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**Basel Convention on the Control of
Transboundary Movements of Hazardous
Wastes and Their Disposal**

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**Rotterdam Convention on the Prior
Informed Consent Procedure for Certain
Hazardous Chemicals and Pesticides in
International Trade**



**Stockholm Convention on Persistent
Organic Pollutants**

**Conference of the Parties to the
Basel Convention on the Control
of Transboundary Movements
of Hazardous Wastes and
Their Disposal
Thirteenth meeting**
Geneva, 24 April–5 May 2017
Item 5 of the provisional agenda*
**Enhancing cooperation and
coordination among the Basel,
Rotterdam and Stockholm
conventions**

**Conference of the Parties to the
Rotterdam Convention on the Prior
Informed Consent Procedure for
Certain Hazardous Chemicals and
Pesticides in International Trade
Eighth meeting**
Geneva, 24 April–5 May 2017
Item 6 of the provisional agenda**
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Rotterdam and Stockholm
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Persistent Organic Pollutants
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**Enhancing cooperation and
coordination among the Basel,
Rotterdam and Stockholm
conventions**

**Draft road map for further engaging Parties and other
stakeholders in an informed dialogue for enhanced science-
based action in the implementation of the conventions**

Note by the Secretariat

As referred to in the note by the Secretariat on from science to action: road map for further engaging Parties and other stakeholders in informed dialogue for enhanced science-based action in the implementation of the conventions (UNEP/CHW.13/25-UNEP/FAO/RC/COP.8/24-UNEP/POPS/COP.8/28), annexes I and II to the present note set out the draft road map and a summary of the results of the online survey on science to action, respectively. The present note, including its annexes, has not been formally edited.

* UNEP/CHW.13/1.

** UNEP/FAO/RC/COP.8/1.

*** UNEP/POPS/COP.8/1.

Annex I

Draft Road Map for Science to Action

For further engaging Parties and other stakeholders in an informed dialogue for enhanced science-based action in the implementation of the conventions

February 2017

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1. Mandate and objectives

1. In 2015, the conferences of the Parties to the Basel, Rotterdam and Stockholm (BRS) conventions adopted decisions BC-12/22, RC-7/12 and SC-7/30 entitled “From science to action”, by which they recognized the importance of further strengthening the science-policy interface for the effectiveness of the conventions and stressed the need for greater access to scientific understanding in developing countries to enhance informed decision-making on the implementation of the conventions. The conferences of the Parties also stressed the need for scientific underpinning for decision-making in the sound management of chemicals and wastes at the national and regional levels.

2. By the same decisions, the conferences of the Parties requested the Secretariat to develop a road map for further engaging Parties and other stakeholders in informed dialogue for enhanced science-based action in the implementation of the conventions at the regional and national levels. The road map is to consider:

(a) Exploring new activities within the mandates of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Stockholm Convention on Persistent Organic Pollutants to enhance science-based action to implement the conventions;

(b) Addressing the gaps in access to scientific information and knowledge, the lack of capacity to provide scientific inputs to the various processes under the conventions and the need for scientific and technical advice in relation to the implementation of the conventions;

(c) Facilitating the exchange of scientific and technical information among Parties and other stakeholders and promoting the understanding of the scientific and technical aspects of the three conventions;

(d) Possibilities for cooperation and coordination with the United Nations Environment Programme (UNEP) and other relevant organizations, scientific bodies and stakeholders.

3. In this context, Parties may wish to note that, through their subsidiary bodies, expert groups and other international partners, the conferences of Parties have established the necessary processes for effective implementation of the conventions, and work to support Parties to acquire the required understanding of the relevant scientific aspects when taking decisions relevant to the implementation of the three conventions.

4. The objective of the road map is to outline actions Parties and other stakeholders could take to strengthen the science-policy interface in the BRS conventions and thereby engage all stakeholders in an informed dialogue for enhanced science-based action in the implementation of the conventions.

2. Situation analysis

2.1 Online survey

5. In developing the draft road map, the Secretariat conducted an online survey¹ from 3 August to 10 October 2016. A total of 127 respondents (governments: 72; intergovernmental organizations: 6; regional centres: 9; industry: 11; civil society: 13; academia: 13; others: 3) provided information on the challenges and opportunities in bringing science and policy together. Of these, 31 (24%) were from developed countries and 96 (76%) from developing countries and countries with economies in transition. A summary of the results of the online survey is set out in annex II to the present document.

6. Respondents identified several types of involvement with international organizations. This included participation in the meetings of the conference of the Parties and their subsidiary bodies, for example, the Chemical Review Committee of the Rotterdam Convention and the Persistent Organic Pollutants (POPs) Review Committee of the Stockholm Convention. The most commonly reported collaboration with international organizations was the implementation of projects, e.g. national implementation plans, waste management initiatives, compilation of inventories. Participating in or provision of training courses or workshops and the development of educational materials were also identified. Awareness raising campaigns such as World Health Organization (WHO) international lead poisoning prevention week of action were also mentioned. Some respondents noted that they were executing or implementing agencies for projects and others noted that they provided technical assistance.

7. Respondents indicated extensive use of scientific and technical information to inform national and international decisions or policy making processes. Scientific and technical information is regularly used to provide the rationale for new or amended laws and regulations. It is also used in risk analysis/evaluation for specific chemicals to support decisions such as authorization of the import of chemicals or the registration or re-authorization of pesticides.

8. Of the 127 respondents, 89 (70%) indicated that their organization found it easy to access and download scientific and technical information related to the conventions; and of 125 respondents, 82 (66%) found it easy to access and download information for decision or policy making. Overall, respondents from developing countries and countries with economies in transition indicated lower access to information than respondents from developed countries.

9. In their work, respondents indicated that they obtained information through the review of international legislation, scientific journals and books. Documents and other data available through the Secretariat and scientific bodies under the conventions and international organizations (e.g. Food and Agriculture Organization of the United Nations (FAO), UNEP, United Nations Industrial Development Organization (UNIDO), United Nations Institute for Training and Research (UNITAR) and WHO) are regularly used when developing national positions.

10. The internet (56%) and in-person contact (54%) were considered the most effective mode of obtaining scientific or policy guidance. Websites are the most commonly used sources for scientific or policy guidance (90%) followed by e-mail (79%), web conferencing (76%) and in-person contacts (76%). A higher proportion of respondents from developing countries and countries with economies in transition indicated that social media networks and online discussion forums were effective means to obtain such information.

11. The type of information sought included experience from other countries, national and international regulations, standards, and monitoring information. Topics of interest among respondents included solid waste management, hazardous waste incineration, crematoria and endocrine disruption. In addition to the use of the published scholarly literature, respondents reported the use of existing national policies such as national legislation, strategies, meeting documents and other information available through the conventions' Secretariat and international organizations.

12. Data are generated as part of regular monitoring programmes or one-time surveys, including international initiatives such as the Global Monitoring Plan (GMP) of the Stockholm Convention, Arctic Monitoring and Assessment Programme (AMAP) and FAO Programme on the Prevention and Disposal of Obsolete Pesticides. Research conducted by governments, universities and non-governmental organizations (NGOs) generate information. Reporting requirements such as pollutant

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<http://www.brsmeas.org/Implementation/MediaResources/NewsFeatures/FromSciencetoAction/tabid/5276/language/en-GB/Default.aspx>.

release and transfer registers (PRTR) and environmental compliance reports are also a source of data. In some countries, data collected through environmental compliance and monitoring are made available on the internet.

13. While some respondents indicated that current access to information met their needs, there were many suggestions on ways in which the BRS conventions websites could be improved. These suggestions indicated the need for the website to become a more searchable database rather than purely a repository of meeting documents, to more clearly guide the user to resources including other documents on the web, experts in other countries, or information and data from Parties. A regular news service on the topics of relevance to the BRS conventions was also suggested.² Strengthening regional structures and information at the regional level was also noted as something that would improve implementation of the BRS conventions.

14. E-mail was identified as a useful means of communication, but other more interactive tools were also suggested. A current limitation in the BRS processes that was identified is the limited involvement of non-government stakeholders. More opportunities for civil society to comment on draft documents through a web-based platform or national/regional workshops could ensure broader participation. More consideration needs to be given to ensuring documents and other information are available in multiple languages to ensure fuller participation from all regions.

2.2 Challenges and opportunities identified

15. The challenges identified through the online survey included the following:

- (a) The cost of obtaining information;
- (b) The data gaps, especially data relevant to countries that are not members of the Organisation for Economic Cooperation and Development (non-OECD countries) and the lack of capacity to generate data in developing countries and countries with economies in transition;
- (c) The lack of information in the national language;
- (d) The need for improved networking, exchange of information and communication among Parties to the conventions and all stakeholders involved in the sound management of chemicals and wastes (industry, private sectors, civil society, academia) as well as increased participation of youth;
- (e) The lack of national capacity to review and assess information including the capacity to undertake systematic reviews of the evidence (from elaborating the search strategy, appraisal of articles, and synthesis of the evidence); and
- (f) Knowledge translation, i.e. making scientific information understandable to a general audience, so that it can be used effectively in decision-making.

16. An improved science-policy interface could facilitate the decision-making in the BRS conventions and support their effective implementation.

17. Identifying opportunities to address the lack of capacity in developing countries and countries with economies in transition to access scientific and technical information, as well as to improve the ability for those countries to understand and assess domestically the implications of that information to support policy making regarding the Conventions at the national, regional and international levels, and, where appropriate, through building the capacity to generate relevant national data, could improve the sound management of chemicals and wastes and contribute to sustainable development, including achieving the Sustainable Development Goals.

² A monthly newsletter of the Secretariat of the BRS conventions (BRS Newsletter) has been available since March 2016. <http://www.brsmeas.org/Implementation/Publications/Newsletters/tabid/4633/language/en-US/Default.aspx>.

3. Actors and stakeholders of the road map

18. This section provides an overview of the actors and stakeholders of the road map. For the successful implementation of the road map, all relevant stakeholders should actively engage in carrying out the various activities. Regular exchange on progress, challenges and opportunities will be an essential means of moving forward.

3.1 Parties to the BRS conventions

19. Parties to the BRS conventions are the main actors and the beneficiaries of the road map. Parties may have different roles depending on whether they are developed countries, developing countries, or countries with economies in transition.

20. Parties have a role in supporting the science-policy interface at the national level, facilitating participation of the major groups in national discussions relevant to the BRS conventions, and supporting the involvement of major groups in regional and international fora.

21. Official contact points, competent authorities, national focal points, designated national authorities of the BRS conventions respond to the invitations for providing information and comments, nominating experts, and submitting national implementations plans and national reports, as required by the BRS conventions. In doing so, Parties are expected to solicit information and comments widely from their national stakeholders.

3.2 Basel and Stockholm conventions regional centres

22. Basel and Stockholm Convention regional centres play a key role in providing technical assistance and promoting the transfer of technology to developing country Parties and Parties with economies in transition relating to the implementation of the obligations under the conventions at the regional level.

23. Currently there are 14 regional and coordinating centres for the Basel Convention and 16 regional centres for the Stockholm Convention, of which 7 centres serve both conventions.

24. The regional centres are well placed to enhance collaboration within the region they serve by facilitating information exchange, making documentation available in relevant languages, providing training, fostering dialogue and facilitating input into the BRS decision-making process.

3.3 Subsidiary bodies and experts of the conventions

3.3.1 Basel Convention: Open-ended Working Group

25. The Open-ended Working Group (OEWG) is a subsidiary body of the Conference of the Parties to the Basel Convention. The OEWG is mandated to consider and advise the Conference of the Parties on issues relating to policy, technical, scientific, legal, institutional, administration, finance, budgetary and other aspects of the implementation of the Convention within the approved budget, including identification of the specific needs of different regions and sub-regions for training and technology transfer and to consider ways and means of ensuring the establishment and functioning of the Basel Convention Regional and Coordinating Centres for Training and Technology Transfer.

26. Through small intersessional working groups, various technical guidelines on environmentally sound management of wastes and other guidance documents of scientific nature are developed. Parties and other stakeholders have opportunities to take part in such groups.

3.3.2 Rotterdam Convention: Chemical Review Committee

27. The Chemical Review Committee (CRC) is a subsidiary body of the Conference of the Parties to the Rotterdam Convention. In accordance with the processes provided in Articles, 5, 6 and 7 of the Convention, the Committee reviews notifications of final regulatory actions and proposals for listing severely hazardous pesticide formulations in Annex III to the Rotterdam Convention and makes recommendations to the Conference of the Parties for listing such chemicals and pesticide formulations in Annex III to the Convention.

3.3.3 Stockholm Convention: Persistent Organic Pollutants Review Committee

28. The Persistent Organic Pollutants Review Committee (POPRC) is a subsidiary body of the Stockholm Convention. In accordance with the processes provided in Article 8 of the Convention, the Committee reviews information on chemicals that are proposed for listing in Annex A, B and/or C to

the Stockholm Convention. The process includes the review of a wide range of scientific and technical data provided by Parties and observers.

3.3.4 Stockholm Convention: Global Monitoring Plan

29. The global monitoring plan (GMP) is an important component of the effectiveness evaluation of the Stockholm Convention. It provides a framework for the collection of comparable monitoring data on the presence of POPs from all regions to provide data on regional and global environmental transport and to identify changes in POP concentrations over time.

30. The global monitoring plan is implemented at the regional level, with data and information collection, including capacity-enhancement activities and development of regional monitoring reports, under the responsibility of regional organization groups in each of the five UN regions. A global coordination group is overseeing the implementation of the global monitoring plan across the regions and the development of the global monitoring report.

31. A guidance document on the global monitoring plan is also available to support comparability and consistency in monitoring results, including guidelines for collection, analysis and reporting of information and data.

3.3.5 Stockholm Convention: Other science-based assessments

32. To assist Parties in implementing Article 5 of the Stockholm Convention and take measures to reduce or eliminate releases from unintentional production of POPs, best available techniques (BAT) and best environmental practices (BEP) have been documented for the sources of release of these chemicals, and relevant guidelines and guidance developed to support Parties in implementing their obligations under the Stockholm Convention.

33. Furthermore, a harmonized framework for the elaboration of comparable release inventories of unintentionally produced POPs is currently provided by the Toolkit for Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional POPs. The work on these matters is conducted through the joint Toolkit and BAT and BEP expert roster, including government-nominated technical experts and representatives of industry and the civil society.

34. The Stockholm Convention requires the Conference of the Parties at least every three years, to evaluate the continued need for DDT for disease vector control on the basis of available scientific, technical, environmental and economic information. A DDT Expert Group has been established to provide an assessment of production and use of DDT and its alternatives for disease vector control and to make recommendations on the continued need for DDT and on other relevant issues pertaining to DDT.

3.4 Partnerships of the conventions

35. In the Strategic Framework for the implementation of the Basel Convention for 2012–2021 (decision BC-10/2), partnerships are identified as one of the means of implementation for the framework. Within the Indonesian-Swiss country-led initiative to improve the effectiveness of the Basel Convention (decision BC-10/3), the Conference of the Parties encouraged the Secretariat, the Basel Convention regional and coordinating centres and Parties to further collaborate with other agencies, NGOs and the private sector, including through the formation of partnerships.

36. Under the Basel Convention, public-private partnerships have been a creative method for governments and other stakeholders to collectively address emerging issues and activities associated with priority waste streams. Two kinds of partnerships in support of promoting the sound management of priority waste streams have been identified:

(a) Global partnerships established by the Conference of the Parties to the Basel Convention where the Secretariat has a facilitating role and provides expertise:

- (i) Mobile Phone Partnership Initiative (MPPI);
- (ii) Partnership for Action on Computing Equipment (PACE);
- (iii) Environmental Network for Optimizing Regulatory Compliance on Illegal Traffic (ENFORCE); and

(iv) Proposed Household Waste Partnership.³

(b) Other partnerships⁴ established by other partners where the Secretariat seeks to expand involvement to promote the guidelines and tools developed under the Convention and raise awareness and the visibility of the Convention and its obligations and provisions.

37. The Conference of the Parties to the Stockholm Convention established the Global Alliance for Alternatives to DDT (decision SC-4/2) and the PCB Elimination Network (decision SC-4/9).

38. The Global Alliance for Alternatives to DDT promotes a global partnership on the development and deployment of alternative products, methods and strategies to DDT for disease vector control. It adds unique value to existing efforts by harnessing the strength of collective action to enhance the development and deployment of alternatives to DDT and to focus on objectives that could not be achieved without the involvement of diverse stakeholders.

39. The PCB Elimination Network promotes and encourages the environmentally sound management of PCB with a view to attaining the 2025 and 2028 goals of the Stockholm Convention with respect to PCB. Membership of the Network is open to governments, intergovernmental organizations (IGOs), donors, PCB holders, NGOs, industry, experts/academia, and business sectors relevant to PCB.

40. Following decisions SC-5/6 and SC-5/7, the leadership and implementation of the Alliance and the Network was transferred to the UNEP Chemicals and Waste Branch.

3.5 BRS Secretariat

41. The functions of the Secretariat are provided in Article 16 of the Basel Convention, Article 19 of the Rotterdam Convention and Article 19 of the Stockholm Convention. The Secretariat makes arrangements for meetings of the Conference to the Parties and its subsidiary bodies and provides them with services as required; prepares and transmits reports as required by the conventions or the conferences of the Parties; receives, compiles and makes available information as required by the conventions or the conferences of the Parties; facilitates assistance to Parties, particularly developing country Parties and Parties with economies in transition, on request, in the implementation of the conventions; ensures necessary coordination with the secretariats of other relevant international bodies; communicates with focal points and competent authorities.

42. Under the Stockholm Convention, the Secretariat serves as a clearing-house mechanism for information on POPs, including information provided by Parties, IGOs and NGOs.

3.6 Intergovernmental organizations

43. IGOs, in particular the following nine organizations that are participating in the Inter-Organization Programme for the Sound Management of Chemicals (IOMC) are essential to strengthening cooperation and increasing coordination in the field of chemical safety:

- (a) Food and Agriculture Organization of the United Nations (FAO);
- (b) International Labour Organization (ILO);
- (c) United Nations Development Programme (UNDP);
- (d) United Nations Environment Programme (UNEP);
- (e) United Nations Industrial Development Organization (UNIDO);
- (f) United Nations Institute for Training and Research (UNITAR);
- (g) World Health Organization (WHO);
- (h) World Bank; and
- (i) Organisation for Economic Co-operation and Development (OECD).

³ By its decision OEWG-10/10 on creating innovative solutions through the Basel Convention for the environmentally sound management of household waste, the Open-ended Working Group requested the informal group to finalize the draft concept note, terms of reference and work plan for a household waste partnership and the Secretariat to prepare a draft decision on the establishment of a household waste partnership for consideration by the Conference of the Parties at its thirteenth meeting.

⁴ <http://www.basel.int/Implementation/PartnershipProgramme1/OtherPartnerships/tabid/3240/Default.aspx>.

44. At its second session, the United Nations Environment Assembly requested the Executive Director to strengthen the science-policy interface regarding the environmental dimension of the 2030 Agenda for Sustainable Development, including by continuing to collaborate with other relevant United Nations bodies and to facilitate the work of scientific panels that provide integrated assessments to support policy making, especially those for which United Nations Environment Programme has the secretariat function.⁵

45. The international community is considering the role of the Strategic Approach to International Chemicals Management (SAICM) beyond 2020. The result of that consideration will be adopted in the fifth session of the International Conference on Chemicals Management (ICCM-5) in 2020.

3.7 Industry/private sector

46. Industry and the private sector have an important role in the sound management of chemicals and wastes, including research, development of alternatives and in ensuring that chemicals are manufactured, transported, used and disposed in a sound manner. They are a source of data and information and they have a responsibility in informing workers, consumers and other users about the adverse health and environmental effects and preferred environmental management practices. Industry and the private sector play an important role in providing state-of-art technical information on, and knowledge of, the chemicals under review by the subsidiary bodies of the conventions.

3.8 Civil society

47. Civil society contributes to the sound management of chemicals and wastes through awareness raising, monitoring and surveillance activities, and providing information to the public. Civil society organizations can also act as a voice for consumers, workers, the more vulnerable and indigenous peoples.

3.9 Academia

48. Researchers in academia contribute to the expansion of the knowledge base on chemicals and their effects. They may also be involved in monitoring and surveillance activities, exploration of alternatives, and development of new technologies. Independent experts often work within academia or other research institutions.

49. Scientific societies or academies promote their discipline and often have an interest in both education and the science-policy interface. Their membership will include leading experts in their field of knowledge.

3.10 GEF and other donors

50. Financial support is a crucial part of all activities relevant to the implementation of the BRS conventions, in particular for developing countries and countries with economies in transition.

51. The Global Environmental Facility (GEF) is the principal entity entrusted with the operations of the financial mechanism of the Stockholm Convention. It has been responsive to growing needs for funding for POPs by increasing allocated resources in each replenishment period, although there is still a gap between funding provided for POPs activities through the GEF and the funding identified as being needed to fulfil Convention obligations. The GEF has an advisory body called the Scientific and Technical Advisory Panel (STAP). It comprises of six expert advisers supported by a Secretariat, who are together responsible for connecting the GEF to the most up to date, authoritative, and globally representative science.

⁵ Resolution 2/5, section V, science-policy interface.

4. Elements of the road map

52. The elements of the road map consist of overall roadmap management and reporting procedures and activities. The responsible actors and timelines relevant to each activity are summarized in appendix 2 of this document.

4.1 Establish overall roadmap management and reporting procedures

53. The draft road map will be considered at the 2017 COPs. The conferences of the Parties may wish to establish a joint intersessional working group on science to action, working by electronic means, to revise the draft road map based on the feedback received during the conferences of the Parties to the Basel, Rotterdam and Stockholm conventions at their meetings in 2017, with a goal to initiate identification of concrete work areas, and, if agreed to by the COP, the implementation of activities of the road map. Over time, this group could also monitor the progress and make recommendations to the conferences of the Parties to the Basel, Rotterdam and Stockholm conventions.

54. Parties and other stakeholders could be invited to nominate experts to participate in the joint intersessional working group. It is important to ensure that the group is composed of experts from various stakeholders: governments, United Nations agencies, IGOs, regional centres, industry, private sectors, civil society and academia.

55. Once identified, the group may develop its draft terms of reference. Key functions of this group could include:

- (a) Provide overall strategic advice and leadership;
- (b) Initiate implementation of the various activities of the road map;
- (c) Engage in the development of relevant guidance and training materials;
- (d) Identify key challenges and opportunities encountered during implementation of the roadmap and propose appropriate responses;
- (e) Establish a strategy for and take the lead in mobilizing funds, technical expertise and other resources for the implementation of the road map;
- (f) Monitor developments, review the elements of the road map, prepare progress reports and make recommendations;
- (g) Undertake other tasks as necessary.

4.2 Implement the roadmap

4.2.1 Build national and regional capacity on how to use scientific information in decision-making and to involve stakeholders in science-based decision-making

56. The objective of this area of action is to build national and regional capacity to use scientific information in decision-making to implement the Conventions and to contribute to more consistent and transparent processes within the BRS conventions, foster more trust in the process, and facilitate getting agreement and commitment among Parties and various stakeholders through strengthened institutional mechanisms to involve stakeholders in the decision-making processes relevant to the BRS conventions.

57. For this area, the following activities could be carried out:

- (a) Identify the critical issues that need to be addressed in the use of scientific information in the BRS conventions and compile information on the use of scientific information in decision-making relevant to the BRS conventions;
- (b) Identify opportunities for involving national stakeholders in an effective way including making use of the existing mechanisms such as the national implementation plans committee and Convention focal points, and compile information on modalities for stakeholder engagement in decision-making relevant to the BRS conventions;
- (c) Develop training materials and undertake training to promote use of available scientific information and engagement of stakeholders in the decision-making process.

4.2.2 Build networks and partnerships for enhanced science-based action

58. The objectives of this area of action are to build networks and partnerships with stakeholders to enable stronger links between available scientific and technical resources and to support various stakeholders in providing inputs to decision-making processes relevant to the BRS conventions. The networks and partnerships could be at the international, regional and national levels.

59. For this area, the following activities could be carried out:

(a) Identify existing organisations, including IGOs, industry, private sector, civil society, and academia, that could have a role in supporting the BRS conventions and explore modalities for their engagement in BRS conventions decision-making processes at the national, regional and international levels;

(b) Build networks of policy makers, local/international experts, and actors from industry, the private sector, civil society, and academia and strengthen partnerships to foster information gathering, sharing of expertise and technologies, and leverage cooperation; and

(c) Strengthen relationships with existing monitoring programs that generate information used in the decision-making processes of the conventions.

4.2.3 Address challenges faced by developing countries and countries with economies in transition in science-based decision-making

60. The objectives of this area of action are to build regional capacity for science-based decision-making relevant to the BRS conventions and to address technical challenges faced in particular by developing countries and countries with economies in transition.

61. For this area, the following activities could be carried out:

(a) Identify specific needs of Parties from developing countries and countries with economies in transition and enhance capacity building initiatives at regional centres or in other relevant institutions to support the implementation of the Conventions;

(b) Create regional mechanisms to improve access to information, share experience, enhance collaboration, promote advancements in scientific understanding through research and monitoring, facilitate regional decision-making processes and strengthen input into science-based processes of the BRS conventions;

(c) Facilitate training on the use of science in decision-making including addressing uncertainty, determining the weight of evidence, considering risk principles, and the appropriate use of precautionary approaches as relevant to the BRS conventions; and

(d) Make available documents in the six official languages of the United Nations, where possible and resources available.

4.2.4 Enhance collaboration between the Secretariat and other entities for information exchange and outreach on scientific aspects of the BRS conventions

62. The objective of this area of action is to explore options to increase the effectiveness of information exchange and outreach on scientific aspects of the BRS conventions through enhanced collaboration between the Secretariat and other entities, in particular the IOMC organizations (FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD) and other MEAs. The intersessional process to consider the Strategic Approach and sound management of chemicals and waste beyond 2020 could be an opportunity for collaboration.

63. For this area, the following activities could be carried out:

(a) Enhance information exchange on scientific aspects of the conventions through the clearing house mechanism and outreach activities; and

(b) Promote collaboration with other entities, in particular the IOMC organizations, (FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD), SAICM and other MEAs, on outreach, awareness raising and information exchange on scientific aspects of the conventions.

Appendix 1: Elements of the road map for science to action

Activities	Responsible actors	Timeline
1. Establish an overall roadmap management and reporting procedures		
(a) Invite Parties and others to nominate experts to participate in the joint intersessional working group on science to action	Secretariat	May 2017
(b) Develop draft terms of reference of the joint intersessional working group	Secretariat in consultation with the bureaux of the 2019 COPs	September 2017
(c) Revise the draft road map based on the feedback received during the 2017 COPs and initiate identification of concrete work areas	Joint intersessional working group	September 2017 – November 2017
(d) Initiate the implementation of initial activities of the road map	Joint intersessional working group	November 2017 – December 2018
(e) Prepare a progress report including recommendations to the 2019 COPs	Joint intersessional working group	January 2019
(f) Undertake fund raising for implementation and coordination of the roadmap	Secretariat, Joint intersessional working group, Parties, donors	May 2017 – May 2019
2. Implement the road map		
2.1 Build national and regional capacity on how to use scientific information in decision-making and to involve stakeholders in science based decision-making		
(a) Identify the critical issues that need to be addressed in the use of scientific information in the BRS conventions and compile information on the use of scientific information in decision-making relevant to the BRS conventions	Joint intersessional working group, all stakeholders	November 2017 – March 2018
(b) Identify opportunities for involving national stakeholders in an effective way including making use of the existing mechanisms such as the national implementation plans committee and Convention focal points, and compile information on modalities for stakeholder engagement in decision-making relevant to the BRS conventions	Joint intersessional working group	November 2017 – March 2018
(c) Develop training materials and undertake training to promote use of available scientific information and engagement of stakeholders in the decision-making process	Joint intersessional working group, Secretariat	June 2018 – December 2018
2.2 Build networks and partnerships for enhanced science-based action		
(a) Identify existing organisations, including IGOs, industry, private sector, civil society, and academia, that could have a role in supporting the BRS conventions and explore modalities for their engagement in BRS conventions decision-making processes at the national, regional and international levels	Joint intersessional working group	November 2017 – March 2018
(b) Build networks of policy makers, local/international experts, and actors from industry, the private sector, civil society, and academia; strengthen partnerships for information gathering, sharing of expertise technologies and, and leverage cooperation <ul style="list-style-type: none"> Joint intersessional working group to identify examples and best practices and promote such networks and partnerships 	Governments, industry, private sector, civil society, and academia	Continuous
(c) Strengthen relationships with monitoring programs that generate information used in the decision-making processes of the conventions <ul style="list-style-type: none"> Joint intersessional working group to identify examples and best practices and promote such collaboration with monitoring programs 	Governments, industry, private sector, civil society, and academia	Continuous

2.3 Address challenges faced by developing countries and countries with economies in transition in science based decision-making		
(a) Identify specific needs of Parties from developing countries and countries with economies in transition and enhance capacity building initiatives at regional centres or in other relevant institutions to support the implementation of the Conventions	Joint intersessional working group, Regional centres, Secretariat	Continuous
(b) Create regional mechanisms to improve access to information, share experience, enhance collaboration, promote advancements in scientific understanding through research and monitoring, facilitate regional decision-making processes and strengthen input into science-based processes of the BRS conventions	Governments, Regional centres, Secretariat	Continuous
(c) Facilitate training on the use of science in decision-making including addressing uncertainty, determining the weight of evidence, , considering risk principles, and the appropriate use of precautionary approaches as relevant to the BRS conventions	Regional centres, Secretariat	Continuous
(d) Make available documents in the six official languages of the United Nations, where possible and resources available	Secretariat	Continuous
2.5 Enhance collaboration between Secretariat and other entities on information sharing and outreach on scientific aspects of the BRS conventions		
(a) Enhance the information exchange on scientific aspects of the conventions through the clearing house mechanism and outreach activities	Secretariat, Joint intersessional working group	Continuous
(b) Promote collaboration between the Secretariat and other entities, in particular the IOMC organizations (FAO, ILO, UNDP, UNEP, UNIDO, UNITAR, WHO, World Bank and OECD), SAICM and other MEAs, on outreach, awareness raising and information exchange on scientific aspects of the conventions	Secretariat, IOMC organizations, SAICM, other MEAs	Continuous

Appendix 2: Science-Based Decision-Making under the BRS conventions

1. Scientific data have been used to inform decisions of the conference of the Parties to the Basel, Rotterdam and Stockholm (BRS) conventions. These have included the adoption of technical guidelines, framework documents and guidance related to environmentally sound management of various types of wastes under the Basel Convention. The Rotterdam Convention has amended Annex III to the Convention to list additional 8 chemicals and the Stockholm Convention has amended Annexes A, B and C to the Convention to list an additional 14.
2. In 2015, the conferences to the Parties of the BRS conventions reiterated the importance of further strengthening the science-policy interface for the effectiveness of the conventions and stressed the need for greater access to scientific understanding in developing countries to enhance informed decision-making on the implementation of the conventions. The conferences of the Parties also stressed the need for scientific underpinning for decision-making in the sound management of chemicals and wastes at the national and regional levels.
3. This appendix presents factors that influence how evidence informs decision making to foster discussion among Parties and other stakeholders on actions that could strengthen the science-policy interface in the context of the Basel, Rotterdam and Stockholm conventions. Comments received during the drafting of the present appendix expressed sometimes opposing view-points which will need to be further discussed and refined during the implementation of the road map for science to action.

I. The role of science to inform decision-making

4. The importance of science in national and international policy making continues to grow and affects most government functions. Policy decisions, whether in national governments or the international arena appropriately consider a wide range of inputs that can include the following: indigenous, traditional and local knowledge; ethical and cultural considerations, economic and social aspects, etc.). In addition to impacts on health and the environment at large, decision makers need to take into consideration the interests of various groups within society, such as industry, commerce, workers, consumers, and more vulnerable groups including indigenous and minority populations. Other aspects such as international obligations, legal precedents, administrative burden, will also influence the final policy adopted. The role of decision makers is to weigh these multiple inputs and select a preferred option. Scientific advice is only one, albeit important, input in the decision-making process.
5. Various bodies have examined the role of science in informing policy development.⁶ The following principles, adapted from the framework of the Council of Science and Technology Advisors of the government of Canada (Industry Canada 2000), can guide effective use of scientific information in support of decision-making:

(a) Early Issue Identification:

To effectively protect health and the environment governments need make timely and informed decisions. Surveillance data or results of new research are critical to be able to identify potential threats as early as possible.

(b) Inclusiveness:

⁶ See for example:

- (a) Court, J. & Sutcliffe, S., Evidence-Based Policymaking: What is it? How does it work? What relevance for developing countries? (2005), bit.ly/Kn9BOj;
- (b) "Good Practice in the Dialogue between Science Academies and Policy Communities" <http://bit.ly/1ev6WL8>;
- (c) "Leitlinien Politikberatung" of the Academy of Sciences Berlin-Brandenburg (2008), bit.ly/1hUnXx;
- (d) "Scientific Advice for Government Effectiveness" by the Council of Science and Technology Advisors (1999), bit.ly/1dDfcd0;
- (e) "Scientific policy advice - Recommendations of the Swiss Academies of Arts and Sciences to researchers" (2011), bit.ly/1a6iMfq;
- (f) Wilsdon, J., "The science of scientific policy advice", presentation at the OECD GSF workshop (2013), bit.ly/1f0MExS;
- (g) As cited in UNESCO & the German National Commission for UNESCO (2014).

Robustness of the evidence base to support decision making is enhanced when a variety of sources of evidence, including local and indigenous knowledge, and experts in relevant disciplines are used to assess the situation. This allows the capture of a full diversity of opinions and understanding, and can help highlight if there is a consensus or if there are still many areas of uncertainty. Inclusiveness in the process also fosters greater acceptance in the decision.

(c) **Reliable Scientific Evidence:**

For scientific advice to be dependable it needs to be based on quality, reliable and objective data. However, this does not imply that full scientific certainty must exist. Criteria can be established to help assess the evidence to ensure its integrity. Policy or economic consideration should not influence the assessment of the evidence from which this scientific advice is generated. The integrity of scientific input can be maintained when experts are involved in the identification and assessment of policy options while retaining their independence, and ensuring that possible bias or conflict of interest among experts are recognised, acknowledged and strongly discouraged. Other sources of knowledge, including indigenous knowledge, can be an important contribution to the evidence base.

(d) **Uncertainty and Risk:**

There is always uncertainty in the evidence. Given the overall objective of the BRS conventions is to protect health and the environment, policy decisions often need to be made when there is lack of full scientific certainty. A risk management framework that includes guidance on how to assess and communicate uncertainty and how to apply precaution will help the decision-making process and promote consistency in the decisions taken (see for example Canada, 2003; Milieu Ltd et al., 2011).

(e) **Transparency and Openness:**

Decision-making processes that are open and transparent and involve stakeholders and the public, help build trust in the decision-making process and ensure greater acceptance in the decision and its implementation.

(f) **Review:**

Given that knowledge and understanding continues to evolve, a mechanism for review of decisions can help determine whether the weight-of-evidence has changed over time and, if it has, whether a change in policy is needed to effectively protect health or the environment.

II. Evidence-informed decision-making

6. Evidence-informed policy-making (EIDM) has been described as “an approach to policy decisions that aims to ensure that decision making is well-informed by the best available research evidence. It is characterised by the systematic and transparent access to, and appraisal of, evidence as an input into the policy-making process.”(Oxman et al., 2009)

7. The approach emphasizes the use of systematic and transparent processes to identify available evidence, appraise it for its quality and relevance, and to ensure the appropriate use of that evidence to draw conclusions. This systematic and transparent approach enables others to review the evidence used to inform policy decisions and the underlying assumptions and judgments during the assessment. The process is used in public health to find, use and share what works (Mackintosh, et al., 2015; Oxman et al., 2009).

8. There is no universally agreed upon definition of evidence (Gluckman, 2013). While EIDM practitioners emphasise research and scientific evidence and the use of critical appraisal of the information to ensure the best available evidence is used, there is recognition that other sources of evidence, indigenous knowledge in particular, can make valuable contribution to the decision-making process (Bowen & Zwi; 2005; SAB, 2014).

III. The policy cycle

9. The policy-making process involves many players, is often non-linear, and can be complex. The 1983 U.S. National Research Council report *Risk Assessment in the Federal Government* has been influential in informing the development of approaches to decision making related to the environmentally sound management of chemicals. While it is recognised that the policy development process is not linear, decision-making models typically include the following steps or stages (see for example, Health Canada 2000; Sutcliffe & Court, 2005):

- (a) Identification of the issue;
- (b) Assessment of the evidence;
- (c) Development of options;
- (d) Adoption of a course of action;
- (e) Implementation (including enforcement); and
- (f) Monitoring and evaluation (see Figure 1).



Figure 1: Decision-Making Framework (Adapted from Health Canada, 2000)

10. An important part of the process is the involvement of interested and affected Parties at all stages. As well, it is recognised that findings from one stage may influence or feed into another stage.

11. As noted in the section above, scientific and other observations have an important contribution at the identification stage of the policy cycle. Scientific endeavours and other undertakings bring new facts to light and contribute to a better understanding of cause and effect relationships. The assessment stage is usually the most science intense phase of the policy cycle. At this stage available evidence is collected, reviewed, assessed for quality, and synthesized to help quantify the risks and benefits. When risks to health or the environment are identified options available to reduce, mitigate or eliminate the risks are explored. This stage will assess the effectiveness of interventions, the availability of alternatives, and costs of adoption and implementation of various options. It is also at this stage that the benefits of a recommended option are usually evaluated.

12. The science-policy interface is most prominent during Stage 4, the adoption of a recommended course of action. At this stage decision-makers need to consider various factors in addition to the scientific evidence before selecting the preferred option. The challenge at this stage is to get consensus on what is the appropriate course of action, which involves trade-offs between different and possibly conflicting interests within society, and agreement on how to address the underlying uncertainty in the evidence. Depending of the course of action adopted there might be a scientific component at the implementation stage. The monitoring and evaluation stage involves collecting and analysing data, which may indicate the need to review the policy or initiative.

IV. Complexity in policy decisions

13. Policy decisions by necessity need to integrate more than the scientific evidence. In addition to environmental and health evidence, institutional constraints, values, competing societal interests,

and economics are among the factors that decision-makers must weigh when selecting a course of action (Choi, 2005; Oxman et al. 2009).

14. Given that assessments of scientific data are subject to uncertainties and that scientific knowledge is incomplete, different analysts will arrive at different interpretations of the same set of data. These differences in interpretation can be large when risks to human health from chemical toxicity are involved (NRC, 2009). “Different experts weigh evidence differently” (Oreskes, 2004).

15. Societal values influence how a decision is made and what decision is adopted, for example when dealing with uncertainty and using precautionary approaches (Elliott & Resnik 2014). What weight science should play in the decision-making process is a policy decision.

16. Scientific evidence plays a role in identifying the issue; assessing the evidence is predominantly a scientific process; but many additional factors are considered when policy options are developed and recommendations made; monitoring and evaluation – which could be either quantitative or qualitative – contribute to the evidence base. Figure 2 illustrates the relationship between scientific evidence and policy development.

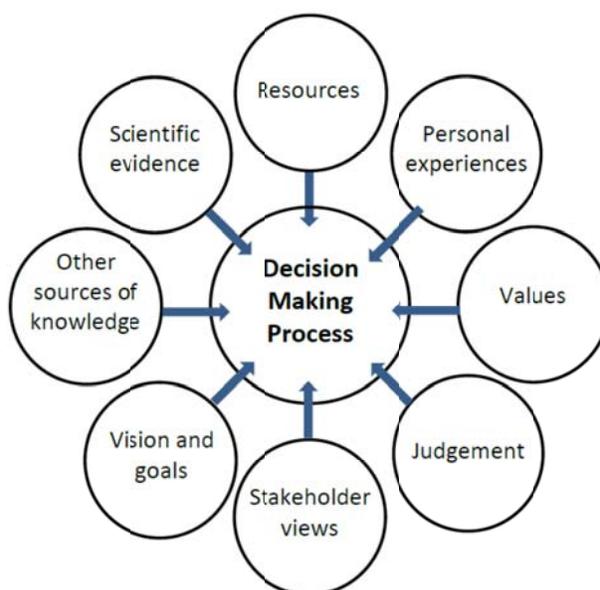


Figure 2: The interplay of factors influencing evidence-based public policy (Source: Brownson, 2009; Sutcliffe & Court, 2005)

17. To address the challenges in the science-policy interface a more inclusive approach to the development of knowledge has been called for. As an approach to better integrate science in policy decisions, Cornell and colleagues (2013) outline knowledge systems that use a shared approach to defining the agenda, creating evidence, and using that evidence to guide action (Figure 3). It emphasizes co-production of knowledge and experiential learning that require effective processes for stakeholder participation and dialogue among various societal actors. This will require new approaches to address differences in opinion, controversy, uncertainty, values, and appraisal of the evidence including peer review. Such a model democratizes science and if the processes are transparent can better foster consensus among decision-makers and stakeholder buy-in.



Figure 3: The knowledge arena: sustainability science as a collective learning process (Cornell 2013)

V. Principles to guide the decision-making process

18. Given the various views that exist among Parties to the BRS conventions and that different frameworks are used to guide national decision making on chemicals and wastes, the conference of the Parties may wish to foster a common understanding to the assessment of the evidence and its integration into the decision-making processes of the conventions by outlining principles to guide the process of determining the weight-of-evidence for action under the conventions.

19. These principles would be consistent with the objectives of the BRS conventions, which are as follows:

(a) The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes;

(b) The objectives of the Rotterdam Convention are to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm, and to contribute to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties; and

(c) Stockholm Convention Article (1) Objective: Mindful of the precautionary approach as set forth in Principle 15 of the Rio Declaration on Environment and Development, the objective of this Convention is to protect human health and the environment from persistent organic pollutants.

20. Principles that could be considered include:

(a) Make maintaining and improving health and environment the primary objective – so if there is a conflict with other policy objectives, primacy is given to protecting health or the environment as expressed in the objectives of the BRS conventions;

(b) Involve interested and affected Parties in the process – this is in recognition that effective involvement can build trust, lends credibility to decisions, provides access to critical information, increases acceptance of the decision, and supports implementation;

(c) Communicate in an effective way – this is a two-way process which provides individuals with information so that they can contribute constructively to the decision-making and provides a mechanism for feedback;

(d) Use a broad perspective – this helps to take into consideration factors such as potential social, cultural, ethical, political, environmental, legal, economic, human rights and other impacts, and the perspectives of interested and affected Parties while maintaining a focus on health and safety;

(e) Use a collaborative and integrated approach – this can increase efficiency, effectiveness, and consistency of decisions, reduce duplication of effort, identify gaps in science and policy, and fosters greater acceptance of the decision;

- (f) Make effective use of evidence – if the decision making process includes measures to ensure the quality, integrity and objectivity of science advice this will improve confidence in the decision;
- (g) Use a “precautionary” approach – this emphasizes the need to take timely and appropriate action when reasonable evidence indicates that a situation could cause adverse health or environmental effects;
- (h) Tailor the process to the issue and its context – this allows the process to be adapted so that it is best suited to situation at hand or chemical of concern;
- (i) Clearly define roles, responsibilities, and accountabilities – this fosters clarity in the process and helps it be more transparent;
- (j) Strive to make the process transparent – a well-documented process ensures that all aspects of the risk management decision-making process are clear and easily understandable and that the information and data used are available to all stakeholders to view and review (Adapted from Health Canada 2000).

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Annex II

Summary of the results of the online survey on “From science to action” for the Basel, Rotterdam and Stockholm conventions

I. The survey

1. The Secretariat conducted an online survey (<http://fs.pops.int/fs-ScienceToAction.aspx>) to collect information on the challenges and opportunities of Parties and stakeholders of the Basel, Rotterdam and Stockholm (BRS) conventions in bringing science and policy together from 3 August to 10 October 2016.

II. Respondents

2. A total of 127 respondents from 76 countries participated in the online survey. Of these 31 (35%) were from developed countries and 96 (65%) from developing countries and countries with economies in transition. Figure 1 illustrates the composition of the 127 respondents.

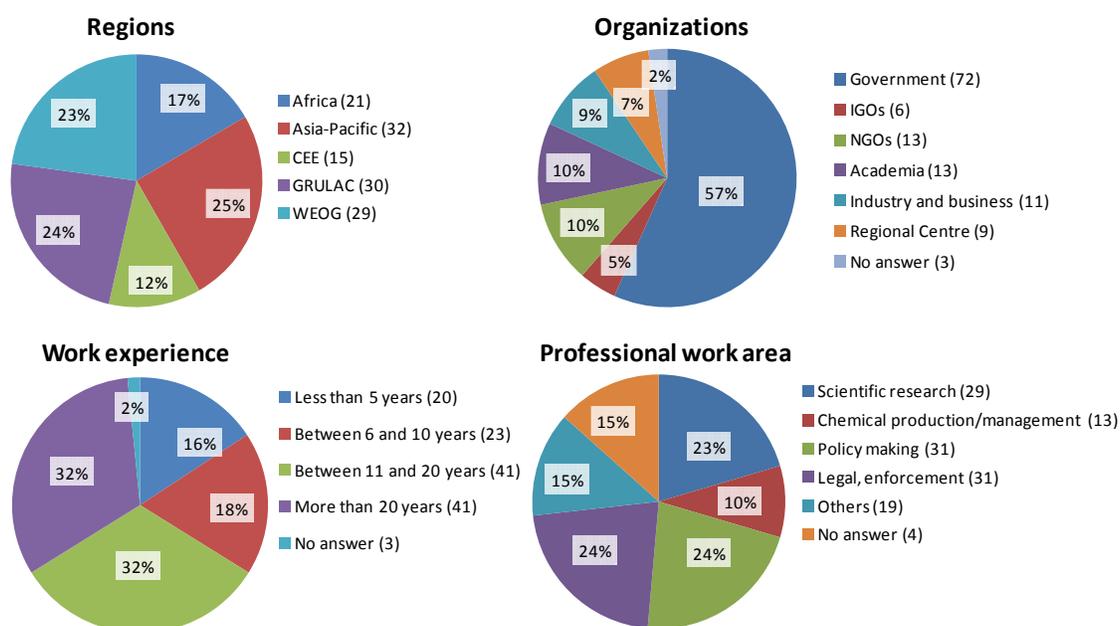


Figure 1: Composition of the 127 respondents to the online survey

3. With regard to the involvement in chemical interest groups, academic networks or other centre of excellence in the relevant field, 62 (49%) responded that they were taking part in such groups.

4. Some examples included (in no particular order): Society of Environmental Toxicology and Chemistry (SETAC); Chemicals Management Plan Stakeholder Advisory Council of Canada; International POPs Elimination Network (IPEN); Zero Mercury group; Arctic Monitoring and Assessment Programme (AMAP); German Chemical Society; European Geoscience Union; International Panel on Chemical Pollution (IPCP); Northern Contaminants Program; Southern African Society for Aquatic Scientist; Chemical Watch; International Commission on Occupational Health; Indian Association of Occupational Health; Indian Chest Society; Indian Medical Association; Interstate Commission on Sustainable Development Public Council of Central Asia; Scientists for Global Responsibility; Brazilian Chemical Society; Brazilian Society of Oceanography; Southern African Pesticide Regulators Forum; Secretariat of the Pacific Community; Northern Contaminants Program; Partnership for Action on Computing Equipment (PACE); European EcoForum; WHO Chemical Risk Assessment Network; European Monitoring and Evaluation Programme (EMEP); Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM); Latin American and Caribbean Chemical Emergency Response Network (REQUILAC); Network of Environment and Health Laboratories for Latin America and Caribbean (RELAC); Process Safety Management committee of the Canadian Society for Chemical Engineering; Sub-committee on

Environmental Management Systems for ISO implementations; Comisión Nacional para la Gestión Ambientalmente Racional de los Productos Químicos en Honduras (CNG).

5. With regard to the involvement in the work of the intergovernmental organizations (IGOs), 71 (56%) were collaborating with UNEP, followed by 34 (27%) with FAO, 28 (22%) with UNDP and 28 (22%) with UNIDO (see Figure 2).

6. Some examples of collaboration included (in no particular order): preparation and implementation of GEF and other projects; SAICM Quick Start Programme and other projects; monitoring projects with UNEP and WHO; participation in meetings, workshops and training activities; preparation of national profile for WHO; OECD task force; pesticide management with FAO; convention focal points; developing guidance and guidelines.

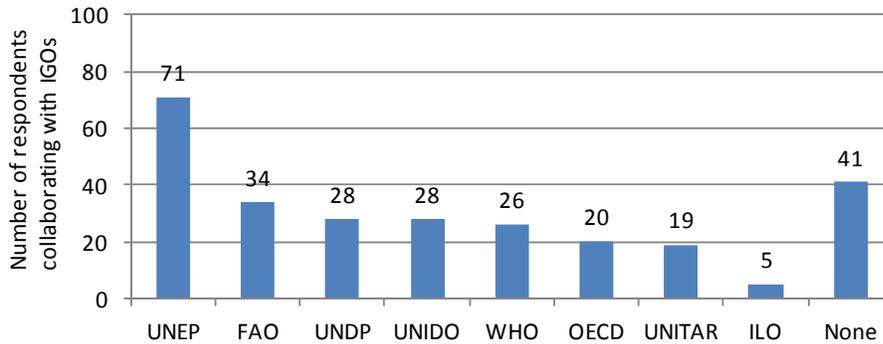


Figure 2: Number of respondents collaborating with IGOs (multiple responses)

7. With regard to the involvement in the work of multilateral environmental agreements (MEAs) in science, policy or other aspects, 88 (69%) were collaborating with the Stockholm Convention, followed by 67 (53%) with the Basel Convention, 60 (47%) with the Rotterdam Convention, 59 (46%) with the Minamata Convention, and 59 (46%) with the Strategic Approach to International Chemicals Management (SAICM) (see Figure 3).

8. Some example of other MEAs included: Chemical Weapons Convention (CWC); Convention on Long-Range Transboundary Air Pollution (CLRTAP); and United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (UNCCD).

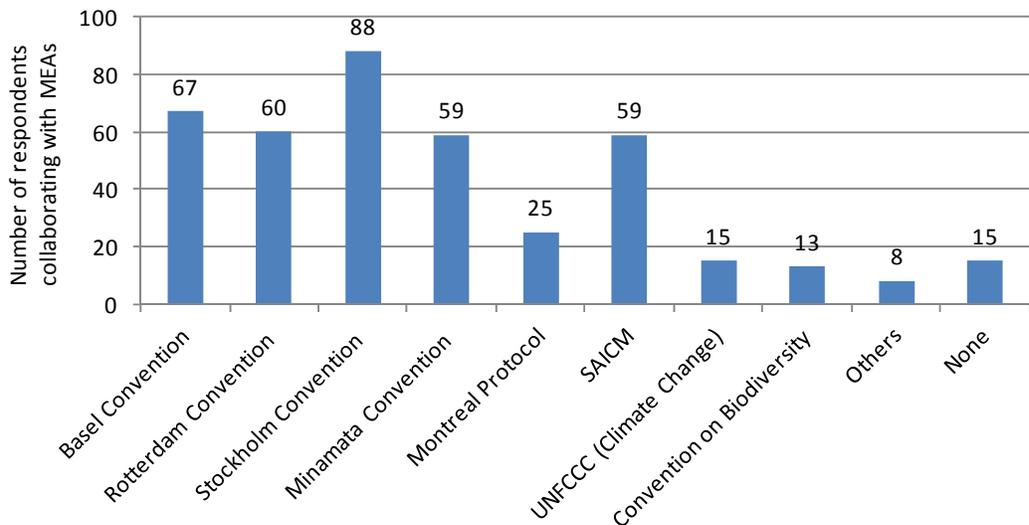


Figure 3: Number of respondents collaborating with MEAs in science, policy or other aspects (multiple responses)

9. With regard to the areas of work related to chemicals and wastes issues, 86 (68%) were working on regulation and legal issues, followed by 79 (62%) on policy making, 76 (60%) on monitoring, 64 (50%) on risk evaluation or assessment, and 54 (43%) on human health (see Figure 4).

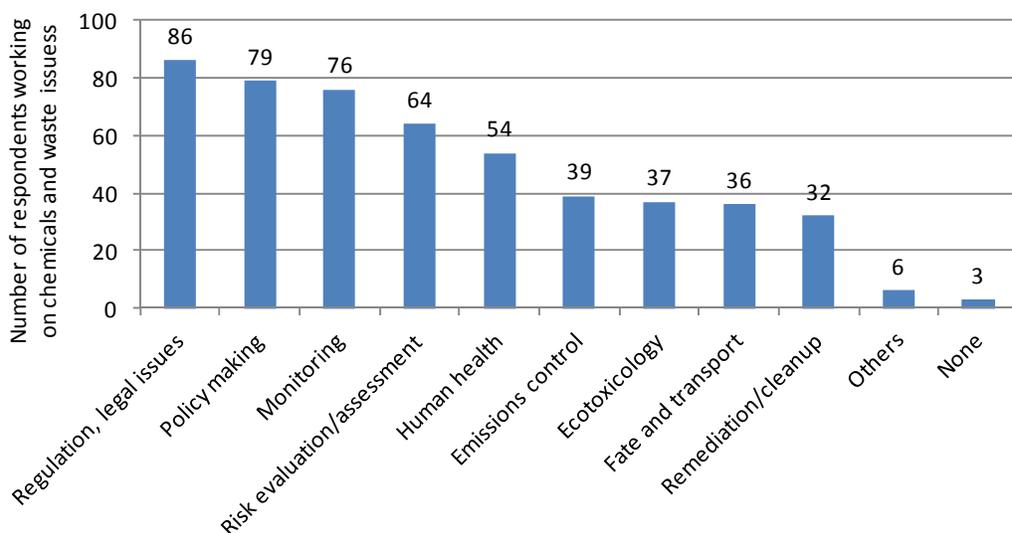


Figure 4: Number of respondents working on chemicals and wastes issues (multiple responses)

10. With regard to the respondents' familiarity with the BRS conventions, 49 (39%) had good understanding on the Basel Convention, 59 (46%) on the Rotterdam Convention, and 82 (65%) on the Stockholm Convention (see Figure 5).

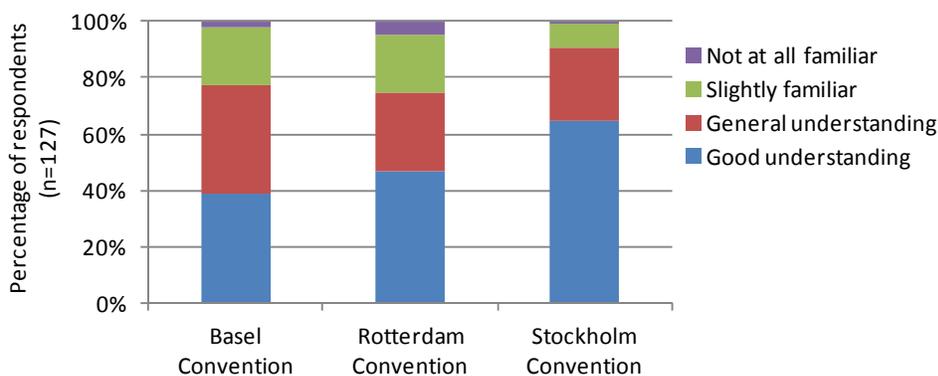


Figure 5: Respondents' familiarity with the BRS conventions

III. Needs for science-to-policy interface

A. Experience in using scientific and technical information related to chemicals and wastes for decision-making

11. With regard to the experience in using scientific and technical information for decision making-making, 99 of the 127 respondents (78%) had such experience.

12. With regard to the experience in finding scientific and technical information, the respondents had looked for information on the following nine areas: 93 (73%) on policy and regulations; 79 (62%) on environmental or human health; 72 (57%) on inventory and stockpiles; 67 (53%) on environmental or human exposure; and 66 (52%) on use, production and trade; 61 (48%) on releases and monitoring data; 53 (42%) on alternatives; 53 (42%) on environmental fate; and 47 (37%) on management options (BAT/BEP) (see Figure 6).

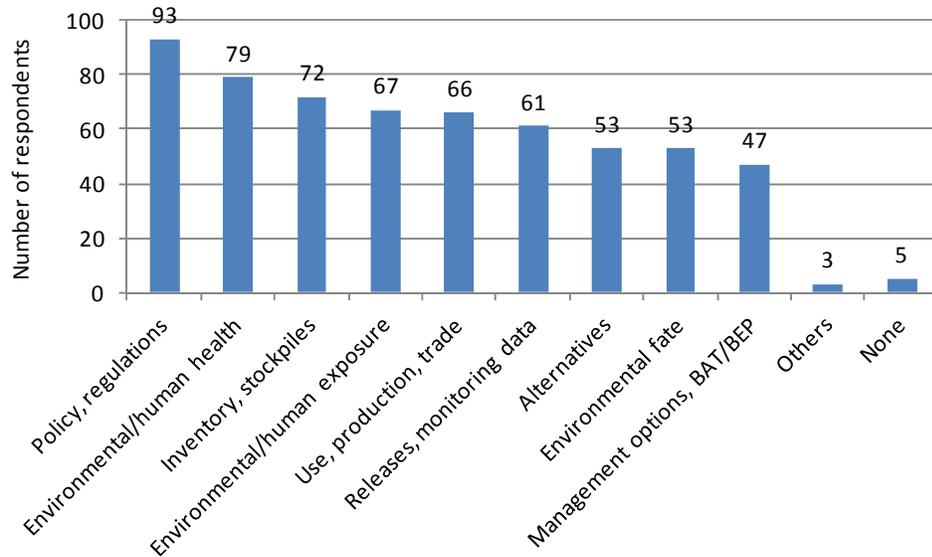


Figure 6: Number of respondents with experience in finding scientific and technical information related to chemicals and wastes for decision-making in different areas (multiple responses)

13. For those nine areas, the respondents further indicated whether they found the information useful, scarce or not reliable or lacking. Those who found the information useful ranged from 44 to 68%; scarce or not reliable from 11 to 19%; and lacking from 7 to 14% (see Figure 7).

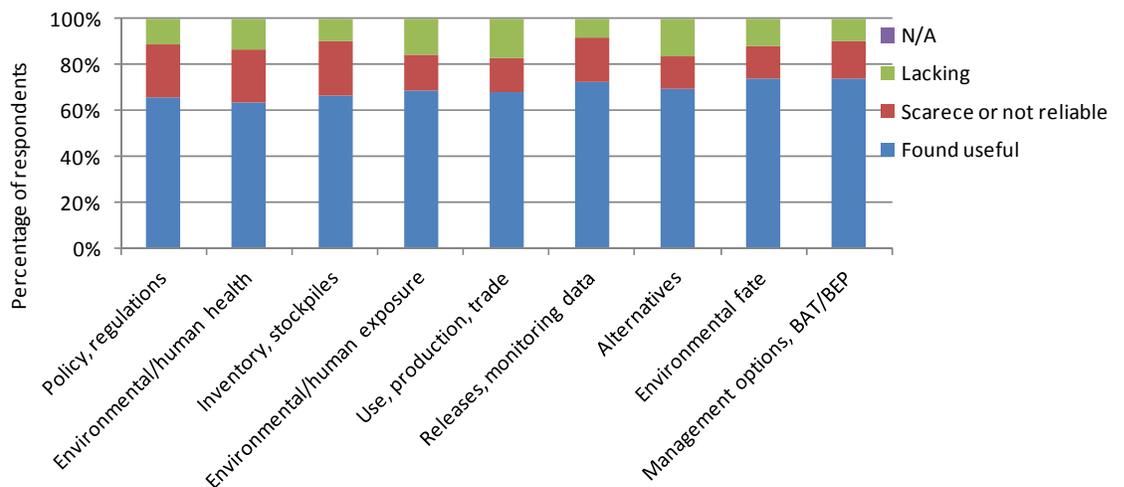


Figure 7: Percentage of respondents finding scientific and technical information useful or not

14. Table 1 summarizes the percentage of respondents who found the relevant information and could apply it to decision-making. When compared to respondents from developing countries and

countries with economies in transition, a larger proportion of respondents from developed countries indicated they could find relevant and useful information related to policy, regulations, environmental or human health effects, exposure data, releases, monitoring data, environmental fate, management options and BAT/BEP than those from developing countries and countries with economies in transition. A larger proportion of respondents from developing countries and countries with economies in transition indicated they were able to find relevant information on inventory, stockpiles and alternatives compared to respondents from developed countries.

Table 1. Percentage of respondents in each information area who found relevant information and could apply it to decision-making

Information area	Responses from developed countries	Responses from developing countries and countries with economies in transition
Policy, regulations	76%	61%
Environmental or human health effects	80%	48%
Inventory, stockpiles	38%	55%
Environmental or human exposure data	52%	48%
Use, production, trade	48%	48%
Releases, monitoring data	72%	50%
Alternatives	39%	59%
Environmental fate	74%	57%
Management options, BAT/BEP	77%	66%

15. The proportion of respondents who indicated they were able to find relevant information differed depending on the topic area and status of economic development:

(a) Overall, nearly a third (31%) of respondents who searched for information on a topic area indicated they were not able to find information needed to support decision-making;

(b) About half (48-52%) of respondents from both developed countries and developing countries and countries with economies in transition indicated that relevant information on use, production, trade and exposure were not available;

(c) While overall about half (49%) of respondents also indicated not being able to find relevant information on alternatives, inventories and stockpiles, a larger proportion of respondents from developed countries indicated that such information was not available;

(d) Overall respondents indicate that relevant information on policy, regulations, environmental or human health effects, and management options (BAT/BEP) were more readily available; a higher proportion of respondents from developing countries and countries in transition indicated that such information was not available. For example, only 48% of respondents from those countries indicated they were able to find relevant information on effects of chemicals and waste on human health or the environment, compared to 80 percent of respondents from developed countries who indicated such information was available.

16. Some examples of references, information sources or search strategies that have been useful included (in no particular order):

(e) Information provided by the Secretariat of the BRS conventions (e.g. national implementation plans; national reports; Toolkit; BAT/BEP guidance; POPs Review Committee documents; POPs global monitoring reports; Rotterdam Conventions Decision Guidance Documents for chemicals listed in Annex III; Basel Convention technical guidelines on environmentally sound management of wastes);

(f) Information provided by IGOs and United Nations (e.g. websites, guidance, toolkit, reports and other materials developed by FAO, GEF, GHS, IARC, ILO, INTERPOL, ISO, NAFTA, OECD, SAICM, UNEP, UNIDO, UNITAR, WHO; International Programme on Chemical Safety (IPCS); InforMEA);

(g) Information provided by the Regional Centres (e.g. RECETOX; CETESB);

(h) Information provided by governments and regional economic integrations (e.g. Australia: Environment Protection Agency (EPA); Canada: National Pollutant Release Inventory (NPRI), Global Atmospheric Passive Sampling Network (GAPS), Canadian Health Measure Survey (CHMS); Czech Republic: GENASIS; New Zealand: Environment Protection Agency (EPA); European Union: EU Directives and Regulations, European Chemicals Agency (ECHA), European Food Safety Authority (EFSA), Registration, Evaluation, Authorization and Restriction of Chemicals

(REACH); United Kingdom: National Atmospheric Emissions Inventory (NAEI); United States of America: Agency for Toxic Substances and Disease Registry (ATSDR); Environment Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), National Library of Medicine (NLM); National Institute of Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC); National Health and Nutrition Examination Survey (NHANES); Hazardous Substances Data Bank (HSDB), Toxnet; Pollution Release and Transfer Register (PRTR) data from various countries; Data Evaluation Records; National Chemicals Profile; Export Notifications);

(i) Information provided by academia and research institutes (e.g. Science Direct; SciELO; PubMed; Arctic Monitoring and Assessment Programme (AMAP); Northern Contaminants Program (NCP); Clean Production Institute at Lowell (University of Massachusetts); MONET (RECETOX); Pesticide Properties Database (PPDB));

(j) Information provided by civil societies and industry groups (International POPs Elimination Network (IPEN); Fibre Cement Product Manufacturers Association (FCPMA); material safety data sheets (MSDS)).

B. Access to scientific and technical information and capacity to use it within the organization

17. Of the 127 respondents, 89 (76%) indicated their organization found it easy to access and download scientific and technical information related to the BRS; 82 (66%) could easily access and download scientific publications for decision making; 47 (37%) had access to online reference library; 41 (32%) had access to geo-referenced information; and 53 (42%) had Capacity to customize, integrate or synthesize various kinds of information on a given chemical (see Figure 8).

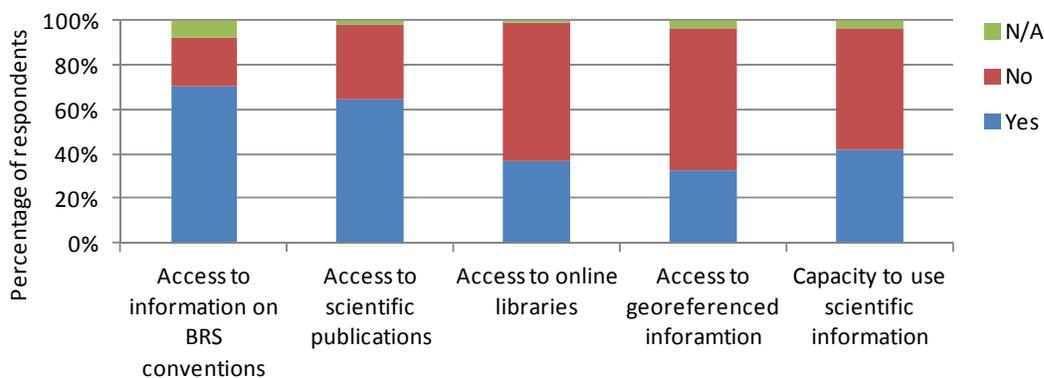


Figure 8: Percentage of respondents with access to scientific and technical information and capacity to use it within the organization

18. With regard to the access to online libraries, 47 of 127 respondents (37%) responded that they had access to libraries provided by governments (e.g. Brazil: <http://capes.gov.br/>, <http://www.ibama.gov.br/sophia/index.html>; USA: <https://www.epa.gov/libraries>; ECHA: <https://echa.europa.eu/information-on-chemicals/registered-substances>; <https://toxnet.nlm.nih.gov/>); IGOs (e.g. FAO: Pesticide registration toolkit; WHO: <http://www.who.int/library/en/>; OECD: <http://webnet.oecd.org/hpv/ui/Default.aspx>); academia (e.g. University of Toronto, Sao Paulo State University, PubMed, SciELO, ATSDR, Sciencedirect); and regional centres (e.g. CETESB: <http://modal.cetesb.sp.gov.br/portal/>).

19. With regard to geo-referenced information, 41 of 123 respondents (33%) indicated they used geo-referenced information or information organized by particular climate groups, regions, countries, or municipalities. The level of aggregation that is most relevant for use was at the national level.

20. With regard to the capacity to use scientific and technical information, 53 of 123 respondents (43%) had such capacity to customize, integrate or synthesize various kinds of information on a given chemical such as thresholds for health and environmental safety.

21. Table 2 summarizes the percentage of respondents who had easy access to information. More respondents from developed countries had easy access to online reference libraries, geo-referenced information and had capacity to synthesize the information than those from developing countries and countries with economies in transition.

Table 2. Percentage of respondents who had easy access to information

Access to information	Responses from developed countries	Responses from developing countries and countries with economies in transition
Access to online reference libraries	68%	27%
Use of geo-referenced information	62%	24%
Capacity to synthesize information	55%	39%

22. Respondents from developing countries and countries with economies in transition indicated lower access to information than those from developed countries. The largest difference was for access to online reference libraries where only 27% of respondents from the developing countries and countries with economies in transition indicated they had access, compared to 68% of respondents from developed countries. A similar difference was found for use of geo-referenced data (24% compared to 62%). There was less difference between these economic groups when it came to access to information on the BRS conventions and scientific publications.

23. The respondents highlighted the following challenges in accessing and using scientific and technical information (in no particular order):

- (a) The cost of obtaining information – articles and journals that are not open access or databases that are only available on subscription or by membership;
- (b) The many data gaps, especially data relevant to non-OECD countries;
- (c) The lack of information in the national language;
- (d) While information on hazards is more readily available, information on production, import and use, environmental fate, exposure, and environmental and health costs, which vary by national or regional context, is often lacking or of insufficient quality;
- (e) The lack of capacity to generate data in developing countries, such as the establishment of pollutant release and transfer registries, regular updating of inventories, collection of relevant statistics, and environmental monitoring;
- (f) The need for additional information on alternatives as well as information on successful experiences in other countries;
- (g) The need for improved networking and exchange of information among Parties to the conventions and to improve communication among all stakeholders involved in the sound management of chemicals and wastes as well as increased participation of youth;
- (h) Insufficient coordination among the authorities responsible for the Basel, Rotterdam and Stockholm at the national level
- (i) Insufficient financial or technical resources including insufficient capacity in national or regional resource centres
- (j) The lack of national capacity to review and assess information including the capacity to undertake systematic reviews of the evidence (from elaborating the search strategy, appraisal of articles, and synthesis of the evidence).
- (k) Knowledge translation – making scientific information understandable to a general audience – so that it can be used effectively in decision-making; and
- (l) The lack of standard approaches which can make it difficult to compare data – for example, the differences between the hazard classification under Basel and the Globally Harmonized System.

IV. Enhanced mechanisms for knowledge and information sharing

A. Generating and sharing information on chemicals and wastes

24. Of the 124 respondents, 84 (68%) indicated they had generated information on chemicals and wastes; 47 (56%) of respondents indicated that these data and information were made publicly available without restrictions while 27 (32%) indicated these were available with restrictions and 10 (12%) said this information was not made publically available.

25. More respondents from developed countries generated information on chemicals and wastes (87%) than those from developing countries and countries with economies in transition (61%). Respondents from developed countries indicated that 56% of this information was made available to the public without restrictions, and 44% with restrictions. While respondents for developing countries and countries with economies in transition also indicated 56% of this information was made available without restrictions, about 26% was made available with restrictions and 18% was not made available.

26. The forms of the data and information generated by the organizations of the respondents included formal technical research reports (44%), spreadsheets (24%), information exchange platform (18%) and others (15%).

27. Some examples of information exchange platforms included the following (in no particular order): www.ineris.fr/substances/; www.genasis.cz; www.pops-gmp.org; www.elspac.org; www.espac.eu; www.inti.gob.ar/basilea/; <http://www.basel.int/tabid/2334/Default.aspx>; <http://bibliotecatecnicacescco.blogspot.com/>; www.cetesb.sp.gov.br/; <http://ambiente.sp.gov.br/>.

B. Effectiveness of the modalities for scientific and technical information exchange

28. About half of the respondents considered the current modalities for facilitating exchange of scientific and technical information among Parties and other stakeholders and promoting the understanding of the scientific and technical aspects of the BRS conventions sufficient 60 (47%) (see Figure 9).

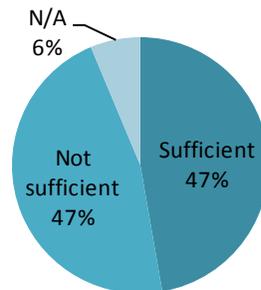


Figure 9: Views of respondents on current modalities for scientific and technical information exchange

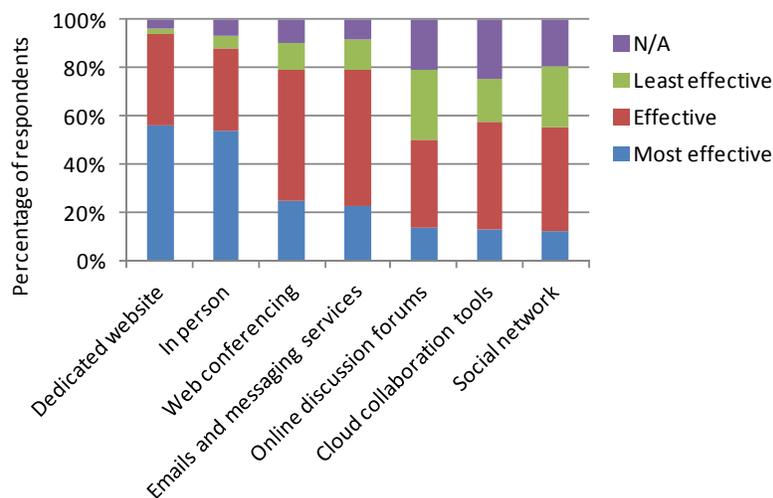


Figure 10: Effectiveness of tools for obtaining up-to-date scientific or policy guidance

29. The tools for obtaining up-to-date scientific or policy guidance that was considered most effective was through a dedicated website (56%), in person (54%), web conferencing (24%), emails and messaging services (23%), online discussion forums (13%), cloud collaboration tools (13%) and social network (12%) (See Figure 10).

30. Table 3 summarizes the percentage of respondents who considered the tools for obtaining up-to-date scientific or policy guidance useful. More respondents from developing countries and countries with economies in transition considered dedicated website, web conferencing, emails and messaging services, online discussion forums, cloud collaboration tools and social network as useful tools for obtaining guidance than those from developed countries.

Table 3. Percentage of respondents who considered the tools for obtaining up-to-date scientific or policy guidance useful

Tools for obtaining up-to-date scientific or policy guidance	All respondents (127)	Respondents from developed countries (31)	Respondents from developing countries and countries with economies in transition (96)
Dedicated website	56%	55%	56%
In person	54%	55%	53%
Web conferencing	24%	10%	29%
Emails and messaging services	23%	16%	25%
Online discussion forums	13%	7%	16%
Cloud collaboration tools	13%	10%	14%
Social network	12%	0%	16%

31. Table 4 summarizes the percentage of respondents who have actually used tools for obtaining up-to-date scientific or policy guidance. More respondents from developed countries have actually used all tools mentioned than those from developing countries and countries with economies in transition.

Table 4. Percentage of respondents who have actually used the tools for obtaining up-to-date scientific or policy guidance

Tools used for obtaining up-to-date scientific or policy guidance	All respondents (127)	Respondents from developed countries (31)	Respondents from developing countries and countries with economies in transition (96)
Dedicated website	90%	100%	87%
In person	76%	84%	73%
Web conferencing	76%	81%	74%
Emails and messaging services	79%	77%	79%
Online discussion forums	32%	42%	28%
Cloud collaboration tools	48%	52%	47%
Social network	54%	58%	52%

32. The preferred mode of obtaining scientific or policy guidance is in person or on the internet. Websites are the most commonly used sources for scientific or policy guidance, followed by e-mail, web conferencing and in-person contacts. A higher proportion of respondents from developing countries and countries with economies in transition indicated that social media networks and online discussion forums were effective means to obtain such information.

C. Identifying challenges and suggestions for improvements

33. While some respondents indicated that current access to information met their needs there were many suggestions on ways in which the BRS website could be improved. These suggestions indicated the need for the website to become a more searchable database rather than purely a repository of meeting documents and to more clearly guide the user to resources, either other documents on the web, experts in other countries, and information and data from Parties. A regular news service on the topics of relevance to the BRS conventions was also suggested. Strengthening regional structures and information at the regional level was also noted as something that would improve implementation of the BRS conventions.

34. E-mail was identified as a useful means of communication, but other more interactive tools were also suggested. A current limitation in the BRS processes that was identified is the limited involvement of non-government stakeholders. More opportunities to civil society to comment on draft documents through a web-based platform or national/regional workshops could ensure broader participation. More consideration needs to be given to ensuring documents and other information are available in multiple languages to ensure fuller participation from all regions.

35. The respondents highlighted the following shortcomings of current modalities for scientific and technical information exchange:

- (a) The population at large is not aware of relevant information portals and websites;
- (b) The BRS website can be difficult to navigate, and often information submitted by stakeholders is not available enough in advance of meetings;
- (c) When considering the entire population only a very small number of stakeholders participate in the conventions;
- (d) Decisions are taken by small groups of technical committee members without sufficient input from others who also hold additional relevant information;
- (e) Scientific and technical experts could be invited to participate in deliberations, especially when there is a need for specific expertise that is lacking among existing members;
- (f) Greater effort is needed to ensure that scientific information is synthesized and presented clearly to be useful to decision makers and non-specialist stakeholders;
- (g) Continued lack of capacity in developing countries, such as limited internet coverage, inadequate IT equipment, limited ability to obtain background materials needed, data interpretation capacity, and access to decision support systems;
- (h) Webinars are not as effective as workshops - Parties could be invited to workshops on regular basis and the materials from the workshops made easily accessible online;
- (i) Language barriers that limit access to and exchange of information;
- (j) Overlap and duplication among MEAs and other treaties dealing with chemicals;
- (k) Need for greater cooperation between the experts of the Basel, Stockholm and Rotterdam Convention
- (l) Limited information sharing between Parties in the region which is made more difficult with frequent changes of focal points for the conventions;
- (m) Insufficient information relevant to developing countries, and lack of information on alternatives.

36. Suggestions for enhanced mechanisms for knowledge and information sharing included the following:

- (a) Create an information hub ("one-stop shop") that would allow access to all kinds of information about a given chemical, including published articles and government information, a database where one could search for information by chemical, or by category (e.g. alternatives, regulations, etc.), or by country/region;
- (b) Establish a platform to exchange experiences on the management of chemicals and wastes, such as a link on the BRS website to facilitate information exchange among Parties and regular dissemination of national and other topical information, including new or revised guidance documents;
- (c) Share technical guidance documents and other relevant information related to the BRS

conventions through messaging services, social network and the regional centres;

(d) Support the formation a clearinghouse for information related to the BRS at the national level, which could be tripartite (government, industry, NGOs);

(e) Use regional and sub-regional centres as information and resource centres for BRS conventions, to hold annual workshops and to host regional discussion forums and meetings;

(f) Create a mechanism to foster discuss/exchange information on certain topics at the regional level;

(g) Strengthen stakeholder involvement/consultation in BRS processes/activities and encourage individuals with a strong interest in chemicals and wastes issues to take part in discussions, fora, provide their views and comments on certain technical documents or invite them to participate in regional trainings;

(h) Reach out to other science-policy groups to enhance collaboration, improve monitoring efforts, fill knowledge gaps and improve awareness of emerging issues;

(i) Foster greater disclosure of data and information and institute a mechanism to assess the information used to support decision-making, including the use of a weight of evidence approach that takes into account the relevance, quality, reliability, completeness of the data available;

(j) Improve communication between science (researchers) and action (government, environmental agencies, etc.) by making the information more easily understood and relevant, including better guidance to foster more consistent interpretation of information and implementation of obligations;

(k) Use Web-conferencing (scheduled to accommodate agencies in different time-zones) and make recordings available for others to access;

(l) Recognize the capacity of YouTube as a medium for awareness raising and a means of distribution of training videos;

(m) Create a platform to engage the younger generation;

(n) Build capacity of local NGOs to engage in national and regional discussions;

(o) Harmonize data structure to facilitate exchange and comparability of data and harmonize international rules and regulations to foster better management of hazardous chemicals;

(p) Make information and documents available in the six official languages of the United Nations.