UNIVERSITY OF TORONTO MODEL UNITED NATIONS 2013

The World Health Organisation

Honourable delegates,

Welcome to the committee of the World Health Organisation at UTMUN 2013. My name is Lena Faust and I am looking forward to working with you during the conference as the director of this committee. I am currently a first year student studying life sciences at the University of Toronto and this will be my 7th MUN conference. I am personally very interested in the global health issues dealt with by the WHO and the current international endeavours to minimize both human health risks and environmental damage. I therefore hope that the topics to be debated at the conference will captivate your interests and inspire fruitful and relevant discussions with your fellow delegates, as they are indeed significant global matters that deserve our attention.

Whether discussing regulations on oceanic pollution, the production of genetically modified organisms or the supply of foreign aid to a country at war, it is your responsibility as delegates to argue according to the policies of the country you are representing. However, while doing so, you are encouraged to cooperate with other member states where possible, whilst still maintaining academic integrity and authenticity in order to support the process of coming to a realistic agreement on the topics and constructively debating or modifying proposed resolutions.

This background guide is intended to assist you in your research on the three topics to be debated. It includes a summary of each topic, as well as the current global developments, past international efforts and possible future measures associated with each topic. Moreover, it contains a brief description of the position of some relevant member states on each issue, as well as links that may be useful for you to look at in more detail while conducting your research. However, in order to contribute effectively to the debate, you will need to do more detailed research on the policies specific to your country regarding the issues described in the background guide.

I hope that both preparing for and attending the upcoming conference proves to be an enjoyable as well as interesting and enriching experience for all of you.

Should you have any questions beforehand, feel free to let me know!

Kind regards,

Lena Faust
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Director of the World Health Organisation

TOPIC ONE:
Genetically Modified Organisms (GMOs)

Summary

The genetic modification of organisms is a technique by which either undesirable genes are deleted from an organism's DNA sequence, or favourable genes are spliced from one organism and inserted into another. This technique has had a variety of applications, and is being implemented not only in agriculture and food production in order to produce higher crop yields, but also in animals, in order to increase their appeal as pets. However, as the WHO concerns itself with issues of international and public health, this background guide will primarily focus on the benefits, drawbacks and controversies associated with genetically modified foods and their implications for human health and the environment. Such implications include the potential danger of gene transfer from genetically modified foods to gastrointestinal microflora, the possible toxic or allergenic affects of gene transfer and the loss of biodiversity. Apart from health and environmental concerns, the implementation of genetic modification techniques also raises ethical issues as to whether or not this technology constitutes an interference with natural biological processes.

In this regard, it is important to raise awareness of any potential health risks associated with the consumption and production of GMOs, and to establish international standards and regulations for member states to adhere to. However, it should also be recognized that genetic engineering allows the large-scale production of high-quality crops and foods, and therefore contributes to meeting the increasing needs of the world's growing population. It is therefore also of interest to eliminate any unwarranted fears associated with GMOs.

Current Applications of GM Technology

Various governments around the world have approved of the production of certain types of GM crops, such as soybeans, maize, cotton, rice and tomatoes. In 2001, GM crops accounted for 52.6 million hectares of global agricultural area, the majority of which was for soybean production.

Genetically modified crops are usually made herbicide-tolerant and virus-resistant so as to increase crop yield. By the genetic modification of crops with the insecticidal toxin derived from *Bacillus thuringensis* bacteria, most GM crops also acquire insect-resistant characteristics.

Human Health and Environmental Implications

Although GM technology would facilitate immense developments with regards to increasing the nutritional content of foods as well as increasing food production and minimizing losses due to low crop yields, potential health risks are still a common concern. These risks include the possible allergenic or toxic affects of the long-term consumption of GM foods as well as the dangers associated with the transfer of genes to gastrointestinal micro flora as a result of GM food consumption.

As mentioned, the environmental implications of GM technology include the danger of gene transfer through cross pollination, for example, if modified genes are transferred to weeds, these would acquire resistant characteristics as well, thus leading to the uncontrollable spread of undesirable weeds.

The loss of biodiversity is an additional environmental concern, since natural genetic drift (the random change in the frequency of alleles of a gene in a population) would decrease as a result of the implementation of GM technology, since humans are artificially selecting favourable genes, leading to a decrease in the incidence of other genotypes.

Past International Efforts in Terms of Regulating GMO use

This uncertainty associated with the production of GMOs undoubtedly calls for the establishment of international regulatory measures regarding GM food safety, however, as of yet, no such measures are in place. Nevertheless, various international organisations are currently developing assessment protocols for GM foods. One such protocol is the Cartagena Protocol on Bio-safety, which entered into force in September of 2003, with the purpose of minimizing the threat that genetic modification poses to biodiversity, among other aims.

Firstly, the protocol states that the precautionary principle must be applied in all circumstances when dealing with GMOs. This principle outlines that in a situation where there is no current scientific evidence that an action is safe, it is the responsibility of those carrying out the action to prove that has no harmful consequences. In the Cartagena Protocol, this concept is applied to various aspects of GMOs, such as the safe transport and handling of GMOs as well as their correct packaging and detailed identification. Special emphasis is placed on the transport of GMOs across country borders, and the establishment of a Bio-safety Clearing-House, a platform of exchange of environmental, technical and scientific data regarding the safety of GMO use in terms of both health and environmental risks. As of this year, the European Union and 163 countries have either consented to or ratified the protocol, including Germany, France, the United Kingdom, China, India and Japan.

A recent meeting of the Cartagena Protocol Governing Body held in India on October 6th 2012 was called for the purpose of clarifying socio-economic considerations regarding LMOs (living modified organisms). In some countries, the prevalent biodiversity is of great value to indigenous populations, and as such the consequences of the implementation of GM technology or the import of GMOs must be carefully considered. For this reason, delegates at the meeting came to an agreement on further measures of risk assessment regarding LMOs as well as establishing appropriate response guidelines in the case of the unintentional introduction of LMOs across national borders.

Notable Committee Members

China:

China ratified the Cartagena Protocol in September 2005, and has since made commitments to increasing bio-safety and ameliorating its management of cross-border GMO transport.

United States:

The United States has not signed or ratified the Cartagena Protocol, and has strongly advocated the use of GM technology and the marketing of GM crops. In 2003, through the World Trade Organisation (WTO), the US criticised the efforts of the European Union in establishing restrictions on the trade of GMOs. This opposition could have been a factor in discouraging developing nations from supporting restrictive measures regarding GMOs. Notably however, two thirds of the signatories of the Cartagena Protocol are indeed developing nations, which demonstrates their recognition of the need to regulate the production, trade, transport and use of GMOs in order to protect biodiversity, the environment, and possibly, human health.

India:

India is among the world's largest GMO producers, but has recently encountered problems with the growing of GM crops. Monsanto, a leading GM company has recently had its selling license revoked by the state of Maharashtra, following the recognition of a possible link between GM cotton seeds and the rising suicide rates among farmers in the region. The high costs of the seeds and their failure to produce the expected crop yield has left farmers heavily indebted, leading to an estimated number of 8,200 suicides in state of Vidarbah alone in the past ten years.

Fortunately however, India is actively involved in research into the viability of GMOs, having ratified the Cartagena Protocol and set up the Indian GMO Research

Information System (IGMORIS) to further investigate the impacts of the production and use of GMOs in India. Moreover, the Indian government has passed a law making it mandatory for Indian GM companies to label their products as containing genetically modified ingredients, due to enter into effect in January 2013.

Canada:

Being the third largest producer of GM crops in the world, researchers are conducting detailed studies of the effects of GM technology on the environment as well as human health. Environment Canada for example, is leading research projects concerned with monitoring the survival of transgenes in water bodies as well as the incidences of horizontal gene transfer. Other current studies also involve the implementation of genomics in order to analyse the function of a particular organism within an ecosystem and thus identify possible ecological changes as a result of the presence of GMOs.

Ireland:

The implementation of GM technology remains a controversial issue in Ireland, particularly since February of this year, following the Irish Government's Agriculture and Food Development Authority's (Teagasc's) request to begin an experiment involving the genetic modification of potato plants.

On one hand this experiment could yield significant results regarding a solution to potato blight, which would save the potato industry €15 million annually, eliminating the need to implement chemical treatments. However, others fear that turning to GM technology would jeopardise Ireland's reputation as a GM-free zone, as well as having ethical and cultural implications due to the cultural significance of potatoes for Ireland.

Possible Future Measures

Evidently, the international community still lacks some significant scientific data regarding the specific environmental and health risks associated with the production and consumption of GM foods, particularly in the long term. A more in-depth and comprehensive understanding of this must be gained in order to allow consumers to make informed decisions regarding the consumption of GM foods, and governments to impose appropriate limitations on the import or export of such goods. As this would ensure the safe consumption and responsible marketing of GM foods, therefore protecting public health as well as the environment, it is in the interest of this committee to engage in constructive and cooperative debate geared towards achieving

international consensus on research, trade regulations, and production standards with regards to GM foods.

Relevant Links

- The official text of the Cartagena Protocol as released by the UN:
http://bch.cbd.int/protocol/text/

- A factsheet by the WHO containing useful background information of GMOs:
http://www.who.int/foodsafety/publications/biotech/20questions/en/

- The general WHO website can also be consulted for articles on recent developments relevant to the implementation of GM technology in your specific country, other countries in the committee and various non-governmental organisations such as the Food and Agriculture Organisation (FAO):
http://www.who.int/en/

Topic 2: War and Health

Summary

War refers to an organized and armed conflict between two or more countries, while health can be broadly defined as the complete physical, mental and social well-being of citizens. War causes injury and death directly, tearing apart families and maiming the psychological and physical health of affected individuals. War also destroys the infrastructure essential to fulfilling the basic needs of citizens, such as sanitation systems, hospitals and shelters. Consequently, armed conflict can adversely impact both the health and healthcare systems of the countries involved. One of the significant issues regarding war and health is the allocation of resources during war-time. War-torn countries also need to focus on reconstruction, thus diverting their already scarce resources away from the health sector. Post-war outflow of capital from war-torn countries complicate matters by reducing the country's ability to recuperate. Though by no means comprehensive, this background guide will attempt to address a few key issues regarding health and war.

Impact of War on Physical and Mental Health

The direct impact on the physical health of a nation's citizens is apparent; armed conflict, being a violent means of conflict, causes increased mortality and injury rates. Many of these chronic injuries leave people scarred for life. For example, during the civil war in Ethiopia, at least 40,000 individuals lost one or more limbs during the war. However, these injuries and mortalities are not limited to those who participate in the conflict; an increasing number of those maimed have been non-combatants. Some non-combatants have been specifically targeted, while others have been innocent civilians caught in the cross-fire of war. In the 20th century, an estimated 191 million people died directly or indirectly as a result of war, with more than half being civilians.

Armed conflict can also indirectly affect the physical health of a nation's citizens. The destruction of essential public infrastructure – such as medical care facilities, transportation systems, food supplies and utilities – has far-reaching consequences for war-torn countries. One of the most essential infrastructures to society is water and sanitation services. Such services are key to preventing health problems such as communicable diseases, malnutrition, and gastrointestinal infections. Lack of such essential services can cause death and long-term health problems among civilians. An example of this is in the 1991 Gulf War, where the vast majority of non-combatant deaths were caused by the destruction of water and sanitation systems and the electric power grid. The collapse in infrastructure led to the outbreak of dysentery, cholera, and other water-borne diseases, major health problems that plagued civilians.

Notably, these health problems contribute to the poverty of society as a whole since the dead and the sickly cannot actively contribute to the labour force. This represents a loss in a source of income for families, deepening the issue of poverty. With less income, families are less able to afford health services, and hence a vicious cycle ensues.

Many people who flee their home country or become internally displaced persons during wars are especially vulnerable to the health problems associated with a lack of access to infrastructure. Due to war or the threat of war, these people leave behind their homes and possessions, which may have been destroyed during armed conflict. Approximately 12 million refugees and 20 to 25 million displaced persons today are forced to leave their homes as a result of war. They are especially vulnerable to health issues such as malnutrition, injuries, infectious diseases and attacks.

War can also affect the psychological health of individuals. Physical and sexual assaults are common during wartime. Such means of psychological warfare can have long-term adverse impacts on its victims. Those who participate in the war also suffer psychologically. Many soldiers and civilians experience post-traumatic stress disorder, one of the most common post-war psychological conditions.

Physical and psychological trauma represents a cost on society, as individuals suffering from these psychological conditions cannot actively participate in society. This lowers the overall productive capacity of society, reducing the gross domestic product (GDP) of the country. Income per capita decreases, and as a result taxable income correspondingly decreases as well. Lower taxable income means lower tax revenues for the government, and a tighter government budget will make increased expenditures on health care unlikely. This amplifies the adverse impact of war on health.

Allocation of Resources

Public sector health care systems are systems financed by the government to meet the health care needs of that country's citizens. The maintenance of such a system requires a lot of government resources. However, during war, a large part of the government budget is allocated towards military spending for the war. This diverts resources away from essential health care systems and other public infrastructures. According to a joint analysis by the research departments of the World Bank and the International Monetary Fund (IMF), the cost of war on the growth and development of a country is high. The analysis states that a doubling of military expenditure reduces the growth rate for a period, leading to a 20% reduction in the level of income. A reduction in the level of income results in a lower ability to afford health care, decreasing the overall health of its citizens.

Some countries spend more on military financing than they do on the health of its citizens. This happens not only in developing countries, but also in developed countries as well. For example, the United States ranks first in military expenditures and exports; in comparison, it ranks 38th in infant mortality rate and 45th in life expectancy at birth. A lack of financial support for health care initiatives delays research and development in the health sector. Consequently, the overall quality of health infrastructure in the country decreases.

An outflow of domestic and foreign capital may also occur during and after wars, as investors perceive war-torn countries as high-risk investments due to political and economic instability. The outflow of economic resources reduces the economy's gross domestic product (GDP), reducing government tax revenue overall. This leads to a reduction in the government's ability to take on public infrastructure expenditures essential to a country's development and growth unless the government takes on debt.

Role of Health Professionals

Health professionals may be involved in war-related research and development such as biological weapons. Yet others may be working as professionals in zones of violence or as professionals providing humanitarian assistance to help heal the wounded or sick. According to the Geneva Conventions, medical personnel involved in healing the wounded and the sick are given special protection due to their medical – rather than combatant – role in the conflict. The Conventions state that they are immune to attack and that captured medical personnel are to be promptly repatriated as long as they follow certain obligations as outlined by the Conventions. Health care professionals involved in humanitarian aid in war zones may be part of non-profit organizations such as the Red Cross. Such organizations attempt to make healthcare accessible even in areas affected by wars and other natural disasters. They also seek to improve the treatment and conditions of detainment for detainees during wars and protect civilians from combat.

Relevant Links

War and Public Health: http://www.healthallianceinternational.org/advancing-global-health/war-and-public-health/

Water, Sanitation and Hygiene. Retrieved from UNICEF: http://www.unicef.org/wash/

What We Do. Retrieved from ICRC: http://www.icrc.org/eng/what-we-do/index.jsp

TOPIC THREE:
Pollution of the Seas

Summary

Over-fishing, the disposal of chemical waste and the use of the seas as a means of transport are all examples of human contribution to oceanic pollution. The increased emission of carbon dioxide is another major pollutant of the seas, as carbon dioxide is part of the chemical equilibrium that maintains the pH of seawater. A drastic increase in carbon dioxide concentrations in seawater has therefore led to the acidification of the oceans and consequently the disruption of ecosystems. An article published in *Science* in 2008 stated that human activities have impacted approximately 40% of all marine ecosystems, a figure that urgently calls for the reduction of human-induced sea pollution.

Most importantly, the pollution of the ocean is not only resulting in adverse affects on marine life and the environment, but also on humans. For example, coal-fired power plants and waste incinerators are a source of methylmercury pollution, which is released into oceans and rivers. This has led to the contamination of fish populations, consequently giving rise to the numerous negative effects that the consumption of methylmercury contaminated fish can have on human health, such as causing cardiovascular diseases. For this reason, it is in the interest of this committee to discuss the implementation of regular water quality controls, thereby reducing potential health risks. Moreover, the establishment of regulations limiting over-fishing, and other destructive methods such as dynamite fishing, should be discussed.

Current Oceanic Pollution Status

The majority of marine pollution is caused by agricultural activities, whilst 30% of it originates from atmospheric pollution and 12% is due to maritime transport. Particularly heavily polluted oceanic regions include those along the Coast of South America, China and the Mediterranean Sea. Alarmingly, 98% of South American domestic wastewater runs into the sea untreated. A significant amount of sea pollution undoubtedly also arises from oil spills and shipping accidents. In 2006, oceanic pollution along coastal regions is said to have cost the world economy just under US$12.8 billion in clean-up costs.

Implications for Human Health and the Environment

There are numerous environmental concerns associated with oceanic pollution, among these the fact that 60% of the solid waste pollution in the oceans consists of

plastic bags. This causes the deaths of countless numbers of fish, marine mammals and seabirds, therefore evidently disrupting marine and coastal ecosystems.

Over-fishing is an additional concern in terms of current environmental conditions in our oceans. Fish that are commonly consumed, such as herring, sardines and cod, were driven almost to extinction by the mid-1900s due to over-fishing. Due to ecological interdependence, by the end of the 1900s, this had become a significant global rather than merely regional problem. This not only threatens our planet's biodiversity, but also the subsistence of indigenous populations and small fisheries that rely on adequate fish harvests. As of 2003, it was estimated that fish populations had declined to only 10% of their original pre-industrial population size.

Apart from the impacts of pollution on marine ecosystems, it also has adverse effects on human health. As indicated in the topic summary, methylmercury contamination of the seas from industrial power plants has caused methylmercury concentrations to increase in fish, leading to biomagnification as we move up the food chain. This can not only cause lethal concentrations to build up in organisms of higher trophic levels but can also cause methlymercury poisoning in humans upon consumption of the fish, leading to the possibility of cardiovascular diseases. Moreover, methylmercury is a neurotoxin, meaning that it is especially dangerous in young children, where it can cause learning disabilities and the hindrance of growth.

Polychlorinated biphenyls are also a common sea pollutant, as they are used in heat transfer systems and hydraulic fluids. These organic substances have been linked to incidences of breast, liver, lung and colon cancer, thus calling for regulations for the safe disposal of such substances as well as measures to monitor and maintain safe levels of these chemicals, particularly in sea waters used for recreational purposes.

Past International Efforts

The UNEP's "Technical support to global and regional programmes for the assessment, prevention, control and abatement of marine pollution", initiated in 1994, was an ongoing project to monitor oceanic pollution.

In February 2009, the UNEP launched negotiations on an international mercury treaty aimed at the safe stockpiling of mercury, which among other things, was a measure taken to reduce its prevalence as a pollutant in the oceans.

The EU has followed an ongoing policy of fishery management known as the Common Fisheries Policy (CFP). Under this policy, quotas on the amount of fish that may be caught are set according to the size and requirements of each member state, as well as on the maximum sustainable yield* of the species of fish in question.

Various marine pollution treaties have been developed on an international level. For example, the Global Program of Action (GPA) was an international effort to reduce marine pollution from land-based sources. A similar protocol part of the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean entered into force in 2010. (See relevant links for more detailed information on current treaties).

**The maximum average catch that still allows a stock to maintain a stable population size over a long period of time*

Notable Committee Members

Japan:

Regarding the exploitation of the oceans, Japan is the world's biggest fish consumer, and thus must pay special attention to regulating its catches. In 2006 for example, Japanese fisheries exceeded their catch quota for Bluefin tuna by 1,500 tonnes. This resulted in a cut in their allotment by this amount for the following year. If catches go unregulated, the Bluefin tuna was estimated in 2010 to be extinct by 2012.

China:

Due to China's rapid economic growth, it is experiencing drastically high levels of oceanic pollution, with 48,000 square kilometers of its oceanic territory being considered severely polluted. The State Oceanic Administration of China (SOA) has deemed the majority of China's surrounding waters as falling below their safety standards. Particular areas of concern regarding sea pollution in China are led and DDT. DDT is an insecticide considered "moderately hazardous" by the WHO, whilst led, if consumed in significant amounts, can damage the human nervous system. Pollution of this type and extent is therefore a threat to human health in China.

In response to this situation, regulations were put in place by the Chinese State Council in 2009, with the aim of reducing pollution due to shipping accidents by developing emergency measures to respond to such incidents.

USA:

Although sea pollution is undoubtedly a serious concern in the United states, the United States Environmental Protection Agency (EPA) is actively working with organisations such as the Marine Environment Protection Committee (MEPC). The MEPC is currently working on a global treaty aimed at reducing the occurrences of the introduction of harmful species into marine environments.

The Oceans and Coastal Protection Division (OCPD) was also established under the EPA with the aim of minimizing human-induced damage to coral reefs. However, the USA is still working towards ratifying the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, which was amended in 1996 to include clauses on the ban of radioactive waste disposal and incineration at sea.

Relevant Links

- A list of UNEP subprogramme evaluations (some of which pertain to marine pollution):
www.undep.org/eou/reportsandpublications/subprogrammeevaluations

- Information from the European Commission on the Common Fisheries Policy:
http://ec.europa.eu/fisheries/cfp/index_en.htm

- A description of the current international treaties on marine pollution:
http://www.epa.gov/international/water/marine/treaties.html