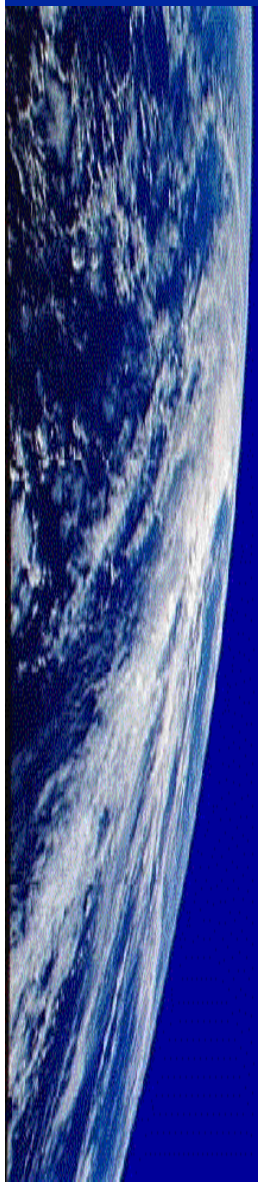


13th Atuação Responsável® and 2nd Latin American Process Safety Conference

21-23 June, 2010

São Paulo, Brazil

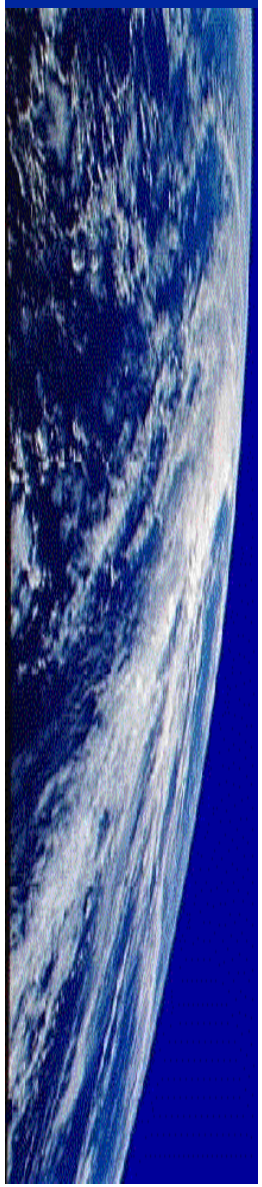
Safety in Chemical Processes and Products

A Necessary Step Towards Sustainable Development

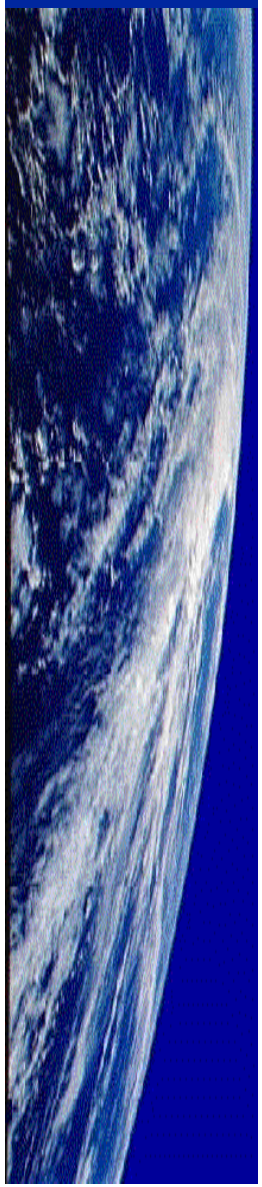
Arab Hoballah

Chief, Sustainable Consumption and Production, UNEP

Contents of this presentation



- Context
- UNEP's Approach to Safe and Responsible Production
  - Responsible Production
  - APELL
  - Flexible Framework
- International Mechanisms
- UN Commission for Sustainable Development (CSD)
- Conclusions

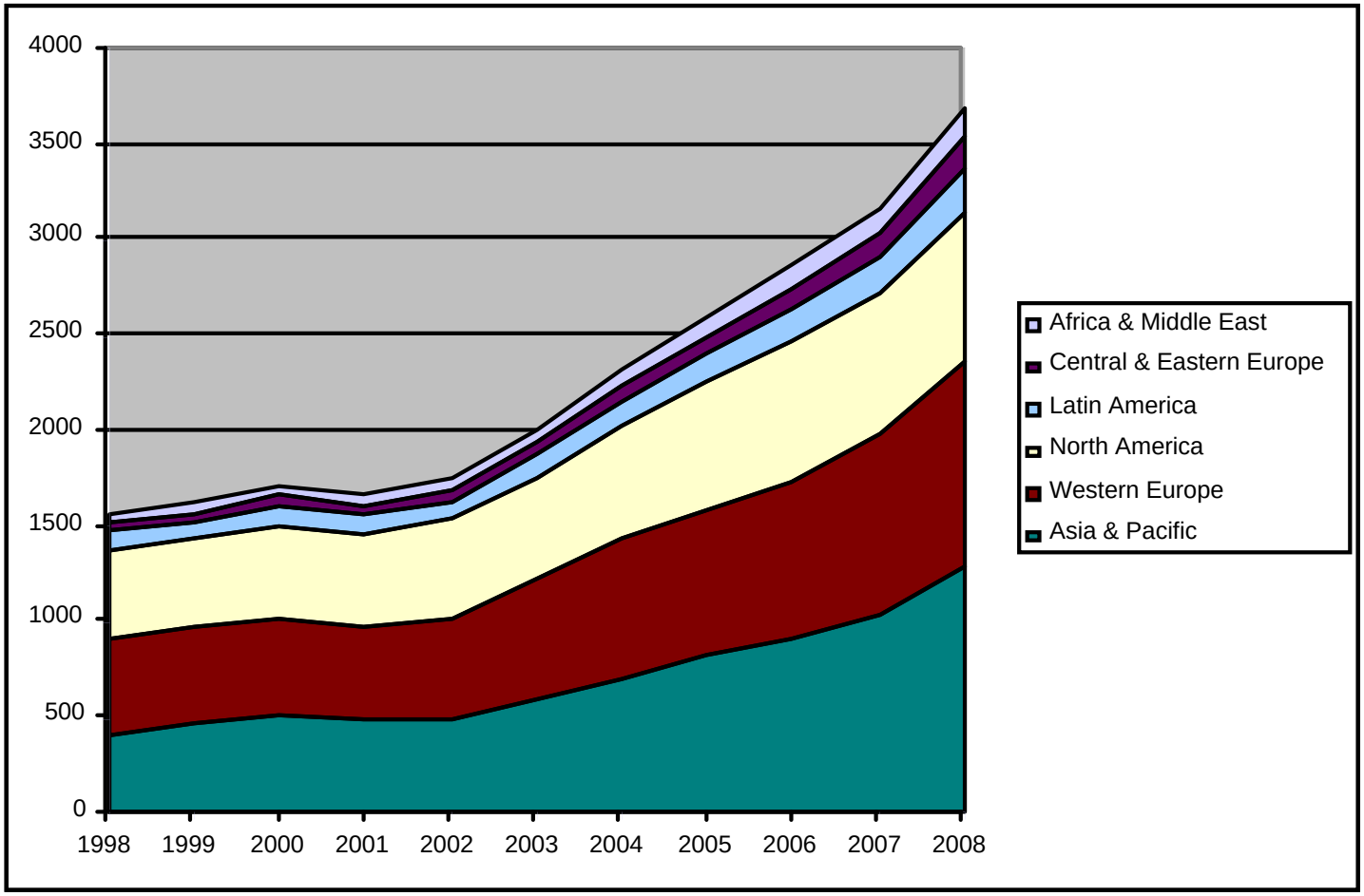


Context

- Chemicals are major contributors to the global and national economy
- Chemicals are used in most if not all economic sectors
- Many benefits to society (improved human health, agricultural production, technological progress, etc.)
- Chemicals industry is expected to grow over next 20 years

Context

Increasing production and consumption of chemicals



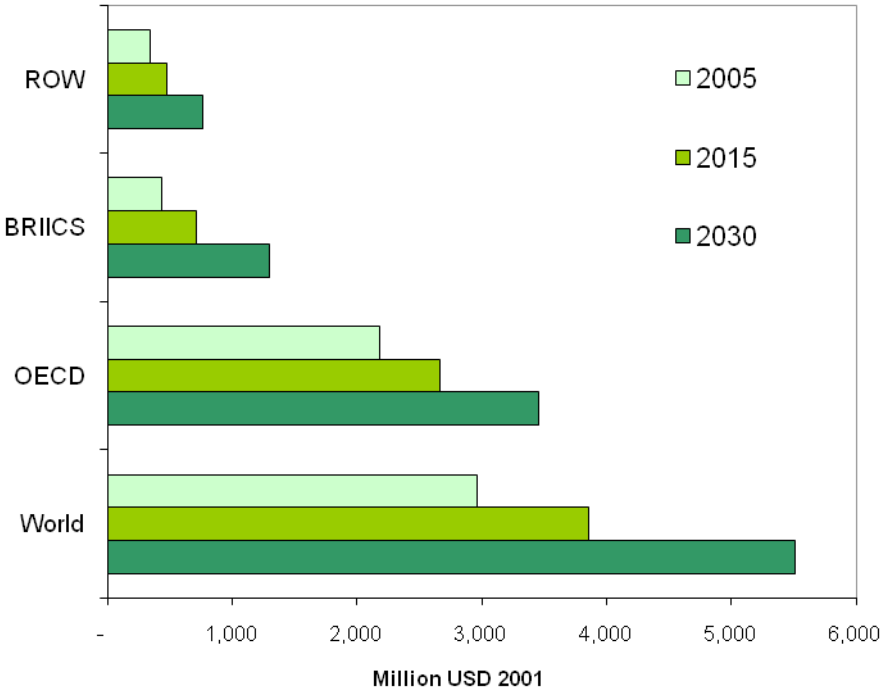
Global chemical production by region in billion USD

Source: American Chemistry Council: Guide to the business of chemistry, 2009

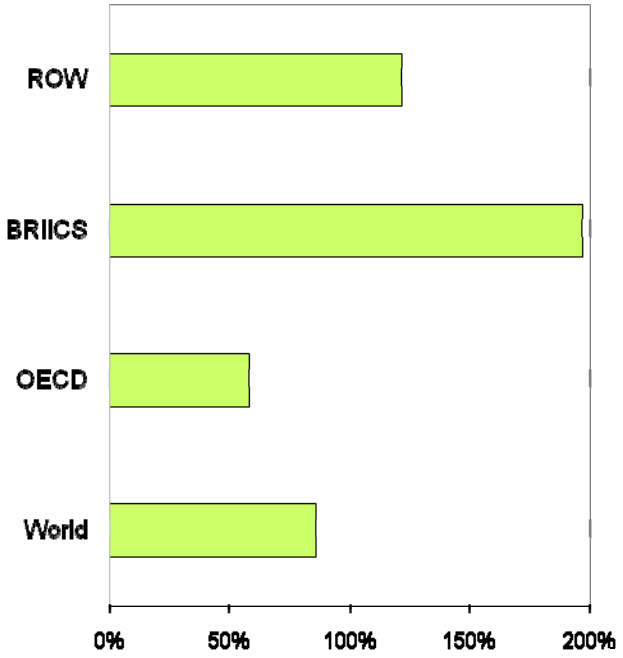
Context

Change in production and consumption of chemicals

Chemical production 2005-2030,
Source: OECD Environmental Outlook to 2030, 2008

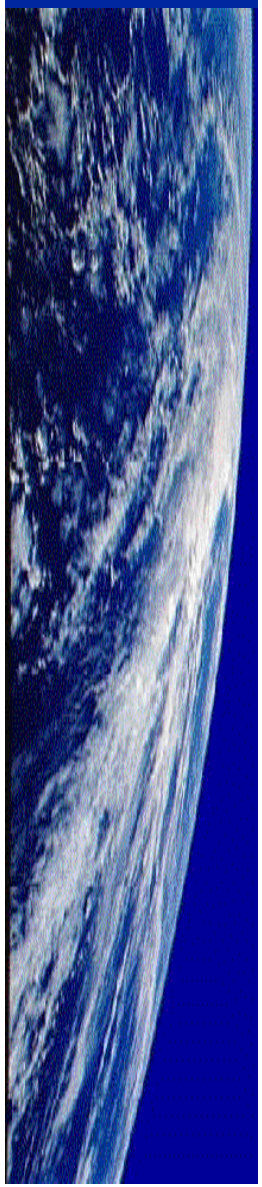


Total % change, 2005-2030



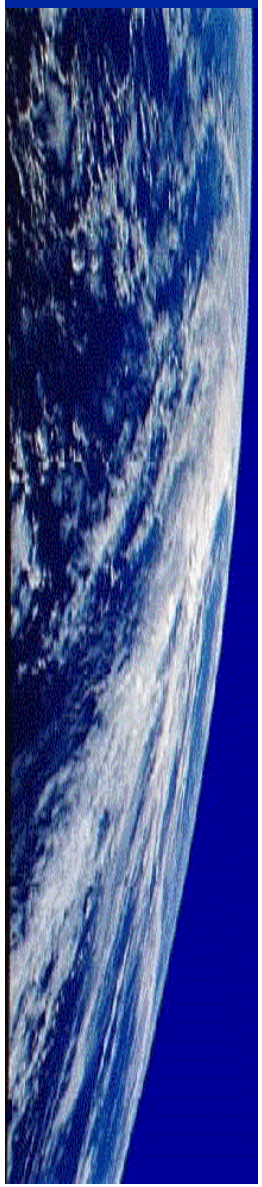
Note: BRIICS include Brazil, Russia, India, Indonesia, China and South Africa.
ROW: Rest of the world

Context



- However, chemicals can pose risks to human health and the environment if managed irresponsibly
- There is a need for improved chemical management to prevent long term damage to human health and the environment

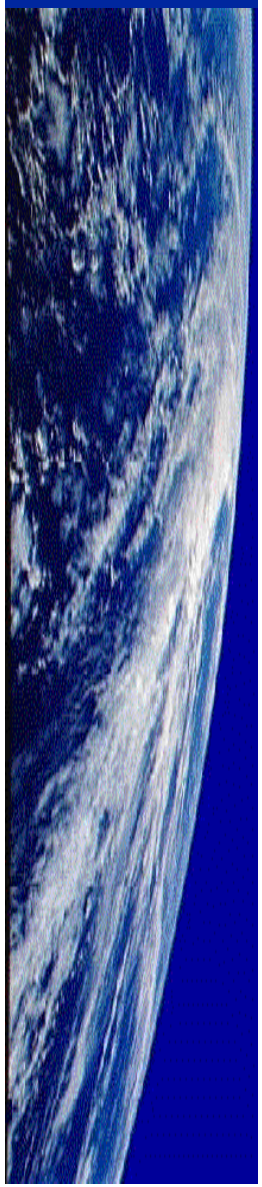
Context



Challenges to improved chemicals management at a global level:

- Change in production and consumption of chemicals towards developing countries – little analysis of changes and potential impacts
- Lack of priority given to sound management of chemicals in development plans of developing countries – leads to inadequate resources and capacities
- Implementation of internationally binding instruments and processes – need for market-based instruments, improved legal/technical capacities, national coordinating frameworks, and affordable safe alternatives
- Emerging issues (i.e. chemicals in products, nanomaterials)

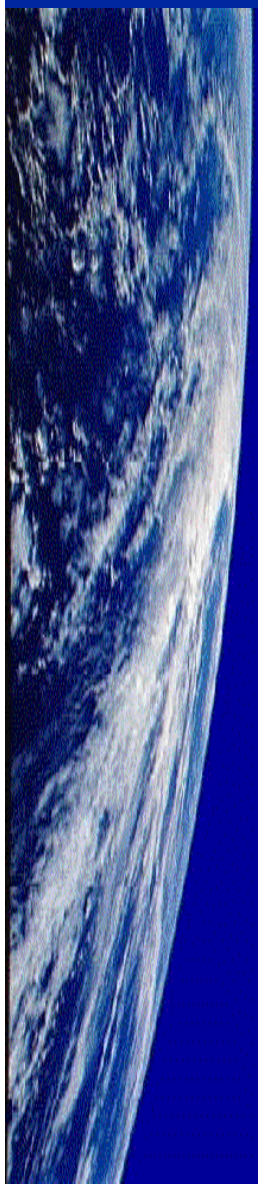
Context



Suggested actions to address the challenges:

- Need for a more detailed analysis of the chemicals production, transportation and use in developing countries
- Increase the priority given to sound management of chemicals in developing countries
- Integration (mainstreaming) of sound management of chemicals into national development plans in developing countries
- Make available coherent international tools and guidance on the use of market-based instruments, legal and institutional infrastructures, and risk assessment/management
- Use SAICM process to develop scientific, technical and policy responses to emerging issues

Context



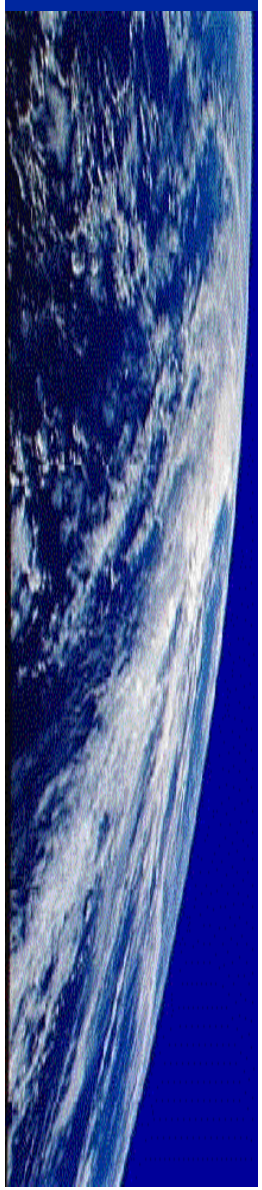
Challenges to improved chemicals management at a national/local level:

- Insufficient information on chemical safety (especially in local languages)
- Lack of awareness on chemical risks
- Insufficient capacity for risk assessment, reduction and monitoring
- Need for cost-effective green and safe alternatives to hazardous chemicals
- Need for improved inter-sectoral coordination and institutional frameworks
- Inadequate health and safety protection for workers and safeguards against accidents
- Limited involvement of general public in policy development and chemical management

Context

Suggested actions to address the challenges

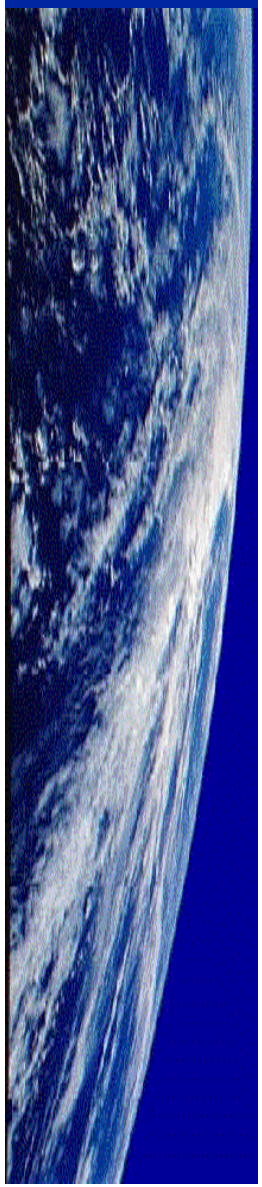
- Increased cooperation between countries, industrial sectors, intergovernmental organisations, etc.
- Sharing of best practices on chemical management, accident prevention, environmental protection, etc.
- Increase in the capacities of countries for socioeconomic analysis of the costs and benefits of sound management of chemicals
- Sharing of technical advice and guidance on approaches and methodologies for risk assessment and risk management
- Outreach to stakeholders such as SMEs, the public, etc.



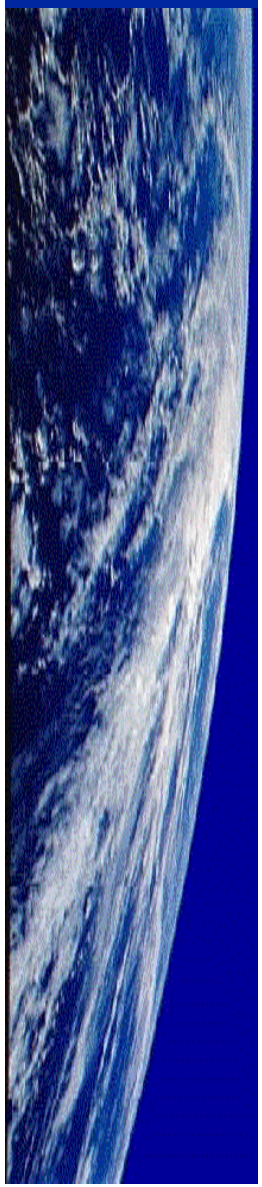
Context

- Many international mechanisms in place to address these issues
- Industry is a leader in addressing chemical safety and management
  - Initiatives such as Responsible Care
  - Global Product Strategy
  - Product Stewardship Guidelines
  - Importance of sharing best practices
- Improved management of chemicals results in benefits to people, the environment, and industry
- Sticks, Carrots and Tambourines

UNEP's Role

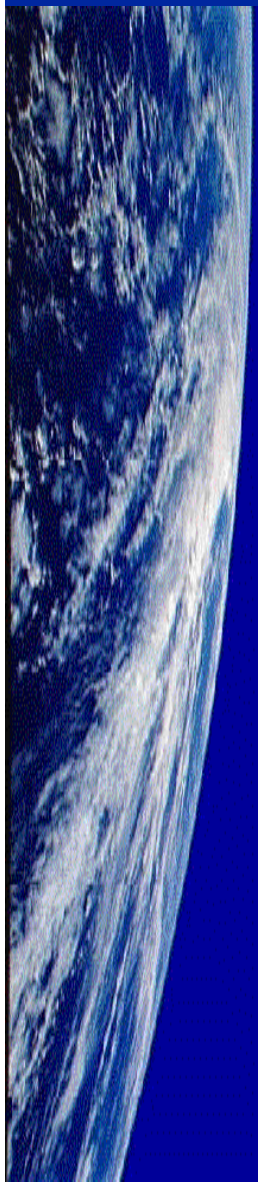


- UNEP is the United Nations Environment Programme
- Division of Technology, Industry and Economics (DTIE)
  - Chemicals Branch:
    - Information on hazardous chemicals
    - Capacity building for improved chemicals management
    - Global actions such as SAICM, conventions, etc.
  - Sustainable Consumption and Production Branch:
    - Promote sustainable resource management in a life cycle perspective
    - Training and capacity building
    - Resource efficiency, cleaner and safer production



UNEP's Approach to Safe and Responsible Production

- Responsible Production Handbook
- APELL (Awareness and Preparedness for Emergencies at Local Level)
- Flexible Framework for Chemical Accident Prevention and Preparedness
- Cooperation with other international mechanisms



What is Responsible Production?

- It is a tool developed by UNEP to:
  - Build capacity for chemical safety management across the value chain
  - Address the need for simplified guidance on chemical hazard management
  - Provide guidance that is specifically aimed at Small and Medium-Sized Enterprises (SMEs)
- The Responsible Production approach was developed by UNEP in collaboration with AccountAbility, the International Council of Chemical Associations (ICCA); including ABIQUIM, and the International Council on Mining and Metals and was funded by the Norwegian Government.

Responsible Production

(background and SMEs needs)

Many different tools, guides and approaches exist that contribute to similar results of chemical hazard management and reducing accident risks, however,…..

- Often complex in dimension with high implementation efforts
- Rarely address hazards and risks along the value chain
- Not targeted towards SME structures and surroundings
  - Fewer resources (time, finances, and expertise) for addressing chemical risks
  - Less access to sources of information and guidance on chemical risks

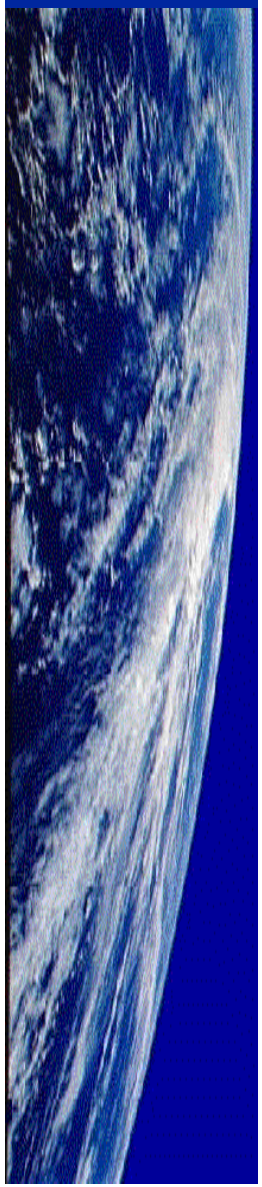
Responsible Production

Combining best practice approaches from APELL, CSR and Safer Production ...

... into a single framework – easy to understand and apply.

Systematic and continuous improvement approach aimed at SMEs

Responsible Production



Benefits of Responsible Production:

An applicable and simplified approach tailored towards SMEs

A flexible and modular concept for chemical hazard management

An integrated and effective approach along the value chain

Demonstration of business cases for chemical safety and accident risk reduction

Responsible Production Handbook Components

Framework Booklet

- Overall background, technical approach and business case for implementation
- Indicators for monitoring implementation efforts
- Case studies and lessons learned

The Responsible Production Framework, Indicators and Tools

Responsible Production Handbook Components

Toolkit

- Core technical materials for operationalising the framework
- Includes basic and advanced tools

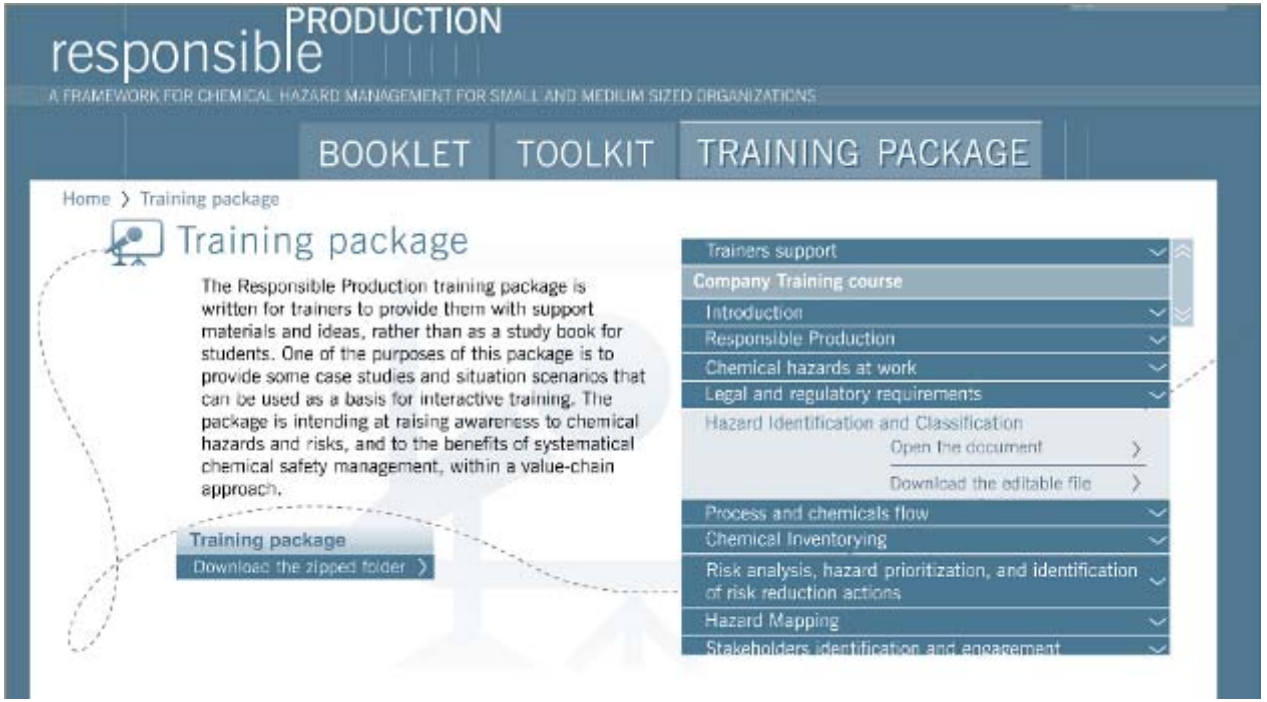
Tool 1.2 Chemical Inventory and Hazard Classification

The objective is to systematically identify all chemical substances that are stored, handled and used at your business, along with information on their quantities and type of storage, and to classify them according to information on chemical product information, labels, and MSDSs. Check this against the process flows to make sure you haven't missed anything.

Responsible Production Handbook Components

Training Package

- adaptable base for capacity building
- 18 thematic training sessions to aid SMEs in implementation
- Includes guidance for trainers and adaptable presentations



Responsible Production

- Current dissemination activities
  - Translations into Thai and into Spanish
  - Translation into Mandarin (Tsinghua University in Beijing)
  - Translation into Arabic in partnership with CEDARE
  - Translation into French in cooperation with the French government
- Regional dissemination through regional capacity building workshops in Panama, Egypt and Sri Lanka held during May and June 2010

Responsible Production

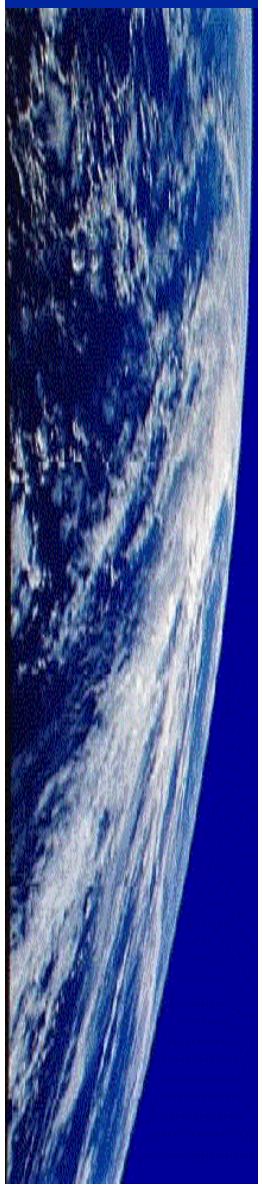
- PDFs of documents available online at:

http://www.unep.fr/scp/sp/saferprod/initiatives.htm#rp

- Interactive Flash Website:

http://www.unep.fr/shared/publications/cdrom/DTIx1212xPA

PreparAR



- Prepar*AR* - aims at improving the performance and competitiveness of (as a first stage) 500 small chemical companies country-wide in three years, focusing on better management of their organizations in health, safety, environment and quality.

- The MOU between ABIQUIM and UNEP will help enhance Prepar*AR* with the use of the Responsible Production toolkit and also provide UNEP with a strong field experience that could help improving Responsible Production and promoting it to other industries and countries.

APELL

- Awareness and Preparedness for Emergencies at Local Level
  - Launched in 1988 to improve preparedness for chemical accidents in communities near industrial facilities
  - multi-stakeholder dialogue tool that establishes adequate coordination and communication in situations where the public might be affected by accidents
  - Established tools for different industrial sectors – transportation, port areas, mining, etc.
  - APELL Multi-Hazard Training Kit – addressing natural and industrial hazards

APELL Project in China

- Joint project between UNEP, Ministry of the Environment of China, and The Dow Chemical Company
- Promotion of chemical safety and emergency preparedness in the chemical industry
- Demonstration Site: Yangtze River International Chemical Industry Park
  - Over 70 companies registered in the park
  - Numerous government agencies involved in safety, environmental protection, emergency response, etc.
  - Development of Coordinated Emergency Plan
  - Multi-party emergency drill scheduled for September 2010

Development /translation of training materials and guidance for further replication throughout country

Flexible Framework

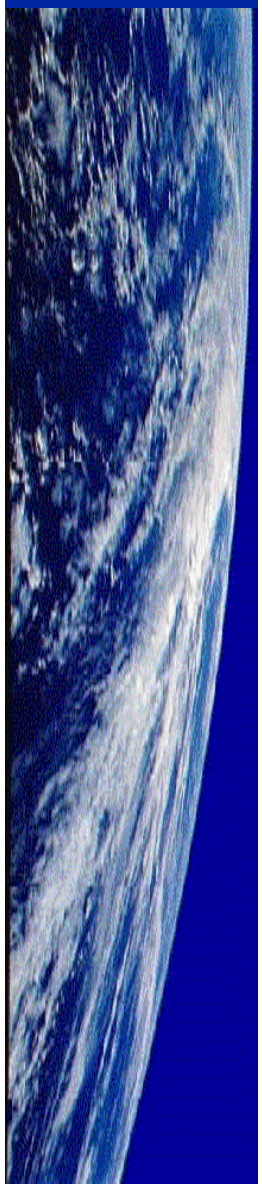
Flexible Framework for Addressing Chemical Accident Prevention and Preparedness

- For industry to operate more safely, there must be enabling conditions
- Guidance for governments that wish to establish regulations, policies or instruments for prevention and preparedness for chemical accidents
- Based on international guidance and national regulations

Flexible Framework Activities

- Completed Pilot Training Sessions:
  - Cambodia and the Philippines
  - Capacity building for development of national chemical accidents prevention and preparedness programmes
- Country level projects in Mali and Senegal
  - Additional country level projects dependent on resources procurred
- Development of an Implementation Support Package
  - Assist in further implementation and dissemination of Flexible Framework approach

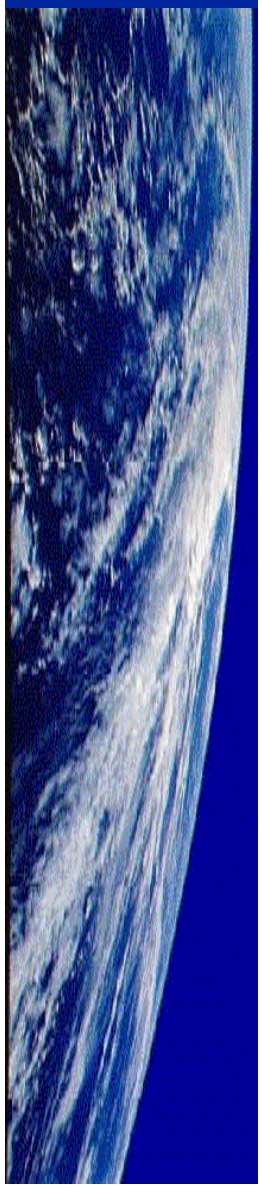
International Mechanisms



SAICM: Strategic Approach to International Chemicals Management

- Global framework for strengthening capacity for sound chemical management throughout lifecycle
- Multi-stakeholder, multi-sectoral
- Five themes: Risk reduction; Knowledge and Information; Governance; Capacity-building and technical cooperation; Illegal international traffic
- Emerging Issues from ICCM2 (May 2009):
  - Global Mercury Partnership
  - Chemicals in products
  - Lead in paint
  - E-waste
  - Nanomaterials

Chemicals in Products



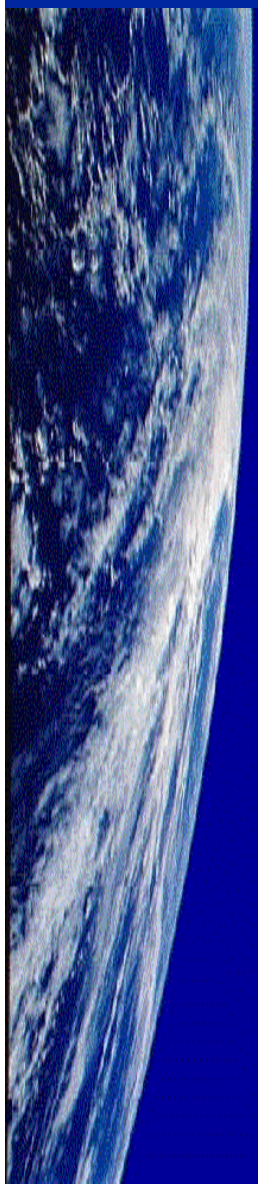
- Many of the emerging issues relate to the use of harmful substances in everyday products.

  - Lead in paint
  - E-waste
  - Nanomaterials

  → all seek to reduce human and environmental exposures to harmful substances contained in products.

- Need to facilitate the flow of information about chemicals in products so that manufacturers and consumers can make informed choices about which materials to buy and use.
- Environmentally sound management of waste products, including reclamation and recycling, can only be done if the chemicals content of materials is known.
- Must look at chemicals throughout their life-cycles

International Mechanisms



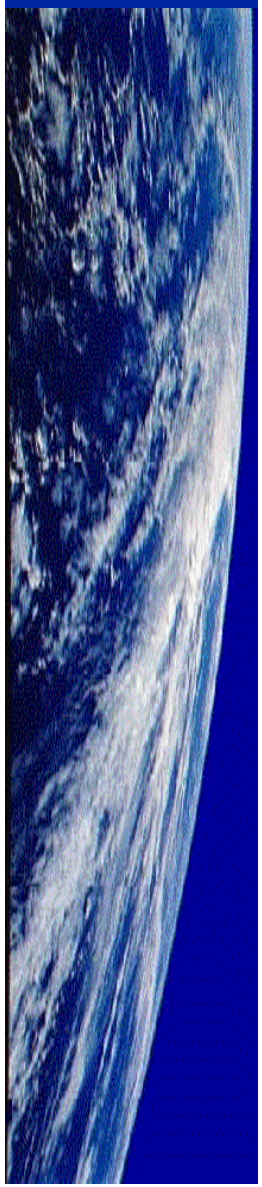
REACH: Registration, Evaluation, Authorisation and Restriction of Chemical substances

- European regulation with global consequences; affecting all products imported into Europe
- Information relating to health, safety and environmental properties, risks and risk management measures is passed both down and up the supply chain
- manufacturers or importers to the European market have to register their substances, conduct a chemical safety assessment, and create a chemical safety report

GHS: Globally Harmonized System

- International system for chemical classification and labelling
- GHS in Brazil – government working on GHS implementation since 2001

International Mechanisms

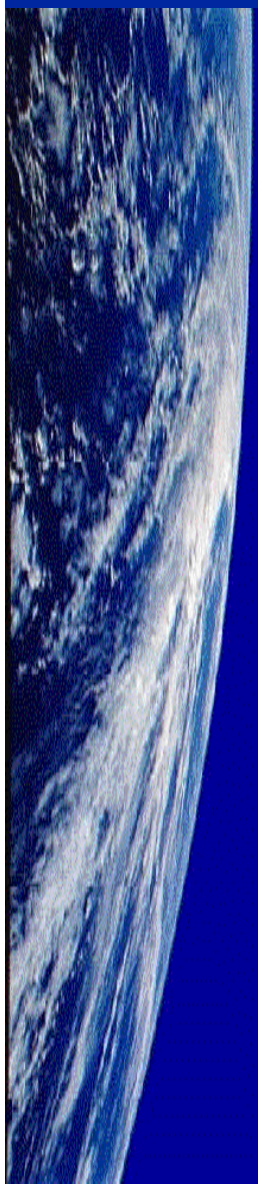


Multilateral Environmental Agreements

- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
- Stockholm Convention on Persistent Organic Pollutants

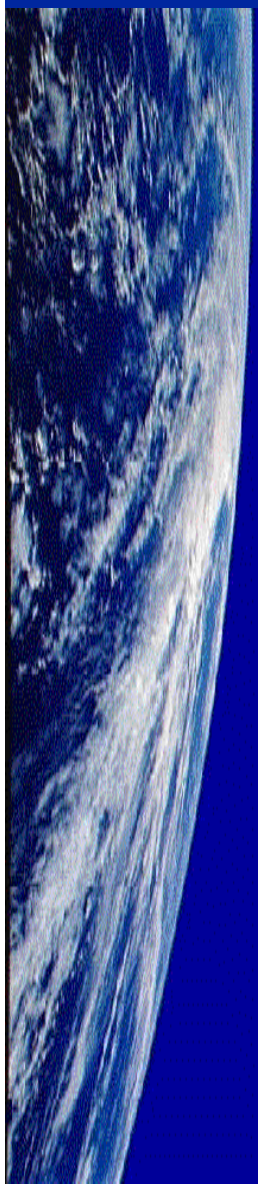
- Brazil is signatory to all three

CSD 18



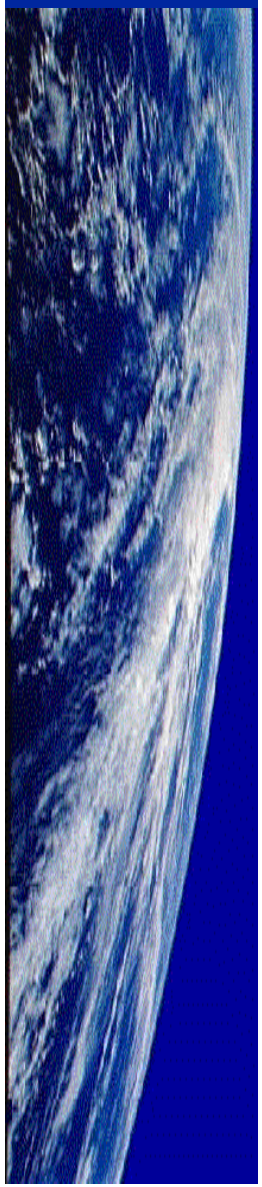
- United Nations Commission for Sustainable Development
- Created to follow up on 1992 UN Conference on Environment and Development
- 5 thematic areas for sessions 18 and 19 (2010-2011)
  - Chemicals
  - Mining
  - 10YFP on Sustainable Consumption and Production (Marrakesh Process)
  - Transportation
  - Waste

CSD 18 - Best Practices and Lessons Learned



Important actions which have been taken at the national and regional levels include:

- Developing national plans on chemicals management;
- Prohibiting/restricting certain chemicals, particularly pesticides;
- Systematically examining inventories of domestic chemical substances in commerce;
- Establishing risk assessment systems for environment and health;
- Strengthening preparedness for chemical emergencies;
- Implementing regulatory mechanisms such as REACH
- **Public private partnerships and voluntary initiatives such as the Canadian Chemicals Management Plan, Responsible Care and ICCA's Global Product Strategy.**

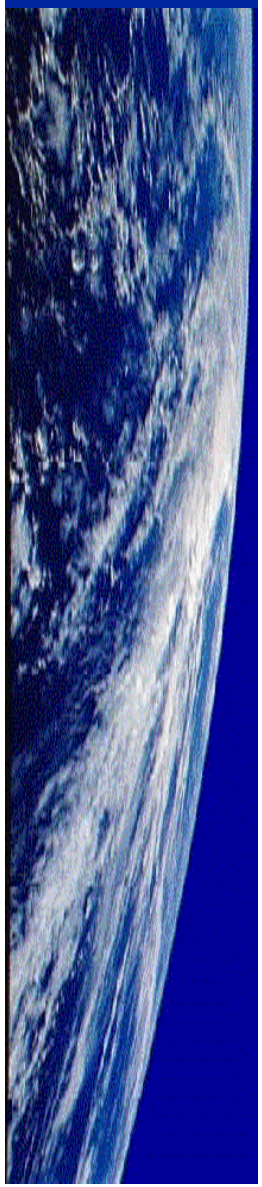


CSD 18

National level priority areas for action:

- strengthening national legislation, with international cooperation and training on enforcement and compliance;
- integrating chemical management into national development priorities and budgets;
- establishing mechanisms for inter-sectoral cooperation in all countries;
- enhancing capacity (human and technical) for chemical risk assessment;
- **developing safer alternative products and technologies for replacing the most hazardous chemicals**;
- expanding monitoring programmes, including through establishment of Pollutant Release and Transfer Registers;
- strengthening partnerships and corporate social responsibility in the chemicals sector.

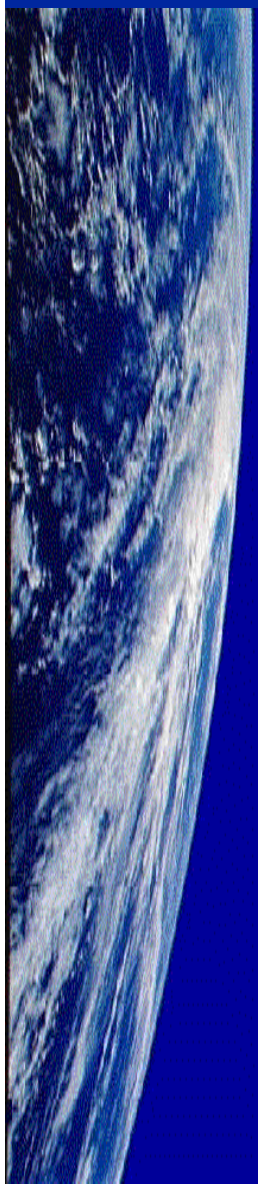
CSD 19 and Rio+20 Agenda



- Will revisit the five topics of CSD-18
- Outcome: negotiated document consisting of policy measures and actions to advance implementation in 5 thematic areas
- Rio + 20 (Earth Summit 2012) and the Marrakesh Process:
  - Goals
- to assist countries in their efforts to green their economies
- to encourage consumers to adopt more sustainable lifestyles (Sustainable Product Task Force)
  - Build upon existing innovations
  - Many environmental impacts can be prevented at design stage
- to help corporations develop greener business models (Business and Industry Forum)

Conclusion

- Impressive steps have been made in improving chemical management, but there is still work to be done
- Addressing these issues requires:
  - Cooperation between all stakeholders, i.e., industry, government, public, etc.
  - A broad outlook – issues are interrelated and cannot be solved separately
  - A comprehensive sustainability approach



Conclusion

- Chemical industry's role in sustainable development is important
  - Chemical industry has already been a valuable contributor to improved chemical safety and management
  - Chemical industry is expected to continue to grow and play a major role in the global economy
  - Brazil's chemical industry is already strong and its participation in project activities will create great potential for improved chemical management across the region

Conclusion

- What industry can do:
  - Embrace sustainability a as core function
  - Industries do not operate in a vacuum – the actions of one company affect producers and consumers across the value chain
  - Larger industries can raise the bar for others (smaller ones) through sharing expertise and best practices
    - More sustainable production: chemical safety, resource efficiency, etc.
    - Safer and sustainable products – reduced resource consumption, fewer hazardous chemicals, less waste
    - Life cycle approach: have to consider actions within the industry and along the supply chain
  - PreparAR Programme (MOU with ABIQUIM)
  - Partnerships with IGO (like UNEP-FIESP one)