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

Resolution adopted on 25 September 2014 during the seventh 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 are obtaining benefits from the application of nuclear techniques in food and agriculture through the Joint FAO/IAEA Programme, and taking note of the decision of the FAO to continue collaborating with the IAEA through this joint programme, including exploring ways of improving such collaboration,

(e) Appreciating the honouring, during the 58th General Conference, of the endeavours of individuals, teams and institutes in Member States in plant mutation breeding for increasing food security,

(f) 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,

(g) 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,

(h) Noting the perpetual serious problem of locusts in Africa, especially in areas highly prone to environmental degradation and desertification, and that it has been responsible for severe famine in certain countries,

(i) 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,

(j) 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, and aware of the 25th biennial IAEA Fusion Energy Conference (FEC2014), to be held in the Russian Federation in October 2014,

(k) Taking note of the "Nuclear Technology Review 2014" (GC(58) /INF/2),

(l) 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 waste waters, 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),

(m) 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 CRPs,

(n) 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 measuring the effects of climate change on the environment,

(o) Noting the expanding use of positron emission tomography (PET), PET/computed tomography (PET/CT) and hospital-prepared radiopharmaceuticals,

(p) Noting the importance of molybdenum-99 availability for medical diagnosis and treatment, 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, and aware of the possible interference of xenon radioisotope releases stemming from fission-based large-scale molybdenum-99/technetium-99m production with global radioactive monitoring activity,

(q) 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,

(r) 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,

(s) 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,

(t) 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,

(u) 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,

(v) 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,

(w) 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,

(x) Noting with appreciation the fellowships and training sponsored by the IAEA Nobel Peace Prize Cancer and Nutrition Fund to improve cancer control and child nutrition in the developing world, and

(y) Noting with appreciation the efforts of the Secretariat, together with Member States, under the programme and budget for 2014-15, 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 that nuclear sciences and applications are utilized to achieve socio-economic benefits and the achievement of the Millennium Development Goals;

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 coordinated research projects (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 coordinated research activities (CRAs);

4. Recognizes the importance of and endorses Secretariat activities that meet the objective of fostering sustainable development and protecting the environment;

5. 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;

6. Welcomes all contributions announced by Member States, including the IAEA Peaceful Uses Initiative, which is designed to raise US$ 100 million as extrabudgetary contributions to IAEA activities by 2015, and encourages all States in a position to do so to make additional contributions;

7. 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 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 agriculture such as crop improvement and management in light of climate change, human health, including drug development and additional concrete efforts through PACT and in the use of cyclotrons, research reactors and accelerators for the production of radiopharmaceuticals, the development of novel materials, including the treatment of waste water, flue gases and other pollutants resulting from industrial activities, using radiation technology;

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

9. Recognizes the Agency's unique capabilities in contributing to global efforts to protect the marine environment, and appreciates the Secretariat's efforts in convening the 2013 Scientific Forum, "The Blue Planet: Nuclear Applications for a Sustainable Marine Environment", to highlight this important aspect of the Agency's work;

10. Recognizes the progress made in the establishment of the Ocean Acidification International Coordination Centre at the IAEA Environment Laboratories in Monaco, which coordinates and carries out activities for helping to develop a more comprehensive understanding of the global effects of ocean acidification, and welcomes the significant financial and in-kind support for the Centre provided by a number of Member States under the IAEA Peaceful Uses Initiative;

11. 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;

12. Urges the Secretariat to continue its cooperative work with other international initiatives, including the high-level group on the security of supply of medical radioisotopes established by the OECD Nuclear Energy Agency, and 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

13. Requests the Secretariat, upon request, to provide technical support to emerging national and regional efforts to establish and support non-HEU based molybdenum-99 production capabilities in interested Member States, including LEU based production and the direct production of technetium 99m using cyclotrons;

14. Requests the Secretariat to work actively together with interested Member States and international organizations to address the generation and release of xenon radioisotopes at the source;

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

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

17. 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;

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

21. 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;

22. Requests the Secretariat to take note of conclusions and recommendations of the Technical Meeting to discuss the future of nuclear medicine and diagnostic imaging titled '*The Future of Nuclear Medicine and Diagnostic Imaging*' held in Vienna, Austria from 5 to 9 May 2014, and to prioritize them for future activities;

23. 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;

24. Recognizes FAO's commitment to the Arrangements for the Joint FAO/IAEA Division and FAO's Strategic Framework for 2010-2019, which provides a solid foundation for the strengthening and broadening of collaboration with, inter alia, the IAEA;

25. Requests the Secretariat to take note of the conclusions of the *IAEA International Symposium on Understanding Moderate Malnutrition in Children for Effective Interventions*, held in Vienna, Austria

from 26 – 29 May 2014 and to ensure that it takes into account the range of agencies working in the area of malnutrition, and to avoid multiple, parallel actions to treat malnutrition;

26. Requests the Secretariat to initiate, in collaboration with FAO and Member States, R&D on the possible use of nuclear techniques as a component of an integrated approach for combating locusts and to provide appropriate assistance to this end;

27. Requests the Secretariat to make efforts together with Member States in developing industrial irradiation facilities such as electron accelerator and its 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 fifty-ninth (2015) regular session on the progress made in the areas of nuclear science, technology and applications.

2.
Development of the sterile insect technique for the control or eradication of malaria-, dengue- and other disease-transmitting mosquitoes

The General Conference,

(a) Recalling its resolution GC(44)/RES/24 on "Servicing Immediate Human Needs" and its resolutions GC(48)/RES/13.C and GC(52)/RES/12 on "Development of the Sterile Insect Technique for the Control or Eradication of Malaria-Transmitting Mosquitoes",

(b) Taking note of the decisions taken by the Summit of the African Union at its Fifteenth Ordinary Session, held in Kampala, Uganda, on 25-27 July 2010, on the five-year review of the Abuja Call for Accelerated Action Towards Universal Access to HIV/AIDS, Tuberculosis and Malaria Services in Africa, reaffirming the commitments undertaken at the Special Summit on HIV/AIDS, TB and Malaria, as well as under the Millennium Development Goals (MDGs) and the Decade for Roll Back Malaria, and deciding to extend the Abuja Call for Accelerated Action Towards Universal Access to HIV/AIDS, Tuberculosis and Malaria Services (the Abuja Call) to 2015 to coincide with attainment of the MDGs,

(c) Appreciating the important role of nuclear applications in addressing human needs,

(d) Conscious that the work done by the Agency in the field of nuclear sciences and applications in the non-power sector contributes to sustainable development, especially with programmes aimed at enhancing the quality of life in various ways, including improving human health,

(e) Recognizing the success of the area-wide integrated application of the sterile insect technique (SIT) in the eradication and/or suppression of tsetse flies, moths, fruit flies and other insects of economic importance,

(f) Noting with concern that malaria, transmitted by mosquitoes, causes about 630 000 deaths a year and affects about 207 million people, mainly in Africa, where it is slowing down economic growth by 1.3% annually, thus constituting a major obstacle to poverty eradication in Africa,

(g) Noting that the malaria parasite has continued to develop resistance to drugs and that mosquitoes have continued to develop resistance to insecticides, and that it is envisaged that the SIT would be used under specific conditions as an adjunct to other technologies, conforming to the WHO's roll-back strategy, including integrated vector management, of not relying on any single approach to control malaria,

(h) Noting with serious concern that mosquito-transmitted dengue has become in recent years a major international public health concern due to the increasing spread of invasive mosquito species, with 2.5 billion people living in areas where dengue viruses can be transmitted, and that insecticide-treated bed nets are not effective in combating dengue as the mosquito vectors are active during the day and other control tactics are urgently required,

(i) Noting with concern an increase of mosquito-transmitted chikungunya in the Latin American region, and that currently there is no treatment available for this mosquito-borne disease,

(j) Noting that the Thematic Plan for the Development and Application of the Sterile Insect Technique (SIT) and Related Genetic and Biological Control Methods for Disease Transmitting Mosquitoes organized by the Agency and held in Vienna from 16 to 20 June 2014 recommended that the Agency invest in supporting the control of the mosquito vector species through continuous funding of the development of the SIT and other related genetic and environment-friendly methods,

(k) Noting that the suppression of disease-transmitting mosquitoes using the SIT will be suitable mostly in urban areas, where aerial spraying with insecticides is prohibited or not indicated, and that an area-wide approach is required, which represents a novel and potentially powerful supplement to existing community-based programmes,

(l) Welcoming the fact that R&D on malaria and other disease-transmitting mosquitoes, which commenced with the inauguration of the Agency's mosquito laboratory in Seibersdorf on 26 June 2003, continued during 2012-2013,

(m) Taking note of the prioritizsation of the renovation of the Insect Pest Control Laboratory in Seibersdorf within the ReNuAL Strategy – *Strategy for the Renovation of the Nuclear Sciences and Applications Laboratories in Seibersdorf* (GOV/INF/2014/11),

(n) Noting with appreciation the interest shown by some donors in and their support for R&D on the SIT for combating malaria-, dengue- and other disease-transmitting mosquitoes, and

(o) Acknowledging with appreciation the support given by the Agency to development of the SIT for the control of malaria, dengue- and other disease-transmitting mosquitoes as outlined in the report by the Director General in document GC(56)/7, Annex 1,

1. Requests the Agency to continue and strengthen, through the activities mentioned above, the research, both in the laboratory and in the field, required to use the SIT for the management of malaria-, dengue- and other disease-transmitting mosquitoes;

2. Requests the Agency to increasingly involve developing Member States' scientific and research institutes in the research programme in order to ensure their participation, leading to ownership by the affected countries;

3. Requests the Agency to increase efforts to develop and transfer more efficient sex separation systems that allow complete removal of the female mosquitoes in production facilities and to develop cost-effective methods to release and monitor sterile males in the field;

4. Further requests the Agency to allocate adequate resources and to attract extrabudgetary funds so as to enable an expansion of the mosquito research programme, laboratory/office space and staffing;

5. Requests the Agency to strengthen capacity building and networking in Latin America, Asia and Africa through regional TC projects and to support field projects against *Aedes* and *Anopheles* mosquitoes through national TC projects for assessing the potential of the SIT as an efficient control tactic for disease-transmitting mosquitoes;

6. Invites the Agency to act upon the recommendation made by the experts of the Thematic Plan for the Development and Application of the Sterile Insect Technique (SIT) and Related Genetic and Biological Control Methods for Disease Transmitting Mosquitoes organized by Agency in Vienna in June 2014 to invest in supporting the control of the mosquito vector species through continuous funding of the development of the SIT and related genetic and environment-friendly methods;

7. Calls on Member States to support the renovation of the Insect Pest Control Laboratory in Seibersdorf and make financial contributions in support of its research programme;

8. Requests the Secretariat to continue to solicit extrabudgetary resources, including through the IAEA Peaceful Uses Initiative, so as to enable increased efforts to be made in validating in the field the SIT package for disease-transmitting mosquitoes through an operational project in the field; and

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

3.
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 suppression and eradication 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 socio-economic 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 millions of livestock every year and threatens over 60 million people in rural communities in 37 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 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 tsetse fly and trypanosomosis 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 UN organizations, in raising awareness regarding the tsetse fly and trypanosomosis 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 sub-regional 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 like the Agency, FAO and WHO – also NGOs and the private sector in the concerted effort to create and expand zones that are free of the tsetse and trypanosomosis (T&T) problem and to foster sustainable agriculture and rural development (SARD),

(m) Welcoming the progress made under the Ethiopian Southern Rift Valley Tsetse Eradication Project (STEP) and the progress made in the Agency-supported tsetse eradication project in Senegal,

(n) Appreciative of the contributions made by various Members States and UN 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 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(58)/9, Annex 2,

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 and management and the development of full project proposals with priority given to the identification and eradication of isolated tsetse fly 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 area-wide integrated pest management (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 fifty-ninth (2015) regular session.

4.
Plan for producing potable water economically using small and medium-sized nuclear reactors

The General Conference,

(a) Recalling resolution GC(57)/RES/12 and previous General Conference resolutions on strengthening the Agency's activities related to nuclear science, technology and applications,

(b) Recognizing that sufficient and clean potable water supplies for all mankind are of vital importance, as emphasized in Agenda 21 of the Rio Summit on Development and Environment, held in 1992, and the United Nations Conference on Sustainable Development (Rio +20), held in June 2012 in Rio de Janeiro, Brazil, and most recently, in 2013, reaffirmed at the twenty-fourth session of the Human Rights Council of the United Nations General Assembly on the human right to safe drinking water and sanitation,

(c) Noting that potable water shortages are of growing concern in many regions of the world, due to population growth, increased urbanization and industrialization and the effects of climate change,

(d) Underlining the urgent need for regional and international cooperation in helping to solve the serious problem of potable water shortages, particularly through the desalination of seawater,

(e) Recognizing that a number of Member States have expressed their interest in participating in activities relating to seawater desalination using nuclear energy,

(f) Noting that seawater desalination using nuclear energy has been successfully demonstrated through various projects in some Member States both for drinking water and for plant operated service water and is generally cost-effective, while recognizing that the economics of implementation will depend on site-specific factors,

(g) Taking note with appreciation of the different activities carried out by the Secretariat in cooperation with interested Member States and international organizations, as outlined in the report of the Director General contained in document GC(58)/18,

(h) Taking note of the recent enhancement in the scope of the Technical Working Group on Nuclear Desalination (TWG-ND), to encompass integrated water resources management and more specifically the efficient use of water in nuclear facilities,

(i) Noting with appreciation the activities carried out by the Secretariat in developing a report that provides generic guidance on cogeneration options and assesses the economics associated with such options (to be published in 2015), and technical reports on "Opportunities for Cogeneration Using Nuclear Energy" and "Industrial Applications of Nuclear Energy" (submitted for publication in 2014),

(j) Noting also that a technical meeting for the users of the IAEA desalination economic evaluation programme DEEP was held in May 2014, and that, based on the feedback of participants, a new version (DEEP 5.1) is to be released in December 2014,

(k) Noting that a training workshop on 'Water Management in Nuclear Power Plants' using the Secretariat's Water Management Programme WAMP software was held in May 2014 in Vienna to exchange information and good practices relating to strategies that help reduce water use in nuclear power plants (NPPs),

(l) Noting that a new Coordinated Research Project (CRP) on the Application of Advanced Low Temperature Desalination Systems to Support NPPs and Non-electric Applications has been launched in 2014,

(m) Recalling with appreciation that the Agency has established a programme to assist developing countries in addressing issues concerning economics, safety, reliability and technical measures for proliferation resistance in the application of small and medium-sized nuclear reactors (SMRs) for the production of potable water,

(n) Noting the results of technical meetings and regional and national training workshops organized by the Secretariat to disseminate information and strengthen skills relating to non-electric applications of nuclear energy, including seawater desalination, and to efficiency improvement using cogeneration options, and

(o) Taking note of the efforts of the Director General in soliciting additional funds for nuclear desalination,

1. Requests the Director General to continue consultations and strengthen interactions with interested Member States, the competent organizations of the United Nations system, regional development bodies and other relevant intergovernmental and non-governmental organizations in activities relating to seawater desalination using nuclear energy;

2. Encourages the TWG-ND to continue its functions as a forum for advice and review on nuclear desalination activities;

3. Stresses the need for international co-operation in the planning and implementation of nuclear desalination demonstration programmes through national and regional projects open for the participation of any interested country;

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

(a) encourage and facilitate technical meetings between technology users and developers to assess and evaluate cogeneration options for using nuclear power for seawater desalination that would enhance a common understanding of the needs and requirements of each side; and

(b) continue to hold regional training workshops and technical meetings and to use other available mechanisms for disseminating information on nuclear desalination and water management using SMRs and to undertake further activities aimed at better establishing how existing reactors may offer options for cogeneration;

5. Invites the Director General to raise funds from extrabudgetary sources in order to catalyze and contribute to the implementation of all Agency activities relating to nuclear desalination and cogeneration, and the development of innovative SMRs;

6. Requests the Director General to note the high priority given by interested Member States to the nuclear desalination of seawater in the process of preparing the Agency's Programme and Budget; and

7. Further 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 and thereafter every two years.

5.
Strengthening the support to Member States in food and agriculture

The General Conference,

(a) Recalling its resolutions GC(56)/RES/12.A.4, GC(54)/RES/10.A.4 and GC(52)/RES/12.A.5 on "Strengthening the support to Member States in food and agriculture" and its resolution GC(51)/RES/14 on "Strengthening the Agency's activities related to nuclear science, technology and applications",

(b) Recognizing the central role of agricultural development in accelerating progress towards several of the key Millennium Development Goals (MDGs), in particular to eradicate extreme poverty and hunger,

(c) Recognizing that the major global trends that will frame agricultural development over the medium term include: rising food demand, lingering food insecurity, malnutrition, and the impact of climate change,

(d) Noting that, according to the FAO publication "The State of Food Insecurity in the World 2013", globally 842 million people – 12 per cent of the global population – were unable to meet their dietary energy requirements in 2011-2013, and the vast majority of hungry people – 827 million – live in developing regions,

(e) Noting the benefits from the peaceful application of nuclear techniques in food and agriculture, and the importance of making appropriate technologies available, particularly to developing Member States,

(f) Appreciating the work of the Joint Division of the Food and Agriculture Organization of the United Nations and the International Atomic Energy Agency (the Joint FAO/IAEA Division) dedicated to the development and application of nuclear and related techniques in food and agriculture, and welcoming the reaffirmation of the commitment of both organizations to the long-standing partnership between the two organizations through the signing by the Agency and FAO in 2013 of revised arrangements regarding the work of the Joint FAO/IAEA Division,

(g) Noting that this year marks the 50th anniversary of the cooperation and partnership between the FAO and the Agency, and affirming the synergy and contribution of this unique partnership through the Joint FAO/IAEA Division to global food security and sustainable agriculture development,

(h) Noting that the new Strategic Framework of FAO focuses on five Strategic Objectives, streamlining its priorities, results and resource allocation to accelerate the eradication of hunger, malnutrition, poverty, and the sustainable use of natural resources,

(i) Expressing appreciation for the work undertaken by the FAO/IAEA Agriculture and Biotechnology Laboratories in Seibersdorf and noting the importance of fit-for-purpose laboratories that comply with health and safety standards and have the appropriate infrastructure,

(j) Commending the Secretariat on the effective support provided to Botswana, Ethiopia and Cotê d'Ivoire in diagnosing and controlling peste des petits ruminants and African swine fever, and to Myanmar and Mongolia in containing the spread of foot-and-mouth disease in 2013-2014, hence reducing trade disruptions,

(k) Noting with appreciation the eradication of the Mediterranean fruit fly (medfly) from 300 000 hectares in Guatemala, facilitating the export of fresh fruit and vegetables to the United States of America and other high-value medfly-free international markets,

(l) Applauding the support provided by the Agency to the African Union's Pan African Tsetse and Trypanosomosis Eradication Campaign (AU-PATTEC), which is making excellent progress in eradicating tsetse flies from the Niayes region of Senegal and is fostering the suppression of tsetse flies and the disease they transmit in several affected Member States, including 10 000 km² of the Southern Rift Valley in Ethiopia, permitting an increase of productive livestock and opening up opportunities for sustainable agricultural and rural development and thereby benefiting thousands of farmers,

(m) Appreciating the major achievement of the Joint FAO/IAEA Division and the Agency's Technical Cooperation Programme in developing mutant wheat varieties with resistance to Ug99, a black stem rust disease of wheat,

(n) Commending the Agency and FAO on jointly providing Achievement Awards and Outstanding Achievement Awards to plant breeders and institutes in Member States for exceptional achievements in mutation breeding and their contributions to global food security, and congratulating all winners on their achievements and the impacts,

(o) Commending the Agency on its key role in the post-rinderpest era, including its contributions to the sequestration of the rinderpest virus from diagnostic and vaccine production and storage facilities and to the maintenance of global diagnostic capabilities and expertise, and on its support in building national and regional capacity, improving epidemiological studies and data management and setting up pertinent networks to combat and eliminate other livestock and zoonotic diseases,

(p) Commending the Agency on its exemplary role in the enhancement of nuclear emergency response in the field of food and agriculture and on its adaptation of nuclear and related technologies in that connection,

(q) Applauding the commencement of new demand-driven R&D work at the FAO/IAEA Agriculture and Biotechnology Laboratories in Seibersdorf on the development of the sterile insect technique (SIT) for disease-transmitting mosquitoes, the use of isotopic techniques in food forensics, traceability and contaminant control to improve food safety and quality, the investigation of irradiated animal vaccines, and the application of stable isotopes as tracing technologies and in enhancing animal disease diagnostic applications,

(r) Applauding the support of the Secretariat to 65 African, Asian, European and Latin American countries in the development of soil conservation strategies using fallout radionuclide (FRN) techniques to ensure sustainable agricultural production and to mitigate the impacts of climate change,

(s) Welcoming the initiation of new demand-driven research activities on the development of communication and visualization tools to improve decision-making in agricultural water management in Africa, and

(t) Recognizing that the demand from Member States for technical assistance in the area of nuclear applications in food and agriculture remains high, as evidenced by the scientific and technical support of the Joint FAO/IAEA Division for more than 280 national, regional and interregional technical cooperation projects and 33 coordinated research projects,

1. Urges the Secretariat to further expand, in an integrated and holistic manner, its efforts to address, inter alia, food insecurity in Member States and to further increase its contribution to raising agricultural productivity and sustainability through the development and integrated application of nuclear science and technology;

2. Encourages the Secretariat, and in particular the Joint FAO/IAEA Division, to continue playing its unique role in strengthening the capacity of Member States in the use of nuclear and related techniques to improve food security and sustainable agriculture through international cooperation in research, training and outreach activities;

3. Urges the Secretariat to address the impacts of climate change on food and agriculture through the use of nuclear technologies, with priority on adaptation to and mitigation of the effects of climate change, including, in soil and water management, through the establishment of benchmark research sites around the world, and requests the Secretariat to carry out new activities for addressing the climate change challenges under the thematic heading of 'climate-smart agriculture';

4. Urges the Joint FAO/IAEA Division to continue developing laboratory networks in order to strengthen support for the control and eradication of transboundary animal diseases (TADs) (e.g. VETLAB) and for food safety, including the application of appropriate and competitive nuclear and non-nuclear techniques in animal health and food safety, and, with the participation of multiple stakeholders, to strengthen national programmes and enhance laboratory networks;

5. Encourages the Joint FAO/IAEA Division, including the FAO/IAEA Agriculture and Biotechnology Laboratories in Seibersdorf, to continue its valuable work in the provision of demand-driven training and services and in applied R&D;

6. Requests the Secretariat to work towards the renewal of the FAO/IAEA Agriculture and Biotechnology Laboratories in Seibersdorf, in conjunction with the other programmatic entities of the laboratories of the Department of Nuclear Sciences and Applications, in order to ensure that fit-for-purpose laboratories will also in future be optimally positioned to assist Member States' research and development activities;

7. Urges the Secretariat to continue strengthening its activities in the area of food and agriculture through interregional, regional and national capacity building initiatives, and to further expedite the sustainable transfer of technology to developing Member States;

8. Expresses appreciation for the financial and extrabudgetary contributions made by Member States and other stakeholders in support of, inter alia, the food and agriculture programme of the Agency, and encourages Member States to contribute, particularly through the Peaceful Uses Initiative, to food and agriculture activities, and to continue supporting these activities by funding projects that will further enhance agricultural productivity while protecting increasingly scarce natural resources;

9. Urges the Secretariat to further strengthen its efforts to seek extrabudgetary funding for infrastructure and equipment improvement and modernization of the Seibersdorf laboratories, especially the FAO/IAEA Agriculture and Biotechnology Laboratories, so as to enable these to meet the growing and continuously evolving needs of Member States, and specifically encourages Member State contributions in support of the ReNuAL project;

10. Urges the Secretariat, in its resource mobilization efforts for the ReNuAL project, to draw on the extensive experience of the FAO in mobilizing extrabudgetary resources, and encourages the Secretariat to have relevant FAO staff work closely with Agency staff in these efforts;

11. Encourages the Secretariat to further strengthen its partnership with FAO and to continue adjusting and adapting its technology development, capacity building and technology transfer services in response to Member States' demands and needs in food and agriculture, especially in light of the new FAO Strategic Objectives;

12. Appreciates the continuing activities of the Secretariat in relation to nuclear and radiological emergency preparedness and response, especially in the areas of agricultural countermeasures and remediation strategies to mitigate immediate and longer-term effects arising from radionuclide contamination, and urges the Secretariat to develop technologies, manuals, protocols and guidance to strengthen the capacity of Member States to deal with radionuclide contamination in the area of food and agriculture;

13. Encourages the Joint FAO/IAEA Division to continue responding to the major global trends framing agricultural development in order to ensure to the maximum extent possible an increased resilience of livelihoods to threats and crises in agriculture, including the adaptation to and mitigation of the effects of climate change;

14. Urges the Secretariat to further strengthen its effort to seek extrabudgetary funding for strengthening its research activities in the preparedness and response to nuclear emergencies, with a particular focus on the area of food and agriculture; and

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

6.
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 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 fifty-sixth 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 biosafety level 3 laboratory capabilities,

(k) Noting the establishment of a Project Board, feasibility studies, and the 'Friends of ReNuAL' mechanism for resource mobilization, as called for in the previous resolution GC(57)/RES/12.A.6, and further noting that the Project Management Team will be drawn, where appropriate, from the ECAS project management group in 2015, and looking forward to appropriate allocations in future biennia,

(l) Recalling, as noted in paragraph (k) of resolution GC(57)/RES/12.A.6, the recommendation of the Agency's Standing Advisory Group on Nuclear Applications (SAGNA), that construction under the ReNuAL project should begin no later than the end of 2014 so as to take advantage of the lessons learned from the ECAS (Enhancing the Capabilities of the Safeguards Analytical Services) project and of the project management structure that is currently in place,

(m) Noting that one of the lessons learned from the ECAS project is the importance of a focused resource mobilization strategy,

(n) Noting with appreciation that the implementation of the Project has been initiated with an initial €2.6 million as provided for in the IAEA 2014-2015 Programme and Budget , and

(o) Welcoming the financial contributions for the implementation of the ReNuAL project made by Japan, Kazakhstan, the Republic of Korea, the Russian Federation and the United States of America to the total amount of approximately € 960,000 and the cost-free experts provided by China and the United States of America and the intention expressed by the Government of Germany at the Board of Governors in September 2014 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 R&D 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 SAGNA as regards prioritization of the redesign and expansion of infrastructure, including buildings, safety and security arrangements and administration;

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 establish a project specific resource mobilization strategy and the appointment of a resource mobilization officer;

6. Further calls on the Secretariat to develop thematic packages that will match the interest of the potential donors with the needs of the project;

7. Invites Member States to make financial commitments and contributions, as well as in-kind contributions in a timely manner, to ensure that that construction begins as soon as possible, and to provide the appropriate resource flow, so as to complete the ReNuAL project by 2017, and further invites Member States to make the appropriate contributions to support the completion of the renovation of the Nuclear Applications Laboratories in Seibersdorf, as provided for in the addendum to the Strategy for the Renovation of the Nuclear Applications Laboratories in Seibersdorf, as contained in GOV/INF/2014/11;

8. Encourages the 'Friends of ReNuAL' and all Member States to continue to support the implementation of the project; and

9. Requests the Director General to report to it on progress made in the implementation of this resolution at its fifty-ninth (2015) session.

B.
Nuclear power applications

1.
General

The General Conference,

(a) Recalling resolution GC(57)/RES/12 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 Statute 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) Taking note of the Secretariat's contributions to international discussions addressing global climate change, such as at the 19th Conference of the Parties to the United Nations Framework Convention on Climate Change (CoP-19), held in November 2013 in Warsaw, Poland, and in the Intergovernmental Panel on Climate Change (IPCC),

(f) 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,

(g) Taking note that nuclear power does not produce either air pollution or greenhouse gas emissions during normal operation, and recalling the concluding statement of the President of the St. Petersburg International Ministerial Conference on "*Nuclear Energy in the 21st Century*", organized by the Agency in June 2013 and attended by 87 States and seven international organizations, that for many countries nuclear power is a proven, clean, safe, and economical technology that will play an increasingly important role in achieving energy security and sustainable development goals in the 21st century,

(h) Recognizing that the accident that occurred on 11 March 2011 at TEPCO's Fukushima Daiichi Nuclear Power Station, triggered by an extraordinary natural event, has shown the need for further improvements in nuclear safety, particularly for addressing extreme natural events, and in emergency preparedness and response,

(i) 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,

(j) Noting that, following the Fukushima Daiichi accident, most States already engaged in nuclear power programmes prior to this accident and newcomer countries embarking on nuclear power programmes will 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 a few of those States and some other States decided, based on their own national assessments of nuclear energy benefits and risks, to phase out their nuclear power programmes or to continue not to use nuclear power,

(k) 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 to an effective solution to nuclear waste management,

(l) 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 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,

(m) 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 in nuclear power and its application, inter alia through its Technical Cooperation Programme,

(n) 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),

(o) Stressing also the essential role the Agency plays as an international forum for the exchange of information and experience on nuclear power plant (NPP) 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, NGOs and multinational networks among operators, such as the World Association of Nuclear Operators (WANO), and the need to further strengthen the cooperation between the Agency and these organizations,

(p) Recalling that launching a nuclear power programme requires the development and implementation of an 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,

(q) Noting the increasing number of technical cooperation projects, including the provision of assistance to Member States planning to introduce 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,

(r) 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, and the training of many professionals from Member States through various regional and national courses,

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

(t) 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,

(u) Noting that small and medium-sized reactors (SMRs) could play a significant role in district heating, desalination and hydrogen production systems in future, and their potential for innovative energy systems,

(v) 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 the support of advanced R&D in the fields of neutron science, fuel and materials testing, and education and training,

(w) 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 the 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,

(x) Recognizing 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 severe radiological or nuclear accidents,

(y) Recognizing also 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,

(z) Noting that the Secretariat is launching a new Agency integrated peer review service for radioactive waste and spent fuel management, decommissioning and remediation programmes that is to be called ARTEMIS,

(aa) 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,

(bb) Noting the challenges faced by the Secretariat in the administrative, financial, legal and technical aspects of the IAEA LEU bank to serve as a supply of last resort for nuclear power generation,

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

(dd) 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,

(ee) Taking note of the "*Nuclear Technology Review 2014*" (GC(58)/INF/4) and its supplements, as well as of the report "*Strengthening the Agency's Activities related to Nuclear Science, Technology and Applications*" (GC(58)/18), prepared by the Secretariat, and

(ff) 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 aware of the 25th biennial IAEA Fusion Energy Conference (FEC 2014), to be held in St. Petersburg, Russian Federation, in October 2014,

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. 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), as well as of a dialogue forum for the benefit of Member States aimed at defining sustainable global and regional energy scenarios through application of a commonly acknowledged assessment methodology;

3. Encourages the Secretariat's efforts in providing 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 continue to extend its activities in these areas;

4. Recommends that the Secretariat continue to implement efforts that contribute to a greater understanding and a well-balanced picture of the role of nuclear science and technology in a global, sustainable development perspective;

5. Encourages the Secretariat to pursue its cooperation with relevant international cooperative frameworks supporting the responsible use of nuclear energy;

6. Taking note of the success of the Ministerial Conferences on nuclear power, organized by the Agency in Paris, Beijing and St. Petersburg, in 2005, 2009 and 2013 respectively, requests the Secretariat to organize the next such Ministerial Conference in 2017;

7. Underlines the importance of facilitating 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;

8. 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, including incorporating the lessons learned from the Fukushima Daiichi accident, security, non-proliferation, and environmental protection;

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 infrastructures, including safety and security, and fostering science, technology and engineering, including capacity building via the utilization of existing research reactors;

10. Acknowledges the importance of the Agency's technical cooperation projects for assisting Member States in energy analysis and planning, and in establishing the infrastructures 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;

11. 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;

12. Welcomes the upgrades, within the Department of Nuclear Energy, in January 2014, of the former Integrated Nuclear Infrastructure Group (INIG) to the Nuclear Infrastructure Development Section (NIDS) and of the INPRO group to the INPRO Section;

13. Commends the Agency for the assistance and review services it provides to countries embarking on new 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 infrastructures for nuclear power and defining their long-term strategies for sustainable nuclear energy;

14. Encourages 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 to continue updating important publications such as "*Milestones in the Development of a National Infrastructure for Nuclear Power*" (IAEA Nuclear Energy Series No. NG-G-3.1);

15. Welcomes the renewed mandate given to the Technical Working Group on Nuclear Power Infrastructure (TWG-NPI);

16. Encourages the Agency to continue to organize capacity building workshops on vital topics related to nuclear power (technologies and economics of nuclear power, development of required infrastructures for the safe, secure, sustainable and efficient use of nuclear power, etc), while ensuring the widest possible participation of experts from all interested Member States;

17. Encourages the Secretariat to continue to foster regional and international collaboration and networking that expands access to research reactors, such as international user communities;

18. 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;

19. Urges the Secretariat to continue to provide guidance on all aspects of the research reactor life cycle 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 management;

20. Calls on the Secretariat to continue to support international programmes working to minimize the civilian use of highly enriched uranium (HEU), where such minimization is technically and economically feasible;

21. Requests the Secretariat to continue to collect and disseminate best practices and lessons learned, including on implementation of the highest standards of safety and highly effective nuclear security measures, in the construction, operation and decommissioning of NPPs, by providing overviews of organizations' risk tolerance, capabilities, competences and tools to manage identified risks;

22. Encourages the Secretariat to disseminate, through guidance, the best practices and lessons learned with respect to the management of the long-term shutdown of NPPs, while they are in the decommissioning stage prior to their final dismantling;

23. Encourages the Secretariat to disseminate best practices and lessons learned with respect to procurement and supply chain issues to owners, operators, regulators, suppliers, auditors, and other supply chain participants throughout the nuclear industry;

24. Invites the Secretariat and the Member States that are in a position to do so to foster international cooperation in the development and deployment of small modular reactors and/or small and medium-sized reactors by undertaking studies of the social and economic impacts, as well as maintainability, safety and security, waste management, constructability, economics, proliferation resistance and other key factors influencing the deployment of such reactors in developing countries;

25. 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;

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 introduce to Member Sates the new ARTEMIS peer review service concept, explaining its benefits as a means of encouraging them to invite such peer reviews where appropriate;

28. 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;

29. 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 the sustainable, safe and secure development of nuclear science and technology, including nuclear power and to avoid imposing undue burdens on future generations;

30. 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;

31. Respectful of the rights of each Member State for developing national capabilities, encourages discussions, in a non-discriminatory, inclusive and transparent manner, on the development of multilateral approaches to the nuclear fuel cycle, including possibilities of creating mechanisms for assurance of nuclear fuel supply as well as possible schemes for the back-end of the fuel cycle;

32. Encourages international cooperation in the safe management of spent fuel and radioactive waste, as well as in exploring multinational approaches to storage and disposal;

33. 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;

34. Encourages the Secretariat to work on strengthening collaboration among interested Member States with the objective of accelerating the development and early deployment of fast neutron systems with enhanced safety, economic and non-proliferation characteristics;

35. Welcomes all contributions announced by Member States, including contributions in support of the IAEA Peaceful Uses Initiative, which is designed to raise US$100 million as extrabudgetary contributions to Agency activities by 2015, and encourages Member States in a position to do so to contribute;

36. Requests that the actions of the Secretariat called for in this resolution be undertaken as a priority subject to the availability of resources; and

37. Requests the Secretariat to report to the Board of Governors as appropriate and to the General Conference at its fifty-ninth (2015) session on developments relevant to this resolution.

2.
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 39 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 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 the nuclear fuel cycle,

(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 modelling of collaborative nuclear energy scenarios,

(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 within the next decades, and noting that the Secretariat is fostering this process through the provision of international fora for the exchange of information and is 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 GC(58)/INF/4,

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 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 bring together the experience acquired through NESAs, the collaborative project *Global Architectures on Innovative Nuclear Energy Systems* (GAINS), SYNERGIES and other global nuclear energy scenario analyses to develop guidance on the evaluation of substantial improvements and associated risks in nuclear energy system performance, potentially achievable with innovative nuclear technologies, on the basis of the INPRO methodology;

7. Encourages the Secretariat to consider studying cooperative approaches to the back-end of the nuclear fuel cycle with a focus on the drivers and legal, institutional and financial impediments to ensure effective cooperation among countries towards the long term sustainable use of nuclear energy;

8. Invites Member States, the Secretariat, and the INPRO Section in particular, 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. Notes in this regard the work of the INPRO project *Effective Collaboration in the Development of Innovations to Support Sustainable Nuclear Energy Systems*;

10. Invites all interested Member States to join, under the aegis of the Agency, in the activities of INPRO in considering the 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 issues for possible collaborative projects;

11. 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 the publication of updated INPRO manuals dealing with infrastructure and economics;

12. Encourages the Secretariat and interested Member States to consider activities on legal and institutional issues of deployment of factory-fuelled small and medium-sized reactors (SMRs) as continuation of the already published preliminary study on transportable nuclear power plants (TNPPs);

13. Recommends that the Secretariat continue to explore opportunities for synergy between Agency's activities (including INPRO) and those pursued under other international initiatives in areas related 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 UN 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;

14. 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;

15. Recognizing that the funding of INPRO activities supporting the development of innovative nuclear energy systems comes mainly from extrabudgetary resources, requests that the Director

General strengthen the Agency's efforts related to the development of innovative nuclear technology by further enhancing the effective and efficient use of available extrabudgetary and regular budget resources;

16. Recommends that the Secretariat consider establishing, through the consolidation of available resources and 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;

17. 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;

18. Recommends that the Secretariat continue to pursue, in consultation with interested Member States, activities in the areas of innovative nuclear technologies, such as high-temperature nuclear reactors and fast neutron systems, 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; 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 fifty-ninth (2015) regular session under an appropriate agenda item.

C.
Nuclear knowledge management

The General Conference,

(a) Recalling its previous resolutions on nuclear knowledge,

(b) Noting the importance of establishing and strengthening governance processes to advance knowledge management within organizations and having systems in place to measure the success of knowledge management programmes,

(c) Emphasizing the increasing importance of the role of the Agency in providing information and good practices in the safe and efficient utilization of nuclear technology for peaceful purposes including information and knowledge for the general public,

(d) Recognizing that preserving and enhancing nuclear knowledge and ensuring the availability of qualified human resources are vital to the continued safe, economic and secure utilization of all nuclear technologies for peaceful purposes,

(e) Recognizing that nuclear knowledge management involves both education and training for succession planning as well as the preservation and/or growth of existing knowledge in nuclear science and technology,

(f) 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,

(g) Recognizing the importance of knowledge management in all areas of the Secretariat's activities and programmes, and the cross-cutting inter-disciplinary and inter-departmental nature of many knowledge management issues and initiatives,

(h) Acknowledging the importance of adequate nuclear knowledge in understanding and applying safety principles in the design, construction, licensing, operation, closure and decommissioning of nuclear facilities,

(i) Aware of continuing concerns for operating facilities about risks of knowledge loss,

(j) Aware of the benefits of utilizing nuclear knowledge management approaches to support long term operation of nuclear facilities, disposal of radioactive waste, decommissioning projects, environmental remediation projects, and the need to improve learning from incidents and events,

(k) Acknowledging the utility of collaborations towards development and adoption of integrated national and regional strategic planning approaches to strengthen university nuclear education programmes and make them sustainable,

(l) Recognizing the useful role of international coordination and cooperation in facilitating exchanges of information and experience and in implementing actions to help address common problems, and also in benefitting from opportunities relating to education and training and to nuclear knowledge preservation and enhancement,

(m) Noting the successful installation of the Cyber-Learning Platform for Nuclear Education and Training (CLP4NET) in the Middle East, Asia, Africa and Latin America to support regional efforts in introducing modern e-learning technology for nuclear education and training,

(n) Noting the success of the Nuclear Energy Management School (NEMS) and the Nuclear Knowledge Management School (NKMS), both held annually at the International Centre for Theoretical Physics (ICTP), at Trieste, Italy, and recognizing 2014 as a 10-year milestone in the highly valued cooperation and support of the ICTP in hosting these Schools,

(o) Further noting the NEMS hosted by the University of Tokyo for the Asian region and by Texas A&M University for the South and North American regions, and

(p) Noting also the outcomes of the International Conference on "*Human Resource Development for Nuclear* Power *Programmes: Building and Sustaining Capacity*", hosted by the Agency from 12 to 16 May 2014,

1. Commends the Director General and the Secretariat for their significant, interdepartmental efforts in addressing issues of preservation and enhancement of nuclear knowledge, in response to relevant General Conference resolutions;

2. Commends the Secretariat for its support to Member States in applying a comprehensive methodology and guidance for managing nuclear knowledge, including through nuclear knowledge management assistance visits and seminars in Member States;

3. Further commends the Secretariat for fostering nuclear knowledge management as a vital component of an integrated management system;

4. Encourages the Director General and the Secretariat to continue to strengthen their current and planned efforts in this area, in a holistic, interdepartmental manner, while consulting and engaging Member States and other relevant international organizations, and to further increase the level of awareness of efforts in managing nuclear knowledge, and in particular:

i. Requests the Secretariat to assist Member States, at their request, in their efforts to ensure the sustainability of nuclear education and training in all areas of the peaceful use of nuclear energy, including its regulation, inter alia by taking advantage of the activities of regional networks,

ii. Notes in particular the needs of developing countries or those considering or launching a nuclear power programme and in this regard encourages Member States in a position to do so to participate in and support networking, and underlines the importance of the Technical Cooperation Programme in that context,

iii. Requests the Secretariat, in consultation with Member States, to further develop and disseminate guidance and methodologies for planning, designing and implementing nuclear power programmes, including programmes for sustaining nuclear knowledge,

iv. Requests the Secretariat to continue to make available to Member States training programmes of the NEMS and the NKMS, in particular through continued expansion into regions outside Europe,

v. Requests the Secretariat to further develop and utilize e-learning material, relevant content and technologies to make nuclear education and knowledge more broadly available in a modern, effective and efficient manner, including the further development and effective use of the Agency's CLP4NET and CONNECT platforms as e-learning repositories, and

vi. Encourages the Secretariat to promote the use of state of the art knowledge management technologies and to support interested Member States in their further development;

5. Encourages the Secretariat to pursue its International Nuclear Management Academy (INMA) initiative, which supports collaborations among nuclear engineering universities around the world to develop a framework for implementing and delivering master's level education programmes in nuclear management, and to facilitate Member State and stakeholder involvement, including financial support for students and course material development;

6. Requests the Secretariat to continue to gather and make available to Member States nuclear data, information and knowledge resources on the peaceful use of nuclear energy, including the International Nuclear Information System (INIS) and other valuable databases as well as the IAEA Library and the International Nuclear Library Network (INLN);

7. Calls on the Secretariat, in particular, to continue to focus on activities aimed at helping interested Member States assess their human resource needs and identify ways to address those needs, inter alia by encouraging the development of new tools, including data banks and simulators developed by the Agency, and opportunities to gain practical experience through fellowships;

8. Notes the creation of the Technical Working Group on Nuclear Knowledge Management (TWG-NKM) with the aim of providing strategic and practical advice and assistance to the Agency for programme development and implementation;

9. Invites the Secretariat, in consultation with Member States, to further develop and disseminate guidance and methodologies for planning, designing and implementing nuclear knowledge management programmes and practices;

10. Requests the Secretariat to continue to develop tools and services in the area of human resource development with a particular focus on capacity building and to continue to organize international conferences on human resource related issues every four years to promote the sharing of experience and solutions between operating and newcomer countries;

11. Requests the Director General to take into account the continuing high level of interest of Member States in the range of issues associated with nuclear knowledge management when preparing and carrying out the Agency's programme;

12. Requests the Director General to report on 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.