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**Implementation of the Strategic Approach to
International Chemicals Management:
emerging policy issues**

**Progress report on hazardous substances within the life cycle of
electrical and electronic products**

Note by the secretariat

The secretariat transmits herewith a progress report on hazardous substances within the life cycle of electrical and electronic products, submitted by the United Nations Industrial Development Organization and the secretariats of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal and the Stockholm Convention on Persistent Organic Pollutants.

* SAICM/ICCM.3/1.

Progress report on hazardous substances within the life cycle of electrical and electronic products

I. Background

1. An international workshop on hazardous substances within the life cycle of electrical and electronic products was convened pursuant to the resolution II/4 D, adopted by the International Conference on Chemicals Management at its second session. That resolution reads as follows:

The Conference,

1. *Invites* the participating organizations of the Inter-Organization Programme for the Sound Management of Chemicals and the secretariats of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal and the Stockholm Convention on Persistent Organic Pollutants to develop, plan and convene, within available resources, a workshop to consider issues in relation to electrical and electronic products, based on a life-cycle approach. The workshop would seek to identify and assess where issues relating to the sound management of chemicals arise during the lifespan of electrical and electronic products, including the design of such products, green chemistry, recycling and disposal, in particular in the context of the requirements of the Basel and Stockholm conventions, and would develop a series of options and recommendations for future work, through existing mechanisms to the extent possible, which would be provided at the intersessional meeting and to the International Conference on Chemicals Management at its third session for its consideration and possible cooperative actions;

2. *Suggests* that the workshop be held in the margins of the meeting of the Open-ended Working Group meeting of the Basel Convention scheduled for May 2010 and that the workshop organizers engage with all relevant stakeholders including Governments, intergovernmental organizations, the industry sector and non-governmental organizations in both the preparation and delivery of the workshop;

3. *Requests* Governments, intergovernmental organizations, the industry sector and non-governmental organizations to provide expertise and financial and in-kind resources on a voluntary basis to support the organization of the workshop referred to in paragraph 1.

II. Implementation

2. In accordance with resolution II/4 D, a workshop steering group was established in November 2009. It was chaired by Mr. Oladele Osibanjo of the Basel Convention Coordinating Centre in Nigeria, and consisted of representatives of the Secretariat of the Basel Convention, which provided the secretariat services for the workshop; the Secretariat of the Stockholm Convention; the United Nations Industrial Development Organization (UNIDO), on behalf of the participating organizations of the Inter-Organization Programme for the Sound Management of Chemicals; the International POPs Elimination Network; the Waste Environment Cooperation Centre, Peru; the United States Environmental Protection Agency; the Basel Action Network; the secretariat of the Strategic Approach to International Chemicals Management; the United Nations Environment Programme (UNEP) Division of Technology, Industry and Economics; the United Nations University's Solving the E-waste Problem (StEP) initiative; and the Swiss Federal Laboratories for Materials Testing and Research.

3. The workshop steering group discussed and developed through teleconferences the objectives of the workshop and its expected outputs and provisional agenda. It also identified participants, speakers, the venue and logistical and financial needs, among other things. Unfortunately, however, the lack of timely financial support prevented the workshop from being held in May 2010 in the margins of the seventh session of the Basel Convention Open-ended Working Group, as suggested in resolution II/4 D.

4. The workshop was eventually convened through the fund-raising efforts of the Secretariat of the Basel Convention and financial support provided by the ministries of environment of Japan and Sweden and the United States Environmental Protection Agency. UNIDO provided funds to cover logistical costs to host the workshop at its headquarters in Vienna from 29 to 31 March 2011. A total of 90 participants, including representatives of Governments, industry, civil society, intergovernmental organizations and universities, attended the workshop.

5. The workshop took the form of a mix of plenary and working group meetings. The working groups were established following seven general presentations on chemicals issues arising at various points in the life cycles of electrical and electronic products. The working groups were entrusted with developing ideas, solutions, options or recommendations on how best to respond to such issues, including gaps and the potential for synergies. Each working group addressed a different point in the life-cycles of electrical and electronic products: group 1 (co-chaired by Mr. Ab Stevels and Ms. Maria Delvin) dealt with upstream issues, group 2 (co-chaired by Mr. David Kapindula and Mr. Ted Smith) dealt with midstream issues, and group 3 (co-chaired by Mr. Pierre Portas and Mr. O. O. Dada) dealt with downstream issues.

6. The workshop was conducted as a paperless meeting and the presentations made available on the UNIDO website. The report of the workshop is available as document SAICM/RM/LAC.3/INF/12.¹

III. Recommendations from the workshop

7. On the basis of discussions in the three working groups, the participants agreed on the following key messages:

- (a) Preventing harm to human health and the environment from hazardous substances in the life cycle of electrical and electronic products is essential;
- (b) The life-cycle approach in the sound management of chemicals found in electrical and electronic products is of key importance;
- (c) The expected growth in the electrical and electronic sector and the need for its long-term sustainability will require making parallel and proportional improvements in environmental, health and safety, and social justice attributes;
- (d) Solutions are most efficiently and effectively accomplished upstream and addressing problems upstream can significantly and positively impact other parts of the life cycle;
- (e) An increased pace to implement green design and the phase-out of hazardous substances contained in electrical and electronic products is required;
- (f) The improvement of transparency with respect to information on hazardous substances used in electrical and electronic products for all stakeholders involved in the life cycle, including consumers, workers, and in communities around manufacturing and disposal sites, is necessary;
- (g) It is important to equally protect consumer, worker and community health throughout the life cycle of electrical and electronic products;
- (h) The urgent need to reverse the disproportionate burdening faced by developing countries during the more damaging phases of the life cycle of electrical and electronic products, including manufacture, trade, waste handling and management, is recognized;
- (i) The export of hazardous electrical and electronic wastes from developed to developing countries and countries with economies in transition lacking adequate facilities needs to be prevented; and export and import of near-end-of-life electrical and electronic products should be controlled;
- (j) The development and implementation of effective policy and regulatory frameworks and techniques for the safe and environmentally sound management of electrical and electronic waste, and for the remediation of contaminated sites, should be encouraged;
- (k) The development and implementation of best practices and capacity for safe and environmentally sound recycling, including those fractions that are currently not recycled or for which capacity is inadequate, is needed;
- (l) The different needs of certain regions, e.g., small island developing States, should be taken into account;
- (m) Countries should ratify the Stockholm Convention, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Basel Convention, the Basel Ban Amendment, International Labour Organization conventions and other relevant instruments and transpose these into national laws and implement them.

¹ Available from www.saicm.org and www.basel.int/techmatters/wrks-eew-unido/FinalReport-25-05-2011.doc.

8. The main recommendations of the workshop participants are summarized below.

A. Upstream recommendations

9. The participants recommended that the Strategic Approach should play a coordinating role by making connections between organizations and other stakeholders to realize the recommendations above as they relate to the following subjects:

- (a) Best practices in managing chemical information flows;
- (b) Best practices in business organizational procedures;
- (c) Chemicals of concern;
- (d) Tools and best practices for hazardous chemicals reduction, elimination and substitution;
- (e) Policy instruments;
- (f) Challenges not addressed above;
- (g) Drivers for addressing hazardous substances in electrical and electronic products;
- (h) Stakeholders that should engage in upstream issues.

B. Midstream recommendations

10. The participants recommended that the Open-ended Working Group at its first meeting and the International Conference on Chemicals Management at its third session should focus on the following subjects:

- (a) Environmentally sound manufacturing and capacity-building;
- (b) Information on health and safety for humans and the environment for the substances used in manufacturing electronic and electrical products;
- (c) Exposure and monitoring;
- (d) Health surveillance and disease prevention;
- (e) Work environment.

C. Downstream recommendations

11. The participants recommended that the Open-ended Working Group at its first meeting and the International Conference on Chemicals Management at its third session should focus on the following subjects:

- (a) Integrated policies on the environmentally sound management of electrical and electronic wastes;
- (b) Legislation;
- (c) Enforcement of International Labour Organization conventions and multilateral environmental agreements;
- (d) Voluntary approaches and corporate social responsibility;
- (e) Information and awareness-raising;
- (f) Promotion of capacity-building;
- (g) International and regional cooperation;
- (h) Synergies among existing and future chemicals and wastes conventions and programmes;
- (i) Research and development;
- (j) Investment and fund-raising opportunities.

IV. Discussions at the first meeting of the Open-Ended Working Group

12. A draft resolution was prepared for consideration by the Open-ended Working Group of the International Conference on Chemicals Management at its first meeting, held in Belgrade from 15 to 18 November 2011 (see annex).

13. After considering the progress report and the draft resolution, the Working Group established a Committee of the Whole and gave it the task of, among other things, discussing the issue further. The Committee decided that the draft resolution should be shortened and that the replication of the work of other instruments, such as that carried out by the Secretariat of the Basel Convention, should be avoided. It agreed that interested representatives would revise the draft resolution to take account of the concerns expressed.

14. Subsequently, the Working Group adopted decision OEWG.1/3 C on hazardous substances within the life cycle of electrical and electronic products (see sect. IV), which forms part of an omnibus decision on emerging policy issues for the consideration of the Conference.

IV. Proposed action by the Conference

15. The International Conference on Chemicals Management may wish to consider, for possible adoption, the following draft resolution transmitted by the Open-ended Working Group of the Conference at its first meeting, taking into account, as appropriate, any additional matters arising from the international workshop on hazardous substances within the life cycle of electrical and electronic products and the draft resolution considered in preparation for the work of the Conference transmitted by UNIDO and the secretariats of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal and the Stockholm Convention on Persistent Organic Pollutants.

Decision OEWG.1/3 C

Hazardous substances within the life cycle of electrical and electronic products, as adopted by the Open-ended Working Group

The Conference,

Recalling its resolution II/4 D on hazardous substances within the life cycle of electrical and electronic products,

Recognizing that hazardous chemicals within the life cycle of electrical and electronic products, [if not managed in a precautionary, safe and environmentally sound manner,] can pose severe risks to the health of workers and communities and the environment where such products are made, recycled and disposed of,

Recognizing also that actions to tackle this issue can be taken at various points in the life cycle, whether upstream, midstream or downstream,

Recognizing further the work at subsequent regional meetings held under the auspices of the Strategic Approach to International Chemicals Management from 2009 to 2011,

Recognizing the synergistic role that the Stockholm Convention on Persistent Organic Pollutants and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal play when addressing hazardous substances within the life cycle of electrical and electronic products,

Recognizing also the efforts of industry and other stakeholders in addressing hazardous substances within the life cycle of electrical and electronic products,

Noting with appreciation the successful realization of the international workshop on hazardous substances in the life cycle of electrical and electronic products from 29 to 31 March 2011 in Vienna, as proposed in resolution II/4 D,

1. *Encourages* all stakeholders to consider the recommendations and key messages on hazardous substances within the life cycle of electrical and electronic products made by the participants at the above-mentioned workshop when deciding which further actions to take;

2. [Invites the Inter-Organization Programme for the Sound Management of Chemicals, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Stockholm Convention on Persistent Organic Pollutants, the World Customs Organization, Governments, the health sector, industry, civil society and other stakeholders to consider taking further action and the lead in the relevant activities;]

3. [Decides to continue to work to create an international set of best practice resources in this area,² drawing on existing initiatives, including:

(a) Tools that lead to progress in the development of designs that reduce and eliminate the use of hazardous chemicals in the production of electrical and electronic products;

(b) Business standards and practices for tracking and disclosing the presence of chemicals in the manufacturing, use and end-of-life stages of electrical and electronic products;

(c) Potential safer substitutes in electrical and electronic product applications, for chemicals of concern, [including chemicals that are persistent, bioaccumulative and toxic, carcinogens, mutagens, reproductive or developmental toxins, neurotoxins, neurodevelopmental toxins, respiratory toxins, immunotoxins, organ system toxins and endocrine-disrupting compounds];

(d) Green purchasing strategies used by businesses and Governments;

(e) Extended producer responsibility policies;

(f) Provisional strategies and actions that should be implemented until elimination is possible or substitutes are available;]

4. [Invites donors, including Governments and public and private organizations, to provide financial and in-kind resources for further work in this area.]

2 The identification, prioritization and completeness of the work area listed in subparagraphs (a)–(f) should be further considered by the Conference at its third session, taking into account the recommendations for upstream, midstream and downstream action and the key messages of the workshop referred to in the preambular part of the present resolution, in addition to other existing efforts, including industry and multilateral stakeholder initiatives and relevant international standards.

Annex

Extract from the progress report on hazardous substances within the life cycle of electrical and electronic products (SAICM/OEWG.1/11)

The Open-ended Working Group may wish to consider recommending that the International Conference on Chemicals Management may wish to adopt a decision along the following lines:

The International Conference on Chemicals Management,

Aware that the manufacture of electrical and electronic products has increased dramatically in recent years,

Recognizing that the manufacture of electrical and electronic products relies on and uses thousands of chemicals and other materials, many of which are hazardous,

Recognizing also that electronic equipment contains valuable materials such as precious metals that should be recycled in an environmentally sound manner, thereby contributing to job creation and economic activity,

Recognizing further the need for transparency with regard to information on hazardous substances throughout their life cycles, in particular for substances contained in electrical and electronic products, in the workplace and in communities in the vicinity of extraction, production and disposal sites,

Aware that the manufacture and disposal of electronic products can pose severe risks to the health of workers and communities and the environment where such products are made and disposed of,

Recalling the need to protect the health of workers and communities throughout the life cycle of electrical and electronic products from the point of extraction up to and including materials processing, component manufacture, assembly, recycling and disposal,

Aware that there is a lack of capacity to address properly and provide adequate protection from the hazards of electronics production in an environmentally sound manner in many countries, leading to exposure to hazardous substances and harm to human health and the environment,

Recognizing the pressing need to continue to develop clean technology,

Recalling that it is important to consider product stewardship and extended producer responsibility in the life-cycle management of electronic and electrical products,

Recognizing the provisions pertaining to workers in the Universal Declaration of Human Rights¹ and the International Labour Organization Declaration on Fundamental Principles and Rights at Work and its Follow-up,

Recognizing also the United Nations Environment Programme guidelines for the development of domestic legislation on liability, response action and compensation for damage caused by activities dangerous to the environment, including any adverse or negative effect or impact on human health,²

Recognizing further the work of the International Conference on Chemicals Management at its second session and subsequent regional meetings held under the auspices of the Strategic Approach to International Chemicals Management from 2009 to 2011,

Noting with appreciation the successful organization of the international workshop on hazardous substances in the life cycle of electrical and electronic products from 29 to 31 March 2011 in Vienna,

Welcoming the key messages from that workshop and the recommendations on upstream, midstream and downstream issues emanating therefrom,³

1 General Assembly resolution 217 A (III) of 10 December 1948.

2 Decision SS.XI/5 B of the Governing Council of the United Nations Environment Programme, annex.

3 SAICM/OEWG.1/11.

1. *Recommends* that a new work area and associated activities pertaining to hazardous substances in the life cycle of electrical and electronic products be included in the Global Plan of Action of the Strategic Approach, taking into account the recommendations made at the Vienna workshop and the resolutions of regional meetings under the Strategic Approach;

2. *Also recommends* that work continue to create an international set of best practice resources in this area, including:

(a) Tools that lead to progress in the development of designs that reduce and eliminate the use of hazardous chemicals in electrical and electronic products;

(b) Business standards and practices for tracking and disclosing the presence of chemicals in the manufacturing, use and end-of-life stages of electrical and electronic products;

(c) Potential safer substitutes in electrical and electronic product applications, for chemicals of concern, including chemicals that are persistent, bioaccumulative and toxic, carcinogens, mutagens, reproductive or developmental toxins, neurotoxins, neurodevelopmental toxins, respiratory toxins, immunotoxins, organ system toxins and endocrine-disrupting compounds;

(d) Green purchasing strategies used by businesses and Governments;

(e) Extended producer responsibility policies;

(f) Strategies and actions that should be implemented when elimination is not possible or substitutes are unavailable;

3. *Recommends* that the private sector take action to deal with hazardous chemicals in the life cycle of electrical and electronic equipment, taking into account the recommendations made at the Vienna workshop and the resolutions of regional meetings under the Strategic Approach, including:

(a) Prioritizing the prevention of pollution in policies and practices and using cleaner production techniques, minimizing waste and employing safer substitutes that reduce the potential for harm to human health and the environment;

(b) Accelerating the implementation of green criteria in the design of electrical and electronic equipment, including greater durability and decreased obsolescence, and taking into account potentially enhanced exposures and the vulnerabilities of workers, children, women and other vulnerable populations;

(c) Creating an inventory of materials and substances used in products, production and processes and disclosing understandable information about hazardous chemicals and materials across the supply chain;

(d) Ensuring that workers' exposure to chemical substances is eliminated or minimized;

(e) Developing lists of hazardous chemicals and materials to be phased out from production and products as a matter of priority, using lists from Governments and non-governmental organizations, global agreements, regional regulations and scientific statements of concern such as the San Antonio Statement on Brominated and Chlorinated Flame Retardants;

(f) Including in phase-out lists hazardous materials and substances of concern that are, or contribute to the formation of, substances that are persistent, bioaccumulative and toxic, carcinogens, mutagens, reproductive or developmental toxins, neurotoxins, neurodevelopmental toxins, respiratory toxins, immunotoxins, organ system toxins or endocrine-disrupting compounds;

(g) Ensuring that contractors and subcontractors, as a condition for the transfer of technologies to them, have the capacity to protect workers and nearby communities against the potential risks posed by those technologies;

(h) Developing and implementing extended producer responsibility schemes, including free take-back programmes for electronic products;

(i) Preventing the transfer of technologies or products that are prohibited, cause severe environmental degradation or are found to be harmful to human health;

- (j) Providing workers, free of charge, understandable, health and safety information sufficient to enable them to protect their safety and health;
- (k) Conducting and providing worker access to comprehensive industrial hygiene and environmental monitoring to measure the release of and exposure to hazardous materials used in manufacturing and production;
4. *Encourages* Governments to take action to deal with hazardous chemicals in the life cycle of electrical and electronic products, taking into account the recommendations made at the Vienna workshop and resolutions of regional meetings under the Strategic Approach, including:
- (a) Developing procurement processes that give preference to electrical and electronic products that contain no hazardous substances or materials of concern;
- (b) Formulating and implementing laws on pollutant release and transfer registries;
- (c) Ensuring that environmentally unsound technologies and products that are prohibited, cause severe environmental degradation or are harmful to human health are not transferred to other countries;
- (d) Developing and implementing laws on extended producer responsibility that provide a competitive advantage for manufacturers that design products to minimize end-of-life costs and harm;
- (e) Developing and implementing policies requiring those who propose exemptions for the use of some substances or materials in electrical and electronic equipment:
- (i) To supply information indicating why the exemption is technically or scientifically necessary;
 - (ii) To describe why potential alternatives are not technically or scientifically viable;
 - (iii) To provide a description of potential alternative processes, product materials or systems that eliminate the need for the substance;
 - (iv) To reference all data sources used to determine that alternatives are unavailable;
- (f) Developing and implementing policy frameworks for classifying near-end-of-life or substandard electrical or electronic products as hazardous wastes, preventing their export and controlling their import;
- (g) Developing and implementing laws that limit imports of donated electronic products to products that are labelled to show that they have been tested and are fully functional and that provide for the end-of-life collection and environmentally sound management of those products;
- (h) Developing and implementing policy frameworks to prevent the further contamination of land, air and water by electronic waste recycling and disposal sites as a result of environmentally unsound practices including open dumping, burning and crude chemical processing of electronic wastes;
- (i) Identifying and characterizing sites contaminated by dumping and recycling of electronic wastes to help prioritize sites for clean-up and remediation;
- (j) Developing legislative and voluntary efforts to inform, educate and protect waste handlers and small-scale recyclers from the hazards of handling and recycling electronic wastes;
- (k) Developing and implementing capacity-building projects, including in the informal sector in developing countries and countries with economies in transition, for the collection and environmentally sound management of domestic sources of electronic wastes;
- (l) Developing and implementing policies promoting the internalization of costs by producers throughout the life cycle of electrical and electronic products;
- (m) Promoting the active and meaningful participation of all stakeholders in the sound management of chemicals and wastes in the life cycle of electrical and electronic products;

(n) Developing, implementing and rigorously enforcing laws to control or prohibit the transboundary movement of electronic wastes from developed countries to developing countries and countries with economies in transition lacking environmentally sound facilities to deal with such wastes;

(o) Developing, implementing and rigorously enforcing laws to prohibit the use of prison or child labour in the manufacturing or recycling of electrical and electronic products;

(p) Ratifying and implementing the Stockholm Convention on Persistent Organic Pollutants, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Ban Amendment to the Basel Convention, the International Labour Organization conventions, including the Occupational Safety and Health Convention, 1981 (No. 155), and other relevant instruments;

5. *Encourages* the health sector, including ministries of health, to participate actively in actions related to the electronics sector, taking into account the recommendations made at the Vienna workshop and resolutions of regional meetings under the Strategic Approach, including by:

(a) Participating in monitoring workers' health, where a worker's occupation may so require;

(b) Formulating and implementing health-based exposure limits for workers that provide equal protection for workers and community residents;

(c) Assisting in the design and implementation of monitoring protocols that include the extent and duration of each person's exposure;

(d) Tracking diseases associated with substances used in the electronics industry;

(e) Cooperating with government ministries, trade unions and manufacturers to provide training to workers, community representatives and first responders to provide early warning about the inherent hazards of the substances and materials being used, detailed information about best practices for protection from, and reduction of exposure to, those hazards, how to recognize early signs of adverse health impacts, and prevention of exposure;

6. *Invites* the International Labour Organization to collaborate with Governments, trade unions and manufacturers to collect and report information on workers' health in the electronics industry;

7. *Invites* the International Labour Organization and the World Health Organization to step up their collaboration with ministries of health and labour in identifying, examining, and reporting patterns of disease associated with work in the electrical and electronics industry and the handling of electronic wastes;

8. *Invites* the International Labour Organization, the World Health Organization and Governments to provide financial and technical resources for occupational health training of health-care providers, better recognition and treatment of diseases associated with the electronics industry, tracking of diseases associated with substances used in the electronics industry and free health-care treatment and compensation for workers affected by those diseases;

9. *Invites* the World Customs Organization to develop specific codes in the Harmonized Commodity Description and Coding System for end-of-life electrical and electronic products and electronic waste fractions to assist countries to improve their tracking of global flows;

10. *Invites* donors, including Governments and public and private organizations, to provide financial and in-kind resources for:

(a) Clean-up of sites contaminated by electronic waste;

(b) Capacity-building to promote the safety of workers in relevant sectors through training workshops, using technical guidelines already developed under the auspices of the Basel Convention (such as under the Partnership for Action on Computing Equipment) and others, on repair and refurbishment, dismantling and disassembling, materials recovery and recycling of electrical and electronic products, including the identification of hazardous and toxic components in electrical and electronic equipment and of components that can be recycled;

(c) Research to explore best practices for safe recycling, including of those fractions that are currently not recycled or for which capacity is disappearing;

(d) Capacity-building for Customs authorities, port authorities, environmental protection regulatory organizations and agencies and environmental police to improve enforcement of laws against illegal trade in hazardous electronic wastes, including fraudulent mischaracterization of wastes;

(e) Assistance in meeting the special needs of small island developing States;

11. *Recommends* that:

(a) The outcome of the Vienna workshop be considered by the United Nations Environment Programme as a contribution to its Global Partnership on Waste Management initiative;

(b) Industry partnership initiatives on electrical and electronic wastes consider the recommendations made at the Vienna workshop;

(c) Participating organizations of the Inter-Organization Programme for the Sound Management of Chemicals, together with the secretariats of the Basel, Rotterdam and Stockholm conventions and the Basel and Stockholm convention regional and coordinating centres, explore the possibility of developing pilot projects on the minimization of risks from hazardous substances in waste electronic and electrical equipment.
