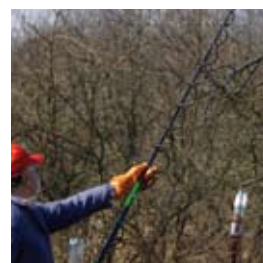
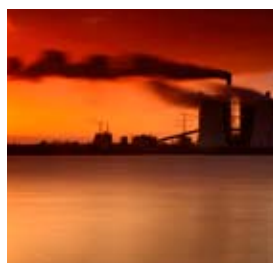


for comments



# UNDP Technical Guide *for Integrating the* **Sound Management of Chemicals** *in MDG-Based Policies & Plans*



**UNDP** ENVIRONMENT & ENERGY GROUP



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# UNDP Technical Guide for Integrating the Sound Management of Chemicals (SMC) in MDG-Based Policies and Plans

**“** *The Sound Management of Chemicals is essential if we are to achieve sustainable development, including the eradication of poverty and disease, the improvement of human health and the environment and the elevation of the standard of living in countries at all levels of development.* **”**

Dubai Declaration on International Chemicals Management, Feb 2006



## Foreword

The use of chemicals permeates modern life. While chemicals play an important role with respect to development, including through the production and use of life-saving medicines, purification agents for treating drinking water supplies, and agricultural chemicals that boost on-farm productivity, use of chemicals can, in absence of good management practices, pose significant risks to human health and the environment.

The world's poorest people routinely face the highest risk of exposure to toxic and hazardous chemicals, due to their occupations, living conditions, lack of knowledge about safe handling practices, limited access to sources of uncontaminated food and drinking water, and the fact that they often live in countries where regulatory, health, and education systems are weak.

The United Nations Development Programme (UNDP) thus promotes the sound management of chemicals as an important aspect of our work to reduce global poverty, promote human health and help countries achieve the Millennium Development Goals (MDGs). We at UNDP advocate for the importance of addressing issues related to chemicals management and chemically-linked pollution in developing countries by integrating rigorous chemicals management schemes into national development policies and plans. We also help countries to obtain the necessary resources to improve their chemicals management regimes in order to achieve desired results.

In support of the Strategic Approach to International Chemicals Management (SAICM) adopted in 2006, and with support provided by the Norwegian Government, UNDP initiated the development of a Technical Guide to help governments and UN Country Teams to mainstream or incorporate sound management of chemicals into MDG-based national development policies and plans.

The *UNDP Technical Guide for Integrating the Sound Management of Chemicals (SMC) in MDG-Based Policies and Plans* is one of several tools that UNDP's Environment and Energy Group, Bureau for Development Policy, has developed to enhance assistance to partner countries through a comprehensive approach to mainstreaming environmental sustainability. As such it provides guidance on chemicals management and informs understanding of effective processes to integrate a wide range of environmental issues into national development policies and plans.

The UNDP Technical Guide explains in details the approach governments can use with the objective to i) incorporate sound management of chemicals into development policies and plans, ii) assess and update development policies and plans that already contain sound management of chemicals elements and iii) identify donor funding opportunities for a country's chemicals management capacity building needs.

The UNDP Technical Guide builds on applied, practical experience accumulated in countries under the *UNDP-UNEP Partnership Initiative for the Integration of Sound Management of Chemicals (SMC) into Development Planning Processes* and has been revised in preparation of the second session of the International Conference on Chemicals Management (ICCM2). It is considered to be a "living document" in which the lessons-learned and practical field experiences from countries will continue to be recorded as they progress with the integration of sound management of chemicals in their MDG-based development planning processes.



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## 1.0 Introduction to the UNDP Technical Guide

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The *UNDP Technical Guide for Integrating the Sound Management of Chemicals (SMC) in MDG-Based Policies and Plans* is a learning tool, a primer that provides information on important concepts with respect to the Sound Management of Chemicals (SMC) and its role in supporting countries' efforts to achieve sustainable development as well as the Millennium Development Goals (MDGs).

Above all, the UNDP Technical Guide provides a systematic approach to countries to help assess their capacity for sound management of chemicals, identify needs, and ultimately “mainstream<sup>1</sup>” or incorporate identified priorities into national MDG-based development policies and plans. Following a step-by-step approach (see **Figure 1**), the Technical Guide describes in detail the mainstreaming methodology, while addressing key considerations and providing “how-to” information associated with each step.

Based on applied, practical experience accumulated in pilot countries under the *UNDP-UNEP Partnership Initiative for the Integration of Sound Management of Chemicals (SMC) into Development Planning Processes*, the guide aims to help countries:

- i) Incorporate sound management of chemicals priorities into development policies and plans;
- ii) Assess and update development policies and plans that already contain sound management of chemicals elements; and
- iii) Identify donor funding opportunities for a country's chemicals management capacity building needs.

The Technical Guide is intended for decision-makers and managers engaged in aspects of the management of chemicals but also those involved in the drafting, priority setting, implementation, monitoring or reporting with respect to national development plans and strategies. UN Country Teams will find this approach useful to help identify high priority opportunities for donor support in sound management of chemicals capacity building in the context of the United Nations Development Assistance Framework (UNDAF).

Considering that guidance and experiences regarding the mainstreaming or “incorporation” of the sound management of chemicals have become available relatively recently, the Technical Guide focuses on those elements of the approach that have not yet been addressed by other capacity building guidance tools or materials. In the case the reader might be interested in further exploring certain concepts; the Technical Guide provides such reference information.

The *UNDP Technical Guide for Integrating the Sound Management of Chemicals (SMC) in MDG-Based Policies and Plans* is one of the thematic components of guidance provided by UNDP's Environment and Energy Group on “**Mainstreaming Environmental Sustainability**”.<sup>2</sup> The Technical Guide is considered a “living document” in which the lessons-learned and practical field experiences from countries will continue to be recorded as they progress with the integration of sound management of chemicals in their MDG-based development planning processes.

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<sup>1</sup> See **Box 1** for an description of the term “mainstreaming” as used throughout the UNDP Technical Guide

<sup>2</sup> <http://www.undp.org/energyandenvironment/>

The UNDP Technical Guide has been recently revised in preparation for the 2nd session of the International Conference on Chemicals Management (11 – 15 May 2009), at which occasion it will be officially released. Readers are invited to review its present form and provide comments and suggestions for its enhancement before **June 26, 2009**.

#### **Box 1**

Throughout this document the term “mainstreaming” is used to signify the integration of Sound Management of Chemicals priorities into a country’s development plans, but also into sector strategies, local level implementation and programmes.

Incorporating or “mainstreaming” the Sound Management of Chemicals into national development plans and processes involves establishing the links between poverty and sound chemical management – such as improved human and environmental health, and increased economic security and income opportunities for the poor – and then identifying the policies and programmes needed to bring about pro-poor chemical management.

The overall aim is to establish enduring institutional processes within government ministries and the wider stakeholder community to bring about sound management of chemicals – focusing on the government bodies responsible for poverty reduction and growth policies, and also strengthening the role of environmental agencies and non-governmental actors.

It also involves looking at potential chemical risks arising from implementing sections of the development plans, and trying to mitigate such risks at the planning stage. The integration of chemicals management priorities into national development planning processes will be a means to help governments foster national budget commitments as well as bi-lateral donor assistance.

## **1.1 Introduction to the SMC Mainstreaming Approach**

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The mainstreaming approach, as described in detail in **Chapter 3**, comprises 5 main steps as depicted in Figure 1:

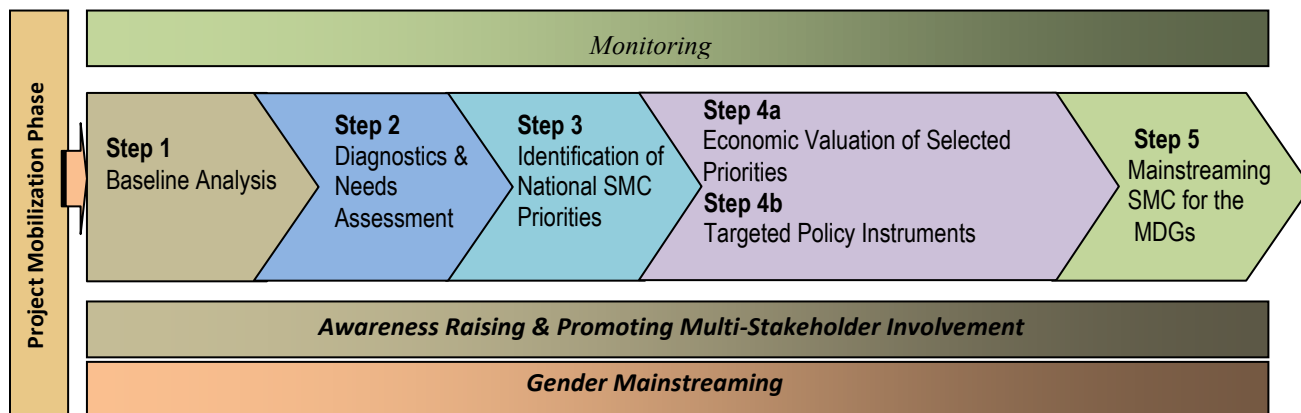
- **Step 1:** Baseline analysis
- **Step 2:** Diagnostics and Needs Assessment
- **Step 3:** Identification of National SMC Priorities
- **Step 4 a & b:** Economic Valuation and Targeted Policy Instruments
- **Step 5:** Mainstreaming SMC Priorities

These steps are preceded by a *Project Mobilization Phase* which includes critical elements to prepare for a successful mainstreaming effort.

*Stakeholder Consultation & Awareness Raising, Monitoring & Evaluation and Gender Mainstreaming* are important elements of the mainstreaming approach and are applied throughout all five steps. For the purpose of keeping this Technical Guide concise, the reader is referred to existing UNDP guidance on *Monitoring & Evaluation* and *Gender Mainstreaming*. Actions that would normally be taken for *Stakeholder Consultation & Awareness Raising* are discussed in the descriptions of the 5 steps of the mainstreaming approach.<sup>3</sup>

Similarly, *Step 1 – Baseline Analysis* will avoid duplicating efforts with existing SMC technical guidance documents issued by many different organizations and available to the reader over the internet (see *Annex 1*).<sup>4</sup> Finally, *Step 4a* is the subject of a *Supplemental Guidance Document on Economic Valuation in the SMC Mainstreaming Approach* to be issued as a companion to this document.<sup>5</sup>

**Figure 1: Overview of the Mainstreaming Approach**



<sup>3</sup> UNDP. 2007. *Chemicals Management: The why and how of mainstreaming gender in chemicals management* <http://www.energyandenvironment.undp.org/indexAction.cfm?module=Library&action=GetFile&DocumentAttachmentID=2314>, and UNDP, Evaluation Office. 2002. *Handbook on Monitoring and Evaluating for Results* <http://www.undp.org/gef/05/documents/me/ME-HandBook.pdf>.

<sup>4</sup> Also see IOMC. 2006. *National Implementation of SAICM: A Guide to Resource, Guidance, and Training Materials of IOMC Participating Organisations*. [http://www.who.int/iomc/saicm/resource\\_guide.pdf](http://www.who.int/iomc/saicm/resource_guide.pdf)

<sup>5</sup> Also see, UNDP-UNEP Poverty-Environment Initiative. 2009. *MAKING THE ECONOMIC CASE: A Primer on the Economic Arguments for Mainstreaming Poverty-Environment Linkages into National Development Planning*.

## 2.0 Background on Important Concepts

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This section reviews important concepts that are essential for understanding the SMC mainstreaming approach but might be unfamiliar to readers who have not worked in SMC or development planning capacities.

### 2.1 Objective of the Sound Management of Chemicals

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The objective of the sound management of chemicals is to apply managerial best practices to chemicals throughout their *life cycle* to prevent, and, where this is not possible, to reduce or minimize the potential for exposure of people and the environment to toxic and hazardous chemicals (i.e. through polluting emissions, use, disposal, etc.).<sup>6</sup> This requires strengthened governance, and improved techniques and technologies in the production, use, storage, and disposal or recovery of chemicals.

The term *life cycle* originates with a methodology initially introduced in the 1970s, life-cycle assessment (LCA), which evaluates affects upon the environment and human health of a chemical substance from the moment of its extraction from the earth until the return of the substance to the ecosystem in an environmentally sound manner. This cycle has, in turn, been characterized as “cradle-to-grave” with disposal (e.g., in a landfill) or destruction of a substance considered the “end” of the life cycle.<sup>7</sup>

To be effective, SMC initiatives should be applied broadly to include not only the chemical products and polluting emissions of factories that manufacture chemicals but also the full value-chain, which includes other chemical products and goods that are produced using basic chemicals or other “downstream” industrial consumers of chemicals, inclusive of formulators, distributors and retailers of chemicals.

**Annex 2** indicates key components of a national sound management of chemicals risk reduction programme.

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<sup>6</sup> See *Agenda 21, Chapter 19*. [www.un.org/esa/sustdev/documents/agenda21/index.htm](http://www.un.org/esa/sustdev/documents/agenda21/index.htm)

<sup>7</sup> UNEP. 1996. *Life Cycle Assessment: What it is and How to do it*.

## ***2.2 Sound Management of Chemicals as related to the MDGs***

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At the September 2000 Millennium Summit, world leaders adopted the Millennium Development Goals (MDGs), which set clear targets, to be achieved by 2015, for reducing poverty, hunger, disease, illiteracy, and environmental degradation, and promoting social objectives such as universal primary education and the empowerment of women.

At the national level, countries may further refine MDG targets within a national MDG plan to take into account national circumstances and challenges. Some countries have taken their MDG plans a step further and developed work plans applicable to the local level in support of their national MDG targets.

With respect to the sound management of chemicals, to date, most importance has been given to the linkages between the sound management of chemicals and MDG-7: *ensuring environmental sustainability*. However, chemicals play an important role with respect to human development more broadly and without good management practices they can pose significant risks to human health and the environment, with the poorest members of the global community most vulnerable to their negative effects.

**Annex 3** provides examples of SMC linkages with the MDGs illustrating that strong SMC contributes to achievement of all of the MDGs, while weak SMC has the potential to impede achievement of the goals.

The Sound Management of Chemicals (SMC) should thus be considered an important component of a country's efforts to reduce global poverty and achieve the MDGs.

## ***2.3 International SMC Commitments***

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Most countries, including a vast majority of developing countries and countries with economies in transition have recognized that SMC is in their national interests for sustainable development, and have adopted various international commitments towards that end.

Chapter 19 of Agenda 21 agreed to at the 1992 World Summit on Sustainable Development (WSSD) was the world's first global consensus surrounding the concept of sound management of chemicals. It remains a key source document for global consensus on this subject.<sup>8</sup>

Various legally binding, multilateral environmental agreements (MEAs) also reflect a global interest in SMC. Among the most central MEAs are:

- The *ILO Convention No. 170* concerning safety in the use of chemicals at work (i.e., moving from a single chemical to all chemicals affecting workers);

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<sup>8</sup> See *Agenda 21, Chapter 19*. [www.un.org/esa/sustdev/documents/agenda21/index.htm](http://www.un.org/esa/sustdev/documents/agenda21/index.htm)

- The *Montreal Protocol on Substances that Deplete the Ozone Layer*, which addresses a class of substances, rather than individual substances;
- The *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade*, which provides for prior notification of exports and imports of toxic and hazardous chemicals in global trade (currently 41 chemicals listed);
- The *Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal*, which addresses environmentally sound management of chemical wastes and waste streams that involve 1000s of chemicals and considers life-cycle management of substances as these pertain to prevention, minimization and environmentally sound management of wastes; and
- The *Stockholm Convention on Persistent Organic Pollutants*, which emphasizes life-cycle management for listed persistent organic pollutants (currently 12 chemicals listed - However, at the May 2009 Conference of the Parties to the Convention (COP 4), nine new chemicals will be considered for action).

The 2002 Johannesburg Plan of Implementation of the WSSD renewed the comprehensive commitment, as advanced in Agenda 21, *“to the sound management of chemicals throughout their life cycle and of hazardous wastes for sustainable development as well as for the protection of human health and the environment, inter alia, aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment...”* including through support to developing countries in strengthening their capacity for the sound management of chemicals and hazardous wastes by providing technical and financial assistance.<sup>9</sup>

The 2006 Strategic Approach to International Chemicals Management (SAICM), the most recent among international chemicals efforts, represents the first mechanism, albeit non-legally binding, that attempts to strengthen SMC governance across all relevant sectors for purposes of achieving the WSSD goal.<sup>10</sup>

In contrast to SAICM, earlier adopted multilateral environmental agreements on chemicals focused on management of a specific chemical or a class of chemicals with similar characteristics. In addition to seeking discrete outcomes, such as elimination and/or minimization of exposure to particular chemicals, these agreements variously emphasize general concepts or principles relating to SMC governance. Examples, as generalized here from different agreements and decisions, include:

- “Pollution prevention” (i.e. which is preferable to ‘end-of-pipe’ measures);
- The Precautionary Approach (e.g., where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation);

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<sup>9</sup> See *Johannesburg Plan of Implementation*,  
[http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/WSSD\\_PlanImpl.pdf](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf)  
 See *Strategic Approach to International Chemicals Management*,  
<http://www.saicm.org/index.php?menuid=3&pageid=187>

- Best available scientific information and assessments should be utilized;
- The right to development that occurs equitably, so as to meet development and environmental needs of present and future generations;
- Recognition that environmental protection is integral to the development process and cannot be considered in isolation from it;
- Internalization of environmental and human health costs, including through the use of economic instruments (e.g. polluter pays or extended producer responsibility) (i.e., the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment);
- Right-to-Know (i.e., information on chemical safety, use of chemicals and their hazards for purposes of awareness raising, outreach and education should be transparent, readily available in a timely fashion to governments and the public, including vulnerable groups);
- Cooperation between States to discourage or prevent relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health;
- Recognition of the special situation and needs of developing countries, particularly least developed countries (LDCs) and those most environmentally vulnerable, which shall be given special priority, especially regarding the need to strengthen their national capabilities for the management of chemicals, while international actions in the field of environment and development should also address the interests and needs of all countries; and
- Recognition that efforts to ensure SMC, within a context of sustainable development, have important gender dimensions.

## ***2.4 The Rationale for Mainstreaming the Sound Management of Chemicals***

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In 1987, the Brundtland report set out a vision of “sustainable development” to be achieved in part by integrating environment into economic planning and decision making.<sup>11</sup> At the country level, governments enhanced their efforts to ensure that economic planning decisions took environmental priorities into account and addressed potential environment impacts through preparing National Environmental Action Plans, National Strategies for Sustainable Development, National Adaptation Programmes of Action, and similar initiatives.

More recently, however, the focus has shifted to the key goal of poverty reduction and the contribution that better environmental management, including SMC, can make to improved health, livelihoods, and security for the poor, especially women, children, and marginalized groups.

When, in the 1990s, many of the poorest countries adopted Poverty Reduction Strategy Papers (PRSPs) as their key economic development planning process, the attention has more recently turned to whether the valuable contribution of environment to poverty reduction and growth was being sufficiently addressed. In most early PRSPs it was not — as was highlighted by a series of influential reviews conducted by the World Bank.<sup>12</sup>

To address this gap and in support of chemicals related Multilateral Environmental Agreements (such as the Strategic Approach to International Chemicals Management - SAICM), governments and development partners have started to give more attention to the integration of the sound management of chemicals into development planning processes. Special attention is being given to the linkages between sound management of chemicals and poverty reduction, focusing on making the case to planning and finance ministries responsible for national development planning.

However, in accomplishing SMC mainstreaming, many developing countries face certain challenges:

- They often lack adequate capacity to identify and analyze chemical management issues of concern within their jurisdictions;
- Even when the country has an adequate understanding of its chemical management issues, a relatively new set of skills, experts and institutional participants are required to analyze the linkages between chemical management issues and the development priorities of the country, including the economic costs of inaction or benefits of action on chemical management priorities;
- Governance institutions and decision making processes in many jurisdictions have limited experience with cross-agency and cross-sectoral dialogue, perhaps especially between chemical management priorities seen from an environmental and human health perspective and the development driven priorities of central finance, treasury and development planning agencies; and
- Because mainstreaming brings about new perspectives on the relationships between chemicals management and vital development priorities, such as alleviating the conditions

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<sup>11</sup> See, <http://www.un-documents.net/wced-ocf.htm>

<sup>12</sup> See, <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVER>

of poverty, public health, and food security, i.e. the MDGs, there is a need for broader public education and consultation to build support for and coordinate action, for which many developing countries are currently less than adequately equipped.

Most countries now recognize that the global donor community is placing increased emphasis on the commitment and attendant strategies of developing countries for mobilizing their national resources for development, consistent with the vision of developing-developed nation partnership to address poverty that was initially elaborated during the 2000 Millennium Summit, reaffirmed by the 2002 Monterrey Consensus and the 2005 Paris Declaration on Aid Effectiveness.<sup>13</sup>

Official Development Assistance (ODA) is now more so than ever viewed as one component of a partnership between developing and donor nations. Developing nations, for their part, have agreed to play a pro-active role, working at the national level to put in place appropriate legislative and policy supports and to align expenditures with their expressed development priorities.

With respect to mobilizing financial resources to address national priorities related to SMC, it is important to note that:

- Development assistance programmes contribute billions of dollars to developing countries and countries with economies in transition (CEITs) each year in support of sustainable development. These resources greatly exceed financial and technical assistance provided through dedicated environmental financial mechanisms supporting SMC (e.g., the Global Environment Facility, and the Multilateral Fund of the Montreal Protocol, etc);
- Under conditions of resource scarcity, it is critically important that initiatives for sound chemicals management increase their share of development assistance resources by clearly showing how sound chemicals management relates to development priorities; and
- Increased mainstreaming of chemicals management priorities in development assistance programming influences national budgetary processes through such mechanisms as co-financing and profiling of these priorities in national decision making.

Thus, the sound management of chemicals is an important aspect of national efforts to reduce poverty and promote human health both nationally as well as globally. Issues related to chemicals management and chemically-linked pollution need to be addressed by mainstreaming such priorities into national environment sector policies, strategies and/or plans as a basic prerequisite for development planners and other line ministries to take identified SMC priorities seriously, and help countries obtain the necessary resources to improve their chemicals management regimes.

An important message is to start the mainstreaming effort within the environment sector first and then work outwards to mainstream SMC priorities at the centre of government with a systematic approach as outlined in this guidance document.

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<sup>13</sup> See *Paris Declaration on Aid Effectiveness*,  
[http://www.oecd.org/document/18/0,2340,en\\_2649\\_3236398\\_35401554\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/18/0,2340,en_2649_3236398_35401554_1_1_1_1,00.html)

## 2.5 Development Planning Cycle

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Development planning in most (though not all) developing countries is typically on a 4-5-year cycle, with a mid-term review to allow for adjustments to changing circumstances. Development planning is a major cross-sectoral effort for any country, usually led by a central agency, such as the Ministry of Finance and/or Development Planning, a National Planning Commission, a Prime Minister or President's Office, etc. The major development plan of the government is a key (but, of course, not exclusive) driver for national budgetary decisions and expenditures, and is the main basis for discussions with development partners (donor countries) regarding assistance for the development of the country.

The key issue for chemical management practitioners and advocates in the country, therefore, is to make sure that the highest priority environmental issues are noted in the development plan as a basis for national and international implementation funding. This requires early and regular engagement with the key central planning agencies about the importance and factual relevance of priority environmental issues to the country's sustainable development objectives and targets.

Typically, development planning work starts at least 12-18 months in advance of the conclusion of the 5-year development plan that is in place. The following generic elements of development planning are typical:

- Diagnostics to determine the highest development priorities for the country and the key issues related to those priorities (e.g. poverty assessments, sector and sub-sector papers, assessments of technical and financial assistance needed to achieve the MDGs over the long term, etc.);
- Identifying policy options and choices to move towards national development objectives and targets (e.g. sectoral and cross-sectoral policy reforms and frameworks needed to accelerate growth with equity and promote long-term human development, etc.);
- Identifying national capacity development needs to support implementation of priority actions to achieve national development objectives and targets (e.g. enable effective service delivery at the national and local levels, institutional changes, training needs, etc.);
- Development of implementation plans and schedules for high priority objectives and targets; and
- Investment planning and resource mobilization (costing infrastructure investments, equipment investments, micro-finance initiatives, assessing national budgetary implications, awareness raising and discussion with development partners, etc.).

Experience from around the world indicates that extensive interagency and public consultation is critical for all these elements to conclude in a successful national development planning effort.

The end result of the development planning process can, depending on the country circumstances, culminate in different forms of development planning and policy documents including, for example, Poverty Reduction Strategic Papers (PRSPs), National Development Plans (NDP), MDG-Based Development Plans, etc.

It is extremely difficult for issues that do not appear in the national development plan to receive attention as a priority by the government and donor partners. For that reason, mainstreaming into the major national development plan at the time of its elaboration/drafting is critically important.

## ***2.6 SMC is a Multi-Sectoral, Multi-Stakeholder Undertaking***

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SMC is necessarily a crosscutting issue and a fundamental issue for national development for a wide range of stakeholders because chemicals are now used in all sectors of our societies. In general, however, knowledge of SMC best practices and the need for SMC remains low among government ministries and affected stakeholders in many countries. Therefore, a first step is general awareness-raising about SMC within ministries and as outreach to stakeholders.

A formalized channel for routine exchange of information among sectoral ministries is important for SMC issue identification, priority setting, planning and implementation, and monitoring and assessment. One key example is routine exchange of information between health, labour, agriculture and environmental ministries on disease vector and pest control strategies and management practices as these pertain to chemical exposure risks of workers and farmers etc. **Annex 4** provides examples of key linkages between SMC and sectoral policies and practices.

A number of countries have established formal mechanisms to coordinate their response to commitments under a particular chemicals-related MEA. As chemicals MEAs often have substantial synergies with one another, it usually makes sense for countries to consider consolidating their chemicals expertise within one interagency coordination mechanism for SMC. Such a mechanism would normally have as its main objective development or review of SMC-related priority setting, policy and implementation efforts, as well as provision of advice to other processes on which SMC has a bearing, including MDG-based national planning activities.

Civil Society Organizations (CSOs), Non-Governmental Organizations (NGOs) and the private sector play an important role in national efforts to achieve SMC and sustainable development. Representation of these groups in a SMC coordinating mechanism improves prospects for achieving pro-poor, rights-based and sustainable policies and programs.

Key stakeholders should include vulnerable groups who are at highest risk of exposure. Beyond viewing these groups as “recipients” of pollution, societies need to recognize that they also can make unique and key contributions to decision making and development of SMC strategies for prevention, risk avoidance and minimization and likewise can play significant roles in implementing such strategies.

Women, children, workers, indigenous communities and the poor are among those members of society most directly affected by exposure to chemicals.

Women come into contact with toxic chemicals through multiple routes, including domestic cooking (chemical by-products of burning), as workers in cottage-scale industries (e.g., recycling of lead-acid batteries), and labourers in factories and crop fields. As key decision-makers regarding purchases for

the home, food preparers, and caretakers, they make choices about chemicals brought into the home and their handling, storage and disposal. Engaging women's groups in decision-making and also implementation of strategies on SMC can have a far-reaching impact with respect to minimizing chemical exposure to themselves, their families, and their communities.

Workers (including women and youth) are a high-risk group because of direct contact with toxic and hazardous chemicals. In many developing countries workers are often not supplied with protective gear (boots, gloves, hats, respirators, protective suits), while a warm climate can also make wearing of some equipment designed to protect their skin against chemicals they handle impractical. Workers exposed to chemicals can transport contaminants on their clothing and person into the home, contaminating other family members. Workers are therefore in a position to contribute information to monitoring and compliance implementation, and, through awareness-raising can reduce exposure risk. Workers, as they have a stake in the success of their employer, also have a strong incentive to contribute suggestions for improvement of SMC practices in the work place that work to both their and their employer's advantage.

Indigenous cultures typically depend on 'country foods' (fish, wild game and fowl). As a result, indigenous people are often at a higher risk of exposure than general populations when these food sources are contaminated by chemicals (pesticides, persistent organic pollutants, heavy metals, etc). These foods are also central to their social customs, so that when food sources are threatened, the culture as a whole is also weakened. Indigenous people's traditional knowledge of ecology (land, climate and weather patterns, species biodiversity, etc.) can contribute to monitoring changes associated with chemical use, as well as practices that promote resistance to pests.

The poor as a group are generally at higher risk of exposure as well. For example, a relatively high percentage of poor people are illiterate, hence unable to read warning and use labels on chemical products. They are more likely to live near factories and contaminated sites, and to engage in unsafe activities that put them at risk, such as recycling of electronic products and batteries, ship recycling, and scavenging open dumps to recover materials for resale and for use in constructing make-shift shelters. They are often disenfranchised in decision-making but should be consulted and included within development and execution of implementation strategies.

Non-Governmental Organizations can play an important role in assisting with implementation of SMC, in particular with respect to development of legislation, awareness-raising and outreach strategies, and in monitoring and training exercises at the community and local level (e.g., in monitoring techniques, such as use of simple bioassay kits to detect contamination at the municipal and local level that exceeds national and/or State standards), which, in turn, can contribute to community empowerment and support for national compliance and enforcement efforts. In many developing nations, the number of NGOs with SMC experience is limited. Therefore, national strategies for engaging NGOs will need to consider how they can first be assisted in a meaningful way to build their capacity on SMC. More commonly, developing nations have NGOs with legal expertise. These NGOs can contribute to dialogue on SMC legislative policies and frameworks.

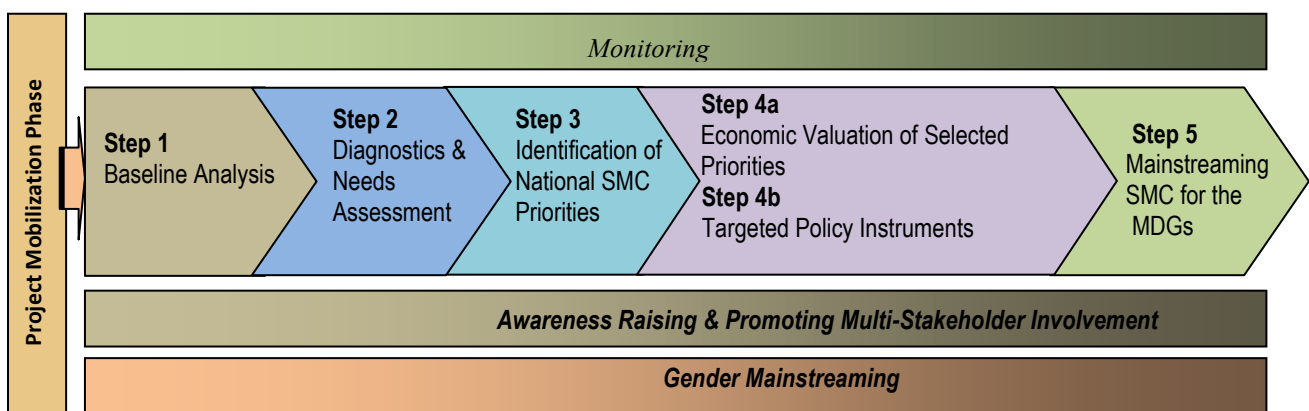
Industry stakeholders play a significant role as contributors to sustainable development. Industries in the aggregate or industrial subsectors are usually a major contributor to a country's gross domestic product. The inclusion of industry stakeholders in development and implementation of SMC initiatives is vital to their success. A particular challenge in developing nations is how to effectively engage the full range of SMC industrial actors. Typically, the majority of larger facilities producing and distributing

chemicals in a developing nation will be multi-nationals and/or joint ventures. But there will also be many small-and-medium enterprises that manufacture and/or formulate chemicals and engage in trade. SMEs may comprise the majority of the chemicals sector in some countries. Therefore, strategies for their inclusion in consultation and implementation of SMC will be important to the success of SMC initiatives.

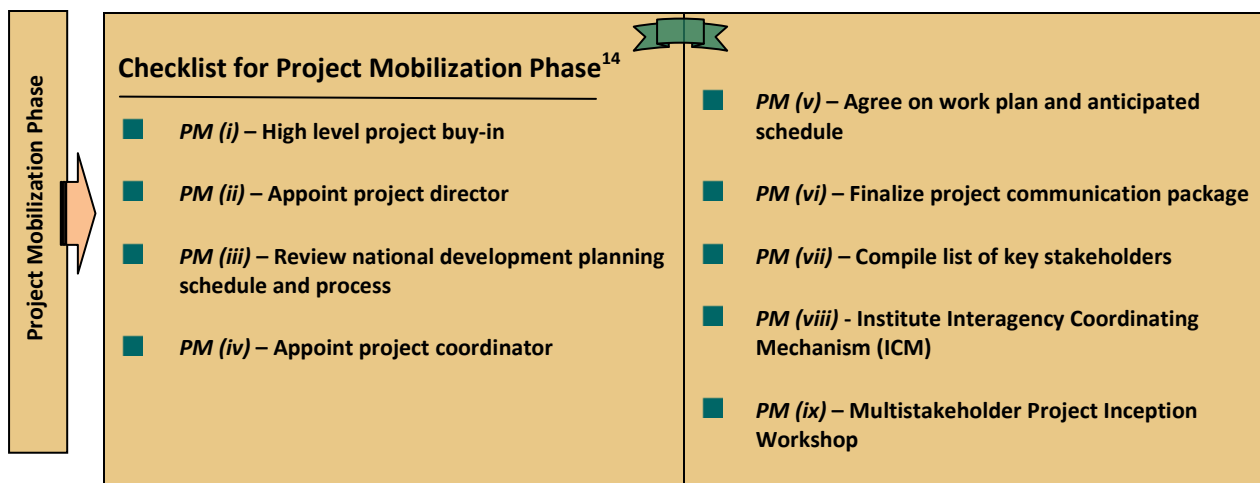
### 3.0 A Systematic Approach for Mainstreaming

This section of the guidance document describes specific activities associated with the 5 main steps of the mainstreaming approach. Figure 2 provides a reminder of the mainstreaming approach introduced in Section 1.1.

**Figure 2: The Mainstreaming Approach**



### 3.1 Project Mobilization Phase



<sup>14</sup> This section assumes that the project funds are available to the project’s executing agency, either directly through the government’s own financing or through the assistance of an international agency(ies) and donor(s).

### 3.1.1 PM (i): High Level Project Buy-In

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SMC initiatives are all too often addressed with narrowly technical approaches that infrequently extend beyond the activities of government officials with core responsibilities for SMC. The implications of this are not unfamiliar: SMC-specific recommendations, strategies and plans often stay at the margins of government with inadequate and unsustainable policy authority and financing. To advance beyond this situation, awareness of SMC must be transformed to a higher policy and political level through systematic efforts to engage government-wide, integrative development planning initiatives.

Mainstreaming projects differ considerably from technical SMC projects considering they focus on influencing national development policies and plans and require the buy-in and involvement of high-level policy, budgeting and planning representatives from the central Government. This is because national development planning is one of the few comprehensive priority setting and integrating governance tools available to many governments and their political leaders.

If the issue is deemed “important”, it is at the development planning table. If it is not there, “perhaps it is because it is of lesser importance”. As such, projects intended to integrate SMC priorities into development policies and plans are by necessity cross-sectoral, policy-intensive, economic and political in addition to SMC technical, occurring in a highly competitive government environment. This process will be discussed more comprehensively as the reader progresses in this guidance document.

To increase chances for project success, therefore, mainstreaming work requires a higher threshold of policy buy-in prior to the work beginning than is characteristic of technical SMC projects. **First, at least at the most senior civil service levels, ministries responsible for development planning, health, and environment, at a minimum, should be fully aware of and supportive of project objectives at the planning stages.** They should view themselves as partners with differentiated responsibilities in the project effort. **Second, these ministries should be empowered to work together to encourage the participation of other ministries with significant responsibilities for chemicals once the project work commences (see the discussion of the Interagency Coordinating Mechanism later in this guidance document).**

Countries can signal high-level policy buy-in in various ways suitable to their unique circumstances. Some examples, which can work independently or together, include:

- Direction from the senior political office (President or Prime Minister’s Office) mandating the ministries to function in this way;
- A high-level letter of agreement between the ministries at the planning stages of the project;
- Letters of support for the project in efforts to mobilize resources from funding agencies; and
- Project document signings between, for example the government finance or development planning focal points and the representative of the implementing agency or UN Resident Coordinator.

Normally, these types of approvals should signal a project lead ministry that would establish the project management unit or secretariat (typically the ministry that has the most active chemicals-related mandate) supported by the full cooperation of the other ministries to achieve the project's intended activities, outputs and outcomes.

### ***3.1.2 PM (ii): Appointing the Project Director***

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The appointment of the **Project Director** signifies that all project approvals have been negotiated and agreed.

The Project Director is ultimately responsible for overseeing (directing) project implementation, including managing the national project team and working with any international agency(ies), donors and/or experts that might be supporting the project.

The lead ministry would normally appoint the Project Director. The Project Director candidate should:

- Have management responsibilities for SMC issues;
- Not be too busy to adequately perform the role as part of his or her overall job; and
- Be senior or experienced enough to facilitate required access within the national government's systems and to problem-solve within the lead ministry, and with other involved ministries and project stakeholders.

### ***3.1.3 PM (iii): Review of National Development Planning Process and Schedule***

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The development planning process cannot be influenced without an adequate understanding of its functioning. Environment and health officials must have a clear understanding of the way the development planning process is working within the unique circumstances of the country and where are the opportunities for interventions to influence the process. This should be one of the Project Director's first and most important tasks.

The Project Director should prepare a brief document to be shared later with the entire project team describing the national development planning process from an SMC mainstreaming perspective, including:

- When does the next development planning cycle, or the mid-term or annual review of the existing development plan, begin?
- Has a policy statement on development priorities been issued by the high political executive and what are the priority development sectors, goals, objectives and targets identified for the country?

- Which of these sectors, goals, objectives and targets are likely to involve chemical intensive activities and where are these sensitive issues likely to occur based on national and international knowledge and experience (would there be a need for further research as part of the SMC mainstreaming activities)?
- What does the existing national development plan prioritize in terms of sectors, goals, objectives and targets and how are these likely to carry forward to the new plan or mid-term review?
- Have we seen chemical management problems associated with the sectors, goals, objectives and targets of the current or previous national development plan(s)?
- How will the development planning or review process be organized:
  - List of important contacts in the planning ministry and key sectoral ministries;
  - Important research and decision-making groups that are current or likely to be established in the development planning process;
  - Schedule of important meetings;
  - Required inputs to the process and when; and
  - How should inputs to the development planning process be prepared and in what form to be effective (i.e. presentation style suitable to the process and the audience to be influenced)?

It is likely that the completion of this document will require review of applicable primary and secondary documents but also meetings with officials responsible for development planning in key central and line ministries. The Project Director should also consult extensively with UNDP and/or World Bank country offices as applicable to understand the role of these development planning support agencies and their experts. Finally, a round of meetings with key bilateral development assistance agencies and regional development banks will also be useful.

While a mainstreaming project can begin at any time, with results to be delivered to the development planning process when opportunities permit, it is most effective to schedule the completion of mainstreaming project deliverables to correspond as closely as possible with the beginning of the development planning timetable. This usually means that a mainstreaming project, as previously mentioned, should begin at least 12 to 18 months in advance of the anticipated beginning of work to develop a new national development plan or the mid-term review of the existing development plan.

#### ***3.1.4 PM (iv): Appointing the Project Coordinator***

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While the Project Director oversees implementation of the mainstreaming project as part of a larger portfolio of SMC-related management responsibilities, the **Project Coordinator's** main job is day-to-day management, coordination and review of work being performed by the national mainstreaming project

team and interaction on specific work tasks with any international agencies, donors and/or experts that might be supporting the project. The mainstreaming approach, if done well, is sufficiently demanding to require at least a near full-time effort by the Project Coordinator for the duration of the project.

The Project Director should directly oversee recruitment of the Project Coordinator and development of the terms of reference or job description. The Project Coordinator candidate should be:

- Free of ministerial line duties during the course of the mainstreaming project;
- A citizen and resident of the country to help ensure that national capacity for mainstreaming is being built-up and retained within the country;
- Experienced in research, analysis and team work in the area of SMC;
- Capable of managing a fair and transparent process for cross-sectoral and multistakeholder interests, needs and concerns in the mainstreaming approach;
- Senior enough to facilitate collegiality between project team members; and
- Experienced working on international development projects, if not in the development planning process directly.

### ***3.1.5 PM (v): Work Plan and Anticipated Schedule***

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The main steps of a work plan will often already be in place as part of initial proposal preparation for a mainstreaming project. However, the Project Coordinator should ensure that a work plan is summarized and made readily understood by cross-sector stakeholders who might be unfamiliar with political or technical project language. A project schedule should also be clear in term of quarters within which key project deliverables can be expected to arrive on people's desks and computers for consultation or comment or when they might be expected to attend meetings or workshops. This document should be kept updated throughout the project if and when circumstances change, with changes clearly notified to important stakeholders, preferably combined with a brief project progress update to be as informative and as interesting as possible.

### ***3.1.6 PM (vi): Project Information Package***

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The mainstreaming approach, in addition to other key advances, seeks to substantially improve communications with government and non-government stakeholders who might not be experts either in SMC or development planning, let alone be very familiar with the important relationships between the two. It is well recognized that there is often limited capacity and expertise in the environment and health ministries to talk the language of development policies and plans. SMC experts need enhanced capacities to convey environment and health information in a way that is more relevant to development planners. The opposite is also true in development planning ministries that have to-date rarely been challenged to engage SMC issues as part of their development planning processes. The

mainstreaming approach works on building capacities for this type of information exchange and uptake going beyond intra-sector communication, that is familiar and comfortable, to achieve effective cross-sector communication which is challenging but essential for SMC mainstreaming into the government's development planning priorities. As such, the Project Director and the Project Coordinator are strongly advised to spend a considerable amount of their available time on the cross-sector communication requirement for a successful mainstreaming project.

The communication effort starts with a clear, concise (i.e. summarized from project documents) and non-technical project information package explaining how the mainstreaming project will have important value to the interests and concerns of key government and non-government stakeholders across sectors. The information package should address project:

- Purpose;
- Rationale;
- Objectives;
- Steps (from PM (v) above);
- Activities; and
- Outputs and outcomes (results).

This should be an early and important task for the Project Coordinator under the supervision of the Project Director, and with significant cross-sector peer review of the information package before it is released to the wider government and non-government stakeholder community.

### ***3.1.7 PM (vii): List of Key Stakeholders***

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A mainstreaming project, because of its cross-sector policy significance, will usually require that the lead agency, which is often more accustomed to sector specific, technical SMC projects, broaden its consultations to non-traditional stakeholders, especially in the economic development sectors. This is an essential ingredient for the improved communication noted above.

The Project Coordinator, under the supervision of the Project Director, should assemble a stakeholder list, in consultation with other concerned ministries, to reflect the broader scope and policy significance of the cross-sector mainstreaming effort. **From an SMC standpoint, in mainstreaming efforts, we are not discussing technical issues with the converted but rather finding a common language and understanding among the as yet unaware.**

### 3.1.8 *PM (viii): Interagency Coordinating Mechanism (ICM)*

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Chemicals management issues are best addressed through a multi-sectoral approach as chemicals are used/applied, etc. in all sectors of our societies and have impacts in all sectors. To address these linkages, cross-sector cooperation and multidisciplinary approaches in development planning processes are needed. By addressing SMC through development planning we can begin to see all these linkages more clearly rather than working in sector silos.

The mainstreaming effort will have very little chance for success without an **Interministerial Coordinating Mechanism (ICM)** to foster common understanding and adoption of project recommendations at key decision points throughout the process. At a minimum, an ICM that can support the mainstreaming effort should include senior management representatives (with policy responsibilities) from the ministries responsible for environment and/or natural resources, health, finance and/or development planning, agriculture, industry, mining, labour, social affairs and women's affairs<sup>15</sup>. However, in practice, the range of ministries involved with key aspects of SMC or whose activities may have a significant impact upon SMC is much broader (as can be seen in **Annex 4**). Logically, an ICM should include their representation as appropriate to a country's circumstances and development sector priorities.

**There are good opportunities to build on existing ICM type mechanisms to advance SMC mainstreaming. With supplemental representation from finance and development planning ministries and an enhanced mandate geared to informing national development planning, these SMC mechanisms can have a raison d'être for sustainability that they have not had under previous sector or topical SMC projects. This needs to be coupled with continual institutional strengthening in areas of analysis and coordination, especially with economic portfolios.**

#### First Meeting of the ICM on the Topic of the Mainstreaming Effort

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The Project Director would normally have the responsibility, often supported by his or her management and/or Minister and partner ministries, to establish and convene the first meeting of the ICM. The first meeting of the ICM, to be held in support of project mobilization, should:

- Establish or renew its rules of procedure (i.e. how they will work together; regular meetings, meetings as needed in important project steps, supplemented by email exchange, etc.)
- Establish or renew its terms of reference, including oversight and consultation as applicable to the role of engaging the development planning process and discussing, approving and adopting recommendations from the mainstreaming project;
- Discuss the mainstreaming project work plan, schedule (**PM (v)**) and information package (**PM (vi)**) to approve them, with changes as needed, for circulation to the broader stakeholder community; and

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<sup>15</sup> Each country's institutional settings are different: While some countries may have a separate line ministry addressing Women's issues, others may have a Women's Affairs department within a ministry i.e. Labor, Social Affairs.

- Discuss and approve of the process that will be used to announce the project to the broader stakeholder community, including at a multistakeholder project inception workshop.

### ***3.1.9 PM (ix) –Multi-stakeholder Project Inception Workshop***

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This task signifies the end of the Project Mobilization Phase. It also signifies the beginning of broader public communication and involvement that seeks support for the mainstreaming project initiative and, eventually, project results.

The **Stakeholder Project Inception Workshop** (typically 2-3 days) would normally include, with adequate attention to regional and gender representation, cross-sector participation from:

- Ministries having SMC-related mandates (see, for example, **Annex 4**);
- Non-government stakeholders drawn from the enhanced stakeholder list produced in **PM (vii)**, including industry, agriculture, public health groups, women’s issues, academic experts and environmental groups;
- UN agencies operating within the country;
- Key bilateral donors and multilateral financial institutions operating within the country; and
- National media.

The workshop would normally enable, at a minimum, presentations with opportunity for significant stakeholder comment and discussion from the:

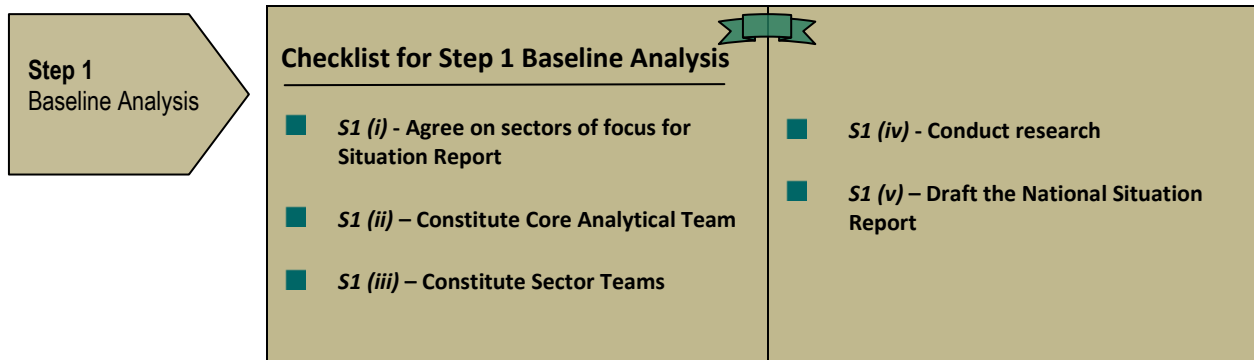
- Project Director on the project purpose, rationale, objectives and general approach (PM(vi));
- Sector line ministries on what they consider to be their high priority SMC needs;
- Ministry responsible for development planning to share with stakeholders how the development planning process works within the country;
- Academics with research programs in SMC-related topics within the country;
- Established NGOs, including industry associations, with SMC-related programs or initiatives;
- International and national agencies with significant involvement in development planning or SMC-related projects within the country;
- International SMC and development planning experts that might be available to the project; and
- Project Coordinator on the project general work plan and schedule (**PM (v)**).

The workshop should conclude on summarizing significant multi-stakeholder comments on the:

- High priority SMC needs for the country prior to project research;
- Project objectives and approach;
- Project work plan and schedule developed under *PM (v)*; and
- Project information package developed in *PM (vi)* as a key background document for the workshop.

## 3.2 STEP 1: Baseline Analysis - The National Situation Report

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<b>Step 1 Summary</b>	
<b>Purpose:</b>	Determine what information is available on a country's chemicals management situation and record it. Relevant information could be contained in a National Chemicals Profile, National Implementation Plan (NIP) under the Stockholm Convention on Persistent Organic Pollutants, State of the Environment Report, Millennium Development Goal (MDG) report, Poverty Reduction Strategy Plan (PRSP) or other information sources.
<b>Goal:</b>	Development of a National Chemicals Management Situation Report that provides information on the degree of integration of sound management of chemicals into national development planning.
<b>Rationale:</b>	A National Chemicals Management Situation Report is an essential prerequisite for an integrated assessment and analysis of the linkages between chemicals management and related economic, health and environmental impacts.

### 3.1.1 S1 (i): Agree on Sectors of Focus for Situation Report

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Development of a National Situation Report on sound management of chemicals is an important first step to identify SMC issues, capacities and needs within the major development sectors of the country. It involves, a) pragmatically identifying the highest priority, chemical-intensive development sectors for investigation that are profiled or likely to be profiled in the national development plan (See the results of **PM (iii)**), and b) making effective use of available primary and secondary information from technical studies on SMC (chemical profiles, national implementation plans, basic chemical inventories, sector environmental studies, etc.), and filling information gaps through field work where essential, practical and cost effective.

The primary objectives of this step are to:

- Aggregate diverse SMC information sources into one National Situation Report focused on SMC-related issues in major development sectors (e.g. mining, textiles, agriculture exports, oil and gas, etc.). This should be contrasted with a general national chemical profile, or implementation plan linked to the specific requirements of an MEA, both of which would present the information quite differently, in a more traditional way with which the environment and health sectors have become accustomed. However these processes and their resulting profiles and/or plan have only in a few cases resulted in actually influencing development planning processes.
- Provide a stronger justification for SMC governance improvements that are cross-sector and linked to improving the **quality and sustainability of development** in the major development sectors of the development plan rather than appearing to development planning officials as marginal requests contrasted with the “more pressing” development needs of the country; and
- Enable SMC priority setting that is more closely linked to the country’s development priorities and the policy discussions at the centre of government, focusing on how SMC improvements will enhance the quality and sustainability of prioritized national development objectives within the chemical-intensive development sectors of the development plan.

### ***3.1.2 S1 (ii): Constitute Core Analytical Team***

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Mainstreaming efforts, as noted previously, are by definition cross-sector, multidisciplinary and intensive in terms of economic analysis and related communication of findings in a language that officials and stakeholders in the development planning process can understand. Mainstreaming also tends to make heavy use of public health protection data and information to complete qualitative and quantitative cost-benefit analysis for SMC improvements. As a result, the Core Analytical Team for the project should reflect these characteristics from the outset, which is another notable difference with most traditional SMC technical studies.

The Core Analytical Team for the project, ultimately reporting to the Project Director, should be comprised of:

- The ***Project Coordinator*** as environmental SMC expert;
- A ***Senior Economist*** with experience in environmental economics; and
- A ***Senior Public Health Expert*** with experience in environmental health data and analysis.

The Senior Economist and the Senior Public Health Expert should be:

- Citizens and residents of the country to help ensure that national capacity for mainstreaming is being built-up and retained within the country;
- Experienced in research, analysis and team work in the area of SMC;
- Familiar with participating in cross-sector and multistakeholder processes; and
- Experienced working on international development projects, if not in the development planning process directly.

However, because of the newness of mainstreaming work in most developing countries and CEITs, the core analytical team will often be supplemented by (an) international expert(s) with knowledge of SMC, development planning, public health issues related to chemical exposure, and environmental economics as applied directly to chemicals management issues.

### ***3.1.3 S1 (iii): Constitute Sector Teams***

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Most countries that undertake a mainstreaming effort would normally seek to organize their research efforts around **Sector Teams** that focus on prioritized, chemical-intensive development sectors of the development plan (see **S1 (i)**).

Sector Teams would normally be comprised of:

- Focal point(s) appointed from ministries with responsibilities for the sector. For instance, if the sector is agriculture, the focal points would normally have responsibilities for such issues as agrochemical/pesticide registration, food inspection, fresh water protection, transportation and trade;
- Key NGO representatives from the sector, such as agriculture producers' associations, workers' associations, and academics from agriculture education/training programs; and
- The Core Analytical Team (see **S1 (ii)**) as observers and advisors to the research effort.

The main responsibilities of the sector teams are to:

- Provide their sector expertise to the mainstreaming effort by helping to identify major development trends in the sector that will have a bearing on SMC issues, gaps and needs for the sector;
- Identify studies that are relevant to development trends and SMC in the sector;

- Open doors to primary information held within the various ministries, which is essential for the mainstreaming effort;
- Assist with cost effective and timely ways to fill information gaps related to the sector; and
- Review and approve of the sector write-up that will be prepared by the national consultant assigned to the sector team.

The terms of reference for the sector teams should be developed by the Core Analytical Team to ensure that data needed for subsequent stages of the mainstreaming effort is provided by the sector teams as far possible. In this fashion, the Senior Economist would ensure that the ToRs ask questions about relevant and available economic data in the sector, while the Senior Public Health Expert would do the same for health data, and so forth. This is an important issue to attempt to avoid retracing steps for the sector team's research at later stages of the mainstreaming effort.

### ***3.1.4 S1 (iv): Conduct Research***

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#### Sector Research

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The sector research effort for the National Situation report should have the following important features:

- Establish the economic baseline information for the priority, chemical-intensive development sectors (see ***S1 (i)***) for such factors as:
  - Contribution to GDP;
  - Geographical profile relative to communities and ecosystems;
  - Levels of employment;
  - General socio-economic characteristics of the work force;
  - Volumes of production;
  - Levels of export and major markets;
  - Levels of chemical feedstock imports;
  - Trends in development over previous years;
  - Predominant production technologies used in the sector;
  - Land and water use characteristics;

- Characteristic pollution problems; and
- Chemicals used in the sector (e.g. types, volumes, imported, produced domestically, etc.)
- Description of the current state of life-cycle management of chemicals in the sector compared with best practices applied/promoted at international level (e.g. environmental laws and regulations, industry codes of conduct, worker safety laws, public health laws, available infrastructure for SMC such as storage facilities, transportation equipment, waste management sites, etc.);
- Description of the expected development trends in the sector for the duration of the current or proposed new development plan and how this is likely to affect the above noted factors over time (i.e. anticipated change from the baseline);
- Analysis of the environment, health and economic implications of changes (see **Annexes 1 and 3**) from the baseline if improvements to SMC were not made at the same time (e.g. the impact of mining effluent on inland fisheries if development within the sector did not include improvements to SMC relative to the current baseline); and
- Gaps and needs for SMC to protect the environment, human health and economic sustainability under the sector development scenarios contained or likely to be adopted in the development plan. Stated another way, what level of damage related to chemical pollution could we expect if a country was successful in growing the sector from the current baseline, as called for in the development plan, but did little to improve SMC in the sector at the same time? What **costs** might this impose on the country's environment, public health and economic sustainability, which should be taken into account to explain the need for parallel improvements in SMC as the sector grows? What additional **benefits** in the quality and sustainability of development within the sector might be enhanced by taking SMC improvements fully into account in the development planning scenarios for the sector?

## SMC Governance

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The Situation Report would also include research and analysis of current status, gaps and needs for SMC governance that crosses (i.e. applies to all or many) of the sectors prioritized in the national development plan. These governance factors would constitute a separate chapter of the Situation Report. This analysis is usually more familiar to officials within environment and health sectors. However, in mainstreaming efforts it is important to show how gaps in SMC governance directly affect the quality and sustainability of development within the priority development sectors of the national development plan.

There are many guidance documents that can help inform research into SMC issues (see **Annex 1** for web links). The substance of those guidance documents will not be reproduced here to avoid redundancy and to keep our focus on the new aspects of guidance related to mainstreaming SMC priorities into development planning. A useful place to start with respect to guidance on researching SMC issues can be found in the **annexes to this guidance document** and the January 2008 IOMC publication, *National Implementation of SAICM: A Guide to Resource, Guidance, and Training Materials of IOMC Participating Organisations*.<sup>16</sup>

### ***3.1.5 S1 (v): Draft the National Situation Report***

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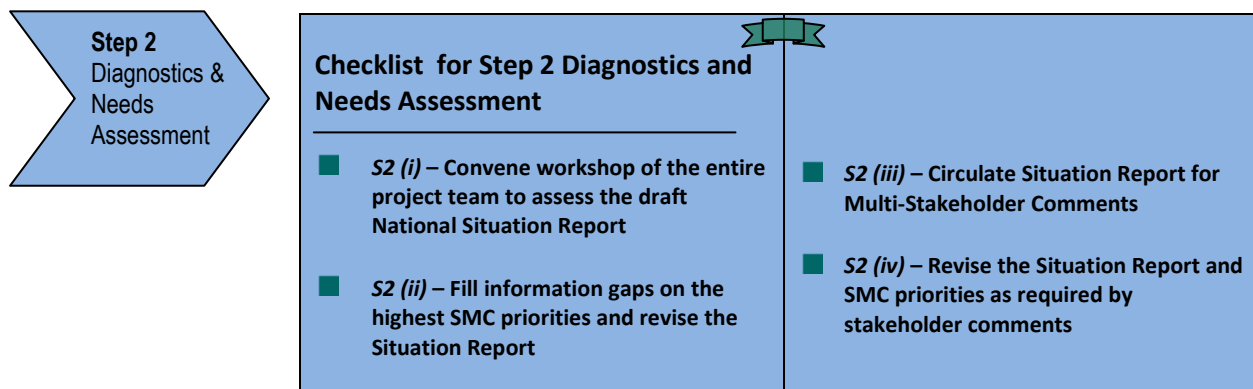
The National Situation Report will be built from the contributions of the sector teams and the review of SMC governance as indicated in **Si (iv)**. The **Core Analytical Team** will review all of the contributions to the Situation Report, and one person from the core team should be assigned to complete the drafting of the report (i.e. “hold the pen” on integration of the various contributions to the report) while the other core team members address questions and information gaps along with and in assistance to the main report drafter. The main report drafter is often, though not necessarily always, the Senior Economist to help ensure that the report retains a focus on SMC issues in the development planning context, by contrast with an exclusively technical SMC research exercise. At the end of the day, however, the entire Core Analytical Team, reporting to the Project Director, should assume responsibility for the multi-disciplinary, cross-sector quality of the Situation Report.

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<sup>16</sup> IOMC. 2006. *National Implementation of SAICM: A Guide to Resource, Guidance, and Training Materials of IOMC Participating Organisations*. [http://www.who.int/iomc/saicm/resource\\_guide.pdf](http://www.who.int/iomc/saicm/resource_guide.pdf)

### 3.3 Step 2: Diagnostics & Needs Assessment

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<b>Step 2 Summary</b>	
<b>Purpose:</b>	Identify high risks of chemical exposure above acceptable burdens for vulnerable ecosystems, and humans (both acute and long term effects) using information gathered through a multi-stakeholder approach.
<b>Goal:</b>	Preparation of an in-depth assessment of chemicals management issues relevant to national MDG-based development planning.
<b>Rationale:</b>	The root causes of human and environmental health issues should be taken into consideration from the outset to ensure that they are fully addressed in policies to integrate sound management of chemicals into development planning.

#### 3.3.1 S2 (i): Convene Workshop of the Entire Project Team to Assess the Draft Situation Report

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A workshop of the **Entire Project Team** should be convened to: a) formally review the draft National Situation Report, b) raise awareness among government officials about the major SMC issues that are being identified in the mainstreaming project and why, and c) develop the major conclusions and recommendations that will be presented in the revised National Situation Report.

Workshop participants would normally include:

- The Project Director
- Senior managers from each of the core ministries represented on the Interagency Coordinating Mechanism (i.e. people who are in a position to brief ICM members);
- The Core Analytical Team;

- The members of the Sector Teams; and
- International/national experts that might be available to the mainstreaming project.

The workshop would normally occur over 2 days, with **Day 1** allowing for:

- Presentations on the results of each of the main chapters of the National Situation Report to generally raise awareness about the SMC issues that are emerging out of the mainstreaming effort;
- Discussions on data and information gaps that remain to be addressed in each Chapter of the Situation Report;
- Identifying strategies for addressing important information gaps, including who will help address the gaps and by when; and
- Decisions on areas for needed strengthening of the analysis in general with instructions to the Core Analytical Team.

**Day 2** would normally allow for:

- Discussion of the highest priority SMC needs for the country seen in context of the national development plan, which will constitute the major conclusions and recommendations of the National Situation Report;
- Building arguments for why these needs are the highest priorities relative to other needs that will have been identified but are not as critical in the next 4-5-year planning horizon (i.e. only so much can be done by any country in context of a 4-5 year national development plan; other issues could well re-emerge in later planning cycles);
- Identifying the types of additional data that would be needed to strengthen arguments for certain priorities in context of the national development plan; and
- Identifying strategies for finding the additional data, including who will do so and by when.

### ***3.3.2 S2 (ii): Fill Information Gaps on the Highest SMC Priorities and Revise the Situation Report***

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Building on the results of the workshop in **S2 (i)**, the **Core Analytical Team** would normally revise the National Situation Report drawing on help from the **Sector Teams**.

### ***3.3.3 S2 (iii): Circulate Situation Report to Stakeholders for Comments***

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The revised National Situation Report with major conclusions and recommendations added would normally be circulated for comment to every person or organization that attended the Project Inception Workshop (see **PM (ix)**). The intent is to:

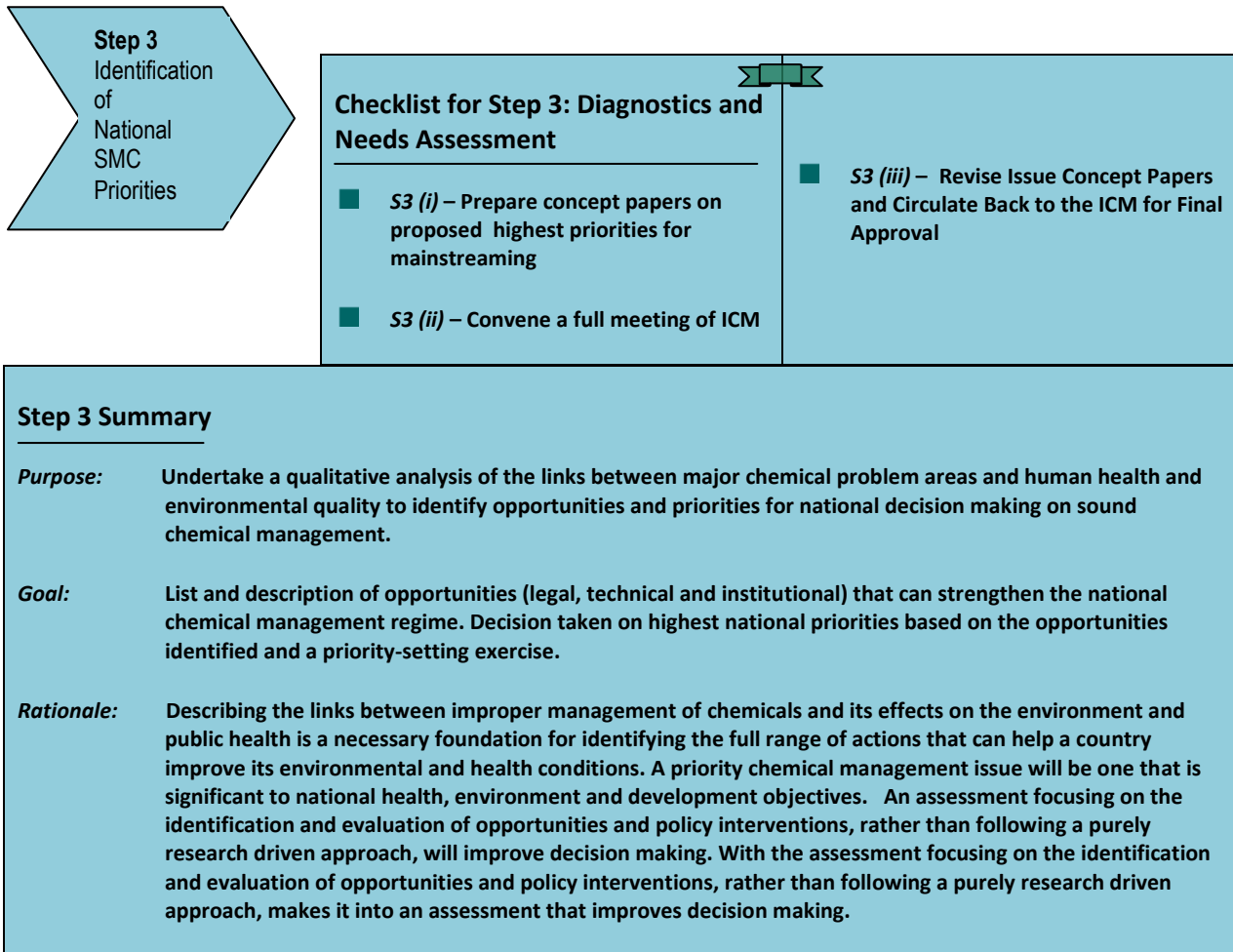
- Allow stakeholders to formally review the draft National Situation Report and submit comments;
- Raise awareness among stakeholders about the major SMC issues that are being identified in the mainstreaming project and why; and
- Add value to the major conclusions and recommendations of the National Situation Report from their unique perspective in the society as stakeholders.

### ***3.3.4 S2 (iv): Revise the Situation Report as Required by Stakeholder Comments***

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Building on stakeholder comments in **S2 (iii)**, the **Core Analytical Team** would normally revise the National Situation Report drawing on help from the **Sector Teams** as required. After this revision, the report would normally be circulated back to government officials from the workshop in **S2 (i)** with an explanation of any major changes that might have been made to the draft National Situation Report. The government participants would normally be given 2 weeks to raise concerns about any of the changes made to the Situation Report before it is circulated back to all stakeholders, who have participated in the mainstreaming effort thus far, as a **Final National Situation Report**.

### 3.4 Step3: Identification of National SMC Priorities



#### 3.4.1 S3 (i): Prepare Concept Papers on Proposed Highest Priorities for Mainstreaming

To start this step, the Project Director would normally convene a meeting of the Core Analytical Team to reach decisions on the approach to be taken. The main challenge is to agree on arguments for why some priority issues identified in the National Situation Report will proceed for further analysis in the mainstreaming effort, while other issues fall off the priority short-list at least for the next 4-5 year development planning cycle, perhaps reemerging in subsequent planning cycles.

The second important challenge is one of communication. Environment and health ministry officials in most countries typically need enhanced capacities to convey environment and health information in a way that is more relevant to development planners. Packaging of data and information has often been inadequately convincing to make the case for mainstreaming in terms that development and finance officials can understand. **In this Step, the project team focuses on addressing this communications challenge and receiving high-level approval of SMC priorities for further investigation under the mainstreaming effort.**

**Firstly**, building on the information in the National Situation Report, the Project Director and Core Analysis Team should carefully prepare to provide members of the Interministerial Coordinating Mechanism (ICM) (see **PM (viii)**) with a clear and concise qualitative explanation of the highest priority SMC improvements recommended for the chemical-intensive sectors prioritized in the national development plan.

**Secondly**, a qualitative explanation should be provided on what the environment chapter, typical of national development plans, should contain with respect to SMC priorities, emphasizing SMC improvements that have cross-sector significance in terms of enhancing the quality of life and development in many sectors of the society, including prioritized development sectors.

To address this analytical and communication challenge, **Issue Concept Papers** (usually not more than approximately 5 pages each) should be prepared, in easily understood policy terms, for each SMC priority recommended by the Project Director and Core Analytical Team. **The list of concepts ought not to be too long because practically speaking a country can only do so much in a 4-5 year planning cycle. This reality should be vigorously deployed to force discipline on what is proposed to the ICM.**

The **Issue Concept Papers** would normally include:

- **Issue Statement** - Succinctly explain the issue in simple and direct terms;
- **Rationale** – Succinctly explain why this is a priority issue relative to others linking the explanation to the priorities of the national development plan;
- **Summary of Costs of Inaction** – Provide a qualitative description, adding quantitative data if available, of the risks (i.e. effects on the environment, public health and economic viability of other impacted economic sectors, etc.) that are likely to emerge if action is not taken during the course of the development plan, taking the current baseline and sector economic growth scenarios into account (e.g. moving from 10 copper mines to 15 copper mines or doubling agricultural exports in context of the next national development plan: what happens if SMC practices remain underdeveloped under those scenarios?);
- **Summary of Benefits and Options for Actions** – Provide a qualitative description, adding quantitative data if available, of the probable environmental, public health and economic benefits of action to improve SMC related to the issue. Provide a description of **practical options** to respond to the risks noted above (i.e. policy options, technology enhancements, worker training, information systems, public outreach, infrastructure improvements, etc.) outlining the potential benefits and main responsibilities (i.e. levels of government, which ministries, industry, other non-government parties, etc.) for each option. Note the approximate costs of action if those are known at this stage; and

- **Next Steps** – Describe how the issue will be further investigated to provide additional information through the remainder of the mainstreaming effort. Try to be as clear as possible so that people have confidence, especially if the issue is controversial and/or political, about how the issue will be treated going forward, especially with regard to efforts to strengthen the qualitative arguments of this stage with quantitative analysis (i.e. economic cost-benefit analysis; see **Step 4a**) if that is deemed to be feasible for the issue.

### ***3.4.2 S3 (ii): Convene a Full Meeting of ICM***

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The **Project Director** should convene a full meeting of the ICM to consider the Issue Concept Papers produced in **S3 (i)**. To allow for a meaningful discussion and approvals of priority SMC issues, the **Issue Concept Papers**, supported by the **Final National Situation Report**, should be circulated to the ICM at least 2 weeks in advance of the meeting.

The ICM meeting would normally produce decisions on whether the Issue Concept Papers:

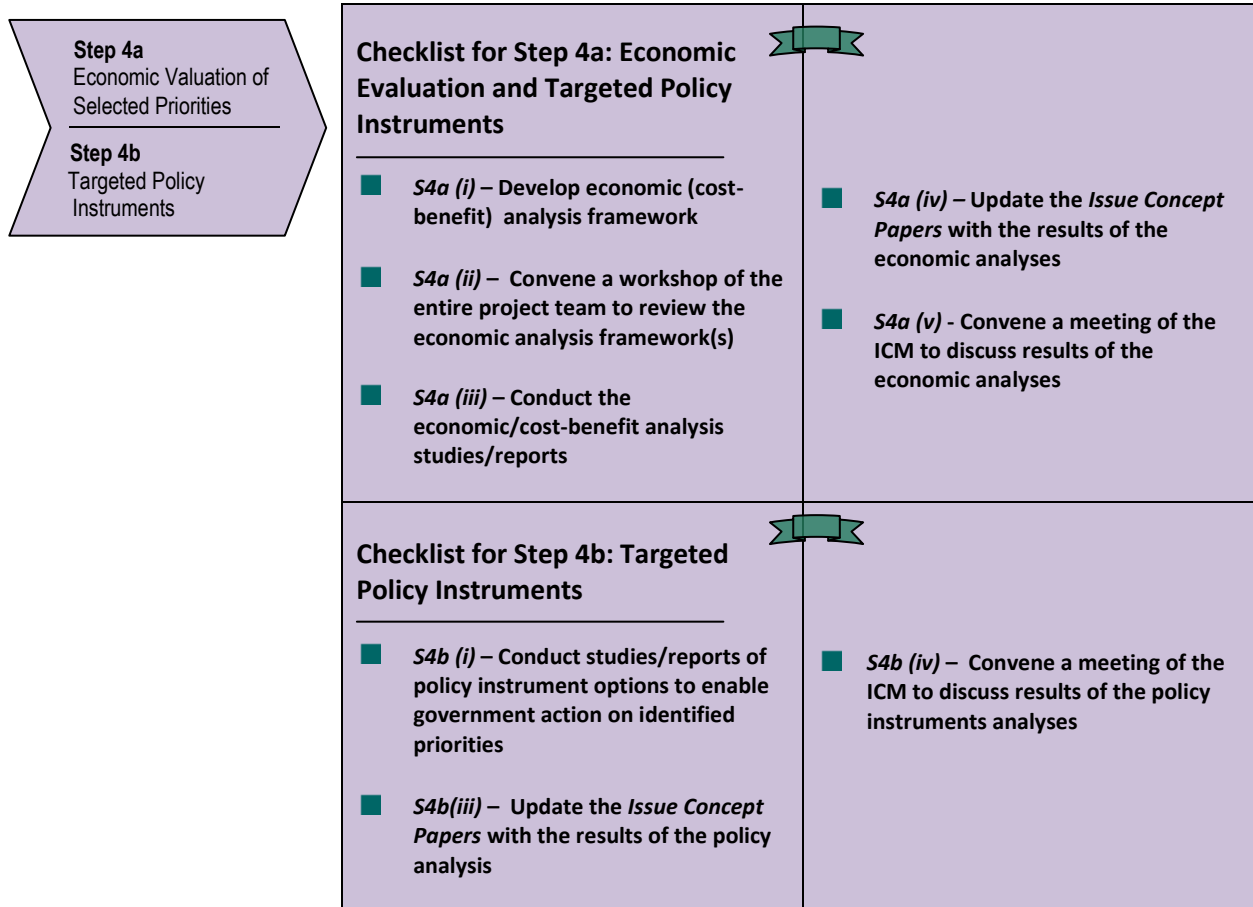
- Identify the right priorities (i.e. should anything be removed, substantially changed or added);
- Need to be strengthened in any way before a decision can be taken; and
- Are defensible in terms of next steps for each priority SMC issue in the mainstreaming effort.

### ***3.4.3 S3 (iii): Revise Issue Concept Papers and Circulate Back to the ICM for Final Approval***

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If revisions to the **Issue Concept Papers** are requested by the ICM, changes should be made promptly to avoid a loss of momentum in the approvals process, and circulated back to the ICM for final approvals, usually via email exchange.

### 3.5 Step 4 a & b: Economic Valuation and Targeted Policy Instruments



**Step 4a Summary: Economic Valuation of Selected Priorities**

**Purpose:** Estimation/quantification of the costs of action to pursue identified chemical management opportunities versus the costs of human suffering and environmental degradation when no action is taken.

**Goal:** Determination of economic costs and benefits of policy options to address chemical management problems identified as national priorities (including potentially 'hidden' costs). Buy-in of the government's central finance and economic development agencies, for which valuation is a crucial decision-making tool.

**Rationale:** Demonstrating a threat does not in itself provide a solution. Identifying and measuring environmental and health impacts is often not sufficiently convincing to ensure that these threats are given the attention they require when policy decisions are made. Actions to address environmental and human health impacts have financial implications — from the direct financial costs of interventions to the negative or positive effects they have on economic development. Determining economic costs and benefits of policy options will help decision makers understand and act on the outcomes of a sound management of chemicals assessment.

#### ***Step 4B Summary: Targeted Policy Instruments***

<b>Purpose:</b>	Development of targeted policy and regulatory responses for selected chemicals management priorities considered from a national development planning perspective.
<b>Goal:</b>	Initiation of legislative and institutional reforms to facilitate the implementation of selected priorities and their integration into national development planning.
<b>Rationale:</b>	It is important to consider the wide range of potential interventions that could be implemented. In addition to economic incentives, these include technological interventions, social measures such as health promotion, and legal and regulatory measures.

### ***3.5.1 Step 4a: Economic Evaluation and Step 4b: Targeted Policy Instruments***

#### ***3.5.1.1 S4a (i): Develop Economic (Cost-Benefit) Analysis Framework***

As mentioned in *Section 1.1*, Supplemental Economic Analysis Guidance is being released to support this Guidance Document on mainstreaming. The supplemental guidance will address technical aspects of conducting economic cost-benefit analysis on SMC issues in practice, whereas this Guidance Document on mainstreaming addresses the process issues associated with Step 4a in the overall mainstreaming effort.

Capacities for economic analysis are vitally important to support integration of SMC priorities into national development policies and plans, including:

- Quantitative assessment of the costs and benefits of action or inaction to address a priority SMC issue; and
- Communicating results to finance and planning ministries and political leaders in an economic language that they are accustomed to working with.

The economic cost-benefit analysis would normally begin with two tasks:

- A decision by the Project Director, in consultation with the Core Analytical Team and members of the ICM, on which of the shortlisted priorities approved by the ICM (see **S3 (iii)**) will be the subject of economic analysis efforts and in what order; and
- Development of a Cost-Benefit Analysis Framework for each of the SMC priorities that will be the subject of economic analysis.

The Senior Economist should be tasked with developing the Cost-Benefit Analysis Framework in a concise format (e.g. spreadsheet, tabular format, etc.) allowing for informed and intuitive discussion by non-economists. The framework would normally address:

- Study objectives;
- Summary of the analytical method to be used in the study;
- Study scope (e.g. sector definition, geographic area, technology type, etc., as applicable);
- Costs and benefits to be used/estimated in the analysis:
  - The benefits to be quantified;
  - The costs to be quantified;
  - How the costs and benefits will be valued<sup>17</sup>;
    - Identification of probable data gaps important to the analysis;
    - Methodological approaches to address data gaps (e.g. further data gathering needed; extrapolating from experience and data in other countries under similar scenarios, etc.);
- Proposed assumptions and estimates to be used in the analysis including:
  - Base year to be used in the analysis;
  - Evaluation period (length of economic assumptions);
  - Sector growth rate assumptions;
  - Discount rate<sup>18</sup>; and
- Risk and uncertainty assumptions (i.e. identification of all the risks that could impact on conclusions of the analysis).

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<sup>17</sup> In general, all benefits and costs should be quantified and valued in money (e.g. dollar) terms unless it is clearly impractical to do so. This may happen because the costs and benefits:

- Cannot be reliably measured, or
- Are not significant to the analysis, or
- Are significant to the analysis but the resource/staff cost of attempting to value them outweighs the advantage of including them in the analysis.

<sup>18</sup> The term *discounted* means that cash flows which occur later are given less weight than flows which occur sooner, with larger reductions the further into the future the cash flows occur. The discounted value is also known as the *present value*. The justification for discounting is that most people would prefer receiving a dollar today over receiving a dollar in a year's time. This is referred to as *time preference* or *the time value of money*.

### 3.5.1.2 **S4a (ii):** Convene a Workshop of the Entire Project Team to Review the Economic Analysis Framework(s)

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The Project Director would normally convene a one day workshop for the Entire Project Team (see **S2 (i)**) to: a) formally review the economic analysis framework(s), b) raise awareness among government officials about and produce comments on the major benefits and costs that are identified in the framework(s), c) produce comments on and revise as needed major assumptions in the framework, and d) develop possible solutions to major data gaps anticipated by the framework, including identifying by whom and when data gaps will be filled if possible.

Workshop participants would normally include:

- The Project Director
- Senior managers from each of the core ministries represented on the Interagency Coordinating Mechanism (i.e. people who are in a position to brief ICM members);
- The Core Analytical Team;
- The members of the Sector Teams; and
- International/national experts that might be available to the mainstreaming project.

The economic analysis framework(s) should be revised by the **Senior Economist** as required prior to commencing the economic analysis and circulated back to the **Entire Project Team**.

### 3.5.1.3 **S4a (iii)**: Conduct the economic/cost-benefit analysis studies/reports

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The **Senior Economist** will lead the analysis supported by the other members of the **Core Analytical Team** (see **S1 (ii)**) and members of **Sector Teams** (see **S1 (iii)**) who were involved in producing the relevant sector analyses in the Situation Report.

### 3.5.1.4 **S4a (iv)**: Update the Issue Concept Papers with the results of the economic analyses

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A summary of the results (i.e. main points, conclusions and recommendations) of the economic analyses should be added to the Issue Concept Papers (see **S3 (i) and S3 (iii)**) replacing the section on Next Steps as follows:

- **Issue Statement** - Succinctly explain the issue in simple and direct terms;
- **Rationale** – Succinctly explain why this is a priority issue relative to others linking the explanation to the priorities of the national development plan;
- **Summary of Costs of Inaction** – Provide a qualitative description, adding quantitative data if available, of the risks (i.e. effects on the environment, public health and economic viability of other impacted economic sectors, etc.) that are likely to emerge if action is not taken during the course of the development plan, taking the current baseline and sector economic growth scenarios into account (e.g. moving from 10 cooper mines to 15 copper mines or doubling agricultural exports in context of the next national development plan: what happens if SMC practices remain underdeveloped under those scenarios?);
- **Summary of Benefits and Options for Actions** – Provide a qualitative description, adding quantitative data if available, of the probable environmental, public health and economic benefits of action to improve SMC related to the issue. Provide a description of **practical options** to respond to the risks noted above (i.e. policy options, technology enhancements, worker training, information systems, public outreach, infrastructure improvements, etc.) outlining the potential benefits and main responsibilities (i.e. levels of government, which ministries, industry, other non-government parties, etc.) for each option. Note the approximate costs of action if those are known at this stage; and
- **Summary Results of Costs and Benefits Analysis** – Summarize the results of the economic analysis for this issue.
- **Summary of Policy Options Available to the Government** – See S4b (iii) below.

### 3.5.1.6 *S4a (v)*: Convene a Meeting of the ICM to Discuss Results of Economic Analyses

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The Project Director would normally circulate the updated Issue Concept Papers two weeks in advance of the ICM meeting.

## 3.5.2 *Step 4b: Targeted Policy Instruments*

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### 3.5.2.1 *S4b (I)*: Conduct studies/reports of policy instrument options

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The Project Coordinator would normally lead this work to produce focused policy instruments options analyses for the priority SMC issues identified thus far in the mainstreaming effort, often with the assistance of a national consultant and (an) international expert(s) that might be available to the mainstreaming effort. This work should be done in close coordination with the economic analysis of **S4a**.

The main objectives of the policy instrument options analyses are to ensure that:

- For SMC priorities that have been targeted for economic cost-benefit analysis in **Step 4a**, the government's policy options to respond to the issue are clearly understood and can be costed as part of the economic analysis; and
- If the government is convinced to take action on a priority SMC issue as part of the national development plan, the government has a clear view of the supportive policy or governance infrastructure that must be put in place to ensure that the priority issue has the best possible opportunity to be effectively addressed.<sup>19</sup>

For example, if one priority SMC issue identified in the mainstreaming effort is construction of a certified hazardous waste disposal facility, that work cannot proceed effectively and in a commercially viable fashion (i.e. for instance to encourage private investment) without modern laws and regulations being in place to require that the facility be used by industry for certain listed hazardous wastes, and that the volumes of these wastes are well understood in advance. Similarly, if another priority SMC issue is safe storage and distribution of agro-chemicals, appropriate laws and regulations must be in place before any investment into such facilities or transportation equipment would be sustainable.

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<sup>19</sup> See UNEP, *Project on development of legal and institutional infrastructures for sound management of chemicals in developing countries and countries with economies in transition*. <http://www.chem.unep.ch/unepsaicm/riga06/default.html>

In addition to commonly understood legislative and regulatory actions, policy instruments can include a wide range of other actions that could enhance regulatory activities, and complement them with compatible non-regulatory approaches, such as (also see **Annex 2**)<sup>20</sup>:

- Inventories of existing chemicals;
- Pollution Release and Transfer Registers;
- Notification schemes for new chemicals;
- Registration/permit schemes;
- Economic instruments for incentive creation and cost recovery;
- Classification of chemicals;
- Packaging and labelling schemes;
- Product registers;
- Integrated pest management;
- Community/workers' right-to-know programs; and
- Pollution prevention/cleaner production.

#### 3.5.2.2 S4b (ii): Update the Issue Concept Papers with the results of the policy analysis

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A summary of the results (i.e. main points, conclusions and recommendations) of the policy options analyses should be added to the **Issue Concept Papers** (see **S3 (i) and S3 (iii)**) replacing the section on Next Steps as indicated in **S4a (iv)**.

#### 3.5.2.3 S4b (iii): Convene a meeting of the ICM to discuss results of the policy instruments analyses

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The Project Director should convene a full meeting of the ICM to consider the updated Issue Concept Papers produced in **S4a (iv)** and **S4b (ii)**. To allow for a meaningful discussion and approvals of priority SMC issues, the updated Issue Concept Papers should be circulated to the ICM at least 2 weeks in advance of the meeting.

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<sup>20</sup> See the *SAICM Overarching Policy Strategy* which is comprehensive in identifying policy instrument options that can be used to advance the objectives of SAICM. <http://www.saicm.org>.

The ICM meeting would normally produce decisions on whether the updated Issue Concept Papers:

- Are complete and adequately substantiated by the analyses of the various steps of the mainstreaming effort;
- Can result in ICM conclusions on including the priority SMC issues in the development plan, and how **options** (see **Step 5**) for doing so will be formally submitted to high political office for approval; and
- Can result in identification of other opportunities that would facilitate the adoption of the priority SMC issues in the activities of concerned government ministries and stakeholders (e.g. sector strategic plans, sector policies, industry codes of conduct, etc.).

### 3.6 Step 5: Mainstreaming SMC Priorities

**Step 5**  
Mainstreaming  
SMC for the  
MDGs

#### Checklist for Step 5: Mainstreaming SMC Priorities

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- *S5 (i)* – Prepare specific text for inclusion of the approved SMC priorities into chapters of the development plan
- *S5 (ii)* – Circulate specific text to the ICM for comment
- *S5 (iii)* - Convene a multistakeholder workshop to review projects results and proposals for the development plan
- *S5 (iv)* - Present project final results to senior political office holders to encourage political uptake of project results (e.g. President or Prime Minister’s Office, cabinet, inter-ministerial body, etc.)

#### Step 5 Summary

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**Purpose:** Integration of sound management of chemicals priorities into national development planning to address the most serious problem areas, while making the utmost use of opportunities that link sound management of chemicals with sustainable development factors. Fostering national budget commitments, in partnership with donor assistance, following the integration of priorities into national policy and planning documents.

**Goal:** Making clear to national finance and treasury departments, and aid agency officials, the linkages between sound management of chemicals and progress in achieving the Millennium Development Goals. Awareness-raising targeted to political decision makers. Inclusion of priorities for sound management of chemicals in national policy and planning documents.

**Rationale:** Decision makers are far more likely to opt for sustainable modes of development when health and environmental costs of alternative policies are fully valued in terms of natural resource depletion/conservation, human mortality and morbidity, health care costs, lost wages, etc. Significant responses to hazards often only occur when a long-standing environmental risk erupts into a health crisis, or economic or political emergency. By moving from a reactive to a proactive policy approach, risks that might develop into full-scale environmental and health emergencies can be mitigated, and crises that otherwise might have serious implications for a country’s economic, political and physical infrastructure can be limited or even prevented.

### ***3.6.1 S5 (i): Prepare Specific Text for Inclusion of the Approved SMC Priorities into Chapters of the Development Plan***

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The **Project Director** should lead an effort by the Core Analytical Team to develop specific textual language indicating how the approved SMC priorities can be brought into:

- Chapters addressing the chemical-intensive sectors prioritized in the national development plan; and
- The cross-sector environment chapter of the national development plan, emphasizing SMC improvements that have cross-sector significance in terms of enhancing the quality of life and development in many sectors of the society, including prioritized development sectors.

Developing specific text will ensure that the results of the mainstreaming effort are accurately reflected in the development planning process rather than leaving the text drafting responsibility to other people who might otherwise have been only marginally involved. The Project Director and his or her managers should be able to justify in detail the inclusion of every part of the proposed text. The rigorous process followed in the mainstreaming effort will give the Project Director a very strong basis to provide such justifications (e.g. well prepared analyses in each step of the mainstreaming approach and step-by-step approvals by the ICM).

### ***3.6.2 S5 (ii): Circulate Specific Text to the ICM for comment***

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The **Project Director** would normally circulate proposed text for the national development plan to all members of the ICM for comment and further negotiation as required.

Based on comments received, the Project Director would normally revise the text where possible to achieve agreement with ICM members as long as changes are consistent with the findings of the mainstreaming effort, including ICM decisions taken to-date within the project.

### ***3.6.3 S5 (iii): Convene a Multistakeholder Workshop to Review Projects Results and Proposals for the Development Plan***

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The **Project Director** should convene a one-day multi-stakeholder meeting including those people and organizations who participated in the Project Inception workshop of **PM (ix)**.

The workshop should:

- Report out on the results for each step of the mainstreaming effort and how decisions were taken throughout;

- Seek support from participants to encourage their organizations and political leadership to adopt as policy the results of the mainstreaming effort; and
- Identify and generally agree on specific ways that stakeholders can support the results of the mainstreaming effort.

#### ***3.6.4 S5 (iv): Present Project Final Results to Senior Political Office Holders***

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This task can take many different forms considering countries have unique political cultures, institutions and processes. However, the political-level adoption of the results of mainstreaming effort cannot be understated in terms of its importance. The results of the mainstreaming effort could be compromised until this task has been fully implemented in terms of all available options to influence political leadership building on the results of the mainstreaming analyses and the results of the ICM meeting in *S4b (iii)*.

## 4.0 Concluding Comments

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The *UNDP Technical Guide for Integrating the Sound Management of Chemicals (SMC) in MDG-Based Policies and Plans* is one of the thematic components of guidance provided by UNDP's Environment and Energy Group on "**Mainstreaming Environmental Sustainability**".<sup>21</sup> It is intended for decision-makers and managers engaged in aspects of SMC and also those involved in the drafting, priority setting, implementation, monitoring or reporting with respect to national development plans and strategies.

The Technical Guide is built on applied, practical experience accumulated in pilot countries under the *UNDP-UNEP Partnership Initiative for the Integration of Sound Management of Chemicals (SMC) into Development Planning Processes*. It outlines major steps in the mainstreaming approach which are preceded by an important **Project Mobilization Phase**. The steps include:

- **Step 1:** Baseline analysis
- **Step 2:** Diagnostics and Needs Assessment
- **Step 3:** Identification of National SMC Priorities
- **Step 4 a & b:** Economic Valuation and Targeted Policy Instruments
- **Step 5:** Mainstreaming SMC Priorities

The Technical Guide is considered a "*living document*" in which the lessons-learned and practical field experiences from countries will continue to be recorded and shared widely as they progress with the integration of SMC in their MDG-based development planning processes. It is expected that an updated Technical Guide will be issued again prior to the 3<sup>rd</sup> meeting of the International Conference on Chemicals Management to reflect accumulated experience.

Governments and UN Country Teams will find this approach useful to help identify high priority opportunities for donor support in SMC capacity building in the context of national development policies and plans and the United Nations Development Assistance Framework (UNDAF).

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<sup>21</sup> <http://www.undp.org/energyandenvironment/>

## Annex 1: Prominent Web Links Applicable to SMC

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- Agenda 21, [www.un.org/esa/sustdev/documents/agenda21/index.htm](http://www.un.org/esa/sustdev/documents/agenda21/index.htm)
- Air & Waste Management Association [www.awma.org](http://www.awma.org)
- American Chemistry Council , [www.americanchemistry.com](http://www.americanchemistry.com)
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention), [www.basel.int](http://www.basel.int)
- Bureau of International Recycling, <http://www.bir.org/welcome/welcome.asp>
- Center for International Environmental Law (CIEL), [www.ciel.org](http://www.ciel.org)
- CropLife International, [www.croplife.org](http://www.croplife.org)
- Food and Agriculture Organization (FAO), [www.fao.org](http://www.fao.org)
- Global Environment Facility (GEF), [www.gefweb.org](http://www.gefweb.org)
- Global High Production Volume (HPV) Chemical Initiative, [www.cefic.be/activities/hse/mgt/hpv/hpvinit.htm](http://www.cefic.be/activities/hse/mgt/hpv/hpvinit.htm)
- Greenpeace Toxics Campaign, [www.greenpeace.org/international/campaigns/toxics](http://www.greenpeace.org/international/campaigns/toxics)
- Health Care Without Harm, [www.noharm.org](http://www.noharm.org)
- Intergovernmental Forum on Chemical Safety (IFCS), [www.who.int/ifcs](http://www.who.int/ifcs)
- International Council of Chemicals Associations (ICCA), [www.icca-chem.org](http://www.icca-chem.org)
- International Council on Mining and Metals, [www.icmm.com/](http://www.icmm.com/)
- International Labour Organization (ILO), [www.ilo.org](http://www.ilo.org) and <http://www.ilo.org/public/english/protection/safework/chemsfty/index.htm>
- International Maritime Organization (IMO), [www.imo.org](http://www.imo.org)
- International POPs Elimination Network (IPEN), [www.ipen.ecn.cz](http://www.ipen.ecn.cz)
- International Oil and Gas Producers Association, [www.ogp.org.uk](http://www.ogp.org.uk)
- Inter-Organization Programme for the Sound Management of Chemicals (IOMC), [www.who.int/iomc](http://www.who.int/iomc)

- International Programme on Chemical Safety (IPCS) (WHO, ILO, UNEP), <http://www.who.int/ipcs/publications/en/index.html>
- Millennium Development Goals (MDGs), [www.un.org/millenniumgoals](http://www.un.org/millenniumgoals)
- Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol), [www.unep.org/ozone/index.asp](http://www.unep.org/ozone/index.asp)
- Organization for Economic Co-operation and Development (OECD), [www.oecd.org](http://www.oecd.org)
- Pesticide Action Network (PAN), [www.pan-international.org](http://www.pan-international.org)
- Registration, Evaluation, and Authorization of Chemicals (REACH), <http://ecb.jrc.it/REACH/>
- Rio Declaration on Environment and Development (Rio Principles), [www.un.org/documents/ga/conf151/aconf15126-1annex1.htm](http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm)
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention), [www.pic.int/index.html](http://www.pic.int/index.html) & Stockholm Convention on Persistent Organic Pollutants (POPs) (Stockholm Convention), [www.pops.int](http://www.pops.int)
- Strategic Approach to International Chemicals Management (SAICM), [www.saicm.org/](http://www.saicm.org/)
- UN Framework Convention on Climate Change (UNFCCC), [www.unfccc.int](http://www.unfccc.int)
- UNEP Chemicals, [www.chem.unep.ch](http://www.chem.unep.ch)
- UNEP GC/GMEF 2005 Decision 23/9 on Chemicals Management (including Mercury Programme), [www.unep.org/gc/gc23/documents/GC23-Proceedings.doc](http://www.unep.org/gc/gc23/documents/GC23-Proceedings.doc)
- United Nations Development Programme (UNDP), [www.undp.org](http://www.undp.org)
- United Nations Industrial Development Organization (UNIDO), [www.unido.org](http://www.unido.org)
- United Nations Institute for Training and Research (UNITAR), [www.unitar.org](http://www.unitar.org)
- World Bank, [www.worldbank.org](http://www.worldbank.org)
- World Health Organization (WHO), [www.who.int](http://www.who.int)
- WWF Toxics Campaign, [www.worldwildlife.org/toxics/](http://www.worldwildlife.org/toxics/)

***\*Sources identified and assembled by RFI: 2008***

## Annex 2: Key Components of a National Sound Management of Chemicals Programme\*

SMC governance components	Examples of component activities
<p>Constitutional provision (health; quality of life; environment; sustainable development, etc.) Enabling policy and legislative framework for SMC</p>	<ul style="list-style-type: none"> <li>▪ National SMC policy</li> <li>▪ National chemicals legislation applicable to the chemical life-cycle (industrial; agrochemicals, etc.) and associated regulations. Legislative provisions for classification of chemicals, data collection, risk assessment, monitoring, handling, transport, disposal/destruction; prohibitions, infrastructure, permitting, enforcement, liability, penalties, stakeholder consultation, and other aspects of life-cycle management</li> <li>▪ Operational permits at the facility level as a tool for industrial sector compliance and promotion of pollution prevention, reduction/emergency preparedness and response, best available technology, best practices</li> </ul>
<p>National coordination for SMC Stakeholder participation, including women, indigenous communities, workers, and other vulnerable groups</p>	<ul style="list-style-type: none"> <li>▪ SMC national inter-ministerial body</li> <li>▪ SMC advisory body; work groups, etc.</li> <li>▪ Stakeholder consultation</li> </ul>
<p>National SMC plans and priority setting for SMC</p>	<ul style="list-style-type: none"> <li>▪ Methodology for setting national priorities and periodic review of priorities to reflect trends, emerging issues (e.g., severity; low-hanging fruit)</li> <li>▪ Determination of near-, mid- and long-term priorities for risk management</li> <li>▪ National Plan</li> <li>▪ Integration within national development assistance and poverty reduction plans</li> </ul>
<p>Government Institutional capacity</p>	<ul style="list-style-type: none"> <li>▪ Adequate financial resources to support SMC</li> <li>▪ Dedicated ministerial staff</li> <li>▪ Training protocols, manuals for continuity</li> <li>▪ Enforcement (Develop, implement and maintain environmental inspection and investigation programme, inclusive of budget and technical training)</li> </ul>

<p><b>Risk assessment</b></p>	<ul style="list-style-type: none"> <li>▪ Identification/assessment of hazards to people and the environment, taking into account risk of exposure, including children and other vulnerable groups and as informed by inputs such as:</li> <li>▪ Literature search (laboratory or field toxicology studies)</li> <li>▪ Data screening and assessment models, including to calculate distribution in environment</li> <li>▪ Classification and labelling</li> <li>▪ Safety data sheets</li> <li>▪ Bio and environmental monitoring data</li> <li>▪ Socio-economic impact data</li> </ul>
<p><b>Risk Management</b>  Basic information for risk management, to inform decision-making and for tracking progress. Examples include:</p> <ul style="list-style-type: none"> <li>• Chemicals imported, manufactured, formulated, in transit and traded.</li> <li>• Clinical, epidemiological, and environmental data</li> <li>• Toxicity, fate, distribution</li> <li>• Pathways of exposure</li> </ul>	<ul style="list-style-type: none"> <li>▪ Baseline data compilation and evaluation</li> <li>▪ Reporting provisions within legislation</li> <li>▪ National chemicals information system (access to metadata for managers)</li> <li>▪ Data collection, sharing and exchange (transparent access)</li> <li>▪ Access to aggregated metadata collected by various State agencies; institutions (i.e., metadata collected by different ministries is accessible by multiple users within all relevant ministries for input in various applications (GIS, etc.)</li> <li>▪ National databases</li> <li>▪ Compliance reporting/National inventories. Examples include:</li> <li>▪ Register of producers/importers</li> <li>▪ Source emission inventories;</li> <li>▪ Pollutant Release and Transfer Registers</li> <li>▪ National documentation system(s) for tracking movement and location of chemicals (imports; illegal detection at border and for goods in transit; facility level; supply chain/chain of custody)</li> <li>▪ Economic instruments</li> <li>▪ Intoxication cases</li> <li>▪ Accidents and spills reporting</li> </ul>
<p><b>National monitoring strategy to support assessment and basic information for decision-making</b>  Monitoring of:</p> <ul style="list-style-type: none"> <li>• Human populations</li> <li>• Food, including animal feeds</li> <li>• Environment, including flora and fauna, environmental media</li> </ul>	<ul style="list-style-type: none"> <li>▪ National laboratory accreditation system</li> <li>▪ Reference laboratories</li> <li>▪ Training</li> </ul>
<p><b>National infrastructure for SMC</b></p>	<ul style="list-style-type: none"> <li>▪ Legislative requirements (as above) providing direction on packaging, handling,</li> </ul>

	<p>transport, storage, disposal and destruction, emergency response, reporting, monitoring, etc.)</p> <ul style="list-style-type: none"> <li>▪ Laboratory</li> <li>▪ Storage facilities</li> <li>▪ Dedicated transport fleets</li> <li>▪ Engineered sanitary landfills for low-concentration solid toxic and hazardous wastes</li> <li>▪ Destruction facilities</li> </ul>
Risk communication strategies for awareness raising, outreach and education in support of risk prevention and reduction (accessible, timely and appropriate information, including as applicable to vulnerable groups)	<ul style="list-style-type: none"> <li>▪ Provisions in law (e.g., right to know legislation)</li> <li>▪ Identification of groups at highest risk</li> <li>▪ National plans for communicating risk to public and vulnerable populations (language; culture; appropriate communication channels; adequate budgets)</li> <li>▪ Globally Harmonized System for Classification and Labelling</li> <li>▪ Guidance documents for industrial sectors and other stakeholders</li> </ul>
Support for research	<ul style="list-style-type: none"> <li>▪ Development of and access to safe, affordable technologies and alternatives</li> <li>▪ Policy options improvement, including economic instruments etc.</li> <li>▪ University staff and curricula to train future SMC managers (chemistry; environmental sciences; etc.)</li> </ul>
Emergency prevention, preparedness and response	<ul style="list-style-type: none"> <li>▪ National disaster and accident planning</li> <li>▪ Response plans</li> <li>▪ Facility siting and facility level plans (provisions within legislation; permitting)</li> <li>▪ Liability and compensation</li> </ul>
Diagnosis and treatment (intoxication)	<ul style="list-style-type: none"> <li>▪ National Poison Control Center</li> <li>▪ Training medical staff in diagnosis and treatment</li> <li>▪ Guidance on treatment</li> </ul>
National waste management strategy for toxic and hazardous wastes with involvement of state and municipal jurisdictions	<ul style="list-style-type: none"> <li>▪ Definition of wastes</li> <li>▪ Siting waste disposal facilities</li> <li>▪ Requirements for safe handling and treatment</li> <li>▪ Technology options</li> </ul>
Remediation	<ul style="list-style-type: none"> <li>▪ National inventory</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Liability and compensation laws (as above)</li> <li>▪ Field assessment &amp; monitoring</li> <li>▪ Clean-up priorities</li> <li>▪ Clean-up plans</li> </ul>
Financial resources	<ul style="list-style-type: none"> <li>▪ Support in legislation (basic management programme needs)</li> <li>▪ National strategies for domestic support for SMC, e.g., budgeting within national planning frameworks, ministries, for programmes, etc.</li> <li>▪ Economic instruments including cost recovery mechanisms</li> <li>▪ National strategies for Official Development Assistance for SMC</li> </ul>

\* Risk reduction includes prevention, reduction, remediation, minimization and elimination of risks throughout chemical life-cycle, including in products and articles. Therefore all of the above examples pertain to risk reduction and its management.

Source: Resource Futures International, 2006.

## Annex 3: Linkages between the Sound Management of Chemicals and the MDGs

MILLENNIUM DEVELOPMENT GOALS	SOUND MANAGEMENT OF CHEMICALS (SMC) LINKAGES TO MDGs	
	Positive synergies	Impacts of weak SMC
<p><b>1. Eradicate Extreme Hunger and Poverty</b></p> <p><b>Target 1. Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day (Millennium Summit)</b></p> <p><b>Target 2. Halve, between 1990 and 2015, the proportion of people who suffer from hunger (Millennium Summit)</b></p>	<p>Proper use of chemicals, e.g., as part of Integrated Pest Management (IPM), can play a significant role in boosting crop yields. FAO has had considerable success demonstrating that higher yields with lower synthetic pesticide inputs combined with other measures can dramatically increase crop yield and lower costs to farmers.</p> <p>Cleaner production increases efficiency, reducing pollution, and water and electricity consumption and increases profits. Case studies suggest investments are paid back within two years, and increased profits are often realized as result of greater efficiency (KemI, 2005).</p> <p>SMC correlates with reduced health care costs. The US EPA estimates that the benefits of America's Clean Air Act will be around US\$ 690 billion over the period 1990 to 2010. The European Commission estimates that an investment of around seven billion Euros to reduce air pollution will deliver benefits totaling Euro 42 billion as a result of fewer premature deaths, less sickness, fewer hospital admissions and improved labour productivity (UNEP SAICM news release, 2006).</p> <p>SMC, including cleaner production, can help both large and Small-and-Medium Enterprises (SMEs) to improve financial viability. Cleaner production capital outlay includes no-cost measures; payback is typically realized within a few years of investment (KemI, 2005).</p>	<p>The poor at higher risk of exposure to chemicals: Poor people routinely face unacceptably high risks of poisoning because of their occupations, location, and lack of knowledge about proper chemicals management. Malnutrition increases sensitivity to chemicals. An estimated 80% of all poisonings occur in developing countries where regulatory, health, and education systems are weakest. Housing materials in urban slums in developing countries are often constructed from cardboard and scrap materials, some of which may have been exposed to or contain high concentrations of hazardous chemicals.</p> <p>Inappropriate use of chemicals can increase costs to poor farmers: When pesticides are used inappropriately (e.g., where pest resistance exists or is created or by killing off predators of pests), they can lower crop output. There are many documented and reported instances of small farmers paying from 30% to 50% of their total cash outlay for agrochemicals.</p> <p>Pesticide and fertilizer runoff contributes to lowered productivity of freshwater and marine fisheries, which are the main or significant sources of protein in many developing countries.</p> <p>Inadequate SMC is correlated with higher health, environmental and development costs, and lowered worker productivity. The Asian Development Bank (ADB) in a regional assessment of 2001 warned that neglect of the environment was costing Asian economies as much as 8% of national growth, with the extent of degradation expected to increase as 50% of Asia's populations move to urban centers. China is believed to be losing as much as 10% of its national income to pollution and</p>

		<p>India 5%-6 %. The direct cost of water and air pollution in India is believed to be as high as US \$10 billion annually (Asian Times, 2001).</p> <p>In 2000, Brazil's Ministry of Health estimated that there are 300,000 poisonings a year and 5000 deaths from agricultural pesticides; the cost of treatment and lost work was estimated at US \$540 million. The Philippines has estimated that health costs for farmers exposed to pesticides is 61% higher than for those not exposed, while Sri Lanka estimates health costs to farmers from pesticide exposure is equivalent to 10 weeks' income (Pesticide News, 2003).</p> <p>In Germany, skin diseases and asthma caused by occupational chemical exposures were estimated at €275 million, while the cost of lost work days was about the same, likely doubling the total cost to employers (Keml 2005, citing Rühl et al. 2004).</p>
<p><b>2. Achieve Universal Primary Education</b></p> <p><b>Target 3. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling (Millennium Summit)</b></p>	<p>Building basic knowledge of science in the primary grades will lay the initial foundation for development of much needed skill sets to enable countries to progress in many areas of life (manufacturing; health management; legislative enforcement, etc.). Better science education at the primary level is an important building block of SMC as it is necessary to enable students to assimilate science-based curricula within the secondary and tertiary levels within their countries.</p> <p>Raising awareness about SMC safety issues at the primary level can reduce the potential for accidents.</p>	<p>Weak science capacity is a significant factor in weak national capacity for monitoring and evaluation of chemicals, including as related to food safety and security, and exposure of people and the environment to chemicals. It has implications for national ability to enforce legislation (e.g., as related to inspections and detection of releases of chemicals above regulatory limits).</p>
<p><b>3. Promote gender equality and empower women</b></p> <p><b>Target 4. Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015 (Millennium Summit)</b></p>	<p>Women, as the primary care takers, food preparers, and gatherers of fuel used in the household, can play a role in protecting or minimizing the risk of themselves and their families to exposure from chemicals when they are informed about the risks and how to prevent/respond to them. For example, women's knowledge of proper storage, handling and disposal of chemicals within the home can help protect themselves and their families.</p> <p>Where adverse effects from chronic exposure to chemicals via food is known to be a concern, consumption advisories related to food choices and food preparation can inform women of how to minimize exposure to their families, while maintaining healthy eating</p>	<p>Women are disproportionately affected by indoor air pollution, and water and food-borne illnesses.</p> <p>Women are affected by unsound management of chemicals in their work, e.g., agriculture (e.g., pesticide exposure), gold mining, cottage-recycling that does not follow best-practices, scavenging materials from dump).</p>

	habits.	
<p><b>4. Reduce child mortality</b></p> <p><b>Target 5. Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate (Millennium Summit)</b></p>	<p>SMC monitoring of resistance in chemicals used to control vector-borne disease is important to determining their continued effectiveness. Diseases that affect children caused by such vectors include malaria, Kala-azar, Dengue Fever, and Chiaga's Disease.</p> <p>Improving nutrition will decrease sensitivity to chemicals. Currently around 200 million children are suffering from malnutrition (WHO, 2004).</p> <p>Including children as "end-points" in health assessments of chemicals will inform SMC strategies as geared to children's health.</p>	<p>Improper labeling and storage of chemicals in the home is a significant cause of poisoning, including in young children, particularly in developing countries. IFCS in 2003 estimated that each year there are 3 million acute poisonings worldwide, with more than 200,000 fatalities. WHO estimates that 1 million to 5 million cases of pesticide poisonings occur each year, resulting in several thousands of fatalities, including in children.</p> <p>In many developing countries, children are exposed to chemicals through agricultural work. For example, in 2002, the International Institute of Tropical Agriculture estimated that over 150,000 children apply pesticides in West African cocoa production. Half of Cambodian farmers surveyed by the United Nations Food and Agriculture Organization (FAO) said they allowed their children to spray crops.</p> <p>Environmental pollution, to which chemicals have been a major contributor, contributes to the incidence, prevalence, mortality, and costs of pediatric disease in children. For example, one study estimates total annual health care costs within the United States to be US\$54.9 billion or 2.8 % of total U.S. health care costs: US\$43.4 billion for lead poisoning, US\$2.0 billion for asthma, US\$0.3 billion for childhood cancer, and US\$9.2 billion for neurobehavioral disorders (EHP, May 2002).</p>
<p><b>5. Improve Maternal Health</b></p> <p><b>Target 6. Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio (Millennium Summit)</b></p>	<p>Improved capacity for SMC lowers the potential for exposure of the population to toxic and hazardous chemicals, hence lowers risk of contamination, with implications for maternal health and, consequently, health of future generations.</p> <p>Improved nutrition can reduce the susceptibility of a woman to adverse effects of chemicals to which she is exposed.</p> <p>Including women of child-bearing age as "end-points" in health assessments of chemicals will inform SMC strategies as geared health of women, their children and the fetus.</p>	<p>Women's exposure to some types of chemicals commonly used in industrial and industrializing societies (e.g., chlorine-based compounds and "gender-bender" chemicals) is correlated with epidemic rates of some cancers in women within some cultures. However, far fewer studies are done on risks posed by chemicals in poor countries, whether on women or the general population.</p> <p>Women who have accumulated some types of chemicals (e.g. in their lipids or body fat) pass these chemicals on to the foetus via the placenta and during breastfeeding (with the first-borne child receiving the greatest concentration of such chemicals from the mother and each subsequent child</p>

		<p>proportionately less). For example, in the United States, where “lifetime” accumulations of dioxins and furans remain high owing to daily chronic exposure via fatty foods, such as milk and hamburger, 33% of a woman’s adult “body burden” of these chemicals is transferred to the foetus. Some types of chemicals to which the female foetus may be exposed by the mother can adversely affect the lifetime “store” of eggs which the female foetus develops, with implications for the health of future generations of both women and men, as well as that child, should adverse affects occur at a critical stage of development. Hence there is a direct correlation with chemicals and maternal health as affecting both the mother and her children.</p>
<p><b>6. Combat HIV/AIDs, Malaria and other Diseases</b>  <b>Target 7. Have halted by 2015 and begun to reverse the spread of HIV/AIDS (Millennium Summit)</b></p> <p><b>Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases (Millennium Summit)</b></p>	<p>Where malarial medications (prophylactics) and other chemical products (e.g., treated bed nets) are applied as part of holistic prevention and treatment response programmes (e.g., inclusive of rapid diagnosis; targeted application of sprays within endemic areas and other best practices recommended by WHO) the impact on environment is minimized.</p> <p>Awareness-raising on proper use and disposal of medications (e.g., to control tuberculosis) lowers risk to environment and prevents/retards development of drug resistance.</p>	<p>Few developing countries have adequate national monitoring provisions in place to systematically determine effectiveness of chemicals used to control disease vectors. Use of chemicals to which vectors have developed resistance is costly, not only in terms of outlay for the product and workers hired to apply chemicals and associated activities, but in terms of health care costs and illnesses that lower worker productivity where chemicals are ineffective. There is little reliable data on how well developing countries monitor chemical use for vector control as this has not been high among developing country priorities, owing to low financial and human resources capacity within countries and low awareness of health implications.</p>

<p><b>7. Ensure Environmental Sustainability</b></p> <p><b>Target 9. Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources (Millennium Summit)</b></p> <p><b>Target 10. Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation (Millennium Summit)</b></p> <p><b>Target 11. Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers (Millennium Summit)</b></p>	<p>SMC prevents/minimizes harmful chemicals from entering the environment where they can cause degradation of ecosystems, including land, water and air, and to flora and fauna. Environmental contamination is also linked to health. For example, environmental pollution is thought to be responsible for 2% of cancer deaths (Harvard Report on Cancer Prevention, 1996).</p> <p>Chemical environmental assessments contribute to knowledge about chemical hazards and risks of exposure so as to enable decision-making pertaining to protection of the environment (e.g., prohibitions and restrictions on chemicals used in industry and agriculture where the risk is deemed to be significant and the chemical unmanageable or difficult to manage).</p>	<p>Chemicals contribute to global warming and climate change. For example, CFCs contribute to creation of greenhouse gases. The toxic brown cloud that has resulted from rapid Asian industrialization without adequate pollution controls is thought to be a contributing factor to changes in the Earth's atmosphere that are linked to climate change (National Geographic, 2003).</p> <p>Improperly managed chemicals are a major contributor to environmental contamination of water bodies. The World Commission on Water for the 21st Century calculates that more than half of the world's major rivers are so depleted and polluted that they endanger human health and poison surrounding ecosystems (Interpress, 1999). An estimated 80% of the pollution load to oceans originates from land-based activities, including chemical and solid wastes. More than 60% of the world's population lives within 100 kilometers of marine coastal waters and the majority of the remaining 40 % live near rivers and other waterways. In Latin America, seepage from improper use and disposal of heavy metals, synthetic chemicals and hazardous wastes reaching groundwater from waste dumps appears to be doubling every 15 years (UNEP 1999).</p> <p>Once environmental contamination has occurred, remediation is often difficult and very costly (often millions to billions of dollars), while a contaminated environment also drives up health care costs, both locally and globally.</p> <p>Waste disposal of chemicals (long-term storage in landfills) removes land from productive uses. An estimated 400,000 million tonnes of hazardous waste were generated in the early 1990s (UNEP, 1999). The amount of solid waste (inclusive of hazardous chemical and also human and organic wastes) is expected to increase as much as four fold in some countries (e.g., India) and 500% in others (e.g., Indonesia) (UNU/IAS, 2002). Overall, the 85% growth in chemicals production forecast for 2020 will have enormous implications for waste disposal. Currently, most developing countries lack national waste policies and legislation, as well as the infrastructure required to prevent releases to the environment and for disposal/destruction of wastes.</p> <p>Most developed countries lack adequate resources (human and financial) to systematically monitor for pollution in the</p>
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		environment, including in marine and freshwater systems (lakes, rivers and aquifers) and of the fish and seafood on which key segments of their population may depend for protein.
<b>8. Develop a Global Partnership for Development</b>	International and bilateral ODA represents a potential international funding source to support national capacity building for SMC. Regional partnerships for some aspects of SMC (e.g., training; information exchange; infrastructure) may help to improve cost efficiencies and reduce transaction costs to donors and countries alike. Promoting partnerships with private sector benefits development of new technologies for SMCs.	Failure to follow-through on commitments to financial support for SMC will result in delays or inaction on SMC capacity building in developing countries.

Source: Resource Futures International, 2006.

## Annex 4: Sound Management of Chemicals - Links to Sector-Based Development Issues

Sector(s)	Key issues	SMC synergies
1. Health	Improved drinking water and sanitation	Prevention of chemical contamination (e.g., in industrial releases and runoff from agricultural chemicals) is needed in many developing countries to protect drinking water. SMC applied to waste management strategies can help to prevent/minimize environmental and health costs.
	Food security for Improved nutrition	SMC can contribute to food output. Laboratory capacity to analyze food, including animal feed, is important in detecting exposure of food due to negligence or criminal acts (e.g., detecting illegal sale of used PCB oils that may end up in cooking oils or use of DDT powders to preserve fish).
	Disease vector control: effectiveness; resistance	SMC can contribute to effective control of disease vectors.
	Development and use of medications to cure disease	SMC strategies applied to disposal of pharmaceuticals can help to protect drinking water.
	Chemical exposure  Chemical intoxication (poisoning): detection and treatment	<p>Major chemical-related accidents resulting in death and injuries have occurred worldwide. As developing countries, particularly industrializing countries continue to undergo large-scale urbanization centred around manufacturing and other industrial processes, SMC's role in maintaining a safe and healthy environment will be increasingly important. Exposure from by-product releases is a major contributor to environmental pollution, and subsequently, of contamination in people.</p> <p>The British Journal of Industrial Medicine estimates that developing countries account for 20% of agricultural pesticide use but more than 99% of deaths from pesticide poisoning. Many developing countries lack capacity to detect and treat reported incidents.</p>

2. Education	Technical capacity	<p>A strong science curriculum and teachers who have adequate training in science is important to long-term SMC capacity, including research and laboratory capacity that, in turn, has implications for protection of health and the environment, and economic development.</p> <p>Specific groups require training in SMC, e.g., factory managers and personnel, farmers and lending institutions that make loans to these groups.</p>
3. Agriculture	Improved crop output	<p>SMC can help detect and/or prevent insect resistance and unintended die-off of beneficial insects. For example, use of endosulfan in Indonesia in 1985 led to a surge of brown plant hoppers after their natural predator, the golden snail, was killed by the pesticide. The outbreak threatened 70% of Indonesia's rice crop. Subsequent application of IPM increased rice yields by 13%, while a 60% reduction in pesticides applied resulted in substantial savings to farmers (Dinham, 1999). IPM, inclusive of reduced use of pesticides, adherence to application and harvesting protocols and use of more eco-friendly pesticides can help to reduce long-term damage to soil, such as reduction of zinc, boron and other essential soil nutrients (Shiva, 1991, Pingali and Rosegrant, 1994).</p>
	Conservation of land for production uses	<p>SMC reduces the need to utilize productive land for waste disposal.</p>
	Improved exports of livestock.	<p>SMC includes laboratory capacity to analyze livestock for chemical contamination and can provide assurance to importing countries that a country's livestock meets their legal requirements.</p>
4. Fisheries	Coastal zone water quality Aquaculture and inland fisheries	<p>SMC can play a significant role in preservation of coastal zone water quality.</p> <p>Pollution from agrochemical runoff (pesticides and fertilizers), ship pollution, effluent discharge from industry, etc., pollutes waters. Synthetic fertilizer run off contributes to eutrophication or "aging" in nutrient-rich lakes</p>

<p><b>5. Industry</b></p>	<p>Development of industrial sectors Chemical by-products from industrial processes and manufacturing or during life-cycle of products that incorporate chemicals (e.g., chemicals, electronics, manufacturing, mining and metals, construction subsectors and product recycling)</p>	<p>SMC is a critical factor in industrialization if people and their environment are not to suffer adverse effects, along with attendant economic losses.</p> <p>During manufacture, process changes and other prevention measures, substitution to replace toxic/hazardous chemicals, pollution abatement, etc. are important to prevent/minimize toxic/hazardous product content, releases to atmosphere and water during manufacture or at subsequent stage of the life-cycle, and associated chronic or acute effects to people and the environment (ecosystem).</p> <p>Sub sector examples:</p> <p>Mining and metals: SMC is important throughout the mining and metals life cycle: during extraction (e.g. substitution of substances like cyanide/preventive measures and adequate emergency prevention and response planning); fabrication and smelting processes (e.g., to prevent/minimize releases of toxic by-products generated during smelting operations); and at end-of-life of mining operations (e.g., to contain spent acid from tailings) and of products containing metals (e.g. via best practices and stewardship strategies for recovery of metals from electronic products.).</p> <p>Oil and gas processing (by-products)</p> <p>Chemicals used in manufacture and/or consumption of solvents, paints, inks and dyes, resins, sealants, etc. that need to be carefully controlled to prevent releases; prevent/mitigate by-product formation.</p>
<p><b>6. Energy</b></p>	<p>Development of electrical power generation power &amp; capacity</p>	<p>Electrical generation is associated with releases of by-product chemicals, e.g., mercury from coal burning.</p> <p>Efficient chemical manufacturing processes consume less water and energy. OECD estimates indicate that in 1998 the chemical industry used 7% of the world's energy, resulting in 4% of the world's CO2 generation. The chemical sectors' consumption of water at 43% was the manufacturing sector's major water consumer (IFCS, 2003).</p>
<p><b>7. Trade</b></p>	<p>Improved sales of cash crops &amp; products</p>	<p>SMC as applied to crop production can improve yields.</p>
	<p>Trade in chemical products</p>	<p>SMC can enable countries to meet exporters' requirements. SMC as it pertains to laboratory capacity enhances a nation's capacity to detect illegal transport of dangerous chemicals (hence, ability to comply with chemical MEAs). Domestically, capacity to detect contamination of products, such as food, can help save lives.</p> <p>The Basel Convention stipulates that movements of hazardous wastes can take place only upon prior written notification by the State of export to the competent authorities of the States of import and transit (if appropriate).</p> <p>The Rotterdam Convention requires prior notification of certain chemical exports to an importing country, inclusive of provision of information on potential health and environmental effects, to promote safe use of chemicals, and includes provisions for labeling.</p> <p>The Stockholm Convention requires that persistent organic pollutant wastes be disposed of using environmentally sound destruction technology. Import/export of POPs wastes for destruction are to be made</p>

		<p>only to countries that have such technology.</p> <p>The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) seeks to make broadly available information on health, physical and environmental hazards and toxicity (e.g., safety data sheets for workers) to enhance the protection of human health and the environment during their handling, transport and use and provide for greater consistency in regulatory requirements (without lowering the level of protection currently afforded by such systems) to facilitate trade in chemicals and reduce the need for testing and evaluation.</p>
<b>8. Transport</b>	Infrastructure	Materials and design considerations used in construction of roads, railways, ships, airports, etc. can reduce chances of an accident.
	Traffic planning to reduce vehicular pollution (fuel by-products)	<p>Environmentally sound recycling of vehicle components can reduce risk to people and the environment (e.g., mercury switches and lead-acid batteries).</p> <p>Fuel formulations and more efficient vehicles (that run on less polluting formulations and which use less fuel) . Exposure of the general population to chemicals in fuel formulations (e.g., lead, volatile organic hydrocarbons) is associated with cardio respiratory ailments and other diseases. Children are especially vulnerable to toxic effects of lead (lowered IQ, behavioural problems, etc.). In some industrial countries, the percentage of atmospheric pollution attributable to vehicle exhaust is more than 60%.</p>
	Transport of chemicals	Ensuring that chemicals are adequately packaged, labelled and contained, and utilization of appropriate transport vehicles as dedicated to transporting toxic and hazardous chemicals can reduce the potential for spills and accidents.

<p><b>9. Environment</b></p>	<p>Chemicals management services for prevention, abatement and cleanup (e.g., waste management, water and wastewater treatment, environmental monitoring and instrumentation, cleaner technologies and processes, remediation technologies). The sector has gained momentum from legislative drivers and consumer awareness.</p>	<p>Contributes to economic sustainability, especially through introduction of innovative prevention technologies. Saves companies millions of dollars in reduced costs for pollution control and emergency response.</p> <p>The world market for environmental goods and services in 2004 was valued at US\$515 billion and is predicted to reach \$688 billion by 2010 (UK, 2004).</p> <p>Sector development requires technical capacity, hence the poorest developing countries are likely to be consumers. Industrializing developing nations are well positioned for competing in this sector.</p>
<p><b>10. Finance</b></p>	<p>Costing and budgeting for SMC within national budgets</p> <p>Financial losses from unsound management of chemicals</p>	<p>Support for SMC includes adequate financing and costing of SMC needs, including as applicable to staffing (e.g., staff dedicated to chemicals management within ministries and budget for planning and activities).</p> <p>Financial losses from unsound management of chemicals (e.g., to health, including lowered worker productivity; remediation costs, loss of land for productive uses).</p> <p>Older, more polluting technologies are also less efficient, have higher energy and water consumption costs).</p> <p>Farmers who implement SMC typically use fewer agrochemicals than those who do not, hence have lower capital expenditures</p>

Source: Resource Futures International, 2006