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**STRENGTHENING CAPACITIES
TO ADDRESS HARMFUL PESTICIDES:
HOW THE ROTTERDAM CONVENTION
IS WORKING IN LATIN AMERICA**



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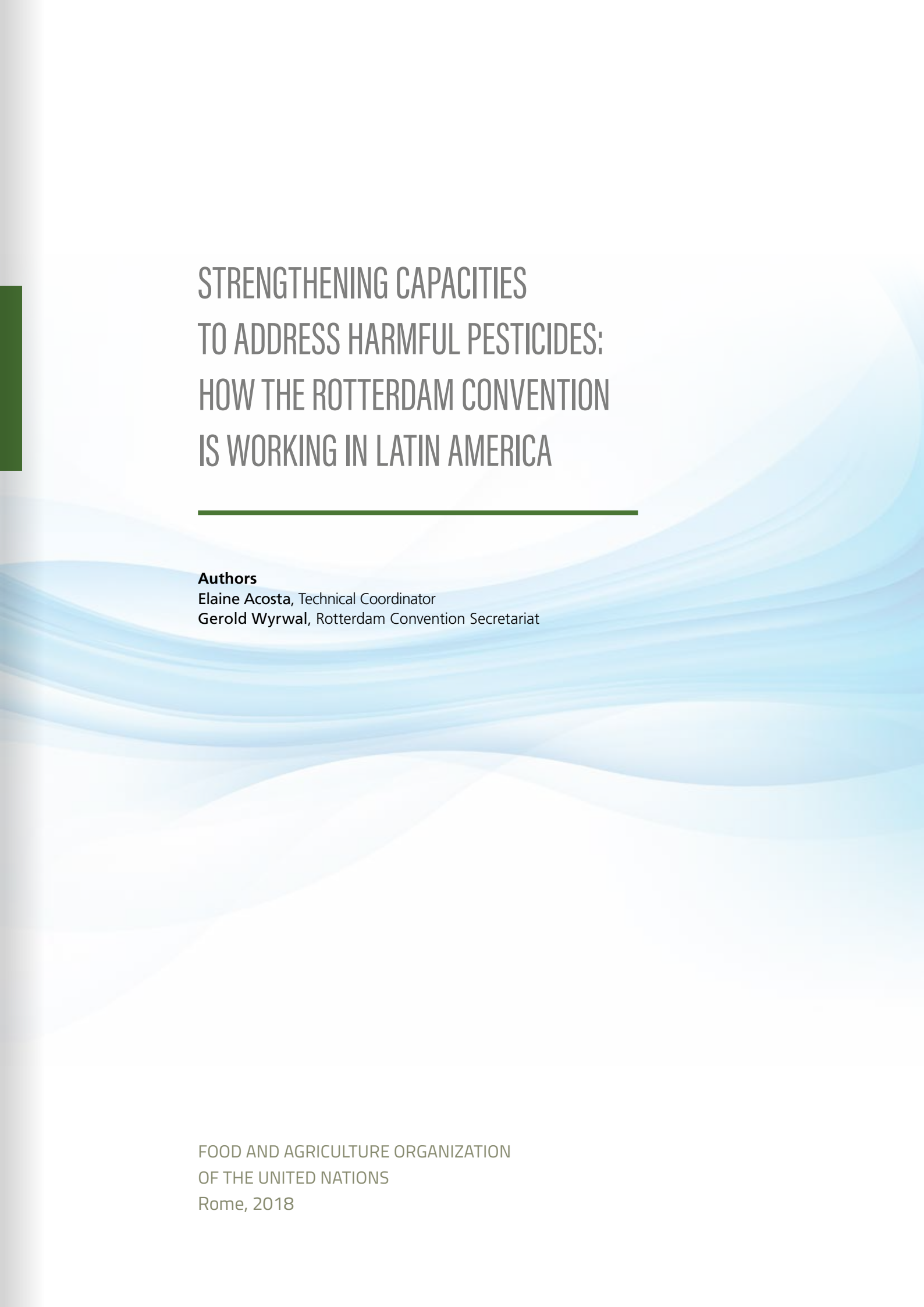
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STRENGTHENING CAPACITIES TO ADDRESS HARMFUL PESTICIDES: HOW THE ROTTERDAM CONVENTION IS WORKING IN LATIN AMERICA

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This brochure describes a series of projects carried out in Colombia, Panama, Dominican Republic and Honduras during 2013-2017 to improve their implementation of the Rotterdam Convention and notably their response to incidents involving severely hazardous pesticide formulations (SHPFs). The projects were planned and run by the countries themselves, with technical support from the Rotterdam Secretariat. All four countries are Parties to the Convention, and the goal was to help them fulfil the resulting obligations.

The projects focused primarily on the surveillance and recording of pesticide poisoning incidents and the reporting of SHPFs to the Convention Secretariat. The technical support gave the countries a better understanding of the problem, enhanced the capacities of the personnel engaged in the different activities, and introduced better technologies, such as digital surveillance systems and mobile applications to improve the recording of data on pesticide incidents.

The projects also helped the countries to better carry out specific tasks required by the Convention, such as reporting regulatory decisions to ban or severely restrict a pesticide to the Secretariat.

The countries' Designated National Authorities (DNAs) led the work from the Ministries of Public Health, Agriculture and Environment. The DNAs are responsible for carrying out their country's Rotterdam Convention functions, together with Customs Departments, researchers, non-governmental organisations (NGOs), and other stakeholders.

THE ROTTERDAM CONVENTION

The Rotterdam Convention is a multilateral treaty aimed at protecting human health and the environment from the potentially harmful impacts of hazardous industrial chemicals and pesticides in international trade. The Convention fosters shared responsibility and

cooperation among exporting and importing countries. Countries that are Party to the Convention must fulfil a number of obligations, and the Convention Secretariat provides technical assistance to help them do so.

The Rotterdam Convention is best known for the Prior Informed Consent (PIC) procedure for substances that are listed in its Annex III. The procedure informs importing countries of hazardous substances that have been banned or severely restricted elsewhere for health or environmental reasons. This gives countries an early warning about potentially dangerous substances that they intend to import. Parties to the Convention are required to notify the Secretariat about their decisions on the future importation of chemicals that are subject to the PIC procedure, as well as to ensure that exports of such chemicals do not occur contrary to the decision of importing parties.

Products can be listed in Annex III after two countries from different PIC regions notify the Secretariat that they have taken final regulatory action. Or they can be listed when a developing country or a country with an economy in transition submit a proposal of SHPFs. The Convention's Chemical Review Committee (CRC) evaluates the notifications and proposals and, if it agrees, makes a recommendation to Conference of the Parties (COP) that the products be listed. The products are then added to Annex III if the Conference of Parties (COP) votes unanimously to do so.

To date, 50 chemicals have been listed in Annex III. They include 34 pesticides (including 3 SHPFs), 15 industrial chemicals, and 1 chemical that is used both as a pesticide and as an industrial chemical.

Through the PIC procedure, the notifications of regulatory action, export notifications, import responses and the proposals of SHPFs, the Rotterdam Convention facilitates information exchange among the Parties for a broad range of potentially hazardous chemicals. Countries can use these mechanisms to share data and discuss their experiences with products that are listed in Annex III, as well as, products that have not been listed, but have been banned or restricted in certain countries."



COLOMBIA

Since acceding to the Rotterdam Convention in 2007, the Colombian government had successfully fulfilled its obligations to notify the Secretariat of import decisions, regulatory actions, and health incidents related to SHPFs. The project therefore focused first on gathering more complete information on pesticide poisoning incidents, and second on other Convention obligations.

Reporting Poisoning Cases and SHPFs

In the first phase of the project, a survey was carried out to gather information about occupational pesticide poisoning cases reported between 2011 and 2013 to the Colombian Public Health Surveillance System (SIGIVILA). In 2011 alone, 699 such cases poisoning by occupational exposure were reported to this system. The active ingredients cited in the greatest number of cases were carbofuran (408 cases), glyphosate (69) and methomyl (36).

The survey investigated 109 incidents located in ten of the country's departments (Meta,

Valle del Cauca, Tolima, Norte de Santander, Antioquia, Quindío, Huila, Caldas, Risaralda and Cundinamarca). The results showed that 95% of the incidents were caused by liquid formulations containing carbofuran concentrations at or above 330g/L.

Each poisoning victim was asked about the formulation used at the time of the incident, the application methods and activities being carried out, the use of personal protective equipment, how the exposure occurred and the number of times it occurred, the weather conditions, and the home and hospital treatment provided. The survey also asked about the pesticide doses used, the use of mixtures or combinations with other agrochemicals, and whether the people had ever experienced recurrent poisoning.

Based on the survey findings, in 2015, the Colombian Designated National Authorities, the Ministry of Health and Social Protection, and the Colombian Agricultural Institute (ICA), proposed the inclusion of liquid formulations containing carbofuran concentrations at or above 330g/L in Annex III.

Training Workshop for national stakeholders on the Rotterdam Convention. Bogotá, Colombia, august 2016. © FAO/IE. Acosta



The Chemical Review Committee subsequently recommended the proposal to the Conference of Parties, which added it to the list of substances subject to the PIC procedure.

Approximately 400 stakeholders participated in this phase of the project. They included exposed farmers who used pesticides as well as: representatives of the national and local environmental and sustainable development entities; representatives of the public health, agricultural and customs authorities; and personnel from agrochemical importing, manufacturing, distribution and sales companies.

This study is considered a model for use of the Rotterdam Convention toolkit on SHPFs. The toolkit was developed by the Secretariat to guide governments in recording and reporting pesticide poisoning incidents and in strengthening decision-making and pesticide risk reduction.

Notifying the Secretariat of Regulatory Actions

The second phase of the project began when the DNAs requested technical assistance to

strengthen national capacities for reporting regulatory actions and for fulfilling the Convention's obligations related to the exporting of prohibited or restricted pesticides and industrial chemicals.

An important output of this phase was the development of national regulations covering pesticide exporters' obligations under the Convention. To improve compliance, an operating handbook was produced to inform exporters of the process to follow when exporting products that were listed in Annex III or that had been subject to regulatory action in a country. The handbook and training in its use were provided in the country's principal departments, where 90% of the chemical industry in Colombia is concentrated.

This phase of the project also included the collection of technical and scientific information on two pesticides prohibited in Colombia, dodecachlor (Mirex) and dibromochloropropane (DBCP). This enabled the DNAs to present the forms for notification of regulatory action to the Rotterdam Secretariat, for potential inclusion of the pesticides in Annex III.

*Training nurses on use of the APP Module.
Panama City Panama.
© MINSAIR. Arjona*



PANAMA

The project in Panama focused in three areas: improving and digitalising the recording of data on pesticide poisoning incidents; gathering information about how pesticides were used; and distributing information on sound pesticide management.

Recording Pesticide Poisonings on a Digital Platform

The project began with the work needed to include pesticide incident data in the Epidemiology Surveillance System of the Ministry of Public Health (SISVIG). The SISVIG had a digital platform to systematically collect, analyse and interpret health data from hospital networks, but data on pesticide poisoning incidents were not included even though surveillance standards for acute poisonings had been implemented in the country's 14 healthcare regions since 1999. Rather than recording the data digitally, hospital medical staff completed a paper-based reporting form.

The first part of the project therefore focused on revising the reporting form, with reference to the Rotterdam Convention's SHPF Report Form for Human Health Incidents, and incorporating a digital version called the Module of Acute Pesticide Poisoning (APP

Module) into the SISVIG. The new form consists of a series of closed questions and checklists that capture key information about pesticide poisoning events with options for including additional data where necessary.

The module was tested in hospitals in three agriculturally important provinces (Chiriquí, Herrera and Los Santos) and training in its use was conducted for nurses, physicians, Information Technology (IT) departments and administrative staff.

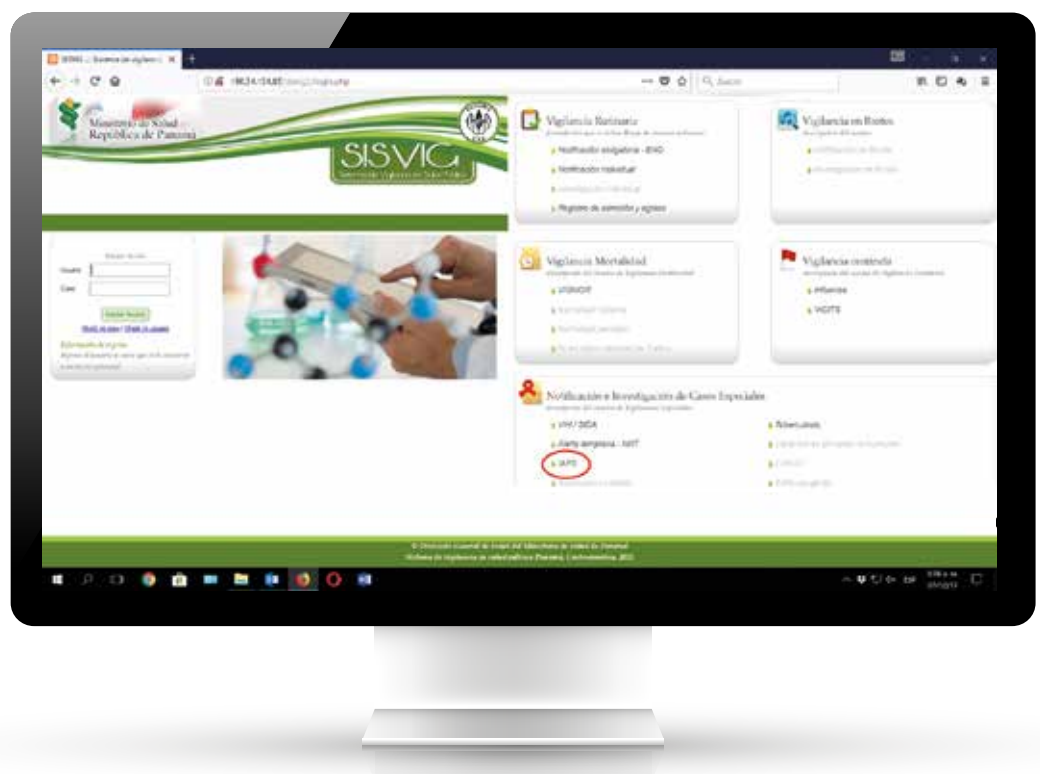
The digital module offers important advantages, such as making statistics available in real time, reducing the risk of data loss due to human error or natural events (fire, flood, humidity, fungus, insects, etc.), and avoiding misinterpretation of the physician's handwriting.

Survey of Pesticide Applicators

The second part of the project was a survey of pesticide applicators, conducted in the same three provinces where the APP Module was tested. The survey was intended to provide a clearer image of how pesticides were being used and to establish a baseline for future risk reduction activities. A total of 115 applicators were interviewed by staff of the ministry of Health.

The survey found that most agricultural pesticide application in Panama was done

*Interface of the
Epidemiological
Surveillance Platform
(SISVIG),
Panama, 2017.
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by indigenous people with little education or technical training and difficulties in communication due to language differences. More than half, 57%, did not have social security; 81% did not use personal protective equipment while handling pesticides; 85% did not have regular medical or laboratory tests; and 57% used crop production cycles that increased the risk of exposure.

A number of education and training programs were undertaken in response to these findings. The programs included training of 2,132 pesticide applicators as well as 272 technicians from the Ministry of Agriculture on Panama's Resolution 042, which regulates terrestrial pesticide applications. In addition, hospital health care workers were trained to evaluate pesticide applicators' eligibility for official certification.

Distributing Information to Stakeholders

The third part of the project consisted of awareness-raising campaigns, with distribution of information to stakeholders in the country's provinces. The campaigns targeted both agricultural workers and emergency room medical staff.

For the agricultural workers, the Ministries of Health and Agriculture together produced flyers on sound pesticide management and the Rotterdam Convention. The flyers were widely distributed to farmers and pesticide applicators.

For the emergency room medical staff, the Ministry of Health developed and distributed to hospitals a poster on the diagnosis and treatment of acute pesticide poisoning. The poster is designed for posting in a visible area of the emergency room so that medical staff can quickly find the information they need, such as: a list and description of the most common pesticides used in Panama; their poisoning symptoms, diagnosis and treatment; the support measures for vital functions; elimination of the toxic substance from the organism; and laboratory tests that should be carried out.

The information was provided by the Department of Pesticide Registry of the Ministry of Agriculture (MIDA) and was reviewed by the Centre for Information and Toxicological Advice (CIAT) of the University of San Carlos in Guatemala.

DOMINICAN REPUBLIC

The project in Dominican Republic also had three parts. These were an evaluation of the pesticide poisoning incidents recorded during 2016-2017, improvement of the electronic reporting form for such incidents, and development of a clinical guide for the diagnosis and treatment of pesticide poisoning.

*Training nurses on use of the APP Module.
©MINSAIR. Arjona*



Evaluating Poisoning Incidents

During the 2016-2017 epidemiological cycles, 106 cases of acute poisoning were reported to the country's National Epidemiologic Surveillance System (SINAVE). Based on a review of each case file and a field-based survey, it was determined that 55 cases corresponded to pesticide poisoning, with 41 incidents resulting from dermal exposure and 14 from respiratory exposure. Of the 55 cases, 29 were voluntary poisoning, 17 were accidental poisoning (non-occupational) and 8 were occupational poisoning.

The cases included five registered deaths. These involved one occupational poisoning, three accidental poisonings, and one voluntary poisoning.

The clinical files of the eight cases of occupational exposure were recovered, and epidemiologists from the country's General Directorate of Epidemiology (DIGEPI) carried out a field interview using the new digital APP module. Unfortunately, none of the affected people could provide details about the active ingredients or formulations that caused the incident. Nevertheless, the first part of the project produced a clearer picture of the extent of pesticide poisoning in the country.



Poster on the Diagnosis and Treatment of IAPS developed for the emergency room medical staff.
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Training on Resolution 042, Los Santos, november 2015.
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Improving Surveillance

Unlike the other countries, when the project began, Dominican Republic had an electronic surveillance system that already included the collection of pesticide poisoning data. But the data were not sufficiently detailed. The second part of the project therefore focused on improving the reporting format by adding variables from the Rotterdam Convention format to report pesticide-poisoning incidents.

The new format includes such information as the name and type of formulation, the name of the active ingredient(s), the relative amount of each active ingredient in the formulation, and details of the poisoning incident. The new version is an important advance in the collection of data on acute pesticide poisonings

and the generation of statistics, which in turn creates a more accurate picture of the real-life situation in the country.



Review of medical records at the Regional Hospital José María Cabral y Baez, Dominican Republic, november 2017.
©FAO/IA. Cesin



Guide for Pesticide Poisoning Response

At the request of the General Direction of Epidemiology of Dominican Republic (DIGEPI), the Ministry of Health, the Rotterdam Secretariat, and different scientific societies in the country collaborated in producing a clinical guide for the diagnosis and treatment of acute pesticide poisoning.

The guide is based on the recommendations of the World Health Organization (WHO) and other international experts. It describes the toxicological properties of different pesticides; the symptoms, diagnosis and treatment of acute poisonings; and key points to be considered in different cases according to the chemical group. The guide was distributed to hospitals throughout the country and was posted on the Internet.

Guide for the diagnosis and treatment of acute pesticide poisoning.
© FAO/IE. Acosta



Training on Rotterdam Convention, Santo Domingo, Dominican Republic, december 2017. © FAO/IA. Cesin



Meeting with the Designated National Authorities of the Rotterdam Convention, Quito, Ecuador 2017.
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HONDURAS

The main objective of the project in Honduras was to enable the country to collect more timely and reliable data on pesticide poisoning incidents and to record the data electronically. The project also sought to raise awareness about the Rotterdam Convention among important stakeholder groups.

Modern technology for poisoning reports

Honduras had been collecting data on pesticide poisoning incidents since 2011, when a country-wide program was implemented for hospitals to record information about cases they treated. In 2014, the surveillance was extended to all chemical substances identified in poisonings. The problem was that the information was only available on paper and had not been consolidated or digitalized.

In an effort to have a clear picture of the extent of acute pesticide poisoning in the country, the Ministry of Health collected, reviewed and processed the clinical records of each hospital where the people had been treated. The Ministry found that the public

hospital network had registered 6,163 hospital visits following pesticide-poisoning incidents between 2000 and 2012. Faced with those numbers, the Ministry requested assistance from the Rotterdam Secretariat to improve the reporting system.

In response, the Secretariat worked with the Ministry of Health and the Center for the Study and Control of Pollutants (CESCCO) of the Ministry of Energy, Environment, Natural Resources and Mines, to develop a digital system and mobile phone application to collect and register future data on pesticide poisonings. The variables used for this module were taken from the previous national reporting format as well as the format developed by the Rotterdam Convention.

The digital system, hosted on the Server of the National Secretariat of Health (Ministry of Public Health), was tested in the two most important hospitals in the country and will be introduced gradually throughout the country. The mobile application, to be tested in hospitals in rural areas, operates in both online and offline mode: it can store data locally and, once an internet connection is available, will transmit the data automatically to the system.



*First Test of the APP Module, East Regional Hospital "Gabriela Alvarado", Danli, Paraíso, Tegucigalpa, Honduras, november 2017.
©FAO/M. Cabrera*

Stakeholder Training and Communication

Four workshops and six working meetings were held to raise awareness about the Rotterdam Convention and the project, and to review and agree on the variables for the

digital system. A total of 140 stakeholders (70 women and 70 men) attended. Most of these were professionals from the health care sector, especially epidemiologists. But participants also came from the Directorate of the Ministry of Energy, Natural Resources, Environment and Mines.

These events served both to explain the objectives, importance, benefits and obligations of the Convention and to train stakeholders in use of the digital reporting system and mobile application. In addition, communication between the stakeholders was improved, and commitments were made for protecting human health and the environment.

*First Test of the APP Module, East Regional Hospital "Gabriela Alvarado", Danli, Paraiso, Tegucigalpa, Honduras, november 2017.
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FURTHER TECHNICAL ASSISTANCE

The projects in Colombia, Panama, Dominican Republic and Honduras confirmed that countries often face challenges in complying with the obligations of the Rotterdam Convention. Yet the projects also showed how important it is for them to meet those challenges and to use the Convention to better manage pesticides.

To better understand and improve the situation, further technical support for implementing the Convention was provided between January 2017 and March 2018 in six countries: Panamá, Honduras, Peru, Ecuador, Argentina and Chile. The purpose was to help the countries fulfil their obligations and also to determine how well the Convention was being implemented in Latin America.

Each country's compliance with the Convention obligations was evaluated to determine whether they were accurately reporting their regulatory actions, import responses for products listed in Annex III, and information related to the export of products in Annex III or with a final regulatory action.

The evaluations were done by an international expert who spent a week in each country meeting with the Designated National Authorities and Official Contact Points for the Convention and with any others involved, such as FAO representatives. A report was then sent to the DNA of each country identifying gaps and problems in implementing the Convention and suggesting actions to close these gaps. The report will be important for the DNAs as it provides specific information on how the Convention is being implemented, on the countries' strengths and weaknesses, and on the best way to improve in the short and long term, given local conditions.

CONCLUSIONS

The Latin American projects show that implementation of the Rotterdam Convention with support from the Secretariat can greatly strengthen countries' capacities to collect, record and report information on acute pesticide poisonings and on the import and export of severely hazardous chemicals. This not only enables health care workers to better treat poisoning victims, but also provides the government with real data that help them to work on the development and implementation of pesticide risk reduction strategies.

The projects also brought people together in the common goal of improving pesticide management and risk reduction. They strengthened the interaction between regulatory agencies, health care services and other institutions, and between these bodies and pesticide stakeholders such as farmers and pesticide applicators. It is hoped and expected that this interaction will continue. For all concerned, the projects raised awareness about pesticide risks, and they provided information and training on how to reduce those risks.

For more information

see the web site of the Rotterdam Convention

<http://www.pic.int>

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