



## Private Sector & Aid for Trade

### Case Study:

## Promoting Safer Operations & Emergency Preparedness in the Value Chain of the Chemical Sector

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### Introduction:

Starting in 2006, Dow took the initiative to form a partnership between the United Nations Environmental Program (UNEP), the Chinese Ministry of Environmental Protection (MEP) and the Company, under the existing UN APELL process, to focus on safer production and emergency preparedness for the chemical sector in China. The program officially ran from 2008-2010.

### Brief Company Background

Dow combines the power of science and technology with the "Human Element" to passionately innovate what is essential to human progress. The Company connects chemistry and innovation with the principles of sustainability to help address many of the world's most challenging problems such as the need for clean water, renewable energy generation and conservation, and increasing agricultural productivity. Dow's diversified industry-leading portfolio of specialty chemical, advanced materials, agrosciences and plastics businesses delivers a broad range of technology-based products and solutions to customers in approximately 160 countries and in high growth sectors such as electronics, water, energy, coatings and agriculture. In 2010, Dow had annual sales of \$53.7 billion and employed approximately 50,000 people worldwide. The Company's more than 5,000 products are manufactured at 188 sites in 35 countries across the globe.

### Motivation/Problem Identified/Issue Addressed/Focus

For Dow, key aspects of the program were to address a need to:

- Demonstrate the value (environmentally, economically and personally) for the development of safer production and emergency preparedness;
- Build capacity for MEP and relevant organizations on the improvement of local community awareness and preparedness for industrial environmental emergencies;
- Develop training materials to support safer production and emergency preparedness capacity building activities in China;
- Develop/adapt the APELL process for the chemical industry, reflecting the unique needs, realities and existing best practices in China.

Ultimately the program served to significantly upgrade local standards and practices regarding worker safety,

emergency preparedness and relations with the local community. By establishing safer production processes, the program helps the Chinese industry cut down on worker accidents and safety problems, resulting in much more efficient production lines. For the local communities, this generates a more harmonious relationship with local industry, as the community is more knowledgeable about the manufacturing processes locally and what to do in the event of an industrial accident. These safer and more efficient production processes result in higher standards of practice, better quality of employee relations and ultimately a much more productive manufacturing value chain.

**Description of Initiative:**

Dow, MEP and UNEP signed an MOU to begin the project in 2008. The Steering Committee representatives for all three organizations selected Yangtze River International Chemical Industry Park in Zhangjiagang City, Jiangsu as the pilot project site.



In addition to a coordinated effort to outreach to local companies in the Park, the Steering Committee also organized an International Seminar in Beijing on March 2009. The Conference provided an opportunity to introduce UNEP’s APPELL and other frameworks into the industry and to provide a forum to share experiences and lessons learned from accidents. Ultimately the conference focused on promoting a common understanding of best practices for local preparedness and emergency response.

In August 2009, more than 80 people, including representatives from local government and senior business executives participated in the local launch at Zhangjiagang . The steering committee engaged with local industries to share best practices and help develop practical implementation tools for the APPELL framework, emergency planning and risk communication.



As a follow up, the project team hosted a study visit to Houston in March 2010. The objective was to learn from US safety management and emergency preparedness systems in place at Dow Chemical’s site in Freeport, Texas. The visit further provided an opportunity to engage and discuss with the local community to better understand methods of outreach and engagement, especially in sharing information on an emergency basis. US EPA participated in the meetings and visits to develop specific outreach steps in increasing community involvement.

The first training workshop took place in Zhangjiagang in April 2010, attended by approximately 80 participants from across the region. Panelists provided presentations on current capacities in China, including examples of best practices such as Dow’s process hazard analysis and relevant risk communication tools. The workshop provided in depth sessions on drill planning and preparation.

Ultimately those skills were put into practice at a preparation drill held on September 10, 2010. The event tested interactions between companies, local authorities and the neighboring communities. The drill provided opportunities to assess implementation of plans and processes, and provide constructive feedback for further evaluation.

#### Impact/Results:

The three –year project resulted in significantly improved production safety practices and emergency preparedness plans across the more than 80 companies in the Zhangjiagang Industrial Park. Further the project resulted in development of the full set of necessary tools to promote implementation of the APELL process across China. Materials included:

- Needs assessment report
- Training manual on emergency prevention and response for chemical industries
- Guideline for environmental emergency management in chemical industry park

Critically important, companies not only have the tools but the additional understanding that safer production methods are not only socially positive but economically beneficial by improving worker contributions, quality of industrial output and company's ability to manufacture.

Ultimately, the project has supported the development of a safer production and chemical safety management system in China's chemical industry value-chain; enhanced the institutional capacity of MEP and relevant organizations on the improvement of safer production; and helped to elevate local level awareness and preparedness for industrial environmental emergencies. Better sustainable production across the industry improves quality of product and delivery to build the downstream manufacturing market.



The project is regarded as such a success that UNEP is replicating it in other locations in Asia, Latin America and Africa. UNEP is also translating selected training materials in other languages, including Portuguese and French.