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

Resolution adopted on 30 September 2005 during the ninth plenary meeting

A.

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

The General Conference,

- (a) Noting that the Agency's objectives as outlined in Article II of the Statute include "to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world",
- (b) Noting also that the statutory functions of the Agency as outlined in Article III of the Statute, paragraphs A.1 to A.4, include encouraging research and development and fostering the exchange of scientific and technical information and the training of scientists and experts in the field of peaceful uses of atomic energy, including the production of electric power, with due consideration for the needs of developing countries,
- (c) Noting the Medium Term Strategy as guidance and input in this respect,
- (d) Noting further that in the final statement of the Paris International Ministerial Conference on "Nuclear Power for the 21st Century", organized by the Agency in March 2005 and attended by ministers, high-ranking officials and experts from 74 States and ten international organizations, a vast majority of participants affirmed that nuclear power can make a major contribution to meeting energy needs and sustaining the world's development in the 21st century, for a large number of both developed and developing countries,
- (e) Aware of the present role of nuclear power in meeting 16% of the electricity needs of mankind, and that a number of countries consider that applications of nuclear science are making a crucial input to development strategies in Member States,

- (f) Stating 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 management,
- (g) Recognizing the success of the sterile insect technique (SIT) in the suppression or eradication of the screw-worm, the tsetse fly, and various fruit flies and moths that can cause large economic impacts,
- (h) Noting the perpetual serious problem of locusts in Africa, especially in areas highly prone to environmental degradation and desertification, that has been responsible for severe famine in certain countries,
- (i) Confirming the important role of science, technology and engineering in enhancing nuclear safety and security,
- (j) Acknowledging the need to resolve the issues of managing in a sustainable manner the waste from the nuclear fuel cycle,
- (k) Taking note of the “Nuclear Technology Review - 2005 Update” (GC(49)/INF/3) prepared by the Secretariat,
- (l) Aware that the six-party International Thermonuclear Experimental Reactor (ITER) project registered an important milestone, a transition of the project to the engineering demonstration phase, on 28 June 2005 in Moscow announcing the agreement on Cadarache as the site for the ITER facility,
- (m) 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
- (n) Welcoming the 21st IAEA Fusion Energy Conference to be held at Cheng Du, People’s Republic of China, from 16 to 21 October 2006 and the 22nd IAEA Fusion Energy Conference “Fifty Years of Fusion” to be held in October 2008 in Geneva, Switzerland, and encouraging Member States to participate in these significant events,
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 basic 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 assistances;
 3. Recognizes the importance of and endorses the Agency activities which meet the objective of fostering sustainable development and protecting the environment;
 4. Suggests that the Secretariat continue to implement efforts which contribute to a greater understanding and a well-balanced picture of the role of nuclear science and technology in a global, sustainable development perspective, including the Kyoto commitments;
 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 power and non-power 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. Calls upon the Secretariat to address specific needs and requirements of Member States, including those which do not have nuclear power facilities, in the areas of nuclear science, technology and applications, including the use of the SIT for creating tsetse-free zones and for combating malaria-transmitting mosquitoes and the Mediterranean fruit fly, the use of isotopes and radiation in applications relating to agriculture, medicine including additional concerted efforts through the PACT initiative, novel materials development, industry and the environment, and the treatment of greenhouse gases (GHGs) and flue gases resulting from fossil fuel burning;

7. Requests the Agency to consider, in collaboration with FAO and Member States, initiating R&D that could lead to the possible use of the SIT or of other nuclear-related technologies in combating locusts;

8. Requests that the actions of the Secretariat called for above be undertaken subject to the availability of resources; and

9. Recommends that the Secretariat report to the Board of Governors and to the General Conference at its fiftieth session on the progress made in the areas of nuclear science, technology and applications.

B.

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(47)/RES/10.D,

(b) Noting that the United Nations proclaimed the period 2005-2015 as an International Decade for Action, “Water for Life”, 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) Conscious of the recent human suffering caused by water-related disasters, including tsunamis and floods,

(d) 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,

(e) Noting that the initiatives of the Agency, as mentioned in document GC(49)/12, Annex 1, are addressing national priorities and have resulted in a wider use of isotope techniques for water resources and environmental management,

(f) Appreciating the fact that the initiatives taken by the Agency have increased co-operation with other relevant international organizations active in water resources management and development, and have led to joint projects with UNESCO and the Global Environmental Facility (GEF) of UNDP for increased capacity-building and the management of transboundary aquifers, and

- (g) Recognizing the work done by the Agency in improving the management of fossil groundwater systems, developing human resource and improving the global use of isotope data by its rapid and efficient dissemination through the internet,
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 to obtain easy access to isotopic analysis facilities by upgrading selected laboratories and by assisting Member States in adapting new and less expensive analytical techniques based on recent advances in relevant technologies, including laser-based ones,
 - (c) to continue its work on groundwater management, particularly the management of fossil groundwater resources in arid and semi-arid areas, and on dam leakage detection, safety and sustainability, in collaboration with other international organizations and with regional organizations, and
 - (d) to strengthen activities which contribute to the understanding of the climate and its impact on the water cycle and are aimed at the better prediction and the mitigation of water-related natural calamities and to contribute to the success of the International Decade for Action, “Water for Life”;
 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-first session under an appropriate agenda item.

C. Programme of Action for Cancer Therapy

The General Conference,

- (a) Recalling its resolution GC(48)/RES/13.D 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 and the increase in the number of new cases of cancer, cancer morbidity and mortality worldwide, particularly in developing countries,
- (c) Mindful of the request made by the Board of Governors on 16 June 2004 that the Director General pursue, further develop and implement, subject to the availability of resources, the elements of PACT,
- (d) Aware that one of the main objectives stated in the Agency’s Medium Term Strategy 2006-2011 is to enhance the impact of the Agency’s work through strengthened relationships

with Member States, development and funding organizations, scientific and technical institutions and the private sector,

(e) Expressing its appreciation for the financial and other contributions made by Member States and others to PACT and encouraging others to contribute,

(f) Welcoming the establishment by the Director General of the position of PACT Programme Manager and the identification of resources needed to establish a PACT Programme Office,

(g) Recognizing the value of a multidisciplinary approach to the treatment of cancer and the expertise of the Agency concerning radiotherapy, which is essential to treat more than half of all cancer patients for cure or for palliation,

(h) Emphasizing the significance of collaboration with WHO and other relevant United Nations bodies and other stakeholders, including scientific and professional organizations, and of the implementation of this important programme in synergy and partnership with governmental, national, non-governmental and private-sector organizations, and

(i) Noting that in May 2005 the World Health Assembly welcomed the initiative of the Agency in establishing PACT and requested the Director General of WHO to “to explore the feasibility of initiating the development of a joint programme between WHO and IAEA for cancer prevention, control, treatment and research”,

1. Requests the Director General to continue to advocate, build support, and allocate and mobilize resources for the implementation of PACT as one of the priorities of the Agency;
2. Urges the Director General to seek and strengthen the Agency’s involvement in international partnerships with non-traditional donors to further pursue, develop and implement PACT;
3. Encourages the Director General to explore, together with the Director General of WHO, the feasibility of a joint programme of the Agency and WHO for cancer prevention, control, treatment and research as well as the best means to partner in the implementation of PACT;
4. Stresses the importance of developing an Agency-wide strategy for the implementation of PACT, making use – inter alia – of available Agency information, identified resources, and of synergies and interactions across all relevant departments, as well as raising funds from extrabudgetary sources;
5. Recommends that, at an early stage, the PACT Programme Office, in consultation with relevant Agency departments and WHO, as appropriate, develop tools to assist developing Member States in establishing national plans and strengthening their capabilities to enhance the benefits to be achieved as the implementation of PACT proceeds;
6. Invites Member States, interested organizations and other non-traditional donors to contribute to the implementation of PACT; and
7. Requests the Director General to report on the implementation of this resolution at its fiftieth regular session.

D.

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

The General Conference,

- (a) Recalling its resolution GC(47)/RES/9 on “Strengthening of the Agency’s technical cooperation activities” and its resolutions GC(45)/RES/12.D, GC(46)/RES/11.D and GC(48)/RES/13.B on support to the Organization of African Unity’s (now African Union’s) Pan African Tsetse and Trypanosomosis Eradication Campaign (PATTEC),
 - (b) Recognizing that tsetse flies and the trypanosomosis disease which they transmit are a major transboundary African problem and are one of the greatest constraints on the African continent’s socio-economic development, affecting the health of humans and livestock, limiting land use and causing increased poverty,
 - (c) Recognizing that this disease still claims tens of thousands of human lives and millions of livestock every year and threatens over 60 million people in 37 countries, most of which are Agency Member States, and the situation is getting worse,
 - (d) Recognizing the need for a significant contribution by the Agency’s programmes in addressing the objectives of the African Union’s New Partnership for Africa’s Development (NEPAD),
 - (e) Recalling decisions AHG/Dec.156(XXXVI) and AHG/Dec.169(XXXVII) of the Heads of State and Government of the then Organization of African Unity (now the African Union) to free Africa of tsetse flies and on a plan of action for implementing PATTEC,
 - (f) Noting the steps taken by the Commission of the African Union to establish at its headquarters in Addis Ababa, Ethiopia, an office to act as the focal point for AU-PATTEC and to coordinate the implementation of the AU-PATTEC Plan of Action,
 - (g) Noting the progress being made by the Commission of the African Union in building partnerships for AU-PATTEC, including with the Africa Development Bank (ADB) and other funding organizations and partners,
 - (h) Aware that the sterile insect technique (SIT) is a proven technique for the creation of tsetse-free zones 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(49)/12, Annex 5, to the 2005 session of the General Conference,
1. Appreciates the continued support of the Agency to Member States in their efforts to build capacity and further develop the techniques for applying the SIT in creating tsetse-free zones in Africa, and also appreciates the contributions provided by some Member States and United Nations specialized agencies in support of these efforts;
 2. Calls upon Member States to continue to provide technical, financial and material support to African States in their efforts to create tsetse free-zones within available resources;

3. Requests the Secretariat, in cooperation with Member States and international organizations, to continue to support R&D and technology transfer to African Member States in order to complement their efforts to create and subsequently expand tsetse-free zones;
4. Stresses the need for continued cooperation with the Commission of the African Union and other regional and international partners with the aim of harmonizing efforts in line with the AU-PATTEC Plan of Action; and
5. 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 fiftieth (2006) regular session.

E.

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

The General Conference,

- (a) Recalling its resolutions GC(43)/RES/15, GC(44)/RES/22, GC(45)/RES/12.A and GC(47)/RES/10.E,
- (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 and subsequently recalled at the 19th special session of the United Nations General Assembly,
- (c) Taking note with great concern of the fact that a great portion of the world's population will, over the next years, face the ever-growing problems of potable water shortages,
- (d) Noting that seawater desalination using nuclear energy is technically feasible and in general cost-effective,
- (e) Noting also the interest of a number of Member States in activities relating to seawater desalination using nuclear energy,
- (f) Underlining the urgent need for regional and international co-operation in helping to solve the serious problem of potable water shortages, particularly through the desalination of seawater,
- (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(49)/12,
- (h) Taking note of the results of the seventh meeting of the International Nuclear Desalination Advisory Group (INDAG), held in July 2004, and expressing its appreciation for INDAG's continued efforts,
- (i) Recalling that the Agency has initiated a programme to assist developing countries interested in small and medium-sized reactors (SMRs) to address economics, safety, reliability and technical measures for proliferation resistance,
- (j) Acknowledging that innovative SMRs are of particular interest also for non-electrical energy, particularly in the desalination of seawater,

- (k) Noting with appreciation the activities carried out in co-ordination with other organizations,
 - (l) Commending the efforts of the Secretariat in coordinating the development of nuclear reactor simulators for use on personal computers, and
 - (m) Welcoming the progress achieved in coordinated research and noting with appreciation that some research projects have been completed successfully, in the framework of the interregional technical co-operation project on “Integrated nuclear power and desalination system design”,
1. Requests the Director General to continue consultations and interactions with interested Member States, the competent organizations of the United Nations system, multilateral financial institutions, regional development bodies and other relevant intergovernmental and non-governmental organizations in activities relating to seawater desalination using nuclear energy;
 2. Invites the Director General to:
 - (a) continue to take the appropriate measures to assist Member States, particularly developing countries, engaged in the process of preparatory actions with regard to demonstration projects, and
 - (b) carry out, subject to the availability of resources, further work on safety-related aspects in connection with the desalination of seawater;
 3. Invites INDAG to continue its functions as a forum for advice and review on nuclear desalination activities;
 4. 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;
 5. Requests the Director General and interested Member States to include in the feasibility studies, besides the technical aspects, the social and economic impacts of this technology;
 6. Further invites the Director General to raise seed funds and other appropriate funding from extrabudgetary resources in order to catalyze and contribute to the implementation of all Agency activities relating to nuclear desalination and the development of innovative SMRs;
 7. Requests the Director General to note the high priority given by interested Member States to the nuclear desalination of seawater and SMR development in the process of preparing the Agency’s Programme and Budget and to promote effective international information exchange and co-operation in this area; and
 8. 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-first session under an appropriate agenda item.

F.

Agency Activities in the Development of Innovative Nuclear Technology

The General Conference,

- (a) Recalling 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 also its resolutions GC(44)/RES/21, GC(45)/RES/12.F, GC(46)/RES/11.C, GC(47)/RES/10.C and GC(48)/RES/13.F 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 energy to meeting the growing energy needs in the 21st century,
 - (d) Taking note of the International Ministerial Conference "Nuclear Power for the 21st Century" held in Paris on 21 and 22 March 2005, where, while recognizing that each State is free to define its national energy policy in accordance with its needs and international obligations, a vast majority of participants affirmed that nuclear power can make a major contribution to meeting energy needs and sustaining the world's development in the 21st century, for a large number of both developed and developing countries,
 - (e) Noting the progress achieved in a number of Member States in the development of innovative nuclear technology and the high technical and economic potential of international collaboration in the development of such technology,
 - (f) 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,
 - (g) Noting that 22 Member States and the European Union are now members of INPRO, with Armenia, Morocco and Ukraine having joined since the 2004 session of the General Conference, and that the United States of America has announced its intention to join INPRO at this session of the General Conference;
 - (h) Noting the progress of other bilateral and international initiatives, such as the Generation IV International Forum, and their contribution to developing innovative approaches to nuclear power, and
 - (i) Noting with appreciation the Director General's report on the development of innovative nuclear technology contained in document GC(49)/12,
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 Member States with the planning and development of their nuclear infrastructures through the application of the INPRO methodology for the assessment of safety, proliferation resistance, sustainability, environmental, infrastructural and economic aspects of innovative reactors and fuel cycles, and with the selection and implementation of efficient strategies for dealing, in line with their development needs, with the 21st

century energy challenges in ways that meet national objectives while contributing to the balanced development of the global energy system;

3. Invites all interested Member States to combine their efforts under the aegis of the Agency in considering the issues of nuclear reactors and fuel cycles, in particular by examining innovative, safe, proliferation-resistant and economically competitive nuclear technology and by identifying options for innovative nuclear energy systems collaboration;
4. Recognizing that the funding of INPRO 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 technology, subject to available resources;
5. Stresses the need for international collaboration for the development of innovative nuclear technology 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;
6. Invites all interested Member States to contribute to innovative nuclear technology activities in terms of scientific and technical information, financial support or technical and other relevant experts and by performing joint innovative nuclear energy systems assessments; and
7. 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 fiftieth session under an appropriate agenda item.

G. Approaches to supporting nuclear power infrastructure development

The General Conference,

- (a) Taking note of the International Ministerial Conference "Nuclear Power for the 21st Century" held in Paris on 21 and 22 March 2005, where, while recognizing that each State is free to define its national energy policy in accordance with its needs and international obligations, a vast majority of participants affirmed that nuclear power can make a major contribution to meeting energy needs and sustaining the world's development in the 21st century, for a large number of both developed and developing countries,
- (b) 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 central concern, especially for countries that are considering and planning for the introduction of nuclear power,
- (c) Acknowledging the Agency's 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 and efficient use of nuclear power,
- (d) Acknowledging that the development of innovative nuclear energy technologies offers promising possibilities for lessening the infrastructure requirements through innovative approaches to infrastructure needs, which may be possible thanks to the innovative aspects of future nuclear energy technologies, and acknowledging that such innovative approaches to

infrastructure needs may also apply to supporting the safe and efficient use of existing nuclear power technologies, and

(e) Recognizing that the issue of infrastructure requirements for innovative nuclear energy technologies is an important topic within the Agency's Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO),

1. Encourages the Agency, within the framework of its existing programmes and drawing on its work on innovative nuclear technologies and its existing programmes for promoting effective and sustainable national regulatory infrastructures, to undertake generic assessments on approaches and options for addressing infrastructure requirements so as to support the introduction of nuclear energy technologies and their safe and efficient use, for those countries that are considering or planning for the introduction of nuclear energy technologies in the 21st century;
2. Invites all Member States that are interested in developing and applying current and innovative nuclear energy systems, and especially developing Member States that are interested in considering or planning for the introduction of nuclear energy technologies, to contribute, as appropriate, to such assessments by providing information on their particular needs, requirements and expectations;
3. Encourages the Agency to take the results of its assessments of infrastructure requirements into account as part of the Agency's ongoing programme and activities regarding nuclear power; and
4. 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 fiftieth session under an appropriate agenda item.