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

Resolution adopted on 24 September 2010 during the eleventh 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 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, 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) 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,
- (f) 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,
- (g) Confirming the important role of science, technology and engineering in enhancing nuclear and radiation safety and security,
- (h) Acknowledging 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 organizations in fusion-related projects, and aware of the next biennial IAEA Fusion Energy Conference, to be held in Daejeon, Republic of Korea, in October 2010,
- (j) Taking note of the “Nuclear Technology Review 2010” (GC(54) /INF/3) prepared by the Secretariat,
- (k) Aware of the problems of pollutants arising from urban and industrial activities, including industrial waste waters, and the potential of radiation treatment to address some of them,
- (l) 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,
- (m) Aware that strengthening support to capacity-building in developing Member States in emerging areas of nuclear technologies is important for accrual of benefits from nuclear applications,
- (n) Welcoming the cooperation extended by the Agency to the First Annual World Nuclear University (WNU) School on Radioisotopes, held on 15 May-4 June 2010, and the Agency’s support for the participation of applicants from developing countries,
- (o) Noting the expanding use of positron emission tomography (PET), PET/computed tomography (PET/CT) and hospital-prepared radiopharmaceuticals,
- (p) Noting with concern the potential worldwide shortage in the supplies of fission-produced molybdenum-99 due to the shutdown of existing facilities for maintenance or upgrades, which could result in the disruption of the availability of technetium-99m for medical diagnostic imaging applications,
- (q) Noting with appreciation the efforts made by the Agency in fostering international cooperation to address issues relating to the security of supplies of molybdenum-99, and the detailed analysis provided in Annex VII to the Nuclear Technology Review 2010,
- (r) Aware of the new cooperative initiatives that have emerged to provide reactor irradiation services in Europe, and of the significant advances reported in commissioning new molybdenum-99 production facilities,

- (s) Recognizing the emerging interest of many countries in establishing non-HEU based molybdenum-99 production facilities to meet domestic needs and/or serve as a partial reserve capacity,
 - (t) Acknowledging the multiple uses of research reactors, including TRIGA reactors, as valuable tools for, inter alia, training, research, radioisotope production and materials testing as well as a step in Member States that are considering the introduction of nuclear power,
 - (u) Noting with concern that the 35 TRIGA reactors worldwide would be adversely affected by the decision of the sole supplier of TRIGA fuel to cease the production of this fuel,
 - (v) Acknowledging the need for increasing the capacity of Member States for using advanced nuclear techniques in disease – including cancer - management and aware of the need to develop performance indicators for measuring such capacity,
 - (w) Noting that the Agency has compiled and disseminated isotope data on aquifers and rivers worldwide and is addressing links between climate change, rising food and energy costs and the global economic crisis, with the aim of assisting decision-makers in adopting better practices for integrated water resources management and planning, and
 - (x) Noting with appreciation the fellowships and training sponsored by the IAEA Nobel Peace Prize Cancer and Nutrition Fund to improve cancer control and child nutrition in the developing world,
1. Stresses the need, in conformity with the Statute, to continue to pursue activities of the Agency in the areas of nuclear science, technology and applications for meeting sustainable development needs of Member States;
 2. 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 and development 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 in interregional and regional training courses and fellowship training in the areas of nuclear science, technology and applications;
 3. Recognizes the importance of and endorses Agency activities that meet the objective of fostering sustainable development and protecting the environment;
 4. 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;
 5. Requests the Director General 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 with due regard to nuclear safety and nuclear security;
 6. Welcomes all contributions announced by Member States, including the IAEA Peaceful Uses Initiative, which is designed to raise US\$ 100 million over the next five years as extrabudgetary contributions to IAEA activities, 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 value-added products from natural polymers, industry and the protection of the environment, including the treatment of greenhouse gases (GHGs) and flue gases resulting from fossil fuel burning;

8. Urges the Secretariat to continue to work cooperatively with other international initiatives such as 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;

9. Requests the Secretariat to provide technical support to emerging national and regional efforts to establish non-HEU based molybdenum-99 production capabilities in interested Member States;

10. 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;

11. Urges the Secretariat to engage with stakeholders and to encourage the international fuel supply industry to ensure uninterrupted and adequate supplies of TRIGA reactor fuel if necessary;

12. 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;

13. 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;

14. 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;

15. 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;

16. Requests also that the actions of the Secretariat called for in this resolution be undertaken subject to the availability of resources; and

17. Recommends that the Secretariat report to the Board of Governors and to the General Conference at its fifty-fifth (2011) regular session on the progress made in the areas of nuclear science, technology and applications.

2.

Development of the sterile insect technique for the control or eradication of malaria-transmitting mosquitoes

The General Conference,

- (a) Recalling its resolution GC(44)/RES/24 on “Servicing Immediate Human Needs” and its resolutions GC(48)/RES/13.C and GC(52)/RES/12 on “Development of the Sterile Insect Technique for the Control or Eradication of Malaria-Transmitting Mosquitoes”,
- (b) Taking note of the decisions taken by the Summit of the African Union at its Fifteenth Ordinary Session, held in Kampala, Uganda, on 25-27 July 2010: on the five-year review of the Abuja Call for Accelerated Action Towards Universal Access to HIV/AIDS, Tuberculosis and Malaria Services in Africa; reaffirming the commitments undertaken at the Special Summit on HIV/AIDS, TB and Malaria, as well as under the Millennium Development Goals (MDGs) and the Decade for Roll Back Malaria; and deciding to extend the Abuja Call for Accelerated Action Towards Universal Access to HIV/AIDS, Tuberculosis and Malaria Services (the Abuja Call) to 2015 to coincide with attainment of the MDGs,
- (c) Taking note also of the joint efforts against malaria being implemented by the Andean Community,
- (d) Appreciating the important role of nuclear applications in addressing human needs,
- (e) Conscious that the work done by the Agency in the field of nuclear sciences and applications in the non-power sector contributes to sustainable development, especially with programmes aimed at enhancing the quality of life in various ways, including improving human health,
- (f) Recognizing the success of the area-wide integrated application of the sterile insect technique (SIT) in the eradication of the tsetse fly, the Mediterranean fruit fly and other insects of economic importance,
- (g) Noting with concern that malaria, transmitted by mosquitoes, causes about two million deaths a year and about 300-500 million cases of clinical malaria annually,
- (h) Noting with serious concern that over 90% of the world’s malaria cases occur in Africa, slowing down economic growth by 1.3% annually, and thus constitutes a major obstacle to poverty eradication in Africa,
- (i) Noting that the malaria parasite has continued to develop resistance to drugs and that mosquitoes too have continued to develop resistance to insecticides, and that it is envisaged that SIT would be used under specific conditions as an adjunct to conventional technologies, conforming to the WHO’s roll-back strategy, including integrated vector management, of not relying on any single approach to control malaria,
- (j) Noting that the control of malaria-transmitting mosquitoes over large areas will require an area-wide approach of which SIT is often a part in agricultural pest control programmes and that this characteristic represents a novel and potentially powerful supplement to existing community-based programmes,
- (k) Welcoming the fact that R&D on malaria-transmitting mosquitoes, which commenced with the inauguration of the SIT-Malaria Facility in the Agency’s Laboratories in Seibersdorf on 26 June 2003, continued during 2009-2010,

- (l) Noting that internal climate control equipment is required to enable efficient functioning of the Insect Green House in Seibersdorf,
- (m) Noting with appreciation the interest shown by some donors and their support for R&D on SIT for combating malaria-transmitting mosquitoes, and
- (n) Acknowledging with appreciation the support given by the Agency to development of the SIT for the control of malaria-transmitting mosquitoes as outlined in the report by the Director General in document GC(54)/10, Annex 2,
1. Requests the Agency to continue and strengthen, through the activities mentioned above, the research, both in the laboratory and in the field, required to use SIT for the control of malaria transmitting mosquitoes;
 2. Also requests the Agency to increasingly involve African and other developing Member States' scientific and research institutes in the research programme in order to ensure their participation, leading to ownership by the affected countries;
 3. Further requests the Agency to increase its efforts to raise funds for the research programme;
 4. Invites the donors to continue with their financial support, and other Member States to make financial contributions to the research programme; and
 5. Requests the Director General to report on the progress made in the implementation of this resolution to the General Conference at its fifty-sixth session (2012).

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 tsetse flies and the trypanosomosis disease which they transmit are a major transboundary African challenge and constitute one of the greatest constraints on the African continent's socio-economic development, affecting the health of humans and livestock, limiting land use and thus causing increased poverty,
- (c) Recognizing that this disease 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 35 countries, most of which are Agency Member States,
- (d) Recognizing the upstream work of the Agency under its Joint FAO/IAEA Programme in developing the sterile insect technique (SIT) against the tsetse fly and in spearheading successful pilot field projects financed from the Technical Cooperation Fund, which have formed the basis for renewed interest on the part of African Member States in addressing the tsetse fly and trypanosomosis problem in a more holistic and sustainable manner,
- (e) Recognizing the significant contribution by the Agency's programmes in addressing the objectives of the African Union's New Partnership for Africa's Development (NEPAD) and the Millennium Development Goals (MDGs),

- (f) 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 PATTEC,
- (g) Noting the progress being made by the Commission of the African Union in building partnerships for AU-PATTEC, including with the African Development Bank and other funding organizations and partners,
- (h) 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, and
- (i) Acknowledging the continued support given to AU-PATTEC by the Agency as outlined in the report submitted by the Director General in document GC(54)/10, Annex 1
1. Takes note that the African Union, at the 10th AU-PATTEC anniversary meeting, re-confirmed the continued high relevance of the SIT and the need for further Agency support to AU-PATTEC;
 2. Appreciates 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;
 3. Appreciates the continued high priority assigned by the Agency to agricultural development in Member States, including 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, and also appreciates the contributions provided by some Member States and United Nations specialized agencies in support of these efforts;
 4. Appreciates the efforts made by the Secretariat, in close cooperation with other mandated specialized UN organizations, in creating awareness regarding the tsetse flies and trypanosomosis problem, developing maps, manuals and technical guidelines, and providing advice regarding project management and policy and strategy development in support of national and subregional AU-PATTEC projects, to enable a standardized, phased and conditional project planning and implementation approach;
 5. Welcomes the signing of a Memorandum of Understanding between the African Union and the Agency to strengthen their partnership and formalize the collaborative framework, within their respective mandates, in support of the overall objectives of the AU-PATTEC Plan of Action, with particular emphasis on: (i) capacity building and training; (ii) baseline data collection and feasibility assessments; (iii) the development of project documents and approaching donors; (iv) applied research and demand-driven methods development; and (v) monitoring, review and quality assurance of AU-PATTEC projects;
 6. Welcomes the initiative of the Agency in designating the Centre International de Recherche-Développement sur l'Élevage en Zone Sub-Humide (CIRDES) in Bobo-Dioulasso, Burkina Faso, as an IAEA Collaborating Centre in "The Use of the Sterile Insect Technique for Area-Wide Integrated Management of Tsetse Fly Populations";
 7. 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;
 8. Requests the Secretariat, in cooperation with Member States and international organizations, to maintain funding through the Regular Budget, the Technical Cooperation Fund and other partnerships

and to strengthen its support for R&D in and technology transfer to African Member States in order to complement their efforts to create and subsequently expand tsetse-free zones;

9. Urges the Secretariat to strengthen capacity building and to support the establishment of regional training centres in the affected Member States so as to promote the development of the human resources necessary for implementing the operational national and regional PATTEC projects;

10. 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 national and subregional AU-PATTEC projects; and

11. Requests the Director General to report on the progress made in the implementation of this resolution to the Board of Governors and to the General Conference at its fifty-fifth (2011) regular session.

4.

Strengthening the support to Member States in food and agriculture

The General Conference,

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

(b) Noting the global food security crisis with rapidly rising global food prices that are having significant negative socioeconomic impacts and political implications in all regions of the world,

(c) Noting the benefits from the peaceful application of nuclear techniques in food and agriculture,

(d) Noting that, according to the Food and Agriculture Organization publication “The State of Food Insecurity in the World 2009”, the number of undernourished people in the world has increased since 2008, while population growth has slowed,

(e) Acknowledging that increased agricultural productivity, achieving higher crop yields and higher-producing and better-adapted livestock rather than bringing more land under cultivation, will be one of the key determinants to reduce poverty, meet the increasing food demand, and address the diminishing agricultural resources, whilst sustaining agricultural natural resources and conserving the environment,

(f) Appreciating the work of the Joint Division of the Food and Agriculture Organization of the United Nations (FAO) and the International Atomic Energy Agency (IAEA) dedicated to the development and application of nuclear techniques in food and agriculture, and welcoming the decision of the FAO in 2009 to extend and to strengthen the work of the Joint Division,

(g) Recognizing the importance of making available to developing Member States nuclear technologies in the field of food and agriculture,

(h) Recognizing that the demand from Member States for technical assistance in the area of nuclear applications in food and agriculture has significantly increased, as is evidenced by a 110 per cent increase of technical cooperation projects in agriculture between 2004 and 2009, and

(i) Recalling its resolution GC(52)/RES/12.5,

1. Commends the Director General and the Secretariat for their efforts in implementing resolution GC(52)/RES/12.A.5 as reported in document GC(54)/10;
2. Appreciates the contribution of the Joint Division in priority areas established by Member States — sustainable intensification of crop production, increased sustainable livestock production, sustainable management of land, water and genetic resources, improved responses to global environmental challenges affecting food and agriculture, and improved quality and safety of food at all stages of the food production chain;
3. Recognizes the synergy and contribution of the FAO/IAEA partnership in these areas, and expresses appreciation for the achievements and progress made by the Joint Division on sustainable agriculture and improved food security;
4. Requests the Secretariat to expand, in an integrated and holistic manner, its efforts to address, inter alia, food insecurity in Member States and to increase its contribution to raising agricultural productivity and sustainability through the development and integrated application of nuclear science and technology;
5. Stresses that investment in agricultural technologies will remain an important part of addressing global food security;
6. Urges the Secretariat to address the impacts of climate change on food and agriculture through the use of nuclear technologies, with the priority of adaptation and mitigation of climate change in the areas of soil and water management, insect pest control, plant breeding, livestock production and food safety;
7. Expresses appreciation for the work undertaken by the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, including the FAO/IAEA Agriculture and Biotechnology Laboratory in Seibersdorf;
8. Requests the Secretariat to work towards the modernization of the FAO/IAEA Agriculture and Biotechnology Laboratory in Seibersdorf, in conjunction with the other programmatic entities of the laboratories of the Department of Nuclear Sciences and Applications, in order to assist Member States' research and development activities;
9. Urges the Secretariat to continue to strengthen its activities in the field of food and agriculture through inter-regional, regional and national capacity building, to facilitate the transfer of technology to developing Member States;
10. Expresses appreciation for the financial and extrabudgetary contributions made by Member States and others in support of, inter alia, the food and agriculture programme of the Agency and encourages Member States to continue making contributions to these activities by funding projects which would further enhance agricultural productivity;
11. Urges the Secretariat to seek extrabudgetary funding for infrastructure improvement and modernization of the Seibersdorf laboratories, especially the FAO/IAEA Agriculture & Biotechnology Laboratory;
12. Encourages the Secretariat to further strengthen its partnership with the FAO and to continue adjusting and adapting its technology development, capacity building and technology transfer and services in response to Member States' demands and needs in food and agriculture; and

13. Requests the Director General to report on the progress made in the implementation of this resolution to the Board of Governors and the General Conference at its fifty-sixth (2012) regular session.

5. Cancer

The General Conference,

- (a) Noting with concern the increasing burden of cancer as one of the leading causes of death worldwide,
 - (b) Appreciating the Agency's cancer-related activities and programmes primarily focused on capacity-building in developing countries for the application of nuclear techniques and the transfer of technology for cancer diagnosis and treatment, inter alia through the Agency's technical cooperation programme, the Division of Human Health and the Programme of Action for Cancer Therapy (PACT),
 - (c) Noting that the resources of the Agency allocated to its cancer-related activities are limited when compared to the needs in developing Member States,
 - (d) Recalling resolution GC(53)/RES/13 on "Strengthening the Agency's activities related to nuclear science, technology and applications",
 - (e) Commending the Director General's efforts to place special focus on cancer control in developing countries, 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, and
 - (f) Being aware of the planned debate at the United Nations General Assembly in September 2011, during the Millennium Development Goals Review Plenary Meeting, on "The impact of cancer and other non-communicable diseases in developing countries",
1. Requests the Secretariat to continue to undertake activities aimed at enhancing the capacities of developing countries in cancer control, including through knowledge sharing, education and training, and the transfer of readily deployable technology, including recent technology;
 2. Encourages Member States to provide extrabudgetary resources for the Agency's cancer-related activities;
 3. Notes the value of PACT comprehensive cancer control plans and encourages Member States to consider making use of this Agency advisory service; and
 4. Encourages the Director General to continue his efforts to strengthen the partnership between the Agency and World Health Organization and other organizations in addressing the issue of cancer control in the developing countries.

B. Nuclear power applications

1. General

The General Conference,

- (a) Recalling resolution GC(53)/RES/13/B 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, and that nuclear power is expected to play an growing role in the energy mix of a increasing number of countries,
- (e) Acknowledging the experience and the capabilities of the Agency in the area of nuclear power and the unique role it plays in exchange of information and expertise and transfer of technology, inter alia, through the technical cooperation programme,
- (f) Recognizing that the health of the planet's environment, including action to reduce air pollution and address the risk of global climate change, is a serious concern that must be regarded as a priority by all governments, and noting that nuclear power generation does not produce air pollution or greenhouse gas emissions during normal operation,
- (g) Recognizing the importance of safety and security issues associated with nuclear energy, as well as the need to resolve the issues of managing radioactive waste in a sustainable manner, while also recognizing the continuing international efforts to address those issues,
- (h) Recognizing that a diverse portfolio of energy sources will be needed in the 21st century to allow access to sustainable energy and electricity resources in all regions of the world, and that Member States pursue different ways to achieve energy security and climate protection goals,
- (i) Acknowledging that each State has a right to define its national energy policy in accordance with its national requirements and its relevant international obligations,
- (j) Recalling the concluding statement of the President of the Beijing International Ministerial Conference on "Nuclear Energy in the 21st Century", held in April 2009 (the Beijing Conference), where a vast majority of participants affirmed their view that "nuclear energy, as a proven, clean, safe, competitive technology, will make an increasing contribution to the sustainable development of human kind throughout the 21st century and beyond",
- (k) Recalling that launching a nuclear power programme requires a strong and long-term commitment of a country and its national authorities to the creation and maintenance of

a framework for nuclear energy utilization in a responsible and transparent manner, as reaffirmed at the International Conference on Access to Civil Nuclear Energy held in Paris,

(l) Aware of the present role of nuclear power in providing more than 14 % of world electricity supply, and that a number of countries that have or are considering plans for nuclear energy believe it will make a crucial input to their sustainable development strategies and contribute to global energy security while reducing air pollution and addressing climate change, while others hold different views based on their assessments of its benefits and risks,

(m) Aware also of the rising number of nuclear power plant construction starts (10 and 12 respectively in 2008 and 2009),

(n) Stressing in that regard the role and contribution of various nuclear power, fuel cycle and radioactive waste technology programmes, including furthering understanding of future global nuclear scenarios, in promoting international cooperation on nuclear power, and noting various initiatives,

(o) Confirming that the use of nuclear power must be accompanied by commitments to and ongoing implementation of high levels of safety and security, and effective safeguards, consistent with States' national legislation and respective international obligations,

(p) Recognizing the unique role which the Agency plays, and in particular the current role it is playing through the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO), by bringing together all interested Member States to consider jointly innovations in nuclear reactors and fuel cycle systems,

(q) Noting that 65 countries have expressed to the Agency an interest in considering nuclear power, and that 20 of them are actively preparing a nuclear power programme with the assistance of the Agency,

(r) Recognizing that the development and implementation of an appropriate infrastructure to support the safe, secure and efficient use of nuclear power in a sustained manner, taking into account relevant IAEA standards and guidance, and relevant international instruments, is an issue of central importance, especially for countries that are considering and planning for the introduction of nuclear power,

(s) Noting the threefold increase in the number of technical cooperation projects, including provisions 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, acknowledging the Agency's role in this regard and the importance of the assistance it provides, and noting with interest its activities in this field for facilitating the safe, secure and efficient use of nuclear power,

(t) Acknowledging the right of Member States planning to launch or expand their respective nuclear power programmes to establish their national policies, priorities and technology requirements, including as regards nuclear reactor technology, in accordance with their relevant international obligations,

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

- (v) Noting with interest the growing importance of human resource development, education and training and knowledge management in the current context of revival of interest in nuclear power and acknowledging in that context the important contribution of Agency programmes and guidance and the need to continue these activities,
- (w) Taking note of the improved safety and operational performance, as well as cost effectiveness, of nuclear power plants globally, and recognizing the essential role which the Agency plays, as the principal international forum for the exchange of information and experience on nuclear power plant operation, for their continual improvement among Member States and also the role of international organizations such as the OECD/NEA and NGOs such as WANO,
- (x) Confirming the important role of science and technology in addressing the continuing challenges of nuclear safety, security and non-proliferation, and in the management of radioactive waste,
- (y) Taking note of the “Nuclear Technology Review 2010” (GC(54)/INF/3) prepared by the Secretariat, and
- (z) Taking note of other bilateral and multilateral cooperations intended to complement and supplement Agency programmes,
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. Recalls the success of the Beijing Conference, the major high-level international conference on the global status and prospects of nuclear energy, which recognized that nuclear energy can make a major contribution to meeting the world's energy needs in a sustainable manner in the 21st century;
 3. Welcomes the success of the International Conference on Access to Civil Nuclear Energy held in Paris, and takes note that 63 participating countries were of the view that peaceful nuclear energy applications should be shared to contribute to economic and human development particularly in developing countries, and to help fight climate change and address the issue of fossil fuels depletion.
 4. 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 within the Agency, among Member States, including through regional cooperation agreements, and between the Agency and interested Member States;
 5. Requests that the actions of the Secretariat called for in this resolution be undertaken as a priority subject to the availability of resources;
 6. Recognizes the importance of and endorses the Agency activities that meet the objective of fostering sustainable development and protecting the environment;
 7. 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, and in that context acknowledges its contributions to relevant international discussions, including those addressing global climate change;

8. Stresses the importance, when developing nuclear energy, including nuclear power and related fuel cycle activities, of ensuring a high level of safety, security, non-proliferation and environmental protection;
9. Requests the Secretariat to continue to pursue, in consultation with interested Member States, the Agency's activities in the areas of nuclear science and technology for nuclear power applications in Member States, with a view to strengthening infrastructures and fostering science, technology and engineering;
10. Requests in particular the Secretariat to continue and strengthen its efforts relating to nuclear power, fuel cycle and waste technology, focusing particularly on technical areas where the needs for improvement, advances and enhanced international collaboration are greatest;
11. 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 in order, inter alia, to avoid imposing undue burdens on future generations and for the sustainable, safe and secure development of nuclear power and, while noting that each State remains responsible for the management of its spent fuel and radioactive waste, encourages international cooperation in the safe management of spent fuel and radioactive waste;
12. Welcomes the continuing work of the Nuclear Power Support Group in the Secretariat for the provision of coordinated support to interested Member States for the safe, secure and efficient introduction or expansion of nuclear power with respect to required infrastructures;
13. Calls on the Secretariat to continue to plan for a high-level international conference in 2013 on the global nuclear energy status and future developments, with particular focus on nuclear power, to follow on similar successful conferences, and encourages interested Member States to participate in this important event;
14. Takes note of the Secretariat's continuing work on the financing of nuclear power as an option in meeting energy needs, in particular with regard to the needs of the developing countries, and also notes the comment at the Beijing Conference by the Director General that the entry into force of the Kyoto Protocol and the European carbon trading scheme means there is now a real financial benefit to avoiding greenhouse gases, and that this increases the attractiveness of low-carbon electricity generation such as nuclear power and renewables and encourages interested Member States to work towards addressing financial issues related to the introduction of nuclear power, including with the relevant financial institutions;
15. Notes with satisfaction the Agency's publication in July 2010, jointly with the OECD/NEA, of *Uranium 2009: Resources, Production and Demand*, welcomes the relaunching of the Uranium Production Site Appraisal Team (UPSAT) programme for the promotion of best practices, environmental protection and safety at uranium mining and milling sites, and encourages the Secretariat and Member States to continue cooperating in this regard;
16. Welcomes the activities of the Agency in human resource development and knowledge management, as well as the outcomes of the International Conference on Human Resource Development for Introducing and Expanding Nuclear Power Programmes held in March 2010 in Abu Dhabi, and requests the Secretariat to continue its efforts in these areas;
17. Welcomes the initiatives in creating schools and institutes for education and training in the field of nuclear energy, as well as the networks for promoting exchanges among these institutions;
18. Notes with satisfaction the organization of workshops on vital topics related to nuclear power, such as technologies and economics, the competitiveness of nuclear power and other energy

technologies, the development of the required infrastructure for the safe, secure and efficient use of nuclear power, desalination, partitioning and transmutation, as well as the training of many professionals from Member States through various regional and national courses, and encourages the Agency to continue such activities, while ensuring the widest possible participation of experts from all interested Member States;

19. Acknowledges the importance of Agency 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 in developing countries through enhanced Agency technical cooperation;

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

21. 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;

22. Welcomes the Secretariat's report on the International Status and Prospects of Nuclear Power (GC(54)/INF/5), which provides an updated comprehensive overview of the international status and prospects of nuclear power for the benefit of Member States and policy-makers worldwide, and requests the Secretariat to continue to issue such a report every two years; and

23. Requests the Secretariat to report to the Board of Governors as appropriate and to the General Conference at its fifty-fifth (2011) session on developments relevant to this resolution.

2.

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 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 evaluation, in helping requesting Member States to determine their nuclear infrastructure development status,

- (e) Welcoming the three INIR missions conducted in 2009, to Indonesia, Jordan and Vietnam, and the fact that all Member States involved found them to be useful and supportive of national infrastructure efforts,
- (f) Recognizing that the issue of infrastructure requirements for innovative nuclear energy technologies is an important topic within the Agency's International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO),
- (g) Stressing the importance of adequate human resources for ensuring – inter alia – safe and secure operation, and effective regulation, of a nuclear power programme and noting the worldwide shortage of trained personnel in developed and, especially, developing countries, and
- (h) 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(53)/RES/13.B.2 as reported in document GC(54)/10, in particular the publication of five relevant IAEA Nuclear Energy Series documents and one safety guide, which follow on the valuable guidance of the *Milestones in the Development of a National Infrastructure for Nuclear Power*;
 2. Welcomes the Director General's report on *Strengthening Agency Support to Member States Considering or Launching Nuclear Power Programmes*, GOV/INF/2009/11, and encourages the Secretariat to prepare a follow up document providing more detailed analysis, including legal, financial and practical implications, in consultation with interested Member States;
 3. Encourages Member States launching a nuclear power programme to consider inviting an Agency INIR mission;
 4. Welcomes the Secretariat's internal coordination and holistic approach to nuclear infrastructure development, in particular the establishment of the Integrated Nuclear Power Infrastructure Group (INIG), 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;
 5. Supports the establishment of the Technical Working Group on Nuclear Power Infrastructure, and recommends that the Secretariat and the Technical Working Group consider ways and means to enhance nuclear infrastructure development assistance options for Member States;
 6. Invites all Member States that are considering or planning for the introduction of nuclear power, to contribute, as appropriate, by providing information and/or resources to enable the Agency to apply its full spectrum of tools in support of nuclear infrastructure development;
 7. Calls on the Secretariat to facilitate, as necessary, coordination among Member States for more efficient implementation of multilateral and bilateral assistance to countries considering or planning for the introduction of nuclear power;
 8. Expresses appreciation for the successful February 2010 workshop on Managing the Development of a National Infrastructure for Nuclear Power and encourages the Secretariat to organize annually such workshops to identify and share lessons learned, experience and other information in this field;
 9. Welcomes the activities undertaken by Member States, both individually and collectively, to cooperate on a voluntary basis in nuclear infrastructure development and encourages this exchange;

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

11. Requests the Director General to report on the progress made in the implementation of this resolution to the Board of Governors and to the General Conference at its fifty-fifth (2011) session under an appropriate agenda item.

3.

Agency activities in the development of innovative nuclear technology

The General Conference,

(a) Referring to the Agency's statutory functions "to encourage and assist research on, and development and practical application of, atomic energy for peaceful uses...and...to foster the exchange of scientific and technical information",

(b) Recalling its previous resolutions on the Agency's activities in the development of innovative nuclear technology,

(c) 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,

(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 Agency's International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO), whose membership has reached 30 Member States and the European Commission, provides a forum for technical experts to discuss global scenarios, visions and perspectives and explore the development and deployment of innovative nuclear energy systems,

(f) Noting also that the Agency fosters collaboration among interested Member States on selected innovative technologies and approaches to nuclear power through INPRO Collaborative Projects, Technical Working Groups (TWGs) working on facilitating innovations for advanced reactors and nuclear fuel cycle options, and Coordinated Research Projects, and acknowledging that the coordination of INPRO-related activities is achieved through the Agency-wide Joint Action Plan,

(g) Noting that INPRO is celebrating its 10th anniversary, and recognizing that, after a decade of fostering innovative technologies for sustainable nuclear energy development, the scope of INPRO now includes activities and collaborative projects in such areas as nuclear energy system assessments (NESAs), global vision and scenarios, innovations in nuclear technology and institutional arrangements, and the INPRO Dialogue Forum, which together provide an Agency programme of activities supporting interested Member States in long-range nuclear energy deployment strategic planning,

(h) Noting the progress of other bilateral and international initiatives and their contribution to joint research and development on innovative approaches to nuclear power, and

(i) Noting with appreciation the Director General's report on Agency activities in the development of innovative nuclear technology contained in document GC (54)/10,

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 with the planning and development of their nuclear power programmes with innovative nuclear energy systems by using Agency tools and methodologies for energy system planning and NESAs;
3. Requests the Secretariat to promote the exchange of relevant technical information among interested Member States and to foster human resource training on innovative nuclear technologies;
4. Invites all interested Member States to join, under the aegis of the Agency, in the activities of INPRO Phase 2 in considering the issues of innovative nuclear energy systems, including 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, as well as by identifying common issues for possible collaborative projects;
5. Encourages interested Member States, through the concerted efforts of all countries using mechanisms like the INPRO Dialogue Forum, to jointly consider how developing and deploying innovative nuclear energy systems could meet their energy needs and contribute to economic development, taking into account the possible role of recent initiatives aimed at the further development of the peaceful uses of nuclear energy in a manner consistent with non-proliferation commitments;
6. Calls upon the Secretariat and Member States in a position to do so to investigate, taking into account, inter alia, economic, safety and security factors, the availability of new, more proliferation-resistant reactor and fuel cycle technologies, 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;
7. Encourages interested Member States, together with the Secretariat, to identify and explore innovative institutional and infrastructural solutions supporting the future deployment of innovative nuclear energy systems;
8. Stresses the need for international collaboration in the development of innovative nuclear technology, including enabling technologies, and the high potential and added value achieved through such collaborative efforts, as well as the importance of taking advantage of synergies between international activities on innovative nuclear technology development;
9. Recommends that the Secretariat continue to explore opportunities for synergy between Agency's activities (including INPRO) and those pursued under other international initiatives in areas related to international cooperation in peaceful uses of nuclear energy, safety, proliferation resistance and other security issues;
10. Recommends in this regard that INPRO and appropriate TWGs support the initiatives developed during the fourth IAEA/INPRO/GIF interface meeting, held in March 2010, relating to innovative nuclear energy systems analysis, safety, proliferation resistance and economics by holding a series of joint workshops like the workshop on sodium-cooled fast reactors held at the Agency's Headquarters in June 2010;
11. Invites all interested Member States 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;
12. Recognizing that the funding of INPRO activities in the development of innovative nuclear technology comes partly from the Regular Budget and in large part from extrabudgetary resources, requests the Director General to strengthen the Agency's efforts related to the development of

innovative nuclear technology by further enhancing the effective use of available resources in support of related activities of the TWGs and INPRO;

13. Requests that the actions of the Secretariat called for in this resolution be undertaken subject to the availability of resources; 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- fifth (2011) regular session under an appropriate agenda item.

C.

Nuclear knowledge, education and training

The General Conference,

(a) Recognizing that preserving and enhancing nuclear knowledge and ensuring the availability of qualified manpower are vital to all aspects of human activity related to the continued and expanded safe and secure utilization of all nuclear technologies for peaceful purposes,

(b) Recalling its previous resolutions on nuclear knowledge,

(c) Noting the important role which the Agency plays in assisting Member States in their preservation and enhancement of nuclear knowledge and in facilitating international collaboration on this,

(d) Aware of continuing concerns about a shortage of personnel in nuclear fields and about a possible erosion of the nuclear knowledge base,

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

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

(g) Emphasizing the increasing importance of Agency databases and web-based systems for the exchange of, and the access to, nuclear safety information and knowledge for the general public as well as for dedicated experts, and

(h) Noting the conclusions of the International Conference on Human Resource Development for Introducing or Expanding Nuclear Power Programmes held in Abu Dhabi in March 2010,

1. Commends the Director General and the Secretariat for their significant, interdepartmental efforts in addressing issues of preservation and enhancement of nuclear knowledge, in response to relevant General Conference resolutions, and as described in document GC(54)/10, in particular the establishment of an Education and Training Support Group within the Secretariat;

2. Commends the Secretariat on developing and applying comprehensive methodology and guidance for managing nuclear knowledge, including through nuclear knowledge management assistance visits to Member States, as well as supporting nuclear education by offering standardized curricula;

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

(a) Requests the Secretariat to assist Member States, at their request, in their efforts to ensure the sustainability of nuclear education and training in all areas of the peaceful use of nuclear energy, including its regulation, inter alia by taking advantage of the activities of the World Nuclear University and regional networks, notes in particular the needs of developing countries or those considering or launching a nuclear power programme in this regard, encourages Member States in a position to do so to participate in and support networking, and underlines the importance of the technical cooperation programme in that context;

(b) Requests the Secretariat to further develop, in consultation with Member States, and disseminate guidance and methodologies for planning, designing and implementing nuclear knowledge management programmes, including programmes for sustaining knowledge, education and training;

(c) Requests the Secretariat to continue to enhance and make available to Member States nuclear information and knowledge resources on the peaceful use of nuclear energy, including its operation and regulation, including the International Nuclear Information System (INIS) and the IAEA Library; and

(d) Requests the Secretariat to further develop and utilize distance learning technologies and methods to make nuclear knowledge more broadly available in an effective and efficient manner;

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

5. Invites the Secretariat, in coordination with Member States, as appropriate, to continue its efforts in the dissemination of scientific, technical and regulatory information to the public concerning the peaceful use of nuclear energy, in a transparent and objective manner, including the conclusions of the United Nations Scientific Committee on the Effects of Atomic Radiation and of other relevant intergovernmental and scientific Agency partners, as appropriate;

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

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

8. Requests the Director General to report on progress made in the implementation of this resolution to the Board of Governors and to the General Conference at its fifty-sixth (2012) session under an appropriate agenda item.