

GEF Guidance on Emerging Chemicals Management Issues in Developing Countries and Countries with Economies in Transition



OVERVIEW

Scientific and Technical Advisory Panel

An independent group of scientists which advises the Global Environment Facility



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*A STAP Advisory document
June 2012*

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A STAP Advisory Document

Prepared on behalf of the Scientific and Technical Advisory Panel (STAP) of the Global Environment Facility (GEF) by Hindrik (Henk) Bouwman

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The detailed assessment of the individual annotated ECMI and the process of prioritization that forms the basis of this summary is available at <http://www.unep.org/stap>

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Disclaimer

This document attempts to define, identify, evaluate and prioritize emerging chemicals management issues (ECMI) for Developing Countries and Countries with Economies in Transition, as a first step in helping the GEF plan its allocation of resources to help anticipate, prevent, reduce and/or minimize adverse impacts of chemicals on human health and the environment. It is based on the 2011 survey results of members of the Society of Environmental Toxicology and Chemistry, and does not seek to suggest that the ranked chemicals priorities will remain static over time. Instead, it should be viewed as a current snapshot of expert opinion on the issue, with results having perhaps a five year life span of relevance. The views contained herein do not necessarily reflect the views of the Global Environment Facility, or its Scientific and Technical Advisory Panel.

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About STAP

The Scientific and Technical Advisory Panel comprises six expert advisers supported by a Secretariat, which are together responsible for connecting the Global Environment Facility to the most up to date, authoritative, and globally representative science.

<http://www.unep.org/stap>

Foreword

This report was predicated by GEF programmatic mandate on the promotion of sound chemicals management, as well as observations on the global chemicals landscape that alert us to the enormity of the challenge of sound chemical management.

The Chemicals Abstracts Service (CAS) (<http://www.cas.org/>) states that there are 60 million registered organic and inorganic substances in the world. Of that, only a fraction have been tested and inventoried by chemicals oversight bodies. For example, the USEPA maintains an inventory of approximately 84,000 commercially important chemicals; and of those, a smaller fraction still have been tested for their toxicity, including the vast majority of those categorized as “high volume”.

In the face of rapid globalization and demand for products, increased trade, expansion of manufacturing into Developing Countries and Countries with Economies in Transition (CEIT), new chemicals, uses, or products, along with an increased awareness of real or potential negative impacts of chemicals, the last two decades has also seen the rapid implementation of a number of regional and international agreements regarding chemicals management, which have focused concerns on the need for a globally effective and sustainable chemicals management process. One particular chemicals management response of note, is the Strategic Approach to International Chemicals Management (SAICM), which pays particular attention to chemicals, products, uses, releases, or wastes that are currently not under consideration or taken up by existing Multilateral Environmental Agreements (MEAs).

Apart from the potential of human health and environmental effects from chemicals, other aspects such as increased transboundary movement of chemicals through trade or environmental release have also come to the fore. As various MEAs waded in to manage and regulate some discreet categories of chemical, there are increased concerns and awareness about those that are not covered, or only partially covered or recognized by regulation. These are commonly and collectively termed Emerging Chemical Management Issues (ECMIs).

This document seeks to attempt definition of the ECMI, and to identify, evaluate and prioritize ECMIs in relation to the likely chemical management needs of Developing Countries and CEIT. In doing so, it is hoped that it will help with the allocation of additional resources and support from the GEF within its mandate to anticipate, prevent, reduce and/or minimize adverse impacts of chemicals on human health and the environment.



Thomas E. Lovejoy
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List of Abbreviations

ABNJ:	Areas beyond National Jurisdiction	OP:	Octylphenol
AFFF:	Aqueous film forming foam	OPEO:	Octylphenol ethoxylate
APEOs:	Alkylphenol ethoxylates	PAH:	Poly cyclic Aromatic Hydrocarbon
BAT:	Best available technologies	PBB:	Polybrominated biphenyl
BE:	Benzoylcegonina	PBDE:	Polybrominated diphenyl ether
BEP:	Best Environmental Practice	PBT:	Persistent Bio accumulative Toxic Chemical
BPA:	Bisphenol A	PC:	Polycarbonate
CDC:	Center for disease control, Atlanta, USA	PCB:	Polychlorinated biphenyl
CEIT:	Countries with economies in transition	PCDD/F:	Polychlorinated Dioxin/Furan
DC&CEIT:	Developing countries and Countries with economies in transition (In tables only)	PFC:	Perfluorinated compound
DDT:	Dichloro diphenyl thichloroethane	PFOS:	Perfluorooctane sulfonic acid
DEP:	Di ethyl phtalate	PFOA:	perfluorooctanoic acid
DHEP:	Diethylhexylphtalate	PIC:	Prior Informed Consent
DinBP:	Di n butyl phtalate	PNEC:	Predicted non effect concentration
DiNP:	Diisosonylphtalate	POP:	Persistent Organic Pollutant
DPSIR:	Driver- Pressure –State- Impact and Response	PPCP:	Pharmaceuticals and personal care product
DTIE:	United Nations Environment Programme Division of Technology, Industry and Economics	PVC:	polyvinylchloride
ECMIs:	Emerging Chemicals Management Issues	REACH:	Registration Evaluation and Authorisation of Chemicals
EDC:	Endocrine disrupting Chemical	SAICM:	Strategic approach to International Chemicals Management
EDDP:	Ethylidene- 1,5-dimethyl-3,3-diphenylpyrrolidine	SC:	Stockholm Convention
EU:	European Union	SCCPs:	Short Chain Chlorinated Paraffins
GEB:	Global Environmental Benefit	SETAC:	Society of Environmental Toxicology and Chemistry
GEF:	Global Environmental Fund	STAP:	Scientific and Technical Advisory Panel
HPLC MS:	High Performance Liquid Chromatography Mass spectrometry	STP:	Sewage treatment plant
IFCS:	International Forum on Chemical Safety	TBT:	Tributyltin
IMO:	International Maritime Organisation	TPhTAc:	Triphenolstannyl acetate
ISAO:	International Sea Affairs Organisation	UNECE:	United Nations Economic Commission for Europe
ITC:	US Interagency Testing Committee	UNEP:	United Nations Environment Programme
LCA:	Life Cycle Analysis	UNIDO:	United Nations Industrial Development Organization
LRT:	Long Range Transport	UNITAR:	United Nations Institute for Training and Research
MEA:	Multilateral Environmental Agreement	USEPA:	United States Environmental Protection Agency
NP:	Nonylphenol	WHO:	World Health Organization
NPEO:	Nonylphenol ethoxylate		
OECD:	Organisation for Economic Co-operation and Development		

Executive summary

The last two decades has seen the rapid implementation of a number of regional and international agreements regarding chemicals management. At the same time however, rapid globalization and demand for products, increased trade, expansion of manufacturing into Developing Countries and Countries with Economies in Transition (CEIT), new chemicals, uses, or products, coincided with an increased awareness of real or potential negative impacts of chemicals, and has focused concerns on the need for a globally effective and sustainable chemicals management process. The Strategic Approach to International Chemicals Management (SAICM) is the response to these concerns, especially regarding chemicals, products, uses, releases, or wastes that are currently not under consideration or taken up by existing Multilateral Environmental Agreements (MEAs). Recent scientific advances highlighted the potential of human health and environmental effects from chemicals. Other aspects such as increased transboundary movement of chemicals through trade or following release have also come to the fore. Some of these chemicals concerned are already regulated or recognized by existing MEAs or MEAs under negotiation. However, there are issues highlighted by recent and current research, as well as increased concerns and awareness that are not or only partially covered or recognized by regulation. These are commonly and collectively termed Emerging Chemical Management Issues (ECMIs). For this document, ECMI is defined as any potential or recognized human health and/or environmental effects concern associated with chemical(s) whose management is not or only partially addressed by existing MEAs. The term ECMI does not have any legal standing, recognition, or implication. Its use is entirely as collective shorthand.

The immediate goal of the GEF through its present chemicals program is *to promote the sound management of chemicals throughout their life-cycle in ways that lead to the minimization of significant adverse effects on human health and the global*

environment. This report will identify, evaluate and prioritize ECMIs in relation to the likely chemical management needs of Developing Countries and CEIT such that additional resources and support from GEF within its mandate will anticipate, prevent, reduce and/or minimize adverse impacts on human health and the environment.

Twenty-two ECMIs were identified and described using various criteria listed below. The ECMIs covered by this study were PAHs, Arsenic, Bisphenol A, Alkylphenols, Phthalates, Organotins, Heavy metals, Nanoparticles and nanomaterials, Lead in paints, Inorganic fertilizer, Cadmium in fertilizer, Pharmaceuticals and personal care products (PPCPs), Illicit drugs, Food additives, Endocrine disruption, Mixture effects, E-waste, Marine debris, Ammunition, conflict and the legacies of war, Mine waste and drainage, Sewage, and Open burning.

The ECMI Concern Criteria

- 1. Concern to Developing Countries and CEIT:** Most of the information regarding ECMIs comes from Developed Countries. Judgment was made, based on the insight and expert knowledge, at what level the specific issue is or might be a concern to Developing Countries and CEIT. Considerations here also included whether appropriate and effective regulatory mechanisms were present.
- 2. Geographical scale of impact:** ECMIs with clearly current isolated concerns scored 'Local'. This criterion is semi-independent of the transboundary criterion, as potentially, an ECMI shared by small states may cover only a small geographic region. Its impact might be significant even when geographically restricted, and the text should be consulted for clarification. Small Island states were not considered as 'small', as they often cover large territories.



- 3. Trans-boundary issues:** In line with the GEF mandate, ECMIIs that have clear or potential impact across at least one national border were included. Since there are regions with small states grouped together, very few concerns were eliminated on this criterion. However, some ECMIIs had no information on this issue, and were included based on potential cross-boundary concerns, but rated as unknown.
- 4. Impact on ecosystems:** This criterion included all concerns relating to the whole range of issues between genetic implications to ecosystem functioning. Consideration for scoring was much the same as for human health.
- 5. Impact on human health:** Impacts on humans other than health were not considered here. Human health was one of the major issues that became apparent when considering ECMIIs. Again, proven or potential impact was considered.
- 6. Climate change impacts:** The production, use, disposal, environmental and health impacts and related aspects may either have an effect on climate change, or be affected by climate change. For many of the ECMIIs, very little is known about this criterion.
- 7. Economic and social issues:** The production, use, effects and management of a particular ECMI may also affect economic and social issues, or be affected by it.
- 8. Intervention priority:** Based on a number of considerations including human health and environmental impacts, a judgment was made on the urgency for appropriate and effective intervention. ECMIIs that scored low in the previous criteria normally would score lower for this criterion as well. However, the score may need adjustment when new information becomes available.

The 22 ECMIIs were identified without attempting watertight separation between them. The overlaps and interactions between the ECMIIs were examined in order to identify where interventions on a specific ECMI would also address and potentially mitigate other ECMIIs. Co-benefits with multiple ECMIIs would therefore add to cost-effectiveness of interventions. The report also looked at crosscutting issues such as poverty, lack of effective regulation, climate change, and biodiversity.

Prioritization was done by the Society of Environmental Toxicology and Chemistry (SETAC), surveying their members from Developing Countries and CEIT. The impact of each ECMI on each of the concern criteria were surveyed, tabulated, and ranked per region and all regions combined. The following regions were chosen: Central and South America, Africa, Asia, Eastern Europe, and Oceania. Useful responses were received from 135 respondents. The accompanying table presents a summary of the rankings as Aggregate concern. The Aggregate concern was derived by ranking the responses of surveyed SETAC scientists from Developing Countries and CEIT, using questions based on specific ECMI criteria, all designed to elicit the perceived concern and impacts of each ECMI under review. All results should be interpreted with reference to the accompanying text in the main document.¹ The main report presents additional information (including an assessment of the interactions between the ECMIIs) and recommendations that will assist in interpreting the findings of this report.

¹ The main report is available online only at <http://www.unep.org/stap>.

Conclusions

Based on the analyses, the results of the survey, and comments from the respondents, the ECMI rankings are presented in summarized tabular form (See Table 1). Thereafter follows interpretation of the results, with highlights of general and specific observations gathered in the course of this study, ending finally with follow-on conclusions and recommendations.

General

- The world is experiencing an increasing complexity of chemical management issues.
- The scope and extent of some or most ECMI are increasing, resulting in more pressures on human health and the environment.
- Some of the ECMI under consideration (such as heavy metals and PAHs) have been recognized as important issues in the past, but their impacts are now either increasing and/or its threats are now better understood.
- Many of the ECMI represent a serious environmental and human health threat, especially in many of the Developing Countries and CEIT that lack effective regulation and/or enforcement.
- This report analyzed crosscutting issues and interactions between the ECMI. The interactions and crosscutting issues involved create complexities that make interventions to address an ECMI in isolation almost impossible.
- ECMI, if not addressed timely and adequately, will increasingly become a drag on social wellbeing and stability, environmental sustainability, and economic progress.
- A lack of regulation, capacity, and enforcement also allows deliberate disregard for the common good, and may result in the compromise of human health and environmental integrity.
- Some ECMI, such as Cadmium in fertilizers, Lead in paints, Illicit drugs, Food additives deliberately used for adulteration, and Ammunition and conflict, despite adequate evidence and well-known health and environmental hazards, are characterized by at least some deliberate disregard of the common good. The continued and regular disclosures of food and feed adulteration in Developed Countries, as well as in Developing Countries and CEIT, probably represents only a small proportion of actual cases.
- Interventions on specific issues in countries and regions on a specific ECMI may have unintended consequences elsewhere. For example, closing down (or regulating) illegal or harmful E-waste processing in one country or region may result in such processing moving somewhere else. E-waste and possibly other such ECMI, although a regional activity, should therefore be considered a global ECMI as the activities might shift elsewhere. The high Aggregate concern ranking of E-waste in Oceania might already be an indication of such shifts, but that needs further investigation.
- Geology-related ECMI (mining and fertilizers) have mainly local impacts but the products of these activities are shipped globally. Spreading the advantages of the products globally therefore qualifies localized ECMI impacts as global although the production impacts are localized. Corrective interventions on a localized level will therefore have global environmental benefits.
- Copying the regulations from Developed Countries by Developing Countries and CEIT by may be misdirected (perhaps even counter-productive), and may in some cases not be needed if a particular ECMI is not relevant or present.
- Most knowledge on ECMI is derived from Developed Country investigations, but lack accurate extrapolation power to Developing Countries and CEIT scenarios. However, even with this lack of local knowledge, it is obvious, based on knowledge from elsewhere, that intervention on certain ECMI is required, and that management options are available.
- Many ECMI are more common in (and sometimes almost exclusive to) Developing Countries and CEIT. Therefore, research and monitoring capacity that are specific to the needs of Developing Countries and CEIT is needed that are less reliant on Developed Country experiences and needs. Developed Country research is often geared towards their own priorities and situations, possibly skewing research collaboration, donor aid, and

diplomatic efforts towards ECMI that are shared rather than characteristic of Developing Countries and CEIT.

■ Interventions, mitigations, alternatives, and disposal options are often available, but may need local adaptation and/or proof of implementability.

Table 1: Regional and all-regional ECMI ranked on Aggregate concern

ECMI	Central & South America	Africa	Asia	Eastern Europe	Oceania	All regions - Oceania	All regions + Oceania
Heavy metals	1	1	1	1	3	1	1
PAHs	3	2	2	4	2	2	2
Mixture effects	2	7	6	2	15	3	4
Open burning	5	5	3	3	1	4	3
Endocrine disruption	4	12	4	7	12	5	6
Sewage	6	10	12	6	5	6	5
Inorganic fertilizer	8	9	13	5	7	7	7
Arsenic	10	11	5	10	9	8	9
E-waste	13	3	7	14	7	9	8
PPCPs*	7	8	15	11	14	10	11
Mine waste	11	14	11	8	10	11	10
Lead in paints	17	4	8	15	16	12	13
Illicit drugs	9	6	18	19	17	13	14
Cadmium in fertilizer	12	15	10	16	10	14	12
Food additives	15	13	14	13	21	15	16
Phthalates	16	17	16	9	20	16	17
Bisphenol A	19	20	9	20	18	17	19
Organotins	18	21	17	12	12	18	18
Marine debris	14	19	19	21	4	19	15
Alkylphenols	20	18	20	21	18	20	21
Ammunition/conflict	22	16	22	18	6	21	20
Nanoparticle/material	21	22	21	17	22	22	22

*Pharmaceuticals and personal care products

■ Some ECMI are partially addressed by some form of local, regional, or global intervention or instrument, indicating effective mitigation experience and some capacity to intervene.

■ Existing multilateral modes of intervention and assistance needs to be explored further

Specific

■ An assessment of interactions between ECMI (e.g. there is an interaction between PAHs and Mixture effects) showed that Mixture effects had the most interactions with other ECMI, followed by Endocrine disruption, Heavy metals, Marine debris, Sewage, and E-waste.²

■ In Developing Countries and CEIT, Heavy metals was the top priority of Aggregate concern, followed by PAHs, Mixture effects, Open burning, Endocrine disruption, Sewage, and Inorganic fertilizer.

■ The ECMI ranked lowest on Aggregate concern were Phthalates, BPA, Organotins, Marine debris, Alkylphenols, Ammunition and conflict, and Nanoparticles and nanomaterials.

² See Table 6.2 in the report for the full pattern of interactions (see online at <http://www.unep.org/stap>).

- In Central and South America, Heavy Metals was ranked highest on Aggregate concern, followed by Mixture effects, PAHs, Endocrine disruption, Open burning, and Sewage. Highest-ranked intervention priorities were Heavy metals, Mixture effects, Sewage, PAHs, and PPCPs.
- In Africa, Heavy metals and PAHs were highest ranked highest on Aggregate concern, followed by E-waste, Lead in paints, Open burning, and Illicit drugs. In terms of intervention priority, E-waste was ranked highest, followed by Heavy metals, Open burning, Illicit drugs, and Lead in paints, and Inorganic fertilizer.
- In Asia, Heavy metals was ranked the highest on Aggregate concern, followed by PAHs, Mixture effects, Open burning, and Endocrine disruption. As intervention priorities, Heavy metals and Open burning were ranked 1st and 2nd, followed by E-waste and Inorganic fertilizer. Arsenic and Mixture effects were jointly ranked 5th. Joint ranking of ECMLs may indicate the need for sub-regional prioritization. Arsenic for instance, may achieve a much higher ranking in some sub-regions.
- In Eastern Europe, Heavy metals topped the Aggregate concern list, followed by mixture effects, Open burning, PAHs, Inorganic fertilizer, and Sewage. Intervention priorities were slightly different from the other regions. Mine waste was top-ranked, followed by Sewage, and Inorganic fertilizer (jointly 2nd), Heavy metals and illicit drugs (jointly 4th), and PPCPs and Open burning (jointly 6th). Presuming that Eastern Europe is further along the developmental track, intervention priorities such as Sewage and Mine waste might increase in Intervention priority in other regions once their top priorities have been dealt with.
- Only four responses were received for Oceania. The results should therefore be treated with caution and the survey may need to be repeated. Highest-ranked aggregate priorities were Open burning, PAHs, Heavy metals, Marine debris, Sewage, and Ammunition and conflict. Intervention priority was highest for PAHs, PPCPs and Ammunition and conflict (jointly 1st), followed by Open burning, E-waste, Marine debris, and Mine waste (also jointly). Open burning and PAHs seems an obvious joint target for intervention.
- Open burning and PAHs are associated ECMLs with high intervention priorities and possibilities for mitigation by management. Some MEAS already address PAHs, but only on a regional scale.

Considerations

- Regional Aggregate concern rankings of ECMI were done according to eight different (but overlapping) ECMI concern criteria. It is to be expected that ECMI in different regions may have similar rankings but for different reasons or concerns. Interpretation and further actions need to take account of the differences in the reasons or concerns.
- Many of the ranked ECMI are interlinked. For example, a reduction in Open burning will also reduce PAHs, Heavy metals, Endocrine disruption, and Mixture effects. In turn, this will also reduce impacts on Human health, Ecosystems, Economic and social interactions, and Climate change interactions.
- The differences between Aggregate concern rankings and Intervention priorities (presented in the main report) indicate that some ECMI should be addressed over a longer term. However, addressing the higher intervention priority ECMI will also reduce the impacts of some of the higher-ranked Aggregate concern priorities due to interlinkages as represented in Table 6.2 of the main report (see <http://www.unep.org/stap/>).
- Lower-ranked ECMI may be a greater problem than represented here due to insufficient data and science.
- It should also be kept in mind that lower-ranked ECMI could be as big a problem in Developing Countries and CEIT as in Developed Countries, but that higher-ranked ECMI present an even larger challenge. Lower-ranked ECMI are therefore not necessarily less of a problem, but are overshadowed by others.
- Respondents consistently ranked the effects-based ECMI (Endocrine disruption and Mixture effects) very high on Aggregate concern. This represents a realization that humans, biota and ecosystems deal with a myriad of chemicals in different combinations (the 'chemical soup'), with multiple effects at sub-lethal levels.
- Many of the lower-ranked ECMI are also subsumed within higher Aggregate concerns ECMI criteria such as Endocrine disruption and Mixture effects. Addressing the higher-ranked ECMI will most likely address some of the lower ranked ECMI such as Bisphenol A, Phthalates, and Alkylphenols. Respondents signaled that a piece-meal approach would have lesser benefits than an integrated approach.
- Some ECMI were ranked higher on Aggregate concern, but lower on Intervention priority (Intervention priorities are presented in the main text). This dichotomy can be explained by considering that as countries are dealing with ECMI of immediate high-concern as part of their development trajectories, other ECMI will then attain higher priority. Phrased differently, while an ECMI such as plasticizers may have as great a concern and impact in Developing Countries and CEIT as in Developed Countries, there are even greater concerns about other ECMI such as PAHs and Heavy metals in Developing Countries and CEIT. While management interventions are adapted to address the highest concern ECMI, Developed Countries develop mitigation measures from which Developing Countries can subsequently learn from and adopt. How to balance competing concerns remains a challenge for the international community.

Recommendations

The interactive and complex nature of the 22 ECMI under consideration indicates that addressing these problems will be a challenge. The values represented by the economic, social, environmental, political, and health constituents need to be balanced in such a way that none are deprived, but all are strengthened. However, expectations may need to be compromised and re-aligned by the respective economic, social, environmental, political, and health custodians to prevent irreparable damage to the environmental matrix and its ability to support human life, dignity, and quality. That problems should be anticipated and prevented, rather than managed after the fact should eventually be the aim, but there are current pressing problems (the high-rank ECMI) to be addressed first. There is, however, good reason to use the current challenges as opportunities to get into place the people and systems that will eventually enable prevention and improvement. Within the context of the ECMI challenges and priorities identified, the following are proposed:

- Consideration should be given to Heavy metals, Open burning, and PAHs as high priority targets for concerted international intervention. This issue probably represents the largest unaddressed chemical threat currently experienced in Developing Countries and CEIT.
- Since PAHs are already addressed by at least one regional MEA (the United Nations Economic Commission for Europe's Convention on Long-range Transboundary Air Pollution (LRTAP)), consideration could be given to extending or replicating LRTAP, but also to reduce human exposure to PAHs from open fires used for cooking and heating in Developing Countries and CEIT.
- It seems prudent that urgent attention be given to mitigating Mixture effects and Endocrine disruption. Since Endocrine disruption can be seen as subsumed into Mixture effects, planning can be directed by combining these effects-based ECMI as a topic for international concerted intervention. Consideration should also be given to the interaction Table 6.2 (see long report at <http://www.unep.org/stap/>), as many of the lower-ranked ECMI would be involved in a higher level effects-based ECMI that combines Mixture effects and Endocrine disruption.
- A more detailed assessment of each of the highest-ranked Aggregate concern ECMI (Heavy metals, PAHs, Mixture effects, Open burning, Endocrine disruption, Sewage, Inorganic fertilizer, Arsenic, E-waste, and PPCPs) should be conducted on a global and regional basis to better investigate *inter alia* the conditions, intervention options, interactions with other ECMI, global environmental and health benefits, and management options. This will serve as ECMI-specific frameworks for detailed intervention planning. Greater specific input should be sought from role players other than scientists, such as policy makers, industry representatives, civil society, gender involvement (a GEF priority), and NGOs. Institutions such as UNEP and SAICM are already working on guidance for ECMI such as Endocrine disruption, some of the heavy metals, and E-waste. GEF/STAP has also produced guidance on Marine debris relevant to Developing Countries and CEIT.
- Serious and immediate attention should be given to implementing or strengthening regional and continental research and monitoring programs (such as GAPs and MONET), for ECMI not currently covered by sometimes narrowly-mandated MEAs. Based on identified priorities, country-specific and regional research capacity must be enhanced to tackle identified priority ECMI, but also taking note of the interactions indicated in Table 6.2 (see long report at <http://www.unep.org/stap/>).

- An ECMI observatory mechanism (similar to the European Risk Observatory) could be established that will assist in the timely translation of new scientific knowledge and new ECMIIs (such as ECMIIs on the horizon) into how they might affect Developing Countries and CEIT. Such an observation mechanism would be able to advise Developing Countries and CEIT, IGOs, and funding agencies on where research may be directed, and how this may be accomplished. Currently, many MEAs support fractionated investigations based on narrow mandates without the option of investigating emerging issues before a ponderous process of negotiations has been completed. This situation hampers the ability of Developing Countries and CEIT to eventually taking over more responsibility to address ECMIIs and other environmental issues.
- This assessment only ranked the ECMIIs, but did not attempt to quantify the issues on the ground. A better understanding of the amounts, activities, emission rates, sensitive communities, transboundary issues, areas to be rehabilitated, and other criteria need to be understood. Such a quantification exercise should incorporate all other major chemicals management issues such as POPs and mercury for which there are already adequate data.
- Consideration should also be given on how to interface the results from this assessment with other chemicals-focused assessments by institutions such as UNEP. UNEP, for instance, conducts the Chemicals outlook.
- An ECMI survey could be conducted every five years to track impact of interventions and to determine any changes in priorities, with a greater effort to collect regional specific information.

Specific Guidance to the GEF

Because this assessment looked at Emerging Chemicals Management Issues, it was deliberately undertaken without direct reference to current GEF activities to encompass the entire scope of the chemical problems faced by Developing Countries and CEIT. This assessment deliberately excluded all issues already dealt with by existing MEAs, or MEAs under development to allow the identification of emerging (or perhaps long-neglected) needs in addition to those already addressed by MEAs and currently serviced by The GEF. STAP is in a good position to conduct such high-level guidance as its mandate from The GEF Council is focused on Developing Countries and CEIT considering transboundary issues and Global Environmental Benefits.

With this ECMI assessment, STAP has identified specific Emerging Chemical Management Issues that, when addressed, will enhance the environmental protection and provide global benefits to societies, regions, and ecosystems. From this assessment, it is obvious that Heavy metals, PAHs, and Open burning would be prime and immediate intervention candidates that could be added to the current concerns addressed by the Chemicals Portfolio of the GEF.

The GEF does not operate in isolation. In partnership with the GEF Agencies within their respective mandates, through the GEF Chemicals Task Force, it is proposed that urgent attention be given to investigate how this assessment could inform

the next replenishment. The GEF is an evolving organization that is responsive to the needs of its clients and donors, and associated MEAs. With a refined chemicals focus, the GEF will remain the prime funding organization for Developing Countries and CEIT. With this in mind, the following is proposed to GEF Council:

- This assessment is proposed to help inform GEF Council for the next replenishment of the GEF.
- To consider initiating the development (where appropriate in partnership with other Agencies) of specific intervention guidance on:
 - Heavy metals
 - PAHs and Open burning
 - Mixture effects (incorporating Endocrine disruption)
 - Inorganic fertilizers
 - Sewage
 - Arsenic
 - E-waste
- To consider developing guidance on how the chemicals management issues (current and new) can interface with the other Focal Areas of the GEF, as well as with agendas such as urbanization and human health that are currently not a focus within the GEF. The Marine Debris guidance is an example where the GEF focal areas of Chemicals, International Waters, and Biodiversity interfaced while also considering health and urbanization.

References

The detailed assessment of the individual annotated ECMI and the process of prioritization that forms the basis of this summary is available at <http://www.unep.org/stap>

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