

Regional Meeting for Sharing Experience and Lessons Learned in Implementing the Code of Conduct on the Safety and Security of Radioactive Sources and its associated Guidance on Import and Export of Radioactive Sources

Harare, Zimbabwe; 25-29 August 2014

Report of the Chairman

INTRODUCTION

1. A regional meeting for sharing experience and lessons learned in implementing the Code of Conduct on the Safety and Security of Radioactive Sources (hereinafter – the Code of Conduct or Code) and its associated Guidance on Import and Export of Radioactive Sources (hereinafter – the Guidance) was held from 25 to 29 August 2014 in Harare, Zimbabwe under the chairmanship of Dr. Shamsideen Elegba (Nigeria).
2. Twenty-three experts attended the meeting from 17 Member States of the IAEA. Participants from Angola, Burkina Faso, Botswana, Cameroon, Ghana, Kenya, Lesotho, Malawi, Mauritius, Namibia, South Africa, Senegal, Seychelles, Sudan, Uganda, United Republic of Tanzania and Zimbabwe took part in the meeting. The Scientific Secretary for the meeting was Mr. Eric Reber (IAEA Division of Radiation, Transport and Waste Safety). The Rapporteur for the meeting was Mr. Robert Irwin (Canada). The workshop took place in English language in the Cresta Jameson Hotel in Harare, Zimbabwe.
3. Mr. Reward Severa, (Chief Executive Officer of the Radiation Protection Authority of Zimbabwe) made welcoming remarks and asked the participants to introduce themselves.
4. Dr. Ntokozo Ndlovu, Chairman of the Radiation Protection Board of Zimbabwe introduced Mr. A. T. Chikondo, Senior Principal Director, Office of the President and Cabinet, Government of Zimbabwe, who opened the meeting.
5. Mr. Chikondo stated that Zimbabwe has been a member of the IAEA since 1986 and stressed the importance of the development of a regulatory framework to enhance the safety and security of radiation sources. He urged all countries to work together, particularly in the instance of the occurrence of an event with trans boundary effects. Zimbabwe made a political commitment to the Code in 2004 and the Government of Zimbabwe remains committed to the Code and its provisions. He also thanked the IAEA for its support.
6. Professor Elegba welcomed the participants and urged them to take advantage of the presence of the IAEA experts to discuss regulatory strategies and he also encouraged them to share their experiences and to identify and discuss their challenges in implementing the provisions of the Code and Guidance.
7. During the opening session Mr. R. Irwin welcomed participants on behalf of the IAEA and stressed the importance to the IAEA that each Member State makes two political commitments, one to the Code and another to the Guidance. He also urged that each Member State nominate a Point of Contact to facilitate the import and export of radiation sources and asked that Member States complete and make available to the IAEA their

- responses to the Importing and Exporting State Questionnaire that forms part of the Guidance document.
8. Mr. Andrzej Chlebowski of the UN Department of Safety and Security (UNDSS) in Harare briefed the participants about the security situation in Zimbabwe.
 9. Professor Elegba then discussed the draft agenda for the week. The agenda was proposed and adopted.
 10. Mr. Irwin then gave a presentation describing the background to and development of the Code of Conduct and its associated Guidance. The presentation reviewed the content of the Code and Guidance, the importance of each Member State making a political commitment to the Code and to the Guidance and the importance of Points of Contact and the Import/Export questionnaire. He also discussed the implementation of the Code and Guidance and the status of the regulatory infrastructure in Africa as represented in the IAEA's Radiation Safety Information Management System (RASIMS). A question and answer session followed.
 11. Professor Elegba then initiated a discussion about the expectations of the participants for the meeting.
 12. The overall purpose of the meeting was to give the current status of Member State national infrastructure for safety in the context of the Code and Guidance and to present experiences, lessons learned and challenges with the implementation of the Code and the Guidance.
 13. The Member States represented at the meeting then commenced a series of presentations over three days that focused on the implementation of the numerous provisions of the Code and Guidance in each participant's Member State. The participants shared information relevant to their national situations concerning the current status of their national infrastructure for safety, and the challenges and any lessons learned associated with meeting the various provisions of the Code and Guidance. The Member State presentations emphasized for discussion, problem areas and successful implementation strategies. The meeting also provided a platform for exchanging experience, lessons learned, successes and challenges. Member State participants also presented specific information about their regulatory programmes as they related to several of the findings of the International Conference on the Safety and Security of Radioactive Sources that was held in Abu Dhabi from October 27-31, 2013.
 14. During the presentations, a number of common themes and problem areas became apparent to the participants and these regulatory themes and challenges became the focus of later breakout group discussions.
 15. In addition to the Member State presentations during the first three days, Mr. Reber gave a presentation about the development of the IAEA's metal recycling code of conduct and Mr. Irwin gave a presentation about his experience with the regulatory response to scrap metal and waste radiation alarms in Canada.
 16. On Day Four each of the participants was assigned to one of three working groups and given time for discussion. Three topics were discussed in the morning session and four

were discussed in the afternoon session. For each topic, the working groups were asked to report in plenary on current problems and challenges and to make suggestions for improvements.

17. The working groups were:

Group A: Zimbabwe, Mauritius, Seychelles, Cameroon, South Africa, and Uganda

Group B: Ghana, Namibia, Sudan, Burkina Faso, Kenya, and Botswana

Group C: Malawi, Senegal, Tanzania, Lesotho, Angola

18. Morning Session Breakout Topics

- Scrap metal – domestic issues and transboundary movement
- Management of disused sources, including legacy sources and suggestions for an IAEA guidance document about the management of disused sources
- Transboundary itinerant practices

19. Afternoon Session Breakout Topics:

- What would be the best platform for regional cooperation?
- Service Standards (Management Systems) of the regulatory body
- Lack of calibration facilities
- Effective independence of regulatory body

TOPICAL DISCUSSIONS

20. A brief summary of the discussions about current problems, challenges and suggestions for improvement on each topic are presented below.

SCRAP METAL – DOMESTIC ISSUES AND TRANSBOUNDARY MOVEMENT

21. The IAEA Code Of Conduct Paragraph 13 states “Every State should...(b) encourage bodies and persons likely to encounter orphan sources during the course of their operations (such as scrap metal recyclers and customs posts) to implement appropriate monitoring programmes to detect such sources.” In addition, the Abu Dhabi Conference reported, “Management of scrap metal contaminated with radioactive material continues to be a problem.”

22. The control of radioactive material that has been inadvertently incorporated into scrap metal was identified at the Zimbabwe meeting as a major challenge. The approaches to the scrap metal issue varied among the regulatory bodies. Many Member States reported that they had completed or were planning to conduct information sessions with representatives of the scrap metal industry. One Member State had an annual ‘Open House’ meeting to which representatives of the scrap metal industry were invited. One country indicated that it had an established and well-functioning committee of scrap metal processing plant operators in which the regulators of nuclear and radiological materials are represented. Moreover, one Member State was in the process of establishing a register of scrap metal processing facilities for the purpose of better communicating

- with these operators and better managing any instances of the discovery of radioactive material in scrap metal. Some regulatory bodies conduct regular inspections at scrap metal collection and processing facilities while others have not yet taken much action.
23. It was noted that the detection of and response to the inadvertent presence of radioactivity in scrap metal might potentially be a very difficult issue to manage when a country's territory is very large. Also, if there are many import/export points of entry and exit, it will be difficult to monitor all of them.
 24. Participants indicated that regulatory bodies should engage with the metal recycling industry on issues related to the control of radioactive material in metal scrap. It was suggested that this could be done by contact with industry, business or professional associations. There is also a general lack of awareness on the part of regulatory bodies about scrap metal industry activities and efforts should be made to gather information about scrap metal collection and processing facilities as well as border crossings where import and export of scrap metal takes place.
 25. Some Member States regulate the trade of scrap metal (buying, selling and storage) while others do not. The meeting recommends that government or trade bodies should also have a register of all dealers in scrap metal and scrap metal recycling plants.
 26. It is helpful to exert better control over the possible presence of radioactivity in metal recycling operations if scrap metal processors are registered or if the regulatory body has access to a scrap metal dealer registry held by another government department if such exists. There is also a need to further engage scrap metal operators perhaps through their business or professional associations. Additionally, there is not usually an audit trail to indicate that a shipment of metal destined to be recycled is free from radioactivity. It is noteworthy that the IAEA's Metal Recycling Code of Conduct includes an annex describing the contents of a radiation monitoring report that might be provided with each consignment that attests to the absence of radioactive material in the scrap load. The meeting participants recommended that the IAEA take steps to implement the Metal Recycling Code of Conduct including endorsement by the IAEA General Conference and the development of supporting training materials and the holding of training activities.
 27. The meeting participants discussed the development of regional protocols and collaborative arrangements, including information sharing, for regulators with regard to regulation of scrap dealers. The participants indicated that the region would benefit from the holding of an African regional workshop dedicated to issues associated with radioactive material in scrap metal and in particular to control of the transboundary movement of scrap metal that may contain radioactive material.
 28. Part of the solution to the challenge of the control of the transboundary movement of scrap that may inadvertently contain radioactive material include identifying the government authority responsible for import and export of scrap metal, designated ports of entry and install portal monitors at specific locations. Currently, there is little information sharing among regulators.

MANAGEMENT OF DISUSED SOURCES (INCLUDING LEGACY SOURCES AND SUGGESTIONS FOR AN IAEA GUIDANCE DOCUMENT ABOUT THE MANAGEMENT OF DISUSED SOURCES)

29. Some Member States reported that they had recently become aware of the existence of disused sources within their territories, some of which were taken under regulatory control and moved to interim or to long-term storage facilities where available.
30. Regarding the long-term management of disused sources, it was stated that a loss of institutional memory at authorized facilities might lead to disused sources being forgotten and the sources becoming orphan sources. The participants indicated that the storage conditions at user facilities may not be adequate to ensure the long-term safety and security of the sources.
31. Most countries indicated that current regulations require that when purchasing sealed sources, licensees shall make arrangements, including the establishment of contractual arrangements, for the return of the disused sources to the supplier. However, this is not always possible, particularly after long periods of time in circumstances when the supplier may have gone out of business or there are insufficient financial resources to pay for transport of the sources.
32. The ‘repatriation’ of sources to their country of origin and the return of sources to the ‘supplier’ were discussed with regard to certain source/device combinations that are exported from South Africa. Some sources are initially imported into South Africa and then installed in devices, which are then exported. Another example of complex ‘repatriation’ involves a source manufactured in, for example, Canada, shipped to India and installed in a device that, in turn, is shipped to an African country for use. This practice may introduce complexity to situations in which a licensee wishes to ‘repatriate’ a source or return it to the ‘supplier’ because these terms apply less clearly to such situations. For example, a country that exports a device containing a sealed source that it did not produce may not be willing to receive the source back at the end of its useful life. Therefore, this meeting recommends to the IAEA that the topics of repatriation and return to supplier be considered during the IAEA’s development of the guidance document on end of life management of radioactive sources.
33. Participants discussed problems associated with licensees declaring bankruptcy. Any policies that are developed concerning disused sources should specifically address bankruptcy situations and may include reporting bankruptcy declarations to the regulatory body and increased regulatory oversight for such licensees.
34. The participants noted the importance of and challenge in implementing financial assurances for end of life disposal of radioactive sources, but there was no consensus about how these financial assurances might be implemented or harmonized.
35. The participants suggested that States develop a clear national policy and strategy with regard to the long-term management of disused sources. Such a national policy and strategy should minimally include the establishment of a dedicated storage facility for radioactive sources, contractual and financial provisions for end of life disposal of radioactive sources, treatment of bankruptcy situations, enhanced regulatory oversight for disused sources including regulatory inspections and an emphasis on record keeping and

inventory verification. In addition, the IAEA should include the topic of financial assurances in the development of guidance about the long-term management of radioactive sources.

TRANSBOUNDARY ITINERANT PRACTICES

36. Many Member States reported challenges related to the temporary movement of sources through their national territory by foreign companies using sources such as portable gauges and industrial radiography exposure devices. There were sometimes instances of illegal import and export, contrary to the provisions of the Code.
37. Participants noted a lack of communication and need to exchange more information between the regulatory body and customs authorities. There is also a lack of detection equipment and a lack of training of customs agents. Sub-regional regulatory body meetings were proposed to share experience. Participants proposed that there be regulatory body sharing of well logging maps and harmonizing of minimum requirements across borders specifically related to the frequent movement of itinerant sources.

REGIONAL COOPERATION

38. The Meeting noted that:

- a) The use of radioactive sources is widespread in all countries of the region and frequently involves trans-boundary movement of sources due to the itinerant nature of some practices, such as well-logging, industrial radiography and nuclear gauging;
- b) There have been reported accidents and incidents in these practices (which are not related to Nuclear Power programmes) from Africa and other parts of the world
- c) According to RASIMS, fifteen Member States out of forty-four have an inadequate regulatory infrastructure to deal with the various practices involving radioactive sources and that this remains a challenge in the region;
- d) AFRA provides a platform for regional cooperation in the promotion of peaceful applications of nuclear energy;
- e) The existence of the Forum of Nuclear Regulatory Bodies in Africa (FNRBA), which is voluntary and not legally binding to its members, yet useful;
- f) The Africa Nuclear Weapon Free Zone Treaty otherwise known as the Pelindaba Treaty is now in force;
- g) The African Commission on Nuclear Energy (AFCONE) has been established since 2011 but yet to be operationalized as it has neither a physical office nor personnel;
- h) The Pelindaba Treaty provides for AFCONE to be engaged in matters of nuclear safeguards, nuclear safety and security

39. The Meeting recommends that the Forum of Nuclear Regulatory Bodies in Africa (FNRBA) should:

- a) encourage more countries to sign its Charter and join its fold
- b) gradually develop into a legally binding body
- c) also operate at the level of the five economic sub-regions of Africa for effectiveness
- d) be financially self-sustaining through a regular contribution structure
- e) encourage the harmonization of import and export control of radioactive sources between Member States by implementing RAIS.

40. The African Union Commission (AUC)/ African Commission on Nuclear Energy (AFCONE) should:

- a) operationalize AFCONE by providing temporary office space at its Headquarters for AFCONE and appoint personnel to conduct the activities of AFCONE on fulltime basis;
- b) like other regional bodies in Europe and Asia, give political support to the Code of Conduct and the associated Guide on Import and Export of Radioactive Sources;
- c) support and strengthen FNRBA to effectively serve as an umbrella for regulators in Africa

41. The meeting participants recommended that the IAEA should:

- a) engage the African Union on the need for its political support for the Code of Conduct
- b) continue to promote and support regional cooperation amongst the regulatory bodies in Africa with a view to emplacing radiation safety and security of radioactive sources in the region.

IMPROVEMENT OF THE EFFICIENCY OF REGULATORY BODIES (SERVICE STANDARDS AND MANAGEMENT SYSTEM ISSUES)

42. Some participants, in describing their regulatory processes, outlined various practices that seemed cumbersome and inefficient. This is especially significant given the minimal resources commonly available to regulatory bodies. One participant indicated that their licensing board only meets several times a year and that this practice delays the timely issuance of licenses. Such delays in the issuance of licenses could lead to potential licensees not requesting authorization in light of the length of time necessary to receive a license. It was also noted that this delay in the issuance of licenses could hinder the timely authorization of service companies that may wish to use sources in a country on a temporary basis. It may also impede the effective control of the transboundary movement of sources.

43. Other examples of cumbersome regulatory practices include the issuance of licenses for each transport of radioactive material and the issuance of a license for each individual source. It was suggested that such practices should be reviewed and redesigned in an effort to streamline the regulatory process.

44. Regarding management systems, the participants recognized the benefits of establishing a standardized management system for regulatory bodies that embodies a systematic approach to regulation, clearly defined regulatory processes and clearly described measurement, assessment and improvement tools for regulatory body managers. Additionally, the IAEA's SARIS tool provides a means of self-assessment and the IAEA's IRRS missions provide a method for the independent review and assessment of the regulatory body management system. The participants recommended that the IAEA offer to African Member States management system training.

LACK OF CALIBRATION FACILITIES

45. It was noted that many countries lack facilities for the calibration of radiation survey equipment and of necessity, have to send their equipment to other countries for this purpose. The participants recommended the development of enhanced cooperation between States who have a calibration laboratory and those that do not. One approach would be the development of regional and sub-regional agreements that would establish arrangements for the sharing of existing calibration facilities. The necessity of governments dedicating funds to the establishment of calibration laboratories was also emphasized.

EFFECTIVE INDEPENDENCE OF REGULATORY BODY

46. The participants noted that most regulators in Africa are not effectively independent, neither in financial independence nor in sufficient technical capacity in human resources and equipment. The participants pointed out, however, that reviews conducted by the IAEA such as the IRRS missions might be used to demonstrate where human and financial resources are most seriously needed.
47. Each presenter described the issue of the independence of the regulatory body in his/her Member State presentations and the subject was further discussed in the working groups. Participants offered the opinion that the regulatory body should be under the Office of the President or Prime Minister and Cabinet. Many of the Member State represented at the meeting had atomic energy commissions to which the regulatory body reported. Clearly, the regulatory body should not fall under an arm of government that is directly using or promoting atomic energy.

OTHER MATTERS DISCUSSED AT THE ZIMBABWE MEETING

48. Some participants suggested that it would be helpful were the IAEA to make available model policies of such selected national strategies as, inter alia, a policy for the management of radioactive waste and another for the education and training of professionals.
49. One participant suggested that it would be useful for the IAEA to develop a model for the funding of regulatory bodies.
50. Most Member States making presentations have processes in place to address the import/export provisions of the Code and Guidance. However there are regulatory bodies in the region that do not have memoranda of understanding with their customs organizations and with other law enforcement agencies and therefore may weaken import and export controls. The regulatory bodies are encouraged to establish memoranda of understanding with customs and other law enforcement agencies.
51. Most Member States making presentations also have national registers of radioactive sources using the RAIS database as provided by the IAEA. It was noted that the implementation of RAIS could be particularly important with respect to the harmonization of import and export procedures between Member States in the region. Therefore the IAEA is requested to provide expert services to those Member States willing to migrate to the RAIS database.

52. The meeting appreciated the role of the IAEA in providing this forum for the exchange of experience and for sharing lessons learned by African Member States in the implementation of the Code of Conduct and the associated Guidance on Import and Export of Radioactive sources.
53. The contents of this report were shared with meeting participants and their input was considered in the development of the final Chairman's report. This report has an annex with a listing of the recommendations that were developed by workshop participants. Further details concerning these recommendations can be found in the body of this meeting report.

Shamsideen Elegba
Chairman

ANNEX - RECOMMENDATIONS

This annex contains a listing of the recommendations that were developed by workshop participants. Further details concerning these recommendations can be found in the body of this meeting report.

I. IAEA

The meeting participants recommended that the IAEA should:

1. Take steps to implement the Metal Recycling Code of Conduct including endorsement by the IAEA General Conference and the development of supporting training materials and the holding of training activities.
2. Consider the topics of repatriation and return to supplier during the IAEA's development of the guidance document on end of life management of radioactive sources.
3. Include the topic of financial assurance in the development of guidance about the long-term management of radioactive sources.
4. Hold an African regional workshop dedicated to issues associated with radioactive material in scrap metal and in particular to control of the transboundary movement of scrap metal that may contain radioactive material.
5.
 - a. Engage the African Union on the need for its political support for the Code of Conduct
 - b. Continue to promote and support regional cooperation amongst the regulatory bodies in Africa with a view to establishing adequate radiation safety and security of radioactive sources in the region.
6. Offer to African Member States management system training.
7. Make available model policies of such selected national strategies as, inter alia, a policy for the management of radioactive waste and another for the education and training of professionals.
8. Develop a model for the funding of regulatory bodies.
9. Provide expert services to those Member States willing to migrate to the RAIS database.

II. IAEA MEMBER STATES IN AFRICA

With regard to Member States in Africa, the meeting participants recommended that:

1. Regulatory bodies should engage with the metal recycling industry on issues related to the control of radioactive material in metal scrap. It was suggested that this could be done by contact with industry, business or professional associations. There is also a general lack of awareness on the part of regulatory bodies about scrap metal industry activities and efforts should be made to gather information about scrap metal collection and processing facilities as well as border crossings where import and export of scrap metal takes place.
2. Government or trade bodies should also have a register of all dealers in scrap metal and scrap metal recycling plants.
3. States should develop a clear national policy and strategy with regard to the long-term management of disused sources. Such a national policy and strategy should minimally include the establishment of a dedicated storage facility for radioactive sources, contractual and financial provisions for end of life disposal of radioactive sources,

- treatment of bankruptcy situations, enhanced regulatory oversight for disused sources including regulatory inspections and an emphasis on record keeping and inventory verification.
4. Regulatory bodies share well logging maps and harmonize minimum requirements across borders specifically related to the frequent movement of itinerant sources.
 5. States should enhanced cooperation between States who have a calibration laboratory and those that do not. One approach would be the development of regional and sub-regional agreements that would establish arrangements for the sharing of existing calibration facilities. The necessity of governments dedicating funds to the establishment of calibration laboratories was also emphasized.
 6. Regulatory bodies establish memoranda of understanding with customs and other law enforcement agencies.

III. ORGANIZATIONS IN AFRICA

The meeting participants recommended that:

1. The Forum of Nuclear Regulatory Bodies in Africa (FNRBA) should:
 - a) encourage more countries to sign its Charter and join its fold
 - b) gradually develop into a legally binding body
 - c) also operate at the level of the five economic sub-regions of Africa for effectiveness
 - d) be financially self-sustaining through a regular contribution structure
 - e) encourage the harmonization of import and export control of radioactive sources between Member States by implementing RAIS.
2. The African Union Commission (AUC)/ African Commission on Nuclear Energy (AFCONE) should:
 - a) operationalize AFCONE by providing temporary office space at its Headquarters for AFCONE and appoint personnel to conduct the activities of AFCONE on fulltime basis;
 - b) like other regional bodies in Europe and Asia, give political support to the Code of Conduct and the associated Guide on Import and Export of Radioactive Sources;
 - c) support and strengthen FNRBA to effectively serve as an umbrella for regulators in Africa