-209 pp [Available at: http://www.who.int/bulletin/volumes/86/3/07-041814.pdf]

[19] **USEPA.** 2000. *Stressor identification guidance*. Document No. EPA-822-B-00-025. Office of Water & Office of Research and Development, US Environmental Protection Agency, Washington DC, USA. [Available at: http://www.epa.gov/waterscience/biocriteria/stressors/]

[20] **Collier TK.** 2003. Forensic ecotoxicology: establishing causality between contaminants and biological effects in field studies. *Human and Ecological Risk Assessment* 9(1): 259-266 pp.

[21] **Fox GA.** 1991. Practical causal inference for ecoepidemiologists. *Journal of Toxicology and Environmental Health* 33**:** 359-373 pp.

[22] **Kundi M.** 2006. Causality and the interpretation of epidemiologic evidence. *Environmental Health Perspectives* 114(7): 969-974 pp.

[23] **Suter GW, Norton SB & Cormier SM.** 2002. A methodology for inferring the causes of observed impairments in aquatic ecosystems. *Environmental Toxicology and Chemistry* 21(6): 1101-1111 pp.

[24] **Burton GA, Chapman PM & Smith EP.** 2002. Weight-of-evidence approaches for assessing ecosystem impairment. *Human and Ecological Risk Assessment* 8(7): 1657-1673 pp.

[25] **Forbes VE & Calow P.** 2002. Applying weight-of-evidence in retrospective ecological risk assessment when quantitative data are limited. *Human and Ecological Risk Assessment* 8(7)**:** 1625-1639 pp.

[26] **WHO.** 2005. *The WHO recommended classification of pesticides by hazard.* World Health Organization, Geneva, Switzerland. [Available at: http://www.who.int/ipcs/publications/pesticides_hazard/en/]

[27] **UNECE.** 2007. *Globally harmonized system of classification and labelling of chemicals (GHS)*. United Nations Economic Commission for Europe, Geneva, Switzerland. [Available at: http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html]

Annexes

Preface to annexes

The following questionnaire and reporting forms are meant to serve only as examples of the type of information that should be collected in an incident report. National governments are encouraged to develop their own forms that fit national circumstances, while at the same time, collecting information that is as harmonized and consistent as possible. It is important to emphasize that many Report Officers will not be able to collect extensive and comprehensive information; they should be encouraged to submit as much information as possible, even if their reports are incomplete.

Annex 1 – WHO Pesticide Poisoning Surveillance Questionnaire

WHO Pesticide Poisoning Surveillance Questionnaire

A. BACKGROUND INFORMATION

Date of interview: Day__/Month__/200 Interviewer Code____

B. INFORMED CONSENT AND GENDER

Gender __Female or __Male

Age If less than 18 __Yes __No ***(Seek parent for proxy interview)***

If proxy interview, specify relationship: _____

Has participant been given informed consent? __Yes ***(Give copy of informed consent form to participant)***

__ No ***(Must STOP)***

C. VERIFY THE FOLLOWING INFORMATION WITH THE PARTICIPANT

Name: First _____ Middle initial _____

Last _____

Address: _____

Village: _____

D. FOR FARMS

Type of crop? Develop List

Farm worker employed by: __ Grower __ Self-employed (farm owner/operator)

__ Contractor __ Family member

What is the approximate number of agricultural workers at this farm? ___ workers

1. PERSONAL INFORMATION

What is your date of birth? Day__ / Month__ / Year _____

How many total years of school did you complete? __years

(Kindergarten or higher counts as year 1)

2. HOUSEHOLD

How many people live in your home (other than yourself)? ___persons

Of these people, how many are children less than 18 years old? ___children

(ages: __, __, __, __, __, __, __, __, __)

Do any of these people work in agriculture or with pesticides? __Yes __No __Unknown

If yes, please state how many are 18 years or older: __adults

And how may are 13 to 17 years or older: __older children

And how many are 12 or younger: __young children

3. WORKING WITH PESTICIDES Province/District Code__ Record No.____

What is your occupation?

__Agricultural worker
__Agricultural pesticide applicator/mixer/loader
__Grower
__Pesticide distribution centre worker
__Housewife
__Vector control officer
__Student
__Other job:_____
__Unemployed

Have you ever worked with or used pesticides? __Yes __No or unknown ***(go to section 4)***

For how many years? ___years

Has anyone given you instructions in how to use pesticides through video, audio cassette, classroom lecture, written material, informal talks or any other methods? __Yes __No __Unknown

While working, have you loaded, mixed or applied pesticides? __Yes __No __Unknown

The last time you did this, did you use any of the following protective equipment?

(Read list, check all that apply)

__None	__Paper mask	__Work suit
__Gloves – cloth	__Respirator – rubber	__Bandana/handkerchief
__Gloves – rubber	__Hard hat	__Boots
__Long sleeves	__Goggles	__Other: _____

4. PESTICIDES AND YOUR HEALTH

During the last 12 months, did you become sick or have any reaction because of this work?

__Yes __No __Unknown

If yes, how many times___

In the last 12 months, have you received any medical attention by a doctor, nurse or pharmacist due to pesticide exposure? __Yes __No __Unknown

If yes to either of above proceed to question 4a

4a. DETAILS OF MOST SIGNIFICANT EPISODE District Code__Record No.___

What date did the exposure occur? Day__ / Month__ / Year___

Was this an accidental exposure? __Yes __No __Unknown

Was this an occupational exposure? __Yes __No __Unknown

What was the main activity at the time of the exposure? ***(may select more than one)***

__Manufacturing/formulation	__Equipment care	__Bystander
__Application in field	__Transportation	__Human therapy
__Field re-entry	__Public health/vector control	__Veterinary therapy
__Mixing/loading	__Household application	__Unknown

__Other (specify _____)

Where did this exposure occur? ***(select one)***

__Home (urban)	__Garden (urban)	__Farm/field	__Public area
__Home (rural)	__Garden (rural)	__Storage site	__Greenhouse
__Unknown	__Other (specify		

How did the pesticide enter your body? ***(select all that apply)***

__Oral (ingestion)	__Respiratory (inhalation)	__Ocular (eye)	__Unknown
__Dermal (skin)	__Other (specify _____)		

Do you know the name of the pesticide?

__Yes (specify:_____) __No __Not sure

Was the exposure in the form of a __Gas __Liquid __Solid or __Unknown form?

What was the pesticide being used for?

__Insecticide (insects)	__Fungicide (mold)	__Tick control	__Unknown
__Herbicide (weeds)	__Rodenticide (rats)	__Nematocide (form of worms)	

__Other (specify _____)

If intoxication occurred in a farm setting → What crop was involved? Provide List

Treatment

Was treatment provided? __Yes __No __Unknown

If yes, where were you treated? __Hospital __Health Centre __Private Clinic

If hospitalized, for how many days? __days Hospital: _____

What were your symptoms? ***(Specify on Symptom Sheet below)***

Did symptoms begin within 24 hours of exposure? __ Yes __ No __ Unknown

Did your symptoms: __ Go away within weeks? __ Become a permanent problem

__ Persist for months? __ Unknown

SYMPTOMS SHEET Q4

(Circle all that apply)

General	***Eye***
(1) Bad odour	(1) Blurry or double vision
(2) Change in taste (metallic, salty or sweet)	(2) Itchy eyes
(3) Chills	(3) Pinpoint pupils
(4) Fever	(4) Sensitivity to light
(5) Loss of appetite	(5) Tearing
(6) Muscle ache	(6) Yellow colour
(7) Thirst	
(8) Other _____	***Respiratory System (Lungs)***
	(1) Chest pain or tightness
(9) Other _____	(2) Cough
	(3) Difficulty breathing/shortness of breath
(10) Other _____	(4) Ear, nose and throat irritation
	(5) Pulmonary edema (fluid retention in lungs)
(11) Other _____	(6) Runny nose
	(7) Scratchy or sore throat
(12) Other	(8) Sneezing
Skin	***Gastrointestinal System***
(1) Blistering	(1) Abdominal pain
(2) Cyanosis	(2) Constipation
(3) Dermatitis	(3) Diarrhoea
(4) Discoloration	
(5) Hives	(5) Increased salivation

(6) Increased sweating (7) Itchy skin (8) Jaundice (yellow skin) (9) Nail changes (loss, ridges) (10) Paleness (11) Rash (12) Redness	(6) Nausea (7) Sore throat/mouth (8) Vomiting
Nervous System (1) Dizziness (2) Fainting (3) Flaccid muscles (4) Headache (5) Hearing loss (6) High blood pressure (7) Incoordination (8) Low blood pressure (9) Mood disturbances (confusion, excitement, disorientation, emotional changes) (10) Muscle twitching/spasms (11) Numbness (12) Paralysis (13) Seizures/convulsions (14) Stupor, coma, respiratory failure (15) Tingling (face, torso or extremities) (16) Tremor (shaking) (17) Weakness	***Urinary-genital System*** (1) Blood loss in the urine (2) Increased urination (3) Kidney failure (4) Low sperm count (5) Pain upon urination (6) Protein loss in the urine ***Cardiovascular System (Heart)*** (1) Arrhythmias (irregular hear beats) (2) Bradycardia (slow heart rate) (3) Tachycardia (fast heart rate)

Annex 2 – WHO Pesticide Exposure Record

PESTICIDE EXPOSURE RECORD *(Confidential)*

1. EXPOSURE TIME AND PLACE ( ) **Record number:** / / /

Date of consultation: / / **Time elapsed since exp:** ..... hs dy ms **City** .....

Date of exposure: / / **Duration of exposure :** ..... hs dy ms **Province** .....

2. COMMUNICATION *(Source of information)*

Name: **Institution:** ( ) **Phone:** Data collection date: / /

Category of person supplying information: ☐ Medical ☐ Paramedical Officer's initials:

3. PATIENT DETAILS

Name (Initials): **Identity N°**

Sex: ☐ M ☐ F **Age:** ..... dy ms yr ☐ Unknown **If unknown:** ☐ Child ☐ Adolescent ☐ Adult

4. CIRCUMSTANCES OF EXPOSURE *(check one, plus "uncertain", if relevant)*

☐ Intentional ☐ Accidental ☐ Occupational ☐ Uncertain ☐ Unknown ( )

5. MAIN ACTIVITY AT TIME OF EXPOSURE *(check one, or more than one if "Multiple")*

☐ Manufacturing/Formulation ☐ By-standing ☐ Veterinary Therapy

☐ Application in field ☐ Transportation ☐ Multiple *(specify)* .....

☐ Public health campaign ☐ Mixing/Loading ☐ Not relevant

☐ Household application ☐ Equipment care ☐ Other *(specify)* .....

☐ Field re-entry ☐ Human Therapy ☐ Unknown

6. LOCATION OF EXPOSURE *(check one)*

☐ Home (urban/periurban) ☐ Home (rural) ☐ Farm/field ☐ Greenhouse ☐ Unknown

☐ Garden (urban/periurban) ☐ Garden (rural) ☐ Public area ☐ Storage site ☐ Other *(specify)* .....

7. ROUTE OF EXPOSURE *(check main route or more than one, if applicable)*

☐ Oral ☐ Dermal ☐ Respiratory ☐ Ocular ☐ Unknown ☐ Other *(specify)* .....

8. PRODUCT IDENTITY *(add other page(s), if necessary, for each product)*

Product name(s): ☐ Suspected ☐ Unknown

☐ *Base (if known)* .....

(Co-ordinator to fill-in)

Use intended:

.....

☐ Registered

☐ Not approved

Physical form: ☐ Gas ☐ Liquid ☐ Solid ☐ Unknown

Actual use: ☐ Insecticide ☐ Herbicide ☐ Tick control ☐ Unknown

☐ Rodenticide ☐ Fungicide ☐ Other *(specify)* .....

9. CHEMICAL TYPE *(check one or more if relevant)*

☐ Organophosphorus ☐ Thiocarbamate ☐ Dinitrophenol deriv. ☐ Fluoroacetate ☐ Unknown

☐ Carbamate ☐ Coumarin ☐ Organomercurial ☐ Other (specify) .....

☐ Organochlorine ☐ Dipyridyl ☐ Phosphide .....

☐ Pyrethroid ☐ Phenoxyacid ☐ Arsenical ☐ Specific chemical .....

10. MANAGEMENT

Treatment given: ☐ Yes ..... ☐ No ☐ Unknown ☐ Referred to other hospital

Hospitalisation: ☐ Yes ☐ No ☐ Unknown If yes, days in hospital ..... Days in ICU .....

11. SEVERITY GRADING

Effects: ☐ Local ☐ Systemic ☐ Both **PSS:** ☐ None ☐ Minor ☐ Moderate ☐ Severe

12. OUTCOME

☐ Recovery ☐ Recovery with sequelae ☐ Death related ☐ Death unrelated ..... ☐ Unknown

13. COMMENTS *(stating section; continue overleaf if necessary)*

.....

.....

Annex 3 – Rotterdam Convention reporting form for human health incidents

Please note: the following form was developed for the specific purposes of reporting a human health poisoning incident under the Rotterdam Convention. As such, it includes information that meets the Convention requirements, but may not necessary for a national reporting system.

The form can be downloaded at: http://www.pic.int/home.php?type=t&id=38&sid=34

ROTTERDAM CONVENTION

SECRETARIAT FOR THE ROTTERDAM CONVENTION
ON THE PRIOR INFORMED CONSENT PROCEDURE
FOR CERTAIN HAZARDOUS CHEMICALS AND PESTICIDES
IN INTERNATIONAL TRADE

Introduction to the Severely Hazardous Pesticide Formulation Report Form

- Human Health Incidents -

The severely hazardous pesticide formulation report form consists of three sections:

Introduction, the text is intended to provide relevant background information on the Rotterdam Convention and how the information collected by the form and submitted by the Designated National Authority will be used.

Part A is to be completed by the Designated National Authority once he/she receives Part B from the field. It reflects the information requirements of part 1 of Annex IV of the Convention. There is some redundancy between Parts A and B of the form particularly with respect to information on product identity. It was thought that this redundancy might help countries to consolidate responses by using Part A of the form to report on more than one incident for the same formulation.

Part B is designed to provide "*a clear description of the incidents related to the problem, including the adverse effects and the way in which the formulation was used"* (part 1 paragraph g of Annex IV of the Convention). The form has been constructed around these points. It consists of a series of closed questions or checklist that captures the basic information needed with options for including additional information where it is available.

SEVERELY HAZARDOUS PESTICIDE FORMULATION REPORT FORM

INTRODUCTION

1. Purpose of this form

The Severely Hazardous Pesticide Formulation (SHPF) Report form was developed to facilitate the identification of candidate formulations for inclusion in the Rotterdam Convention. The Convention provides a mechanism for countries to decide whether or not they wish to receive future shipments of such pesticide formulations and for ensuring compliance with these decisions by exporting countries.

2. What is the Rotterdam Convention?

The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade promotes a shared responsibility between importing and exporting parties in the international trade of certain hazardous chemicals. It gives importing countries the power to decide which chemicals they want to receive and to exclude those they cannot manage safely. The Convention includes provisions for developing countries and countries with economy in transition, that are experiencing problems with severely hazardous pesticide formulations under conditions of use, to identify the formulations as candidates for inclusion in the Convention. Further information on the operation of the Rotterdam Convention may be found at www.pic.int

3. What is the severely hazardous pesticide formulation report form?

This form consists of two parts Part A and Part B. Part A (Transmittal Form) is to be used by the Designated National Authority (DNA) to transmit an incident report form to the Secretariat. Part B (Pesticide Incident Report Form) has been developed to collect the information required by the Convention, that is a clear description of the incidents related to the use of a severely hazardous pesticide formulation, including the adverse effects and the way in which the formulation was used. Part B of the form consists of a series of closed questions or checklist that captures the basic information needed with options for including additional information where it is available. It is fully compatible with programs collecting quantitative information on pesticide poisonings in support of epidemiological studies or national programmes concerning the reporting of adverse effects associated with pesticide use. The format has been developed so that it might be widely used by States, aid agencies, intergovernmental organizations and non-governmental organizations etc., in reporting on pesticide incidents. If there are other formats available that meet the information requirements of Parts 1 and 3, Annex IV of the Convention, they may also be used in preparing a submission and forwarded through the DNA to the Secretariat together with Part A of the SHPF form. There is some redundancy between Parts A and B of this form. It was thought that this might help countries to consolidate responses by using Part A of the form to report on more than one incident for the same formulation.

4. What happens to the completed form?

Once Part B- Incident report form has been completed to the extent possible based on the information available, it should be forwarded to the DNA. The DNA is to coordinate the completion of Part A-Transmittal form and forward the entire document to the Secretariat. The Secretariat is required to collect additional information including physico-chemical and toxicological properties of the pesticide formulation, information on incidents related to the formulation in other States, the existence of handling or applicator restrictions in other states and risk and/or hazard evaluations where available. This information along with the completed form is reviewed by the Chemical Review Committee (CRC). The CRC will decide whether or not to recommend the inclusion of the pesticide formulation in the Rotterdam Convention.

Your cooperation in completing this form and your contribution for the identification of severely hazardous pesticide formulations posing problems under conditions of use is greatly appreciated. If you have any questions or comments relating to the completion of this form please contact the Secretariat at the address below.

PART A - TRANSMITTAL FORM - DESIGNATED NATIONAL AUTHORITY

Information required from a Designated National Authority	
1	Name of the formulation : .....
2	Type of formulation: (*for example EC, WP, DP, GR, TB*).....
3	Trade name and name of producer, if available:.....
4	Name of the active ingredient or ingredients in the formulation:..... .....
5	Relative amount of each active ingredient in the formulation: ..... (*% concentration*).....
6	Attach copy of the label(s), if available (or describe the key aspects of the label: language, etc.).
7	Common and recognized patterns of use of the formulation within the country – ➢ the formulation is registered / permitted for use in the country? ➢ what uses are permitted? ➢ are there any handling or applicator restrictions specified as a condition of registration; ➢ information on the extent of use of the formulation, such as the number of registrations or production or sales quantity (indicate the source of information); ➢ other information on how the formulation is commonly/typically used in the country (***this information should be submitted on a separate sheet attached to the completed form***)
8	A clear description of incidents(s) related to the problem, including adverse effects and the way in which the formulation was used (for example *Part B pesticide incident report form identifies key elements and appropriate level of detail*). Other report formats which may exist at the national level may also be used, provided they contain comparable information.
9	Any regulatory, administrative or other measure taken, or intended to be taken, by the proposing Party in response to such incidents.

Date, signature of DNA and official seal:

PLEASE RETURN THE COMPLETED FORM TO:

Secretariat for the Rotterdam Convention
Food and Agriculture Organization of the United Nations (FAO)
Viale delle Terme di Caracalla
00100 Rome, Italy
Tel: (+39 06) 5705 3441
Fax: (+39 06) 5705 6347
E-mail: pic@pic.int

OR

Secretariat for the Rotterdam Convention
United Nations Environment Programme (UNEP)
11-13, Chemin des Anémones
CH – 1219 Châtelaine
Geneva, Switzerland
Tel: (+41 22) 917 8296
Fax: (+41 22) 917 8082
E-mail: pic@pic.int

PART B - PESTICIDE INCIDENT REPORT FORM

This form should be completed for each individual exposed in a given incident - Where an incident involves more than one formulation please complete Section I and question 13 for each.

I. Product identity: *What formulation was used when the incident took place.*

1. Name of the formulation: .....

2. Type of formulation (check one of the following)

☐ *Emulsifiable Conc. (EC)* ☐ *Wettable Powder (WP)* ☐ *Dustable powder (DP)*

☐ *Water Soluble Powder (SP)* ☐ *Ultra Low Volume (ULV)* ☐ *Tablet (TB)*

☐ *Granular (GR)* ☐ *other, please specify:*.....

3. Trade name and name of producer, if available: .....

4. Name of the active ingredient(s) in the formulation: .....

5. Relative amount of each active ingredient in the formulation: .....
(*% concentration, g/l, etc.*)

6. Attach copy of the label(s), if available.

II. Description of the incident: *How the formulation was used.*

7. Date of incident: (M/DD/Year).....

8. Location of incident: village/city:.....
province/state/region:.....
country:.....

9. Person exposed (identity should be checked and recorded before submission of the form)

Sex: ☐ male ☐ female ☐ age: .....

If age unknown: ☐ child (<14yrs) ☐ adolescent (14-19 yrs) ☐ adult (>19yrs)

10. Main activity at time of exposure (*check one or more of the following*):

☐ *application in field* ☐ *mixing/loading* ☐ *veterinary therapy*

☐ *household application* ☐ *vector control application* ☐ *human therapy*

☐ *re-entry to treated field* ☐ *other, please specify:* .....

11. Was protective clothing used during application? ☐ no ☐ yes

If no, please explain why:.....

If yes, briefly describe (check one or more of the following):

☐ *gloves* ☐ *overalls* ☐ *eye glasses* ☐ *respirator* ☐ *other, please specify:*

☐ *face mask* ☐ *boots/shoes* ☐ *long-sleeve shirt* ☐ *long pants* .....

12. Information on how product was being used:

(a) Location of exposure/incident (*field, garden, greenhouse, house, etc.*) .....

(b) List the animals/crop(s)/stored products treated if relevant: .....

(c) Application method: (*How product was used* e.g. *hand, bucket & brush, soil injection, spray (backpack, tractor mounted,etc), drip irrigation, aerial (helicopter, plane etc.*)):
.....

(d) Dose applied/concentration *(or amount of pesticide applied)*.....

(e) Duration of the exposure period: ☐ hours ☐ ½ day ☐ day ☐ other (specify): .....

13. If more than one pesticide formulation was used at the same time, please respond to points i) to iv) below for each formulation. (*see also Part I Product Identity*)

i) Was the pesticide in its original container? ☐ no ☐ yes

ii) Was the label available? ☐ no ☐ yes

If yes, was exposed individual able to read and understand label? ☐ no ☐ yes

iii) Does the label include the reported use? ☐ no ☐ yes

If no, describe how the use reported above differs from that recommended on the label:

(*use a separate page if necessary*).....

iv) Is the reported incident typical of how the formulation is generally used? ☐ no ☐ yes

14. Climatic conditions under which the incident occurred (eg. *temperature, relative humidity*,...):

.....

15. Were other individuals affected in the same incident? ☐ no ☐ yes

16. Include any other details that may be useful in describing the incident and the way in which the formulation was used, in particular how the use reported here reflects common or recognized use patterns for this formulation (*additional pages may be attached).*

III. Description of adverse effects:

17. Individual's reaction (check one or more of the following):

☐ *dizziness* ☐ *headache* ☐ *blurred vision* ☐ *excessive sweating*

☐ *hand tremor* ☐ *convulsion* ☐ *staggering* ☐ *narrow pupils/miosis*

☐ *excessive salivation* ☐ *nausea/vomiting* ☐ *other, please specify:* .....

☐ death

18. Route of exposure (*check main route or more than one if applicable*)

☐ *mouth* ☐ *skin* ☐ *eyes* ☐ *inhalation*

☐ *other, please specify:*.....

19. How soon after last use of the formulation were the adverse effects observed:

.....

IV. Management:

20. Treatment given: ☐ No ☐ Yes ☐ Unknown

Hospitalization: ☐ No ☐ Yes ☐ Unknown

21. Include any other details/information regarding treatment including medical intervention/first aid/hospitalization/local practices etc., *(additional pages may be attached)*:

.....

V. Reporting/communication:

22. Date of data collection/consultation: .....

23. Name and address of investigator/data collector: .....

.....

.....

24. Category of investigator/data collector:

☐ *medical* ☐ *paramedical* ☐ *non-medical*

If non-medical, then specify type of person (*applicator, formulator, vendor, extension worker, manager, etc*.):.....

25. Contact if further information if needed: Tel: .....

Fax: .....

E.mail: .....

26. Has this incident been reported elsewhere? ☐ No ☐ Yes

If yes, where: .....

Send the completed incident report form to the Designated National Authority.

(Name and address of the DNA)

Annex 4 – Rotterdam Convention reporting form for environmental incidents

Please note: the following form was developed for the specific purposes of reporting an environment contamination incident under the Rotterdam Convention. As such, it includes information that meets the Convention requirements, but not necessary for a national reporting system.

The form can be downloaded at: http://www.pic.int/home.php?type=t&id=38&sid=34

ROTTERDAM CONVENTION

SECRETARIAT FOR THE ROTTERDAM CONVENTION
ON THE PRIOR INFORMED CONSENT PROCEDURE
FOR CERTAIN HAZARDOUS CHEMICALS AND PESTICIDES
IN INTERNATIONAL TRADE

Introduction to the Severely Hazardous Pesticide Formulation Report Form

- Environmental Incidents -

The severely hazardous pesticide formulation report form consists of three sections:

Introduction, the text is intended to provide relevant background information on the Rotterdam Convention and how the information collected by the form and submitted by the Designated National Authority will be used.

Part A is to be completed by the Designated National Authority once he/she receives Part B from the field. It reflects the information requirements of part 1 of Annex IV of the Convention. There is some redundancy between Parts A and B of the form particularly with respect to information on product identity. It was thought that this redundancy might help countries to consolidate responses by using Part A of the form to report on more than one incident for the same formulation.

Part B can be completed by any competent person. It is designed to provide "*a clear description of the incidents related to the problem, including the adverse effects and the way in which the formulation was used"* (part 1 paragraph g of Annex IV of the Convention). The form has been constructed around these points. It consists of a series of closed questions or checklist that captures the basic information needed with options for including additional information where it is available.

SEVERELY HAZARDOUS PESTICIDE FORMULATION REPORT FORM - ENVIRONMENTAL INCIDENTS

INTRODUCTION

1. Purpose of this form

The Severely Hazardous Pesticide Formulation (SHPF) Report form - Environmental Incident Report Form - was developed to facilitate the identification of candidate formulations with environmental concerns for inclusion in the Rotterdam Convention. A similar form was developed for reporting health incidents. The Convention provides a mechanism for countries to decide whether or not they wish to receive future shipments of such pesticide formulations and for ensuring compliance with these decisions by exporting countries.

2. What is the Rotterdam Convention?

The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade promotes a shared responsibility between importing and exporting parties in the international trade of certain hazardous chemicals. It gives importing countries the power to decide which chemicals they want to receive and to exclude those they cannot manage safely. The Convention includes provisions for developing countries and countries with economy in transition, that are experiencing health or environmental problems with severely hazardous pesticide formulations under conditions of use, to identify such formulations as candidates for inclusion in the Convention. Further information on the operation of the Rotterdam Convention may be found at www.pic.int.

3. What is the severely hazardous pesticide formulation report form?

The form consists of two parts: – the Transmittal Form (Part A) – is to be used by the Designated National Authority (DNA) to transmit the Environmental Incident Report Form (Part B – EIRF) to the Secretariat. The Environmental Incident Report Form has been developed to meet the information requirements of the Convention, that is a clear description of the environmental incidents related to the use of a severely hazardous pesticide formulation, including the adverse effects and the way in which the formulation was used. Part B of the form consists of a series of closed questions or checklist that captures the basic information needed with options for including additional information where it is available. Although programmes for collecting quantitative information on environmental incidents of pesticides may not be implemented in many countries, use of such national programmes for reporting environmental incidents should be made, where they exist. The format has been developed so that it might be widely used by States, aid agencies, intergovernmental organizations and non-governmental organizations etc., in reporting on environmental incidents related to the use of severely hazardous pesticide formulations. If there are other formats available, they may be used in preparing a submission to the Secretariat and forwarded through the DNA using Part A of the SHPF form provided that they meet the information requirements of Parts 1 and 3 of Annex IV of the Convention. There is some redundancy between Parts A and B of this form. It was thought that this might help countries to consolidate responses by using Part A of the form to report on more than one incident for the same formulation.

4. What is an environmental incident?

For the purposes of this incident report form, an environmental incident is defined as the contamination of land, water and/or air by a severely hazardous pesticide formulation (SHPF) causing the temporary or permanent impairment or mortality of non-target organisms or biological processes under the "conditions of use" in developing countries or countries with economies in transition (Article 6). In this instance, "conditions of use" does not include accidental spills/leaks, nor deliberate misuse of an SHPF, and is clearly limited to effects caused by a certain formulation of a substance. The following are some examples of potential incidents:

- the poisoning of birds or other wildlife that ingest granular insecticides used for soil treatment. Such incidents may result from the application method (eg. broadcast application rather than injection into the soil) or from the behaviour of non-target organisms (eg. scavenging of granules).
- the poisoning of aquatic organisms due to the contamination of a stream or pond. Such incidents may occur if sufficient buffer zones between treated areas and waterways were not observed.
- the severe disturbance of non-target populations (e.g. honey bees, earthworms, beneficial insects)

5. What happens to the completed form?

Once Part B - Environmental Incident Report Form - has been completed to the extent possible based on the information available, it should be forwarded to the DNA. The DNA is to coordinate the completion of Part A - Transmittal form - and forward the entire document to the Secretariat. The Secretariat is required to collect additional information including physico-chemical and eco-toxicological properties of the pesticide formulation, information on environmental incidents related to the formulation in other States, and the existence of environmental restrictions or environmental guidelines in other states, or relevant evaluations, where available. This information along with the completed form is reviewed by the Chemical Review Committee (CRC). The CRC will decide whether or not to recommend the inclusion of the pesticide formulation in the Rotterdam Convention.

Your co-operation in completing this form and your contribution for the identification of severely hazardous pesticide formulations posing environmental problems under conditions of use is greatly appreciated. If you have any questions or comments relating to the completion of this form please contact the Secretariat at the address below.

PART A - TRANSMITTAL FORM - DESIGNATED NATIONAL AUTHORITY

Information required from a Designated National Authority	
1	Name of the formulation : .....
2	Type of formulation: (*for example EC, WP, DP, GR, TB*).....
3	Trade name and name of producer, if available:.....
4	Name of the active ingredient or ingredients in the formulation:..... .....
5	Relative amount of each active ingredient in the formulation: ..... (*% concentration*).....
6	Attach copy of the label(s), if available (or describe the key aspects of the label: language, etc.).
7	Common and recognized patterns of use of the formulation within the country – ➢ the formulation is registered / permitted for use in the country? ➢ what uses are permitted? ➢ are there any handling or applicator restrictions specified as a condition of registration; ➢ information on the extent of use of the formulation, such as the number of registrations or production or sales quantity (indicate the source of information); ➢ other information on how the formulation is commonly/typically used in the country (***this information should be submitted on a separate sheet attached to the completed form***)
8	A clear description of incidents(s) related to the problem, including adverse effects and the way in which the formulation was used (for example *Part B pesticide incident report form identifies key elements and appropriate level of detail*). Other report formats which may exist at the national level may also be used, provided they contain comparable information.
9	Any regulatory, administrative or other measure taken, or intended to be taken, by the proposing Party in response to such incidents.

Date, signature of DNA and official seal:

PLEASE RETURN THE COMPLETED FORM TO:

Secretariat for the Rotterdam Convention
Food and Agriculture Organization of the United Nations (FAO)
Viale delle Terme di Caracalla
00100 Rome, Italy
Tel: (+39 06) 5705 3441
Fax: (+39 06) 5705 6347
E-mail: pic@pic.int

OR

Secretariat for the Rotterdam Convention
United Nations Environment Programme (UNEP)
11-13, Chemin des Anémones
CH – 1219 Châtelaine
Geneva, Switzerland
Tel: (+41 22) 917 8296
Fax: (+41 22) 917 8082
E-mail: pic@pic.int

PART B – ENVIRONMENTAL INCIDENT REPORT FORM

Note: If the reported incident is associated with the use of a mixture of more than one formulation, Section 2 (Product Identity) should be completed separately for each of the formulations. The remaining Sections of the form that describe how the formulation was used, the incident, adverse effects etc., need only be completed once for each incident.

In order to help keep the form as simple as possible, the term formulation is used throughout and refers to the chemical product (herbicide, insecticide, etc). For those incidents involving more than one formulation, it is understood that the use of this term in Sections 4–7 will refer to the mixture that was applied.

SECTION 1. Number of formulations used

1. How many formulations were used when the incident took place?

2. (*Please circle or fill in number and proceed as indicated)*

a. One formulation was used. ❑ Yes ❑ No

If yes, *complete Section 2 (Product Identity) once.*

If no,

b. _____ (number) different formulations were used at the same time (e.g. tank mix of a herbicide and a fungicide)

c. Please list the individual formulations here:

e.g. Monitor (methamidophos 60 EC)

Formulation 1: _____

Formulation 2: _____

Formulation 3: _____

Please complete Section 2 (Product Identity) for each of the listed formulations.

SECTION 2. Product Identity: Formulation used and its preparation

Please complete this section for each formulation used

2. Name of the formulation? _____

_____

3. Type of formulation *(please tick)*:

❑ Emulsifiable concentrate (EC) ❑ Wettable powder (WP) ❑ Dustable powder (DP)

❑ Water soluble powder (SP) ❑ Ultra low volume (ULV) ❑ Tablet (TB)

❑ Granular (GR) ❑ Other (please specify): _____

4. Trade names and names of the producer/manufacturer, if available: _____

_____

5. Name of the active ingredient(s) in the formulation:

_____

6. What is the name and relative amount of each active ingredient (a.i.) in the formulation?

% concentration: _____

grams a.i/litre or: _____

ounce a.i /gallon or: _____

grams a.i./kg or: _____

ounce a.i/pound: _____

7. Attach a copy of the label(s) and instructions for use, if available to this form (or describe the key aspects of the label: language, use instructions, etc). Label attached ❑ Yes ❑ No

_____

8. What was the intended use *(please tick)*

❑ Insecticide ❑ Herbicide ❑ Tick control ❑ Rodenticide

❑ Fungicide ❑ Unknown ❑ Other (specify) _____

9. Are there any use restrictions or prohibitions regarding the use of this formulation or the active ingredient *(e.g. use of safety equipment, application restrictions)*?

❑ No

❑ Yes (*please specify*)

_____

10. Was the formulation used as purchased or was it changed in any way?

❑ Used as purchased

❑ Changed *(please specify how)*:

_____

11. Was the formulation in its original container?

a. ❑ No (*go to b*)

❑ Yes *(go to Question 13)*

b. Did the repackaged formulation have a copy of the label attached?

❑ No

❑ Yes

12. Preparation of formulation:

a. Was the formulation (as outlined in Questions 2–8) mixed with a carrier or diluent before use (e.g. mixed with liquid, powder, bran)?

❑ No (*go to Question 13*)
❑ Yes

If yes,

b. How was the mixture prepared (e.g. mixed with water, diesel)?

_____

c. What was the mixing ratio? *(circle appropriate unit)*

_____litre or kg/lbs of formulation per _____ litre or kg/lbs of carrier/diluent

d. Was the mixture used immediately or was it stored?

❑ Used immediately
❑ Stored (*please specify)*

For how long? _____ hours/days/weeks *(circle appropriate unit)*

13. Application rate:

(a) What was the application rate used?
_____ e.g.: g a.i./ha; litre/ha; lb/acre *(circle appropriate unit)* or specify_____

(b) How much of the chemical product / or active ingredient (a.i.) was used?
For multiple applications, please estimate the total amount released.

(circle appropriate unit)

Total amount: _____ (L; gallons; kg; or lb)

Concentration: _____ (g a.i./L; oz a.i./gallon; g a.i./kg; or oz a.i./lbs)

SECTION 3. Description of application

14. Location where the formulation was used?

Nearest village/city: _____

Province/state/region/district: _____

Country: _____

15. Date of application(s)

a. What were the date(s) (if known) the formulation was used?

Beginning: _____ End: _____

16. Was it a single or multiple application?

❑ Single application
❑ Multiple application *(please specify)*
Number of applications: _____
Approximate date of each application: _____

17. Were any other pesticides used in the same area at the time of the incident?

_____

18. Treated area and target pest:

a. What was the type of crop or situation treated (e.g. maize, grassland, forest, pond)?

_____

b. What was the target pest (e.g. weeds in maize, locusts in grasslands, moths in forests, mosquitoes in ponds)?

_____

19. Conduct of application

a. How was the formulation applied (method of application)?

❑ By hand ❑ Backpack sprayer ❑ Tractor-mounted sprayer
❑ Aircraft ❑ In-furrow applicator ❑ Hand-held sprayer

Other method (please specify)_____

b. What were the weather conditions at the time of application?
Temperature: ❑ Hot ❑ Warm ❑ Cool
Sunny or cloudy: _____
Rain: ❑ Light ❑ Medium ❑ Heavy
Wind speed: ❑ Light ❑ Strong
Direction: _____
General description of conditions: _____

c. What were the weather conditions for the few days after application?
Temperature: ❑ Hot ❑ Warm ❑ Cool
Sunny or cloudy: _____
Rain: ❑ Light ❑ Medium ❑ Heavy
Wind speed: ❑ Light ❑ Strong
Direction: _____
General description of conditions: _____

20. Please provide any relevant information regarding the person applying the formulation (e.g. level of training, literacy)

_____

Section 4. Description of the Incident

21. What was the date when the incident was first noticed?

_____

22. Location of the incident.

Was the location of the incident, the same location of the area treated? *Please indicate where the incident occurred (be as specific as possible).*

❑Yes *(as specified in Section 3 Question 14)*

❑No *(please specify) Geographical coordinates, if available*

Village/city:_____

Province/state/region/district: _____

Country: _____

23. Please indicate where the incident occurred and the size of the area affected, by completing all areas of the following table that apply. Please be as specific as possible; mark all boxes as appropriate:

Environment Affected	**Size of area or volume affected (write a number)**	**Units (circle appropriate units)**
Land ❑ Home garden ❑ Farm field ❑ Grassland ❑ Other _____		m^2 hectare (ha) km^2 acre Other (specify) _____
Fresh Water ❑ Fish pond ❑ Stream ❑ River ❑ Lake ❑ Sediments ❑ Other _____		**Surface Area** m^2, ha, km^2,acre or Other (specify) _____ **Volume** L, m^3 or Other (specify) _____
Salt Water ❑ Estuary ❑ Bay ❑ Ocean ❑ Sediments ❑ Other _____		**Surface Area** m^2, ha, km^2 or Other (specify) _____ **Volume** L, m^3 or Other (specify) _____

24. Please draw a rough map of the area around the incident. (Indicate scale if possible)

Use the box below or attach to the back of this form.

Please include:

a. the area affected;
b. any nearby waterways that were, or could be, affected and the direction of water flow;
c. location of any affected non-target organisms that were found;
d. location where the formulation was applied;
e. any other details which may further clarify the incident (e.g. topography, soil properties, water table).

25. Please describe any other details, additional information or facts that are not captured elsewhere in this form that further explain the cause of the incident, how it occurred, the result and any remediation efforts (attach extra pages if required).

Section 5. Description of adverse effects

26. Identify the non-target organism(s) adversely affected in the incident, including the number affected. Please be as specific as possible (common names and if possible scientific names) and complete as much as possible. Examples are provided in the table below.

SPECIES OF ANIMAL OR PLANT	NUMBER OR PROPORTION AFFECTED	AGE OR DEVELOPMENT STAGE (E.G. JUVENILE, LARVAL, SEEDLING)	OBSERVATIONS (E.G. ABNORMAL MORPHOLOGY OR BEHAVIOUR, TOXICOLOGICAL SYMPTOMS)	DURATION OF EFFECT (INCLUDING DATE OF DEATH OR RECOVERY)
Examples				
Terrestrial vertebrate *Domestic cattle*	*10*	*Adults*	*Excessive salivating, loss of balance, lethargy.*	*Recovered 26 May 2002*
Birds – *Mallard ducks*	*40*	*Adults and juveniles*	*Disoriented, ruffled appearance, head lesions*	*Recovered 30 May 2002*
	6	*juveniles*	*Disoriented, lethargy*	*Recovered 21 May 2002*
	5	*juveniles*	*Disoriented, lethargy*	*Died 22 May 2002*
Fish E.G.: VARIOUS SPECIES	*numerous*	All size classes	*Dead fish on riverbank up to 3km downstream of treatment area*	No information
Invertebrates e.g. honey bee	*100 colonies*	*Foraging during peak of flowering period*	Colonies dead	*All cases reported within 20 days post-application*
Vegetation E.G. GRASSLAND	*4 acres*	*Flowering*	*Wilted, yellowing*	*Dead patches*

27. Was there any indirect evidence of severe hazards to non-target organisms (e.g. unexpected population declines, disappearance of certain species in the incident area)?

❑ No ❑ Yes (*Please describe these ffects*)_____

_____

28. Please provide any other relevant information such as:

a. links between the use of the formulation (Section 4) and observed effects in non target organisms (question 26):

_____

_____

b. any analytical measurements, if available, which confirm residues of active ingredient(s) in soil, water, air or biological tissues

❑ No ❑ Yes (attach data and source)

Section 6. Management

29. What practical steps (if any) were taken at the time the incident occurred to limit or stop its further impact on the environment (excluding administrative and regulatory actions)?

_____
_____
_____
_____

30. What steps (if any) were taken to clean up the area after the incident or to rehabilitate any species affected in the incident?

_____
_____
_____
_____

Section 7. Reporting/communication

31. Date of data collection/consultation: _____

32. Name and address of investigator/data collector:

_____
_____

33. Category of investigator/data collector (e.g. environmental scientist, agricultural officer, government representative):

_____

34. Contact if further information needed:

Telephone: _____ Fax: _____
E-mail:_____

35. Has this incident been reported elsewhere?

❑ No
❑ Yes *(who was it reported to)*

_____

36. Have similar incidents happened in that area before?
❑ No ❑ Yes

If yes, were they reported?
❑ No ❑ Yes

Please send the completed incident report form to the Designated National Authority.
(Name and address of the DNA)

DNA- please attach all forms to Part A – Transmittal Form