IAEA
Atoms for Peace

Board of Governors
General Conference

GOV/INF/2013/8-GC(57)/INF/5
Date: 5 August 2013

General Distribution
Original: English

For official use only

Item 3(b) of the Board's provisional agenda
(GOV/2013/37)
Item 15 of the Conference's provisional agenda
(GC(57)/1, Add.1 and Add.2)

Progress in the Implementation of the IAEA Action Plan on Nuclear Safety

Report by the Director General

Summary

The IAEA Action Plan on Nuclear Safety (the Action Plan), adopted by the Board of Governors in September 2011 and endorsed by all Member States at the 55th regular session of the General Conference in September 2011, requests the Director General to report on the progress in its implementation to the Board of Governors and General Conference in September 2012, and subsequently on an annual basis as may be necessary. The first annual report by the Director General on the progress in the implementation of the Action Plan was submitted to the Board of Governors and General Conference in September 2012.[1] This is the second annual progress report in response to to that request.

This report highlights the areas of progress in the implementation of the Action Plan since the submission of the previous annual report to the General Conference in September 2012 while recognizing the importance of other ongoing activities and work undertaken by the Secretariat and Member States. Important activities continue to be carried out in all areas under the Action Plan; in particular, a large number of new projects relevant for the Action Plan were initiated during the period of this report. Their full and effective implementation requires continued joint efforts and full commitment from the Secretariat, Member States and other stakeholders.

This report is accompanied by supplementary information that provides more details on the activities undertaken by the Secretariat in response to the Action Plan.[2]

[1] GOV/INF/2012/11–GC(56)/INF/5

[2] *Progress in the Implementation of the IAEA Action Plan on Nuclear Safety: Supplementary Information*.

Progress in the Implementation of the IAEA Action Plan on Nuclear Safety

Report by the Director General

A. Introduction

1. Following the accident at TEPCO's Fukushima Daiichi nuclear power plant (the Fukushima Daiichi accident), the draft IAEA Action Plan on Nuclear Safety (the Action Plan) was adopted by the Board of Governors in September 2011 and was unanimously endorsed by Member States at the 55th regular session of the General Conference in September 2011. The purpose of the Action Plan is to define a programme of work to strengthen the global nuclear safety framework. The Action Plan covers 12 overarching areas. The success of its implementation requires the full cooperation and commitment of Member States, the Secretariat and other relevant stakeholders. The Action Plan requests the Director General to report on the progress in its implementation to the Board of Governors and General Conference in 2012,[3] and subsequently on an annual basis as may be necessary.

2. This is the second annual report by the Director General in response to that request. The report includes an assessment of achievements since the previous report submitted to the Board of Governors and General Conference in September 2012 and identifies areas where further work needs to be done to implement the goals of the Action Plan.

3. During the period covered by this report around 20 new extrabudgetary projects with an approximate budget of €11 million have been initiated by the Secretariat. These projects are related to significant key areas of the Action Plan. Further information on extrabudgetary expenditures, as well as expenditures under the Regular Budget is provided in Tables 1 and 2 of Annex II to the supplementary information.

4. The key areas highlighted in this report are:

- Safety assessment of nuclear power plants (NPPs);
- IAEA peer reviews;
- Emergency preparedness and response;
- IAEA Safety Standards;
- Member States planning to embark on a nuclear power programme and capacity building; and
- Protection of people and the environment from ionizing radiation.

[3] GOV/INF/2012/11– GC(56)/INF/5

Supplementary information to this report containing further details on progress in the implementation of the Action Plan in each area can also be found on the GovAtom website. It is expected that further information regarding the national implementation of the Action Plan will be shared through the reports of the Contracting Parties to the Convention on Nuclear Safety (CNS) for the purpose of the 6th Review Meeting to be held in 2014.

5. Since the 2012 General Conference, the Director General has submitted three reports on progress in the implementation of the Action Plan to the Board of Governors.[4] The main progress in the implementation of the Action Plan made since the previous annual report can be summarized as follows:

- Significant progress continues to be made in several key areas, such as assessments of safety vulnerabilities of NPPs, strengthening of the Agency's peer review services, improvements in emergency preparedness and response capabilities, strengthening and maintaining capacity building, and protecting people and the environment from ionizing radiation. The progress that has been made in these and other areas has contributed to the enhancement of the global nuclear safety framework.
- Significant progress has also been made in reviewing the IAEA safety standards, which continue to be widely applied by regulators, operators and the nuclear industry in general, with increased attention and focus on vitally important areas such as design and operation of NPPs, protection of NPPs against severe accident, and emergency preparedness and response.
- The Secretariat continued to share and disseminate the lessons learned from the Fukushima Daiichi accident through the analysis of the relevant technical aspects. To this end, it prepared the full reports of the three international experts' meetings (IEMs) organized in 2012 and made them available at the Fukushima Ministerial Conference on Nuclear Safety, organized by the Government of Japan in co-sponsorship with the IAEA in December 2012.
- In 2013, the Secretariat organized two further IEMs, one on decommissioning and remediation after a nuclear accident and one on human and organizational factors in nuclear safety in the light of the accident at the Fukushima Daiichi nuclear power plant. The Secretariat also organized the International Conference on Effective Nuclear Regulatory Systems: Transforming Experience into Regulatory Improvements, hosted by Canada in Ottawa.

B. Safety Assessments in the Light of the Accident at TEPCO's Fukushima Daiichi Nuclear Power Plant

6. The Secretariat has continued to support Member States in their assessment of safety of NPPs. In September 2012, the Secretariat held an IEM on protection against extreme earthquakes and tsunamis in the light of the accident at the Fukushima Daiichi nuclear power plant. The IEM provided the opportunity for experts from Member States to share the lessons learned from assessing the impact of extreme natural events on NPPs, taking into consideration the Fukushima Daiichi accident. One of the conclusions of this IEM was the need to ensure sufficient protection against complex combinations of extreme natural hazards on multi-unit NPP sites. To this end, the Secretariat and the Atomic Energy Regulatory Board (AERB) of India jointly organized an International Workshop on the Safety of Multi-Unit Nuclear Power Plant Sites against External Natural Hazards at the Bhabha Atomic

[4] GOV/INF/2012/16, GOV/INF/2013/1 and GOV/INF/2013/7

Research Centre in Mumbai, India, in October 2012. The Workshop was attended by 70 participants from 13 Member States and provided input to the Secretariat's International Seismic Safety Centre for the development of further guidance on this topic.

7. A further important observation by the experts at the IEM referred to in paragraph 6 above is related to the need for harmonizing the approach to assessing safety margins. The Secretariat has undertaken activities to prepare a report on the technical basis for an expanded definition of 'safety margin'. The report will be available by the middle of 2014 and will provide information on the derivation of individual safety margin definitions as they relate to deterministic safety analysis (DSA) and probability safety assessment (PSA) and provide practical examples of the application of the expanded safety margin concept.

8. The Fukushima Daiichi accident demonstrated that it is essential to have capabilities to monitor relevant plant safety parameters under severe accident conditions. In this light, the Secretariat organized international meetings in Tokyo in 2012 and Vienna in 2013 to review the performance requirements for accident monitoring systems and functions at NPPs. The key issues were considered with a special focus on the design and installation of monitoring instrumentation and the need for new technologies. Further work was identified regarding the need for the qualification of accident monitoring systems to ensure their functionality is maintained under extreme environmental conditions.

9. The importance of a sound understanding of the influence of human and organizational aspects on nuclear safety in the management of the NPPs has been highlighted since the Fukushima Daiichi accident. In this light, the Secretariat organized an IEM on human and organizational factors in nuclear safety in the light of the accident at the Fukushima Daiichi nuclear power plant in May 2013. The aim of this IEM was to share knowledge and experience gained in the light of the Fukushima Daiichi accident concerning human and organizational aspects, particularly the interactions between individuals, technology and organizations and their influence on nuclear safety, as well as to identify lessons learned and best practices. The conclusions of this IEM have been shared with all Member States through the Action Plan website. A report on this IEM will be published in the near future.

10. In September 2012, a new safety report was published entitled *Safety Culture in Pre-operational Phases of Nuclear Power Plant Projects* (IAEA Safety Report Series No. 74). The objective of this publication is to provide practical guidance on how to develop and implement programmes to help strengthen the safety culture throughout the pre-operational phases of an NPP project, from project conception to initial fuel loading. In addition, the Secretariat provided further guidance on safety culture in 2013 with the publication of *Regulatory Oversight of Safety Culture in Nuclear Installations* (IAEA-TECDOC-1707). The aim of this publication is to provide regulatory bodies with practical guidance on how to establish their own regulatory oversight of safety culture.

C. IAEA Peer Reviews

11. The Secretariat continues to undertake activities to strengthen its comprehensive peer review services. In 2013, revised guidelines on the preparation and conduct of Integrated Regulatory Review Service (IRRS) missions and IRRS follow-up missions were developed and published. In January 2013, 13 senior regulatory officials from 13 Member States with extensive experience in the IRRS participated in a meeting in Vienna to review the lessons learned from the IRRS. Proposals to enhance the effectiveness and efficiency of the missions were identified and they will be addressed in future enhancements of the IRRS missions. The Secretariat has also undertaken activities to further improve IRRS mission reporting and to ensure greater uniformity and completeness of the reports. A schedule of the IRRS missions to be conducted in Member States in 2013–2015 has been finalized and will be made available through the Action Plan website.

12. The Operational Safety Review Team (OSART) programme was established in 1982 and has provided advice and assistance to Member States for 30 years on the safety of NPPs during construction, commissioning and operation. The Secretariat completed the 175th OSART mission since the start of the OSART programme. The OSART guidelines on severe accident management were revised in consultation with Member States based on recent experience of application of the service. Draft guidelines for OSART missions to be conducted at the corporate headquarters of nuclear utilities have been prepared in consultation with Member States and will be used for the first corporate OSART mission in late 2013. The results of missions continue to be incorporated into the OSART mission results database and are available on the IAEA website. While some Member States request OSART missions on a regular basis, other Member States have not hosted such missions in recent years. Member States are encouraged to host OSART missions as called for in the Action Plan.

13. An area of continued and increasing importance for many Member States involves the long term operation (LTO) and ageing management of NPPs. In order to support safe and effective long term operation of NPPs, a full and comprehensive safety peer review service, known as a Safety Aspects of Long Term Operation of Water Moderated Reactors Peer Review Service (SALTO) mission or as an LTO module within an OSART mission, is systematically conducted in NPPs worldwide.

14. Member States' interest in the IAEA Emergency Preparedness Review (EPREV) service continued to remain high. The Secretariat held a meeting with Member States in June 2013 to review the EPREV guidelines and to identify areas for further improvement, including extension of the duration of EPREV missions, increasing the review time of a State's emergency preparedness, as set forth in the IAEA safety standards.

15. The Secretariat has further developed *A Methodology to Assess the Safety Vulnerabilities of Nuclear Power Plants against Site Specific Extreme Natural Hazards* through the production of a tool to assist Member States in evaluating the robustness of their NPP systems in relation to the combined effects of extreme natural hazards. The tool is intended to supplement the Design and Safety Assessment Review Service (DSARS) and the International Probabilistic Safety Assessment Review Team (IPSART) service, but it may also be used by Member States in a stand-alone manner.

16. Since the submission of the first annual report in September 2012, the Secretariat organized and conducted:

- 5 EPREV missions;
- 3 IRRS missions;
- 8 OSART missions;
- 7 OSART follow up missions;
- 3 Integrated Nuclear Infrastructure Review (INIR) missions; and
- 6 Site and External Events Design (SEED) review missions.

D. Emergency Preparedness and Response

17. The Secretariat continues to undertake activities to strengthen emergency preparedness and response at the national, regional and international levels. In the reporting period, 35 training events were conducted in different areas of emergency preparedness and response. Seven expert missions were undertaken for the purpose of assisting Member States in strengthening their national emergency preparedness and response capabilities.

18. The opening ceremony for the designation of the IAEA Response and Assistance Network (RANET) Capacity Building Centre, funded by the Government of Japan and supported by the

Fukushima Prefecture, took place in Fukushima City in May 2013. The Centre is used for organizing training activities that are aimed at enhancing nuclear emergency preparedness and response capacity at regional and international levels.

19. The Secretariat established the Emergency Preparedness and Response Expert Group (EPREG) to provide advice on strategies to strengthen and sustain sound international preparedness for nuclear and radiological emergencies. EPREG consists of 16 senior experts from all regions. EPREG met for the first time in February 2013 and discussed current international activities in the area of emergency preparedness and response and priorities for their future work.

20. The Secretariat has initiated the preparation of RANET review missions and has asked all RANET National Assistance Coordinators to identify their availability to host RANET review missions in their countries. Member States are encouraged to host such missions.

21. The final version of the 2013 edition of *Joint Radiation Emergency Management Plan of the International Organizations* (JPLAN) was prepared in January 2013 taking into account comments and suggestions made at the last ad-hoc meeting of the Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE) held in October 2012. The final version of the 2013 edition of JPLAN was sent to all co-sponsor international organizations for their final review before being published in July 2013.

22. The capabilities of the Secretariat to respond to nuclear and radiological incidents and emergencies are being strengthened. The internal training and exercise programme for Secretariat staff has been updated and improved, along with the mechanisms for coordination with external contact points and the arrangements for cooperation at Departmental and inter-Departmental level. The Secretariat performed analysis of its internal capabilities for assessment of possible radiological consequences and prognosis of likely emergency progression and identified areas needing improvement.

E. IAEA Safety Standards

23. The systematic review of the IAEA safety standards carried out to take account of the lessons learned from the Fukushima Daiichi accident has produced concrete proposals for revisions. The Chair of the Commission on Safety Standards (CSS) reported on the progress of this review to the Director General in November 2012.

24. The Chair re-emphasized that the review confirmed the adequacy of the current IAEA Safety Requirements and that no significant areas of weakness had been identified. However, some revisions were proposed to strengthen the Safety Requirements and facilitate their implementation. These revisions are being made through addenda to the IAEA Safety Requirements relating to the safety of NPPs and spent fuel storage, namely:

- *Safety Assessment for Facilities and Activities* (GSR Part 4);
- *Governmental, Legal and Regulatory Framework for Safety* (GSR Part 1);
- *Site Evaluation for Nuclear Installations* (NS-R-3);
- *Safety of Nuclear Power Plants: Design* (SSR-2/1); and
- *Safety of Nuclear Power Plants: Commissioning and Operation* (SSR-2/2).

25. The CSS is of the view that the draft addenda should be considered through the well-established review and revision process for the IAEA safety standards that has been in use for some time. The draft addenda were approved by the Safety Standards Committees at their meetings in June and July 2013 and were sent to Member States for review and comment. The final review of the draft addenda by the Committees is expected in June 2014 and the review and approval by the CSS is expected at its

meeting in November 2014. The revisions to these Safety Requirements are planned for submission to the Board of Governors in March 2015.

26. At the same time, CSS members highlighted that the review and revision of the IAEA safety standards should not be limited to the lessons from the Fukushima Daiichi accident. This review should also include other relevant experience such as information gained from advances in research and development. The CSS also stressed that greater attention needs to be paid to the implementation of IAEA safety standards by and in Member States.

F. Member States Planning to Embark on a Nuclear Power Programme and Capacity Building

27. The Secretariat continues to support the activities of Member States embarking and planning to embark on a nuclear power programme by developing the capabilities of operating organizations and regulatory bodies. The *Strategic Approach to Education and Training in Nuclear Safety 2013–2020* (the Strategic Approach) was issued in March 2013. The Strategic Approach identifies four main components, including national strategies, mechanisms for building capacity, effective use of networking and regional and international cooperation.

28. The IAEA Self-Assessment of Regulatory Infrastructure for Safety (SARIS) software has been developed to support self-assessment of national regulatory infrastructure for safety against the IAEA safety standards. This tool is an improvement on the former Self-Assessment Tool software and incorporates feedback from Member States. The SARIS software was released in September 2012 and is available for download by Member States from the IAEA website. A technical meeting on the SARIS methodology and tool was held in December 2012 to present to Member States the latest developments in the methodology and tools provided by the IAEA for the self-assessment of national regulatory infrastructure for safety. The Secretariat has also developed the Integrated Review of Infrastructure for Safety (IRIS) methodology to support self-assessment of national infrastructure for safety against IAEA Safety Standards Series No. SSG-16 *Establishing the Safety Infrastructure for a Nuclear Power Programme* (2011). IRIS is embedded within the SARIS software and supports the progressive application of the IAEA safety standards in an effective manner when establishing the national safety infrastructure during phases 1, 2 and 3 of introducing a nuclear power programme.

29. The Secretariat organized and conducted a technical meeting in Vienna in October 2012, to discuss various approaches for national evaluation of capacity building in line with the Agency's self-assessment methodology. The methodology was presented to Member States and subsequently uploaded on the corresponding capacity building website. Guidance[5] on self-assessment of national resources for education and training is currently under review by the Secretariat.

30. The Secretariat continues to strengthen the competence and knowledge management activities of national regulatory bodies through the production of an IAEA draft safety report on managing regulatory body competence. The purpose of this publication is to provide guidance to Member States in managing the competence of their regulatory bodies based on the IAEA safety standards. The report is expected to contribute to enhancing Members States' capabilities in managing the competence of regulatory bodies within their institutional system at the State level. The draft report includes a specific annex devoted to managing regulatory competence in 'newcomer' countries and is expected to be published before the end of 2013.

[5] IAEA, *Guidelines for the IAEA/ANSN Nuclear Safety Education and Training Peer Review Service*, Rev. 3 (2012).

31. Packages of supporting material[6] have been produced based on the IAEA safety standards. These packages are tailored to the needs of a regulatory body during each phase of the development of a nuclear power programme and are available to Member States on the IAEA website. The Secretariat also enhanced its ability to support Member States through the production of material for future workshops on safety regulations, regulatory review and assessment, regulatory inspection and enforcement, human resource development of the regulatory bodies and the use of external support organizations.

G. Protection of People and the Environment from Ionizing Radiation

32. The Secretariat continues to facilitate the sharing of information, expertise and techniques for remediation and decommissioning following a nuclear emergency and to provide expert advice and support to Member States to ensure the ongoing protection of people and the environment from ionizing radiation.

33. An expert mission to Japan was carried out in February 2013 to discuss with the representatives of the Fukushima Prefecture the issues of remediation and decontamination, management of waste generated during the remediation activities, and the radiological mapping and radiation monitoring of the environment by using unmanned aerial vehicles.

34. The Secretariat organized an IEM on decommissioning and remediation after a nuclear accident in January 2013 with the aim of enhancing the safety and effectiveness of future remediation and decommissioning activities worldwide. The IEM was attended by over 200 experts from 40 Member States and several international organizations. During the IEM, experiences and lessons learned from decommissioning of nuclear facilities and from remediation of affected land in the aftermath of nuclear or radiological emergencies were shared and arrangements for managing the radioactive waste generated by remediation actions were discussed. The IEM identified several areas for improvements in decommissioning and remediation after a nuclear accident. A report on this IEM will be published in the near future.

35. The Modelling and Data for Radiological Impact Assessments (MODARIA) programme was launched in 2012 and will run for four years to 2015. The MODARIA programme supports the enhancement of Member States capabilities to assess exposure levels of the public and in the environment in order to ensure an appropriate level of protection from the effects of ionizing radiation associated with radionuclide releases.

36. The IAEA conducted the first international peer review of the *Mid-and-long-Term Roadmap towards the Decommissioning of Fukushima Daiichi Nuclear Power Station Units 1-4, TEPCO* in April 2013. The aim of the review was to assist the Government of Japan in the revision of the Roadmap, in particular, to improve the decommissioning planning and the implementation of pre-decommissioning activities and facilitate sharing of good practices and lessons learned with the international community. The peer review report has been made available on the IAEA website.

H. Other Areas

37. At the 56th regular session of the General Conference, the Director General announced that the IAEA will prepare a comprehensive report on the Fukushima Daiichi accident to be finalized in 2014.

---

[6] See http://www-ns.iaea.org/tech-areas/safety-infrastructure/default.asp?s=117&l=118.

Five Working Groups have been established, each composed of some 15–20 internationally recognized experts, to assist in the preparation of the report. These experts come from around 40 Member States and several international organizations, ensuring a broad representation of experience and knowledge. More than 120 experts attended the first Working Group meetings in March 2013 to discuss the working methods and an initial proposal for a table of contents for the report. An International Technical Advisory Group (ITAG) was also established in March 2013, comprising experts from relevant international organizations[7]. The role of ITAG is to assist and advise in achieving a high scientific and technical level of the report. The Secretariat has established a Core Group that comprises senior level Secretariat management staff for close coordination and final approval of the IAEA Fukushima comprehensive report.

38. The report will, inter alia, cover the description and context of the accident, safety assessment, emergency preparedness and response, radiological consequences as well as post-accident recovery. This will be a major undertaking of the Secretariat in terms of reporting an assessment on the Fukushima Daiichi accident.

39. The Secretariat continues to disseminate information and lessons learned from the Fukushima Daiichi accident. The Government of Japan, in co-sponsorship with the IAEA, organized the Fukushima Ministerial Conference on Nuclear Safety in Fukushima Prefecture, Japan, in December 2012. This Conference contributed to strengthening nuclear safety worldwide by providing yet another opportunity to share with the international community, at the ministerial and expert levels, further knowledge and lessons learned from the Fukushima Daiichi accident and to further enhance transparency. The Secretariat made the reports of the three IEMs held in 2012 available to the delegations and participants in the Fukushima Ministerial Conference on Nuclear Safety, namely:

- *IAEA Report on Reactor and Spent Fuel Safety in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant*;
- *IAEA Report on Enhancing Transparency and Communication Effectiveness in the Event of a Nuclear or Radiological Emergency*; and
- *IAEA Report on Protection against Extreme Earthquakes and Tsunamis in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant*.

40. The International Conference on Effective Nuclear Regulatory Systems: Transforming Experience into Regulatory Improvements was organized by the Secretariat and hosted by Canada in April 2013 in Ottawa, Canada. This was the third Conference on this theme, following on from the two previous conferences held in Moscow (2006) and Cape Town (2009). The Conference enabled senior nuclear safety and security regulators to review issues important to the global nuclear regulatory community and focused on the important role regulators play in safety and security. The Secretariat is analysing the results of the Conference to support strengthening the effectiveness of regulatory systems through improving the IRRS and to assist with the preparation of the IAEA comprehensive report on the Fukushima Daiichi accident.

[7] Food and Agriculture Organization of the United Nations (FAO), International Commission on Radiological Protection (ICRP), International Labour Organization (ILO), International Nuclear Safety Group (INSAG), Organisation for Economic Co-operation and Development's Nuclear Energy Agency (OECD/NEA), United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), World Association of Nuclear Operators (WANO) and World Meteorological Organization (WMO).

41. In the area of the international legal framework, the Secretariat continued to provide support to Contracting Parties (CPs) in their efforts to enhance the effective implementation of the Convention on Nuclear Safety (CNS), the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency through meetings, training courses and missions.

42. The Secretariat provided services and support to the Second Extraordinary Meeting of the CPs to the CNS which was held in August 2012. The objectives of the meeting were to review and discuss the lessons learned so far from the Fukushima Daiichi accident and to review measures to enhance the effectiveness of the CNS. The CPs decided to establish a working group on effectiveness and transparency, open to all CPs, and report to the next CNS Review Meeting in March and April 2014 on a list of actions to strengthen the Convention and on the proposals to amend, where necessary, the Convention.

43. The Secretariat also continued to provide assistance and support to Member States and the International Expert Group on Nuclear Liability (INLEX) with regard to the establishment of a global nuclear liability regime. In particular, *The 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention — Explanatory Text* was developed by INLEX and published as IAEA International Law Series No. 5. At its 13th meeting in May 2013, INLEX discussed a paper on the benefits of joining the nuclear liability regime and developed corresponding key messages to be used during legislative assistance activities carried out by the Agency.

44. In order to enhance its interaction with the industry, the Secretariat and the World Association of Nuclear Operators (WANO) signed a memorandum of understanding at the 56th regular session of the IAEA General Conference As a result of this memorandum of understanding, the two organizations are enhancing their cooperation and are adopting a more coordinated approach to their respective activities, for example, with regard to the timing of the Agency's OSART missions and WANO peer reviews, as well as arranging regular meetings of WANO and Agency staff to discuss major safety-related activities.

I. Conclusions

45. Since September 2012, based on the assessment provided in this report, as well as its supplementary information[8], and including feedback from the IEMs and other meetings and events, considerable progress has been made worldwide in strengthening nuclear safety through the implementation of the Action Plan and of national action plans in Member States.

46. Nearly all Member States with operating NPPs have undertaken comprehensive safety reassessments ('stress tests') with the aim of evaluating the design and safety aspects of NPP robustness to protect against extreme events, including defence in depth, safety margins, cliff edge effects, multiple failures, and the prolonged loss of support systems. As a result, many Member States have introduced additional safety measures including mitigation of station blackout.

47. The IAEA peer reviews have been strengthened and Member States' interest in the peer review services has increased. The IAEA safety standards are being strengthened, and Safety Requirements are now in the process of being reviewed by Member States. The final review and approval by the Commission on Safety Standards is expected in November 2014 and the revisions of these Safety Requirements are planned for submission to the Board of Governors in March 2015. Capacity building

[8] *Progress in the Implementation of the IAEA Action Plan on Nuclear Safety: Supplementary Information*.

programmes have been established or improved, and emergency preparedness and response programmes have also been reviewed and improved. Furthermore, during the reporting period the Secretariat continued to share lessons learned from the Fukushima Daiichi accident with the nuclear community including through three IEMs and the publication of their full reports, as well as through the organization of further IEMs and other events. The reports of the latter are due to be published in the near future.

48. Progress has been made by the Secretariat and Member States to improve public information and enhance transparency and communication during emergency situations. However, continued efforts need to be made to ensure more effective communication to the public and all stakeholders in the event of a radiological or nuclear emergency.

49. Work to improve nuclear safety is a continuous process. Activities associated with the implementation of the Action Plan projects will continue during the 2014–2015 biennium. The year 2015 will be considered as a transition year for the activities associated with and under the Action Plan. Dedicated projects under the Action Plan that are to continue beyond 2015, in particular the lessons learned and the recommendations from the completed projects and the IEMs which require further work, as well as the findings from the IAEA Fukushima Comprehensive Report IAEA comprehensive report on the Fukushima Daiichi accident, are planned to be followed up by the respective Departments/Divisions. The Department of Nuclear Safety and Security will continue to be a focal point for coordinating the inter-Departmental work for the implementation of these projects.

50. All work under the Action Plan will be utilized as one of the major contributions for the preparation of the IAEA Fukushima Comprehensive Report. The Secretariat is placing significant efforts on this major undertaking which is foreseen to be finalized in 2014 and prepared for publication and submission to the Board of Governors in 2015.