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**International Conference on Chemicals Management**

**Fourth session**

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Item 5 (b) (iii) d of the provisional agenda\*

**Implementation towards the achievement of the 2020 goal  
of sound chemicals management: emerging policy issues  
and other issues of concern: existing emerging policy issues:  
nanotechnologies and manufactured nanomaterials**

**Emerging policy issue update on nanotechnologies and  
manufactured nanomaterials**

**Note by the secretariat**

The secretariat has the honour to circulate a report on nanotechnologies and manufactured nanomaterials prepared by the United Nations Institute for Training and Research and the Organisation for Economic Cooperation and Development (see annex). The report summarizes the work carried out in this area since the third session of the Conference to support the achievement of the 2020 goal and proposes a workplan for the 2016–2020 period.

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\* SAICM//ICCM.4/1.

## Annex

# Progress report on nanotechnologies and manufactured nanomaterials

## I. Background and Introduction

1. Nanotechnology is the set of technologies that enables the manipulation, study or exploitation of very small structures and systems that deals with the research, the production and the application of these structures and systems, which display novel properties of chemicals.
2. Nanotechnology is a relatively new area for the sound management of chemicals. It is also a rapidly developing field, with new applications and uses of nanotechnology being identified on a regular basis in many countries around the world. Many new products are coming onto the marketplace as the result of the manufacturing of novel, nano-containing products. With the introduction of such new products and manufacturing processes, and taking into account the sometimes unique physical properties of chemicals as they interact in their nano form, a new area of sound management of chemicals is emerging. Regulators and others who are responsible for nano issues are attempting to ensure that the environment and human health are protected from the potential negative effects of nano products and production processes. While nanotechnology creates an array of economic and social benefits, potential risks to human health and the environment are, to-date, not fully known.
3. The sixth session of the International Forum on Chemical Safety (IFCS, Forum VI) adopted the Dakar Statement on Manufactured Nanomaterials, which was the first global initiative on nano safety<sup>1</sup>, which recognized the potential benefits, new opportunities, challenges, hazards, risks, ethical and social issues of manufactured nanomaterials and nanotechnologies and acknowledged the need to raise awareness of these issues.
4. The World Health Assembly identified the assessment of health impacts of new technologies, work processes and products as one of the activities under the Global Plan of Action on Workers Health, adopted in 2007, and the WHO Global Network of Collaborating Centres in Occupational Health has selected manufactured nanoparticles as a key focus of their activity.

## II. History of nanotechnology in the SAICM process<sup>2</sup>

5. To address the acknowledged, global challenges, nano has been included as an emerging policy issue under the Strategic Approach to International Chemicals Management (SAICM).
6. Resolution II/4 E of the second session of the International Conference on Chemicals Management (ICCM2, 2009) recognised that there are potential benefits and potential risks to human health and the environment associated with nanotechnologies and manufactured nanomaterials.
7. ICCM3, in 2012, highlighted the importance of global collaboration in the areas of nanosafety, risk management and public awareness, including workshops on nanosafety and risk management, nano standardization and regulations, and nanosafety guidelines for factory workers, laboratory personnel and consumers, in line with international best practices. ICCM3 adopted the Resolution III/2E, set out in the appendix to this document.
8. The third session of the International Conference also agreed to endorse the addition to the Global Plan of Action of 13 new activities in respect of nanotechnologies and manufactured nanomaterials. These activities are set out in section III.
9. During the second meeting of the Open-ended Working Group (OEWG2), a contact group agreed on elements of a draft resolution on nanotechnologies and manufactured nanomaterials for consideration by the Conference (see SAICM/ICCM.4/12).

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<sup>1</sup> Intergovernmental Forum on Chemical Safety, Final Report, Executive Summary, of Forum VI, Dakar, Senegal (10 October 2008), accessible at: [http://www.who.int/ifcs/documents/forums/forum6/f6\\_execsumm\\_en.pdf](http://www.who.int/ifcs/documents/forums/forum6/f6_execsumm_en.pdf)

<sup>2</sup> See also GEORG KARLAGANIS / RACHEL LIECHTI, The Regulatory Framework for Nanomaterials at a Global Level: SAICM and WTO Insights, in: Review of European, Comparative and International Environmental Law (RECIEL) July 2013, 163 ff. accessible at: <http://onlinelibrary.wiley.com/doi/10.1111/reel.12031/full>

### III. Project activities and outcomes in relation to the GPA<sup>3</sup>

APPROVED GPA ACTIVITY AREAS	Related ICCM3 resolution text	PROJECT ACTIVITIES AND OUTCOMES
<p>1. Contribute to the development, promotion and adoption of internationally recognized technical guidelines and harmonized standards relating to manufactured nanomaterials.</p>	<p>Recommends the development of international technical and regulatory guidance and training materials for the sound management of manufactured nanomaterials</p> <p>Invites relevant international organizations to continue to support efforts to facilitate capacity-building information exchange, develop guidance and training materials and support public dialogue regarding nanotechnologies and manufactured nanomaterials</p>	<p>In March 2013, the OECD concluded the Sponsorship Programme for the Safety of Manufactured Nanomaterials. The Programme aimed to assess the applicability of existing methodologies for assessing the toxicity of manufactured nanomaterials, with 11 types of nanomaterials tested. The dossiers of the nanomaterials tested are available to the public. Work continues at OECD to ensure existing test guidelines are adequate to address nanomaterials or, if needed, to develop new or adapted nano-specific test guidelines.</p> <p>OECD has been looking at risk assessment and existing regulatory programmes with the aim to: 1) identify regulatory needs for the risk assessment and risk management of manufactured nanomaterials; and 2) develop risk assessment approaches to strengthen and enhance regulatory risk assessment capacity.</p> <p>To support country-driven processes on nano, UNITAR has developed a guidance document entitled “Developing a National Nanotechnology Policy and Programme”, available in English, Russian and Spanish.</p> <p>In 2013, FAO and WHO released a technical paper entitled: “State of the art on the initiatives and activities relevant to risk assessment and risk management of nanotechnologies in the food and agriculture sectors”.</p> <p>The International Organization for Standardization (ISO), consistent with the Dakar Statement on Manufactured Nanomaterials, has undertaken significant work in the area of nanotechnologies, publishing standards that include: “Methodology for the classification and categorization of nanomaterials” (Technical report); “Health and safety practices in occupational settings relevant to nanotechnologies” (Technical Report); “Guidance on voluntary labelling for consumer products containing manufactured nano-objects” (Technical Specification). As per ISO working practices, all such standards will be reviewed after five years, if not before.</p> <p>UNITAR and OECD follow the work of the United Nations Economic Commission for Europe’s sub-committee on Globally Harmonized System (GHS) of Classification and Labelling. The sub-committee has begun a “Review of applicability of GHS to nanomaterials,” with an informal correspondence group collecting data from nanomaterials and performing a classification exercise.</p> <p>The sub-committee met in June/ July 2015, noting that France had initiated a classification exercise of some selected manufactured nanomaterials at national level with a possible proposal of a harmonised classification at EU level for one of</p>

<sup>3</sup>For further information on activities prior to December 2014 under this emerging policy issue, please consult information document SAICM/OEWG.2/INF/10 at [http://www.saicm.org/index.php?option=com\\_content&view=article&id=509:meeting-documents-2nd-meeting-of-the-open-ended-working-group-geneva-15-17-december-2014&catid=92:oewg](http://www.saicm.org/index.php?option=com_content&view=article&id=509:meeting-documents-2nd-meeting-of-the-open-ended-working-group-geneva-15-17-december-2014&catid=92:oewg)

APPROVED GPA ACTIVITY AREAS	Related ICCM3 resolution text	PROJECT ACTIVITIES AND OUTCOMES
		<p>them. Furthermore, they also noted the update provided by Finland on the classification for environmental hazards made by the correspondence group. The expert from France informed the sub-committee that he intended to organize a teleconference for the correspondence group on nanomaterials by the end of September or in October 2015.</p>
<p>2. Develop approaches to protect workers, the public and the environment from potential harm related to manufactured nanomaterials.</p> <p>3. Increase the active involvement of the health sector in order to enhance understanding of possible short-term to long-term occupational health impacts of manufactured nanomaterials.</p> <p>4. Increase understanding of the environmental, public and occupational health and safety implications, including risk assessment, of manufactured nanomaterials through coordination, support and/or funding for scientifically sound research.</p>		<p>WHO has started a process to develop Guidelines on "Protecting Workers from Potential Risks of Manufactured Nanomaterials". The chair of the WHO group developing these guidelines provides services to UNITAR as a senior expert and will attend all three nanosafety workshops organised by UNITAR and OECD.</p> <p>Three regional workshops in 2015 on nanosafety shared experiences of researchers in the field of nano, to increase understanding among regional counterparts.</p> <p>Work on exposure measurement and exposure mitigation continues to be a strong area for OECD work, in which delegations exchange information on (or develop) guidance for exposure measurement and mitigation. The following areas are currently being completed: 1) Exposure assessment: Case studies on nano-silver and nano-gold; 2) Assessment of biodurability of nanomaterials and their surface ligands; 3) Harmonised tiered approach to measure and assess the airborne exposure to engineered nano-objects in the workplace; and 4) measurement of manufactured nanomaterials in air.</p>
<p>5. Enhance information and knowledge sharing on manufactured nanomaterials regarding international, national and regional policy and regulatory initiatives.</p> <p>6. Highlighting possible synergies with activities undertaken under activity 210 of the Global Plan of Action, explore the development of registers/inventories and/or market assessment activities relating to manufactured nanomaterials.</p>	<p>Encourages facilitating the exchange of information in order to improve transparency and allow better decision making processes</p> <p>Invites relevant international organizations to continue to support efforts to facilitate capacity-building information exchange, develop guidance and training materials and support public dialogue regarding nanotechnologies and manufactured nanomaterials</p>	<p>OECD publishes, every nine months, a document summarising national activities in OECD Member countries as well as in non-member economies participating in the work. This document also includes information on work undertaken by other international organisation, notably those of the IOMC and UNECE, as well as on international activities related to nanomaterials and nanotechnologies, such as those from ISO TC 229<sup>4</sup>.</p> <p>UNITAR and OECD has organised three regional workshops on nanosafety, sharing experiences in each region and defining needs and priorities up to 2020<sup>5</sup>.</p> <p>UNITAR shares information on nano and has uploaded to its website all available documents from the nanosafety workshops<sup>6</sup>.</p> <p>OECD recently published the Guidance Manual towards the Integration of Risk Assessment into Life Cycle Assessment of Nano-Enabled Applications, which places particular attention on multi-walled carbon nanotubes. Another project under this area was the publication of Nanotechnology and Tyres: Greening Industry and Transport. Both documents are available free of charge.</p>

<sup>4</sup> [http://www.iso.org/iso/iso\\_technical\\_committee?commid=381983](http://www.iso.org/iso/iso_technical_committee?commid=381983)

<sup>5</sup> The meetings were: African region, Lusaka, Zambia, 16-17 April 2015; Latin American and Caribbean region, Bogota, Colombia, 22-24 June 2015; and Asia-Pacific region, 10-11 September 2015 (TBC), Bangkok, Thailand.

<sup>6</sup> <http://www.unitar.org/cwm/nano>

APPROVED GPA ACTIVITY AREAS	Related ICCM3 resolution text	PROJECT ACTIVITIES AND OUTCOMES
7. Promote the availability of information on the presence of manufactured nanomaterials within the product supply and use chain and throughout product life cycles, which could include possible labelling, consistent with relevant international obligations, and/or other forms of guidance relating to consumer products containing manufactured nanomaterials.	Requests the continued support of public dialogue on all aspects of nanotechnologies and manufactured nanomaterials, including on the benefits and risks of manufactured nanomaterials throughout their life cycles;  Also recommends that, where appropriate, intersessional activities identified in previous paragraphs related to manufactured nanomaterials include consideration of their full life cycles and occupational exposure	UNITAR ran its nano e-learning course over two sessions in 2014 for all interested stakeholders to enhance information exchange on hazards and risks of nanomaterials.
8. Review the applicability of the GHS criteria for manufactured nanomaterials as well as how information on safe use should be included in SDS.	Invites the United Nations committees of experts on the transport of dangerous goods and on the Globally Harmonized System of Classification and Labelling of Chemicals to take into account the progress on international scientific work to review the applicability of the Globally Harmonized System criteria to manufactured nanomaterials and, if necessary, to prepare a workplan for adapting those criteria	The GHS Sub-Committee has begun a process for a “Review of the applicability of GHS to nanomaterials.” An informal correspondence group (ICG) has been created. The ICG is collecting data from some examples of nanomaterial substances and performing a classification exercise.
9. Promote public awareness-raising activities on manufactured nanomaterials in all regions.  10. Promote the development of country-specific approaches, incorporating life cycle thinking, to nanomaterials in existing national frameworks, policies, regulatory provisions, best practice guidelines and chemical management programmes.	Recommends the development of further pilot projects at the national level to enhance stakeholder capacity for the sound management of nanotechnologies and manufactured nanomaterials	The 2015 round of nanosafety workshops <sup>7</sup> organised by UNITAR and OECD served to enhance the public awareness of nano, by bringing together nano experts from the regions, and government and NGO representatives.  UNITAR has started a second round of pilot projects in Armenia, Jordan and Vietnam. Project outcomes thus far have identified the need to coordinate academic research with government stakeholders and the establishment of nano working groups to facilitate work on nanosafety issues. <sup>8</sup>  Armenia has so far held its inception workshop and awareness raising training. Main conclusions so far: stakeholder discussions on nano safety have identified priority areas, including a lack of a relevant law on chemicals that would regulate nano materials throughout the life cycle, as well as the differentiated responsibilities of stakeholders. There is a lack of systems for identification of nanomaterials and the labelling on packaging, and no standards for nano usage and disposal. State officials and the population are unaware of the implications for human health and the environment. Armenia is currently developing a roadmap to address these issues.  Vietnam has performed several activities during the nano project, including expert group meetings to exchange more information. The Pollution Control Department (PCD) in cooperation with experts has also conducted several surveys on the research practices and applications of nanotechnology in Vietnam. Based on the results of information review, surveys and practical assessments, overall assessments of research, development and usage of

<sup>7</sup> The Asia-Pacific workshop had not taken place in 2015 by the time of this document. Meeting outcomes will be available at <http://www.unitar.org/cwm/nano>

<sup>8</sup> More details on the pilot projects can be found in the document SAICM/OEWG.2/INF/10

APPROVED GPA ACTIVITY AREAS	Related ICCM3 resolution text	PROJECT ACTIVITIES AND OUTCOMES
		<p>nano in Vietnam have been developed. To support information sharing with public interest groups, the experts have provided the media with detailed information on nano-related characteristics of the research and commercial products. However, it has been observed that information on nano is not managed systematically with public dissemination in mind.</p> <p>It has been recognized that policies and regulation on nano are still lacking. Infrastructure for nano is also very limited.</p> <p>In 2015, the PCD in cooperation with the expert group has worked to identify priority areas for actions on nano in Vietnam, specifically nanosafety. As such, a national policy recommendation on nanosafety management for the Vietnamese Government is being developed.</p> <p>Jordan is launching its inception workshop in August 2015.</p> <p>OECD has been looking at disposal and treatment technologies of manufactured nanomaterials. A survey was done within the Working Party on Manufactured Nanomaterials (WPMN) to identify the state of the art regarding waste and nano.</p> <p>The OECD Working Group on Resources Productivity and Waste produced four documents related to waste containing nanomaterials (WCNMs) on four waste treatment processes of: 1) recycling; 2) incineration; 3) wastewater treatment; and 4) landfilling. The purpose of these papers was to identify the current state of knowledge on the fate and impacts of WCNMs in end-of-life treatment processes. The documents are expected to be published by the end of 2015.</p>
<p>11. Promote producer responsibility for providing appropriate guidance on safe use of manufactured nanomaterials throughout the supply chain, including the waste stage.</p>	<p>Calls for members of industry to continue and enhance their stewardship role and responsibilities as manufacturers and suppliers of nanotechnologies and manufactured nanomaterials and to participate in and support awareness-raising, information exchange, training activities, public dialogue and risk research;</p> <p>Invites all stakeholders, in particular manufacturers and suppliers of nanotechnologies and manufactured nanomaterials, to generate information on manufactured nanomaterials to facilitate their safe handling and use throughout their life cycles and to make that information available</p>	<p>Uruguay, under a UNITAR phase 1 nanosafety pilot project, produced a report on sustainable management of waste containing nanomaterials.</p> <p>As part of the UNITAR guidance document, there is a section on worker health and safety, including an example of a list of protective measures for workers.</p>

APPROVED GPA ACTIVITY AREAS	Related ICCM3 resolution text	PROJECT ACTIVITIES AND OUTCOMES
12. Promote coordinated international, regional and national policy strategies regarding the opportunities and risks of nanotechnology and manufactured nanomaterials.		<p>The Thai Government, under a UNITAR phase 1 nanosafety pilot project, has approved the National Nanotechnology Policy Framework and a five-year “National Nanosafety and Nanoethics Strategic Plan” to ensure sustainable development of nanotechnology. This plan was jointly developed by key stakeholders and aligned with the current National Chemical Management Plan.</p> <p>In July 2013, FAO and the WHO developed and finalised a technical paper entitled “State of the art on the initiatives and activities relevant to risk assessment and risk management of nanotechnologies in the food and agriculture sectors”.</p>
13. Promote public and private sectors partnerships for the environmentally sound management of manufactured nanomaterials to assist countries, in particular developing countries, small island developing States and countries with economies in transition, to build scientific, technical, and legal capacity.		<p>All national-level projects organized by UNITAR must include a broad range of stakeholders, consistent with the founding principles of SAICM and as a central part of activities.</p> <p>NANOTEC in Thailand is utilising its experiences and expertise from the phase one pilot projects to assist Vietnam with its phase two pilot project.</p>

#### IV. Gaps remaining and implications for the 2020 goal

10. Gaps and remaining implications have been discussed with stakeholders at various meetings, notably the 2015 regional workshops on nanosafety.
11. The 2015 regional workshops worked to assess current gaps and needs within regions, and identify work areas to enhance the sound management of nanomaterials in the coming years. The regions expressed a desire to share the reports and outcomes to all SAICM stakeholders, in order to raise awareness further.
12. The African region identified areas for necessary improvements in human resources and expertise, in policy and legal frameworks, and in nano-focused infrastructure. The workshop participants, considering themselves as representatives of the region, resolved to: develop and establish a regional network on nanosafety; carry out a survey of the current status of nanomaterials; develop national working groups and coordination mechanisms; implement and sustain awareness raising activities; develop legal frameworks; carry out capacity building exercises; develop guidelines for workplace safety; and monitor nanomaterials’ usage in industry.
13. The African region agreed to develop a concept note in advance of ICCM4 to pave the way for a larger project proposal, focusing on the identified needs from the region.
14. The Latin American and Caribbean region expressed its willingness to: establish a network of experts and policy workers; build capacity in terms of infrastructure and human resources, and access to financial assistance; create national requirements for a registry of nanomaterials; implement product identification, regulation and standards’ setting; establish and promote an accreditation scheme for relevant centres and agencies; to enhance communications and share expertise (starting with occupational health guidelines); share good practice in occupational handling of nanomaterials; and develop procedures for impact reduction from the use of nanomaterials;
15. Furthermore, the Latin American and Caribbean region expressed a desire to see incorporation of nanosafety assessment in the Global Environmental Facility funding areas.
16. Nano, as an emerging policy issue under SAICM, would benefit from a central hub to share and disseminate information. UNITAR and OECD endeavour to contribute to this through use of their websites: however, a recognised clearing house for SAICM issues would be a useful resource. A clearing house could also serve as a means to coordinate stakeholders and enhance engagement.
17. SAICM stakeholders continue to request guidance in the area of nanomaterials. As such, with the support of collaborating stakeholders and provision of resources, UNITAR envisages greater

efforts to disseminate the Development of a National Nanotechnology Policy and Programme guidance document developed by UNITAR. Furthermore, this could be revised and updated, and address subsequent steps, including regulations and legislation. It is anticipated that in an effort to promote the achievement of the sound management of chemicals, national regulations and legislation applicable to nano will form a large part of UNITAR's work.

18. Consistent with the draft resolution on nanotechnologies and nanomaterials (SAICM//ICCM.4/12), and as expressed by participating countries at different fora, there is significant interest in the work of the UN sub-committee on GHS in assessing the applicability of GHS criteria for the classification of a number of nanomaterials. Stakeholders consider that an applicable system for labelling and classification would assist with sound management of nanomaterials.

19. In reference to resolution III/2 from ICCM3, there is also a need to boost work and engagement with industry, in order to enhance their stewardship role and the generation of available information on nano.

20. UNITAR and OECD stand ready, as the IOMC leads for this area of work, to collaborate with all willing stakeholders in an effort to address recognised gaps and to achieve the 2020 goal.

## V. Proposed Work Plans

21. The following table provides a list of proposed actions for the period 2016-2020, in relation to the activity areas approved in the GPA. These proposed actions are based on experiences from current nano work, however they may be subject to change, including due to availability of funds.

APPROVED GPA ACTIVITY AREAS	PROPOSED ACTIONS 2016-2020
1. Contribute to the development, promotion and adoption of internationally recognized technical guidelines and harmonized standards relating to manufactured nanomaterials.	OECD will continue adapting and developing technical guidelines that address the specifics of manufactured nanomaterials.  WHO/IPCS Environmental Health Criteria Document on Principles and Methods for assessing the risk of immunotoxicity associated with exposure to nanomaterials to be developed during the 2016-2020 period.
2. Develop approaches to protect workers, the public and the environment from potential harm related to manufactured nanomaterials.  3. Increase the active involvement of the health sector in order to enhance understanding of possible short-term to long-term occupational health impacts of manufactured nanomaterials.  4. Increase understanding of the environmental, public and occupational health and safety implications, including risk assessment, of manufactured nanomaterials through coordination, support and/or funding for scientifically sound research.	OECD will continue to develop guidance documents and case studies on exposure assessment and exposure mitigation, not only at the workplace but also for consumers and the environment.  WHO is developing Guidelines on "Protecting Workers from Potential Risks of Manufactured Nanomaterials", to be finalised during the 2016-2020 period.
5. Enhance information and knowledge sharing on manufactured nanomaterials regarding international, national and regional policy and regulatory initiatives.  6. Highlighting possible synergies with activities undertaken under activity 210 of the Global Plan of Action, explore the development of registers/inventories and/or	Some countries have developed innovative or experimental approaches. For example Belgium, Denmark and France have developed specific nano inventories. Furthermore, Thailand has developed a certification and labelling initiative. SAICM stakeholders may seek to work with these countries to benefit from their experiences.  UNITAR will seek funding to process a revision to the guidance document "Developing a National Nanotechnology Policy and Programme", which could include case studies (from countries such as those listed above) and additional sections that deal with experiences of national regulatory systems relevant to nano. It is envisaged that a large amount of work in the 2016-2020 period will be focused on assisting countries with developing regulations and legislation applicable to nano.  OECD's WPMN in November 2015 will dedicate a seminar to consider work undertaken in the Risk Assessment and Regulatory Programmes project that researches national experiences on this matter.

APPROVED GPA ACTIVITY AREAS	PROPOSED ACTIONS 2016-2020
market assessment activities relating to manufactured nanomaterials.	<p>OECD publishes, every nine months, a document summarising national activities in OECD Member countries as well as in non-member economies participating in the work. This document also includes information on work undertaken by other international organisations, notably those of the IOMC (WHO, UNITAR), UNECE, as well as on international activities related to nanomaterials and nanotechnologies, such as those from ISO TC 229<sup>9</sup>.</p> <p>UNITAR and OECD will continue to seek complementary opportunities to host nanotechnology briefing sessions, such as contributions to future SAICM regional meetings and Open-ended Working Groups.</p> <p>UNITAR will continue to make use of its website to share information on nanomaterials. Depending on resources approved by ICCM4 for the SAICM secretariat, additional use could be made of the SAICM information clearing house to centralise the latest knowledge on nanomaterials from relevant stakeholders, including various inventories developed in diverse jurisdictions.</p>
7. Promote the availability of information on the presence of manufactured nanomaterials within the product supply and use chain and throughout product life cycles, which could include possible labelling, consistent with relevant international obligations, and/or other forms of guidance relating to consumer products containing manufactured nanomaterials.	<p>UNITAR will continue to run its nano e-learning course for all interested stakeholders to enhance information exchange on hazards and risks of nanomaterials, and other subjects as deemed useful by stakeholders, with at least one course per year envisaged. Updates are currently planned for the course to satisfy the ECB Check requirements<sup>10</sup> and be translated into other UN languages. Funding and partnerships will be sought to proceed with translation, to satisfy the demand from broader training on nano.</p> <p>The International Organization for Standardization (ISO) has undertaken significant work in the area of nanotechnologies, publishing standards that include: “Methodology for the classification and categorization of nanomaterials” (Technical report); “Health and safety practices in occupational settings relevant to nanotechnologies” (Technical Report); “Guidance on voluntary labelling for consumer products containing manufactured nano-objects” (Technical Specification). As per ISO working practices, all such standards will be reviewed after five years, if not before.</p> <p>ISO standards that are currently under development with a view to being released between 2015 and 2020 include: “General framework for the development of occupational exposure limits for nano-objects and their aggregates and agglomerates” and “Plain language guide -- Explanation of core terms with examples”. This will further help satisfy the Dakar Statement on Manufactured Nanomaterials.</p>
8. Review the applicability of the GHS criteria for manufactured nanomaterials as well as how information on safe use should be included in MSDS.	<p>The GHS Sub-Committee has begun a process for a “Review of the applicability of GHS to nanomaterials.” An informal correspondence group (ICG) has been created. The ICG is collecting data from some examples of nanomaterial substances and performing a classification exercise. The ICG agreed that the envisaged workstreams and the possible developments of the group for the GHS are long-term processes, and the ICG expressed its wish, to the GHS Sub-Committee, to continue the work on reviewing the applicability of the GHS classification criteria to nanomaterials during the biennium 2015-2016.</p> <p>SAICM stakeholders may wish to encourage the inclusion of specific nano information in the SDSs (safety data sheets) of all nanomaterials.</p>
9. Promote public awareness-raising activities on manufactured nanomaterials in all regions.	<p>The 2015 round of nanosafety workshops organised by UNITAR and OECD served to enhance the understanding of health safety implications. The African, and Latin American and Caribbean regional workshops<sup>11</sup> proposed networks of nano experts to continue discussions on regional activities. UNITAR will be available to work with such</p>

<sup>9</sup> [http://www.iso.org/iso/iso\\_technical\\_committee?commid=381983](http://www.iso.org/iso/iso_technical_committee?commid=381983)

<sup>10</sup> ECBCheck is a quality improvement scheme for E-Learning programmes. <http://www.ecb-check.org/>

<sup>11</sup> The final workshop (in the Asia-Pacific) had not met in 2015 by the time of the first version of this document. Meeting outcomes will be available at <http://www.unitar.org/cwm/portfolio-projects/nanotechnology>

APPROVED GPA ACTIVITY AREAS	PROPOSED ACTIONS 2016-2020
<p>10. Promote the development of country-specific approaches, incorporating life cycle thinking, to nanomaterials in existing national frameworks, policies, regulatory provisions, best practice guidelines and chemical management programmes.</p>	<p>groups, if desired, in order to share expertise, source funding for projects and organise workshops.</p> <p>UNITAR will undertake a fundraising exercise upon completion of the current round of pilot projects and nanosafety workshops in order to build on the awareness-raising activities. UNITAR hopes to attract funding for two rounds of regional workshops and at least six more national-level projects during the 2016–2020 period. These projects and workshops would continue to emphasise the country-specific needs in dealing with nanomaterials, though also working at the regional level to enhance collaboration and knowledge sharing.</p> <p>UNITAR will work with previous hosts of nano pilot projects and regional workshops to encourage them to serve as regional hubs for nano activities, assisting them with seeking opportunities and acquiring funds, as necessary.</p> <p>UNITAR and OECD will continue their collaboration in promoting the use of harmonised tools for the safety assessment of manufactured nanomaterials, including through the IOMC Toolbox for Decision Making in Chemical Management.</p>
<p>11. Promote producer responsibility for providing appropriate guidance on safe use of manufactured nanomaterials throughout the supply chain, including the waste stage.</p>	<p>Future national-level projects organized by UNITAR will continue to include industry representatives as a central part of activities, serving as opportunities for promotion of producer responsibility and for encouraging producers to provide adequate information throughout the supply chain.</p> <p>UNITAR will build on the work initiated by the SAICM secretariat to engage with the labour sector, given the essential links to worker health and safety. UNITAR attended and presented at the “Improving Workers Health Through Sustainable Management of Chemicals Trade Unions Towards 2020” in July 2015 and received interest to work together from the International Trade Union Confederation, and Building and Wood Worker's International. Such links to the labour sector may also serve as a means to engage further with industry.</p>
<p>12. Promote coordinated international, regional and national policy strategies regarding the opportunities and risks of nanotechnology and manufactured nanomaterials.</p>	<p>UNITAR will be available to support international, regional and national activities on nano, with guidance documents available, with possible updates. This could be enhanced by use of a relevant information clearing house, raising awareness across a diverse range of stakeholders.</p>
<p>13. Promote public and private sectors partnerships for the environmentally sound management of manufactured nanomaterials to assist countries, in particular developing countries, small island developing States and countries with economies in transition, to build scientific, technical, and legal capacity.</p>	<p>Future national-level projects organized by UNITAR will continue to include a broad range of stakeholders, consistent with the founding principles of SAICM and as a central part of activities. UNITAR has already begun a process of engaging with new government entities and academic institutions (including the United Kingdom Government and the University of Geneva) to broaden the expertise available to countries and interest in nano as an emerging policy issue under SAICM.</p> <p>UNITAR has initiated discussions with FAO on the organisation's plan to continue the work after the 2013 paper developed with WHO. Discussions will continue to investigate areas of work such as training in sound management of nanotechnologies in the agricultural sector.</p> <p>UNITAR will continue to support the use of guidelines for the development of projects on nano among all stakeholders, as well as seeking support to produce revisions to and translations of the text.</p>

## Appendix

### Resolution III/2E of ICCM3

#### Nanotechnologies and manufactured nanomaterials

*Mindful* of the overarching goal articulated in paragraph 23 of the Plan of Implementation of the World Summit on Sustainable Development to ensure that by 2020 chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health,<sup>12</sup>

*Recalling* the Dakar Statement on Manufactured Nanomaterials adopted by the Intergovernmental Forum on Chemical Safety at its sixth session,

*Recalling also* its resolution II/4 E on nanotechnologies and manufactured nanomaterials,

*Considering* the specific needs of developing countries and countries with economies in transition,

*Considering also* the resolutions on nanotechnologies adopted by the group of African countries and the group of Latin American and Caribbean countries at their regional meetings held during the period 2009–2011,

*Taking into account* the continuing work of the Inter-Organization Programme for the Sound Management of Chemicals, its participating organizations and the International Organization for Standardization, including lessons learned on effective mechanisms for information exchange,

*Welcoming* the report on nanotechnologies and manufactured nanomaterials prepared by the secretariat of the Strategic Approach to International Chemicals Management for the Open-ended Working Group at its first meeting and the International Conference on Chemicals Management at its third session, in particular its conclusions recommending further actions to be taken under the Strategic Approach,<sup>13</sup>

*Encouraging* Strategic Approach stakeholders to consider the need to address the environmentally sound management of manufactured nanomaterials in relevant international instruments, taking into consideration enhancing coordination and cooperation in the chemicals and waste cluster,

1. *Underlines* that the Strategic Approach provides a suitable framework for addressing nanotechnologies and manufactured nanomaterials;
2. *Encourages* all Strategic Approach stakeholders to facilitate the exchange of information on nanotechnologies and manufactured nanomaterials in order to improve global transparency and allow better decision-making processes, noting that examples of such information might include information on risk assessments, risk reduction measures and environmental, health and safety research;
3. *Recommends* the development of international technical and regulatory guidance and training materials for the sound management of manufactured nanomaterials;
4. *Requests* all Strategic Approach stakeholders to continue to support public dialogue on all aspects of nanotechnologies and manufactured nanomaterials, including on the benefits and risks of manufactured nanomaterials throughout their life cycles;
5. *Invites* relevant international organizations, including the participating organizations of the Inter-Organization Programme for the Sound Management of Chemicals, such as the Organization for Economic Cooperation and Development and the United Nations Institute for Training and Research, to continue to support efforts to facilitate capacity-building information exchange, develop guidance and training materials and support public dialogue regarding nanotechnologies and manufactured nanomaterials;

<sup>12</sup> *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August–4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

<sup>13</sup> SAICM/OEWG.1/12.

6. *Calls for* members of industry to continue and enhance their stewardship role and responsibilities as manufacturers and suppliers of nanotechnologies and manufactured nanomaterials and to participate in and support awareness-raising, information exchange, training activities, public dialogue and risk research;
  7. *Invites* the United Nations committees of experts on the transport of dangerous goods and on the Globally Harmonized System of Classification and Labelling of Chemicals to take into account the progress on international scientific work to review the applicability of the Globally Harmonized System criteria to manufactured nanomaterials and, if necessary, to prepare a workplan for adapting those criteria;
  8. *Invites* all stakeholders, in particular manufacturers and suppliers of nanotechnologies and manufactured nanomaterials, to generate information on manufactured nanomaterials to facilitate their safe handling and use throughout their life cycles and to make that information available;
  9. *Recommends* that further pilot projects be developed at the national level to enhance stakeholder capacity for the sound management of nanotechnologies and manufactured nanomaterials;
  10. *Also recommends* that, where appropriate, intersessional activities identified in previous paragraphs related to manufactured nanomaterials include consideration of their full life cycles and occupational exposure;
  11. *Invites* the secretariat to report on progress in the implementation of the present resolution to the Conference at its fourth session;
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