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Strengthening the Agency's activities related to nuclear science, technology and applications

Resolution adopted on 18 September 2015 during the ninth plenary meeting

A.

Non power nuclear applications

1.

General

The General Conference.

- (a) Noting that the Agency's objectives as outlined in Article II of the Statute include "*to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world*",
- (b) Noting also that the statutory functions of the Agency as outlined in Article III of the Statute, paragraphs A.1 to A.4, include encouraging research and development and fostering the exchange of scientific and technical information and the training of scientists and experts in the field of peaceful uses of atomic energy, with due consideration for the needs of developing countries,
- (c) Noting the Medium Term Strategy 2012–2017 as guidance and input in this respect,
- (d) Stressing that nuclear science, technology and applications address and contribute to a wide variety of basic socio-economic human development needs of Member States, in such areas as energy, materials, industry, environment, food, nutrition and agriculture, human health and water resources, noting that many Member States, both developing and developed, are obtaining benefits from the application of nuclear techniques in all the above areas.
- (e) Recognizing the commitment of the Food and Agriculture Organization of the United Nations (FAO) to the Revised Arrangements regarding the work of the Joint FAO/IAEA Division for Nuclear Techniques in Food and Agriculture, signed in 2013, and the FAO's

Strategic Framework for 2010–2019, as well as its five new strategic objectives, all of which provide a foundation for the strong and effective collaboration with, inter alia, the IAEA through the Joint FAO/IAEA Programme of Nuclear Techniques in Food and Agriculture, and taking note of the support of the FAO to continue collaborating with the IAEA through this joint programme,

(f) Appreciating the support of the Joint FAO/IAEA Division to the control of outbreaks of Ebola and avian influenza in Africa,

(g) Noting that the United Nations General Assembly, in resolution 64/292, called upon States and international organizations to provide financial resources, capacity-building and technology transfer, through international assistance and cooperation, in particular to developing countries, in order to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all,

(h) Noting the sustainable development agenda beyond 2015 and the agreement by United Nations Member States to launch the Sustainable Development Goals (SDGs), and recognizing the importance of and endorsing Secretariat activities that meet the objective of fostering sustainable development and protecting the environment,

(i) Recognizing the success of the sterile insect technique (SIT) in the suppression or eradication of the screw worm, the tsetse fly, and various fruit flies and moths that can cause large economic impacts,

(j) Confirming the important role of science, technology and engineering in enhancing nuclear and radiation safety and security, and the need to resolve the issues of managing radioactive waste in a sustainable manner,

(k) Acknowledging that the peaceful use of fusion energy can be advanced through increased international efforts and with the active collaboration of interested Member States and international organizations, such as the International Thermonuclear Experiment Reactor (ITER) project group, in fusion-related projects, taking note of the 25th biennial IAEA Fusion Energy Conference (FEC2014), held in the Russian Federation in October 2014, and appreciating the efforts taken in leading the demonstration fusion power plant (DEMO) experiments and biennial IAEA Fusion Energy Conferences,

(l) Recognizing the role of ion beam accelerators and synchrotron radiation sources in research and development in material science, environmental science, bio- and life sciences and cultural heritage,

(m) Taking note of the *Nuclear Technology Review 2015* (document GC(59)/INF/2),

(n) Aware of the problems of pollutants arising from urban and industrial activities and the potential of radiation treatment to address some of them, including industrial wastewaters, and noting the initiative taken by the Agency to explore the use of radiation technology for waste water treatment and the remediation of pollutants in Member States through coordinated research activities (CRAs),

(o) Taking note of the high potential of electron beams as a source of radiation for the treatment of materials and pollutants, while acknowledging the encouraging results produced through the related coordinated research projects (CRPs),

(p) Recognizing the increasing use of radioisotopes and radiation technology in healthcare practices, crop improvement, food preservation, industrial process management, new materials

development, analytical sciences, sanitization and sterilization, and in assessing the impacts of climate change,

(q) Noting the expanding use of positron emission tomography (PET), PET-computed tomography (PET-CT) and hospital-prepared radiopharmaceuticals and also aware that the Secretariat has taken note of the conclusions and recommendations of the Technical Meeting on the Future of Nuclear Medicine and Diagnostic Imaging held in 2014, and is making efforts to implement the high-priority recommendations in the framework of the 2016–2017 programme,

(r) Noting the importance of molybdenum-99 availability for medical diagnosis and treatment, and acknowledging with appreciation the efforts made by the Agency, in coordination with other international organizations, Member States and relevant stakeholders, to facilitate a reliable supply of molybdenum-99 by supporting the development of Member States' abilities to generate, for their indigenous needs and for export, the non-HEU-based production of molybdenum-99 and technetium-99m, where technically and economically feasible, including research into the accelerator-based alternative production of technetium-99 / molybdenum-99,

(s) Aware of the new cooperative initiatives that have emerged to provide reactor irradiation services, of the significant advances reported in the development of new molybdenum-99 production facilities and the expansion of existing facilities, and of the continued interest of many countries in establishing non-HEU-based molybdenum-99 production facilities to meet domestic needs, for export and/or serve as a partial reserve capacity, and noting with appreciation the initiative to hold a workshop on the production of molybdenum-99 through neutron activation in India,

(t) Acknowledging the multiple uses of research reactors as valuable tools for, inter alia, education and training, research, radioisotope production and materials testing and also as a learning tool for Member States that are considering the introduction of nuclear power,

(u) Aware that greater regional and international cooperation will be needed to ensure broad access to research reactors, owing to the fact that older research reactors are being replaced by fewer multi-purpose reactors, resulting in a drop in the number of operational reactors and noting with appreciation the Secretariat's integrated and systematic support to countries embarking on their first research reactor project,

(v) Aware of the activities of the Latin American and Caribbean Analytical Network (RALACA), composed of national food safety institutes in 20 countries in Latin America and the Caribbean, to address food contamination issues and improve environmental and food safety with health, trade and economic benefits,

(w) Noting with concern that the 38 TRIGA reactors worldwide would be adversely affected by the inability of the sole supplier of TRIGA fuel to guarantee a long-term supply of this fuel due to a weak business case,

(x) Recognizing the importance of nuclear instrumentation in the monitoring of nuclear radiation and nuclear materials in the environment and noting with appreciation the efforts to develop instruments for monitoring surface radioactivity and provide services to requesting Member States for the mapping of their land,

(y) Acknowledging the need for increasing the capacity of Member States for using advanced nuclear techniques in disease – including cancer – management, and aware of the need to develop performance indicators for measuring such capacity,

- (z) Recognizing that independent external peer-reviews, forming part of a comprehensive quality assurance programme, are an effective tool for quality improvement of the radiation medicine practice, and appreciating the Secretariat's efforts in developing the peer-review mechanisms in nuclear medicine, diagnostic radiology and radiotherapy,
- (aa) Noting ongoing cooperation and partnership between the World Health Organization (WHO) and the Agency, and the increasing demand from Member States in nuclear applications for human health,
- (bb) Noting that the Agency has compiled and disseminated isotope data on aquifers and rivers worldwide and is addressing links between climate change, rising food and energy costs and the global economic crisis, with the aim of assisting decision-makers in adopting better practices for integrated water resources management and planning,
- (cc) Recognizing the Agency's unique capabilities in contributing to global efforts to protect the marine environment, acknowledging the important contribution of the Ocean Acidification International Coordination Centre at the IAEA Environment Laboratories in Monaco to the coordination of activities supporting a better understanding of the global effects of ocean acidification, and welcoming the significant financial and in-kind support for the Centre provided by a number of Member States, including under the IAEA Peaceful Uses Initiative,
- (dd) Aware that the events sponsored by the IAEA Nobel Peace Prize Cancer and Nutrition Fund have led to an increase in requests from Member States for cooperation in the field of infant and young child nutrition, and prevention of obesity related non-communicable diseases, and noting that the IAEA International Symposium on Understanding Moderate Malnutrition in Children for Effective Interventions, held in Vienna, Austria from 26 to 29 May 2014 has led to closer cooperation with other agencies working in the area of malnutrition, and
- (ee) Noting with appreciation the efforts of the Secretariat, together with Member States, under the programme and budget for 2014–2015, to allocate sufficient resources to renovate the Agency's nuclear applications laboratories at Seibersdorf with facilities and equipment that are fully fit-for-purpose and to ensure that maximum benefits in terms of capacity building and technology enhancement are made available to Member States, particularly developing countries,
1. Requests the Director General, in conformity with the Statute, to continue to pursue, in consultation with Member States, the Agency's activities in the areas of nuclear science, technology and applications, with special emphasis on supporting the development of nuclear applications in Member States with a view to strengthening infrastructures and fostering science, technology and engineering for meeting sustainable growth and development needs of Member States in a safe manner;
 2. Requests the Secretariat to fully utilize the capacities of Member State institutions through appropriate mechanisms in order to expand the extent to which nuclear sciences and applications are utilized to achieve socio-economic benefits to attain the Millennium Development Goals and to work towards the achievement of the sustainable development agenda beyond 2015;
 3. Underlines the importance of facilitating effective programmes in the areas of nuclear science, technology and applications aimed at pooling and further improving the scientific and technological capabilities of Member States through CRPs within the Agency and between the Agency and Member States and through direct assistance, and urges the Secretariat to further strengthen capacity-building for Member States, particularly through interregional, regional and national training courses and

fellowship training in the areas of nuclear science, technology and applications, and expanding the scope and outreach of CRAs;

4. Aware of the use of radiation technology in a wide variety of situations in industries and taking note that the Scientific Forum being held during the 59th General Conference 2015 this year is focused on the theme of radiation technology applications in industry, urges the Secretariat to communicate the benefits of various applications of nuclear technologies that could benefit Member States;

5. Requests the Secretariat to organize, in close consultation with Member States, a Ministerial Conference in 2018 on nuclear science, technology and applications for peaceful uses, and their delivery to Member States through the Agency's technical cooperation programme, while highlighting their future contribution to sustainable development;

6. Urges the Secretariat to continue implementing efforts that contribute to greater understanding and a well-balanced perspective of the role of nuclear science and technology in sustainable global development, including the Kyoto commitments, and future efforts to address climate change;

7. Welcomes all contributions announced by Member States, including the IAEA Peaceful Uses Initiative, as extrabudgetary contributions to the Agency;

8. Calls upon the Secretariat to continue to address identified priority needs and requirements of Member States in the areas of nuclear science, technology and applications, including nuclear applications related to food and agriculture, such as climate-smart agriculture, the use of the SIT to establish tsetse-free zones and for combating malaria-transmitting mosquitoes and the Mediterranean fruit fly, the unique applications of isotopes to track the global uptake by the oceans of carbon dioxide and the resulting acidification effects on marine ecosystems, the use of isotopes and radiation in groundwater management and applications relating to, human health, including drug development and additional concrete efforts through the Programme of Action for Cancer Therapy (PACT) and in the use of cyclotrons, research reactors and accelerators for the production of radiopharmaceuticals, and the use of radiation technology for development of novel materials, as well as treatment of waste water, flue gases and other pollutants resulting from industrial activities;

9. Takes note with appreciation of the continued efforts of the Secretariat with Member States party to the Regional Cooperative Agreement for Research, Development and Training Related to Nuclear Science and Technology (RCA) for Asia and the Pacific, in particular India, to support cancer management by developing a smart phone application which would enable cancer management professionals to harmonize communication on cancer staging, and encourages the Secretariat to use IT tools in a similar way in other areas of nuclear applications.

10. Urges the Secretariat to explore the use of mobile electron accelerators for radiation technology applications and to facilitate field demonstrations in interested Member States;

11. Recognizes the contribution of the VETLAB Network in disseminating the use of nuclear techniques for the diagnosis and control of Ebola and avian influenza in West Africa, and urges the Secretariat to further increase these efforts;

12. Requests the Secretariat, in collaboration with interested Member States, to continue with the development of appropriate instruments and make available, to requesting Member States, services for the rapid and economic mapping of radioactivity on the Earth's surface;

13. Urges the Secretariat to continue to implement activities that will contribute to securing and supplementing the molybdenum-99/technetium-99m production capacity, including in developing countries, in an effort to ensure the security of supplies of molybdenum-99 to users worldwide and further urges the Secretariat to continue its cooperative work towards this goal with other international

initiatives such as the High-level Group on the Security of Supply of Medical Radioisotopes established by the OECD Nuclear Energy Agency;

14. Requests the Secretariat, upon request from interested Member States, to provide technical assistance to emerging national and regional efforts to establish non-HEU based molybdenum-99 production capabilities, and to provide technical assistance to transition existing production capabilities to utilize non-HEU-based methods and facilitate training activities such as workshops to support Member States in their efforts to achieve self-sufficiency in local production of medical radioisotopes;

15. Requests the Secretariat to work actively together with interested Member States and relevant expert participation to address the generation and release of xenon radioisotopes at the source;

16. Requests the Secretariat to foster regional and international efforts in ensuring wide access to existing multi-purpose research reactors to increase research reactor operations and utilization, and further requests the Secretariat to facilitate safe, effective and sustainable operation of these facilities;

17. Urges the Secretariat to continue to assist Member States considering their first research reactor with systematic, comprehensive and appropriately graded infrastructure development and to provide guidelines on the applications of research reactors to help Member State organizations make informed decisions that ensure the strategic viability and enduring sustainability of these projects;

18. Requests the Secretariat to assist interested Member States in developing safety infrastructure and in establishing regional training and education centres in their regions, where they do not exist, for the specialized training of nuclear and radiological experts, and requests the Secretariat to take advantage of qualified instructors from developing countries in this regard;

19. Urges the Secretariat to continue to engage with stakeholders and to encourage the international fuel supply industry to ensure uninterrupted and adequate supplies of research reactor fuels, including TRIGA fuel;

20. Encourages the Secretariat to continue cooperating with the World Nuclear University (WNU) biennial School on Radioisotopes and to enhance its support for the participation of applicants from developing countries;

21. Requests the Secretariat to strengthen the Agency's activities in the area of fusion science and technology;

22. Recognizing the underpinning nature of reliable nuclear data for all activities related to nuclear sciences and engineering, expresses its appreciation to the Secretariat for the provision of reliable nuclear data to the Member States for over 50 years as well as the development of an application for accessing nuclear data through mobile phones, and encourages it to continue the service in future;

23. Calls for the support of the Agency in setting guidelines for the adoption of advanced techniques and equipment in radiation medicine in developing Member States;

24. Encourages the Secretariat to further strengthen the IAEA–WHO partnership, and to explore the possibility for a more formalized cooperation, such as a joint programme or entity between the WHO and the IAEA;

25. Requests the Secretariat to continue providing assistance with capacity-building for quality assurance in radiopharmaceutical development and disseminating radiation technology guidelines based on international quality assurance standards;

26. Encourages Member States to make use of the existing peer-review mechanisms in radiation medicine to strengthen quality diagnosis and patient treatment;
27. Requests the Secretariat to make efforts together with Member States in developing industrial irradiation facilities such as electron accelerators and their accessories for use in, inter alia, healthcare practices, crop improvement, food preservation, industrial applications, sanitization and sterilization, and further requests the provision of technical support for the use of research reactors in the production of radiopharmaceuticals and industrial radioisotopes;
28. Requests also that the actions of the Secretariat called for in this resolution be undertaken subject to the availability of resources; and
29. Recommends that the Secretariat report to the Board of Governors and to the General Conference at its sixtieth (2016) regular session on the progress made in the areas of nuclear science, technology and applications.

2.

Support to the African Union's Pan African Tsetse and Trypanosomosis Eradication Campaign (AU-PATTEC)

The General Conference,

- (a) Recalling its previous resolutions on support to the African Union's Pan African Tsetse and Trypanosomosis Eradication Campaign (AU-PATTEC),
- (b) Recognizing that the main objective of AU-PATTEC is to eradicate tsetse flies and trypanosomosis by creating sustainable tsetse- and trypanosomosis-free areas, using various suppression and eradication techniques, while ensuring that the reclaimed land areas are sustainably and economically exploited and hence contributing to poverty alleviation and food security,
- (c) Recognizing that tsetse fly and trypanosomosis (T&T) control programmes are complex and logistically demanding activities which require flexible, innovative and adaptable approaches in the provision of technical support,
- (d) Recognizing that tsetse flies and the trypanosomosis problem which they cause are increasing and constitute one of the greatest constraints on the African continent's socioeconomic development, affecting the health of humans and livestock, limiting sustainable rural development and thus causing increased poverty and food insecurity,
- (e) Recognizing that trypanosomosis claims tens of thousands of human lives and kills millions of livestock every year and threatens over 70 million people in rural communities in 39 African countries, most of which are Agency Member States,
- (f) Recognizing the importance of the development of more efficient livestock production systems in rural communities affected by tsetse flies and trypanosomosis in order to reduce poverty and hunger and to form the basis for food security and socio-economic development,
- (g) Recalling decisions AHG/Dec.156 (XXXVI) and AHG/Dec. 169 (XXXVII) of the Heads of State and Government of the then Organization of African Unity (now African Union) to free Africa of tsetse flies and on a plan of action for implementing AU-PATTEC,
- (h) Recognizing the upstream work of the Agency under its Joint FAO/IAEA Programme of Nuclear Techniques in Food and Agriculture in developing the sterile insect technique (SIT)

against tsetse flies and providing assistance through field projects, supported from the Agency's Technical Cooperation Fund, on integrating tsetse SIT into Member States' efforts to address the T&T problem in a sustainable manner,

- (i) Cognizant that the SIT is a proven technique for the creation of tsetse-free zones when integrated with other control techniques and when applied within an area-wide integrated pest management (AW-IPM) approach,
 - (j) Welcoming the continuing close collaboration of the Secretariat with AU-PATTEC, in consultation with other mandated specialized United Nations organizations, in raising awareness regarding the T&T problem, organizing regional training courses and providing, through the Agency's Technical Cooperation programme and Regular Budget programme, operational assistance to field project activities, as well as advice regarding project management and policy and strategy development in support of national and subregional AU-PATTEC projects,
 - (k) Welcoming the adoption of the AU-PATTEC Strategic Plan for the period 2012–2018 on 12 December 2012 and looking forward to its effective implementation,
 - (l) Welcoming the progress made by AU-PATTEC in increasingly involving – besides international organizations such as the Agency, the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) – also non-governmental organizations and the private sector in addressing the T&T problem and to foster sustainable agriculture and rural development (SARD),
 - (m) Welcoming the progress made in the Agency-supported tsetse eradication project in Senegal and in the Ethiopian Southern Rift Valley Tsetse Eradication Project (STEP),
 - (n) Appreciative of the contributions made by various Member States and United Nations specialized agencies in support of addressing the T&T problem in West Africa, especially the contributions made by the United States of America through the Peaceful Uses Initiative (PUI) in support of projects for T&T control in Senegal and Burkina Faso,
 - (o) Acknowledging the continued close collaboration of the Secretariat and the International Centre of Research and Development for Livestock in Subhumid Zones (CIRDES) in Bobo-Dioulasso, Burkina Faso, the first IAEA Collaborating Centre in Africa for the 'Use of the Sterile Insect Technique for Area-Wide Integrated Management of Tsetse Fly Populations',
 - (p) Welcoming the efforts made by the Agency's Department of Technical Cooperation and the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture in support of AU-PATTEC,
 - (q) Welcoming the efforts made by the Secretariat to address and eliminate obstacles to applying the SIT against tsetse flies in African Member States through applied research and methods development, both in-house and through the Agency's coordinated research project mechanism, and
 - (r) Acknowledging the continued support given to AU-PATTEC by the Agency as outlined in the report submitted by the Director General in document GC(59)/5, Annex 1,
1. Urges the Secretariat to continue assigning high priority to agricultural development in Member States and redouble its efforts to build capacity and further develop the techniques for integrating the SIT with other control techniques in creating tsetse-free zones in sub-Saharan Africa;
 2. Calls upon Member States to strengthen the provision of technical, financial and material support to African States in their efforts to create tsetse-free zones, while stressing the importance of a

needs-driven approach to applied research and methods development and validation for serving operational field projects;

3. Requests the Secretariat, in cooperation with Member States and other partners, to maintain funding through the Regular Budget and the Technical Cooperation Fund for consistent assistance to operational SIT field projects and to strengthen its support for R&D and technology transfer to African Member States in order to complement their efforts to create and subsequently expand tsetse-free zones;

4. Requests the Secretariat to support Member States through technical cooperation projects on baseline data collection, development of full project proposals and implementation of operational tsetse eradication projects underpinned by on-site based experts, with priority given to genetically isolated tsetse populations;

5. Encourages the Agency's Department of Technical Cooperation and the Joint FAO/IAEA Division to continue working closely with AU-PATTEC in the agreed areas of collaboration as specified in the Memorandum of Understanding between the African Union Commission and the Agency signed in November 2009;

6. Stresses the need for continued harmonized, synergetic efforts by the Agency and other international partners, particularly FAO and WHO, with the aim of supporting the African Union Commission and Member States through the provision of guidance and quality assurance in planning and implementing sound and viable national and sub-regional AU-PATTEC projects;

7. Requests the Agency and other partners to strengthen capacity-building in Member States for informed decision-making regarding the choice of T&T strategies and the cost-effective integration of SIT operations in AW-IPM campaigns;

8. Urges the Secretariat and other partners to continue capacity building and to explore the possibilities of private-public partnership for the establishment and operation of tsetse mass rearing centres for providing cost-effectively large numbers of sterile male flies to different field programmes;

9. Encourages the countries that have selected a T&T strategy with an SIT component to focus initially on the field activities, including releases of sterile males imported from mass production centres as in the case of the successful eradication project in Senegal;

10. Encourages the Agency's Department of Technical Cooperation and the Joint FAO/IAEA Division to continue to support AU-PATTEC; and

11. Requests the Director General to report on the progress made in the implementation of this resolution to the Board of Governors and to the General Conference at its sixtieth (2016) regular session.

3.

Use of isotope hydrology for water resources management

The General Conference,

(a) Appreciating the work of the Agency in the area of isotope hydrology in response to resolution GC(57)/RES/12.A.5,

(b) Taking note of national, regional and international efforts to implement the International Decade for Action, 'Water for Life', 2005–2015, proclaimed by the United Nations to bring about a greater focus on the critical linkage between water and human development at all levels

and to improve the sustainable management of freshwater resources, and noting the conclusion in the *Report on the Achievements during the International Decade for Action, Water for Life 2005–2015*,

(c) Aware that the United Nations continue to recognize the need for greater and concerted action in the area of water and that access to water and water resources management are key issues in achieving the United Nations' Millennium Development Goals (MDGs),

(d) Aware that the United Nations convened a high-level Conference in 2012 (Rio+20) to secure renewed political commitment for sustainable development which adopted the outcomes document *The Future We Want*,

(e) Recognizing that the sustainable development agenda beyond 2015, which builds upon the achievements of the MDGs and the Rio+20 outcomes is expected to include a goal of ensuring availability and sustainable management of water and sanitation for all, the targets for which would emphasize the need for increased availability of freshwater and expanded capacity-building efforts, which continue to be the primary objectives of the Agency's Water Resources Programme,

(f) Aware that a lack of comprehensive mapping of water resources and related human capacity adversely impacts the ability of Member States to increase water availability and use,

(g) Recognizing that the Agency has continuously demonstrated the importance of isotope techniques for water resources development and management, particularly for groundwater management in arid and semi-arid regions and for improved understanding of the water cycle,

(h) Noting that initiatives of the Agency, as mentioned in document GC(59)/5, Annex 2, are addressing national priorities and have resulted in a wider use of isotope techniques for water resources and environmental management,

(i) Appreciating the fact that the initiatives taken by the Agency, particularly in conjunction with bilateral and other international agencies, including the development of a new series of isotope hydrology outreach materials and the holding of joint training workshops, by the United Nations Commission on Sustainable Development and by the World Water Forum have significantly raised awareness of the Agency's work on water resources,

(j) Appreciating the Agency's efforts in providing easier access for Member States to isotope hydrology analytical facilities through laser-based stable isotope analyzers,

(k) Recognizing the Agency's efforts in strengthening Member States' capacities for performing standardized and high-quality isotope measurements, including through the development of software for the operation and performance assessment of laboratories engaged in the routine analysis of hydrogen and oxygen isotopes in water samples,

(l) Noting that, under the IWAVE (IAEA Water Availability Enhancement) Project, the Agency is assisting Member States in increasing the availability and sustainability of freshwater based on comprehensive assessments of national water resources, and welcoming the fact that steps are being taken to expand the IWAVE Project to other Member States by including its methodology in new regional technical cooperation projects in the upcoming technical cooperation project cycle,

(m) Noting the discussions and conclusions of the 2011 Scientific Forum, entitled "Water Matters: Making a Difference with Nuclear Techniques", and taking note of the Agency's participation in the sixth "World Water Forum",

(n) Noting the efforts of the Secretariat to assist Member States to better manage water resources, including its work aimed at improving expertise and collaboration among participating Member States in the use of environmental isotopes to better assess nitrogen pollution and eutrophication of lakes and rivers for optimal water resources management and remediation strategies, and

(o) Noting the organization of a Technical Meeting on Surface Water and Groundwater Contamination Following the Accident at the Fukushima Daiichi Nuclear Power Plant which highlighted the importance of characterization of detailed hydrogeological settings of nuclear power plant sites,

1. Requests the Director General, subject to the availability of resources:

(a) to continue to further strengthen the efforts directed towards the fuller utilization of isotope and nuclear techniques for water resources development and management in the interested countries through appropriate programmes, by increased collaboration with national and other international organizations dealing directly with water resources management,

(b) to continue to help Member States obtain easy access to isotopic analysis by upgrading selected laboratories and by assisting Member States in adopting new and less expensive analytical techniques based on recent advances in relevant technologies, including laser-based ones,

(c) to expand activities related to the IWAVE Project and to groundwater management, particularly the assessment and management of fossil groundwater resources, including in arid and semi-arid areas, as well as to the safety and sustainability of these resources, in collaboration with regional and other international organizations, and to develop tools and methodologies for the improved mapping of water resources,

(d) to provide easier access for Member States to new techniques for the use of noble gas isotopes in the age-dating of groundwater, and

(e) to strengthen activities which contribute to the understanding of climate and its impact on the water cycle and which are aimed at better prediction and mitigation of water-related natural calamities, and to contribute to the success of the International Decade for Action, 'Water for Life', 2005–2015;

2. Requests the Agency to continue, along with other relevant United Nations agencies and with relevant regional agencies, to develop human resources in isotope hydrology through appropriate courses, at universities and institutes in Member States, through the use of advanced communication techniques and educational tools and at regional training centres, designed to provide practicing hydrologists with the ability to use isotope techniques;

3. Requests the Agency to continue taking follow-up actions from the Technical Meeting on Surface Water and Groundwater Contamination Following the Accident at the Fukushima Daiichi Nuclear Power Plant; and

4. Further requests the Director General to report on achievements in implementing this resolution to the Board of Governors and to the General Conference at its sixty-first (2017) session under an appropriate agenda item.

4.

Renovation of the Agency's Nuclear Applications Laboratories at Seibersdorf

The General Conference,

- (a) Recalling paragraph 9 of resolution GC(55)/RES/12.A.1, in which the General Conference called upon the Secretariat to make efforts, together with Member States, to modernize the Agency's Nuclear Applications (NA) Laboratories at Seibersdorf, thus ensuring maximum benefits to Member States, particularly developing ones,
- (b) Further recalling additional resolutions requiring that the NA Laboratories at Seibersdorf be fully fit-for-purpose (such as resolution GC(56)/RES/12.A.2, concerning the development of the sterile insect technique for the eradication and/or suppression of malaria-transmitting mosquitoes; resolution GC(57)/RES/12.A.3, concerning support to the African Union's Pan African Tsetse and Trypanosomosis Eradication Campaign (AU-PATTEC); resolution GC(56)/RES/12.A.4, on strengthening the support to Member States in food and agriculture; resolution GC(57)/RES/9.13, regarding nuclear and radiological incident and emergency preparedness and response; and resolution GC(57)/RES/11, relating to the strengthening of the Agency's technical cooperation activities),
- (c) Recognizing the growing applications, with economic and environmental benefits, of nuclear and radiation technologies in a wide variety of areas, the vital role that the NA Laboratories at Seibersdorf play in the demonstration and development of new technologies and in their deployment in Member States, and the dramatic increase in associated training courses and provision of technical services during recent years,
- (d) Acknowledging with appreciation the worldwide leading role of the NA Laboratories at Seibersdorf in the establishment of global laboratory networks in several areas, such as the animal disease control networks supported through the Peaceful Uses Initiative (PUI), the African Renaissance Fund (ARF) initiative and numerous other initiatives,
- (e) Further recognizing that the NA Laboratories at Seibersdorf are in urgent need of modernization in order to respond to the evolving range and complexity of the requests submitted to them and the growing demands of Member States and keep pace with increasingly rapid technological developments,
- (f) Emphasizing the importance of fit-for-purpose laboratories that comply with health and safety standards and that have the appropriate infrastructure,
- (g) Supporting the Director General's initiative regarding the modernization of the NA Laboratories at Seibersdorf, announced in his statement at the 56th regular session of the General Conference,
- (h) Recalling resolution GC(56)/RES/12.A.5, and specifically paragraph 4, in which the General Conference requested the Secretariat "to develop a strategic overarching plan of action for the modernization of the NA Laboratories at Seibersdorf, provide a concept and methodology for the short-, medium- and long-term modernization programme and outline the vision and future role for each of the eight NA laboratories",
- (i) Further recalling the report of the Director General to the Board of Governors (GC(57)/INF/11), mapping out activities and services of the NA Laboratories at Seibersdorf aimed at benefiting Member States and other stakeholders, quantifying projected future needs of and demands by Member States and identifying current and anticipated future gaps,

- (j) Welcoming the Director General's report to the Board of Governors on the Strategy for the Renovation of the Nuclear Sciences and Applications Laboratories in Seibersdorf as contained in GOV/INF/2014/11, which outlines the necessary elements and resource requirements for assuring fit-for-purpose laboratories, known as the ReNuAL project, to be implemented from 2014-2017 within a €31 million target budget, and the Addendum to the Strategy as contained in GOV/INF/2014/11/Add.1, which provides an update to the Strategy defining the additional elements as contained in paragraph 15 of the Strategy, known as ReNuAL Plus (ReNuAL+), and the Agency's efforts to establish its own Biosafety Level 3 (BSL3) laboratory capabilities,
- (k) Further welcoming the Director General's report in GOV/2015/39-GC(59)/5, Annex 3 to the Board of Governors on progress made in preparing and implementing the ReNuAL project since the 58th General Conference,
- (l) Noting the preparation of the conceptual designs as well as the detailed designs of the new Insect Pest Control Laboratory (IPCL), the new Flexible Modular Laboratory (FML) building and the new bunker to house a medical linear accelerator as the final preparatory steps before construction can begin in late 2015,
- (m) Further noting the finalization of a site development plan that identifies the most appropriate location of the new buildings and associated infrastructure at the Seibersdorf site,
- (n) Recognizing the key importance of the Agency's BSL3 capabilities to support Member States' efforts to control transboundary animal and zoonotic diseases, and appreciating the good cooperation with Austrian authorities, in particular the Austrian Agency for Health and Food Safety (AGES) which began providing full access and use of their new BSL3 facility at Mödling thereby enhancing the Agency's ability to provide increased assistance to Member States in controlling transboundary animal and zoonotic diseases, and further appreciating the Austrian Government's offer of a package of land, infrastructure and technical services that it values at €2 million towards the Agency establishing its own BSL3 capabilities at the same facility in Mödling,
- (o) Noting the transfer of five members of the ECAS ('Enhancing Capabilities of the Safeguards Analytical Services') project management group in 2015 to support the ReNuAL project to ensure lessons are learned from the ECAS project as well as to utilize existing capabilities in the Secretariat,
- (p) Appreciating the establishment of a ReNuAL resource mobilization framework as well as the hiring of a Resource Mobilization Officer to guide resource mobilization activities for the project with a focus on identifying and engaging potential donors, including non-traditional donors such as foundations and private companies,
- (q) Recognizing the efforts of the informal group of Member States known as the 'Friends of ReNuAL' who are actively facilitating the mobilization of resources for the project and encouraging all Member States that are in a position to do so, to make resources available to support activities,
- (r) Noting with appreciation that the implementation of the Project has been initiated with an initial €2.6 million per year as provided for in the Agency's Programme and Budget for 2014–2015, and €2.5 million that is planned each year for the 2016–2017 Programme and Budget, and
- (s) Welcoming the financial contributions for the implementation of the ReNuAL project made by Australia, Germany, Indonesia, Israel, Japan, Kazakhstan, the Republic of Korea, Norway, the Russian Federation, Switzerland, the United Kingdom and the United States of

America, as well as in-kind contributions from Austria and China, and the cost-free experts provided by China, Germany and the United States of America and the announcements made by China, India, Kuwait and South Africa, at the 59th regular session of the General Conference in 2015, to make voluntary contributions to further support the full implementation of the project,

1. Stresses the need, in conformity with its Statute, for the Agency to continue pursuing adaptive research and development activities in the areas of nuclear science, technology and applications where the Agency has a comparative advantage, and to retain its focus on capacity-building initiatives and the provision of technical services so as to meet the basic sustainable development needs of Member States;
2. Requests the Secretariat to strive to ensure that, commensurate with the prominence of the NA Laboratories at Seibersdorf within the Agency, the urgent needs and projected future demands of Member States as regards the services of those laboratories are met within the overall funding target for the renovation project;
3. Encourages the Secretariat to continue to implement the key recommendations of the Standing Advisory Group for Nuclear Applications (SAGNA) as regards prioritization of the redesign and expansion of infrastructure, including buildings, safety and security arrangements and administration and to ensure that the project results in fully fit for purpose laboratories that meets the needs of Member States;
4. Encourages the Secretariat to continue to explore the possibilities of extrabudgetary funding from non-traditional donors, and to assess the potential for collaboration with the private sector, within the Agency's financial and administrative rules and regulations, with a view to the establishment of low- or no-cost arrangements for equipment acquisition;
5. Calls on the Secretariat to continue to pursue a project specific resource mobilization strategy seeking resources from Member States, foundations and the private sector and encourages partnerships amongst them and further encourages the Secretariat to consider devoting financial resources from savings or efficiency gains to the project, in consultation with Member States;
6. Further calls on the Secretariat to continue to develop targeted resource mobilization packages that will match the interest of the potential donors with the needs of the project;
7. Requests the Secretariat to provide information on the financial resources required to implement upcoming implementation and to indicate where resources are needed to match implementation schedules;
8. Invites Member States to make financial commitments and contributions, as well as in-kind contributions in a timely manner, as well as to facilitate cooperation with other partners, as relevant, including foundations and the private sector, to ensure that that construction begins as early as possible in 2016 of the first building, and to provide the appropriate resource flow, so as to initiate the second building as soon as possible, so as to complete the ReNuAL project by 2017;
9. Further invites Member States to make the appropriate contributions to support the completion of the renovation of the NA Laboratories in Seibersdorf, as provided for in the addendum to the Strategy for the Renovation of the Nuclear Sciences and Applications Laboratories in Seibersdorf, as contained in GOV/INF/2014/11 and so that those elements within ReNuAL+ are implemented as soon as possible, in consultation with all Member States;
10. Encourages the 'Friends of ReNuAL' and all Member States to continue to support the implementation of the project with a focus on mobilizing resources in a timely manner; and

11. Requests the Director General to report to it on progress made in the implementation of this resolution at its sixtieth (2016) session.

B. Nuclear power applications

1. General

The General Conference,

- (a) Recalling resolution GC(58)/RES/13 and previous General Conference resolutions on strengthening the Agency's activities related to nuclear science, technology and applications,
- (b) Noting that the Agency's objectives as outlined in Article II of the Statue include "*to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world*",
- (c) Noting also that the Agency's statutory functions include "*to encourage and assist research on, and practical application of, atomic energy for peaceful uses*", "*to foster the exchange of scientific and technical information*" and "*to encourage the exchange and training of scientists and experts in the field of peaceful uses of atomic energy*", including the production of electric power, with due consideration for the needs of developing countries,
- (d) Stressing that the availability of energy and access to it are vital to human development, while noting that the health of the planet's environment is a serious concern that must be regarded as a priority by all governments, including taking actions to reduce pollution and waste, and to address the risk of global climate change, and recognizing that Member States pursue different ways to achieve energy security and climate protection goals,
- (e) Noting that significant concerns over energy resource availability, the environment and energy security suggest that a wide variety of energy options needs to be addressed in a holistic manner in order to ensure that they are competitive, environmentally benign, safe, secure and affordable, so as to support sustainable economic growth in all countries,
- (f) Taking note that nuclear power does not produce either air pollution or greenhouse gas emissions during normal operation, which makes it one of the low carbon technologies available to generate electricity,
- (g) Acknowledging that each State has the right to decide its priorities and establish its national energy policy in accordance with its national requirements, taking into account relevant international obligations, and to use diverse portfolios of energy sources when pursuing its own way to achieving its energy security and climate protection goals,
- (h) Recognizing that the accident that occurred on 11 March 2011 at the Fukushima Daiichi nuclear power plant, triggered by an extraordinary natural event, has shown the need for further improvements in nuclear safety, as also brought out in the Director General's report on the Fukushima Daiichi accident,

- (i) Recognizing the continuing efforts and good progress that have been made on the Fukushima Daiichi site, whilst noting the enormous decommissioning, environmental remediation and radioactive waste management challenges which remain,
- (j) Noting that, following Fukushima Daiichi accident, most States engaged in nuclear power programmes and newcomer countries embarking on nuclear power programmes continue to pursue their programmes, as they consider nuclear energy to be a viable option in meeting their energy needs and addressing climate change, while other States, based on their own national assessments, decided to phase out their nuclear power programmes or to continue not to use nuclear power,
- (k) Acknowledging that actions have been taken by the Secretariat and Member States with nuclear power in response to the lessons learned from the Fukushima Daiichi accident towards enhancement of the robustness of nuclear power plants, as well as human and organizational effectiveness, and emphasizing the need for ensuring competent technical support at every stage of the lifetime of a nuclear power plant for safe and reliable operations,
- (l) Noting the continued value of Integrated Work Plans (IWPs), which provide an operational framework for the delivery of Agency assistance in support of national nuclear programmes, thereby facilitating optimized assistance by the Agency to embarking and expanding countries,
- (m) Acknowledging the value of the contribution of the Secretariat and its Nuclear Infrastructure Development Section in providing a coordinated approach to supporting Member States in the area of nuclear infrastructure,
- (n) Recalling the International Conference on Fast Reactors and Related Fuel Cycles: Safe Technologies and Sustainable Scenarios (FR13), held in March 2013, in Paris, where participants reaffirmed their view that the development of innovative fast neutron systems and closed fuel cycles is regarded as a step towards a long-term sustainable energy supply, and the contribution that fast reactors can make to extending the lifetime of nuclear fuel resources and as an effective solution to nuclear waste management,
- (o) Recognizing the growing interest in a number of Member States in next generation reactor designs,
- (p) Encouraging interested Member States, including both technology users and holders, to consider jointly the improving of innovations in nuclear reactors, fuel cycles and institutional approaches, such as in the framework of the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO),
- (q) Recognizing that smaller reactors could be better suited to the small electrical grids of many developing countries with less developed infrastructure, and that for some developed countries they could be one way to replace obsolete, ageing or high-carbon-emitting small and medium-sized power sources, but acknowledging that the size of nuclear reactors is a national decision that each Member State takes on the basis of its own needs and the size of its electrical grid,
- (r) Noting that small and medium-sized/modular reactors (SMRs) could play a significant role in district heating, desalination and hydrogen production systems in the future, and their potential for use in innovative energy systems,
- (s) Noting also the organization of workshops by the Agency on vital topics related to nuclear power, such as technologies and economics, the competitiveness of nuclear power and

other energy technologies, regional cooperation to support transitioning to sustainable nuclear energy, the development of the required infrastructure for the safe, secure and efficient use of nuclear power, desalination and other non-electrical uses of nuclear energy, advanced waste management approaches among which are partitioning and transmutation, the role of research reactors in the development of nuclear power programmes, in support of the operating and future power plants and in the training of many professionals from Member States through various regional and national courses,

(t) Recognizing the difficulties in obtaining financing arising from the high capital costs of large nuclear power plants and the obstacles they create in making nuclear power a viable and sustained option in meeting energy needs, in particular for developing countries,

(u) Recalling the importance of human resource development, education and training and knowledge management and stressing the Agency's unique experience and capacity to assist Member States in building their national capacities to support the safe, secure and efficient use of nuclear power and its application, inter alia through its Technical Cooperation Programme,

(v) Noting the important role that the Agency plays in assisting Member States in the establishment, preservation and enhancement of nuclear knowledge and in implementing effective knowledge management programmes at national and organizational levels and confirming the important role of nuclear knowledge management programmes in strengthening nuclear education, training and networking capabilities,

(w) Recalling that launching, maintaining and expanding nuclear power programmes requires the development, implementation and continuous improvement of appropriate infrastructure to ensure the safe, secure and efficient use of nuclear power in a sustained manner, and implementation of the highest standards of nuclear safety, taking into account relevant Agency standards and guidance and relevant international instruments, as well as a strong and long-term commitment of national authorities to creating and maintaining this infrastructure,

(x) Noting the increasing number of technical cooperation projects, including the provision of assistance to Member States planning to introduce or expand nuclear power generation in conducting energy studies to evaluate future energy options and in establishing appropriate technical, human, legal, regulatory and administrative infrastructure, and acknowledging the Agency's role in facilitating the safe, secure, sustainable and efficient use of nuclear power,

(y) Recognizing the role that safe, secure, reliably operated and well utilized research reactors can play in national, regional and international nuclear science and technology programmes, including support of research and development in the fields on neutron science, fuel and material testing, and education and training,

(z) Stressing the importance of effective utilization of research and development in nuclear safety, technology and engineering, and the organization of International Expert Meetings to analyse all relevant technical aspects and to learn lessons from the Fukushima Daiichi accident,

(aa) Commending the Secretariat for the first International Centre based on Research Reactors announced during the 59th General Conference,

(bb) Stressing that the use of nuclear power must be accompanied at all stages by commitments to and ongoing implementation of the highest standards of safety and security throughout the life of the power plants, and effective safeguards, consistent with States' national legislation and respective international obligations, as well as the need to resolve the issues of managing spent fuel and radioactive waste, decommissioning and remediation in a safe and

sustainable manner, and confirming the important role of science and technology in continuously addressing these challenges, particularly through innovations,

(cc) Recognizing that the management of spent fuel and radioactive waste should avoid imposing undue burdens on future generations, and recognizing further that, while each State should, as far as is compatible with the safety of management of such material, dispose of the radioactive waste it generates, in certain circumstances the safe and efficient management of spent fuel and radioactive waste might be fostered through agreements among States to use facilities in one of them for the benefit of all of them,

(dd) Recognizing that the growing number of shut down reactors increases the need for collecting experience and developing adequate methods and techniques for decommissioning, environmental remediation and managing large volumes of radioactive waste, including contaminated water, resulting from legacy practices and radiological or nuclear accidents,

(ee) Acknowledging progress made in the field of deep geological disposal of spent nuclear fuel or highly radioactive waste, and further acknowledging the vital importance of involvement of national authorities including regulatory bodies in order to enhance stakeholders engagement,

(ff) Recognizing the need for Member States to evaluate and manage the financial commitments that are necessary for planning and implementing radioactive waste management programmes, including disposal,

(gg) Stressing the importance of Agency safety standards related to the management of nuclear waste and spent fuel and strong cooperation with international organizations,

(hh) Noting the Agency's integrated peer review service (ARTEMIS) for radioactive waste and spent fuel management, decommissioning and remediation programmes,

(ii) Recognizing the success of the Scientific Forum entitled "*Radioactive Waste: Meeting the Challenge – Science and Technology for Safety and Sustainable Solutions*", at the 58th General Conference attended by more than 300 participants and which emphasized the need for a comprehensive, cradle-to-grave approach to radioactive waste management, and welcoming the organization of the International Conference on Advancing the Global Implementation of Decommissioning and Environmental Remediation Programmes, which will be held in Madrid in May 2016,

(jj) Noting the increasing number of requests from Member States for advice on the exploration of uranium resources and on mining and milling for safe, secure and effective uranium production while minimizing the environmental impact, and acknowledging the importance of the Agency's assistance in this field,

(kk) Welcoming the conclusion of a Host State Agreement between the Agency and Kazakhstan and a Transit Agreement between the Agency and the Russian Federation to support the implementation of the low enriched uranium (LEU) bank to serve as supply of last resort for nuclear power generation,

(ll) Noting also the remaining challenges faced by the Secretariat in the administrative, financial, legal and technical aspects of the LEU bank,

(mm) Noting also the functioning of the LEU reserve in Angarsk, Russian Federation, comprising 120 tons of LEU under the aegis of the Agency,

(nn) Aware of the availability of the American Assured Fuel Supply, a bank of approximately 230 tons of LEU, for responding to supply disruptions in countries pursuing peaceful civilian nuclear programmes,

(oo) Taking note of the “*Nuclear Technology Review 2015*” (GC(59)/INF/2) and its supplements, as well as of the report “*Strengthening the Agency’s Activities related to Nuclear Science, Technology and Applications*” (GC(59)/5), prepared by the Secretariat, and

(pp) Acknowledging that the peaceful use of fusion energy can be advanced through increased international efforts and with the active collaboration of interested Member States and organizations in fusion-related projects, such as the International Thermonuclear Experimental Reactor (ITER) project and noting the latest biennial IAEA Fusion Energy Conference in St Petersburg,

1. Affirms the importance of the role of the Agency in facilitating through international cooperation among interested Member States, the development and use of nuclear energy for peaceful purposes, including the specific application of the generation of electric power, in assisting these States in that regard, in fostering international cooperation and in disseminating to the public well-balanced information on nuclear energy;
2. Takes note of the success of the Ministerial Conferences on Nuclear Power in the 21st Century, organized by the Agency in Paris, Beijing and St. Petersburg, respectively in 2005, 2009 and 2013, and welcomes the offer by the United Arab Emirates to host the next such Ministerial Conference in 2017 and encourages interested Member States to participate in this important event;
3. Commends the Agency for the assistance and review services it provides to countries embarking on new or expanding nuclear power programmes and encourages these countries to use this assistance and these review services when planning and assessing the economics/socio-economics of their energy programmes, developing their national infrastructure for nuclear power and defining their long-term strategies for sustainable nuclear energy;
4. Further commends the Secretariat for fostering nuclear knowledge management as a vital component of an integrated management system;
5. Encourages the Nuclear Infrastructure Development Section (NIDS) to pursue its activities integrating the Agency’s assistance provided to countries embarking on new nuclear power programmes, such as the Integrated Nuclear Infrastructure review (INIR) missions, and welcomes the publication of the revised Milestones in the Development of a National Infrastructure for Nuclear Power (IAEA Nuclear Energy Series NG-G-3.1 (Rev.1), 2015);
6. Encourages the Secretariat to explore, in consultation with interested Member States, the need for closer collaboration in technology development for advanced reactor lines by hosting a workshop with the aim of considering launching a new project on sharing information about the development of next generation reactors;
7. Recommends that the Secretariat continue to pursue, in consultation with interested Member States, activities in the areas of innovative nuclear technologies with a view to strengthening infrastructure, safety and security, fostering science, technology, engineering and capacity building via the utilization of existing and planned experimental facilities and material test reactors, as well as fostering the development and validation of advanced modelling and simulation tools, and with a view to strengthening the efforts aimed at creating an robust and harmonized regulatory framework so as to facilitate the licensing, construction and operation of these innovative reactors;

8. Encourages the Secretariat to continue to enhance Member States' understanding as they seek to identify potential approaches to financing nuclear energy programmes, including radioactive waste management in a changing international financial landscape, and encourages interested Member States to work with the relevant financial institutions towards addressing financial issues related to the introduction of enhanced safety design and technologies for nuclear power;
9. Requests the Secretariat to continue to pursue, in consultation with interested Member States, the Agency's activities in the areas of nuclear science and technology for nuclear power applications in Member States, with a view to strengthening infrastructure, including safety and security, and fostering science, technology and engineering, including capacity building via the utilization of existing research reactors;
10. Encourages the Agency to continue its support to interested Member States in building their national capacities in the operation of nuclear power plants and in embarking on new nuclear power programmes;
11. Encourages the development of programmes and initiatives such as the Capacity Building Initiative, in close relationship with the Agency, to improve and promote the potential of all Member States in the field of education and training, human resource development, knowledge network and knowledge management;
12. Encourages the Agency to continue to organize capacity building workshops on vital topics relating to nuclear power to understand and implement, in an integrated way, the requirements of effective management systems to ensure the safety, effectiveness and sustainability of nuclear power programmes;
13. Acknowledges the importance of the Agency's technical cooperation projects for assisting Member States in energy analysis and planning, and in establishing the infrastructure required for the safe, secure and efficient introduction and use of nuclear power, and encourages interested Member States to consider how they can further contribute in this field by enhancing the Agency's technical cooperation with developing countries, and notes the importance of active stakeholder involvement in the development or expansion of new nuclear power programmes;
14. Encourages the Secretariat to facilitate effective programmes in the areas of nuclear science technology and applications related to nuclear power, aimed at pooling and further improving the scientific and technological capabilities of interested Member States through cooperation and coordinated research and development;
15. Stresses the importance, when planning and deploying nuclear energy, including nuclear power and related fuel cycle activities, of ensuring the highest standards of safety and emergency preparedness and response, security, non-proliferation, and environmental protection for example through the promotion of a platform for the international nuclear community to continuously exchange information on research and development addressing safety issues included those highlighted by the Fukushima Daiichi accident, as well as the strengthening of long term research programmes to learn about severe accidents and related decommissioning activities;
16. Encourages the Secretariat to continue to foster regional and international collaboration and networking that expands access to research reactors, such as international user communities;
17. Encourages the Secretariat to inform Member States considering their first research reactor of the utility, economics, environmental protection, safety and security, reliability, proliferation resistance and waste management issues associated with such reactors and about international alternatives, and, on request, to assist decision makers in pursuing new reactor projects systematically and on the basis of robust, utilization-based strategic plans;

18. Urges the Secretariat to continue to provide guidance on all aspects of the lifetime of research reactors including the development of ageing management programmes at both new and older research reactors, to ensure continuous improvements in safety and reliability, the sustainability of fuel supply and exploration of disposition options for spent fuel and waste management;
19. Encourages the Secretariat to promote the International Centres based on Research Reactors and call on willing Member States to apply for designation, in order to build a comprehensive network comprising different nuclear operating techniques, worldwide and different languages;
20. Calls on the Secretariat to continue to support international programmes working to minimize the civilian use of highly enriched uranium (HEU), for example through the development and qualification of LEU high density fuel for research reactors, where such minimization is technically and economically feasible;
21. Welcomes the Secretariat's efforts in pursuing activities for enhancing Member State capabilities in modelling, predicting and improving the understanding of the behaviour of nuclear fuel under accident conditions;
22. Requests the Secretariat to continue and strengthen its efforts relating to nuclear power, fuel cycle and radioactive waste management, focusing particularly on technical areas where the needs for improvement, advances and enhanced international collaboration are greatest;
23. Encourages discussion among interested Member States on the development of multilateral approaches to the nuclear fuel cycle, including on the one hand possibilities of creating mechanisms for assurance for nuclear fuel supply and on the other hand possible schemes for the back end of the fuel cycle, recognizing that any discussion on these matters should take place in a non-discriminatory, inclusive and transparent manner and be respectful of the rights of each Member State to develop national capabilities;
24. Encourages international cooperation in the safe management of spent fuel and radioactive waste, as well as in exploring multinational approaches to storage and disposal;
25. Stresses in this connection that the safe management of spent fuel, which for some countries includes reprocessing and recycling, as well as the safe management and/or disposal of radioactive waste are of great importance, inter alia for sustainable, safe and secure development of nuclear science and technology, including nuclear power and to avoid imposing undue burdens on future generations;
26. Encourages the Secretariat to continue the preparation of safety and technical guides on the management of large amounts of waste generated after a nuclear or radiological accident and on the implementation of post-accident decommissioning and environmental remediation projects;
27. Encourages the Secretariat to promote the ARTEMIS peer review service concept, explaining its benefits as a means of encouraging Member States to invite such peer reviews where appropriate;
28. Encourages further strengthening of Agency safety standards and strong cooperation of the Agency with international organizations, such as through the Net-Enabled Waste Management Database;
29. Welcomes the Agency's efforts to provide more detailed information on designing, constructing, operating and closing a radioactive waste disposal facility, and thereby assisting Member States, including those embarking on nuclear power programmes, to develop and implement adequate disposal programmes;

30. Recognizes the importance of assisting Member States interested in uranium production to develop and maintain sustainable activities through appropriate technology, infrastructure and stakeholder involvement and the development of skilled human resources and encourages the Agency to cooperate with the OECD/NEA for the publication of the 26th edition of the Red Book on Uranium Resources, Production and Demand;
31. Welcomes the continuation of the IAEA Peaceful Uses Initiative and all contributions announced by Member States and Regional Group of States, and encourages Member States and Groups of States in a position to do so to contribute;
32. Requests that the actions of the Secretariat called for in this resolution be undertaken as a priority subject to the availability of resources; and
33. Requests the Secretariat to report to the Board of Governors as appropriate and to the General Conference at its sixtieth (2016) session on developments relevant to this resolution.

2.

Communication and IAEA cooperation with other agencies

The General Conference.

- (a) Taking note of the Secretariat's contributions to international discussions addressing global climate change, such as at the 20th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP20), held in December 2014 in Lima, Peru, and in the Intergovernmental Panel on Climate Change (IPCC),
 1. Requests the Secretariat to continue cooperation with international initiatives such as UN-Energy, and to explore the possibility of cooperation with Sustainable Energy for All (SE4All), stressing the importance of ongoing, transparent communications about the risks and benefits of nuclear power in operating and newcomer countries;
 2. Encourages the Secretariat's efforts in providing comprehensive information on nuclear energy's potential contribution to mitigating climate change, in advance of the United Nations Climate Change Conference, COP21, to be held in Paris in 2015, and encourages the Secretariat to work directly with Member States upon request and to further extend its activities in these areas, including the post-2020 UNFCCC agreement and the related national commitments to address climate change in implementing the new UN Sustainable Development Goals to be defined by the General Assembly in September 2015; and
 3. Encourages the Agency to consider senior level representation at COP21 and other major international forums where there will be debate and decisions regarding climate change and the potential role of nuclear power.

3.

Operating existing nuclear power plants

The General Conference.

- (a) Stressing the essential role the Agency plays as an international forum for the exchange of information and experience on nuclear power plant operation and for continuous improvement of this exchange among interested Member States, inter alia through the Nuclear Operator Organization Cooperation Forum held during regular sessions of the General Conference, while recognizing both the role of international organizations such as the OECD

Nuclear Energy Agency, and multinational networks among operators, such as the World Association of Nuclear Operations (WANO), and the need to further strengthen the cooperation between the Agency and these organizations,

1. Stresses the importance of adequate human resources for ensuring, inter alia, the safe and secure operation and the effective regulation of a nuclear power programme, and noting the increasing need, worldwide, for trained personnel;
2. Encourages the Secretariat to organize periodic meetings or conferences of groups of nuclear operators for the promotion of networking, as experience sharing in the field of nuclear power plant operation is an effective tool to enhance safety and to promote effectiveness of operating organizations;
3. Acknowledges the growing interest in life extension programmes for nuclear power plants, and requests the Secretariat to continue its support to interested Member States to strengthen their knowledge, experience and capacity in ageing and plant life management;
4. Encourages the Secretariat to disseminate, through guidance, best practices and experience with respect to leadership and management, including the need to maintain appropriate organizational structure while nuclear power plants are in long-term shutdown, or in transition to decommissioning; and
5. Encourages the Secretariat to identify and promote, through Technical Documents and Guides, best practices and lessons learned, with respect to procurement and supply chain issues, including bidding and contract evaluation processes, and also to support experience sharing related to quality control and quality surveillance activities related to nuclear construction, component manufacturing, and modifications.

4.

Agency activities in the development of innovative nuclear technology

The General Conference,

- (a) Recalling its previous resolutions on the Agency's activities in the development of innovative nuclear technology,
- (b) Conscious of the need for sustainable development and of the potential contribution of nuclear power to meeting the growing energy needs in the 21st century,
- (c) Referring to the Declaration by the IAEA Ministerial Conference on Nuclear Safety held in June 2011, in Vienna, which notes the role of innovative technologies in addressing improved nuclear safety, which in turn resulted in Action 12 of the IAEA Action Plan on Nuclear Safety,
- (d) Noting the progress achieved in a number of Member States in the development of innovative nuclear energy system technologies and the high technical and economic potential of international collaboration in the development of such technologies,
- (e) Noting that the membership of the Agency's International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO), which was launched in 2000, is continuing to grow and now comprises 40 Member States and the European Commission,
- (f) Noting also that the Agency fosters collaboration among interested Member States on selected innovative technologies and approaches to nuclear power through INPRO Collaborative Projects, Technical Working Groups (TWGs) working on facilitating innovations

for advanced reactors and nuclear fuel cycle options, and Coordinated Research Projects, and acknowledging that the coordination of INPRO-related activities is achieved through the Agency's Programme and Budget and the INPRO Action Plan,

(g) Noting that the INPRO Action Plan identifies activities in areas of global and regional nuclear energy scenarios, innovations in nuclear technology and institutional arrangements including such key collaborative projects as *Synergistic Nuclear Energy Regional Group Interactions Evaluated for Sustainability* (SYNERGIES), *Roadmaps for a Transition to Globally Sustainable Nuclear Energy Systems* (ROADMAPS), the project on *Key Indicators for Innovative Nuclear Energy Systems* (KIND) and other collaborative projects on specific issues of interest related to innovative nuclear reactor and fuel cycle concepts and designs,

(h) Noting that the scope of INPRO includes activities to support interested Member States in developing national long-range sustainable nuclear energy strategies and related nuclear energy deployment decision making, including nuclear energy system assessments (NESAs) using INPRO methodology, the INPRO Dialogue Forum and regional training on nuclear energy system modelling, including collaborative scenarios, and sustainability assessment using the INPRO methodology,

(i) Noting the progress of other national, bilateral and international activities and initiatives, and their contributions to joint research and development work on innovative approaches to nuclear energy deployment and operation,

(j) Recognizing that a number of Member States are planning to license, construct and operate prototypes or demonstrations of innovative fast neutron systems and high temperature reactors within the next decades, and noting that the Secretariat is fostering this process through the provision of international fora for the exchange of information, thus supporting interested Member States to develop innovative technology with enhanced safety, proliferation resistance and economic performance, and

(k) Noting with appreciation the Director General's report on Agency activities in the development of innovative nuclear technology contained in document GOV/2015/39-GC(59)/5,

1. Commends the Director General and the Secretariat for their work in response to the relevant General Conference resolutions, in particular the results achieved to date within INPRO;
2. Emphasizes the important role that the Agency can play in assisting interested Member States in building long-term national nuclear energy strategies and in long-term sustainable nuclear energy deployment decision-making through NESAs, based on the INPRO methodology, and nuclear energy scenario analyses;
3. Encourages the Secretariat to consider further opportunities to develop, coordinate and integrate the services it provides to Member States, including broad energy planning and long-range nuclear energy planning, economic analysis and technico-economic assessments, NESAs and assessments of transition scenarios to sustainable nuclear energy systems using, inter alia, the analytical framework developed by the INPRO Section;
4. Encourages interested Member States, the Secretariat, and the INPRO Section in particular, to further develop and evaluate various nuclear energy scenarios and roadmaps, based on synergistic collaboration among involved countries, that could lead to sustainable nuclear energy development in the 21st century, and to help define collaborative pathways to such development;
5. Requests the Secretariat to promote collaboration among interested Member States in developing innovative, globally sustainable, nuclear energy systems and to support the establishment

of effective collaboration mechanisms to exchange information on relevant experiences and good practices;

6. Encourages the Secretariat to articulate summary key indicator sets, consistent with the INPRO methodology, to further examine the application of multi-criteria decision analysis to develop comparative evaluation approaches to consider benefits and associated costs and potential risks in nuclear energy system performance that may be achievable using innovative nuclear energy technologies;
7. Encourages the Secretariat to study cooperative approaches to the back end of the nuclear fuel cycle with a focus on the drivers and institutional, economic and legal impediments to ensure effective cooperation among countries towards the long term sustainable use of nuclear energy;
8. Invites Member States and the Secretariat, specifically the INPRO Section, to examine the role that technological and institutional innovations can play in improving nuclear power infrastructure and enhancing nuclear safety, security and non-proliferation and to exchange information, including through the INPRO Dialogue Forum;
9. Invites all interested Member States to join, under the aegis of the Agency, in the activities of INPRO in considering issues of innovative nuclear energy systems and institutional and infrastructure innovations, particularly by continuing assessment studies of such energy systems and their role in national, regional and global scenarios for the further use of nuclear energy, and also by identifying common topics of interest for possible collaborative projects;
10. Encourages the Secretariat to further its efforts on distance learning/training on development of innovative nuclear technology for students and staff of universities and research centres, and to further develop tools supporting this activity that supports efficient delivery of services to Member States;
11. Notes the role of research reactors in supporting the development of innovative nuclear energy systems;
12. Encourages the Secretariat and interested Member States to complete the revision of the INPRO methodology in the light of the Fukushima Daiichi accident, taking into account the results of NESAs performed in Member States, while noting updates to the INPRO manuals dealing with infrastructure, economics and depletion of resources;
13. Recognizes ongoing efforts by the Secretariat and interested Member States to conduct comprehensive case studies on deployment of factory-fuelled small modular reactors as follow on to the already published preliminary study on transportable nuclear power plants (TNPPs);
14. Recommends that the Secretariat continue to explore opportunities for synergy between the Agency's activities (including INPRO) and those pursued under other international initiatives in areas relating to international cooperation in peaceful uses of nuclear energy, safety, proliferation resistance and other security issues and, in particular, supports collaboration among INPRO, appropriate TWGs, other United Nations organizations, the Generation IV International Forum (GIF), the International Framework for Nuclear Energy Cooperation (IFNEC) and the European Sustainable Nuclear Industrial Initiative (ESNII) with regard to innovative and advanced nuclear energy systems;
15. Invites interested Member States that have not done so to consider joining INPRO and to contribute to innovative nuclear technology activities by providing scientific and technical information, financial support, or technical and other relevant experts and by contributing to joint collaborative projects on innovative nuclear energy systems;

16. Welcomes Coordinated Research Projects launched by the Secretariat after the Fukushima Daiichi accident to address the actions requesting research and development support of the IAEA Action Plan on Nuclear Safety;
17. Encourages the Agency's activities on advanced nuclear fuel cycle relating to fast reactors for potential waste burden minimization;
18. Encourages the Secretariat to continue, through the consolidation of available resources and additional assistance from interested Member States, regular training and workshops on innovative nuclear technologies and their underlying science and technology to exchange knowledge and experience in the area of innovative, globally-sustainable nuclear energy systems;
19. Calls upon the Secretariat and Member States in a position to do so to investigate new reactor and fuel cycle technologies with improved utilization of natural resources and enhanced proliferation resistance, including those needed for the recycling of spent fuel and its use in advanced reactors under appropriate controls and for the long-term disposition of remaining waste materials, taking into account, inter alia, economic, safety and security factors;
20. Recommends that the Secretariat continue to pursue, in consultation with interested Member States, activities in the areas of innovative nuclear technologies, such as alternative fuel cycles (e.g. thorium, recycled uranium) and Generation IV systems including fast neutron systems, supercritical water-cooled and high-temperature nuclear reactors, with a view to strengthening infrastructure, safety and security, fostering science, technology, engineering and capacity building via the utilization of existing and planned experimental facilities and material test reactors, and with a view to strengthening the efforts aimed at creating an adequate and harmonized regulatory framework so as to facilitate the licensing, construction and operation of these innovative reactors;
21. Welcomes the extra budgetary funds provided to the Secretariat's activities for the development of innovative nuclear technology and encourages Member States in a position to do so to consider how they can further contribute to the Secretariat's work in this area; and
22. Requests the Director General to report on the progress made in the implementation of this resolution to the Board of Governors and to the General Conference at its sixtieth (2016) regular session under an appropriate agenda item.

5.

Approaches to supporting nuclear power infrastructure development

The General Conference,

- (a) Recognizing that the development and implementation of an appropriate infrastructure to support the successful introduction of nuclear power and its safe, secure and efficient use is an issue of great importance, especially for countries that are considering and planning for the introduction of nuclear power,
- (b) Recalling its previous resolutions on approaches to supporting nuclear power infrastructure development,
- (c) Stressing that prime responsibility for nuclear safety and security rests with States and their regulatory agencies, licensees and operating organizations in order to achieve the protection of the public and environment, and that a strong infrastructure is necessary to execute this responsibility,

- (d) Encouraging the Secretariat to develop stronger support for the development of a knowledgeable future owner/operator, according to the definition by the Agency during the 2012 workshop in Paris,
- (e) Commending the Secretariat's effort to provide support in the areas of human resource development, which continues to be a high priority to Member States that are considering and planning for the introduction of nuclear power with assessments of infrastructure needs, taking into account relevant economic, social and policy considerations, to support the safe, secure and efficient use of nuclear power, and noting the Agency's increasing activities in this area, in accordance with the requests of Member States,
- (f) Noting the Secretariat's effort to provide support in the area of stakeholder involvement which continues to be of outmost importance to Member States that are considering and planning for the introduction of nuclear power,
- (g) Recognizing the continued value of the Agency's Integrated Nuclear Infrastructure Review (INIR) missions, which provide expert and peer-based evaluations, in helping requesting Member States to determine their nuclear infrastructure development status and needs,
- (h) Welcoming the INIR missions in 2013-2015 to Turkey, Jordan, Nigeria and Kenya, and welcoming also the follow-up INIR mission to Viet Nam, and noting that additional countries thinking of extending their nuclear power programmes are considering requesting INIR missions,
- (i) Further welcoming the establishment of Integrated Work Plans (IWPs) which provide an operational framework for the delivery of Agency assistance in support of national nuclear programmes, thereby facilitating optimized assistance by the Agency to embarking countries,
- (j) Noting the publication of IAEA Nuclear Energy Series reports and the organization of a wide range of conferences, technical meetings and workshops on topics related to infrastructure development,
- (k) Recognizing the Nuclear Energy Management School and other training courses on management and leadership and on construction management, and mentoring programmes implemented under the Agency's auspices, in China, the Czech Republic, France, the Republic of Korea, the Russian Federation, Sweden, United Kingdom and the United States of America, and in particular the creation of the *International Nuclear Leadership Education Program* at the Massachusetts Institute of Technology, as effective platforms for leadership development,
- (l) Recognizing the third Conference on Energy and Nuclear Power in Africa, co-organized by the Agency and the International Framework for Nuclear Energy Cooperation in Mombasa, Kenya, in April 2015,
- (m) Noting the joint efforts of the Nuclear Infrastructure Development Section (NIDS) and INPRO in developing innovative infrastructure approaches for future nuclear energy systems,
- (n) Commending the Technical Work Group on Nuclear Power Infrastructure (TWG-NPI) that provides guidance to the Agency on approaches, strategy, policy and implementing actions for the establishment of a national nuclear power programme,
- (o) Recognizing the importance of encouraging effective workforce planning for operating and expanding nuclear power programmes, worldwide, and the increasing need for trained personnel, and

(p) Taking note of other international initiatives focusing on support for infrastructure development,

1. Commends the Director General and the Secretariat for their efforts in implementing resolution GC(55)/RES/12.B.4 as reported in document GC(57)/9 and welcomes the recent publication by the Secretariat of important guidance such as the revision of the “*Milestones in the Development of a National Infrastructure for Nuclear Power*”, which has involved numerous consultations between more than 150 contributors coming from numerous Member States during its revision and, in this context, ensured enhanced consistency among related nuclear power infrastructure publications and multimedia products (web sites, e-learning modules, etc.);
2. Encourages the Secretariat to facilitate broad international participation at all technical meetings, workshops, training courses and conferences on Nuclear Infrastructure development sponsored by in kind support from Member States;
3. Encourages Member States to ensure the development of the appropriate legislative and regulatory frameworks, which are necessary for the safe introduction of nuclear power;
4. Encourages Member States launching a nuclear power programme to invite an INIR mission and relevant peer review missions, including site design safety reviews, prior to commissioning the first nuclear power plant and to make public their INIR mission reports in order to promote transparency and to share best practices;
5. Notes the Secretariat’s establishment of the Nuclear Infrastructure Development Section and its internal coordination and holistic approach to nuclear infrastructure development, and encourages the Secretariat to strengthen and tailor the services provided to countries introducing new nuclear power programmes, while taking into account the results of assessments of infrastructure requirements, such as INIR mission outcomes;
6. Invites Member States to make use of INIR follow-up missions to assess progress and determine whether recommendations and suggestions were successfully implemented;
7. Requests the Secretariat to continue to learn lessons from INIR missions and to enhance the effectiveness of its activities;
8. Encourages Member States to develop action plans to address the recommendations and suggestions provided by the INIR mission and takes note that a Technical Meeting on Lessons Learned from INIR Missions will be held in November 2015;
9. Encourages the Secretariat to finalize the development of Phase 3 (before commissioning) INIR missions, taking into account the synergy with other Agency review services;
10. Welcomes the development of the catalogue of services as a useful tool to help Member States plan technical cooperation and other assistance;
11. Welcomes the Secretariat’s efforts in the production of a series of e-learning modules, based on the 19 infrastructure issues defined by the Agency’s Milestones approach, from which 12 have already been released on line, supporting capacity building in both countries embarking on new nuclear programmes and countries expanding their nuclear programmes;
12. Encourages the Secretariat to continue providing training related to the development of the ‘knowledgeable customer’ concept;

13. Invites all Member States that are considering or planning for the introduction or expansion of nuclear power to provide, as appropriate, information and/or resources to enable the Agency to apply its full spectrum of tools in support of nuclear infrastructure development;
14. Takes note of the Secretariat's cooperation with the International Framework for Nuclear Energy Cooperation (IFNEC) on the development of a workforce planning modelling tool for countries launching nuclear power programmes;
15. Calls on the Secretariat to facilitate, as necessary, 'soft coordination' among Member States for the more efficient implementation of multilateral and bilateral assistance to countries considering or planning for the introduction or expansion of nuclear power;
16. Welcomes the activities undertaken by Member States, both individually and collectively, to cooperate on a voluntary basis in nuclear infrastructure development and encourages further such cooperation;
17. Encourages the activities undertaken by the Secretariat to enhance dialogue between countries newly embarking on nuclear power programmes and those with expanding programmes;
18. Welcomes the extra budgetary funds provided to the Secretariat's activities for infrastructure development support to Member States and encourages Member States in a position to do so to consider how they can further contribute to the Secretariat's work in this area; and
19. Requests the Director General to report on the progress made in the implementation of this resolution to the Board of Governors and to the General Conference at its sixtieth (2016) session under an appropriate agenda item.

6.

Small and medium-sized nuclear reactors – Development and deployment

The General Conference.

- (a) Recalling its previous resolutions on small and medium-sized nuclear reactors – development and deployment,
- (b) Noting that the Agency has a dedicated project, to support small and medium or modular reactors (SMRs), highlighting their potential as an option for enhancing energy availability and supply security both in expanding and embarking countries and to address economics, environmental protection, safety and security, reliability, proliferation resistance and waste management issues,
- (c) Aware of activities in some Member States, related to the development and deployment of small modular reactors, that produce electric power up to 300 MW(e), and which can be manufactured as modules in factory setting and transportable to utilities for installation,
- (d) Aware also of the work of the International Framework for Nuclear Energy Cooperation on SMRs, in particular its June 2014 workshop on practical deployment issues and approaches, with participation by the IAEA, and a report of the workshop available on www.ifnec.org,
- (e) Recognizing that smaller reactors could be better suited to the small electrical grids of many developing countries with less developed infrastructure, and that for some developed countries they could be one way to replace obsolete, ageing or high-carbon-emitting power sources, but acknowledging that the size of nuclear reactors is a national decision that each Member State takes on the basis of its own needs and the size of its electrical grid,

- (f) Noting that SMRs could play an important role in cogeneration such as district heating, desalination and hydrogen production systems in future, and their potential for innovative energy systems,
- (g) Acknowledging that the Secretariat in 2013 – 2014 has published Nuclear Energy Series reports “*Approaches for Assessing the Economic Competitiveness of Small and Medium Sized Reactors*” (NP-T-3.7) and “*Options to Enhance Proliferation Resistance of Innovative Small and Medium Sized Reactors*” (NP-T-1.11), a TECDOC “*Progress in Methodologies for the Assessment of Passive Safety System Reliability in Advanced Reactors*” (IAEA-TECDOC-1752), and a technical booklet “*Advances in Small Modular Reactor Technology Developments – A Supplement to IAEA Advanced Reactors Information System (ARIS)*”, and looking forward to the forthcoming Nuclear Energy Series report on “*Instrumentation and Control Systems for Advanced Small Modular Reactors*”,
- (h) Noting the outcomes of the 6th INPRO Dialogue Forum on “*Global Nuclear Energy Sustainability: Licensing and Safety Issues for Small and Medium Sized Reactors (SMRs)*” and the meeting on “*Incorporating Lessons Learned from the Fukushima Daiichi Accident in SMR Technology Assessment for Design of Engineered Safety Systems*” and the consequent agreement to organize a Small Modular Reactor Regulators’ Forum on a two year pilot basis and the first meeting of the Forum held in March 2015,
- (i) Recognizing the role that innovative technologies can play in developing SMRs, and noting the new initiative from INPRO of a collaborative project “*The INPRO Case Study for the Deployment of a Factory Fuelled Small Modular Nuclear Reactor (SMR)*”, and
- (j) Noting with appreciation the Director General’s report entitled “*Development and Deployment of Small and Medium Sized Reactors, Including Small Modular Reactors*” annexed to document GC(59)/5,
1. Commends the Director General and the Secretariat for their work in response to previous relevant General Conference resolutions;
 2. Encourages the Secretariat to continue taking appropriate measures to assist Member States, particularly embarking countries, engaged in the process of preparatory actions with regard to demonstration projects, and encouraging the development of safe, secure, economically viable SMRs with enhanced proliferation resistance;
 3. Calls upon the Secretariat to continue to promote effective international exchange of information on options as regards SMRs available internationally for deployment and on topics such as technology roadmaps for SMR development and deployment, infrastructure requirements for countries embarking on new nuclear power programmes, operational performance, maintainability, safety and security, waste management, constructability, economics, and proliferation resistance, by organizing technical meetings and workshops, as appropriate, and to produce relevant status and technical reports;
 4. Invites the Secretariat and the Member States that are in a position to offer SMRs to foster international cooperation in undertaking studies of the social and economic impacts of SMR deployment in developing countries;
 5. Encourages the Secretariat to continue consultations and interactions with interested Member States, the competent organizations of the United Nations system, financial institutions, regional development bodies and other relevant organizations regarding advice on the development and deployment of SMRs;

6. Encourages the Secretariat to continue working on defining indicators of safety performance, operability, maintainability and constructability so as to assist countries in assessing advanced SMR technologies, and developing guidance for SMR technology implementation, and looks forward to upcoming reports on enhancing energy supply security and approaches to environmental impact assessment;
7. Also encourages the Secretariat to continue providing guidance for regulatory reviews of SMRs of various designs;
8. Encourages the Secretariat to foster collaboration among interested Member States with the objective of facilitating the licensing of SMRs;
9. Encourages the Secretariat to facilitate capacity building in embarking countries as regards SMR technology assessment;
10. Encourages the Secretariat to finalize the publication of the Nuclear Energy Series reports provisionally entitled “*Technology Roadmap for SMR Deployment*” and “*Status of Environmental Impact Assessment for SMR Deployment*”, and the TECDOCs provisionally entitled “*Options to Enhance Energy Supply Security using Hybrid Energy Systems using SMRs – Synergizing Nuclear and Renewable Energies*” and “*Considerations to Enhance the Defence in Depth Design and Operability of Water-Cooled Small Modular Reactors in coping with Extreme Natural Hazards*”, which contribute to the IAEA Nuclear Safety Action Plan item 12 on Effectively Utilizing Research and Development;
11. Encourages the Secretariat to continue the activities of the Regular Budget project *Common Technologies and Issues for SMRs* on both the development of key enabling technologies and the resolution of key infrastructure issues for innovative SMRs of various types, which is complementary to INPRO;
12. Invites the Director General to raise appropriate funding from extrabudgetary sources in order to contribute to the implementation of all Agency activities relating to the sharing of construction and operating experience for the development and deployment of SMRs; and
13. Requests the Director General to continue to report on:
 - i. the status of the programme initiated to assist developing countries interested in SMRs,
 - ii. progress made in the research, development, demonstration and deployment of SMRs in interested Member States intending to introduce them, and
 - iii. progress made in the implementation of this resolution to the Board of Governors and to the General Conference at its sixty-first (2017) regular session under an appropriate agenda item.