

## **Resolution A/1**

To the General Assembly:

*Recognizing* the critical lack of rural electrification access in developing areas of Africa, Asia, and Latin America,

*Accounting for* the increased need of sustainable electrification development in regions accounting for environmental factors,

*Taking into consideration* the importance of utilizing renewable energy sources in rural areas without grid connections,

1. *Endorses* the expansion of mini-grid operational rural electrification systems through operating industry associations, recognizing the focus in the areas including but not limited to:
  - a. End-user financial support connecting consumers to the mini-grid and appliances,
  - b. Business finance allowing small enterprises to deliver and operate energy systems,
    - i. Accounting for support of communities in early financing,
    - ii. Emphasizing implementation of key market information and sustainable business models,
    - iii. Recognizing significant contributions of the Alliance for Rural Electrification (ARE), having developed energy-grid systems for rural electrification in over 3,000 African households
  
2. *Emphasizes* the increased investment into renewable, hybridized systems accounting for cost efficiency, intermittent resources, and consistent electricity supplies, including but not limited to:
  - a. Hybridized wind-powered and small hydro systems within developed electricity systems such as diesel generators;
    - i. while accounting for enhancement of electricity development through photovoltaic systems (PV) in centralized, developed rural communities;
  - b. accounting for effective utilization of centralized battery-charging electrical systems (solar battery charging stations) powered through solar PV generators, including but not limited to:
    - i. recently assessed capacities of a standardized 2kW station maintaining electrification of over 50 households requiring domestic lighting by World Bank electrification project investments,

- ii. also recognizing PV systems' ability to operate in all varying geographic locations, critical to electricity generation in remote areas;
- 3. Supports the integration and importance of cost-effectiveness investment frameworks within financial management on rural electrification, including but not limited to the following:
  - a. spatial -analysis approaches, multi-objective criteria development strategies, and revenue requirements per km of power line in centralized rural communities;
    - i. Utilizing off-grid investments as subcomponents of multisectoral rural energy projects, including grid extension and intensification for off-grid areas;
  - b. accounting for the utilization of such strategies mainly relating to rural areas far from grid connections within underdeveloped regions;
    - i. recognizing its successful utilization within developing rural communities, such as the Rural Electrification and Renewable Energy Development Project (RERED) in Bangladesh, as well the Rural Infrastructure Project in Honduras;
- 4. Calls upon the utilization of micro-business service programs to provide for and address potential financial hindrances to the implementation of rural electrification systems and consistent energy supplies in remote and underdeveloped communities;
  - a. including focus sustainable management through the maintenance of institutional capacities through provision of electricity services, including but not limited to:
    - i. development of rural electrification and energy policies for technical assistance activities, addressing strategic specifics within the rural sector and financial installations for energy provision
  - b. implementing micro-financing services targeting low-income rural area households, small businesses in electrification project sites, and productive users of electricity generation;
    - i. recognizing the consistent maintenance of over 160,000 households' electricity consumption through a strategical micro-financing rural electrification project;
    - ii. aiming towards utilizing micro-business service programs and financial management of rural electrification projects to strengthen countries' institutional abilities in implementing a national rural electrification strategy

## **Resolution A/2**

*Recognizing* the large amount of struggling economies and how this low level of economic development impacts the country's ability to further electrification,

*Understanding* the lack of funds for electrification and the need for investment,

*Taking into consideration* the availability and accessibility of various types of renewable resources in comparison to other forms of power,

1. Encourages the restructuring of the electric power sector to a more competitive electricity market,
  - a. Through an interconnection between the isolated mini grids and the main grid,
  - b. The development of templates for technical proposals to guide mini grid developers;
2. Supports providing incentives to the private sector for investments, through:
  - a. Meeting tariff demands of private investors to allow them to recover a high rate of return, however, with restrictions and dividends,
  - b. Governments still retaining a stake in electric utilities, yet setting access targets based on public policy by state owned enterprises,
  - c. Private firms providing electrical services, as well as determining the concessionary rates,
  - d. Partnerships between investors and local hosts, politically connected, in which investors can present projects and embed them into larger activities within the host country;
3. Recommends the expansion of the Lighting Africa Program, currently implemented in Sub-Saharan Africa, to regions facing similar difficulties, such as in northern and far southern Africa, which would:
  - a. Increase economic opportunities for the public,
  - b. Maintain at a relatively low cost in comparison to current methods of lighting in many regions,
  - c. Reduce greenhouse gas emissions and help the environment through off grid solar power;
4. Urges the rehabilitation of generators of old age to allow for greater efficiency, through meeting the potential capacity currently available at these generators, as well as technical improvements,

5. Emphasizes the importance of domestic economic development by encouraging private companies within a nation itself to expand to develop rural infrastructure, potentially through:
  - a. A special fund for rural electrification within a nation's government, modeled after a fund previously established in Chile that ultimately aided the expansion of electricity from 53% to 76% in 5 years,
    - i. Would competitively award subsidies to private electricity distribution companies that undertake projects with a positive social return,
    - ii. Companies design and present projects to the government in relation to electrical coverage,
  - b. Independent power producers having a designate space in the power sector, however, would operate as an entity independent of the usually state owned utility;
  
6. Suggests the implementation of renewable power sources based on the characterization of the rural area:
  - a. Solar power can be more easily sustained in primarily sun shining regions,
  - b. Wind power requires large spaces of land, as well as frequent wind patterns,
  - c. Hydroelectric power needs easy accessibility to water sources, such as lakes and rivers for the dams,
  - d. Geothermal energy must be in relatively close proximity to volcanoes, hot springs, or geysers.

## Resolution A/3

### Resolution to the Question Regarding Rural Electrification

United Nations Economic and Social Council,

*Alarmed* by the magnitude of citizens around the globe that live without power,

*Deeply concerned* about the negative effects the absence of energy brings upon both industrialized nations and emerging economies,

*Fully aware* that the number of people globally without power approximates 1.1 billion,

*Stressing* that economic prosperity and social development is intrinsically linked to energy availability,

*Acknowledging* that rural energy solutions can also deliver global climate change solutions,

*Recognizing* the importance of the United Nations in promoting improvements in rural electrification,

*Further recognizing* the efforts of governments, non-governmental organizations and corporations in helping to develop solutions,

*Urging* that greater emphasis be placed on expediting the rural electrification effort;

1. Promote increased awareness of the benefits of electrification in order to:
  - a. Urge governments to develop plans for expanding electrical infrastructure by:
    - i. Educating government officials on benefits associated with expanded energy coverage,
    - ii. Providing informational sources to assist with plan development,
  - b. Increase public awareness about the benefits of electrification by:
    - i. Educating local leaders and residents,
    - ii. Displaying posters and billboards in public locations,
    - iii. Using the internet and social media in more developed countries,
  - c. Remind governments and citizens of benefits provided by electricity:
    - i. Increase efficiencies in daily living,
    - ii. Enhance productivity,
    - iii. Improved safety;

2. Encourage rural electrification by:
  - a. Increasing profitability of existing providers via:
    - i. Developing pay-per-use technology accessible via mobile phones to:
      1. Reduce theft of power,
      2. Encourage usage,
    - ii. Packaging pay-per-use technology with appliances to:
      1. Increase demand for electricity,
      2. Improve daily productivity,
  - b. Sharing transmission networks between countries,
  - c. Partnering with non-governmental organizations, corporations and public and private donors to develop robust electrical expansion strategies:
    - i. Attract more investment,
    - ii. Expedite electrical expansion;
3. Suggests the development of electricity to areas that can be quickly profitable, which will:
  - a. Create more jobs in that given community:
    - i. Better the lives of individuals,
    - ii. Better the economy in that given country,
    - iii. Better the world economy,
  - b. Encourage additional electrical development as a result of early successes,
  - c. Allow individuals to increase spending on electrical purchases resulting in:
    - i. Higher profitability for electrical providers,
    - ii. Expanding energy development less profitable areas including:
      1. Agricultural areas,
      2. Villages,
      3. Remote locations;
4. Emphasizes the adoption of clean energy solutions by:
  - a. Extending reliable baseload power sources with green power sources such as:
    - i. Solar panel,
    - ii. Wind turbines,
    - iii. Hydro-power,
  - b. Encouraging the transition from fossil fuel energy to green energy:
    - i. Further helping the environment,
    - ii. Protecting rural and indigenous land,

- iii. Enabling energy production in remote locations,
- c. Supporting and developing programs that help to explore renewable energy solutions in rural areas such as:
  - i. Indonesia's Patriot Energy Program that seeks young people "with technical competence perseverance, social mindedness, optimism and a sincere attitude",
  - ii. 500 Island program that coordinated the energy expansion for 500 of Indonesia's remote islands.

## Resolution A/4

### Access to Electricity in Rural Sectors

The Economic and Social Council,

*Having recognized* the insufficient production, transportation, and utilization methods in rural sectors,

*Acknowledging* the low rate of infrastructure development pertaining to production, transportation, and utilization in rural sectors,

*Noting* the direct importance of access to electrical energy in Sustainable Development Goal number 7 (affordable clean energy) and other goals such as: poverty reduction, quality education, clean water and sanitation, innovation and infrastructure, responsible production and consumption, and climate action (1, 4, 6, 9, 12, and 13),

*Recalling* the recommendations for coordinating electrification efforts suggested in TD/B/C.I/EM.3/3,

*Greatly emphasizing* the importance of improving and maintaining local and international participation,

*Reiterating* the importance of augmenting current efforts,

1. Encourages the consideration of unique environmental factors which affect development and the application of proposed solutions accordingly;
2. Suggests that solutions may be best applied at the discretion of the national government;
3. Directs all nations involved in development efforts to share information on proposed strategies, succeeded initiatives, and development obstacles on an easily accessible platform;
4. Highly recommends implementing energy generation strategies which operate on an individual scale, such as:
  - a. Biohydrogen technologies which consume normal agricultural wastes to produce combustible hydrogen,



- b. Acetone-Butanol-Ethanol (ABE) Fermentation to produce biofuels from starch feedstock,
  - c. Stirling heat engine to recycle heat normally lost to the environment,
  - d. Photocatalytic water electrolysis with graphene assembly and carbon catalysts to convert carbon dioxide products from fuel combustion into methanol fuel,
  - e. Alphavoltaic, betavoltaic, and positron technologies such as direct charging, optoelectrics, and reciprocating electromechanical atomic batteries (radioisotope piezoelectric generators) to reduce power loss due to extreme current fluctuations,
  - f. Piezoelectric sparkers for fuel ignition;
5. Strongly supports the development of low-power devices for improving basic living standards such as:
  - a. Piezoelectric radio transmission receivers,
  - b. Low-output electric lamps,
  - c. Gravity-assisted reverse osmosis water purification;
6. Endorses the innovation of new technologies directly utilizing alternative forms of energy to reduce electricity usage such as:
  - a. Gravitational potential energy:
    - i. Common mechanisms found in clocks,
  - b. Elastic potential energy:
    - i. Object movement mechanisms,
  - c. Chemical potential energy:
    - i. Hydrocarbon or gaseous combustion reactions,
  - d. Weak force nuclear potential energy:
    - i. Alphavoltaics and betavoltaics;
7. Considers funding construction, operation, and maintenance of normal power generation facilities using alternative fuels such as:
  - a. Solar,
  - b. Wind,
  - c. Hydroelectric,
  - d. Geothermal,
  - e. Biomass;
8. Expresses the importance of introducing power alternatives to fossil fuels to reduce the threat of economic decline due to future environmental policies.

## **Resolution A/5**

### Bringing Electricity to the Rural Areas of the World

Commission on Science and Technology for Development,

*Recalling* that 17% of the world's population is without electrical power,

*Acknowledging* that most of these people are located in developing nations,

*Seeing* the benefits of electricity,

*Recognizing* the Millennium Development Goals,

*Recalling* the Sustainable Development Goals,

*Acknowledging* the World Bank's efforts to bring electricity to rural areas,

*Recalling* the success of private entities installing an electrical grid,

*Recognizing* the challenges of providing electricity to rural areas in developing nations;

1. Calls upon all developing nations and developed nations that border a developing nation to share electrical production across borders, especially when one or both nations have rural areas near the borders;
2. Recommends that nations building electrical networks have systems compatible with their neighbors so that the sharing of electricity is easier;
3. Asks that as a temporary solution rural peoples without electricity be given self-relying electrical equipment such as:
  - a. The GravityLight, a simple electrical light powered by the force of gravity acting on a weight,
  - b. Hand powered radios,
  - c. Solar panels,
  - d. Generators;
3. Requests that NGOs, such as the Alliance for Rural Electrification and Liter of Light, developed nations, and private corporations donate the equipment for the temporary solutions;

4. Urges that developed nations, the UN, NGOs, and the World Bank provide assistance in the construction of electrical grids and renewable energy technologies such as:

- a. Solar panels,
- b. Hydropower,
- c. Geothermal energy,
- d. Wind energy,
- e. Wave energy;

5. Suggests that the governments of developing nations provide electricity to rural settlements as a loan to the settlement that the residents can pay back once they have reaped the increased production and benefits of electrical power;

6. Recommends that developing nations seek outside investors and companies to build, maintain, and partially control rural electrical grids so that the country does not have to pay huge upfront costs and so that the electrical grid is installed and run in the most efficient manner possible.

## **Resolution B/1**

To the General Assembly:

Recognizing the growing need to address supply constraints and nuclear medical isotope trade in the global nuclear medical technology market,

Accounting for the increased global response to medical isotope processing limitations and reduced access through the NEA Joint Declaration on the Security of Supply of Medical Radioisotopes,

Taking into consideration the importance of developed production capacities and nuclear medical technology transportation regulations to facilitate security and access,

1. Endorses expansion of newly developing nuclear generators in development of nuclear medical isotopes for the purpose of:
  - a. Minimizing medical costs as well as increasing nuclear medical aid accessibility through supported methods such as low-enriched uranium targets,
  - b. Allowing enforcement of nuclear medical target regulations through mechanisms including but not limited to the High-level Group on the Security of Supply of Medical Radioisotopes (HLG-MR)
    - i. Which address disparaging nuclear medical isotope trade regulations and nuclear technology trade market declines;
2. Emphasizes implementation of safety and security protocols within standardized radiation and nuclear medical technology usage regulations, including but not limited to:
  - a. Evaluation of provisional rules within varying urban settings utilizing nuclear medical technology,
  - b. Review of existing nuclear medical protocols and pediatric procedures under the Harmonization of Pediatric Administered Activity Guidelines through the Nuclear Medicine Global Initiative,
    - i. Supporting the enforcement of standardised nuclear medical security guidelines through globally operating organizations such as HealthCare Global (HCG) and the World Federation of Nuclear Medicine and Biology;
3. Calls upon utilization of foundational-level nuclear medical training as well as training of local and regional nuclear medicine through continuous medical education (CME) curricula:
  - a. taking into account the increased need for facilitation of nuclear medical technology criteria and information exchange, including but not limited to:
    - i. development and maintenance of nuclear medicine websites,
    - ii. participation of radiology and medicinal technology in CMEs,
    - iii. formation of multidisciplinary hospital groups,
    - iv. convening of regular interdisciplinary meetings
  - b. supporting the development of regional training programmes to address hindrances to the feasibility of national programmes in developing economies,

- i. recognizing the utilization of Regional training courses on CME and nuclear medical technology meetings by the International Atomic Energy Agency(IAEA);
4. *Encourages* further investment into nuclear medical infrastructure capacities, equipment management, and public power supplies through measures including but not limited to:
  - a. regular replacement of radiological equipment through utilization of government support, revolving fund systems, or involved health sector medical agencies;
    - i. accounting for regular maintenance of radionuclide equipment, nuclear imaging technology, and related nuclear medical measures;
  - b. development of local nuclear medicine trained personnel for preventative measures in case of equipment malfunctions, as well as first-line equipment maintenance;
  - c. rapid implementation of telemedicine, facilitating exchange between physicians and communication systems, as well as further development into medical physics equipment,
    - i. recognizing how the limited accessibility to nuclear medical equipment, radiation protection, and proper medical equipment maintenance have contributed to growing issues with nuclear medical technology.

## Resolution B/2

1. Proposes the use of radionuclides other than Technetium-99 in diagnoses:
  - a. as it is predicted to run out as soon as 2020,
  - b. as it is produced by bombarding Molybdenum-99 with neutrons,
    - i. in which Molybdenum-99 is produced through fission with Uranium-235,
      1. using highly enriched uranium,
      2. which has a fission yield of 6%,
      3. however only 0.72% of Uranium found in nature is 235,
    - ii. which is man-made and not found naturally in nature,
  - c. including Fluorine-18,
    - i. in the form of fluorodeoxyglucose
    - ii. which has a half-life of 109.8 minutes,
    - iii. which decays only through positron emission allowing the release of a single energy type,
  - d. including Rubidium-88,
    - i. which has a half-life of 17.7 minutes,
    - ii. which has a single energy beta decay,
    - iii. for quick diagnoses rather than treatment for disease,
    - iv. which due to its short half-life, limits exposure to radiation,
  - e. including Thallium-201,
    - i. which has a half-life of 73.1 hours,
    - ii. which emits gamma radiation,
    - iii. for longer diagnoses,
    - iv. in places other than the lungs and stomach,
  - f. including Molybdenum-99,
    - i. which saves the step of manually converting it to Technetium-99,
    - ii. which has a half-life of 66.02 hours,
    - iii. for longer diagnoses;
2. Endorses the use of therapeutic radionuclides for diagnosis and treatment including:
  - a. Iodine-131,
    - i. with a half-life of 80.2 days,
    - ii. to treat thyroid cancer,
    - iii. which emits beta and gamma radiation,
  - b. Phosphorus-32,
    - i. which has a half-life of 14.29 days,
    - ii. to treat fluid leaking inside areas that have cancer,
    - iii. which goes through beta decay,
  - c. Yttrium-90,
    - i. with a half-life of 64.1 hours,

- ii. to treat liver cancer,
    - iii. which has beta decay,
  - d. Holmium-166,
    - i. which has a half-life of 26.8 hours,
    - ii. to treat cancer,
    - iii. which has beta decay,
  - e. Samarium-153,
    - i. which has a half-life of 1.93 days,
    - ii. which localizes to the bone to treat bone cancer,
    - iii. which emits beta decay and gamma radiation,
  - f. Rhenium-186,
    - i. which has a half-life of 3.7 days,
    - ii. to treat skeletal pain and disease,
    - iii. which goes through beta decay and electron capture,
  - g. Indium-111,
    - i. which has a half-life of 2.8 days,
    - ii. which is a tracer for diagnostic scintigraphic visualization;
- 3. Suggests implementing training for the use of nuclear medical technologies:
  - a. by having doctors new to the practice shadow an experienced doctor first,
  - b. through lectures that provide thorough guidelines on how to conduct a PET Scan,
    - i. including knowledge that radioactive tracers will be absorbed by the body by injection into an arm vein, a drinkable solution, or gas inhalation,
    - ii. by waiting the correct amount of time after injection, swallowing, or inhalation for the body to fully absorb the radionuclides which is approximately 60 minutes,
    - iii. by asking the patient to minimize their movement and speech during absorption,
  - c. through the creation of a set of restrictions on those who can undergo diagnoses or treatment in terms of safety including,
    - i. women who think they are pregnant, are pregnant, or are breastfeeding to protect the baby from radioactivity,
    - ii. young children,
    - iii. those allergic to radionuclides or certain isotopes,
    - iv. giving a warning to patients with prosthetics that artifacts may occur due to the metal in the prosthetic;
- 4. Stresses the need for education and guidelines on the proper disposal of radioactive waste:
  - a. of which most of the nuclear waste is Low Level Waste (LLW),

- i. which at the A level includes contaminated paper, clothing, rags, mops, equipment, tools, and depleted uranium,
    - ii. which at the B and C level includes filters, resins, irradiated hardware with activation products, and radioisotopes with longer half-lives,
  - b. by requiring doctors to write down the materials they are disposing of, the date, and what they are doing with these materials,
  - c. by having doctors dispose of materials in changing pairs so that it will be less likely for them to incorrectly follow procedure,
  - d. by ensuring that all radioactive waste is disposed at a nuclear disposal waste site similar to normal waste sites,
  - e. through informing doctors that they do not need extra shielding from the materials so they feel safer when disposing of the materials,
  - f. by holding doctors who incorrectly dispose of materials accountable,
    - i. through salary cuts,
    - ii. through demotions on job positions,
    - iii. if severe enough being fired,
  - g. through urging all countries to pass laws making it mandatory for hospitals and nuclear energy facilities to follow the guidelines proposed by the IAEA on nuclear waste disposal,
  - h. through the implementation of annual conferences put on by the IAEA on nuclear waste disposal;
- 5. Supports the actions of the IAEA in:
  - a. their Technical Cooperation (TC),
    - i. which provides expertise for nuclear technology to help sustainable socioeconomic development,
    - ii. which has projects in Africa, Asia and the Pacific, Europe, and Latin America and the Caribbean,
    - iii. which offers training workshops and courses on how to use nuclear technology,
    - iv. which gives expert assistance through on the spot in country training by a recognized expert,
    - v. which gives training fellowships to prepare local personnel to apply nuclear technologies in the national sector and sends fellows abroad for comprehensive training in an institution,
    - vi. which offers conferences, symposia, and seminars to endorse the exchange of ideas between experts and specialists from a variety of countries,
    - vii. by providing equipment and materials and sending an expert to train the staff in the operational and technical aspects of the technology,
  - b. their Quality Management System,



- i. that provides managerial commitment to quality,
  - ii. has procedures for documenting different processes in labs including,
    - 1. operation,
    - 2. proficiency requirements,
    - 3. specific technical processes that detail procedures for monitoring individuals and the workplace,
  - iii. has documents for daily work including,
    - 1. instructions for measurement methods,
    - 2. procedures,
  - iv. collects documents on,
    - 1. estimations for uncertainties of results,
    - 2. specific results;
- 6. Recommends funding for nuclear medical technology through private investments and public-private partnerships in which:
  - a. governments will work with private companies,
  - b. governments and private companies will benefit,
    - i. from the revenue produced,
    - ii. because governments receive help and funding for nuclear technologies,
    - iii. because private companies make a profit through the use of this technology,
  - c. multiple private companies will be informed of the potential profits of nuclear medical technology and how it will greatly improve diagnoses and treatment of certain diseases
  - d. it will be a competitive process,
    - i. allowing for multiple companies to invest,
    - ii. where there will be multiple bid windows,
    - iii. in which markets are allowed to find a clearing price,
  - e. there will be increased risk sharing and transfer which creates greater incentive for private sectors to invest in long-term designs and more technologies,
  - f. the value of public assets will be maintained,
  - g. payment will happen upon delivery;
- 7. Suggests using alternatives to nuclear medical technology as well:
  - a. to create more options for patients,
  - b. in case nuclear medicine no longer becomes feasible,
  - c. for diagnosis technology including,
    - i. Computerized Tomography (CT),
      - 1. which combines x-ray images from multiple angles,
      - 2. which uses a computer processing system to display cross-section images or slices of soft tissues, bones, or blood vessels,

3. which provides more detail than a plain x-ray,
  4. perfusion which can determine whether cancer cells have spread into the bloodstream,
  5. which can determine a stage of cancer,
- ii. Magnetic Resonance Imaging (MRI),
    1. which uses a large magnet and radio waves to observe structures in the body,
    2. which can diagnose tumors and other physical disorders,
    3. which uses contrast dye to observe brain tumors,
    4. which is ideal for observing the brain and spinal cord,
    5. which can identify if the tumor is benign or malignant,
  - iii. Ultrasound or Sonography,
    1. which uses sound waves to create images of organs and structures most commonly between 2-18 megahertz of sound,
    2. which can identify problems in the abdomen, kidney, heart, or liver,
    3. which can help doctors with biopsies,
    4. which is very safe and requires no preparation for the patient,
    5. which usually only takes 15-45 minutes which is much shorter than a PET scan,
- d. for treating diseases especially cancer including,
    - i. chemotherapy,
      1. which uses anti-cancer drugs,
      2. which targets the different phases of the cell cycle to stop the reproduction of cancer cells,
    - ii. hormone therapy,
      1. which uses sex hormones or hormone-like drugs to limit and slow the growth of breast, prostate, and endometrial cancer,
    - iii. immunotherapy,
      1. which distributes treatments to help immune systems recognize and attack cancer cells,
    - iv. stem cell transplants,
      1. which uses healthy cells to replace unhealthy ones that play a part in the formation of blood,
      2. which donors can be a relative or matched unrelated donors,
      3. which can cause the graft versus cancer effect which helps to kill cancer cells.

### **Resolution B/3**

To the Economic and Social Council,

*Emphasizing* the need to ensure safe use of nuclear technologies for medical purposes only,

*Observing* the previously successful attempts of nuclear medical treatments,

*Recognizing*, the need to aid countries in reducing nuclear waste,

*Noting with deep concern*, the gradual decline of radioisotopes and radionuclides,

1. Proposes the expansion of the National Institute for Nuclear Medicine and Allied Sciences (NINMAS)

- a. Publicly-funded nuclear medicine center in Bangladesh established in 1996
- b. carries out more than 60,000 nuclear medicine procedures each year in the areas of:
  - i. Oncology
  - ii. Cardiology
  - iii. Nephrology
  - iv. Cerebral studies
- c. provides therapeutic services for thyroid conditions
- d. has IAEA approved officials rigorously train workers and certify them to use nuclear medicines

2. Suggests the manufacturing of glass products out of nuclear waste to reduce nuclear waste contamination

- a. An IFL science recently proved that creating glass products from nuclear waste will reduce the volume of the waste making it less dangerous which will help
  - i. Aid in development of nuclear medical centers in countries not using nuclear energy
  - ii. reduce the cost it takes for disposal
- b. Reduces 80-90% of waste

3. Advocates further research and implementation of the CycloMed 99 consortium
  - a. Uses cyclotrons to produce medical radionuclides
    - i. cyclotrons are capable of accelerating protons, deuterons,  $^3\text{He}^{+2}$  and  $\alpha$ -particles to produce PET radionuclides
  - b. Further research and experimentation must be conducted before releasing this technology for medical use
  
4. Calls upon the implementation of an international legislation on nuclear medical technologies
  - a. To ensure safe usage of nuclear technologies
  - b. can be written as a cooperative by the IAEA and the CSTD to cover all aspects of the transfer to nuclear medical treatments
  - c. Can be looked upon by the International Law Commission to ensure that all aspects have been covered

## **Resolution B/4**

General Assembly,

*Seeking* better communication between the professionals and the public that is needed for the global acceptance of nuclear technology,

*Mindful* of the rapid growth of certain nuclear medicine studies that could cause an increased chance of having radiation-related cancer in the future,

*Concerned* about uncertain or unknown radiation risks that is outweighed by the benefits,

*Realizing* that the individual justification requires an explanation of the benefits and the risks of the investigation as part of the informed consent process,

*Stressing* the importance of the need for guidelines for the most appropriate procedures and appropriate examinations,

*Aware* of the level of inappropriate usage of nuclear medicines that increases risk to the body,

*Desiring* patients to learn about the risks of having too many nuclear medical treatments,

*Welcoming* the clinical audit of justification in radiology and nuclear medicine to have an increasing improvement of activities,

*Acknowledging* that world citizens have the right to a healthy and safe life and to have access to nuclear medicine when necessary,

1. Declares that all people of the world have the right to have access to medical treatment, including nuclear medical technology
  - a. Provide testimonials of true situations of current patients who require nuclear medicine for survival.
    - i. Patients who have been diagnosed with life threatening diseases should have the opportunity for the newest technological advanced medical care.
    - ii. Patients who have tried other treatments or mechanisms for cure should have access to nuclear medical treatment if current medical opinions so state.
  - b. Provide data on positive impact and success of nuclear medicine
    - i. Gather research data on success of nuclear medicine from hospitals who are able to provide such treatments
2. Demands that medical infrastructures be updated or created so that nuclear medical technology can be accommodated.
  - a. Locate and prioritize places where nuclear medicine technology is needed.
    - i. Likely places include highly populated areas that do not have no or little nuclear medicine technology.
      1. These areas may not have nuclear medicine due to budget constraints, therefore some capital resources will be provided.
    - ii. Communities where nuclear medicine is not easily accessible due to distant locations from cities or other areas will be considered.
    - iii. Due to the high expense of providing nuclear medicine technology,

places will be carefully chosen based on their immediate needs.

- b. Dedicate capital resources taken from the Ministry of Health and Social Protection to contribute to small infrastructure projects.
  - i. Columbia will increase the budget of the Ministry of Health and Social Protection for this purpose.
  - ii. Columbia expects to take an active part in the construction of medical infrastructure to ensure that its funds are used accordingly.
- c. Encourage other nations to provide capital resources.
- d. Tap into world charity organizations to fulfill expenses.
  - i. Reach out to charity organizations and explain the necessity of nuclear medicine
  - ii. Provide testimonials, data and success rates to encourage participation
- e. Model new infrastructure from other successful world-class nuclear medicine treatment centers.
  - i. Determine if facilities have capability to store radioactive materials, including liquids.
    - 1. Create safe spaces to store radioactive materials.
    - 2. Create safe places to dispose of radioactive waste.
  - ii. Determine if facilities require radiation treatment equipment and Machinery.
    - 1. Ensure that there is adequate space for radiation equipment.
    - 2. Ensure that radiation equipment can be safely held within the facility with no exposure to environment and outside community.
    - 3. Ensure that radiation equipment can be placed in a cooled space.
    - 4. Ensure that radioactive waste from equipment can be disposed of properly.

3. Considers it desirable to have health care professionals who are competent and knowledgeable in the treatment, use and care of nuclear medicine.

- a. Columbia has its own nuclear medicine facilities and can provide human resources to accommodate training and education for potential communities.
- b. Other UN states and nations who have qualified and experienced medical professionals are strongly encouraged to participate.
- c. Potential communities for nuclear medicine facilities may have health care professionals who are already trained and can participate, and other interested parties can also be trained in nuclear medicine technology.
- d. Ensure that the health and safety of all health care professionals are the priority of potential facilities.
  - i. Health care workers shall be provided personal protective equipment while working with radioactive materials.

- ii. Health care workers shall wear dosimeters to measure their exposure to radiation.
- iii. Health care workers shall be trained on the hazards of radiation.
- iv. Health care workers shall be notified of any leaks or exposures to radioactive materials.

4. Keenly aware that nuclear medicine requires the use of radioactive materials, and thus determines along with the UN which places are thoughtful and capable of handling nuclear medicine safely.

- i. Ensure that nuclear medicine is used only for medical treatment purposes.
- ii. Be aware of imports of excessive radioactive materials by observing import and export logs.
- iii. Conduct inspections of radioactive materials to ensure that they are used safely and purposely.
  - 1. Include logs of use
    - a. Including length of time
    - b. Including dates
  - 2. Contact information and diagnosis of patients who were treated.
  - 3. Name(s) of treating physician and / or health care professionals.
  - 4. Account for the amount of radioactive materials used and disposed.

5. Deeply regrets that not all communities are capable and will not have local access to nuclear medicine technology, however, proposes that patients who require and desire to have such treatment will still have immediate access by travelling to nuclear medicine facilities either within their country's borders or by going to outside countries.

- a. If travelling to another country is the only option, an emergency fast track process for obtaining visas should be available so that nuclear medical treatment can be immediately accessed without delay from government entities. Countries who have nuclear medicine technological facilities are highly encouraged to add an exemption to their visa applications for the sole purpose of medical treatment.
- b. Travel within a country's boundaries will require a means of ambulatory transportation.
  - i. Colombia will provide its own citizens travel to and from nuclear medical treatment centers.
  - ii. Columbia asks that other UN states do the same.
- c. Costs of travel and treatment can be supplemented by a charity fund created by the UN states and nations who are asked to participate.

d. Charity organizations can provide further relief of expenses incurred by affected patients.



## **Resolution B/5**

To the General Assembly,

*Deeply concerned* by the lack of enforcement of radiopharmaceutical usage regulations,

*Taking into consideration* the high risk of contamination resulting from inadequate disposal of hazardous waste from nuclear facilities,

*Recognizing* the shortage and limited supply of radioisotopes/radionuclides currently in high demand,

1. Supports the creation of extensive prioritization lists for nuclear medical facilities in order to determine those most in need of the resources,
  - A. If a condition can be treated using an alternative method of treatment, the patient should be lowered on the list,
  - B. Patients with limited life expectancy after the use of nuclear medicine should be lowered on the list,
  - C. Patients who refuse to take certain medications and are uncooperative should be viewed as non-compliant and removed from priority list,
  - D. Should be enforced and implemented through the development of priority committees, that would determine those who shall and shall not receive designated treatment
2. Encourages further research on alternative methods of treatment for illnesses to limit the use of radioisotopes,
  - A. Through the National Nuclear Security Administration's research programs,
  - B. If an alternative method is identified, that new method should then be considered the primary source of treatment for patients
3. Recommends that countries currently in possession of nuclear medical facilities agree to the use of low enriched uranium instead of high enriched uranium, because:
  - A. High enriched uranium increases the risk of nuclear proliferation and jeopardizes international security due to it easily being able to be used to make a bomb,
  - B. The supply of high enriched uranium is limited and therefore should be used scarcely, to avoid the exhaustion of resources
4. Emphasizes the importance of establishing a National Medical Waste Management plan, in coordination with the World Health Organizations (WHO), in order to:
  - A. Create a more reliable, environmentally safe method of disposal of waste from nuclear medical facilities through research,
  - B. Avoid the spread and leakage of radioactive materials into the surrounding communities, water supplies, and other sources of prominent resources,
  - C. Establish an adequate way of enforcing these plans and regulations on an international level
5. Endorses the proper management of nuclear medical facilities, including:

- A. The meticulous keeping of financial records, as well as patient treatment records,
- B. The extensive of training of all staff at nuclear medical facilities,
- C. The strict enforcement of international waste management regulations, designated and established by the UN,
- D. The consistent overview of nuclear medicine and radioisotopes distribution to prevent unbalanced, inefficient usage.