

Case Study: Chemical Accident Prevention and Preparedness Programme Project in the Philippines

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1. Introduction

Growth in the industrial sector has been a valuable element of economic development strategies in countries worldwide. Many of the chemicals used in industrial operations are susceptible to accidents that can cause extensive harm to people, the environment, and local or even national economies. To address this risk, the United Nations Environment Programme (UNEP) conducts a number of capacity building activities for improved chemical management, particularly with respect to prevention of and preparedness for chemical accidents.

The Flexible Framework Initiative for Addressing Chemical Accident Prevention and Preparedness is one of UNEP's aforementioned activities, which aims to assist governments in developing, reviewing, revising, and implementing chemical accident prevention and preparedness (CAPP) programmes. Under this Initiative, CAPP Programme implementation projects are organised in individual countries. This case study has been prepared to provide a summary of the activities that were conducted and outcomes achieved during a CAPP Programme pilot-project in the Philippines in 2009 & 2010.

The purpose of this two-year project was to build the capacity of relevant institutions in the Philippines to develop systems addressing chemical accident prevention and preparedness. The project consisted of identifying the country's situation with respect to chemical accident risks, defining the needs and priorities for improved management of chemical accident risks, and building abilities through training. The project also provided valuable experience and feedback which was then used in the development of the *Flexible Framework for Addressing Chemical Accident Prevention and Preparedness (Flexible Framework Guidance)* (see the following section).

The Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR) was the lead implementing agency in the Philippines, and led a 26-agency Task Force responsible for project implementation. Project activities were coordinated by UNEP in partnership with the Asian Disaster Preparedness Centre (ADPC).

This case study outlines the activities conducted during, the stakeholders involved with, the outcomes of, and the lessons learned from the project, and goes on to suggest some future activities related to chemical accident prevention and preparedness. It also provides background information on the Flexible Framework Initiative, as well as the Philippines's situation with respect to with chemical accident prevention and preparedness.

2. Background Information on Flexible Framework Initiative

The Flexible Framework Initiative is part of UNEP's ongoing work to build capacities and develop technical tools, methodologies and strategic frameworks for improved chemical accident prevention and preparedness, particularly in fast-growing economies and developing countries where rapid industrialisation creates the need to address the increased risks of chemical accidents. The Initiative was established in light of a point of action from the Strategic Approach to International Chemicals Management (SAICM) Global Plan of Action (GPA), which calls for the development of collaborative practically-oriented tools for chemical accident prevention.

The purposes of the Flexible Framework Initiative are to:

- increase countries' understanding of issues related to chemical accident prevention and preparedness (CAPP);
- improve the capacity of relevant institutions, agencies and experts to address the risks of chemical accidents; and

- help countries to develop and implement an appropriate CAPP Programme.

As part of the Initiative, an Expert Working Group consisting of selected experts in the fields of chemical safety and industrial accident prevention and preparedness was established. The Expert Working Group included representatives from relevant United Nations agencies (UNEP, United Nations Industrial Development Organisation (UNIDO), International Labour Organisation (ILO), United Nations Economic Commission for Europe (UNECE), United Nations Institute for Training and Research (UNITAR), World Health Organisation (WHO), UNEP/Office for the Coordination of Humanitarian Affairs (OCHA) Joint Environment Unit), the European Commission (DG Environment and the Joint Research Centre), the Organisation for Economic Co-operation and Development (OECD), the United States Environmental Protection Agency (US EPA), the Swedish Civil Contingencies Agency (MSB), the Asian Disaster Preparedness Centre (ADPC), selected countries, industrial associations, as well as independent experts.

The Expert Working Group met five times between November 2007 and April 2010 to prepare and finalise the *Flexible Framework for Addressing Chemical Accident Prevention and Preparedness (Flexible Framework Guidance)*, which was prepared to assist countries wishing to develop, revise, improve, and eventually implement chemical accident prevention and preparedness (CAPP) Programmes. The *Flexible Framework Guidance* was finalised in July 2010 (ISBN: 978-92-807-3094-4)¹.

During the development of the *Flexible Framework Guidance*, two countries (Cambodia and the Philippines) were selected as pilot projects to assess the effectiveness of using the *Flexible Framework Guidance* in the development and implementation of a CAPP Programme.

3. Background Information on the Philippines

The industrial sector of the Philippines includes a variety of enterprises and is rapidly developing. The Philippines' industrial production is centred around the processing and assembly operations of the following goods: food, beverages, tobacco, rubber products, textiles, clothing and footwear, pharmaceuticals, paints, plywood and veneer, paper and paper products, small appliances, semiconductors and electronics. Heavy industries are dominated by the production of cement, glass, industrial chemicals, fertilisers, iron and steel, and refined petroleum products.

The country's medium-term development plan includes a focus on wider use of chemical technology in agribusiness, mining, oil and gas exploration, transportation, automotives, electronics, shipbuilding and information technology-related services. The majority of large, potentially hazardous industrial installations, as well as numerous small facilities that use hazardous chemicals, are located in the National Capital Region, which is also the main population centre. There are also other types of hazardous facilities (such as oil facilities, ports, power plants, and pipelines) located throughout the country.

In the report "Country Environmental Analysis of the Philippines"², undertaken by the Asian Development Bank in consultation with NGO's, the government, and donor agencies, the topic of "Environmental emergencies: effective prevention of spills, flooding, landslides, chemical spills" was mentioned as one of the priorities for the country. EMB-DENR has conducted inventories of the hazardous chemicals present in the country, and as of December 2009, EMB-DENR had registered 11,162 hazardous waste sites reportedly generating 1.9 million tonnes of

¹ The *Flexible Framework Guidance* is available online at http://www.unep.fr/scp/sp/saferprod/pdf/UN_Flexible_Framework_WEB_FINAL.pdf

² Asian Development Bank, 2008, *the Philippines: Country Environmental Analysis*, available online at <http://www.adb.org/Documents/Books/5th-Country-Environmental-Analysis-PHI/5th-Country-Environmental-Analysis-PHI.pdf>

hazardous waste annually. It was estimated that approximately 46,000 chemicals and chemical substances are being used and registered in the Philippine Inventory of Chemicals and Chemical Substances³. Approximately 29% of all chemical accidents in Southeast Asia from 1990-2005 occurred in the Philippines⁴.

Large industries within the country tend to comply with the established chemical safety standards. However, a large percentage of the population works in the informal sector, where a number of chemical risks are present due not only to a lower level of chemical management practices, but also to its' proximity to community centres. A number of chemical accidents have occurred in the country over the past 50 years. Chemical fires most often originated from fireworks or pyrotechnics factories, while explosions primarily occurred in coal mines. Releases of hazardous chemicals to the environment often involved oil, mercury, methane, chlorine, and mine tailings chemicals.

For many years, the Philippines has been involved in national initiatives and international cooperation for the prevention of chemical emergencies. The country is signatory and a contracting party to a number of international standards and agreements (including the Basel, Stockholm, Rotterdam and Montreal Conventions) and has implemented mechanisms for enforcement, advocacy, training, research, and multi-stakeholder cooperation with respect to chemical accidents. Additional programmes have also been implemented to improve general management of hazardous chemicals. In particular, the Philippines Chemical and Hazardous Waste Emergency Management Programme was initiated to establish a national framework for concerted action by the government, industry, academia and the community to address incidents involving chemical and hazardous wastes. Although a number of mechanisms exist within the country for the management of hazardous chemicals, there is a need for improvement in the level of coordination in-between enforcement agencies.

4. Project Initiation

The Philippines was chosen as a pilot project location based upon a number of factors, including:

- the presence of a well-positioned and functioning SAICM focal point within a relevant institution for project implementation;
- inclusion of the topic of chemical management in the country's development plan and UN Development Assistance Framework (UNDAF);
- the country's status as a priority country for UNEP Resource Efficiency and Sustainable Consumption and Production activities in the region;
- the country's demonstrated interest in the initiative; and
- the country's level and type of industrialisation and need for reinforcement of a system for chemical accident prevention and preparedness.

This project was funded by the Norwegian government and conducted within UNEP's harmful substances and hazardous waste priority area.

The project was launched through discussions between the Department of Environment and Natural Resources (DENR) - responsible for establishing rules, regulations, and programmes for controlling chemical substances and hazardous wastes in the Philippines - and UNEP regarding the possibility for coordinated activities aimed at improving chemical management in the Philippines. Ongoing interaction between DENR and UNEP indicated that

³ Jose S. Embang Jr. The Philippines Chemical and Hazardous Waste Emergency Management Programme (CHWEMP): A case study for designing and implementing an effective chemical partnership project through collaboration of government, industry, public interest and labor organisation.

⁴ Alex Dali, 2007. Disaster Risk Management in South-East Asia – Concept, analysis and overview of the situation on natural and man-made disasters.

both parties shared a commitment to improving prevention and preparedness for chemical accidents and agreed that this effort would be valuable. Following this, a focal point within DENR was appointed to coordinate activities, and additional national and international partners were contacted to participate in the project.

5. Stakeholders Involved

In the Philippines, the Environmental Management Bureau of the Department of Environment and Natural Resources (EMB-DENR) acted as the national implementing agency for the project. Within DENR, the Environmental Management Bureau (EMB) is responsible for compiling and maintaining an inventory of all chemicals and chemical substances in use throughout the country.

The focal point within the country was Mr. Geri-Geronimo Sañez, the chief of EMB-DENR's Hazardous Waste Management Section. The project benefited greatly from the support and commitment of Mr. Renato Cruz, the chief of the EMB-DENR's Environmental Quality Division. EMB-DENR also contracted the services of Dr. Dulce Gust, a consultant based in the Philippines, to provide technical input to the project and develop project deliverables (the Country Situation Report, Needs Assessment, and Roadmap). The EMB-DENR was supported by a number of national institutions and international partners. UNEP's participation was coordinated through the Division of Technology, Industry and Economics (DTIE) – Business and Industry Unit, in close partnership with UNEP DTIE's Chemicals Branch. The Asian Disaster Preparedness Centre (ADPC)⁵ provided extensive support in their role as a regional technical partner through the input of Mr. Loy Rego, Deputy Executive Director, Mr. Sisira Kumara, Project Manager, and Mr. Hector Lim, Project Associate. Additional international partners who participated in project activities included Ms. Maureen Wood and Mr. Luciano Fabbri of the European Commission Joint Research Centre Major Accidents Hazards Bureau (MAHB) and Mr. Mark Hailwood of the OECD Working Group on Chemical Accidents, who assisted in the development of country-specific training materials and participated in project meetings, trainings, and workshops.

Since the *Flexible Framework Guidance* promotes a multi-stakeholder approach that requires coordination and cooperation between different government authorities and other relevant organisations, a number of other ministries and non-governmental stakeholders also participated in project activities. A multi-stakeholder, multi-agency Task Force was established by the Government of the Philippines to deal with CAPP-related issues and drive project activities. This included national and local-level government agencies, non-governmental organisations involved in health, the environment, development, and economic affairs, universities, and industry groups. The relevant data extracted from the terms of reference (TOR) of the Task Force and a complete list of organisations that were members of and participated in the Task Force is included in the "Project Activities" section.

6. Project Activities

Sections below provide a detailed overview of activities undertaken during the CAPP Programme project in the Philippines.

6.1 Inception Workshop

The project was launched through a National Inception Workshop held on 24-25 March 2009, hosted by DENR and jointly organised by DENR, ADPC, UNEP, and international experts. The workshop was attended by 54

⁵ The Asian Disaster Preparedness Centre (ADPC) is a regional intergovernmental non-profit organisation, established by three UN agencies in 1986, that promotes safer communities and sustainable development through implementing programmes that reduce the impacts of disasters.

representatives from various agencies, institutions, branches of academia, NGOs and the private sector. DENR's goals for the Inception Workshop were threefold:

- to raise awareness on chemical accident prevention through the presentation of experiences of several Asian and European countries in the evolution, development and implementation of chemical accident prevention programmes;
- to provide a forum for participants to discuss and raise key issues relevant to chemical accidental prevention and preparedness in the Philippines, including the main objectives of a potential CAPP Programme in the Philippines, as well as possible advantages and obstacles; and
- to establish a multi-stakeholder Task Force through identification of important stakeholders related to chemical accident prevention and preparedness in the Philippines.

The workshop agenda was developed by DENR with assistance from ADPC, UNEP, and international experts from the European Commission and OECD. Representatives from partner organisations gave presentations on the SAICM context for international chemicals management, characteristics, consequences, and examples of chemical accidents, existing legislative systems for the management of hazardous chemicals, the overview of the *Flexible Framework Guidance*, and CAPP implementation project activities and expected outcomes. Representatives from DENR and the Chemical Industries Association of the Philippines (SPIK) presented the existing approach to hazardous chemical management and an overview of the chemical industry in the Philippines. Additionally, group discussions and working sessions were held to identify possible objectives of a CAPP Programme in the Philippines and the challenges and opportunities associated with its implementation, as well as potential groups to be included in the multi-stakeholder Task Force.

6.2 Task Force Meetings

Following the Inception Workshop, DENR established a multi-stakeholder Task Force to allow the public and private sectors to work together in developing a sustainable system for chemical accident prevention and preparedness in the Philippines. The TOR of the Task Force mandated it to:

- develop a calendar of project events with key milestones;
- guide the development of the Country Situation Report, Needs Assessment and Roadmap documents (discussed in further detail in the section "Project Reports and Outcomes" below);
- guide, review and support the development as well as planning of a training curriculum;
- update past work done by the Government of the Philippines to operationalise and implement the programme's related chemical accident prevention and preparedness; and
- develop a plan for sustaining and improving the Chemical Accident Prevention and Preparedness Programme in the Philippines.

This Task Force, along with DENR and with assistance from ADPC, acted as the main driving force for project activities within the country. Recognising that the activities needed to improve the CAPP Programme in the country would extend well beyond the life of the project, the Task Force was established for a three year duration (i.e., until 2011).

The Task Force included representatives from:

- Department of Environment and Natural Resources
 - Environmental Management Bureau
 - Environmental Law Enforcement Task Force
- Department of National Defense

- Office of Civil Defense
- National Disaster Coordinating Council (NDCC)
- Department of Interior and Local Government (DILG)
 - Bureau of Fire Protection
 - Philippine National Police
- Department of Labor and Employment
 - Occupational Safety and Health Center (OSHC)
- Department of Agriculture
 - Fertiliser and Pesticide Authority
- Department of Transportation and Communication
 - Philippine Coast Guard
 - Philippine Ports Authority
 - Office for Transportation Security
- Department of Health
 - National Center for Disease Prevention and Control
- Office of the President
 - Anti-Terrorism Council Coordinating Center
 - Metro Manila Development Authority
- Philippine Hospital Association
- Chemical Industries Association of the Philippines (Samahan sa Pilipinas ng Industriyang Kimika, or SPIK)
- Eco Waste Coalition (an NGO)
- Asian Disaster Preparedness Center
- Department of Science and Technology
 - Industrial Technology Development Institute
- Department of Energy
 - PNOC-Alternative Fuels Corporation
- Department of Trade and Industry
 - Board of Investments
- Department of Finance
 - Bureau of Customs
- National Defense College of the Philippines
- Philippine Economic Zone Authority
- Subic Bay Metropolitan Authority
- Clark Development Corporation
- University of the Philippines
 - National Poison Management and Control Center (Manila)
 - College of Engineering (Diliman)
- Philippine Chamber of Commerce and Industry
- Pasig City Environment Natural Resources Office
- Trade Union Congress of the Philippines

The Task Force was responsible for determining the most relevant issues and priorities related to chemical accident prevention and preparedness within the country, as well as a path forward for the implementation of CAPP programme elements to address these issues, using a draft of the *Flexible Framework Guidance*. The Task Force was also responsible for development of the three main project deliverables: the Country Situation Report (an overview of the nature and extent of chemical risks within the country and the existing legal structures and responsibilities related to management of chemical accident risks); Needs Assessment (a summary of the main requirements and priorities for the country to improve management of chemical accident risks), and Roadmap (an outline of the necessary steps for implementation of elements to address the priorities identified in the Needs Assessment).

Three Task Force meetings were held over a one year period:

- The first meeting of the Task Force was held on 22 July 2009. During this meeting, Task Force members discussed the terms of reference (TOR) for the Task Force, the draft of the Country Situation Report, the priority of actions for the Task Force, and the planned training workshop. In particular, Task Force members suggested the involvement of the Bureau of Fire Protection in the Task Force, as they are responsible for the prevention, control and mitigation of dangerous conditions related to the transportation, use and handling of hazardous materials. The discussion also focused on other organisations who could be involved in the Task Force and how different Task Force members could contribute to the Country Situation Report.
- The second meeting of the Task Force took place on 16 November 2009. Part of the discussion focused on the development of the Country Situation Report, including data that was still needed to complete the report and connections between the report and the SAICM National Chemical Profile. Participants also discussed the Training Workshop planned for the following month, the development of the Needs Assessment and Roadmap, connections between the CAPP project and the Chemical and Hazardous Waste Emergency Management Program, and opportunities for continuing Task Force activities after the end of the CAPP Programme project.
- The third meeting of the Task Force was held on 19 January 2010. The meeting included discussions on ways to incorporate the industrial sector into the project activities and obtain more information on their operations. Additionally, Task Force members discussed and finalised the draft TOR and the minutes of the other Task Force meetings, and provided comments on the draft of the Country Situation Report.

6.3 Training Workshop

A five day training workshop was held 7-11 December 2009 to improve the capacity of national and local level institutions to manage chemical accident risks. This Training Workshop was jointly designed by DENR, ADPC, UNEP, and other international partners such as the European Commission and OECD, based on the issues and priorities identified in the Country Situation Report and Needs Assessment documents. The objective of the Training Workshop was to build institutional capacity on chemical accident prevention and preparedness to be able to implement a CAPP Programme anchored in policy. Approximately 40 participants attended, including:

- national Task Force members;
- private sector representatives (industry);
- inspectors;
- fire fighters; and
- line government agencies.

The goals of the Training Workshop were:

- to familiarise participants with the elements of a CAPP Programme within the *Flexible Framework Guidance*;
- to enhance knowledge and exchange experiences on development and implementation of CAPP Programmes in the region;
- to provide insight on the role of authorities and requirements of industries in CAPP;
- to exchange experiences among various stakeholders in CAPP;

- to discuss with participants key elements of a CAPP Programme that should be prioritised given the country's context;
- to provide insights on how to implement key elements into national policy and regulation that will then become the Philippines CAPP Programme.

The Training Workshop consisted of five modules: an introduction to hazardous activities and chemical accidents, an overview of the *Flexible Framework Guidance* and elements of a CAPP Programme (including the scope of the Programme), roles of authorities (including inspections, information management, and emergency planning), the requirements of industry (including hazard identification, risk assessment, safety management systems, risk communication, safety reports, and emergency planning), and suggested next steps. Representatives from EMB-DENR presented information on hazardous industries and activities in the Philippines, as well as the institutional setting and existing regulations related to hazardous chemicals in the Philippines. Additionally, a representative from the Chemical Industries Association of the Philippines (SPIK) presented information on existing industrial accident prevention and preparedness measures within the country. Participants also went on a field trip to a chlorine bleach production facility (Mabuhay Vinyl Corporation) to observe some of these measures on the ground and learn firsthand about conducting inspections. This resulted in a valuable group discussion on how inspections are generally conducted in the Philippines and ways that they can be improved.

Overall participation in the Training Workshop was very good. Participants actively engaged in group work and discussions, demonstrating throughout the workshop an increasing level of understanding of the *Flexible Framework Guidance's* approach to develop a CAPP Programme. Group exercises were conducted on various CAPP Programme elements. These encompassed the definition of the scope of a CAPP Programme in the Philippines and identifying hazards. Participants were also asked to identify the causes of chemical accidents shown in US Chemical Safety Board (US CSB) accident investigation videos. Final group exercises on developing a CAPP Roadmap were very successful and provided valuable information for the design of the Roadmap for implementing a CAPP Programme in the Philippines.

Some of the key aspects pointed out by participants and/or that emerged from the discussions were: (i) the need to assure inter-agency cooperation; (ii) the need to develop a common database system accessible to all agencies involved; (iii) the need for the standardisation of inspection procedures and provisions of training to implement agencies with inspection roles; (iv) the need for the establishment of guidelines/procedures for Safety Reports; and (v) the need for an establishment of a harmonised system for hazard mapping through the use of GIS or other technologies. These conclusions formed the basis for decisions made during the third Task Force meeting regarding the development of a Roadmap for CAPP implementation.

6.4 Project Closure and CAPP Roadmap Launching Workshop

As a final project activity, EMB-DENR organised a Project Closure Workshop held on 12-13 March 2010 to discuss conclusions and lessons learned from project activities, review the Roadmap for CAPP implementation, and identify plans for future activities. The meeting was attended by approximately 45 participants, including members of the Task Force and participants from UNEP, ADPC, and the national expert.

With the technical support of ADPC, the EMB-DENR team presented the main project results and deliverables, inviting participants from other agencies to provide comments on the presented materials and the final draft of the CAPP Roadmap. Mr. Mark Hailwood, an invited expert from the OECD Working Group on Chemical Accidents, delivered two presentations: one on the review of CAPP elements and another on information management. The workshop also included final group exercises on the lessons learned from the CAPP project and priorities and

needs for CAPP Programme implementation in the country. In particular, the need for training, skill building for improved municipal-level preparedness, and coordination between different agencies were highlighted.

Overall participation was very good. Workshop participants actively engaged in group work and discussions, demonstrating a high commitment to the implementation of a CAPP programme in the Philippines. Considerable time was spent in preparing a draft of the Presidential Executive Order to establish a CAPP Program in the Philippines. The priorities for CAPP Programme implementation are discussed in the following sections (“Identified Needs and Priorities” and “Next Steps”).

7 Project Reports and Outcomes

As part of the project, three key deliverables - the Country Situation Report, the Needs Assessment, and the Roadmap - were prepared by EMB-DENR with periodic review of successive drafts and input from the Task Force members, as well as extensive technical support by ADPC, UNEP and the international experts involved in the project.

The **Country Situation Report** presents an overview of the nature and extent of chemical accident risks within the Philippines, as well as the existing legal structures and responsibilities related to the management of chemical accident risks. It was prepared by gathering information from consultations, stakeholder records, media reports, and other sources. The goal of the Country Situation Report was to develop an overview of the Philippines’ situation with respect to chemical hazards in order to identify priorities for CAPP Programme implementation, rather than to prepare an extensive report, which requires extensive time and resources to complete.

The **Needs Assessment** is a summary of the main requirements and priorities for the Philippines to improve the management of chemical accident risks. It includes a review of the status of CAPP Programme elements in the Philippines, resource and capacity building needs for CAPP Programme development, possible sources of funding, and recommendations. The Needs Assessment can be used as a tool to determine which possible elements are the most applicable and valuable in the Philippines.

The **Roadmap** is an outline of the necessary steps for the implementation of elements of a CAPP Programme to address the priorities identified in the Needs Assessment. It includes a schedule of milestones for development and implementation of a CAPP Programme, as well as a summary of high-priority actions and needs.

8 Project Accomplishments

The overall objective of the project was to enhance the capacity of relevant institutions in the Philippines in managing and responding to chemical accident risks, with a long-term view of developing a comprehensive CAPP Programme building upon existing legislation. To meet this objective, a multi-stakeholder Task Force for the establishment of a CAPP Programme was created to serve as the main driving force for project activities and to allow for continuing activities related to CAPP beyond the lifetime of the project. Three Task Force meetings were held over the course of the project and contributed to improved coordination and communication between government agencies, industrial representatives, and other stakeholders. To sustain project activities in the future, the Task Force will be made into an official entity through a public policy statement endorsing the terms of reference.

In addition to the establishment of a Task Force, the deliverables developed as part of the project will provide a valuable resource for addressing chemical accident risks within the country. The Country Situation Report

incorporated data and information from a wide variety of sources into one document, creating a valuable resource for future activities related to chemical accidents or general management of hazardous chemicals. The Needs Assessment and Roadmap outline the steps that the Philippines can take to implement a CAPP Programme, providing a clear framework for future activities.

Finally, capacity building training activities conducted in the country have resulted in the improved ability of authorities, industries and other stakeholders in the Philippines to identify, assess, and manage chemical accident risks. Approximately 40 participants attended the two training sessions and obtained an improved understanding of chemical hazards and accidents, hazardous activities, associated legislation within the Philippines, and mechanisms for reducing the risk of accidents. The training activities also provided further opportunities for multi-stakeholder engagement and dialogue.

9 Identified Needs and Priorities

In developing a Roadmap for CAPP Programme implementation in the Philippines, DENR outlined a number of guidelines for concerted action in the pursuit of their vision of zero chemical accidents. These guidelines and priorities were discussed at the Project Closure Workshop and documented in the Roadmap.

A comparison between the CAPP Programme elements outlined in the *Flexible Framework Guidance* and those existing mechanisms in the Philippines showed that many aspects of several elements were already in place. For example, existing mechanisms were identified to aid in information management, inspections, onsite preparedness planning, notification, hazard identification, safety reports, and information to the public. However, at least seven different agencies are involved in these activities: DENR, the Department of Labor and Employment, the Department of Agriculture, the Department of the Interior and Local Government, the Bureau of Fire Protection, the Bureau of Customs, and the Department of Transportation and Communication. These activities are generally done separately in each agency, with little or no coordination. Improved coordination between these agencies was seen as a priority for effective and efficient CAPP Programme implementation. In particular, it was suggested that a common database be developed to share information between agencies.

Project participants also emphasised the need for further training and skill building. In particular, the need for training of inspectors on hazard identification and risk assessment, training for improved chemical management and emergency preparedness at SMEs, and skill building at the municipal level were underlined.

“We are used to response, but here we are going to discuss prevention. We need to build capacity and expertise on prevention, which is a totally new paradigm shift”

Gerri Geronimo Sañez, EMB-DENR

Finally, participants noted that a number of the activities and mechanisms were in place in the Philippines, however need to be improved. For example, although there were standards on hazardous chemical management and environmental health and safety, compliance with these standards by industries was inadequate as enforcement capacities were insufficient. The need for improved preparedness planning (potentially through improved implementation and enforcement of existing requirements, such as the fire codes) and land-use planning was also identified.

10 Next Steps for CAPP Programme in the Philippines

It was determined that to pursue the CAPP Programme, the pilot project activities would need to be sustained, which would be achieved by making the Task Force an official entity through a public policy statement endorsing

the terms of reference. Additionally, three overall goals for chemical accident prevention and preparedness in the country were identified:

- governance on CAPP should be supported by appropriate legislation, resources, infrastructure and programmes;
- well-functioning management systems for chemical accident prevention and preparedness should be in place for hazardous installations; and
- appropriate mechanisms for effective on-site or off-site coordination on chemical accident prevention and preparedness between operators of hazardous installations, concerned authorities, and expert agencies should be in place.

The Task Force in the Philippines identified a number of ways to build upon existing activities and structures to achieve these goals. A focused training programme on CAPP elements was proposed to address the need for additional skill building, with priority placed on “training the trainers” to increase training capabilities within the country. It was proposed that this programme be integrated into existing training programmes conducted by key agencies, such as the Occupational Safety and Health Center, DENR, National Disaster Coordinating Council (NDCC), academia, and others. This training would possibly be conducted in conjunction with training on technical skills, which would focus on the evaluation of chemical hazards and risks, the use of chemical safety data sheets, labelling and signage, the process of safety approaches, and behavioural safety.

It was also noted that additional research was necessary to strengthen policies and programmes related to chemical accident prevention and preparedness. The Roadmap for developing a CAPP Programme suggested additional research and action on the following topics:

“As we close this start up project, we are launching a long term programme on enhancing chemical safety, accident prevention, and improved chemical emergency preparedness, in line with the identified priorities of the Government in this sector”

Geri Gernonimo Sanchez, DENR

- hazard potential within the country i.e., mapping hazardous installations to determine risks to communities and the potential for domino effects;
- types of hazardous installations that are widespread in the country;
- common hazardous substances, potential health effects, and existing monitoring efforts;
- future industrial developments involving hazardous chemicals;
- available emergency response plans and resources;
- causes and response actions for previous chemical accidents in the country;
- costs of major accidents and a return on investment for preventive occupational safety and health programmes; and
- requirements of international conventions ratified by the country.

During the Project Closure Workshop, Task Force members and other participants expressed great interest in continuing relevant activities with the aim of implementing a CAPP Programme in the Philippines. ADPC expressed its commitment to continue working with DENR, the Task Force and UNEP in supporting implementation of the Roadmap. UNEP is committed to supporting the DENR in these activities, and future joint projects will be arranged based on the availability of funding.

11 Lessons Learned

Project participants identified a number of lessons learned from the pilot project that can be considered when conducting country-level implementation projects in the future. Since the *Flexible Framework Guidance* is intended to be used in countries with varying degrees of industrial development and chemical accident risks, the project in the Philippines provides important insight into the issues and difficulties that can arise when implementing a CAPP programme in a country with a relatively high degree of industrial development and existing structures related to managing chemical accident risks.

In particular, one unique aspect of the Philippines was that the country already had significant legislation and initiatives related to managing chemical hazards and preparing for accidents, and the project benefited greatly by recognising and building upon these. Existing related initiatives included earlier work by DENR on UNEP's Awareness and Preparedness for Emergencies at Local Level (APELL) Programme, and the Chemical and Hazardous Waste Emergency Management Program (CHWEMP), an ongoing program to build response capacity to deal with chemical and hazardous waste risks. Additionally, the CAPP Programme project in the Philippines built upon ties with the activities of the Department of Labor's Occupational Safety and Health Center, chemical hazards classification system of the Bureau of Fire Protection, and the all-hazards disaster risk reduction programme of the National Disaster Coordinating Council. The Implementing Rules and Regulations of the Fire Code of the Philippines also included mandates and responsibilities related to chemical accident prevention and preparedness. However, sometimes the effectiveness of these regulations is limited by insufficient budget, manpower, and equipment.

Existing activities related to chemical accident prevention and preparedness not only provided a valuable opportunity to build upon existing laws, but also required a thorough review of applicable legislation to ensure that all relevant laws were captured and that redundant, overlapping, or conflicting programmes were avoided. Ideally, this review should be conducted after Task Force members are familiar with the elements of a CAPP Programme and have an idea of what is a priority in their country, so that the review can identify gaps between existing legislation and the desired CAPP elements.

The project also recognised the benefit of inter-agency coordination, the resulting dialogue and spirit of trust that was established through the periodic discussion and decision making. It was particularly valuable to have the Task Force mandate extended beyond the life of the project (i.e., until 2011), and to continue meeting with national resources after the project with UNEP and ADPC ended.

The value and benefit of the participation of the industry and civil society organisations was also important for the project's success. Industry associations and senior officials from the chemical industry contributed their time, experience, and technical expertise to the project. Similarly, NGOs often reminded newer governmental officials of the history of past initiatives and the international experience. In this sense, the wide variety of stakeholders that participated in project activities provided an excellent opportunity for different groups to learn from and interact with one another, and resulted in many valuable inputs to the Country Situation Report, Needs Assessment and Roadmap documents. However, the coordination of so many groups posed some challenges, and required planning and coordination beforehand to ensure the participation of different organisations that had numerous obligations apart from this project.

The project also provided valuable experience in conducting training activities. In the Philippines, the audience was quite diverse, representing a number of agencies with varied responsibilities. Many participants had various experience related to: occupational health and safety (particularly with regard to chemical exposure), hazardous waste management through implementation of international protocols such as the Basel Convention, and general emergencies response that did not involve hazardous chemicals. However, the participants' level of experience

and understanding of chemical hazards varied significantly. Therefore, some of the training materials (which addressed advanced technical concepts or the details of legislation) were too technical for participants who were not familiar with the subject.

This demonstrates the importance of having a focused objective of the training activities and, to the extent possible, selecting participants according to this objective. Furthermore, it can be valuable for trainers to learn about who will be attending the training sessions beforehand to tailor the presentations to the audience with its existing knowledge and experience, as well as its expectations and concerns, in mind. Specialised presentations on particular CAPP elements (such as risk assessment, inspections, etc.) may be better suited to a narrow audience with specific responsibilities related to these elements.

In general, it was suggested that the training sessions should provide opportunities for interaction between Task Force members, trainers, facilitators, and training participants, to supplement the more formal presentations. These opportunities included formal activities (such as question and answer sessions during the workshops), as well as informal activities (such as interaction between trainers and training participants during coffee and lunch breaks). The Philippines project provided an example of how this can be successfully accomplished. As the project's training activities were held at a hotel resort where the majority of participants were staying, there were many opportunities for trainers and participants to ask questions, discuss concerns, and clarify issues that were presented during the workshops. This created a positive, cooperative dynamic for the training that greatly contributed to its success. Participants also identified this interaction as something that should be further promoted in future project activities.

Project participants also noted the value of including a wide variety of training activities, such as lectures, group work activities, site visits, videos, and discussions. This variety helped keep participants engaged and allowed different topics to be presented in the most appropriate manner. In particular, the field trip to the Mabuhay bleach production facility was identified as particularly valuable, as it provided a powerful learning experience that showed real conditions at an industrial facility. It was suggested that similar types of site visits be included in future training programmes, to the extent that they are possible. It was also noted that an effort should be made to achieve the highest standard of safety during site visits by encouraging the use of personal protective equipment, both as an effort to prevent any harm to participants but also as a lesson on how to conduct inspections safely.