Code: IAEA/1/1
Committee: International Atomic Energy Agency
Topic: Nuclear Technology and Water Security

The International Atomic Energy Agency,

Guided by the primary objective of the Statute of the International Atomic Energy Agency (IAEA) to ensure that nuclear energy is used to improve global health and peace,

Recognizing the success of the IAEA's International Radiation Monitoring Information System (IRMIS) for effective real-time tracking of radiation and chemical pollution,

Encouraged by all Member States' previous progress, efforts, and achievements towards the development of peaceful nuclear technology,

Recalling United Nations (UN) Sustainable Development Goal 6, which calls on Member States to substantially increase efficiency of water use across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity,

Concerned by the role climate change plays in exacerbating challenges related to water security, particularly in terms of its effects on the water cycle, resulting in an increase in the rate of water pollution which affects possible sources of potable water,

Cognizant of the need for increased global understanding of the availability and sustainability of freshwater resources through science based, comprehensive assessments of national water resources,

Noting with satisfaction the success of the IAEA's Water Availability Enhancement (IWAVE) project in the IAEA Annual Report (2015) to isolate isotopic data in surface and groundwater in thirteen Member States,

Concerned by the fact that, according to the UN Secretary-General in a press release for the World Environment Day, in developing countries, as much as 80% of illnesses are linked to poor water and sanitation conditions which presents an extremely fragile situation for many Member States,

Taking into consideration the IAEA's limited budget, which limits the exploration of nuclear energy technologies,

Understanding the need for the expansion of isotope hydrology technology, which is crucial for locating and mapping aquifers, for greater efficiency in managing water resources regardless of the challenges it faces,

Emphasizing the role of multinational corporations in developmental aspects, including infrastructure, as well as addressing the needs of society through corporate social responsibility initiatives including, but not limited to, IBM's Intelligent Water Management and Procter and Gamble's Children's Safe Drinking Water Fund,

Recognizing the different characteristics, namely climate, geographical of different Member States and the distinct needs (access, water sources, clean water, infrastructure, technology and other resources) related to water security depending on such,

Recognizing the role of the epistemic community in improving currently deployed science-based policies and technologies,

Applauding the International Nuclear Management Academy's work in promoting education in the field of nuclear technology by collaborating with institutions of higher education worldwide to facilitate the creation of education programs for teaching nuclear scientists and policymakers,

Acknowledging the need for increased funding, management, and facilitation of desalination powered by nuclear and renewable energies,

1. *Suggests* initiating a regional approach to water insecurity by the establishment of Consider, Assess, Reach and Empower systems to address relevant issues related to the establishment of the previously mentioned techniques and technologies in order to:

    a. Consider the world's different regions and Member States as well as their different resources, needs, and constraints to be able to thoroughly address their needs regarding water security;

    b. Assess the needs related to the lack of clean, drinkable and accessible water of each Member State, grouping different geographic areas into regions that share similar needs and therefore require similar solutions;

    c. Reach collaborative solutions that address research development and implementation aimed to address the particular issues such regions have regarding the need for water security;

    d. Empower collaboration both within designated regional units and within the international community with the assist of the IAEA;

2. *Authorizes* the creation of the Subcommittee Promoting Renewables and Nuclear Energy for Desalination (SPRINKLED) under the direct auspices of the IAEA, comprised of 15 rotating UN-appointed members, funded by public-private partnerships and multinational corporations, tasked with:

    a. Partnering with non-governmental organizations (NGOs), public-private partnerships, and multinational corporations to facilitate the construction of desalination plants and requisite nuclear energy infrastructure where appropriate;

    b. Examining and evaluating proposed and currently-existing nuclear desalination plants in order to ensure reasonable levels of workplace safety and environmental protection;

    c. Encouraging Member States to enact tax incentives and government subsidies to encourage the use of renewable energy sources - including but not limited to nuclear, wind, and solar power - to power desalination plants;

    d. Utilizing private investment from local entities within the individual States, as well as funding from the governmental sector of Member States aimed at building infrastructure in order to fund nuclear and clean energy infrastructure, particularly in developing countries and countries lacking reliable natural water resources;

    e. Urging all Member States to transition from powering water desalination plants with fossil fuels toward powering desalination plants using nuclear energy or other carbon neutral energy sources by subsidizing the use of renewable energy, in line with the sixth goal of the *2030 Agenda for Sustainable Development*, which calls on Member States to substantially increase water-use efficiency across all sectors and address water scarcity;

    f. Meeting annually to report its actions and findings to the IAEA and to carry out its stated mandate;

3. *Recommends* the creation of an IAEA-sponsored committee called the Nuclear Technology and Water Security Educational Initiative (NWEI) that will consist of 20 representatives of Member States and NGOs, to be elected by the IAEA every five years, that will convene annually in Vienna, Austria to oversee:

    a. The following initiatives to increase investment in nuclear technologies related to water security, specifically:

i. The expansion of the Technical Cooperation Fund (TCF) to increase national government support for innovations that will improve water security;
ii. Inquiring about and establishing partnerships with private-sector entities to invest in programs that bolster Member States' educational infrastructure regarding nuclear technology and water security;
iii. Using this funding from national governments and private entities to provide scholarships for individuals to receive educations that would enable them to develop nuclear technologies for water security, in exchange for which individuals would return to their respective Member States to develop nuclear technology systems to enhance water security;

b. The establishment of stronger partnerships between national and local levels of government to increase transparency and awareness regarding:

i. Which water sources are polluted and how pollution affects the security of such water sources;
ii. The point and nonpoint sources of such pollution;
iii. The use of nuclear technologies to mitigate water pollution;

c. The mobilization on a greater scale of local government bodies, as well as reaching out to and including individual citizens across all Member States in various ways, including:

i. Assisting educational programs supported by active citizens recognized by the government which can spread awareness of the plethora of issues encompassed under "water security";
ii. Facilitating and encouraging discussion of how local governments can partner with larger operations sharing similar concerns about water security, such as *UN Water* and national governments;
iii. Allowing avenues for local and national bodies and multinational coalitions to share information regarding nuclear technology, and how it can be applied to the range of issues included in water scarcity;

d. An expanded awareness among populations about the potential use of nuclear technologies in increasing water security to encourage individuals to take part in programs that strengthen nuclear technologies for water security;

4. *Encourages* expansion of the recently established IWAVE project to all Member States to:

a. Increase global understanding on the areas of water quality, use, and sustainability;

b. Bridge gaps in global data surrounding nuclear isotope movement within surface and groundwater systems;

5. *Suggests* expanding the capacity of IRMIS by allowing NGOs access to the tracking data of nuclear isotopes in surface and groundwater systems to:

a. Continue sharing advances in radiation safety mechanisms;

b. Better develop safeguards for radiation, among other pollutants, in water sources;

6. *Recommends* collaboration between the IAEA and multinational corporations with pre-existing corporate social responsibility initiatives related to water scarcity to aid the IAEA in the expansion of isotope hydrology and other related technologies by means of fostering relations for technological cooperation by:

a. Seeking to utilize the "Technical Cooperation Activities" noted in the IAEA's Board of Governors report GOV/2001/33-GC(45)/16 as a model, wherein consultations with the private sector and the World Bank were performed to aid in funding for research and development of isotopic hydrology laboratories;

b. Endorsing the use of Information Technology (IT) tools to encourage an information cooperation and transparency of power companies as well as a combination of web technology related to the work done between Hitachi and General Electric with techniques related to plant data, construction, and maintenance;

7. *Supports* knowledge-sharing to enhance and better understand the technology and implementation of isotope hydrology in collaboration with epistemic communities from different factions such as, but not limited to: colleges and universities, as well as public and private research facilities to stimulate and get deeper in research initiatives;

8. *Encourages* all Member States to follow the INMA (International Nuclear Management Academy) initiative launched by the IAEA to work in collaboration with universities with nuclear science and engineering programs, as well as with employers from the nuclear sector, to support universities in implementing high-quality Master's level programs in nuclear technology management, while:

    a. Remembering that the INMA also facilitates the inter-university cooperation, involvement of industry stakeholders and resource sharing;

    b. Inviting Member States to create in-house educational institutions that embrace all major aspects of nuclear science and technology;

9. *Suggests* an increase in the emphasis, by the establishment of possible policies, that increase governmental actions related to the importance of water treatment and further development of techniques to separate water from contaminants that involve nuclear technologies, such a the use of isotopic methodology to isolate contaminants from water by localizing water and contaminant sources and putting in place mechanisms to isolate the water from the contaminants;

10. *Recommends* continued and timely research on safe, permanent nuclear waste and legacy waste storage and disposal, to prevent future pollution of nuclear waste into groundwater;

11. *Welcomes* the aid of third party donors such as, but not limited to, NGOs and international organizations to assist the agency in the promulgation of currently deployed IAEA technology, specifically isotope hydrology and desalinization;

12. *Further invites* able Member States to increase financial contributions to the Technical Cooperation Fund and the Peaceful Uses Initiative to:

    a. Facilitate the expansion of: IWAVE, IRMIS, and INMA;

    b. Facilitate the implementation of: NWEI and SPRINKLED.

Code: IAEA/1/2
Committee: IAEA
Topic: Nuclear Technology and Water Security

The International Atomic Energy Agency,

Concerned by the threats to water quality and human health posed by ageing and improperly decommissioned nuclear reactors and facilities, which are more prone to failure and liable to leak into local land and bodies of water and watersheds, as noted in General Assembly resolution 68/53 (2013),

Acknowledging the difficulties facing the International Atomic Energy Agency (IAEA) in fulfilling its responsibilities as a regulatory and training agency as nuclear energy becomes more accessible as reported by the Director-General in the IAEA's 2015 public safeguards report,

Noting the need for nuclear waste containment and long-term solution to funding issues including the polluter-pays principle, in which entities constructing nuclear facilities provide funding for potential disasters before or during construction, and those documented in the 2009 report IAEA-TECDOC-1632 *Experience of Shipping Russian-origin Research Reactor Spent Fuel to the Russian Federation* in order to maintain and improve access to clean water and water safety,

Recognizing that the primary obstacle to the IAEA's role in ensuring water security via well-executed facilities decommissioning is limited funding availability,

Affirming the efforts of the Parties to the 2006 *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management* as well as the IAEA Data Analysis and Collection for Costing of Research Reactor Decommissioning Project,

Recognizing the potential role of properly evaluated non-governmental organizations to relieve the overextension of the IAEA by responding effectively to nuclear waste disposal situations that would otherwise require direct Agency engagement, with focus on the provisions of the 1958 *Rules on the Consultative Status of Non-Governmental Organizations with the Agency*,

1. *Recommends* that IAEA Member States work with countries seeking to decommission ageing and therefore dangerous water desalination and water related nuclear reactors in order to prevent radioactive leakage into their waters with a particular focus on:

    a. Training of local experts in environmentally responsible nuclear waste disposal and recycling, modeled on existing processes of the IAEA;

    b. Regional- and municipal-level nuclear disaster and emergency waste removal responses;

    c. Implementing improved and water related nuclear reactors;

2. *Urges* Member States to coordinate with one another to implement practices that will ensure safe storage and disposal of spent nuclear power plant fuel by:

    a. Imposing an alternative disposal of nuclear waste through dry casking, limiting nuclear waste storage in pools and restricting the emittance of radiation;

    b. Implementing and supporting existing Deep Geological Disposals, which can safely store radioactive waste produced as a consequence of the increased amount of nuclear reactors built for water desalinization until it becomes nontoxic to humans;

c. More effectively assisting the IAEA in working with state regulators to monitor nuclear facilities with methods that promote local expertise and responsibility;

d. *Endorses* the polluter-pays principle as defined in the 1992 report of the General Assembly A/CONF.151/26, in which nuclear operators ensure the availability and allocation of adequate funds toward the future safe decommissioning of nuclear power plants;

e. *Welcomes* countries new to nuclear power and technology to participate in and learn from the IAEA Data Analysis and Collection for Costing of Research Reactor Decommissioning project in order to prepare for future decommissioning and therefore enhance water security and safety.

Code: IAEA/1/3
Committee: International Atomic Energy Agency
Topic: Nuclear Technology and Water Security

The International Atomic Energy Agency,

Guided by the *Charter of the United Nations*, which specifically aims to achieve international cooperation in solving international problems,

Recognizing the *Statute of the International Atomic Energy Agency*, which establishes the agency as the principal international body to secure materials, equipment, and facilities for the peaceful uses of atomic energy,

Convinced of the benefits of nuclear power and technology and the need for the equitable international distribution of these technologies,

Calling attention to the cooperation agreement between International Atomic Energy Agency (IAEA) and the *International Energy Renewable Agency* that addresses the lack of capacity to build nuclear power facilities in underdeveloped countries,

Acknowledging the need for expert consultation in order for underdeveloped countries to produce these nuclear programs,

Recognizing the difficulty of initial investment payment in establishing nuclear power and the need for international funding to support the development of capacity within underdeveloped nations,

Recognizing the success of IAEA supported regional agreements in the promotion of technology transfer and technical cooperation in regards to nuclear technology, such as the African Regional Cooperative Agreement for Research Development and Training related to Science and Technology, Asian Network for Education in Nuclear Technology, the Latin American Network for Education in Nuclear Technology, and Technical Cooperation Programs (TCPs) and Coordinated Research Projects (CRPs),

Noting, as described in May 23, 2016 and May 15, 2017 press releases of the IAEA, the successful application of radioisotope technology to polymerase chain reaction (PCR) to detect diseases within three hours during the Ebola outbreak of 2014, the Bird flu outbreak of 2015, and the Zika and Bulgarian cattle disease outbreaks of 2016,

Acknowledging the initiatives coordinated by the Joint Food and Agriculture Organization/IAEA program as essential in the application of nuclear technologies in agricultural uses,

Viewing with appreciation the usefulness of IAEA support in setting up workshops, research partnerships, and water and nuclear infrastructure development plans,

Reaffirming the great applications of nuclear power, specifically in energy-intensive processes like desalination, as outlined in the Desalination Economic Evaluation Program,

Noting the occurrence and negative impacts of 20 nuclear accidents across the world since 1954, the most recent being the Fukushima-Daiichi accident of 2011,

Emphasizing United Nations Sustainable Development Goal (SDG) 4, establishing basic education as a necessity to sustainable growth and development,

Recalling General Assembly resolution 64/292 (2010), which states that clean drinking water and sanitation is a fundamental human right,

Recommending all Member States use peaceful nuclear technology for the purpose of maintaining stable water resources in accordance with General Assembly resolution 32/50 (1977),

Recognizing the Sterile Insect Technique (SIT), which uses nuclear ionizations to create and release sterile pest insect species and reduces the need for use of chemical pesticides, as a means to create reduced usage of water for the purpose of pesticide application and runoff treatment,

Recognizing the failure of traditional barriers in preventing the leakage of contaminated water in both the Fukushima disaster and many previous meltdowns,

Noting the importance of the Global Network of Isotopes in Precipitation and the Global Network of Isotopes in River in providing research that informs both international and local policy,

Acknowledging the success of isotopic hydrolysis as mentioned in the SDGs in helping to alleviate water insecurity in water inadequate regions around the world such as the Sahel region in Africa as published in the June Bulletin of the IAEA,

Drawing attention to research in Atmospheric Nuclear Surface Ionization Stations (ANSIS), which aim to allow member states to ionize the atmosphere and create controlled precipitations,

Recognizing SDG 6 and its associated targets which advocate for the sustainable management and availability of clean water and sanitation for all,

Applauding the declaration of the General Assembly to declare 2018-2028 an international decade for action, Water for Sustainable Development,

Believing that maritime transport of nuclear materials should be secure and stable to protect the water routes used while nuclear materials is being transported,

1. *Urges* Member States to facilitate information sharing, especially through TCPs, of all peaceful uses of nuclear technology;

2. *Encourages* Member States to incorporate existing IAEA initiatives into their nuclear and infrastructure development plans, including:

    a. TCP workshops to promote nuclear safety;

    b. CRP partnerships between Member States with and without research reactors;

    c. IAEA assistance in writing plans for water infrastructure development for submission to the World Bank and other funding sources;

    d. Research with IAEA-designated International Centre based on Research Reactors (ICERR) designation to develop nuclear technologies specific to a nation's needs;

    e. The ICERR designation to increase opportunities for Member States without research reactors to perform research technologies;

3. *Encourages* Member States with large agricultural sectors to use the SIT as an alternative to chemical pesticide use;

4. *Requests* Member States continue to research the application of nuclear isotopes, enzymes, and other technologies to PCR to detect diseases more rapidly and improve overall response times;

5. *Providing* a permanent team of international expert consultants through the IAEA's Technical Cooperation Program to assist Member States seeking safe and sustainable nuclear technology programs:

a. Evaluating the current capacity of these nations to produce nuclear technology programs;

b. Providing specific attainable goals for these states to develop the infrastructure necessary to effectively support proposed program(s) over a designated period of time;

c. Emphasizing the need for the diversity of consultants to address, further emphasizing gender balance;

6. *Encourages* all low-enriched uranium importing member states to form an escrow account under the supervision of each member state's decision-making commission to assist member states developing nuclear technology in the initial down payment for establishing the technology and recommends that:

    a. The commission meet annually to discuss the investment, the development plan, and the urgency of issues that need work;

    b. All members in the commission hold one vote each;

    c. The decision-making process be based on majority vote;

7. *Requests* that willing Member State provide additional funding to the IAEA's Technical Cooperation Fund and the Peaceful Uses Initiative, and encourages additional contributions to increase Member States' access to financing for nuclear powered desalination projects from the following:

    a. The World Bank;

    b. The International Monetary Fund;

    c. The African Development Fund;

    d. The private sector;

    e. Relevant Non-Governmental Organizations;

    f. Relevant regional organizations;

8. *Suggests* Member States develop nuclear technology for the purpose of nuclear desalination;

9. *Urges* Member States to develop, utilize, and facilitate technology sharing programs for development;

10. *Advocates* for Member States to voluntarily increase the number of both nuclear-based reverse osmosis and distillation desalination plants as needed, through:

    a. Collaborations with IAEA programs like the Peaceful Uses Initiative, the Technical Cooperation Fund, and Desalination Thermodynamic Optimization Program;

    b. Assistance of funding voluntarily provided by relevant regional organization, the private sector, and multilateral collaborations between Member States;

11. *Encourages* the use of nuclear technology, specifically isotope hydrology, to continue to research the various fossil water deposits across the Lake Chad Basin including but not limited to Northern Africa, Eastern Europe and the Middle East;

12. *Offers* Member States to implement the use of the radiotracer technology in order to promote water safety, to protect the land based water resources of African Continent, specifically the Lake Chad Basin and the Nubian Aquifer including but not limited to the African continent and address multiple issues at the same time, including:

a. Studying of the water surface processes;

b. Identifying flow paths of water;

c. Diagnosing blockages or leakages;

d. Identifying sources of contamination;

e. Tracking sediment movement in water;

13. *Invites* Member States to research and then subsequently implement nuclear technologies, such as the radiotracer and radioisotope technologies, to protect the land based water resources of African Continent, specifically the Lake Chad Basin and the Nubian Aquifer including but not limited to the African continent;

14. *Offers* Member States to implement the use of the radiotracer technology in order to promote water safety, to protect the land based water resources of African Continent, specifically the Lake Chad Basin and the Nubian Aquifer including but not limited to the African continent and address multiple issues at the same time:

    a. Studying of the water surface processes;

    b. Identifying flow paths of water;

    c. Diagnosing blockages or leakages;

    d. Identifying sources of contamination;

    e. Tracking sediment movement in water;

15. *Calls on* Member States to develop intrastate, comprehensive, and strategic actions plans to improve understanding of water sources by determining important information such as aquifer replenishment rates, aquifer extraction rates, and age of water sources, using nuclear technology such as isotopic hydrology to better prepare administration of Member States to take domestic and/or regional actions--such as implementing domestic policy, better informing the public, etc.--to alleviate water insecurity;

16. *Calls for* efforts to monitor nuclear facilities located near vulnerable sources of water, and develop safeguards mechanisms to decrease the potential negative impact of nuclear facilities on the environment, *Further calls* for the training of IAEA technicians and nuclear specialists trained in best practices of post-nuclear accident recovery to assist communities following a nuclear accident, organized by the IAEA's Technical Cooperation Program;

17. *Recommends* all maritime transportation of nuclear materials be done so doing double-hulled ships to better secure the nuclear material and protect that water from any potential leaks or accidental ruptures of the exterior hull;

18. *Encourages* the implementation of a frozen soil barrier infrastructure to be installed in the initial construction of nuclear power plants, and on standby to be used in the case of water leakage, which has been a hallmark and a primary concern of recent nuclear meltdowns;

19. *Further recommends* that Member States develop ANSIS in coordination with water storage infrastructure, so that Member States can optimize precipitation collection in reservoirs, increase total amounts of water availability, and use water for agriculture, industry, domestic, and commercial uses.

Code: IAEA/1/4
Committee: International Atomic Energy Agency
Topic: Nuclear Technology and Water Security

The International Atomic Energy Agency,

Recognizes that the International Atomic Energy Agency (IAEA) currently defines water security as the availability, quality, management, and protection of water,

Noting that the IAEA's objectives as outlined in Article II of the *Statute of the International Atomic Energy Agency* includes to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world,

Emphasizing that the access to water is a basic human right under Article 25 of the *Universal Declaration of Human Rights*,

Taking into account that water security can sometimes be harmed by an increase of hydroelectric power plants that reallocate water commodities, block rivers, and damage wildlife,

Guided by the *Mar Del Plata Action Plan* set forth by the United Nations Water Conference of 1977, which advocated for the universalization of water access in addition to improving the administration of water by national, regional, and international organizations,

Reaffirming the *2030 Agenda for Sustainable Development* and Sustainable Development Goals (SDGs) 3, 6, and 9, which advocate for good health and well-being, clean water and sanitation, and industry, innovation, and infrastructure, respectively,

Having examined a multitude of nuclear technologies in civil contexts, such as hospitals and their corresponding equipment, such as Geiger counters which measure the level of radiation in a specific area, and lastly nuclear processes such as vitrification which is used to turn liquid radioactive waste into solid form,

Stressing GC(60) RES/12 which states that nuclear science, technology and its applications can contribute to a wide variety of basic socio-economic needs of Member States in areas such as energy, materials, human health and water resources,

Deeply disturbed by the 200 million cases of malaria contracted globally each year, and the great majority of deaths from malaria that occur in sub-Saharan Africa,

Deeply concerned that the full potential of nuclear technology to incite positive change within the world is not being recognized,

Acknowledges that the IAEA and United Nations (UN) have severely restricted budgets,

Bearing in mind the importance of this issue, as it is imperative that that all member states work together to ensure the availability of fresh drinking water to those in need,

Taking note that the IAEA views nuclear desalination as the future of large scale desalination due to the large amount of energy needed for the processes,

Fully Aware of the fact that there exist failing nuclear power plants all over the world that pose threats to society,

Noting with approval that molten salt reactors (MSRs) use molten fluoride salts as a primary coolant and are "meltdown proof" due to freeze plugs that melt in the case of nuclear meltdown to drain the overheated water,

Noting with satisfaction the work accomplished by Technical Cooperation Projects initiated through the IAEA such as Applying Isotope Techniques to Investigate Groundwater Dynamics and Recharge Rate for Sustainable Groundwater Resource Management in the effort to improve water safety and access by improving regional knowledge regarding recharge rates and pollution,

Recalling the purpose of Nuclear Energy Program Implementing Organizations (NEPIOs) in promoting peaceful nuclear development, as well as cooperation between the IAEA and Member States,

Noting the role of safe nuclear waste disposal in promoting water security for Member States, in accordance with Sustainable Development Goal 6 for access to safe drinking water,

Fully aware of the threats posed by improper nuclear waste disposal to water sources, as well as the threats posed to the environment with high-temperature water discharge from nuclear sources,

Expressing concerns with current cooling methods, and understanding the need to move towards more renewable systems to conserve water, especially in landlocked Member States,

Conscious of the potential risk in nuclear waste management of overheated or irradiated water reaching the water table,

1. *Establishes* the institution of the Transitionary Energy Index (TEI) as a pilot program to provide Member States with alternative methods of obtaining and accessibility to information on the open market which:

    a. Requires that the General Conference renew the TEI pilot program at every annual session, with the restrictions that:

        i. The Board of Governors reviews the operations and transactions of the TEI every quarter, and reports them to both to the IAEA General Session in an annual report, and to publish the report in an investor's review quarterly;
        ii. The General Conference shall review the operations and transactions of the TEI from the Board of Governors general report;
        iii. The Board of Governors shall recommend an appropriation of funds from the IAEA general account to be voted on by the General Session for the preliminary costs of maintaining the TEI pilot program;
        iv. The General Conference shall determine the appropriate measures by which the TEI funding shall be used to facilitate and implement water security efforts;

    b. Mandates that the TEI, in conjunction with the International Monetary Fund (IMF), assist Member States with agricultural efforts via the issuance of futures contracts and securities on crop commodities with access to the IAEA's technology bank and shall issue procedures to ensure effective and profitable transactions for reasons such as:

        i. To insure 15% of the original investment of any crop security pending a review by the TEI;
        ii. To guarantee the equal opportunity to purchase;
        iii. To charge a 20% deposit fee on the transaction of any approved contract to provide for administrative, insurance, and technology implementation costs;
        iv. To provide inquiry on behalf of the IAEA to investment banks and similar financial institutions;
        v. To request the IMF assist in transactions and financial advice;

    c. Mandates that the TEI have the following capabilities:

        i. Provide information of comparable energy sources per power grid;
        ii. Provide information to private contractors or companies upon request for a reasonable administrative fee;
        iii. Facilitate an exchange of energy commodities;

iv. Retain a right to disproportionately invest resources based on GDP per capita and purchasing power of the respective currency;
v. To act within the discretion of the Board of Governors by a majority vote to approve or disapprove of contracts exceeding one million dollars and to then authorize the organization to work with financial institutions to convey the request for transaction;
vi. To ensure that all investments are used toward promoting nuclear technology;
vii. To explore the use of blockchain technology, to provide transparent, secure, and independent method of maintaining records;

d. Recommends that member states invest in renewable and sustainable technologies, including but not limited to:

i. Solar Energy;
ii. Wind Energy;
iii. Necessary nuclear technology;
iv. Water purification systems using nuclear technology or other feasible and pragmatic mechanisms;

2. *Recommends* that countries with a destitution rate of 40%, as determined by the World Bank, can request additional financial support from the World Bank to receive funds to upgrade water infrastructure such as intricate irrigation systems to ensure water security by:

a. Encouraging mining in countries with an excess of quantity of uranium to advocate the usage of uranium in nuclear technology to fulfil the purpose of securing and maintaining the health of water;

b. Initiating a project that focuses on the goal of providing clean water and preventing any waste from entering the fresh body water sources as well as water purification systems;

c. Including countries that are not part of current projects such as Urban Water Supply Project to assist them in achieving a sustainable amount of water for each participating country;

3. *Proposes* the establishment of a ten-year pilot program that creates NEPIOs for each of the five IAEA Central Coordination regions (Europe, Middle East, Africa, Asia-Pacific, and North and Latin America) that:

a. Facilitates the more efficient and effective transfer of energy and non-energy nuclear technical knowledge and technology to regional member states, including those focusing upon water security;

b. Holds bi-annual regional meetings within regional Member States;

c. Facilitates more frequent discussions of best practices and management of nuclear program development;

d. Calls for Member States to revise the necessary procedures of this program to comply with any possible changes to the Technical Cooperation program found under operative 4;

4. *Calls for* a revision and re-evaluation of the Technical Cooperation (TC) program in order to:

a. Determine a more specific system for categorizing various regions in terms of their individual nuclear and energy needs, especially with regard to water security measures;

b. Facilitate the creation of a tiered classification system with consideration given to current nuclear capabilities, geological features, and geographical location;

c. Detailed records of income and expense to regional funds be made, and upon subdivision of regions each country who has contributed to the fund will be entitled to the share in percent of what remains of their contributions;

5. *Further calls for* the improvement of communication and collaboration with Member States with regard to issues of nuclear technology and water security with the implementation of a convention that meets biannually in order to accomplish goals such as, but not limited to:

    a. Continually re-evaluating the status of various states in terms of their nuclear capability;

    b. Providing a forum for Member States to approach the body with individual concerns such as but limited to:

        i. Outdated nuclear technologies;
        ii. Energy concerns;
        iii. Water security issues;

6. *Recommends* the establishment of the Nuclear Waste Authority (NWA) under the guise of the IAEA which would:

    a. Be responsible for monitoring and control of nuclear waste in member states, with a special emphasis on controlling runoff into waterways and water tables;

    b. Have a direct interaction with member states for transparency of disposal information;

7. *Encourages* fellow Members States, in order to protect water tables and waterways, to pursue the creation of adequate waste disposal for all facilities using nuclear fuel or material, such as nuclear energy plants and hospitals, such that:

    a. Each waste site will be required to have waste storage mechanisms, isolated from outside water sources, to house the irradiated waste until its half-life surpasses:

        i. If such storage facility is not available on-site then disposal must be contracted by an NWA certified facility to be transported by an NWA certified transporter;
        ii. The proportion of nuclear material in use shall not exceed the capacity for on-site waste;

    b. Geiger counters be placed at the exit of each disposal site to detect any radiation in excess of 5,000 millirems per year:

        i. If an excess of radiation is detected the waste must be stored on site until the half-life of the radiation has expired;
        ii. If the on-site waste capacity reaches 80% then certified NWA third parties must be contracted to remove waste;
        iii. If waste spillage takes place outside of a contained waste facility then the NWA and IAEA must be immediately notified, and emergency protocol must be followed;

8. *Encourages* the use of geiger counters and ionization chamber instruments in water sources near areas with potential risk of nuclear contamination to measure the amount of radiation emitted so that:

    a. If the level exceeds the natural background levels as determined by the IAEA, the contaminated source will be transferred to a domestic or foreign secure facility to allow radiation to decrease to a safe level based on the isotopes;

    b. Make use of the process of vitrification to effectively minimize radioactive waste leakage to the environment;

    c. Promptly notifying communities affected by irradiated water sources to avoid civilian exposure to radioactivity;

9. *Proposes* that member states should consider converting their hydroelectricity power plants into water purification plants or set up a two-step system in which the water from hydroelectricity plants feeds into water purification plants in their respective Member States to maximize energy production and water security, to prevent the depletion of water resources in Member States that have high water insecurity, with the specifications as follows:

    a. Suggests reusing the facilities, to prevent the waste of infrastructure from the power plant;

    b. To consider energy deficits in consultation with the TC program before determining a plan of action to begin conversion and infrastructure changes:

        i. Transition procedures may include such as but not limited to;
        ii. Slowly obtaining infrastructure needed to transition from hydroelectric to water purification plants, then completely transforming the hydroelectric power plant;
        iii. Obtaining the infrastructure needed to build a water purification plant and then building one, with the creation of a pipeline that links the two in order to facilitate a transfer of water from the hydroelectric facility to the purification plant in order to simultaneously produce energy while yielding clean water;

10. *Calls for* the creation of Nuclear Waste Certified (NWC) licenses for nuclear waste disposal facilities and transporters for the purpose of protecting water resources from nuclear waste, such that:

    a. Class 1 NWC licensee is only eligible to store nuclear waste;

    b. Class 2 NWC licensee is only eligible to transport nuclear waste;

    c. Contractors may obtain both Class 1 and Class 2 NWC licenses;

    d. Cost of acquiring a license shall be determined by the NWA, and may fluctuate due to market conditions;

11. *Maintains that* eligibility for Class 1 NWC license includes necessary steel cylinders in concrete landfills to be filled with water and sealed, such that:

    a. The following measures are taken to prevent irradiated water from reaching the water table;

    b. Waste will be stored in landfill modules, defined as underground storage facilities with minimum twelve-inch concrete barrier, to have a maximum capacity of five-by-five barrels stacked in three rows, totaling a maximum capacity of seventy-five barrels;

        i. Waste facilities must acquire an additional license for each landfill module, to be audited by the NWA:
        ii. Licenses for every landfill module must be renewed every four years post successful audit;
        iii. A licensing fee must be paid from the licensee to the licensor upon renewal;
        iv. Licensees are subject to random audits by the NWA;
        v. Failure to comply with NWA water security regulations will result in a written first warning for each lapse in regulation;
        vi. A secondary audit will take place one month after the written warning, or as emergency situations dictate, if facilities fail to comply with regulations this will result in a fine whose amount is at the discretion of the NWA;

    c. Landfills shall be sealed with a two-inch steel cover, and buried at least twelve inches underground;

    d. Landfills shall be sealed with a two-inch steel cover, and buried at least twelve inches underground;

e. Each landfill module shall have an accurate inventory reported in real-time to the NWA, such inventory shall include number of barrels, weight of each barrel, and its general contents;

f. Recommends the criteria for eligibility of NWC licenses be established in the future, to include security mechanisms of surveillance, and armed security;

12. *Affirms* that Class 2 NWC licenses only be given to upon approval from the NWA:

a. The following measures are taken to prevent irradiated water from spillage or leaking into the water table;

b. Declares that all Class 2 licenses be in line with the regulations for safe transport for radioactive material to ensure that the hazardous material doesn't contaminate the water sources;

c. Vehicles should be registered with the NWA and used for the either liquid waste or solid waste, and the type of waste should be reported to the NWA;

d. During any and all transportation of nuclear material, local authorities, emergency services, and the NWA should be informed and urged to support in the transfer in any way they can, and protocol should be pre-established to address situations of transporter accidents, spillage, and robbery;

e. Waste transportation vehicles must acquire an additional license for each vehicle in its fleet, to be audited by the NWA:

i. Licenses for every vehicle will be specific to either solid waste or liquid waste;
ii. Licenses for every vehicle must be renewed every four years post successful audit;
iii. A licensing fee must be paid from the licensee to the licensor upon renewal;
iv. Licensees are subject to random audits by the NWA;
v. Failure to comply with NWA regulations will result in a written first warning for each lapse in regulation;
vi. A secondary audit will take place one month after the written warning, or as emergency situations dictate, if facilities fail to comply with regulations this will result in a fine whose amount is at the discretion of the NWA;

13. *Calls upon* hospitals to institute safer procedures for the disposal of irradiated nuclear materials through measures such as but not limited to:

a. Implementing geiger counters in all storage facilities such as nuclear waste sites and active holding centers;

b. Segregating highly enriched and low enriched materials within hospitals;

c. Expanding the current irradiated waste disposal laid out in GC(47)/RES/7 by:

i. Establishing checkpoints, which operate as both checking and deterrent mechanisms to minimize the risk of nuclear convoys during transportation,
ii. Encouraging necessary reactive forces against security violations, such as trained security personnel;
iii. Issuing certified removal verifications, which shall work as certificates of professionalization ensuring that inspectors can guarantee that all nuclear waste is removed from nuclear waste storage containers;

d. Ensuring that radioactive materials are measured through geiger counters or ionization chamber instruments to assess the amounts of radiation before being removed from the premises, with the following procedures set up for disposal:

i. If storage containers are deemed radioactive they will then be put into a secure nuclear waste facility for 24 hours to let the radiation levels decrease and then be tested again;
ii. If storage containers stay radioactive, geiger counters can be used to isolate the specific areas of radioactivity so that the nuclear waste can be handled in appropriate manners as described in GC(47)/RES/7;

e. Guaranteeing a secure disposal process that will eventually eradicate the possibility of contaminating any form of water source within the proximity of the route to the disposal facility, or facility itself;

14. *Declares accordingly* that hospitals institute procedures to protect and secure highly radioactive materials through procedures such as:

a. Using proper storage, which shall be defined as containment of radiation behind a specific barrier that meets suitable impermeability levels, such as lead-plated cement, iron, steel, etc., to prevent leakage and contamination of untainted soil and water sources;

b. Imposing ventilating restrictions, such as basement to top-floor concrete barriers and walls;

c. Implementing selective entry verification mechanisms, such as refreshing passwords, fingerprint detection, etc.;

d. Implementing security mechanisms such as but not limited to:

e. Internal alarms within machines containing nuclear material:

i. Improving such external alarms to increase sensitivity to tampering;
ii. Streamlining exit routes from hospitals to ensure hasty evacuation in the case of radioactive threats;

15. *Calls for* an increase in support for research in medical nuclear technologies in order to improve upon the use of said technologies for the purpose of preventing and fighting diseases that can possibly be treated using radioisotopes or other forms of peaceful nuclear technology in order to protect water security through these means, but not limited to:

a. Identifying malignant illnesses through nuclear imaging through improved methods of chemistry, physics, mathematics, and computer science promoting the widespread use of techniques such as but not limited to myocardial perfusion imaging, bone scans, and kidney scans;

b. Focusing on the treatment of cancers via nuclear technologies such as radiotherapy causes an increase in use of nuclear technology due to the fact of new innovative nuclear technology;

16. *Further calls for* further cooperation the World Health Organization and UN-Water, and their members to aid Member States in mitigating the effects of and preventing the spread of water-borne and vector-borne diseases, such as but not limited to malaria, cholera, typhoid fever, dengue fever, and dysentery through methods such as but not limited to:

a. Increasing the use of insect sterilization through radiation technologies such as the sterile insect technique in nations, researching and perfecting the process of sterilizing anopheles mosquitoes for the purpose of releasing them back into the mosquito population to prevent the transfer of disease, developing more efficient mosquito trapping systems, recommending the introduction of standardized training of entomologists in insect sterilization in sub-Saharan African nations, developing labs and necessary infrastructure in addition to standardized training of entomologists for the purpose of insect sterilization and release in Africa, for insects such as but not limited to the desert locust, gennadius, and legume pod borer;

b. Working alongside the Food and Agriculture Organization (FAO) to fight off infected insects and spread such technologies throughout agricultural regions currently without access to such technology, and continuing FAO and IAEA joint efforts in the FAO/IAEA Program of Nuclear Techniques in Food and Agriculture;

17. *Requests* that Member States work with the TC program to reduce the risk of water contamination with radioactive waste by making recommendations regarding the necessity of replacing old nuclear technology in reactor plants with newer technologies with safeguards, and aiding states with such implementation via methods such as but not limited to:

    a. Having inspectors visit older nuclear power plants biannually in order to make recommendations regarding how to implement new and recently innovated methods of safeguarding and protection regarding their plants;

    b. Encouraging Member States to reach out to the TC program in the case where they are concerned about outdated technology and security infrastructure, especially with regard to preventing water and environmental contamination and other such safety functions in the case of a nuclear meltdown;

18. *Urges* the creation of an increasingly refined grading system for nuclear power plant decommissioning pursuant to the IAEA Safety Agreements and Additional Protocols with the following steps:

    a. Assign a grade of 1-4 to each nuclear power plant based off of specific criteria established by the IAEA where:

        i. A grade of 1 would assume that the nuclear power plant has up-to-date systems and processes that are at maximum efficiency, complies with all routine inspections whether they be by the state or by the IAEA, has all nuclear energy accounted for and reported, and is a low threat to society;
        ii. A grade of 2 would assume that the nuclear power plant has up-to-date systems and processes that are not working at the potential maximum efficiency, complies with all routine inspections whether they be by the state or by the IAEA, has most nuclear energy accounted for and reported, yet poses a moderate threat to society;
        iii. A grade of 3 would assume that the nuclear power plant has functioning systems and processes that do not operate at maximum efficiency, and is inspected at least once per year whether it be by the state or by the IAEA, has most nuclear energy accounted for but may or may not report, and poses a notable threat to society;
        iv. A grade of 4 would assume that the nuclear power plant has out of date systems and processes that are deemed inefficient, does not receive routine inspections by the state or the IAEA, does not have nuclear energy accounted for or reported, and poses an immediate threat to society;

    b. Power plants that receive a grade of 1-2 will be deemed usable, whereas power plants with a grade of 3-4 will need to be considered for re-evaluation by both the Member State and the TC program and if deemed unusable, the relevant parties will begin decommissioning the power plant immediately;

    c. If Member States do not comply with the regulations for the grading system then the state will be considered a potential threat to the water security of the surrounding region;

19. *Promotes* the efficient use of nuclear energy by popularizing the use of Gen IV+ Reactors with the goal of generating more energy with little to no greenhouse gas emission consequences by the year 2030 with:

    a. MSRs that can utilize thermal breeding which is a specific process to generate the aforementioned surplus energy and in turn reaching goals of sustainability, moreover significantly obviating the possibility of nuclear energy being detrimental to water security;

    b. Integral Fast Reactors for use of nuclear fuel at the maximum efficiency possible, due to the fact that this fuel is being used at its maximum capacity, the time necessary to decrease amount of radiation present would be decreased;

c. Sodium Cooled Reactors (SCRs) that utilize depleted uranium as fuel, and liquid sodium as the coolant thus being able recycle uranium fuel and having a low volume coolant;

d. Utilizing the novel method of nuclear recycling specifically the closed fuel cycle, facilities will be able to reduce the amount of waste generated and promote efficiency;

e. Additional incentives aside from the obvious energy benefits could include foreign investors that are interested in the conducting of research in Gen IV+ reactors;

20. *Recommends* member states promote renewable energies by powering desalination through methods such as but not limited to:

a. Extensive solar power production, which produces thermal energy and then converts it into electric, if countries would power desalinization plants through solar, they would have 50% better efficiency as their energy losses will be reduced considerably as they will directly be using thermal energy to boil salt water;

b. Acknowledges of solar power is the amount of sun hours in a day, so to supply desalinated water 24 hours per day, countries should look toward wind turbines to supply electricity to cover the shortfalls that would arise in a situation where there is not adequate amount of sun hours;

c. Necessary nuclear technologies;

21. *Calls upon* member states and UN programs, including the IAEA Peaceful Uses Initiative, as extra-budgetary contributions to the Agency;

22. Promotes the use of nuclear scientists on training programs in Member States to improve desalination and nuclear isotopic hydrology for the purpose of water safety and security, including but not limited to water source mapping and aquifer recharge rate and also plans to implement this policy by:

a. Emphasizing the importance of increasing the access to sanitation and clean water especially for vulnerable members of various populations through homegrown solutions and procedures relevant to the regional conditions;

b. Inviting IAEA experts to teach six month education program to better personal and municipal sanitation following the principle of ‘Think Globally, Act Locally;

c. Encouraging member nations to cooperate with private enterprise in order to find funds for emerging technologies;

23. *Encourages* Member States to participate in the TC Program to improve domestic knowledge of nuclear technology and contribute to the global mapping of water resources through the Global Network of Isotopes in Precipitation (GNIP) and Global Network of Isotope Rivers (GNIR) and further implores member states to collaborate in their use of existing knowledge in the WISER database to map recharge rates for major cross-border groundwater basins in order to ensure sustainable groundwater usage;

24. *Suggests* that Member States with access to advanced peaceful nuclear technology share more nuclear technology frameworks and research with other nations in order to facilitate future research in order to:

a. Assist nations currently without access to peaceful nuclear technologies in building their own nuclear technology program to be used for civilian purposes; Scientists and Professors of nuclear engineering or related fields can volunteer for a fellowship program through the UN which will pay for the expenses of these professionals;

b. Facilitate communication in between nations with regard to sharing and innovating nuclear technology and its implementation; The UN will sponsor a platform for sharing academic research papers and guides to do some basic nuclear technologies;

25. *Endorses* the establishment of the 2030 Nuclear Sustainability goals, focusing on geothermal cooling methods in nuclear reactors especially for landlocked countries such as sub-Saharan countries, such that:

    a. Geothermal cooling systems use water rather than industrial coolant;

    b. The cooling system exists underground to use the earth's core temperature to mitigate the temperature of the water;

    c. Underground maintenance systems exist to ensure the safety and sustainability of the operation;

    d. Water for cooling will be reused for the purpose of water conservation, primarily in landlocked countries;

    e. Encourages a secondary underground pipeline as a contingency for cooling in the event that the principle system fails;

26. *Resolves* to reconvene after the ten-year pilot of these proposed solutions to discuss strengths, weaknesses, opportunities, and threats, as well as the feasibility of such solutions.

Code: IAEA/1/5
Committee: International Atomic Energy Agency
Topic: Nuclear Technology and Water Security

The International Atomic Energy Agency,

Supporting fully the *Information Circular Convention on Early Notification of a Nuclear Accident*, which is a need for states to provide relevant information about nuclear accidents and water security,

Noting that the International Atomic Energy Agency (IAEA) does not have a standardized definition for Nuclear Power, Energy, and Technology for Member States to implement on Nuclear Technology for Water Security,

Emphasizing the contamination of bodies of water in events such as Chernobyl (1986) and Fukushima (2011) which were caused by previous nuclear accidents and the lack of proper transmissions announcing accidents,

Realizing the importance of nuclear technology when applied to the measurement of radioactive levels in the ocean affects water security and wildlife,

Acknowledges the collaboration of IAEA's emergency preparedness and response system which allows appropriate, efficient and timely response to radiological incidents and accidents,

1. *Expands* the effectiveness of the emergency preparedness and response system to support the international interest of protection of water by:

    a. Ensuring that the application will update the location and severity;

    b. Notifying states and bodies of water that may be physically affected;

    c. Providing prompt communication between Member States and government officials in the case of a nuclear disaster;

2. *Emphasizes* that the IAEA will oversee the implementation of a PET cellular application as it occurs within their capacity, based on expectation that:

    a. PET will be evaluated at the annual General Conference that is held in Vienna International Center, Austria to review its effectiveness as an early warning mechanism to prevent water contamination and resolve any technological malfunctions;

    b. The IAEA's Board of Governors would be responsible for drafting the definitions of terms as well as having overall control and possession of the application and Member States would be able to provide feedback;

    c. Member States would work with NGO's for the application's development, malfunctions and financial backing;

    d. Member States will take part in an educational cellular application with a standardized definition and nuclear technique for Water Security;

3. *Recommends* Member States to take part in an educational initiative for Member States to educate, inform and implement nuclear technology to improve water security through the cellular application PET to:

    a. Provide Member States with a uniform definition so that member states can become familiar and refer to the exact proper definition when implementing nuclear technology for water security including isotope technology, measuring water pollution and desalination techniques;

b. Further on, the terms can be voted on and made official at the General Conference by Member States;

c. Establish a proper document with standardized terms and procedures for Member States to be able to refer to and distinguish their issues when implementing nuclear technology for water security;

d. Funding would be obtained through collaborative voluntary contributions, private sectors and NGO's;

4. *Suggests* fellow Member States in adopting PET within their respective governments in order to establish a unified, all-encompassing digital application that will notify every nation affected when a nuclear accident happens;

5. *Urges* the adoption of an international early warning system application to help prevent nuclear waste from entering the oceans and contaminating wildlife which includes:

a. An encrypted portal for Member States to allow efficient notification when a nuclear incident occurs;

b. Instruments such as the Geiger-Mueller tube but not limited to will be used to detect the levels of radiation in the ocean;

c. The detection of high radiation will notify the application and send out alerts to mobile devices within the respective region;

6. *Recommends* that this application is provided to Member States, non-governmental organization (NGO's), and citizens to prevent nuclear contamination of bodies of water with recommendations to other agencies by:

a. Keeping track of levels of radiation to acquire risk knowledge regarding the bodies of water surrounding nuclear power plants;

b. Adopting a centralized application to allow Member States to communicate with neighboring Member States and citizens for community response to prevent the loss of wildlife and material impacted by disasters.

Code: IAEA/1/6
Committee: International Atomic Energy Agency
Topic: Nuclear Technology and Water Security

The International Atomic Energy Agency,

Referring to the International Atomic Energy Agency's (IAEA) mandate to secure nuclear materials, as established by the *Treaty on the Nonproliferation of Nuclear Weapons* (NPT), and the *Statute of the International Atomic Energy Agency*, which charges the IAEA with fostering nuclear technology applications to achieve peace, health, and prosperity internationally,

Emphasizing that water scarcity is a major issue since two billion people in the world are currently drinking contaminated water, and that nuclear technologies, such as water purifying system which utilizes sunlight and total radiostrontium, can be utilized to purify and access clean drinking water to provide water security for all Member States,

Stressing the importance of water purification mechanisms and expanding accessibility to clean drinking water, such as the goal of the *Mar del Plata Action Plan*, as well as predicting the future of water availability, monitoring water sources, and sustaining known sources of water, but recognizing the limitations of foreign dependence on managing water resources,

Deeply conscious that nuclear technology techniques such as isotope hydrology and desalination promoted in Sustainable Development Goal (SDG) 6 (Clean Water and Sanitation) and 13 (Climate Action) can alleviate the negative effects that climate change has on water management and water cycles in poor and rural communities that are isolated from immediate resources and drought prone regions such as those in Middle East and the African Sahel,

Applauding previous collaboration between the IAEA and other international agencies, including but not limited to the Food and Agriculture Organization (FAO) and United Nations Education Scientific and Cultural Organization (UNESCO) such as the establishment of FAO/IAEA Agriculture and Biotechnology Laboratories,

Fully aware of the support that the IAEA has provided through IAEA Water Availability Enhancement Project in 2010 in places such as Philippines, Oman, Costa Rica, and Lebanon and its ability to help provide experts and new water resources in isotope hydrology and other forms of safe nuclear technology,

Noting the existence of regional coalitions, such as African Regional Cooperative Agreement (AFRA), Caribbean Research Reactor Coalition (CRRC), Regional Cooperation Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean (ARCAL), and Technical Cooperation Program in the Europe Region (TCP), and their success in promoting sustainable efforts pertaining to the acquisition of, purification of, and the security of water through nuclear techniques,

Recognizing that there exists an alternative, relatively eco-friendly third generation pressurized reactor to carry out nuclear desalination with research being done on safe disposal of toxic radioactive waste,

1. *Suggests* the purification of water through nuclear technology such as Electron beam technology (E-Beam), isotope hydrology to locate sources of groundwater, and other methods that focus on:

    a. Isotope Hydrology Databases that provide critical information on the investigation, conservation, and development of water resources such as the Global Network of Isotope Precipitation and the Global Network of Isotopes in Rivers;

    b. Testing for environmental pollutants in water through mass spectrometry, a common technique for determining unknown molecules in water;

2. *Recognizes* that the development of pressurized water reactors is an effective and relatively environmental friendly method to desalinate water and has a three-step process to combat water security;

3. *Suggests* the use of improved pressurized water reactors in place of aging reactors:

    a. Having the IAEA Water Management Program to assist member states in establishing third generation PRs and find feasible cooling systems based on their water resources, environment and economic capacities;

    b. Underscoring the need to have safe deep geological disposals secure highly toxic radioactive material until it becomes non-toxic to humans;

    c. Integrating the Desalination Evaluation Economic Program developed by the IAEA for cost evaluation and comparison of various power, small reactor technologies, and desalination plants, which can be the best solution to have more water sources and is the key to expanding clean, nuclear energy-based desalination;

4. *Promotes* the use of existing IAEA programs that proliferate information exchange such as the Nuclear Power Technology Development Section, which publicizes:

    a. Coordinated research programs, such as Managing Irrigation Water to Enhance Crop Productivity under Water-limiting Conditions, a Role for Isotopic Techniques, and the findings from said research programs;

    b. Data obtained from IAEA-related technical meetings;

5. *Encouraging* Member States to utilize standardized regional networks and groups, such as the AFRA, CRRC, ARCAL and TCP to provide training, share information/data, and provide support for:

    a. Disseminating vital information relevant to nuclear safety and water quality measures:

        i. Surface and underground water sources;
        ii. Emergence of water-saving awareness;
        iii. Reduce losses in distribution networks;

    b. Mitigating water-related risks by supporting the countries in managing their national and international water resources in a balanced, equitable and integrated manner;

    c. Promoting educational opportunities between technologically developed, and underdeveloped member states to provide improved research and training;

6. *Establishing* of regional facilities for sharing nuclear technology practices in the context of purification and sanitation, including:

    a. Training programs to inform on inspection protocols and plant guidelines, such as, but not limited to:

        i. Technology assessment;
        ii. Hydrogen economic evaluation;
        iii. Project management;
        iv. Infrastructure maintenance;

    b. The promulgation of a more efficient and responsive regional framework:

        i. Improved communication networks between Member States, regional bodies, and the IAEA;
        ii. Regionally-based action plan for the Member States of the regional facility in response to nuclear events and crises;

iii. Organized technique sharing amongst Member States facilitated by the regional facility in question;

7. *Recommends* regionally based facilities be overseen by the IAEA, considering the approval of each Member State, for maintaining accurate records pertaining to the curriculum of safe and peaceful nuclear energy usage training, water purification/sanitation techniques, and other various practices through:

    a. Monthly reports to the IAEA through the regional facility's core administration, including information, such as, but not limited to:

        i. Purification methods;
        ii. Isotopic Hydrology-based data;
        iii. Training guides and programs offered by the regional facilities;
        iv. Safety protocols and standards for nuclear, and non-nuclear facilities;

    b. Re-evaluation of each facility's reporting responsibilities to the IAEA annually by the IAEA's Board of Governors:

        i. The meeting will take place at the beginning of the first yearly session of the IAEA;
        ii. The location of the meeting shall be the IAEA headquarters in Vienna;

8. *Calls upon* Member States to focus further on SDGs 6 (Clean Water and Sanitation) and 13 (Climate Action) that are specifically related to nuclear techniques in benefiting water management for countries suffering from the effects of climate change, such as:

    a. Encouraging the use of isotope hydrology in studying:

        i. Rainwater, underground water flow such as aquifers, and large bodies of water (rivers, lakes) to identify sources of pollution;
        ii. Aquifer rates of extraction and replenishment;
        iii. The melting of glaciers on aquifers among other uses of the technology to better inform the administration of Member States on the actions necessary;

    b. Nuclear desalination to increase water supply for water scarce countries near large bodies of salt water;

    c. Using oxygen and hydrogen isotopes to better manage and understand changing water cycles;

9. *Supports* the IAEA providing expertise to the uses of nuclear technology to water systems around the world in collaboration with international agencies under the auspices of UN Water, such as:

    a. Isotope Precipitation monitoring for common environments in collaboration with the World Meteorological Organization (WMO);

    b. The IAEA-UNESCO cooperation training programs on nuclear technology education such as the Joint International Isotopes in Hydrology Program (JHIIP);

    c. Monitoring farmable environments' water and soil in collaboration with the Food and Agriculture Organization;

    d. The Practical Agreement between the IAEA and UNEP in building regional ecosystem managements;

10. *Encourage*s further technology sharing and multilateral cooperation with Member States, along with the IAEA through already existing programs like IAEA Water Availability enhancement project, to help further develop safe nuclear programs for developing countries:

a. Provide incentives for educational opportunities between technologically developed, and underdeveloped member states to provide improved research and training;

b. Provide higher wages for individuals coming into developed nations to become more educated in nuclear technology;

c. Create an easy way for individuals to be returned to their home country after a period of 3 years;

11. *Encourages* the direct distribution of information regarding nuclear technology, acquired from the regional facilities, to disadvantaged communities that are susceptible to water scarcity, which includes, but is not limited to creating an environment of knowledge sharing at the grassroots level, ensuring that citizens are cognizant of and implementing best practices regarding nuclear technology outlined by the regional standardized networks through:

    a. Regional facilities acting as mentors to assist Member States in developing action plans to spread novel techniques and information previously inaccessible to underserved communities;

    b. Member States incorporating relevant tools and knowledge in a unique curriculum tailored to technology, and disseminating best practices in local schools;

    c. Existing civic associations utilizing community centers to generate discourse and promote cohesive efforts to propose, discuss, and implement nuclear technology solutions to improve access to clean water.