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Health Canada

Regional Workshop on Chemicals Risk Assessment and Management for Human Health Outcomes: Lessons from Canada, Latin America and the Caribbean

Lima, Peru, 8-10 November 2016

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EXECUTIVE SUMMARY

Chemicals are an integral part of our activities and are critical to the economy, communities and households. For this reason, chemicals must be used in a way that protects human health and the environment. According to projections, the production and use of chemical substances will increase in all countries and with greater intensity in developing countries.

Based on this, the Ministry of Health of Canada and the Pan American Health Organization, aligned with Resolution WHA 69.4 on the "Role of the health sector in the Strategic Approach to International Chemicals Management in view of the objective set for 2020 and beyond", proposed to develop the workshop "Evaluation and Management of Chemical Risks in Human Health: Sharing experiences from Canada and Latin America and the Caribbean ", with the objective of strengthening the rational management of chemicals, through sharing of regulatory experiences, chemical risk assessment, and the application of risk management tools.

The workshop was held in Lima, on 8-10 November, and was attended by 30 professionals from 13 countries in the Region, as well as representatives of the Pan American Health Organization (PAHO) from Washington D.C. and Lima. Opening remarks were made by PAHO's country representative in Peru, who emphasized the importance of responsible management of chemicals, and recalled resolution WHA69.4 on health in chemical safety. The PAHO/WHO Regional Advisor on Toxicology also presented activities that are being carried out in coordination with WHO/Geneva and with countries in the Region.

Two representatives of Health Canada presented on Canada's Environmental Protection Act of (CEPA), which consolidates different environmental laws and creates spaces for the management of chemicals and is managed by the Ministry of Health and the Ministry of Environment. They also presented the Canadian process for the categorization of existing chemicals under CEPA, with persistence, bioaccumulation and toxicity as the priorities. In addition, these proposals were presented in plenary sessions, with the participation of national, international stakeholders.

The Canadian Chemicals Management Plan (CMP), which is supported by the Domestic Substances List (DSL), was also mentioned. The risk assessment under the CMP is developed in 3 phases: exposure assessment, clustering of chemicals and the assessment of 23,000 chemicals throughout the process.

During the second day, risk assessment principles and approaches aimed at protecting human health and the environment were presented. In addition, an overview of the activities of information gathering on existing substances was provided. The exposure approach is done step-by-step with several stages: data collection, exposure characterization, writing sections of the assessment report, and concluding with the risk and hazard characterization. The following topics were also presented: risk characterization, and tools for assessing risks to human health under CMP, for which risk assessment toolboxes were used.

The third day featured the Canadian substance notification program, which is responsible for administering the Notification Regulation for new substances, while collecting information from the domestic substances list (DSL), the non-domestic substances list (NDSL), and others published by the Official Gazette. Other topics presented include stakeholders who participate in the communication process and decision-making; and public disclosure, in order to motivate

and facilitate decision-making for the protection and/or minimization of risk avoidance of chemicals, thus ensuring adequate information for the population. Success stories and lessons learned were shared, based on the launch of CMP, the development of new assessment methodologies, and participation in international initiatives.

During the first day of workshop, delegations from participating countries such as Brazil, Uruguay, Paraguay, Suriname and Chile presented international agreements in accordance with their national legislation. On the second day, delegates of Costa Rica, Guatemala, Nicaragua, Honduras, Jamaica, and Panama presented on the intersectoral evaluation and risk management.

Finally, this report also contains the workshop evaluation report, which indicates the workshop received good ratings overall; and includes suggestions from participants to improve future editions, such as sharing information in advance, promoting activities for practice during the workshop, and strengthening short-term action plans.

ACKNOWLEDGEMENTS

The “Regional workshop on chemicals risk assessment and management for human health outcomes: Lessons from Canada and Latin America and the Caribbean was developed thanks to the support and the joint coordination of the Ministry of Health of Canada, the country office of PAHO/WHO in Peru, and the Special Program of Sustainable Development and Health Equity (SDE) of the PAHO/WHO in Washington D.C.

Special thanks to the Minister of Health of Peru, Dr. Patricia Garcia Funegra, PAHO/WHO country representative in Peru, Dr. Raul González Montero, and Dr. Teófilo Monteiro from Project ETRAS.

The organizing committee recognizes the effort made by SDE focal points and administrative personnel of PAHO/WHO country offices, for their coordination in assisting the ministries of health and environment represented in the event. We also acknowledge the invaluable support of Kira Fortune, Ana Boischio, César Johan Pereira Victorio, David Vlasblom, Andrew Beck, Kathy Hughes, Elida Vaught, Vivian Fernández, Grace Olivia, Cecilia Barrios and Henry Hernández.

Our sincere gratitude to all people and institutions, especially participants, which contributed to the success of the workshop.

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INTRODUCTION

At the global level, the production, use and disposal of chemicals continues to grow. Chemicals are an integral part of our daily lives and are essential to our economies, communities and households. Therefore, all chemicals should be used or managed in a manner that protects human health and the environment.

It is estimated that 12.6 million of annual deaths (22.7%) and 596 million of adjusted life years, (21.8% of all burden of disease by disability-adjusted life years) are linked to modifiable environmental factors, especially to the exposure of chemical substances. In 2012, nearly 1.3 million of deaths (2.3%) and 43 million of adjusted life years (1.6% of all burden of disease by disability-adjusted life years) were due the same factors (1). Given the complexity of the estimates, only information relative to the burden of disease linked to the exposure of few chemical substances are available. However, people might be exposed to many other chemical substances in their daily lives (2).

According to current estimates, the production and use of chemicals will increase worldwide, even after 2020. Those increases will be greater in countries with economies in transition and in developing countries (3). Considering the acute, chronic and adverse health effects that may result from the exposure to chemicals and wastes, the World Health Assembly, held in Geneva on May 2016, adopted the Resolution WHA69.4, on the "Role of the health sector in the Strategic Approach to International Chemicals Management in view of the objective set for 2020 and beyond” (2).

Aligned with the Resolution WHA69.4, the Ministry of Health of Canada and the Pan American Organization proposed to collaborate with ministries of health of countries in the Region of the Americas, with the purpose to support the sound management of chemicals through the development and implementation of training sessions. These sessions aimed to share technical knowledge, tools, lessons learned, and best practices acquired by Canada on the management of chemicals in the past 30 years, and experiences from countries in the Region.

The topics addressed on the agenda (annex 1) include the presentation of the PAHO's regional program on health in chemical safety; presentations on experiences related to the Canadian Environmental Protection Act (CEPA); Chemicals Management Plan (CMP); and regulations related to health in chemical safety, risk assessment and management. The workshop format was composed by presentations of experts from Canada and PAHO, country experiences exchange, and plenary discussions.

This report summarizes all sessions conducted throughout the workshop, including country presentations and plenary discussions. It also presents the workshop evaluation report, and a photo gallery, which shows the impact of the workshop.

OBJECTIVES

Strengthen the sound management of chemicals through sharing of regulatory experiences, risk assessment and the application of risk management tools in selected countries in the Region. In addition, facilitate discussion on the achievements and challenges in strengthening the health in chemical safety acquired by the Government of Canada and countries in the Region.

AGENDA

The workshop was held between November 8 and 10 in Lima. The agenda promoted the Canadian experience on risk assessment and management of chemicals, and the presentation of participating countries on their current situation regarding risk management of chemicals. (Annex 1).

The workshop was attended by 30 professionals representing 13 countries in the Region: Brazil (3), Canada (2), Chile (1), Costa Rica (1), Guatemala (1), Honduras (3), Jamaica 1), Nicaragua (1), Panama (1), Paraguay (1), Peru (10), Suriname (1), and Uruguay (1), and representatives of the PAHO Regional Office (2) and PAHO country office in Peru. The workshop was conducted with simultaneous translation in English-Spanish. The Brazilian delegation had no language inconvenience during the workshop. All participating professionals currently hold academic, managerial or technical positions related to health or environment in their countries. (Annex 2).

DAY 1 (8 November)

Introduction and welcoming remarks

The workshop opening remarks were conducted by the PAHO/WHO representative to Peru, Dr. Raúl González, who emphasized the importance of considering chemicals as essential to daily life and the economy, communication and households, while taking into account that its use and management must be carried out in a way to protect human health and preserve the environment.

The resolution WHA 69.4 on health in chemical safety was also recalled. The joint initiative of PAHO and the Ministry of Health of Canada in organizing this workshop was welcome.

At the opening ceremony, the following colleagues from the PAHO country office in Peru participated:

- Dr. Teófilo Monteiro. Director, ETRAS Lima, Perú
- Ing. Henry Hernandez. Regional Advisor in Water and Sanitation in emergency, PAHO/Peru.

1. PAHO's program on health in chemical safety. Ana Boischio – Regional Advisor in Toxicology PAHO/WHO.

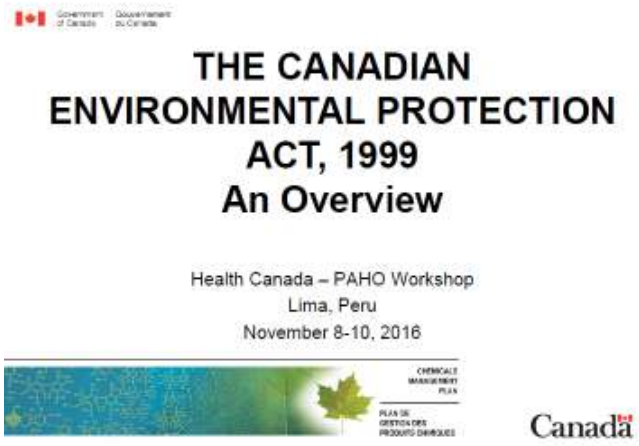
The different activities carried out by the technical toxicology area in PAHO's Special Program for Sustainable Development and Equity in Health (SDE) were presented, in line with the resolutions and work plans at the global level, led by the Secretariat of WHO in Geneva. The importance of the publication "Preventing diseases through healthy environments: a global assessment of the burden of disease from environmental risks", recently published by WHO was highlighted. The publication mentions data on the global burden of disease and the disability-adjusted life year (DALY) attributed to environmental risks.

It was mentioned that 3 of the 17 Sustainable Development Goals (SDGs) are related to chemical substances and that their integration with other SDGs is important. One topic emphasized was preventive measures. Ministries of Health are responsible for establishing goals to reduce exposures to chemical substances through the use and dissemination of WHO guidelines; promoting activities and materials to inform and educate stakeholders; seeking healthy alternatives in the production process, and eliminating chemicals.

The WHO and PAHO online resources on the Toxicology program were shown. It was also mentioned the work on mercury in the Minamata Convention being carried out with countries of the Region: the Global Lead Alliance, regional and national virtual courses on pesticide poisoning, and the regional dialogue on the resolution WHA69.4, which seeks to strengthen the participation of the health sector in the International Strategic Approach to Chemicals towards the 2020 target and beyond.

The application of reference levels from WHO and other agencies, and the conflicts that such reference values can generate was discussed. The importance of working with values of feasible application and the gradual increase of protection to human health and the environment was recalled.

2. An overview of the Canadian Environmental Protection Act (CEPA). Kathy Hughes and Andrew Beck – Health Canada



In 1999, the Canadian Environmental Protection Act (CEPA) was able to consolidate different environmental acts and created a framework for the management of toxic substances. The act is considered an "umbrella law" because it is very broad; and it is administered by the Ministry of Health and the Ministry of Environment.

The guiding principles of CEPA are sustainable development, pollution prevention, ecosystem approach, principles such as the polluter pays and the precautionary principle, intergovernmental collaboration, and science-based decision-making. CEPA focuses on human and environmental health and considers air quality management; fuels, chemicals and spills regulatory acts to be important. CEPA has administrative and consultative functions, encourages public participation, talks about pollution prevention and control, waste management, environmental emergencies and government operations on the management of chemicals.

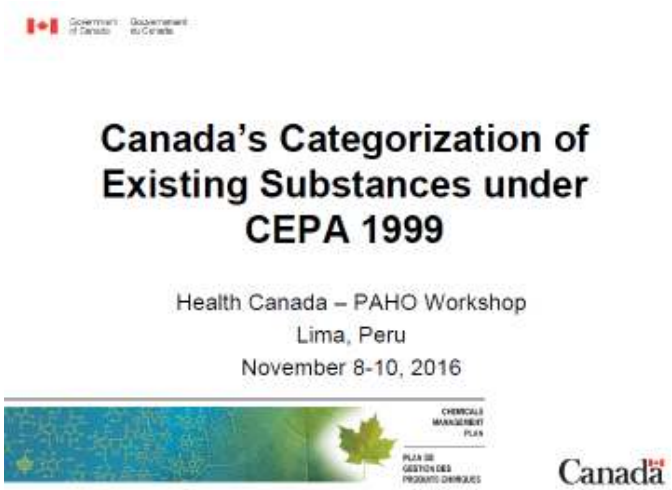
Principles

The assessment of chemical risks is based on scientific evidence and health surveillance. In Canada, environmental protection is a shared responsibility between different government agencies. According to CEPA, close cooperation between federal, provincial, territorial and Aboriginal governments is important. Part of the implementation of CEPA is the necessary timely information, and for this purpose, public consultations are held in order to facilitate communication between scientific representations, the public and stakeholders.

Discussion

Regarding the similarities between CEPA and the international sanitary regulation, it was mentioned that emergency is the responsibility of another area and is not included in the law. There is an alert system for chemical emergency situations that is activated with a telephone call, therefore triggering an immediate response.

3. Canada's categorization/prioritization of existing substances under CEPA 1999. Kathy and Andrew - Health Canada



CEPA was enacted in 1988 and was renewed in 1999. The Domestic Substances List (DSL) was finalized in 1991 for the purpose of defining "new substances". The DSL collects information related to the company, such as the type of activity performed and place of manufacture. The current list has approximately 23,000 substances, and new substances are being added regularly. According to the classification, 50% were organic and 10% inorganic substances, 18% polymers, and 20% were unknown or variable composition substances, complex reaction products or biological material. For a substance to be considered toxic, it must have a negative effect on the environment, be hazardous to the environment on which human life depends on or be a danger to health.

It was commented that the first step for the categorization was the establishment of priorities based on the identification of characteristics such as persistence, bioaccumulation, and if the substances were intrinsically toxic. The key to the categorization was the preparation and presentation of proposals in public forums and workshops for feedback purposes. In the process of categorization, work was done with other national and international organizations and attention was given to the participation of the stakeholders, giving importance at all times to communication strategies. The joint work between the Ministries of Health and Environment allowed greater integration and synergy between both sectors, thus avoiding repetition of functions. However, in spite of having support tools for the collection of information, the difficulties related to availability and quality of data persisted.

Discussion

It was commented that during the categorization process, acute toxicity were considered as parameters of lesser concern until the evaluation was completed, mentioning that acute exposure should not occur daily in the population.

It was also clarified that a breakthrough in the reduction of the first DSL (from 23,000 to 4,000) was thanks to the information provided by the industry to the government on the characteristics

of the chemicals. Most of the substances collected in the DSL were pure substances, although there were also compounds and others substances that changed their composition over time.
In response to a question on whether occupational risk was considered in the classification, it was commented that it is not at the moment, but from now on it would be possible to identify direct risks with occupational health. It was also mentioned that in the event of an eventual update on CEPA, occupational health will be included in this new process.

4. Country presentations

Brazil - Cayssa Marcondes, Thais Cavendish and Luisa Gregório

During this presentation it was mentioned that Brazil is the sixth largest economy in the world in in regards to chemical industry, and leader in Latin America. Therefore it is important that production protects human health and respects the environment. In 2000, Brazil established a National Chemicals Commission made up of 22 institutions. This committee discusses issues related to the chemical industry, pesticides, mercury, and lead in paints, among others. The commission is aligned with action plans towards the 2020 targets.

The Brazilian regulatory framework is designed to strengthen competencies and share them among the different agencies that work with products of potential risk, physical risk, health and the environment. Despite work and experience with some chemicals such as pesticides, the scenarios are still fragmented. This is the reason there is a need to create an umbrella law for **comprehensive legislation in the chemical industry**. For this purpose, it was proposed a bill for management processes with a large inventory, databases and resources. The proposal was made by a working group with the purpose of identifying draft laws with the participation of different stakeholders.

Uruguay - Carmen Ciganda

Carmen Ciganda presented cases of lead contamination. The first one occurred in 2000, in the neighborhood of La Teja, where children were found to have high levels of lead. In this context, public awareness activities were developed, eventually resulting in the creation of an inter-institutional and interdisciplinary commission, which evaluated risk factors and prepared treatment and mitigation measures for exposure in the area. The second case reported occurred between 2008 and 2009. Cases of lead poisoning were found in a population residing on where there was previously a sanitary landfill and a quarry. In evaluations of the area, it was not only found lead in the land, but also other social, economic and environmental problems.

In both cases, the Government's response was to develop regulations; promote population awareness and training of health professionals; and to strengthen industrial control, remediation of contaminated sites and evaluation of the impact of metals in water. It was also commented that Uruguay has ratified all the international conventions and they are in different stages of implementation.

Paraguay - Stella Presentado

It was mentioned that in Paraguay, the political constitution of 1992 incorporates articles of protection to health and the environment. The executive decree 18969/97 prohibits the

importation and use of hazardous or toxic waste. Resolutions of the Ministry of Public Health and Social Welfare within the framework of the law 836/80 on health code, favor legislation on chemical safety. Despite this, the process of linking the country to international initiatives to protect the environment and compliance with agreements on the control of chemical substances is slow. The international agreements have had a great influence in the legal framework of Paraguay and they are determinants for the implementation of regulations towards the protection of the environment and health.

Suriname - Mahesh Algoe

The representative mentioned that the country has a poorly developed chemical industry and due to population demography, industries are located mainly on the coast where chemicals are mostly used, such as mercury, cyanide, carbon dioxide and pesticides. Although Suriname has a low production industry, it was commented that the process of storage and disposal of chemicals is not done properly. The international agreements are in the process of development and implementation.

There are different government departments that work with chemicals in Suriname. For example, the Ministry of Commerce licenses, advises other ministries, and imports the products; the Ministry of Health supports regulations through legislation on specific chemicals such as acetic acid, lead, detergents, pesticides, etc.; the Ministry of Agriculture and Fisheries regulates the importation of chemicals, legislates on recommendations of products on FAO lists, and prohibits the use of certain pesticides; the Ministry of Labor controls the work places; and the Ministries of Economy and Justice support the control of licenses and importation of chemical products. The National Institute for Environment and Development in Suriname (NIMOS) is responsible for developing a national legal and institutional framework for the implementation of policies and management of issues of interest, and achieving sustainable development in Suriname.

Chile - Roxana Tessada

The presentation mentioned the ratifications, activities, and focal points of the various international conventions. For example, in 2005 the Stockholm Convention was ratified, and as a result, an implementation plan was developed. The plan includes survey and action plans of contaminated sites; and regulations on dioxins, furans, polychlorinated biphenyls and pesticides, with the focal point being the Ministry of Environment. That same year, the Rotterdam Convention was ratified. The Ministry of the Environment was assigned as the focal point, and other national authorities were assigned by the Ministry of Health and the Ministry of Agricultural and Livestock Service. The Basel Convention prohibited the export of hazardous waste, such as lead batteries. For this Convention the focal point was initially the Ministry of Health, and posteriorly the Ministry of Environment. Finally, it was commented that the Minamata Convention has not been ratified yet, but initiatives are being implemented, such as "mercury-free hospitals", that is currently being coordinated by the Ministry of the Environment, where the project is being developed for ratification and implementation.

The risk management model for environmental health was presented, which is aimed at establishing procedures and technical criteria integrated into the Health System, addressing the health risk situations associated with environmental risk factors in a timely manner. This model identifies the hazard and environmental risk factors, classifying the event according to different

levels of risk to health or the environment, and based on this, it defines intervention measures. It was also commented that heavy metals monitoring has been implemented within the environmental epidemiological surveillance system.

Discussion

Representatives of Brazil, Paraguay, Uruguay, Suriname and Chile participated in the discussion.

In response to questions regarding the participation experience of the Health Sector in the management of chemicals: the Paraguayan delegation mentioned that it is important for them to have a national coordination that centralizes the actions related to the subject, and that the concerted meetings help in decision-making. The representative of Uruguay commented that the general directors of different sectors (including Health sector) participate in the commissions referred to the conventions that guarantees the inclusion of the health sector in discussions. It was also commented that persistant organic pollutants (POPs) should have greater participation of the health sector in which case, the support of PAHO/WHO through the implementation of international policies will be vital. Representatives of Brazil mentioned that they have the same visibility of the problem. They highlighted that in order to achieve the participation of the Health Sector in international, regional and national agreements, it is important to work with other sectors, while having support from PAHO/WHO regarding information on resolutions and inviting the participation of the sector. Finally, participants from the Peruvian delegation, who were not part of the panel, requested the floor to mention that in Peru, the Health Sector has lost strength of participation in international events related to the environment, following the implementation of the Ministry of the Environment.

The next question addressed to the panel was related to how public information on different investigations regarding chemicals issues is handled. The representative of Paraguay stated that during a fire of 40 hectares where firefighters, police, and the population were exposed, the government kept the population informed on a daily basis, through its communication offices. This gave the population greater tranquility and improved their confidence. The delegation of Brazil commented that information management remains a challenge because of the size and diversity of Brazil's population, where in many cases it is necessary to adapt the information for each community. They also mentioned that notifications of poisonings are mandatory and public. Uruguay commented that the feedback of their investigation responses - when dealing with closed areas - is usually to the affected population. It was also commented that for transparency reasons the information is shown globally. In Chile, the information is given to the community itself and to each individual, aiming to improve the confidence of the population with the Health Sector.

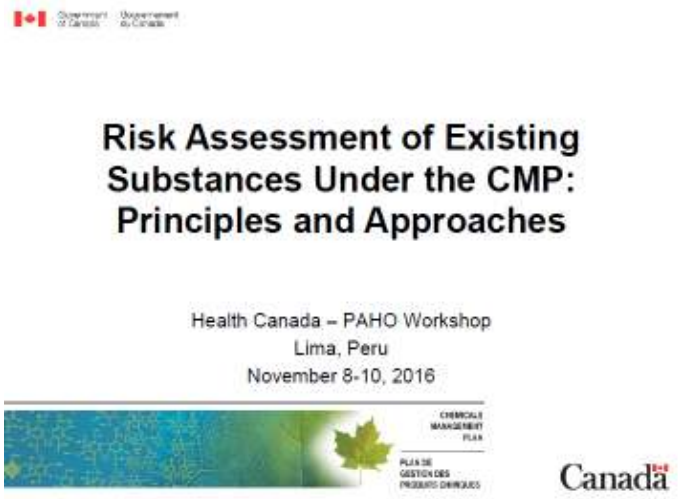
5. Overview of Canada's Chemicals Management Plan (CMP). Kathy Hughes and Andrew Beck - Health Canada.

It was commented that in 2006 - after the elaboration of the **Domestic Substances List (DSL)** – 4,300 products were identified for a last analysis. CEPA required Ministers of Health and Environment to carry out prior assessments of chemicals that met the categorization criteria. The CMP was announced in 2006 and relied on the categorization initiative to improve protection against hazardous substances, while setting clear priorities for assessing and managing chemicals used in Canada. The CMP's key objectives include Canada's actively participation in the Strategic Approach to Chemicals Management (SAICM); to provide a framework for the evaluation and management of 4,300 identified substances; and to integrate federal programs into a single strategy.

The process of implementation and development of the CMP had three phases: the first one of greater complexity consisted in acquiring resources, establishing processes and classifying priorities; in which it was necessary to update the DSL inventory. Phase 2 was conducted between 2011 and 2016, with the objective to update the DSL inventory (approximately 2,700 substances); and Phase 3 by 2020 will have the ambitious task to cover about 1,550 remaining priorities. Finally, it was mentioned that the continuity of the CMP is key to an effective regulatory framework based on science and targeting chemicals, while relying on research, integrated monitoring and inventory updating.

DAY 2 (9 November)

6. Risk assessment of existing substances under Canada's Chemicals Management Plan (CMP): Principles and Approaches. Kathy Hughes and Andrew Beck - Health Canada



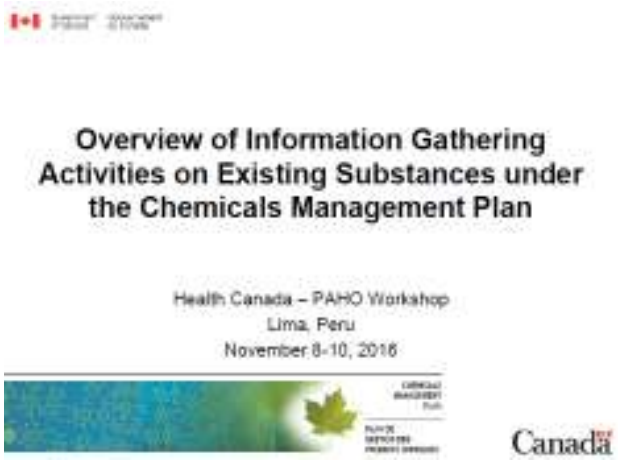
It was mentioned that the fundamental principles of the CMP were to protect human health and the environment as required by CEPA. The evaluation process included flexible approaches and was used for substances and groups of substances. The risk assessment initiatives included the identification of 200 high priority substances for their health and environmental hazards, also known as the Challenge of Ministers. The risk assessment process under the CMP is organized in three phases.

In phase 1, one of the major components of the risk assessment was the exposure assessment, which was carried out through higher estimates of exposure of the population to the environment and to consumer products. In Phase 2, the initiative of chemical groups was one of the main activities, where the cumulative risk assessment was considered, and allowed for a more realistic assessment while answering questions about the toxic mode of action. Finally, Phase 3 was announced in May 2016, when it was recognized that there are still 1,500 substances to be evaluated before 2020, for which combinations of substances are being studied based on their functions and chemical similarities.

Discussion

It was discussed what approach would be most appropriate for Ministries of Health to obtain regulations and responsibilities according to their realities. Comments were made on the importance of working with other institutions / agencies, but also relating to the industry, in order to obtain inventories on chemicals. In addition, emphasis was placed on considering the grouping of chemicals within the process to reduce effort, especially for phases 2 and 3. The principle of clustering rests on the similarity of exposure that can be structural and / or functional.

7. Overview of information gathering for health risk assessment under CMP. Kathy Hughes and Andrew Beck – Health Canada



The objectives of the presentation were to provide a description of the different types of information gathering activities (mandatory and / or voluntary) and to describe the overall process of compiling mandatory information, in addition to the lessons learned. The process of collecting information consisted of obtaining the greatest amount of data. For this purpose, various mechanisms were used such as research, monitoring, consultation of other programs and agencies within the Government, support from international collaborators, voluntary data collection initiatives, and information submitted by associations and industry. The information collected is used to support the life cycle analysis of potentially harmful substances and to assess the emissions into the environment and exposure of humans.

The information contained in DSL is not necessarily updated due to changes that occur over time. The idea of the inventory was to gather information to guide the activities of the risk assessment and management programs; to provide predictable and coordinated alternatives to monitor changes at the commercial level; and to guide the establishment of priorities for post-2020 work. The objectives for information collection are to increase in the number of regular surveys per year; to improve knowledge and awareness of substances in the population and industry; and to obtain more information from foreign suppliers. The main recommendation is that the Government continues to optimize the capacity of information gathering activities and to facilitate the exchange of information with cooperating sectors.

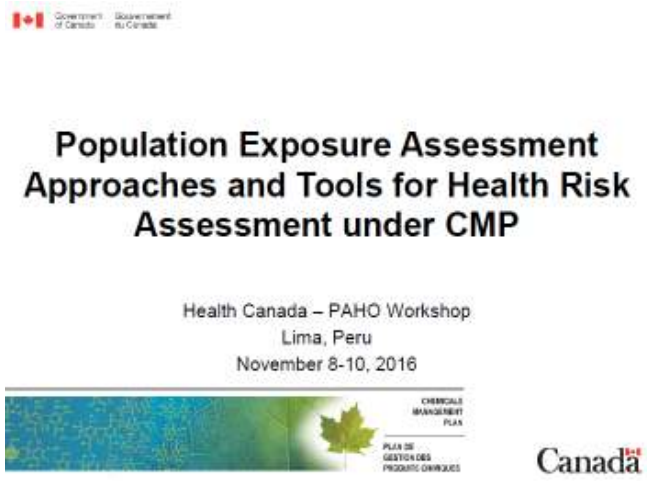
Discussion

It was commented that in many countries in the Region, companies under the principle of confidentiality / secrecy do not provide information to the government. In this regard, further information was asked about the strategies put in place by Canada. The presenters commented that in Canada, confidentiality is a requirement regulated by the government, which allows appropriate interventions even in cases where the company conceals information. In case the company does not have the requested information, it cooperates with the researchers and interested parties. Meetings are planned and the feasibility of obtaining the information is evaluated.

The Jamaican representative commented that they also have issues of confidentiality and information gathering. For example, it is common for importers to have difficulty in obtaining information from manufacturers. This could cause the manufacturer to condition the continuity of its commercial activities in the country, such as to stop importing and manufacturing. Consequently, previous and more toxic substances return to the market because the new ones do not have information and necessary license. Presenters mentioned that if information is not requested, assumptions will be made and risk assessments will have limitations, especially regarding reliability. There is no easy answer to the issue of confidentiality. Sometimes it is better to ask and make the best decision based on each situation. When there are no answers to questions, information can be pulled from other sources.

Canada does not have a program that systematizes information and databases on chemicals. Therefore, they have tried to collaborate with other European organizations and academic institutions, however, without obtaining satisfactory results. According to the presenters, ideally, a document should go through an integrated system and be accessible to all departments. They recommend creating a database to centralize information and enable validity of the process. These steps would avoid duplication of work.

8. Population exposure assessment approaches and tools for health risk assessment under CMP. Kathy Hughes and Andrew Beck - Health Canada.



It was commented that the process of the exposure approach is staggered and has different stages. It begins with data collection, aiming at gathering the most amount of information available while focusing on exposures of major concern; followed by the exposure characterization, where spreadsheets are used to consider all relevant scenarios. The sections of the evaluation report are then written and concluded with the risk and hazard characterization.

Among existing challenges, it was highlighted the need to improve information on specific uses and emissions of substances with few data at the population level. They recognize that there is little information available on concentrations of chemicals in consumer products; that there are discrepancies between the sources of information on the use of trade names; and there is no public data on consumer habits and practices.

Discussion

Regarding how they consider the degrees of uncertainty in Canada, the presenters mentioned that it is considered according to the assessment and existing information about substances, and that each case is unique.

9. Hazard characterization and tool for health risk assessment under CMP. Kathy Hughes and Andrew Beck - Health Canada

It was commented that the collection of information is always the starting point and if necessary, other evaluations are used. For the characterization, a risk assessment toolbox is used (which will be better explained in the following presentation). This toolbox has three approaches and all substances are classified according to their level of complexity. The risk analysis assesses the duration, pathways of entry, physical-chemical properties, and toxicokinetics in each substance or group, and also considers acute and / or chronic toxicity. This is followed by the determination of the critical effects on the evidence of parameters of high concern, such as carcinogenicity, genotoxicity or toxicity in the reproduction and development. Based on this determination, critical effect levels such as the level of no-observed adverse effect level (NOAEL) or lowest observed adverse effect level (LOAEL) are assigned.

In the case of substances with little or no information, new approach methodologies (NAM) are used. These are methods of different approaches to overcome data deficiency. The presenters also mentioned that the uncertainties in the database are characterized in a specific and general way. The idea of the characterization is to ascertain confidence on the databases; to identify the information to reduce uncertainty; and to increase the confidence, since these are factors that influence risk characterization.

Discussion

In several countries in the Region - considering the financing and provision capacities – according to the Canadian experience, there are only few laboratories that must provide information and several of them lack management. The presenters commented that in Canada, there are private laboratories dedicated to specific product testing. The responsibility to each

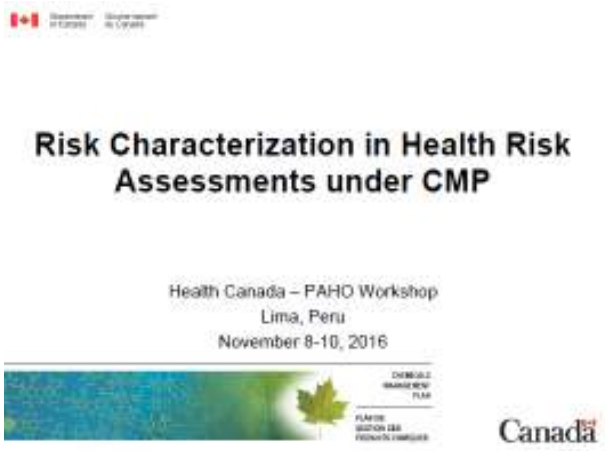
laboratory is assigned through open calls and characteristics such as experience, references, etc., are considered. The laboratory of the Ministry of Health of Canada is public and also tests different substances.

Considering that similar chemical structure can have different risk levels, the presenters mentioned that in Canada they do not always reach the same conclusion for substances within the same group. All substances with similar structure are tested together. After evaluation, the value of substances with the highest risk is then used for the whole group, thus ensuring a certain margin of safety of all products belonging to the group. The minimum and necessary timeframe for the evaluation of new compounds in Canada are usually short, ranging from 5 to 75 days.

The presenters also commented that peer reviewed epidemiological data can be used to conduct risk evaluation or characterization, provided that studies with an appropriate design, such as case control or cohort were properly performed and have been published.

It was highlighted that in case of natural exposure substances, especially in countries in the Region where the geographical variability is greater, it is advisable to separate general exposure from anthropogenic. For example, if most of the risk comes from an anthropogenic source, such as a direct product for consumption, it would be necessary to regulate it directly.

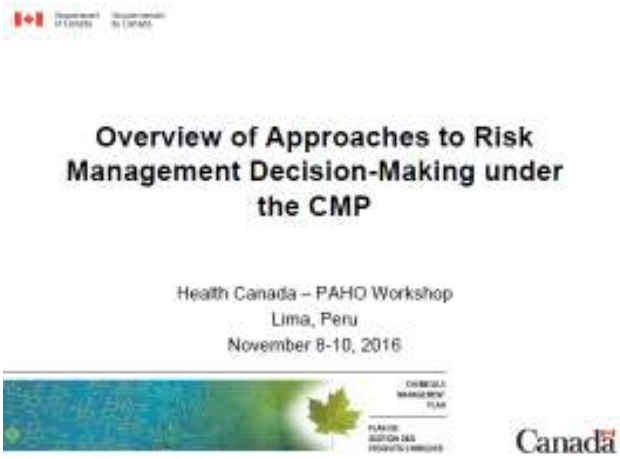
10. Risk characterization in health risk assessments under CMP. Kathy Hughes and Andrew Beck - Health Canada



This presentation mentions the different approaches according to the risk assessment toolbox. Type 1 approach values the qualitative aspect to characterize risk and decision-making, by applying policies based on scientific principles. Type 2 uses qualitative and semi-quantitative approaches, generally used for substances in which very low exposure is anticipated. Type 3 is more quantitative and draws on existing information such as international hazard classifications. In case information is not found, it is necessary to make new evaluations. They also commented that margins of exposure are used to compare levels of human exposure for different age groups and sub-populations.

It was mentioned that risk characterization considers multiple exposure criteria depending on intermittent short or long term exposures. It is also important to have confidence in the data to have adequate levels of uncertainty and to predict the severity of the effects. The use of biomonitoring data, such as serology results or other laboratory tests allows a direct and precise risk assessment. It is also necessary to consider the suitability of the biomarker, quality of data and its interpretation.

11. Overview on approaches to risk management decision-making under the CMP. Kathy Hughes and Andrew Beck – Health Canada



The objective of the presentation was to provide an overview of the process for developing risk management (RM) instruments and the factors that influence decision-making. The cycle of managing chemicals for toxic substances for CEPA was shown. This consists of a systematic approach to identify and establish preventive and control measures to reduce or eliminate risks to human health and the environment. RM is a cyclical process that does not end with the implementation of an instrument, but should also count with biomonitoring and performance measurement.

The presenters commented that for the implementation of the RM, the human health objectives were first defined in order to control, reduce, eliminate or prevent risks - based on risks identified in the evaluation phase. A risk management tool was then selected based on its effectiveness, economic efficiency, impact, stakeholder support, compatibility and international obligations in the environmental, commercial and / or investment area. RM performance measurement begins in the instrument design phase. The evaluation measures success and efficiency in achieving objectives. It was commented that if efficiency of the action cannot be measured, it is better not to do so. RM is a continuous process that does not end with the implementation of the instrument. Periodic collection of data through mandatory or voluntary surveys is necessary, and decision-making regarding RM needs to be flexible and tied to evidence.

Discussion

When asked about actions taken in Canada when agreements with companies that work with chemical substances were not reached, the presenters responded that they had to develop actions to improve the information confidentiality while using the new chemicals tool. It was mentioned that companies are always willing to talk, collaborate and reach an agreement.

Regarding study designs, the presenters were asked about whether the best epidemiological would be case-control or cohort studies. The answer was that both study designs can be used, and will depend on available and objective resources. The risk assessment has a tool to determine the risks but it is necessary to consider the specific scenarios in each case.

With reference to the professional profile to work in these subjects, the presenters commented that the policies are learned along the way. They have levels of action according to competences-solutions and provide professional training. Over 300 chemical control measures have been implemented in Canada in recent years.

12. Country presentations on risk assessment and management in a multisectoral environment.

Costa Rica - Lexi Chaves

It was mentioned that the Ministry of Health's objective is to guarantee the protection and improvement of the health status of the population under the principles of transparency, equity, solidarity and universality. Decree 28113 regulates the records of dangerous products, and all any authorization is the responsibility of the Ministry of Health. Decree 34887 focuses on Central America's technical regulation of hygienic products for registration and sanitary registration. In addition, it was commented that in Costa Rica, some information is made public, but there is also confidential information. There is no record of low or high risk, therefore, the number of petitions is high and make the speed of intervention difficult.

Guatemala - Carolina Guzman-Quilo

The participant mentioned that in Guatemala there are several institutions that work on prevention. For example, the Ministry of Public Health and Social Welfare regulates the management of chemicals through the commission of pesticides; the Department of Regulation and Control of Pharmaceuticals regulates medications, cosmetics,foods and hygiene products; the Ministry of Environment reviews the topics on international agreements; and the Ministry of Labor and Social Security assesses the work environment and exposure to chemicals. Academia also participates through the University of San Carlos (Department of Chemical Sciences and Pharmacy), the Center for Information and Toxicological Advice (CITA), and the SALTRA Center for Environmental and Occupational Health. From the preventive aspect, newsletters, posters, printed or web publications, and lists of distributions are published; and workshops, conferences or courses are developed. Future perspectives and challenges include issues on water, food and regulation.

Nicaragua - Luz Marina Lozano Ochoa

Various laws on pesticides and toxic substances were mentioned. For example, Law 274 "Basic Law for the Regulation and Control of Pesticides, Toxic Substances, Hazardous and Similar

Substances" determines the multisectoral approach in the national pesticide commission. In addition, the Ministry of Agriculture is responsible for the registration of pesticides and toxic substances; the Ministry of Health has the function of issuing toxicological reports, and the Ministry of Environment and Natural Resources ecotoxicological evaluations. In 2014, the National Commission for Registration and Control of Toxic Substances was established by presidential decree to coordinate policies, actions and activities related to the importation, exportation, production, distribution, use and consumption of everything related to toxic substances. Focal points for environmental conventions such as Rotterdam, Stockholm and Minamata are in this Commission.

Honduras - Mirtha Ferrary

It was mentioned that Honduras has signed the main agreements of the international chemical agenda. However, the issue of chemicals management is not a national priority because of budgetary and human resources issues. The country has a national plan to implement risk assessment and management of chemicals (SIP-Honduras) and a national commission on management of chemicals as a mechanism of inter-institutional coordination. Education and awareness on the subject remains at a technical-institutional level with little projection to the general population. There is scarce research conducted in the country and many initiatives in the management of chemicals are spear headed by international cooperation. In Honduras, there is a legal framework available, but without adequate implementation. Legislation does not consistently regulate the life cycle of chemicals, thereby producing legal gaps and insufficient technical standards. It is necessary to elaborate tools for evaluation; create CITAs, and to promote research on the subject.

Jamaica - Brian Stephenson

It was mentioned that according to the MT, there are several government institutions involved. For example, the Ministry of Health, through various agencies, works jointly with other ministries on issues related to chemicals. In Jamaica, there is no Ministry of Environment; however, the National Environment and Planning Agency assumes some environmental responsibilities. The Ministry of Economic Growth and Job Creation is the focal point for a number of multilateral environmental agreements related to the management and disposal of chemicals such as the Basel Convention, Stockholm, Minamata and SAICM. Some ongoing activities are related to capacity building on Jamaica's national program of sound chemicals management, involving multiple sectors and stakeholders. There is large-scale bauxite mining in the country, from a source rich in metals, including mercury. Pesticides from the obsolete pesticide project are exported for disposal as there is no locally approved disposal site.

Panamá - Martín Alpirez

According to the representative's presentation, Panama is part of inter-institutional and country networks, supported by PAHO, such as chronic kidney disease, all of which involve establishing surveillance systems. Surveys developed by PAHO, UN and Chile are being implemented to assess geographical areas. Panama have attempted to correlate environmental health surveillance and timely risk management assessment. They have also produced a bulletin as a result of a fire at the Patacón landfill site, bordered by Colombia, where an indigenous community of Darién was affected. Since 2006/2007, the intersectoral participation was established for the progressive implementation of different international agreements.

Discussion

Regarding activities and functions of centers for information and toxicological advice, the panelists commented that in Guatemala, telephone communication with CITA is possible even after office hours. The CITA laboratory attends urgent cases and in case of intoxication, biological samples are sent and processed at different times. In Nicaragua, CITA has operational capacity and communication and support are provided by telephone. Another advantage is that the intoxicated patients are admitted, and a report is made with the necessary information. In Paraguay, case updates and communication of results are done by CITAs. In Brazil, CITAs, through the chemical inventories law, identify what is being used in the field, which allows them to assess the current situation. Likewise, in Honduras there are no CITAs, despite the availability of resources to enhance exchange and to form operational and technological networks. Finally, the representative of Panama mentioned that international agencies assisted governments in training different sectors; and the system's response to acute poisoning works in a similar way to other countries.

DAY 3 (10 November)

13. Canadian New Substances Notification Program. Kathy Hughes and Andrew Beck - Health Canada

Presenters commented that the new substances program is responsible for administering the new substance notification regulations. Its activity and management is based on CMP. Under this program, Canadian manufacturers and importers are required to notify new substances. Notifications are made based on the DSL, the non-domestic substances list (NDSL) and other additions or deletions that are published in the Official Gazette of Canada. They are approximately 26,000 substances in the DSL and 48,000 in the NDSL.

The consultation process includes pre-notification consultation; the North American Notification Consultation, which is conducted in conjunction with the U.S.; and a parallel process with the

Organization for Economic Co-operation and Development (OECD), which allows governments to cooperate and involves the acceptance of risk assessments by participating jurisdictions.

Discussion

Regarding whether it is necessary to withdraw a drug from the market due to its toxicity and political interference, e.g. through the Ministry of Health, the presenters highlighted the complexity of each case, suggesting that communication is important. Comments were made in reference to a case where a drug withdrawn and information was sent to the pharmaceutical industry.

From the point of view of risk analysis, most imports are not pure products but mixtures. In this case, the information is variable and depends on concentrations. How can reporting account for this variability? In substances classified by industry, the concentrations of products are unknown. But if these products must enter the country, commercial companies must know the components of chemicals from manufacturers. In this regard, the work conducted in Canada consisted of facilitating meetings to improve information, providing ideas on how to obtain information on the concentrations of chemicals in the products consumed.

Businesses can continue operations when there is no established time response. How did Canada come to establish such balances (in the transition) on the ability of human resource to establish time? The presenters responded that the times were negotiated and that it took several years to assess the time needed. Errors were identified in the process and served as experience; then a framework that allowed them more time was negotiated. To estimate time, it is advisable to start with something that is reasonable to obtain results. Unfortunately, this process depends on the legal structure and the human resources in each country.

14. Stakeholder engagement. Kathy Hughes and Andrew Beck - Health Canada

The objective of the stakeholder engagement is to foster transparent and predictable decision-making with an adequate process of communication and ensuring the participation of stakeholders throughout the process. In the CMP, the commitment of the stakeholders is recognized as a pillar and key for success. The commitment strategy was built on the principles of transparency, accountability and predictability. The approach includes support for

consultation and information gathering, building stakeholder relationships and engaging stakeholders.

Presenters commented that the Stakeholder Advisory Council (SAC) is multidisciplinary and multi-party group that provides advice and input to Government on the implementation of the CMP. This process includes risk assessment, risk management, risk communications and various cross-cutting activities that are integrated into the CMP. The members of the Advisory Board are represented by indigenous national industry and organizations, consumer groups, environmental and health NGOs. From the Canadian experience, effective stakeholder participation offers benefits, including improved data and information, as well as adequate decision-making.

Discussion

In regards to the number of NGOs that actively participates in matters related to chemical substances, it was commented that there are approximately 12 NGOs in Canada. In terms of communication targeting stakeholders, there are different communication strategies available, e.g., there is a capacity-building contract that is funded with approximately $ 80,000 Canadian dollars/ year. Through this contract, an organization is chosen to help organize courses and communication strategies. In addition, stakeholders are part of the Advisory Board, which has the capacity to disseminate information.

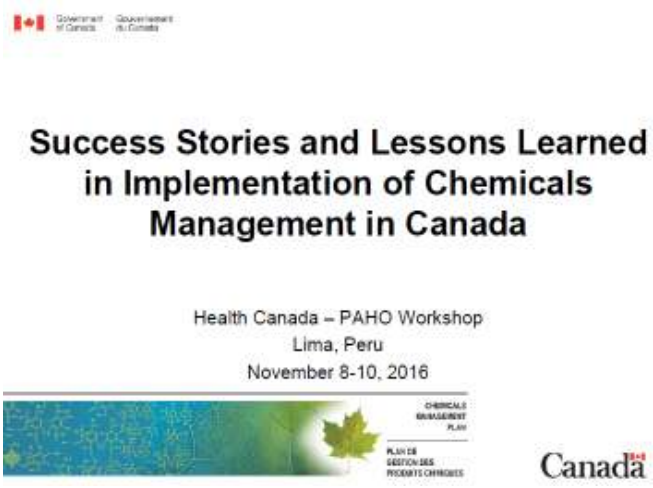
15. Public outreach. Kathy Hughes and Andrew Beck - Health Canada

The presenters mentioned that public outreach is aimed to motivate Canadians to take measures to protect their health and prevent/minimize risks from chemicals; to ensure that Canadians are informed on program findings; and to raise visibility and the understanding of the CMP.

Public outreach is an important tool in risk management and ensures that Governments share simple, clear, science-based information to citizens, while avoiding contradictions. The information must be oriented towards action and foster confidence in the regulatory system, and count with strategic partnerships within and outside the Government.

They also commented that public outreach makes relies on social media, media outreach, publications, web sites, marketing activities, awareness events and trade-shows. The Canadian Government has adopted a strategy based on 4 pillars aimed at conducting research to identify the best practices to reach the population; informing and engaging Canadians; educating and enabling key influencers; and developing and leveraging partnerships.

16 . Success stories and lessons learned in implementation of chemicals management in Canada. Kathy Hughes and Andrew Beck - Health Canada



The presenters mentioned that Canada was the first country to systematically prioritize all existing substances. Thanks to this, the CMP was launched and new assessment methodologies have been developed. Canada has also influenced research priorities and the participation of international initiatives. Among the main lessons learned, it was highlighted the need to constantly evolve and adapt to each circumstance by changing and adjusting approaches accordingly; implement progress evaluation and monitoring; identify opportunities to obtain results; and to foster the participation of stakeholders starting early on. Remarks were made that long term program visions may not meet need for short term deliverables. Also, that streamlining efficiencies in risk assessment and identification of lower hazard alternatives are necessary.

Discussion

According to the Canadian experience, it was mentioned that since the year 2000 there were further research of dust as sources of external contamination from lead in paint. Research is ongoing and place emphasis on the toxic content in dust.

17. Peru presentation. Laura Nayhua – MINSA

The presentation mentioned the Peruvian experience in relation to chemical risks on 1) normative aspects and 2) epidemiological surveillance. It was pointed out that there are several legislations at the country level: in the Ministry of Health, articles 96, 100 and 104 of the health legislation states "rules on substances and hazardous products to health, in which all measures and precautions necessary to prevent damage to human, animal or environmental health must be taken, according to corresponding regulations ". Also mentioned were the existence of normative documents related to chemical substances issued by DIGESA; technical standards for "epidemiological surveillance of risk factors for exposure and pesticide poisoning" and "epidemiological surveillance of risk factors for exposure and poisoning by heavy metals and metalloids", issued by the former Directorate General of Epidemiology, now National Center for Epidemiology, Prevention and Control of Diseases (CDC) – MINSA. There are also practical guidelines for lead, cadmium, mercury and arsenic, by the former Directorate General of People's Health, now the Directorate General of Strategic Intervention in Public Health. In addition, there are other standards issued by other sectors such as the Ministry of Agriculture (MINAGRI), Ministry of Environment (MINEV), Ministry of Labor and Job Promotion, and Ministry of Transportation and Communications; which are ministries related to chemical substances. Peru participates in various international conventions such as Stockholm, Rotterdam and the Minamata, which was ratified on 11.25.2015.

Further, the epidemiological surveillance for exposure and pesticide poisoning was explained. The surveillance was implemented by the CDC-MINSA at the national level through the surveillance network of more than 8,000 health facilities, which reported weekly in 2016. According to the chemical group, more than 90% of the cases were exposed to carbamates, coumarins, organophosphates and peritroids. Among main activities, it was highlighted agriculture 40.6%, workers 21.5%, students 19.5%, households 7.2%.

Discussion

Participants asked to have access to the Peru's legislations. Comments were made regarding the handling of cases and the need to implement and strengthen toxicological centers in the region.

18. WORKSHOP EVALUATION

INTRODUCTION

Aligned with WHA69.4 Resolution on the "*The role of the health sector in the Strategic Approach to International Chemicals Management towards the 2020 goal and beyond*, Health Canada and the Pan American Health Organization (PAHO) proposed to work with Ministries of Health authorities in the Region of the Americas to support the sound management of chemicals, by organizing and delivering capacity-building sessions under the 2016-2017 PAHO/Canada Biennial Work Plan.
Topics addressed on the workshop agenda included Canadian health-related legislation on chemical safety and tools for assessment and risk management. The workshop included presentations about PAHO's Toxicology program, presented by its Regional Advisor; the Chemical Management Programme (CMP), presented by Health Canada representatives, and the country experiences, presented by their assigned representatives. For this purpose, terms of reference were developed, agreed upon, and disseminated. Presentations were followed by question and answer sessions, plenary discussions and experience exchanges, with simultaneous translation in English and Spanish.

Workshop objective

To strengthen the sound management of chemical through the exchange of regulation and risk assessment practices; and the application of risk management tools to facilitate the discussion on the achievements and challenges in strengthening health in chemical safety, by the Government of Canada and countries in the Region.

Evaluation

Participants were invited to evaluate organization and content aspects during the conclusion of the event. The workshop was attended by 30 participants from 13 countries: Brazil (3), Canada (2), Chile, Costa Rica, Guatemala, Honduras (3), Jamaica, Nicaragua, Panama, Paraguay, Peru (10), Suriname and Uruguay. In addition, 2 representatives of PAHO/Headquarters, and 1 representative of PAHO/Peru participated. Peruvian participants included the offices of the Ministry of Health (MINSA), the General Directorate of Environmental Health (DIGESA), the National Health Institute National-Center for Occupational Health and the Environment (CENSOPAS) and the National Center of Epidemiology and Disease Control (CDC). A total of 20 participants contributed to the final results presented below.

Methodology

A survey tool was applied to evaluate different workshop aspects (Annex 1), using the following responses codes:

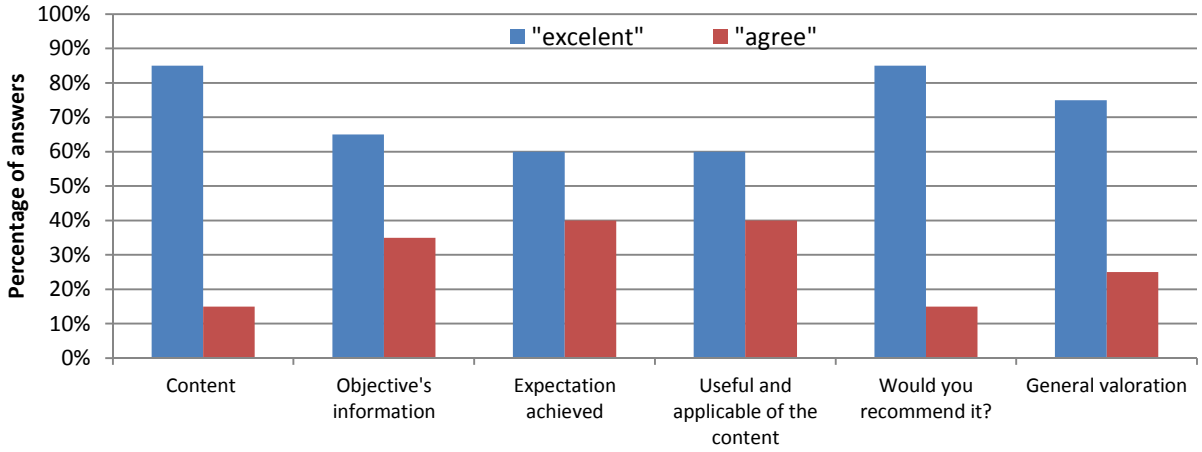
- 5 = Excellent (Blue)
- 4 = Agree (Red)
- 3 = Neutral (green)
- N/A = Not applicable

Although name identification was optional, all respondents indicated their names.

Results:

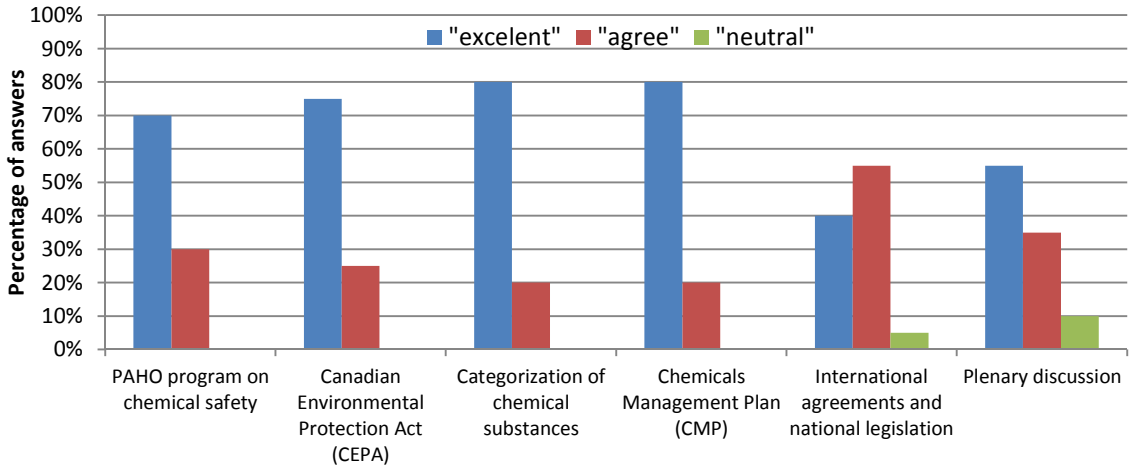
Responses were mostly rated as 5 (excellent), 4 (agree) and 3 (regular).

Figure 1. Evaluation of workshop general aspects (n = 20)



Assessment of the different workshop aspects were positive (figure 1). Answers differed regarding perceived interest and usefulness of topics. Most respondents commented on the importance of risk communication; however the topic was not included in the agenda. Well rated topics include: successful experiences and lessons learned by Health Canada; overview of the Chemicals Management Plan; different stages of risk assessment; notification programs; description and categorization of chemicals; and the assessment and methodology of risk management.

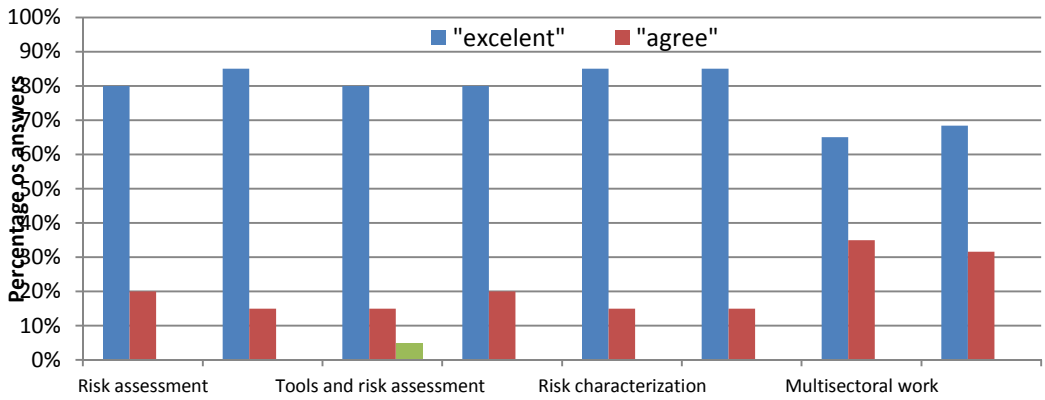
Figure 2. Percentage of ratings on thematic panel presentation on day 1 (n = 20)



Participants were mainly pleased with the variety of topics presented during the first day, and provided "excellent and agree" ratings. They provided good comments regarding satisfaction on clarification of questions during the question and answer sessions on the first day. The Canadian legislation on the risk assessment and management process was noted as an important topic. It was mentioned that the role of health surveillance systems for chemicals in

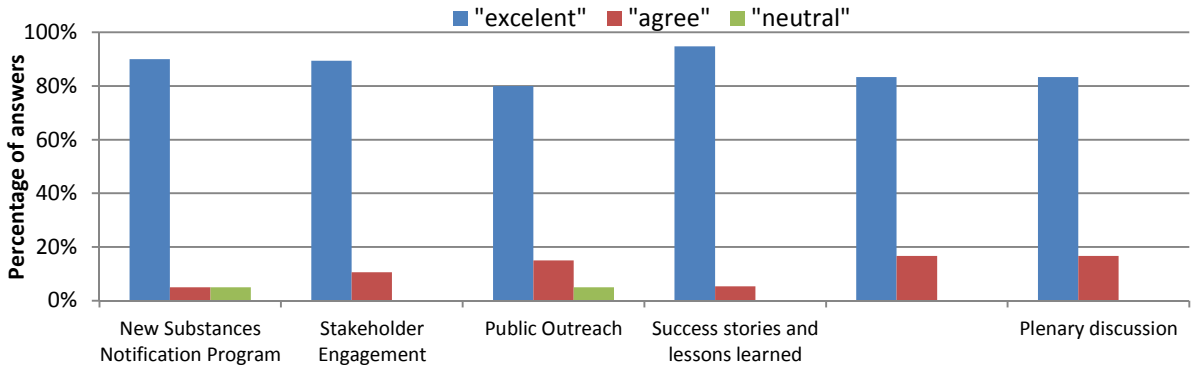
the chemicals management process was important. Participants' diversity of professional background and association with different institutions such as Ministries of Health and Environment, and Occupational Health Departments enriched discussions, given the diverse and constructive opinions. In summary, respondents mentioned that the Canadian experience is enriching and the topics presented on the first day met their expectations. However, the participants acknowledged that achievements are the result of institutional availability of funds and trained human resources.

Figure 3. Percentage of ratings on thematic panel presentation on day 2 (n = 20)



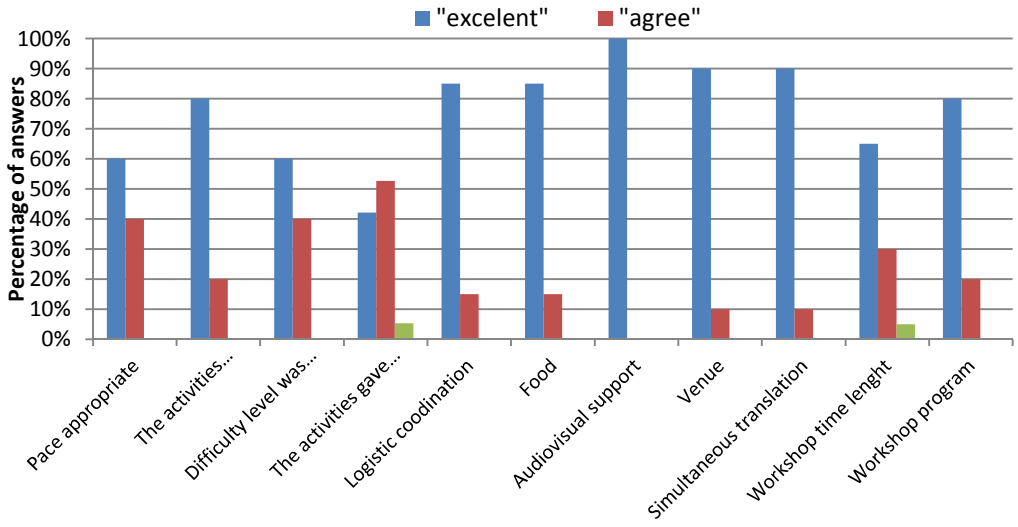
Participants mentioned the second day was satisfactory and the presentations met their expectations. It was noted that teamwork allowed for better interaction among participants in attendance. During the second day, countries' presentations followed the schedule established on the agenda and terms of reference. In addition, participants commented that presentations satisfaction was also achieved due to the opportunity to observe and learn from other countries' experiences, challenges, weaknesses, achievements, and their current situation. Challenges that are permanently present on health in chemical safety, as well as confidentiality, and business secrecy were topics considered necessary. Comments were made regarding the need to implement standardized surveillance systems for bio monitoring of chemical substances, in order to support countries.

Figure 4. Percentage of ratings on thematic panel presentation on day 3 (n = 20)



Topics presented during the third day were rated satisfactory, and presentations were considered straight forward, especially the Canadian experience. Participants also mentioned the need intersectoral work and permanent social participation. Although risk communication was not in the agenda, participants' questions allowed discussion on the topic, which was considered valuable.

Figure 5. Percentage of ratings on the quality of workshop organization and logistical arrangements (n = 20)



Recommendations for workshop improvement include presentation and implementation of examples on concept applications using online resources to review the models mentioned; examples for the calculations of quantitative estimates on exposures, and risk characterization through databases. Recommendations on practical activities were also provided orally during the workshop. Participants mentioned the importance of including other topics such as chemical solid waste and pesticide management, and risk assessment and surveillance.

The following table shows the frequency of participant's recommendations for workshop improvement:

Recommendations	Frequency
Provide better information (reading, documents) prior to the workshop	11
Use of application exercises during the workshop	10
Strengthen short term workplan on workshop themes	10
Allot more time for group discussion and plenary sessions	5
Increase the content covered in the workshop	4
Clarify workshop objectives	2
Reduce content covered in the workshop	1
Improve workshop organization	1
Slow pace of the presentations	1
Shorten time allotted for group discussion and plenary sessions	1

Participants also provided recommendations for workshop improvement through open-ended questions. They recommended that cultural activities should be included in the agenda, as it is challenging to schedule them due to the workshop workload. It was also mentioned that the hotel and venue location should be closer. Finally, it was recommended to reduce the allotted time in the agenda, especially in the afternoon.

Recommendations

The following recommendations are based on participants' responses provided on workshop evaluation:

- While the incorporation of practical examples during the workshop was considered valuable, respondents noted a gap between examples and case studies. The use of existing or hypothetical data and computer programs is recommended to develop practical exercises. This would improve the understanding of shared concepts and build the workshop's expected capacities.
- Participants noted the importance of demonstrating a better way to create simple tools for chemicals management used in the Region. This would support work during short availability of funds and trained human resources, which are common in the Region.
- Respondents highlighted the need for the creation and promotion of professional training or internships in the Regional Office or in countries that have made advances in the process of chemical management.
- Although risk communication was not included in the agenda, it was a recurring theme in discussions. It would be necessary to assess the inclusion of this topic in future activities related to chemical risks.
- Improve the selection of themes presented by countries. It may be necessary to consider the context and current situation of each country, and assign them a relevant topic accordingly.
- Some country presentations exceeded the time allocated in the terms of reference. In future editions, complying with the terms of reference and the established timetable would allow all topics to be fully developed.

19. CONCLUSION

- There are indications that the workshop met the broader objective of strengthening the sound management of chemicals by sharing experiences in regulation, risk assessment and the application of risk management tools, based on Canadian experiences. Several questions and comments were made throughout the workshop that confirm the event was an opportunity to facilitate discussion on the achievements and challenges in strengthening health in chemical safety in the various countries participating in the workshop.
- Based on Canadian experiences, there was recognition of the complexity of incorporating and strengthening health in the management of chemical risks, especially the availability of human and material resources that could hinder such advances.
- Country representatives presented international agreements according to their national legislations and risk assessment and management in a multisectoral setting. Since each country has different realities, the processes of approval and implementation of

international agreements are at different stages. It is noted that work in chemical safety is being developed in all countries, but their progress are different.

20. RECOMMENDATIONS

According to the workshop evaluation and oral comments, the most important recommendations include the incorporation of practical examples and development of exercises throughout the workshop to illustrate the use of concepts on chemical risk assessment and management.

It is recommended that such practical activities be implemented using the PAHO Virtual Campus. Thus, it is necessary to design and organize the virtual course and to invite professionals with practical experience on the subject to participate through WebEx sessions or synchronous interactions.

21. REFERENCES

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22. ANNEXES

1. Agenda
2. List of participants
3. Workshop evaluation questionnaire
4. Photos

Annex 1. Agenda

Martes, 8 de Noviembre 2016

9:00 - 9:30	Introducción y palabras de bienvenida Dr. Raul Gonzalez PWR OPS/OMS Perú
9:30 - 10:00	Programa Regional de la OPS sobre la salud en la seguridad de productos químicos Dr. Ana Boischio Asesora Regional en Toxicología SDE/OPS Washington D.C.
10:00 - 11:00	Visión general de la Ley de Protección del Medio Ambiente de Canadá
11:00 - 11:20	Receso
11:20 - 12:30	Categorización/ Priorización realizada por Canadá sobre las sustancias existentes mencionadas en la CEPA1999
12:30 - 1:30	Descripción general del Plan de Gestión de Productos Químicos de Canadá (PGPQ) se pasa para última parte del día
1:30 - 2:30	Almuerzo
2:30 - 3:40	Cierre de acuerdos internacionales con la legislación nacional. Experiencias de los países: ✓ Brasil ✓ Uruguay ✓ Paraguay ✓ Surinam ✓ Chile
3:40 - 4:40	Grupo de Discusión sobre la salud en la legislación relacionada con la seguridad química: logros y desafíos
4:40 - 5:00	Café
5:00 - 5:30	Conclusión de la jornada

Miércoles, 9 de Noviembre 2016

9:00 - 10:00	Evaluación de riesgos bajo el Plan de Gestión de Productos Químicos de Canadá - principios y enfoques
10:00- 10:30	Recopilación de información para la evaluación de riesgos para la salud bajo el Plan de Gestión de Productos Químicos de Canadá
10:30 - 11:00	Evaluación de exposición de poblaciones. Enfoques y herramientas para la evaluación de riesgos en salud bajo el Plan de Gestión de Productos Químicos de Canadá
11:00 - 11:20	Receso
11:20 - 11:50	Caracterización de los peligros y herramientas para la evaluación de riesgos de la salud bajo el Plan de Gestión de Productos Químicos de Canadá
11:50 - 12:30	Caracterización de riesgos en la evaluación de riesgos de la salud según el Plan de Gestión de Productos Químicos de Canadá
12:30 - 1:30	Gestión de riesgos de sustancias químicas bajo el Plan de Gestión de Productos Químicos de Canadá
1:30 - 2:30	Almuerzo
2:30 - 3:40	La evaluación y gestión de riesgos en un entorno multisectorial. Perspectivas de los países: ✓ Costa Rica ✓ Guatemala ✓ Nicaragua ✓ Honduras ✓ Jamaica ✓ Panamá
3:40 - 4:40	Grupo de discusión sobre la evaluación de riesgos y / o gestión de riesgos
4:40 - 5:00	Receso
5:00 - 5:30	Conclusión de la jornada

Jueves, 10 de Noviembre 2016

9:00 - 10:00	Programa de Notificación de Nuevas Sustancias de Canadá
10:00 - 11:00	Participación de los actores de interés
11:00 - 11:20	Receso
11:20 - 12:00	Alcance público
12:00 - 1:00	Experiencias exitosas y lecciones aprendidas en la implementación de la gestión de productos químicos en Canadá
1:00 - 2:00	Almuerzo
2:00 – 2:20	Presentación Perú
2:20 - 3:00	Oportunidades para poner en práctica programas de notificación de productos químicos, la relevancia de la experiencia canadiense, perspectivas de los países
3:00 - 4:00	Discusión / plenaria
4:00 - 4:30	Evaluación y conclusión del taller
5:00 - 5:30	Café

Annex 2. List of participants

Nombre	País	Institución	Dirección electrónica
Kathy Hughes	Canada	Directora de evaluación de riesgos Ministerio de Salud	Kathy.Hughes@hc-sc.gc.ca
Andrew Beck	Canada	Director en el Ministerio de Salud de Canadá	Andrew.Beck@hc-sc.gc.ca
Stella Presentado	Paraguay	Responsable del Servicio nacional de información toxicológica	stelly61present@gmail.com
Thais Araujo	Brazil	Analista de políticas sociales	thais.cavendish@saude.gov.br
Luisa de Sordi Gregorio	Brazil	Consultora técnica	luisa.gregorio@saude.gov.br
Cayssa Peres Marcondes	Brazil	Analista ambiental	cayssa.marcondes@mma.gov.br
Lexi Chaves	Costa Rica	Dirección nacional de registros de productos químicos	lexi.chaves@misalud.go.cr
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Luz Marina Lozano	Nicaragua	Directora de Salud Ambiental	luzmarinalozanocha@yahoo.es
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Martin Alpirez	Panama	Coordinador Nacional de Salud Ocupacional	dr.alpirez.guardao@gmail.com
Mahesh Algoe	Suriname	Ministerio de Salud	m_algoe@yahoo.com
Carmen Ciganda	Uruguay	Asesora en el Ministerio de Salud - Uruguay	cciganda@msp.gob.uy
Brian Stephenson	Jamaica	Ministerio de Salud – Departamento de productos químicos	stephensonb@moh.gov.jm
Mirtha Ferrary	Honduras	Proyecto GAR de Mercurio PNUD-GEF MIAMIENTE	mirtaferrary@gmail.com
Ana Castillo	Honduras	CESCCO Analista Ambiental de Contaminantes Químicos	acastillo@miambiente.gob.hn
Gustavo Urbina	Honduras	Epidemiólogo, coordinador de vigilancia e intoxicaciones por sustancias químicas	alejantonbina1960@yahoo.es
Ana Boischio	PAHO/WDC	Asesora en el programa de Desarrollo Sostenible y Equidad	boischioa@paho.org

		en Salud	
César Johan Pereira	PAHO/WDC	Programa de Desarrollo Sostenible y Equidad en Salud	pereira.victorio.cj@gmail.com
Rocio Espinoza Lain	Peru	Dirección General de Salud Ambiental - Perú	respinoz@digesa.minsa.gob.pe
Kevin Salas Inga	Peru	Dirección General de Salud Ambiental - Perú	ksalas@minsa.gob.pe
Henry Hernandez	PAHO/Peru	Asesor en agua y saneamiento de emergencias	hernandezh@paho.org
Roger Anthony Abanto	Peru	Dirección General de Salud Ambiental - Perú	rabanto@digesa.minsa.gob.pe roger.abanto.t@gmail.com
Sixto Guevara Vasquez	Peru	Dirección General de Salud Ambiental – Perú	sixto.guevara@gmail.com
Manuel Chavez Ruiz	Peru	Instituto Nacional de Salud INS	Manuelchr1611@gmail.com
Laura Nayhua Gamarra	Peru	Coordinadora de Vigilancia ENT Riesgos Ambientales	lnayhua@dge.gob.pe/ Laurita.68016@gmail.com
Juan Caballero	Peru	UNT Metales Pesados	jcaballeroca@minsa.gob.pe dr.juancaballero@gmail.com
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Arturo Erazo Ramirez	Peru	Coordinador de la evaluación de riesos ambientales CDC - MINSA	aerazoramirez@gmail.com
Maria E. Arias Coronel	Peru	Equipo técnico de riesgos ambientales CDC - MINSA	mariaeariascor@gmail.com

Annex 3. Workshop evaluation questionnaire

EVALUACIÓN DEL TALLER
SOBRE SEGURIDAD QUÍMICA LIMA, PERÚ, 8 – 10 noviembre, 2016

WORKSHOP EVALUATION
CHEMICAL SAFETY, LIMA, PERU, November 8th-10th, 2016

Nombre/ Name (opcional):_____
Puesto de trabajo / Job title (opcional): _____
Institución / Organization (opcional): _____
País / Country (opcional): _____
Años en su actual puesto de trabajo / Years in present position: _____ (años/years).

INSTRUCCIONES / INSTRUCTIONS
Por favor marque con un círculo su respuesta (alternativas del 1 peor condición al 5 mejor condición), Please circle your response to the ítems (1 the worst condition and 5 the best condition):

1 = Muy en desacuerdo (insuficiente) / Strongly disagree (insufficient)
2 = Desacuerdo (Disagree)
3 = Regular / neutral
4 = De acuerdo / Agree
5 = Completamene de acuerdo (excelente) / Strongly agree (excellent)
NA = No aplicable / Not applicable

Aspectos generales/General aspects	Level of satisfaction
Contenido del taller / Workshop content	1 2 3 4 5 N/A
Información sobre los objetivos del taller / information about the objectives of this workshop	1 2 3 4 5 N/A
El Taller cumplió mis expectativas / this workshop achieved my expectations	1 2 3 4 5 N/A
El contenido del taller es util y aplicable en mi trabajo / the contents are useful/applicable to my work	1 2 3 4 5 N/A
Recomendaria este taller?/ would you recommend this workshop?	1 2 3 4 5 N/A
¿cómo calificarías el taller en general? / What is your overall assessment of the event?	1 2 3 4 5 N/A

¿Que temas del taller le parecieron más utiles e interesantes? / Which topics or aspects of the workshop did you find most interesting and useful?

_____
_____
_____

Temas de la agenda (primer día) presentación y discusión / Agenda topics (first day) presentation and discussion	Level of satisfaction
Programa regional de la OPS en seguridad química/PAHO regional program on	1 2 3 4 5 N/A

health in chemical safety	
Visión general de la Ley de Protección del Medio Ambiente de Canadá / An overview of the Canadian Environmental Protection Act	1 2 3 4 5 N/A
Categorización/ Priorización realizado por Canadá sobre las sustancias existentes mencionadas en la CEPA 1999 / Canada's categorization/prioritization of existing substances under CEPA 1999	1 2 3 4 5 N/A
Descripción general del Plan de Gestión de Productos Químicos de Canadá (CMP) / Overview of Canada's Chemicals Management Plan (CMP)	1 2 3 4 5 N/A
Cierre de acuerdos internacionales con la legislación nacional: experiencias de los países / Bridging International agreements with national legislation: country experiences	1 2 3 4 5 N/A
Grupo de Discusión sobre la salud en la legislación relacionada con la seguridad química: logros y desafíos / Group Discussion on health in chemical safety related legislation: achievements and challenges	1 2 3 4 5 N/A

Comentarios adicionales / additional comments

_____

_____

_____

Temas de la agenda (segundo día) presentación y discusión / Agenda topics (second day) presentation and discussion	**Level of satisfaction**
Evaluación de riesgos bajo el Plan de Gestión de Productos Químicos de Canadá - principios y enfoques / Risk assessment under CMP - principles and approaches	1 2 3 4 5 N/A
Recopilación de información para la evaluación de riesgos para la salud bajo el Plan de Gestión de Productos Químicos de Canadá / Information gathering for health risk assessment under CMP	1 2 3 4 5 N/A
Evaluación de exposición de poblaciones Enfoques y herramientas para la evaluación de riesgos en salud bajo el Plan de Gestión de Productos Químicos de Canadá / Population exposure assessment approaches and tools for health risk assessment under CMP	1 2 3 4 5 N/A
Caracterización de los peligros y herramientas para la evaluación de riesgos de la salud bajo el Plan de Gestión de Productos Químicos de Canadá / Hazard characterization and tools for health risk assessment under CMP	1 2 3 4 5 N/A
Caracterización de riesgos en la evaluación de riesgos de la salud según el Plan de Gestión de Productos Químicos de Canadá / Risk characterization in health risk assessments under CMP	1 2 3 4 5 N/A
Gestión de riesgos de sustancias químicas bajo el Plan de Gestión de Productos Químicos de Canadá / Risk management of chemical substances under CMP	1 2 3 4 5 N/A
Evaluación y gestión de riesgos en un entorno multisectorial: Perspectivas de los Países / Risk assessment and risk management in a multi sector environment: Country Perspectives	1 2 3 4 5 N/A
Grupo de Discusión sobre la evaluación de riesgos y / o gestión de riesgos / Group Discussion on risk assessment and/or risk management	1 2 3 4 5 N/A

Comentarios adicionales / additional comments

_____

_____

_____

Temas de la agenda (tercer día) presentación y discusión / Agenda topics (third day) presentation and discussion	Level of satisfaction
Programa de Notificación de Nuevas Sustancias de Canadá / Canadian New Substances Notification Program	1 2 3 4 5 N/A
Participación de actores de interés / Stakeholder Engagement	1 2 3 4 5 N/A
Alcance público / Public Outreach	1 2 3 4 5 N/A
Experiencias exitosas y lecciones aprendidas en la implementación de la gestión de productos químicos en Canadá / Success stories and lessons learned in implementation of chemicals management in Canada	1 2 3 4 5 N/A
Oportunidades para poner en práctica programas de notificación de productos químicos, la relevancia de la experiencia canadiense: Perspectivas de los Países / Opportunities to implement chemicals notification programs, relevance of Canadian experiences: Country Perspectives	1 2 3 4 5 N/A
Discusión - plenaria / Plenary discussion	1 2 3 4 5 N/A

Comentarios adicionales / additional comments

_____

_____

_____

Diseño y organización del taller / Workshop structure and organization	Level of satisfaction
El ritmo del taller fue apropiado / The pace of this workshop was appropriate	1 2 3 4 5 N/A
Las actividades del taller estimularon mi aprendizaje / The workshop activities stimulated my learning	1 2 3 4 5 N/A
El nivel de dificultad de este taller fue apropiado / The difficulty level of this workshop was appropriate	1 2 3 4 5 N/A
Las actividades en este taller me dieron suficiente práctica y retroalimentación / The activities in this workshop gave me sufficient practice and feedback	1 2 3 4 5 N/A
Coordinación logística / Logistic coodination	1 2 3 4 5 N/A
Alimentación/ Food	1 2 3 4 5 N/A
Ayuda audiovisua/Audio visual	1 2 3 4 5 N/A
Espacio físico/ Venue	1 2 3 4 5 N/A
Traducción simultánea / Simultaneous translation	1 2 3 4 5 N/A
Tiempo asignado al desarrollo del taller/ Workshop time lenght	1 2 3 4 5 N/A
El programa del taller/ Workshop program	1 2 3 4 5 N/A

Identificar temas que podrían esta incluídos / identify topics that could be included

_____

_____
_____

Como se podría mejorar el taller? Marque más de uno si es necesario / How would you improve this workshop? Check all that apply

- ❑ enviar información (lecturas, documentos) antes del taller / provide better information (reading, documents) before the workshop
- ❑ claridad de los objetivos / clarify the workshop objectives
- ❑ reducir el contenido del taller / reduce the content covered in the workshop
- ❑ aumentar el contenido del taller / increase the content covered in the workshop
- ❑ actualizar el contenido del taller / update the content covered in the workshop
- ❑ mejorar la organización del taller / improve workshop organization
- ❑ realizar ejercicios de aplicación durante el taller / use of applications exercises during the workshop
- ❑ disminuir la velocidad de las presentaciones / slow down the pace of the presentations
- ❑ aumentar la velocidad de las presentaciones / speed up the pace of the presentations
- ❑ asignar más tiempo a las discusiones en grupo y plenaria / allot more time for the group discussion and plenary sessions
- ❑ disminuir el tiempo de las discusiones en grupo y plenaria / shorten the time for the group discussion and plenary sessions
- ❑ fortalecer los planes de trabajo a corto plazo en los temas tratados? To strengthen short term workplan on the workshop thems
- ❑ Otros (especifique): _____
  _____

Gracias! Por favor retornar eso formulario para organizadores del taller

Thank you! Please hand this form to one of the organizers

Annex 4. Photos