General Assembly

Topic 3: Reducing the impact of human activities related to the arisal and spread of new diseases

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Index

1. Definition of Key Terms

Disease: illness that can be common or rare and can affect humans, animals or plants.

Epidemic: a particular disease which is spread in large scale and affects a large number of people at the same time.

Zoonotic disease: an infection disease caused by an infectious agent transmitted from animals to humans.

UNEP: United Nations Environment Programme.

WHO: World Health Organization.

GEF: Global Environment Facility.

UNDP: United Nations Development Programme.

PPE: Personal Protective Equipment. It is a protective equipment composed of clothing, helmets, safety glasses (goggles) etc., designed to protect different parts of the body from injuries and infections.

2. Introduction

Diseases and infections have always been present in the history of the human being and have always had civilisation-altering consequences. Since 1980, emerging disease epidemics have started to overhang various populations in different ways. At the beginning of the 21th century, these diseases became a global issue because of the impacts on the worldwide health and economy. Nowadays humans, animals and the environment are all connected among them and stopping the spread of illnesses becomes more difficult. Human activity plays a key role in the transmission of diseases: factors such as climate change, globalization or urbanization are just some examples of the human contribution to the disease emergency. Surely, it is difficult to reduce the impact of human activities, especially with the connection between every part of the world we have created through the years; however, it is possible to face the risk of spreading diseases by achieving effective systems of control and prevention.

3. Background Information

Historical background

Epidemics have always affected the human species causing fear, death, social, political, economic and demographic transformations, medical and scientific discoveries. Before Covid-19, at least 13 other pandemics have raged in the past 3,000 years. Each pandemic has changed the course of history: accompanying or causing wars, migrations, collapses of empires, economic systems, religious powers, ideological persecutions.

Pandemics have afflicted man since well before the modern and contemporary ages. The first epidemics in history to be reported were:

- the Athenian plague, which caused between 70-100 thousand victims during the war with Sparta, during 430-426 BC;
- the Antonine plague, with 5-10 million victims, which was perhaps smallpox or measles brought to Rome by the Legions after the campaign against the Parthians, in the years from 120 AD onwards and, for some historians, marked the beginning of the political and military end of the Empire;
- the Justinian Plague, which was originated by the bacterium *Yersina Pestis* of rats, co-factor in the fearful population density of Constantinople, and caused, from 541 to 750 AD, an estimated number of deaths between 50 and 100 million units.

From 1346 to 1353 and then in successive waves, the Black Plague arrived along the Silk Road, always carried by rat fleas, and with it one of the most famous pandemics in the history of man. The triggering factor was that at the siege of Caffa, Mongols and Christians threw the corpses of people infected by the plague at each other. The plague struck European populations already affected by famines that began in 1315 and after a series of floods. The casualties were never accurately calculated, but estimated at 25 to 100 million. The Black Plague had massive consequences: it is in fact considered one of the historical anti-facts that led to a radical change in the medieval agricultural world, given that following the pandemic, the surviving farmers began to move to the cities, starting the mechanism of industrialisation.

The most frightening was perhaps the Spagnola, a pandemic of 1918-1920 (spreading in two waves, one in spring and one in autumn, followed perhaps in the US by two other minor waves until 1925). It exploded at the end of the Great War, when the populations were weaker and the troops moved from one continent to another, and transmitted through birds or pigs by the H1N1 virus. It killed between 50 and 100 million people worldwide, far more than the victims of the Great War itself. There was no known cure, other than empirical remedies for fever and face masks or isolation: almost all useless. It was only in 1938 that virologist Thomas Francis was able to isolate the virus and prove the existence of other influenza viruses, but the road to the vaccine was still long and the causes of the extinction of the pandemic are still a subject of debate today.

In the last century, another epidemic transmitted by birds (wild ducks from China) was the Asian flu of 1956, caused by a subtype virus of H1N1. It lasted two years and claimed 1 million victims worldwide, but diluted over time it had no major impact on the ongoing economic boom.

In 2003 came the Sars (first coronavirus epidemic of the twenty-first century), very contagious but not lethal (8200 victims worldwide). It was brought by wild ducks from Guangdong (the ancient southern Chinese province of Canton) and the virus was identified by the Italian doctor Carlo Urbani, who was a victim of it.

Background

Even if new diseases can emerge and spread for natural causes, it is however certain, as confirmed by a brief historical view of the subject, that numerous human actions can contribute directly or indirectly to the origin of pandemics like the current one.

The first trigger is represented by the relationship between man and animals, the consequences of which are now heavily aggravated by climate change, and in particular, by global warming. 75% of human infectious diseases known to date derive from animals and 60% of emerging diseases have been transmitted by wild animals. They cause about a billion cases of disease and millions of deaths every year. In technical terms, they are referred to as “zoonoses”: this term includes all those diseases that are transmitted from animals to humans, both those more typically transmitted by vertebrate animal species and those mediated by insects and other arthropods which, in the Anglo-Saxon scientific literature, are defined as vector-borne diseases (VBD), or vector-borne diseases. Zoonoses comprise a diverse group of infections, which can be caused by viruses, bacteria, fungi, other organisms, unconventional infectious agents (AINCs) or prions. The known zoonoses are very numerous - over 200 according to the WHO - and their study is one of the areas of greatest interest in human and veterinary medicine. Of all emerging diseases, wild-origin zoonoses could represent the greatest threat to the health of the world population in the future, and many of these will be able to change their danger as a result of global changes. By strongly influencing the functioning of ecosystems, climate change can favour the spread of pathogens and the emergence of new epidemics. Countering climate change, while promoting the conservation of intact ecosystems and restoring (or restoring) those deteriorated by man, is a forward-looking approach to protect the health and well-being of human communities and to prevent future pandemics.

Another trigger of new pandemics is the poor consideration of some areas of the world where the population density is extremely high in unsuitable hygienic conditions. This is not only a danger because man could more easily enter into contact with diseases (of animal origin, for example), but also because their proliferation would be massive, given the scarce possibility of social distancing and hygiene.

Last but not least, as a last factor it is necessary to mention the human economic and commercial system, the way in which, relatively quickly, any commodity can move from one end of the globe to the other, with the possibility that such goods can also

transport pathogens or triggering counties related to new diseases. If the legal trafficking of goods is in any case regulated by strict rules, and therefore this risk is minimal, it is not the same thing if we consider the illegal trafficking of any commodity. The reason why the import and export of some goods is illegal in some countries, is because their introduction into a completely different ecosystem, could upset it, triggering a series of mechanisms that could cause the spread of new diseases both for the species plants and animals, including man.

4. Major Parties Involved

Since the spread of pandemics is a global problem, which affects every population, it is difficult to underline a higher implication of one country than another. Nevertheless, it is correct to underline that not all countries contribute in the same way to the increase of this dramatic issue.

The first block of countries, which can include all European and North American states, as well as China and India, for example, are the highly industrialized ones, which therefore have intensive farming - in which man is in close contact, not always controlled, with animals herded and crammed into small spaces - and whose factories contribute significantly to global warming.

The second block of countries includes states such as china, brazil and india, in which adequate hygiene is not guaranteed and which are overcrowded in some areas of the country.

The third bloc of countries is indicatively represented by countries which are relatively backward, or by countries in which civil or non-civil wars are currently being waged - for example, countries such as Yemen, Afghanistan, and all the states of the sub-saharan area; in this case, although they could be less involved in the direct emergence of new pademias, they would be at the forefront of dealing with diseases already circulating, given the scarce infrastructural, economic, personal and hygienic possibility to face this problem.

5. UN Involvement

UNEP

As all types of worldwide organizations, also the United Nations are involved in the defeat of pandemics, specifically defeating the 2020/21 COVID-19 pandemic. One of the organs which are involved is the UNEP (United Nations Environment Programme): this is a programme of the UN which supports global efforts by protecting biodiversity,

putting end to the illegal trade in wildlife, safeguarding the manipulation of chemicals and waste and last, but not least, promoting economic recovery plans taking into consideration nature and the climate emergency. This is a kind of programme that at the moment is working to share new technology and environmental innovations in order to contrast the problems related to the pandemic. The executive director of the UNEP, Inger Andersen, said that if we do not start to protect the environment and biodiversity in a proper way, pandemics could become a daily reality. The main UNEP's goal is to introduce a healthy approach that connects the health of people, animals, nature and agricultural systems, demonstrating how the destruction of ecosystems is contributing to the birth of new zoonotic diseases. At the moment UNEP is finding new strategies to reduce the warning of such diseases, considering also the possible impact on vulnerable groups; its acting plan is based on three main plans: zoonotic early warning system; national zoonotic risk reduction action plans and ambitious new biodiversity targets. Firstly, in collaboration with the United Nations, a new programme will be developed to reduce the threats of zoonotic diseases. Secondly, the UNEP will try to work with partners, aiming at rebuilding post-pandemic economies and reducing the future disease threat; the action plans will be specific for each country/region and they will include environmental impact assessment toolkits; inspection for markets, restoration to enhance habitat connectivity and biosafety practices. Finally, the UNEP will manage to reduce one of the main factors that contribute to the zoonotic disease transmission: the degradation of ecosystems; the intention is the one of increasing the responsibility to new global biodiversity targets and their means of implementation.

Moreover UNEP is collaborating with governments, WHO, UNDP, GEF and different NGOs to reduce the impacts of global environment derived from the waste increasing caused by the COVID-19 crisis.

WHO

Specifically talking about the situation we are facing concerning COVID-19, the WHO drew up a series of general recommendations which all countries should follow to prevent the spread of zoonotic diseases. It is demonstrated nowadays that the pandemic was probably caused by bats and the virus was transmitted to humans through an intermediate animal host.
The recommendations drawn up by the World Health Organization include:

- adopting general hygiene measures, including hand washing with soap, avoiding touching parts of the face with hands and avoiding contact with unhealthy animals while visiting live animal markets, wet markets or animal product markets;

- avoiding contact in markets or shops with potentially contaminated animal waste or fluids;
- avoiding raw or undercooked animal products and foods;

WHO not only prepared recommendations for visitors or animal products consumers, it has also arranged various recommendations for people working in live animal markets, such as:

- practicing efficient personal hygiene, including frequent hand washing;
- wearing disinfected PPE while professionally handling live animals and fresh products, avoiding any type of contact with clothes etc. with family members;
- avoiding slaughtering sick animals for consumption;
- safely burying dead animals and avoiding contacts with any type of body fluids without PPE.

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