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UNITED NATIONS YOUTH AND STUDENT ASSOCIATION OF AUSTRIA

GRAZ - INNSBRUCK - KLAGENFURT - LINZ - SALZBURG - VIENNA



VIENNA INTERNATIONAL MODEL UNITED NATIONS
01 - 05 August 2010

Preparation Paper

International Atomic Energy Agency

**“Atoms for Food: Against the Growing Food Insecurity
in Light of the Climate Change”**

Food Security and climate change

Food Security is defined as “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”. So malnutrition is an ever-growing problem in the developing countries and out of it the aim is to establish concrete steps against the food insecurity. Therefore it is helpful to be geared to the three pillars of Food security:

- Food availability
- Food access
- Food use

Food security is a major goal if a country and its inhabitants are healthy. Hunger and Starvation throughout the population shows that the country isn't able to feed its civil society. Food security is harmed by insects, missing water support, drought and heat in the particular regions. The technology becomes better and better, many new techniques have been invented to secure the food providing. The biggest opponent is at all the climate change. The increasing of the imbalance between sun and rain, or the temperature that becomes more and more high makes the providing of Food security much heavier. The current warming trend is expected to cause extinctions. Numerous plant and animal species, already weakened by pollution and loss of habitat, are not expected to survive the next 100 years. Human beings, while not threatened in this way, are likely to face mounting difficulties. Recent severe storms, floods and droughts, for example, appear to show that computer models predicting more frequent "extreme weather events" are on target. The average sea level rose by 10 to 20 cm during the 20th century, and an additional increase of 18 to 59 cm is expected by the year 2100. (Higher temperatures cause ocean volume to expand, and melting glaciers and ice caps add more water.) If the higher end of that scale is reached, the sea could overflow the heavily populated coastlines of such countries as Bangladesh, cause the disappearance of some nations entirely (such as the island state of the Maldives), foul freshwater supplies for billions of people, and spur mass migrations. Agricultural yields are expected to drop in most tropical and sub-tropical regions - and in temperate regions too - if the temperature increase is more than a few degrees C. Drying of continental interiors, such as central Asia, the African Sahel, and the Great Plains of the United States, is also forecast. These changes could cause, at a minimum, disruptions in land use and food supply. And the range of diseases such as malaria may expand.

The AFO and the IAEA name 7 challenges for food security

1 Feeding More People: The world's population is predicted to increase by another 3 billion people by 2050, surpassing 9 billion.

2 Conserving Lands and Water: Opportunities for expanding the land area for growing crops or keeping productive livestock are becoming increasingly limited. So are the possibilities for tapping renewable fresh water resources. Widespread land degradation is causing further loss and declining soil fertility.

3 Achieving Higher Yields and Productivity: Attempts to increase crop and livestock productivity in many developing countries is hampered by low and declining soil fertility caused by widespread land degradation. Additionally, harsh local conditions - such as drought, salinity, frost and flooding - underscore the need for expanding the availability of plant varieties that can be productively grown in such environments.

4 Protecting Animals and Crops: Animal and plant diseases - and pests that can ravage harvests - exact heavy tolls on productivity, trade and livelihoods. At the same time, the increased use of agrochemicals and numerous outbreaks of food-borne diseases raise concerns about both environmental and food safety.

5 Adapting to Climate Changes: The resilience of food production systems to climate change must be increased.

6 Balancing Food and Fuel Needs: The balance between crops grown for food and those used to produce biofuel requires better management.

7 Responding to Higher Costs: More attention is needed to deal with soaring prices of food and agricultural inputs which disproportionately affect the poor.

The Joint FAO/IAEA Programme

The Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture assists Member Countries of the FAO (Food and Agriculture Organization of the United Nations) and the IAEA (International Atomic Energy Agency) to use nuclear techniques and related biotechnologies for developing improved strategies for sustainable food security.

The Division is composed of the FAO Agriculture and Consumer Protection Department and the IAEA Department of Science and Application, which also is in charge of the FAO/IAEA Agriculture and Biotechnology Laboratory of the Agency's Laboratories Seibersdorf.

There are five subjects on which the Programme focuses: Soil and Water Management & Crop Nutrition, Plant Breeding and Genetics, Insect Pest Control, Livestock and Food and Environmental Protection. It does this by:

- **Coordinating and supporting research:** The coordination is very important and as such highly complicated. There are approximately 600 research institutions and experimental stations in all FAO and IAEA Member Countries. To solve practical problems of economic significance for developing countries these Institutions and Stations cooperate with each other in 40 Research Projects. Institutions in developing countries are normally given Research Contracts with nominal financial support, whereas those in more developed countries participate through Research Agreements with financial support only for attendance at Research Co-ordination Meetings. These projects normally last for five years and the results are published.
- **Providing technical and advisory services:** In addition of the researching Projects, there are more than 200 national and regional Projects on a base of technical cooperation too. The Programme is responsible for providing their scientific and technical support. As the function of these projects is depended on the there working stuff, the Division is also responsible for Interregional and regional Training Courses linked to the recipient countries for the purpose of providing equipment, expert advice and training. The sourcing comes from the IAEA's Technical Co-operation Fund and the FAO's Technical Co-operation Programme as from trust funds provided by donor countries and international funding agencies.
- **Providing laboratory support and training:** As above mentioned the IAEA has an own laboratory situated at Seibersdorf, which is 35 km south of Vienna in Austria. The Joint FAO/IAEA Division has there the FAO/IAEA Agriculture and Biotechnology Laboratories. The research there is essential for the Programme, because the laboratory specializes in research, development and transfer of nuclear methods in soil science, plant breeding, animal production and health, entomology and food contaminants control. From this initial point, where the scientists and experts are working together and crossing each field of their work to improve their analysis, all information is divided. Furthermore the laboratory provides a broad range of specialized services and training of scientists through individual fellowships and inter-regional and group training courses in various disciplines. It also provides guidance on the introduction of analytical quality control and assurance into counterpart laboratories, and training in the maintenance of laboratory equipment and instruments.
- **Collecting, analyzing and disseminating information:** The Programme covers the technical equipment and the knowledge to use it and coordinates the Projects so far, but to establish new projects or control and compare the results, there has to be an Information Service. These include conferences, symposia, seminars and advisory group panels, and the publication of technical and public information documents that arise from these meeting as well as from Co-ordinated Research Projects and Technical Co-operation Projects directly from the field. The information is collected, analyzed and stored in different computer databases like the "Officially Released Mutant Varieties – the FAO/IAEA Database. The contact between the Member Countries is also given by newsletters and periodic reviews.

So the Agency supports the member states and provides them with technical and advisory services, laboratory support and training and a variety of Information Services.

Action requires the research, expertise, and experience of the FAO/IAEA partnership - and other effective alliances worldwide - to help countries achieve and sustain higher levels of food security for their people.

Fields of the Programme:

Soil and Water Management & Crop Nutrition

The Soil and Water Management and Crop Nutrition Subprogramme assists IAEA and FAO Member States to improve their agricultural productivity and food security by developing better soil and water management technologies and practices through the use of isotopic, nuclear and related techniques.

The Subprogramme also focuses on the development and transfer of soil and water management technologies. It adapts and mitigates the impact of climate change on soil quality and land productivity for sustainable agriculture. It also reduces greenhouse gas emissions and enhances the conservation of external inputs (e.g., fertilisers) as well as land and water resources, thus improving agricultural sustainability, protecting the environment and increasing farmers' livelihood.

Plant Breeding and Genetics

The Programme assists FAO and IAEA Member States in the implementation of modern and competitive plant breeding programmes using radiation induced mutation and efficiency enhancing biotechnologies such as in vitro techniques, molecular markers and genomics.

All efforts focus on improving yield and quality by enhancing diversification and adaptability of crops for domestic use as well as for export markets hence contributing to income generation and socio-economic development.

Animal Production and Health

The improvement of the livestock productivity is very important for developing countries. So the main aim of this field is using the locally available feed resources efficiently and managing practices and breeding programmes for upgraded animals adequately.

Applying diagnostic tools and prophylactic measures for the control and prevention of animal diseases are also essential.

Support and guidance is provided in formulating and implementing activities that underpin Member States' national, regional and global livestock development objectives in strategic, applied and adaptive research, technology transfer, capacity building, policy advice and information management.

Insect Pest Control

The Joint FAO/IAEA assists all Member States in the implementation of environmentally-friendly and sustainable methods to control major insect pests of crops and veterinary and human importance through strategic and applied research, technology transfer, capacity building, policy advice, and information management.

Food and Environmental Protection

The Food and Environmental Protection Section of the Joint Programme and its associated Agrochemicals Unit of the FAO/IAEA Agricultural and Biotechnology Laboratory in Seibersdorf provide assistance and support to countries in their efforts to ensure the safety and quality of food and agricultural commodities while at the same time facilitating international trade.

The activities primarily focus on strengthening Member State capacities for the application of international standards on irradiation as well as on the use of nuclear and related analytical technologies and capacity building in the management of food and environmental hazards. These efforts are based on a coordinated and comprehensive "farm to fork" approach to food production systems that ensure the application of good agricultural practices throughout the food chain.

Projects in Africa

There are in any of the 5 above mentioned fields a high number of projects in Africa. Like in Tanzania the enhancing of crop productivity through radiation. In this particular project the aim was to increase the crop breeding capacity by developing radiation-induced mutations, which are immune against the rice yellow mottle virus (RYMV). The project started 2005, released already two new mutant rice varieties.

Small Scale Irrigation Technologies (SSITs)

In 18 African countries, example given Kenya, the Joint FAO/IAEA Programme is testing and introducing a new technology with the aim of improve the income and livelihood of small-scale farmers by developing irrigation systems. The Division works in collaboration with national institutes, like the Kenyan Agricultural Research Institute (KARI).

Introduction of the board

As a member of the Board, I want to introduce myself. My name is Fruzsina Földes and I am currently studying Political Science at the University of Vienna. For my future I like to specialize in environmental issues and energy politics, which is why I am very interested in the topic of this Committee. This MUN experience is going to be my third VIMUN and my fourth Model United Nations and my hope is, to have high-profiled and fruitful discussions on the matter.

My name is Christopher Lehner and I am 24 years old and i own the position of the co-chair in our committee. I am currently studying Political Science at the University of Vienna and I focus on international politics and relations, a topic that fits the MUN experiences very well. This is my second participation at the VIMUN and I am sure that we will have a pleasant and constructive time together.

Basic Information for the Delegates

Our topic is not that controversial because everybody wants to increase food security and everybody wants to push back the effects of climate change. In our committee we try to find out, through fruitful discussion, which of the methods and projects the IAEA/FAO have developed are useful and the best to reach the goals as soon as possible. Please use the helpful links we are giving to you to inform yourself about the style the two partners are working and try to figure out how the methods and projects are working. If you want to, you can also think about new ideas for the program to spend money in. Another aspect you should think about is how to make the atoms for food program more popular, so additional support can be made accessible.

We strongly advise you to read through the „Rules of Procedure“ carefully .It will be much easier for you and for us when everyone knows the rules. We remind you that the Rules of Procedure are not topic of any discussion. On the VIMUN homepage you find useful files containing information to resolution writing and phrases for the delegates.

Mandatory readings:

<http://www-naweb.iaea.org/nafa/index.html>
<http://www.iaea.org/Publications/Reports/Anrep2008/food.pdf>
<http://www.iaea.org/NewsCenter/Focus/Climatechange/index.html>

<http://www.iaea.org/Publications/Booklets/Fao/fao1008.pdf>
<http://www-naweb.iaea.org/nafa/fep/index.html>
<http://www-naweb.iaea.org/nafa/ipc/index.html>
<http://www-naweb.iaea.org/nafa/pbg/index.html>
<http://www-naweb.iaea.org/nafa/pbg/index.html>
<http://www-naweb.iaea.org/nafa/swmn/index.html>
<http://www-naweb.iaea.org/nafa/news/crop-productivity-africa.html>
<http://www-naweb.iaea.org/nafa/swmn/field-projects-swmcn.html>

Useful links:

[http://www.reliefweb.int/rw/lib.nsf/db900sid/PANA-7KADCQ/\\$file/fao_may2008.pdf?openelement](http://www.reliefweb.int/rw/lib.nsf/db900sid/PANA-7KADCQ/$file/fao_may2008.pdf?openelement)
http://www.fao.org/ag/portal/age-index/en/?no_cache=1
<http://www-naweb.iaea.org/nafa/fep/topic-food-safety.html>
<http://www.fao.org/>
<http://www.nei.org/resourcesandstats/publicationsandmedia/insight/insightjanuary2009/atoms-for-food-program-gives-millions-a-better-future>
<http://www.ers.usda.gov/publications/aib765/aib765-8.pdf>