

General Conference

GC(57)/RES/12

Date: September 2013

General Distribution

Original: English

Fifty-seventh regular session

Item 18 of the agenda
(GC(57)/24)

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

Resolution adopted on 19 September 2013 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.I 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 welcoming the decision of the FAO to continue collaborating with the IAEA through this joint programme, including exploring ways of improving such collaboration,
- (e) 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,

(f) 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,

(g) 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,

(h) 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,

(i) 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 next biennial IAEA Fusion Energy Conference (FEC2014), to be held in the Russian Federation in October 2014,

(j) Taking note of the “Nuclear Technology Review 2013” (GC(57)/INF/2),

(k) 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),

(l) 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,

(m) 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,

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

(o) 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, 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,

(p) Aware of the new cooperative initiatives that have emerged to provide reactor irradiation services in Europe and elsewhere, of the significant advances reported in commissioning 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,

(q) 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,

(r) 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,

(s) 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,

(t) 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,

(u) 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,

(v) 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, and

(w) 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

(x) 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", to highlight this important aspect of the Agency's work;

10. Welcomes progress made in the establishment of the Ocean Acidification International Coordination Centre at the IAEA Environment Laboratories in Monaco, which was launched during the 2012 UN Conference on Sustainable Development (Rio+20) to coordinate and carry out activities for helping to develop a more comprehensive understanding of the global effects of ocean acidification, an important step towards enhanced global cooperation in ocean acidification research, and further 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 NEA, and to continue to implement activities that will contribute to securing and supplementing the molybdenum-99 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 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 the direct production of technetium-99m using cyclotrons;
14. Requests the Secretariat to work actively together with radioisotope production facilities, interested Member States and relevant international organizations such as the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization to minimize 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. Encourages the Secretariat to continue cooperating with the World Nuclear University (WNU) Annual School on Radioisotopes and to enhance its support for the participation of applicants from developing countries;
17. 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;
18. 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;
19. Request the Secretariat to strengthen the Agency's activities in the area of fusion science and technology;
20. 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;
21. 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;
22. Welcomes FAO's renewed 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;
23. 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;
24. 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;
25. Requests also that the actions of the Secretariat called for in this resolution be undertaken subject to the availability of resources; and

26. Recommends that the Secretariat report to the Board of Governors and to the General Conference at its fifty-eighth (2014) regular session on the progress made in the areas of nuclear science, technology and applications.

2.

Programme of Action for Cancer Therapy

The General Conference,

- (a) Recalling its resolution GC(55)/RES/12.A.2 on the Programme of Action for Cancer Therapy (PACT),
- (b) Concerned about the suffering of cancer patients and their families, the extent to which cancer threatens development, particularly in developing countries, and the alarming growth in cancer incidence, particularly in low- and middle-income (LMI) countries, as reported by the International Agency for Research on Cancer (IARC), which estimates that by 2030 cancer will cause one in six deaths, with seventy-five per cent of these deaths occurring in developing countries,
- (c) Also concerned that more than half of all countries worldwide are struggling to prevent cancer and provide treatment and chronic care to cancer patients, as concluded by the 2013 WHO survey for World Cancer Day,
- (d) Welcoming the continued special priority assigned to the Agency's work on cancer control by the Director General, including through the organization of the 2010 Scientific Forum on "Cancer in Developing Countries: Facing the Challenge", and taking note of its discussions and conclusions,
- (e) Recalling its resolution GC(54)/RES/10.A.5 on "Cancer", in which it, inter alia, requested the Secretariat to continue to undertake activities aimed at enhancing the capacities of developing countries in cancer control,
- (f) Welcoming the convening of the High-Level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases (NCDs) on 19-20 September 2011 and the "Political Declaration of the High-Level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases" adopted through resolution A/RES/66/2 by the General Assembly, which, inter alia, requested the Secretary-General to submit a report on the progress achieved in realizing the commitments made in the Political Declaration, including on the progress of multisectoral action and the impact on the achievement of the internationally agreed development goals, including the Millennium Development Goals,
- (g) Noting the convening on 11-12 December 2012, in Vienna, of the United Nations NCD Task Force, which developed an initial integrated United Nations framework for addressing NCDs, and welcoming the Agency's participation in the United Nations NCD Task Force,
- (h) Welcoming the convening of the sixty-sixth session of the World Health Assembly (WHA) on 20-28 May 2013 and its adoption of WHO's 2013-2020 global action plan for the prevention and control of NCDs, including a comprehensive global monitoring framework and targets for the prevention and control of NCDs,
- (i) Welcoming the ongoing discussions between the Secretariat, WHO and the IARC on strengthening the WHO-IAEA Joint Programme on Cancer Control,

- (j) Aware that the Programme of Action for Cancer Therapy (PACT) embodies in a clear way the peaceful use of nuclear technology for civilian and humanitarian purposes, and that the timely implementation of PACT, enabling Member States to develop capacities to fight cancer in a comprehensive way, will impact the health and development of all regions, and promote the other statutory activities of the Agency,
- (k) Welcoming the Secretariat's policy of continuing to develop an Agency-wide strategy for the implementation of PACT, and taking note of the Director General's report on PACT in Annex 1 to document GC(57)/9,
- (l) Noting the continued work of the PACT Programme Office (PPO), as part of the Department of Nuclear Sciences and Applications, in coordinating a single unified programme for fundraising and the delivery of projects to Member States for cancer control-related activities, making use of - inter alia - available Agency information, identified resources, and synergies and interactions across all relevant departments, as well as raising funds from extrabudgetary sources,
- (m) Noting the decision of the Director General for the PPO to be relocated to the Department of Technical Cooperation in 2014 and welcoming the upgrade of the PPO to a division, (hereinafter referred to as the Division of PACT) with a view to enhancing the performance of PACT and to making optimum use of the synergies between TC and PACT activities,
- (n) Recognizing the delivery of activities under the auspices of PACT, in close coordination with the technical cooperation programme and relevant technical divisions of the Secretariat, and the increasing number of requests from Member States for assistance in projects related to cancer control, including capacity-building and radiotherapy infrastructure improvements,
- (o) Expressing appreciation for the financial and other contributions and pledges made by Member States and others in support of PACT,
- (p) Recognizing that regional efforts can assist Member States in developing comprehensive national cancer control plans (NCCPs) suited to their requirements through knowledge sharing,
- (q) Recognizing the value of integrated missions of PACT (imPACT) as a tool for comprehensive assessment and their usefulness in the planning of integrated cancer control programmes, and noting the importance of follow-up activities to support the implementation of imPACT recommendations,
- (r) Noting with concern the increasing difficulty of retaining qualified medical professionals in LMI countries, and recognizing the need for these trained professionals, along with facilities and equipment, for sustaining adequate cancer care capacity, and
- (s) Recognizing the potential of the Virtual University for Cancer Control (VUCC) as a cost-effective and sustainable approach to education and training,
1. Calls upon the Secretariat to brief Member States on the move of PACT from Major Programme 2 to Major Programme 6 at a date that would facilitate Member States' discussion at the November 2013 meetings of the Technical Assistance and Cooperation Committee, and requests the Director General to report on the impact of this move on TC and PACT before the 2014 session of the General Conference;
 2. Commends the Secretariat for the continued progress made in the establishment of partnerships with Member States, other international organizations and private entities, taking into consideration UNGA resolutions 58/129 (2003), 59/250 (2004), 60/215 (2006), 66/223 (2012) and 67/266 (2012),

and urges the Division of PACT to foster the development and deployment of cost-effective, reliable systems for the radiation treatment of cancer patients through such partnerships;

3. Calls on the Division of PACT to continue to harness the benefits that may be derived from the WHO-IAEA Joint Programme on Cancer Control, particularly in terms of accelerated programme delivery to Member States, strengthened public health approaches to cancer control, and increased resource mobilization potential;

4. Calls on the Secretariat to follow up on the outcomes and the recommendations of the high-level meetings on the prevention and control of NCDs, particularly cancer, including by assisting developing countries to adopt and implement a comprehensive approach to cancer control;

5. Calls on the Secretariat to develop a more integrated and actionable framework for collaboration, including joint project development and resource mobilization, with WHO and the IARC;

6. Requests the Director General to continue advocating and building support for the Agency's work on cancer control, including by mobilizing resources for the implementation of PACT as one of the priorities of the Agency;

7. Welcomes the progress in the work done by the Division of PACT, through the technical cooperation programme, in collaboration with international partners and donors, to strengthen Member State capabilities to fight cancer, and requests the Secretariat to continue, in an integrated manner, planning and implementing PACT's activities and projects in Member States;

8. Calls on the Secretariat to harmonize its approaches to helping Member States to develop their financial proposals for establishing and maintaining radiation medicine infrastructure for comprehensive cancer control;

9. Recommends that the Secretariat, in consultation with relevant partners, including the WHO, as appropriate, continue to help developing Member States to establish integrated and comprehensive national cancer control plans, involving the full participation of other international organizations and agencies;

10. Notes the need for sufficient human resources in the Division of PACT for the implementation of projects using extrabudgetary funds, welcomes the significant extrabudgetary and in-kind resources provided to date, and encourages Member States to continue providing support and funding to adequately fulfil the needs of the Division of PACT;

11. Notes that PACT Model Demonstration Sites (PMDS) are currently operational in eight countries, and calls on the Division of PACT to build on the success of PMDS activities and develop joint projects within the framework of the WHO-IAEA Joint Programme on Cancer Control;

12. Recommends the continuous development, in consultation with Member States, of imPACT missions as an Agency service available for Member States and calls on the Division of PACT to focus on follow-up activities that build on the findings of imPACT missions and translate the recommendations into actions with sustainable impacts for Member States;

13. Takes note of the progress made by the Advisory Group on Increasing Access to Radiotherapy Technology in Low- and Middle-Income Countries (AGaRT), and encourages the Advisory Group to continue developing sustainable solutions to increase access to safe and affordable radiotherapy technologies;

14. Welcomes the continued support provided by PACT for the participation of health professionals working in cancer control in LMI countries in training courses on cancer prevention and control, and calls on the Division of PACT to continue facilitating such training;
15. Welcomes the significant progress made in the transfer of the ownership and operation of the VUCC for Africa to the region, and calls for the expansion of the VUCC to other countries in the region, including francophone Member States, and the replication of the VUCC in other regions;
16. Requests the Director General to continue seeking, strengthening and facilitating the Agency's involvement in international partnerships, to further pursue, develop and implement PACT, and requests the Director General to continue formalizing, where feasible and appropriate, PACT's collaboration with partners already identified for the more effective development and implementation of country-level PACT projects;
17. Commends the ongoing work of the Division of PACT in mobilizing resources to support its activities, notes that between 2011 and 2012 PACT's resource mobilization efforts secured or facilitated the mobilization of voluntary contributions, pledges, grants, long-term loans and donations of cash, equipment and in-kind expertise and training valued at US\$ 3.5 million, and encourages the continued implementation of PACT's fundraising and resource mobilization strategy;
18. Calls upon the Director General to ensure that the Division of PACT retains capacities and mechanisms to facilitate and support cancer control-related resource mobilization, its existing competence and its access to relevant technical expertise required to optimize the Agency's efforts in cancer control;
19. Invites Member States, organizations, private foundations and other donors to provide adequate financial support for the implementation of PACT, and requests the Secretariat to keep Member States informed about progress in this regard;
20. Recommends that the Division of PACT continue to raise awareness about the global cancer burden and the crucial role of radiation medicine in cancer diagnosis and treatment as the first link in a chain that connects cancer treatment to the control of non-communicable diseases, through international fora such as the World Cancer Summits and Congresses and the recently formed UN Task Force on Non-Communicable Diseases; and
21. Requests the Director General to report on the implementation of this resolution to the General Conference at its fifty-ninth (2015) regular session.

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, by suppression and various eradication techniques, while ensuring that the reclaimed land areas are sustainably and economically exploited, and hence contributing to poverty alleviation and food security,

- (c) Recognising that tsetse fly and trypanosomosis suppression and eradication are unique, complex and logistically demanding exercises 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 spreading 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 continues to claim 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 livestock development in rural communities affected by tsetse flies and trypanosomosis as a pathway out of poverty and hunger and a 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 for Africa 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, reviewing the AU-PATTEC Plan of Action, 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 significant progress made under the Ethiopian Southern 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) Appreciative of the special efforts made by the Joint FAO/IAEA Division and the FAO Animal Health Service 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(57)/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 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 in African Member States 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 tsetse and trypanosomiasis (T&T) baseline data collection and data management and the development of full project proposals for T&T interventions;
5. Encourages the Secretariat 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 strengthen capacity building and to support the establishment and operation of regional centres for providing large numbers of sterile male tsetse flies and for coordinating SIT operations as an important component of area-wide integrated pest management (AW-IPM) campaigns against the T&T problem;

9. Encourages the Joint FAO/IAEA Division and the FAO Animal Health Service to continue to support AU-PATTEC; and

10. 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-eighth (2014) regular session.

4.

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

The General Conference.

(a) Recalling resolution GC(55)/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 most recently reaffirmed at the United Nations Conference on Sustainable Development (Rio +20), held in June 2012 in Rio de Janeiro, Brazil,

(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 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(57)/9,

(h) Taking note of the outcomes of the meeting of the Technical Working Group on Nuclear Desalination (TWD-ND) held in January 2013, which include a recommendation that the added value of nuclear desalination through cogeneration be emphasized,

(i) Noting with appreciation the activities carried out by the Secretariat in producing a technical report on "Efficient Water Management in Water Cooled Reactors" (published in August 2012) and preparing technical reports on "Opportunities for Cogeneration Using Nuclear Energy" and "Industrial Applications of Nuclear Energy" (both to be published in 2014),

(j) Noting that the "tool kit on nuclear desalination" released by the Agency in 2009 in the form of a web page on nuclear desalination was improved in 2012 and 2013, with links to current information on IAEA activities relating to nuclear desalination,

- (k) Noting also that the desalination economic evaluation programme DEEP has been updated and a new version (DEEP 5.0) was released in May 2013 and that the desalination thermodynamic optimization programme DE-TOP (DE-TOP 2.0b) has been released with new features for analyzing cogeneration plants in either the energy or the exergy mode;
- (l) Noting the release in November 2012 of the “Water Management Programme” software for the estimation of water requirements in nuclear power plants (NPPs) and the analysis of cooling systems and related NPP site requirements,
- (m) Noting that the Coordinated Research Project (CRP) on New Technologies for Seawater Desalination Using Nuclear Energy, completed in 2011, identified potential new technologies that are expected to enhance the use of waste heat from NPPs for seawater desalination,
- (n) Recalling with appreciation that the Agency has initiated 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,
- (o) Noting the results of technical meetings and regional and national training workshops organized by the Secretariat to disseminate information and strengthen skills relating to efficient water management in NPPs and improve the performance and economics of potable water production through the desalination of seawater using nuclear energy, and
- (p) 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, and supports the enhancement of the scope of the TWG-ND to address challenges related to integrated water resources management in the efficient use of water in nuclear facilities, which may involve the use of seawater desalination;
 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) develop a report that provides generic guidance on cogeneration options and assesses the economics associated with such options; 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 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 fifty-eighth (2014) regular session under an appropriate agenda item and thereafter every two years.

5.

Use of isotope hydrology for water resources management

The General Conference,

- (a) Appreciating the work of the Agency in the area of isotope hydrology in response to resolution GC(55)/RES/12.A.5,
- (b) Taking note of national, regional and international efforts to implement the International Decade for Action, "Water for Life", 2005–2015, proclaimed by the United Nations to bring about a greater focus on the critical linkage between water and human development at all levels and to improve the sustainable management of freshwater resources,
- (c) Aware that the United Nations continue to recognize the need for greater and concerted action in the area of water and that access to water and water resources management are key issues in achieving the United Nations' Millennium Development Goals (MDGs),
- (d) Aware that the United Nations convened a high-level Conference in 2012 (Rio+20) to secure renewed political commitment for sustainable development which adopted the outcomes document "The Future We Want",
- (e) Recognizing that the 'Post-2015' development agenda of the United Nations, which builds upon the achievements of the MDGs and the Rio+20 outcomes, is aiming for a "Sustainable Development Goal (SDG)" for water to highlight its multiple dimensions in sustainable development,
- (f) Aware that a lack of comprehensive mapping of water resources and related human capacity adversely impacts the ability of Member States to increase water availability and use,
- (g) Recognizing that the Agency has continuously demonstrated the importance of isotope techniques for water resources development and management, particularly for groundwater management in arid and semi-arid regions and for improved understanding of the water cycle,
- (h) Noting that initiatives of the Agency, as mentioned in document GC(55)/17, Annex 3, are addressing national priorities and have resulted in a wider use of isotope techniques for water resources and environmental management,
- (i) Appreciating the fact that the initiatives taken by the Agency, particularly in conjunction with bilateral and other international agencies, including the development of a new series of isotope hydrology outreach materials and the holding of joint training workshops, the Commission on Sustainable Development and the World Water Forum have significantly raised awareness of the Agency's work on water resources,
- (j) Appreciating the Agency's efforts in providing easier access for Member States to isotope hydrology analytical facilities through laser-based stable isotope analyzers,
- (k) Recognizing the Agency's efforts in strengthening Member States' capacities for performing standardized and high-quality isotope measurements, including through the

development of software for the operation and performance assessment of laboratories engaged in the routine analysis of hydrogen and oxygen isotopes in water samples,

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

(m) Noting the discussions and conclusions of the 2011 Scientific Forum, entitled “Water Matters - Making a Difference with Nuclear Techniques”, and taking note of the Agency's participation in the sixth “World Water Forum” and its co-sponsorship of Hydro Predict 2012 and other conferences focusing on impacts of climate change on water resources,

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

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

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

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

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

(e) to strengthen activities which contribute to the understanding of climate and its impact on the water cycle and which are aimed at better prediction and mitigation of water-related natural calamities, and to contribute to the success of the International Decade on Freshwater;

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

3. Further requests the Director General to report on achievements in implementing this resolution to the Board of Governors and to the General Conference at its fifty-ninth (2015) session under an appropriate agenda item.

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(56)/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(56)/RES/9.12, regarding nuclear and radiological incident and emergency preparedness and response; and resolution GC(56)/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) Further 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) Appreciating the Director General's report to the Board of Governors (GC(57)/INF/11) on progress made towards developing a concept and a strategic overarching plan of action for the modernization of the NA Laboratories at Seibersdorf,

- (j) Noting with appreciation that a capital investment project known as Project for the Renovation of the Nuclear Applications Laboratories in Seibersdorf (the ReNuAL project) has been launched and included in the regular budget capital investment plan of the IAEA's draft 2014-2015 Programme and Budget with an initial €2.6 million per year, and that an initial extrabudgetary target of €5.4 million per year has been set for 2014 and 2015,
- (k) Noting 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,
- (l) Noting that one of the lessons learned from the ECAS project is the importance of a focused resource mobilization strategy, and
- (m) Welcoming the report of the Director General mapping out current 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,
1. Stresses the need, in conformity with its Statute, for the Agency to continue pursuing 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 fully explore and establish suitable mechanisms for resource mobilization, including the proposed 'Friends of ReNuAL', and welcomes the initiative to secure the services of an expert in this regard;
 4. Urges the Secretariat, in consideration of the imminent establishment of a dedicated Project Board and Project Management Team, to proceed most expeditiously with the planned feasibility study so as to commence the design, construction and renovation phase as soon as possible, with a target date to break ground in September 2014;
 5. Encourages the Secretariat 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;
 6. Encourages the Secretariat to develop a concrete strategy in the fourth quarter of 2013 as an immediate next step in addressing the resource requirements within the necessary time frame and to present it to Member States in the first quarter of 2014;
 7. Invites Member States to make financial commitments and contributions in advance of the 2014 session of the General Conference and also to make in-kind contributions which will allow for initiation of the implementation phase by no later than 2014, and further invites all Member States to actively contribute to efforts that support attainment of the goal of completion of the ReNuAL project, and welcomes in this regard the announcement made by a Member State;

8. Encourages the Secretariat 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;

9. Requests the Director General to report to it on progress made in the implementation of this resolution at its fifty-eighth (2014) session.

B.

Nuclear power applications

1.

General

The General Conference,

(a) Recalling resolution GC(56)/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 IAEA's contributions to international discussions addressing global climate change, such as the United Nations Conference on Sustainable Development (Rio +20), held in June 2012 in Rio de Janeiro, Brazil, and the 18th Conference of the Parties to the United Nations Framework Convention on Climate Change (CoP-18), held in November-December 2012 in Doha, Qatar,

(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) Acknowledging that each State has the right to decide its priorities and establish its national energy policy in accordance with its national requirements, taking into account relevant international obligations, and to use diverse portfolios of energy sources when pursuing its own way to achieving its energy security and climate protection goals,

(h) Recalling the concluding statement of the President of the St. Petersburg International Ministerial Conference on "*Nuclear Energy in the 21st Century*" (*the St. Petersburg conference*),

organized by the Agency in June 2013 and attended by ministers, high-ranking officials and experts from 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,

(i) Taking note that nuclear power does not produce either air pollution or greenhouse gas emissions during normal operation, and that, according to the Director General's report contained in document GC(57)/INF/2 and the IAEA's Annual Report for 2012, it remains an important option not only for countries with existing nuclear power programmes, but also for developing countries with growing energy requirements,

(j) Noting the organization of workshops by the IAEA 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, 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,

(k) Recognizing that the accident that occurred on 11 March 2011 at TEPCO's Fukushima Daiichi Nuclear Power Station (*the Fukushima Daiichi accident*), 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,

(l) 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,

(m) 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,

(n) 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,

(o) Recognizing also the need for collecting experience and developing adequate methods and techniques for decommissioning and environmental remediation and for managing large volumes of radioactive waste, including contaminated water, resulting from legacy practices and severe radiological or nuclear accidents,

(p) 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 and by bringing together interested Member States, including both technology users and holders, to consider jointly innovations in nuclear reactors, fuel cycles and institutional approaches, such as the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO),

(q) Noting the progress achieved by INPRO in understanding the challenges of global nuclear energy sustainability through Nuclear Energy System Assessments (NESAs) and nuclear energy scenario analysis,

(r) Stressing also the essential role the Agency plays as an international forum for the exchange of information and experience on nuclear power plant operation and for the 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/NEA, NGOs and multinational networks among operators, such as WANO, and the need to strengthen the cooperation between the IAEA and these organizations,

(s) 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 IAEA 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,

(t) 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 and efficient use of nuclear power,

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

(v) 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,

(w) 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,

(x) Noting the progress made by the Secretariat on the administrative, financial, legal and technical aspects of the IAEA LEU bank to serve as a supply of last resort for nuclear power generation,

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

- (z) 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,
- (aa) Taking note of the “*Nuclear Technology Review 2013*” (GC(57)/INF/2) and its supplements, as well as of the report “*Strengthening the Agency's Activities related to Nuclear Science, Technology and Applications*” (GC(57)/9) prepared by the Secretariat,
- (bb) Recognizing the contribution that fast reactors can make to extending the lifetime of uranium resources and decreasing the environmental burden of nuclear waste, as outlined by the participants in the international conference on *Fast Reactors and Related Fuel Cycles (FR13)*, held in March, in Paris, France,
- (cc) 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
- (dd) Taking note of the 24th biennial IAEA Fusion Energy Conference (FEC2012), held October 2012 in San Diego, United States of America,
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. Welcomes the St. Petersburg Conference, a major high-level international conference on the global status and prospects of nuclear energy, where one of the key messages was that, for many countries, nuclear power will play an important role in achieving energy security and sustainable development goals;
 3. 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;
 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. 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;
 6. Welcomes the Agency's efforts to pursue activities to enhance Member State capabilities and technology in modelling, predicting and improving the understanding of the behaviour of nuclear fuel under accident conditions;
 7. 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;

8. Requests the Secretariat, in particular, 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;

9. 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 power and to avoid imposing undue burdens on future generations;

10. Encourages international cooperation in the safe management of spent fuel and radioactive waste, including the exploration of multinational approaches to storage and disposal;

11. Encourages the Secretariat to work on fostering collaboration among interested Member States with the objective of developing innovative fast neutron systems with enhanced safety, economic and non-proliferation characteristics;

12. 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;

13. 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;

14. Welcomes the Agency's assistance and review services provided to countries embarking on new nuclear power programme through, inter alia, the Planning and Economic Studies Section (PESS), the Integrated Nuclear Infrastructure Group (INIG) and INPRO, 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;

15. 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 techno-economic assessments, nuclear energy system assessments (NESA), Integrated Nuclear Infrastructure Review (INIR) missions and related capacity building;

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

17. Encourages the Agency to continue gathering data and information and making them available to Member States through the International Nuclear Information System (INIS) and other valuable databases;

18. Encourages the Agency to continue providing assistance in the area of management support, including nuclear knowledge and information management initiatives that address the entire life cycle of nuclear facilities;

19. Encourages the Secretariat to further strengthen management capabilities, human resource development and capacity building through networking in the area of nuclear education and training, including developing and utilizing e-learning platforms such as CONNECT, and by organizing opportunities for education and training in the field of nuclear energy;
20. 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 IAEA activities by 2015, and encourages Member States in a position to do so to contribute;
21. Takes note of the Secretariat's continuing examination of various aspects of the financing of nuclear power programmes, including radioactive waste management, 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;
22. 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, to develop and implement adequate disposal programmes;
23. Respectful of the rights of each Member State, encourages discussions, in a non-discriminatory, inclusive and transparent manner, on the development of multilateral approaches to the nuclear fuel cycle, including the possibilities of creating mechanisms for assurance of nuclear fuel supply, as well as possible schemes dealing with the back-end of the fuel cycle;
24. Recommends that the Secretariat extend its cooperation with international initiatives such as UN-Energy and explore the possibility 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;
25. Encourages the Secretariat to pursue its cooperation with relevant international cooperative frameworks supporting the responsible use of nuclear energy;
26. Requests that the actions of the Secretariat called for in this resolution be undertaken as a priority subject to the availability of resources; and
27. Requests the Secretariat to report to the Board of Governors as appropriate and to the General Conference at its fifty-eighth (2014) session on developments relevant to this resolution.

2.

Small and medium-sized nuclear reactors – Development and deployment

The General Conference,

- (a) Recalling its previous resolutions on small and medium-sized nuclear reactors – development and deployment,
- (b) Noting that the Agency has in place a programme which includes the preparation of reports and coordinated research projects covering several relevant topics, to assist developing countries interested in small and medium-sized reactors (SMRs) to address economics, environmental protection, safety and security, reliability, proliferation resistance and waste management,
- (c) 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,

(d) Noting that SMRs could play a significant role in district heating, desalination and hydrogen production systems in future, and their potential for innovative energy systems,

(e) Welcoming the publication of Agency reports on SMRs, in particular the report “*Status of Small and Medium Reactor Designs*”, and noting the completion of the Coordinated Research Project “*Advances in Methodologies for the Assessment of Passive Safety Systems Reliability in Innovative Small Reactors*”,

(f) Noting the outcomes of the 6th INPRO Dialogue Forum on “*Licensing and Safety Issues for Small and Medium-Sized Reactors*” and of the meeting on “*Incorporating Lessons Learned from the Fukushima Daiichi Accident in SMR Technology Assessment for Design of Engineered Safety Systems*”,

(g) Recognizing the role that innovative technologies can play in improving nuclear safety, and

(h) Noting with appreciation the Director General’s report entitled “*Small and Medium-Sized Reactors (SMRs) - Development and Deployment*” contained in document GC(57)/9,

1. Commends the Director General and the Secretariat for their work in response to previous relevant General Conference resolutions;
2. Encourages the Secretariat to continue taking appropriate measures to assist Member States, particularly embarking countries, engaged in the process of preparatory actions with regard to demonstration projects, and encouraging the development of safe, secure, economically viable SMRs with enhanced proliferation resistance;
3. Calls upon the Secretariat to continue to promote effective international exchange of information on options as regards SMRs available internationally for deployment and on topics such as roadmaps for technology development, requirements for countries embarking on new nuclear power programmes, regulatory infrastructure, operational performance, maintainability, safety and security, waste management, constructability, economics, proliferation resistance and the state of development of innovative SMRs, by organizing technical meetings and workshops, as appropriate, and to produce relevant status and technical reports
4. Invites the Secretariat and the Member States that are in a position to offer SMRs to foster international cooperation in undertaking studies of the social and economic impacts of SMR deployment in developing countries;
5. Encourages the Secretariat to continue consultations and interactions with interested Member States, the competent organizations of the United Nations system, financial institutions, regional development bodies and other relevant organizations regarding advice on the development and deployment of SMRs;
6. Encourages the Secretariat to continue working on defining indicators of safety performance, operability, maintainability and constructability so as to assist countries in assessing advanced SMR technologies, and developing guidance for SMR technology implementation, and looks forward to upcoming reports on enhancing energy supply security and approaches to environmental impact assessment;

7. Also encourages the Secretariat to continue providing guidance for regulatory reviews of SMRs of various designs;
8. Encourages the Secretariat to foster collaboration among interested Member States with the objective of facilitating the licensing of SMRs;
9. Encourages the Secretariat to facilitate capacity building in embarking countries as regards SMR technology assessment;
10. Also encourages the Secretariat to continue the activities of the Regular Budget project “*Common Technologies and Issues for SMRs*” on both the development of key enabling technologies and the resolution of key infrastructure issues for innovative SMRs of various types, which is complementary to INPRO;
11. Invites the Director General to raise appropriate funding from extrabudgetary sources in order to contribute to the implementation of all Agency activities relating to the sharing of construction and operating experience for the development and deployment of SMRs; and
12. Requests the Director General to continue to report on:
 - i. the status of the programme initiated to assist developing countries interested in SMRs,
 - ii. progress made in the research, development, demonstration and deployment of SMRs in interested Member States intending to introduce them, and
 - iii. progress made in the implementation of this resolution to the Board of Governors and to the General Conference at its fifty-ninth (2015) regular session under an appropriate agenda item.

3.

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 systems technology and the high technical and economic potential of international collaboration in the development of such technology,
- (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 IAEA 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 IAEA programme and budget and the INPRO Action Plan,

(g) Noting that INPRO has prepared a final report on the collaborative project “*Global Architectures on Innovative Nuclear Energy Systems*” (GAINS), developed a framework for the assessment of nuclear energy evolution scenarios, including analytical tools, assumptions and considerations (relating to power production, nuclear material resources, discharged fuel, radioactive waste and minor actinides, nuclear fuel cycle services, system safety, and costs and investment) and identified scenarios for transitioning to nuclear energy systems that preserve nuclear material, restrain the accumulation of used fuel and enhance safety and proliferation resistance, highlighting the role of technical and institutional innovations and international cooperation in this respect,

(h) Noting that INPRO has published a report entitled “*Legal and Institutional Issues of Transportable Nuclear Power Plants*”,

(i) Noting that the scope of INPRO includes activities and collaborative projects in areas such as national long-range nuclear energy strategies including Nuclear Energy System Assessments (NESAs) with INPRO methodology, global nuclear energy scenarios including collaborative projects on “*Synergistic Nuclear Energy Regional Group Interactions Evaluated for Sustainability*” (SYNERGIES) and “*Roadmaps for a Transition to Globally Sustainable Nuclear Energy Systems*” (ROADMAPS), innovations in nuclear technology and institutional arrangements, and the INPRO Dialogue Forum, including regional cooperation among countries for sustainable nuclear energy, which together provide an Agency programme of activities supporting interested Member States in long-range nuclear energy deployment strategic planning,

(j) Noting that the INPRO collaborative project SYNERGIES provides a forum for technology users and technology holders to study national, regional and global nuclear energy scenarios, to analyze drivers of and impediments to collaboration among countries and identify ‘win-win’ strategies for suppliers and users through a collaborative approach to future sustainable nuclear energy systems,

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

(l) Noting with appreciation the Director General's report on Agency activities in the development of innovative nuclear technology contained in document GC(57)/INF/2,

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 national long-term nuclear energy strategies and in long-term sustainable nuclear energy deployment decision-making through NESAs, based on the INPRO methodology, and nuclear energy scenario analysis;

3. Encourages interested Member States, the Secretariat and, in particular, INPRO 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;

4. Requests the Secretariat and, in particular, INPRO to promote collaboration among interested Member States in developing innovative, globally sustainable nuclear energy systems and to support the establishment of effective collaboration mechanisms through the accumulation and dissemination of world-wide relevant experience and good practices;
5. Encourages the Secretariat to bring together the experience acquired through NESAs and GAINS and other global nuclear energy scenario analyses so as 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 an INPRO methodology key indicators approach;
6. Invites Member States, the Secretariat and, in particular, INPRO 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;
7. 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;
8. Encourages the Secretariat and interested Member States to complete the revision of the INPRO methodology in the light of the Fukushima Daiichi accident and taking into account the results of NESAs performed in Member States;
9. Recommends that the Secretariat continue to explore opportunities for synergy between the Agency's activities (including INPRO) and those pursued under other international initiatives in areas related to international cooperation in peaceful uses of nuclear energy, safety, proliferation resistance and other security issues and, in particular, support collaboration among INPRO, appropriate IAEA 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;
10. 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;
11. Recognizing that the funding of INPRO activities supporting the development of innovative nuclear technology comes mainly from extrabudgetary sources, requests the Director General to strengthen the Agency's efforts related to the development of innovative nuclear technology by further enhancing the effective and efficient use of available resources in support of related activities of the TWGs and INPRO;
12. 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 to exchange knowledge and experience in the area of innovative, globally sustainable nuclear energy systems;
13. Calls upon the Secretariat and upon Member States in a position to do so to investigate, taking into account, inter alia, economic, safety and security factors, new reactor and fuel cycle technologies with 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; and

14. 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-eighth (2014) regular session under an appropriate agenda item.

4.

Approaches to supporting nuclear power infrastructure development

The General Conference.

- (a) Recognizing that the development and implementation of an appropriate infrastructure to support the successful introduction of nuclear power and its safe, secure and efficient use is an issue of great importance, especially for countries that are considering and planning for the introduction of nuclear power,
- (b) Recalling its previous resolutions on approaches to supporting nuclear power infrastructure development,
- (c) Acknowledging the Agency's significant role in assisting Member States that are considering and planning for the introduction of nuclear power with assessments of infrastructure needs, taking into account relevant economic, social and policy considerations, to support the safe, secure and efficient use of nuclear power, and noting the Agency's increasing activities in this area, in accordance with the requests of Member States,
- (d) Recognizing the value of the Agency's Integrated Nuclear Infrastructure Review (INIR) missions, which provide expert and peer-based evaluations, in helping requesting Member States to determine their nuclear infrastructure development status and needs,
- (e) Welcoming the INIR missions in 2011-2013 to Bangladesh, the United Arab Emirates, Jordan, Vietnam, Belarus and Poland, and welcoming also the INIR mission to South Africa, the first country thinking of extending its nuclear power programme to host such a mission, and noting that additional countries thinking of extending their nuclear power programmes are considering requesting INIR missions,
- (f) Further welcoming the establishment of Integrated Work Plans (IWPs) which provide an operational framework for the delivery of Agency assistance in support of national nuclear programmes, thereby facilitating optimized assistance by the Agency to embarking countries,
- (g) Noting the publication of Nuclear Energy Series documents and the organization of a wide range of conferences, technical meetings and workshops on topics related to infrastructure development,
- (h) Recognizing the Nuclear Energy Management School and other training courses on management and leadership and on construction management, and mentoring programmes implemented under the Agency's auspices, in China, France, the Republic of Korea, the Russian Federation and the United States of America, and in particular the creation of the "*International Nuclear Leadership Education Program*" at the Massachusetts Institute of Technology, as effective platforms for leadership development,
- (i) Noting the joint efforts of the Integrated Nuclear Infrastructure Group (INIG) and INPRO in developing innovative infrastructure approaches for future nuclear energy systems,

- (j) Commending the Technical Work Group on Nuclear Power Infrastructure (TWG-NPI), which has just completed its first triennium cycle, for its advisory activities,
- (k) Stressing the importance of adequate human resources for ensuring, inter alia, the safe and secure operation and the effective regulation of a nuclear power programme, and noting the worldwide shortage of trained personnel in developed and, especially, developing countries, and
- (l) Taking note of other international initiatives focusing on support for infrastructure development,
1. Commends the Director General and the Secretariat for their efforts in implementing resolution GC(55)/RES/12.B.4 as reported in document GC(57)/9 and reiterates its request that the Secretariat provide updates to important publications such as “*Milestones in the Development of a National Infrastructure for Nuclear Power*” and, in this context, ensure enhanced consistency among related nuclear power infrastructure publications and multimedia products (web sites, e-learning modules, etc);
 2. Encourages the Secretariat to prepare, in consultation with interested Member States, a follow-up document to the Director General’s report on “*Strengthening Agency Support to Member States Considering or Launching Nuclear Power Programmes*” (GOV/INF/2009/11), providing a more detailed analysis of – inter alia - legal, financial and practical implications;
 3. Recommends that the Secretariat renew the mandate of the TWG-NPI for another three years;
 4. Encourages Member States launching a nuclear power programme to invite an Agency INIR mission and relevant peer review missions, including site design safety reviews, prior to commissioning the first nuclear power plant and to make public their INIR mission reports in order to share best practices;
 5. Commends the Secretariat’s internal coordination and holistic approach to nuclear infrastructure development, and encourages Member States and the Secretariat to take into account the results of assessments of infrastructure requirements, such as INIR mission outcomes, to optimize ongoing Agency activities in this area;
 6. Requests the Secretariat to continue to learn lessons from INIR missions and to enhance the effectiveness of its activities;
 7. Encourages the Secretariat to continue working on the development of Phase 3 (before commissioning) INIR missions, taking into account the availability of other Agency review services;
 8. Welcomes the development of the catalogue of services as a useful tool to help Member States plan technical cooperation and other assistance;
 9. Commends the development of e-learning as a useful training platform, and encourages its use by all Member States;
 10. Encourages the Secretariat to continue providing training related to the development of the “Knowledgeable Customer” concept;
 11. Invites all Member States that are considering or planning for the introduction of nuclear power to provide, as appropriate, information and/or resources to enable the Agency to apply its full spectrum of tools in support of nuclear infrastructure development;
 12. Takes note of the Secretariat’s cooperation with the International Framework for Nuclear Energy Cooperation (IFNEC) on the development of a workforce planning modelling tool for countries launching nuclear power programmes;

13. Calls on the Secretariat to facilitate, as necessary, “soft coordination” among Member States for the more efficient implementation of multilateral and bilateral assistance to countries considering or planning for the introduction of nuclear power;
14. Welcomes the activities undertaken by Member States, both individually and collectively, to cooperate on a voluntary basis in nuclear infrastructure development and encourages further such cooperation; and
15. 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) session under an appropriate agenda item.