

Committee: Environmental Commission (EC)

Issue: Decelerating the rapid desertification of the Gobi Desert

Student Officer: Giorgos Kostopoulos

Position: Deputy President

PERSONAL INTRODUCTION

Dear Delegates,

My name is Giorgos Kostopoulos and I am an 11th grade student at Leonteios School of Nea Smyrni. I am greatly honored to serve as a Deputy President of the Environmental Commission of the 6th ACG-MUN Conference. I believe that environmental vigilance is necessary for our society, and I consider such simulations extremely important. Being an active member of the MUN community for a year now I am more than thrilled to co-chair for the first time in the 6th ACG-MUN Conference. The past experience I have received, not only broadened my intellectual horizons, but also partially established me as a personality.

The goal that this year's ACGMUN Agenda focuses on is Breaking Barriers. Unfortunately our society is filled with barriers. Economic, geographic, social and environmental. Hence, we need to find effective ways to overcome them. Thus in our case the deceleration of the rapid desertification of the Gobi Desert is not only crucial for the countries crossed by the desert, but for the whole global community as well. With the help of this study guide, your thorough research, and the upcoming conference, I am certain that we will be able to get informed in-depth on such a fascinating and crucial topic like this one.

As a Deputy President, it is my responsibility to provide you with a study guide that will direct you in your research, help you familiarize with the key terms, and ensure that after your profound and comprehensive research, you will be able to write realistic and viable resolutions. Should you have any questions contact me via this email: (giorgoskostopoulos2006@gmail.com) prior to the conference. I would be more than glad to respond to your concerns. I will try my best to make this ACGMUN Conference an unforgettable experience for all and ensure the productive conduct of this session. I wish you luck with your preparation and look forward to meeting you all!

Best Regards,

Giorgos Kostopoulos

TOPIC INTRODUCTION

The Gobi Desert is the sixth largest desert globally. Located in China and Southern Mongolia it covers a further 3,600km² of grassland each year. The desertification of the desert is the biggest ecological threat China is facing. Millions of people are forced to become climate refugees because the expansion of the desert is covering their villages with huge amounts of dust. The former has severely damaged China's agricultural economy. Further aggravation, of said sector, could lead to a general economic recession.

Desertification is caused primarily by deforestation, overgrazing and depletion of water resources. Hazardous human activities in combination with the aforementioned have deteriorated the phenomenon to the level where it is already difficult, although not yet impossible, for the authorities involved to take action. Furthermore, climate change has complicated the situation.

The consequences of desertification are already evident. The expanding desertification of Chinese areas could possibly immobilize the domestic economy. Additionally the consequences of desertification could be seen in crop failures or decreased yields in rain-fed farmlands, the loss of perennial plant cover and reduced woody biomass, which results in a scarcity of fuelwood and building materials.

Nevertheless, there have been some notable efforts, such as the ones from the Chinese government in order to combat this phenomenon and preserve the Chinese ecosystem including the Three-North Shelterbelt project, which was signed in 1978. This project aims to plant millions of trees across the borders of the growing desert in China by 2050, in an effort to halt the ongoing desertification

Finally, it is important for everyone to understand that the desertification of the Gobi is an issue affecting not only China but also the rest of the world. The graveness of this issue is excessively high and warrants particular attention and vigilance from all member states of the United Nations. The faster the member states take action, the faster the UN can preserve our planet's ecosystem.



Figure 1: Gobi Desert area¹

DEFINITION OF KEY TERMS

Desertification

“Desertification, also called desertization, is the process by which natural or human causes reduce the biological productivity of drylands (arid and semi-arid lands). It is also the result of complex interactions between several factors, some of which include climate change, poor hydrological conditions, poor quality vegetation and soil, and sandstorms.”²

Deforestation

“Deforestation is the clearing or thinning of forests by humans. Deforestation represents one of the largest issues in global land use. Estimates of deforestation

¹ *Els-Cdn.com*, 2023, ars.els-cdn.com/content/image/3-s2.0-B9780124095489118779-f11877-01-9780128160961.jpg. Accessed 26 Feb. 2023.

² Britannica. “Desertification - Rain-Fed Croplands | Britannica.” Encyclopædia Britannica, 2019, www.britannica.com/science/desertification/Rain-fed-croplands.

traditionally are based on the area of forest cleared for human use, including removal of the trees for wood products and for croplands and grazing lands”³

Overgrazing

“Overgrazing is grazing by livestock or wildlife to the point where the grass cover is depleted, leaving bare, unprotected patches of soil. As a result, water and wind cause erosion, especially on clay soils, and the growth of poisonous plants and thorny shrubs may increase.”⁴

Fuelwood

“Roundwood that will be used as fuel for purposes such as cooking, heating or power production. It includes wood harvested from main stems, branches and other parts of trees (where these are harvested for fuel) and wood that will be used for charcoal, wood pellets and other agglomerates.”⁵

Aeolian desertification

“Aeolian desertification is a kind of land degradation through wind erosion resulted from the excessive human activities in arid, semi-arid and part of sub-humid regions in Northern China”⁶

Carbon sequestration

“Carbon sequestration occurs both naturally and as a result of anthropogenic activities and typically refers to the long-term storage of carbon in plants, soils, geologic formations, and the ocean that has the immediate potential to become carbon dioxide gas”⁷

³ Britannica. “Desertification - Rain-Fed Croplands | Britannica.” Encyclopædia Britannica, 2019, www.britannica.com/science/desertification/Rain-fed-croplands.

⁴ “OECD Glossary of Statistical Terms - Overgrazing Definition.” Stats.oecd.org, stats.oecd.org/glossary/detail.asp?ID=1977.

⁵ “Fuelwood | Knowledge for Policy.” Knowledge4policy.ec.europa.eu, knowledge4policy.ec.europa.eu/glossary-item/fuelwood_en. Accessed 29 Dec. 2022

⁶ Tao, Wang. “Aeolian Desertification and Its Control in Northern China.” *International Soil and Water Conservation Research*, vol. 2, no. 4, Dec. 2014, pp. 34–41, www.sciencedirect.com/science/article/pii/S2095633915300563, 10.1016/s2095-6339(15)30056-3

⁷ Noelle Eckley Selin. “Carbon Sequestration | Definition, Methods, & Climate Change.” Encyclopædia Britannica, 16 Jan. 2019, www.britannica.com/technology/carbon-sequestration.

Wind erosion

“Wind erosion is a natural process that moves soil from one location to another by wind power. It can be caused by a light wind that rolls soil particles along the surface through to a strong wind that lifts a large volume of soil particles into the air to create dust storms.”⁸

Sustainability

“Sustainability is the long-term viability of a community, set of social institutions, or societal practice. In general, sustainability is understood as a form of intergenerational ethics in which the environmental and economic actions taken by present persons do not diminish the opportunities of future persons to enjoy similar levels of wealth, utility, or welfare.”⁹

Pastoralism

“Pastoralism is a mode of subsistence that involves raising domestic animals in grassland environments using herd and household mobility.”¹⁰

BACKGROUND INFORMATION

In this section, the main reasons that led to the creation of the phenomenon of the desertification of the Gobi will be analyzed. More specifically, explanations will be given about how China's economic development and its opening to the international scene further aggravated this specific issue.

In parallel, the effects created by the issue will be analyzed in depth both at the level of the environment and at the level of the economy and society.

Causes of the Desertification

China's economic expansion

The reform of the Chinese economy is one of the greatest successes in the last three decades. This growth was the reason for the expansion of entrepreneurial energy, for the foundation of local industries, as well as the rise of domestic and national growth rates. Rural and urban economic reforms

⁸ NSW Government. “Wind Erosion.” NSW Environment & Heritage, 16 Nov. 2017, www.environment.nsw.gov.au/topics/land-and-soil/soil-degradation/wind-erosion.

⁹ Meadowcroft, James. “Sustainability | Description, Theories, & Practices.” Encyclopædia Britannica, 2019, www.britannica.com/science/sustainability.

¹⁰ “Pastoralism - an Overview | ScienceDirect Topics.” www.sciencedirect.com, www.sciencedirect.com/topics/social-sciences/pastoralism.

were spurred by the farmers' economic success and growing financial autonomy who, at the same time, had created their own grain market.

As a result, rural migrants started to seek work in China's most prosperous cities. This economic reform brought radical change to the lives of Chinese citizens (increasing the living standards, the access to goods, and the freedom of movement and job opportunities).

In other words, this process that brought economic prosperity to China has also created havoc in the environment of the country. The developing Chinese economy, considering the positive effects it had on society, contributed to the increasing demand for resources such as water, land and energy. Especially forest resources have been depleted triggering a range of devastating secondary impacts such as flooding, species loss, but more importantly, desertification.

The lack of environmental efficiency due to the aforementioned effects of the developing Chinese economy continued in the mid-1970s with the creation of a small environmental protection project by the Chinese central government, which gradually increased in scope and power. Local environmental experts who had more knowledge on the issue were downgraded by central government officials who did not have such a comprehensive perspective on the issue.

As a result, the disagreement within the responsible authorities led to a weak and environmental framework, creating environmental consequences in many Chinese regions. The most significant consequence was the renewed expansion of the Gobi.

Deforestation in China

Deforestation is one of the principal causes of desertification. The last decades there has been large scale deforestation in China. It is known that forests store carbon dioxide and provide habitats to animal species. Poorly managed forests and deforestation pose a threat to climate change and biodiversity.

Deforestation occurs when native tree species are removed, altering the water retention capacity and the quantity of air the soil retains, allowing wind to sweep it away. More complicated deforestation occurs when native trees are replaced by tree species that have a higher demand in the market, like the

plantations of rubber occurring in Xishuangbanna¹¹. This phenomenon has been characterized as extremely dangerous by a lot of local environmentalists and has evoked a negative response by the activists, especially during the last decade.

Although the total area covered by forests in China has increased from 8.6%¹² in 1949 to 23.04% in 2020, the total area of primary forest (forests that have never been disturbed by human activities) in China has declined by 4.4% from 2002 to 2020 which, based on ecologists, is a good sign regarding the reduction of the deforestation percentages.

However, deforestation in China led to, both domestic and global consequences. As far as the local consequences are concerned, wood shortages, altered ecosystems, soil erosion, floodings, and change in local climates are all included.

Deforestation also affects the planet as a whole. Cutting trees, increases carbon dioxide emissions aggravating the climate crisis. The desertification of the Gobi has accelerated by deforestation, and many experts believe that by combatting deforestation, the Gobi's desertification would be resolved.

Although completely stopping the descending trend both in the size of primary forests and in the number of trees is going to require sustained efforts, China has made progress in tackling this particular issue through new economic policies. China has been following a different approach related to agricultural products such as timber, soy, and palm oil and has implemented a nationwide restriction on felling natural forests, resulting in a dependence on imports on agricultural product, especially materials needed for manufacturing processes.

Impact of Climate Change

Climate change is one of the major causes of the desertification of the Gobi Desert. The increase in weather extremes such as droughts and heavy rains, has led to further land degradation and eventually desertification. This issue is prominent in northern China, deteriorating desertification.

¹¹ Autonomous prefecture in China

¹² Wu, Tin Lok. "Chinese Deforestation and Lessons from Its Conservation Efforts." Earth.org, 14 Feb. 2022, earth.org/chinese-deforestation-and-lessons-from-its-conservation-efforts/#:~:text=Poorly%20managed%20forests%20and%20deforestation. Accessed 29 Dec. 2022.

Additionally, scientists predict¹³ that desertification will increase in some areas as the Earth's climate changes, predominantly in arid regions. In northwest China, decreased precipitation and increased temperatures are causing grasslands to be less productive, says Sun Qingwei, formerly a China water and energy expert for the Woodrow Wilson Institute.

“Global warming creates more unstable conditions for human activities and for the ecosystem.” “And northwest China is one of the most sensitive areas to global warming because it is extremely arid—the annual precipitation in most places is below 100 millimeters.”¹⁴

The effect of climate change on the desertification of the Gobi is significant. The existing issue of climate change will negate efforts which combat desertification. China should thus prioritize combatting this issue.

Human intervention in the Gobi Desert

After Mao Zedong's regime (20 March 1943 – 9 September 1976), China began to establish trade partnerships and diplomatic relations with other countries. This expanded economic activities relating to the usage of the desert's natural resources such as coal, copper, gold, oil, and uranium.

Although the arid of the desert does not facilitate cultivation, ethnic Han farmers have converted parts of the Gobi in China into arable land, using groundwater sources from the Yellow River. Human intervention has caused the destruction of the desert's natural resources.

Mongolia's largest new copper and gold mines are redefining the notion of desert. Residents are concerned on how mining will affect pastoralists' ability to preserve their identity and culture. China's expansion of coal, iron ore and rare earths is having a major impact on local residents and the environment.

China's state-owned enterprises and/or Mongolian companies generate income and wealth which incentivizes them to undermine pastoral and agricultural communities. Traditional households have limited capacity and abilities to develop, protect prairies or benefit from large enterprises which

¹³ PETRI, ALEXANDRA. “China's “Great Green Wall” Fights Expanding Desert.” *Science*, 21 Apr. 2017, www.nationalgeographic.com/science/article/china-great-green-wall-gobi-tengger-desertification.

¹⁴ PETRI, ALEXANDRA. “China's “Great Green Wall” Fights Expanding Desert.” *Science*, 21 Apr. 2017, www.nationalgeographic.com/science/article/china-great-green-wall-gobi-tengger-desertification.

provide new sources of income. Mining also exhausts water resources, degrades landscapes, minimizes other means of livelihood, and contributes to desertification.

Consequences of the desertification of the Gobi Desert

Environmental consequences

The most important consequence, which is already evident and can deteriorate in the future, is the loss of biodiversity. Biodiversity is the variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important to an ecosystem. Desertification threatens biodiversity by altering the conditions of some organism's habitat.

Desertification is responsible for many crop failures in the northern China region. In the last decade, the decline in crop yields has increased significantly. Thousands of surfaces that used to be covered by arable land, have now turned into arid areas, making cultivation impossible. This phenomenon has caused dissatisfaction and strong reaction from many farmers who have seen their incomes decline and have lost valuable land.

The desertification of the Gobi is largely responsible for the loss of forests in the region. China has been concerned about this issue for more than 50 years. The said issue continues to pose a threat to Mongolia's as well as China's environment. The forests of northern China are responsible for filtering Carbon Dioxide into oxygen. Their loss has important consequences, both for the balance of the environment.

Socio-economic consequences

Desertification also has socio-economic consequences. The loss of arable land caused a decline in agricultural products which led to increasing poverty, particularly affecting small farmers, who are not adequately equipped to deal with the issue.

Most regions in northern China thus experience high poverty and hunger rates. Relevant surveys and interviews conducted in those areas, indicate that the percentage of people affected by poverty and hunger has increased exponentially in the last decade.

Climate migration has also exacerbated social inequality. Climate refugees and migrants are concentrated in specific areas and isolated from the rest of society. Desertification has covered their villages by sand forcing them to

migrate to other regions in China. Experts estimate that this issue will augment in the future if appropriate measures are not taken.

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

China

China is the country most affected by the desertification since the largest part of the Gobi is located within Chinese borders. China has been facing the problem of desertification since 1950. Efforts to solve the problem began at the end of the 1970s, with the "Great Green Wall" being the most important. China has held summits with other countries such as Japan and North Korea to resolve the issue.

Mongolia

Although Mongolia clearly occupies a smaller area of the Gobi than China, it still faces similar issues as China. Mongolia has proposed a very ambitious program to solve this problem, which has succeeded. This project, initiated by the responsible environmental ministry, focused heavily on the reforestation area along the desert and was able to cover a large part of it. At the same time, in 1994, the United Nations launched the National Action Plan to Combat Desertification (NPACD) in Mongolia

Japan and South Korea

In 2005, the Asian Development Bank, in partnership with several United Nations agencies and regions, developed a plan for promoting cooperative solutions. Dust was on the agenda of the 2015 trilateral summit in South Korea, Japan, and China. The ministers of the three countries meet annually and have established special working groups to improve forecast accuracy and develop vegetation restoration measures in China's source areas.

United Nations Convention to Combat Desertification (UNCCD)

The 1994 UNCCD is the only legally binding international treaty that links environmental development to sustainable land management. The Convention is aimed primarily at arid, semi-arid and sub-humid dry areas known as drylands, where some of the most vulnerable ecosystems and people can be found. It convenes every two years and holds technical meetings throughout the year to monitor progress and fulfil the convention requirements.

United Nation Environmental Program (UNEP)

The UNEP is responsible for coordinating responses to environmental issues within the United Nations system. The UNEP develops solutions on a wide range of issues such as climate change, and the development of green economies. The organization also develops international environmental agreements, publishes, and helps national governments achieve environmental objectives. Its activity is related to efforts to solve the problem of desertification globally. The organization is also involved in combatting the desertification of the Gobi Desert.

TIMELINE OF EVENTS

| Date | Description of event |
|---|---|
| 1950's | First signs of desertification in the Gobi Desert |
| 1970's | A small-scale project about environmental protection is created by the Central Chinese government |
| January 1 st 1978 | The Three-North Shelterbelt program starts |
| June 3 rd -14 th 1992 | The UN Conference on Environment and Development, also known as the Earth Summit, is held in Rio de Janeiro (Brazil). |
| June 17 th 1994 | The UNCCD is adopted in Paris on 17 June. |
| March 15 th 2005 | The first "migrations" of people due to the climate of China and Mongolia |
| December 21 st 2009 | The A/RES/64/201 is adopted by the General Assembly on 21 December 2009 |

| | |
|-------------------------------|---|
| 2010-today | Rapid acceleration of the desertification of Gobi |
| November 1 st 2015 | Trilateral summit in South Korea, Japan, and China. |

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

A/RES/64/201(Resolution adopted by the General Assembly on 21 December 2009)¹⁵

With more countries facing increasing desertification and degradation, the United Nations General Assembly proposed the UNCCD, which was provisioned from January 2010 to December 2020.

The objectives of the resolution are the following

“The organization of activities to observe the Decade to raise awareness of the causes and solutions to ongoing land degradation and desertification within the framework of the ten-year strategic plan and framework to enhance the implementation of the Convention Strategy 2008-2018.

The mobilization of financial and technical support to the Secretariat of the Assembly, to support special initiatives to commemorate the Decade as well as other commemorative events and activities worldwide.

Monitoring and reporting on progress in the preparation of the Secretary-General's Report to the General Assembly at its 69th session on the status of the implementation of the resolution”¹⁶

Earth Summit in Rio de Janeiro

The United Nations Environment and Development Conference (UNCED) was held in Rio de Janeiro, Brazil, from 3 to 14 June 1992. The World Conference, held in Stockholm in 1972 on the 20th anniversary of the first Human Environment Conference, brought together political leaders, diplomats, scientists, media and 179 non-governmental organizations (NGOs) to focus on the impacts of human socio-economic activities on the environment.

¹⁵ <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N09/473/89/PDF/N0947389.pdf?OpenElement>

¹⁶ “The UN Decade for Deserts and the Fight against Desertification: The Purpose | UNCCD.” www2.unccd.int, www2.unccd.int/un-decade-deserts-and-fight-against-desertification-purpose. Accessed 6 Feb. 2023.

National Plan of Action to Combat Desertification (NPACD)

In June 1992, the United Nations Conference in Rio de Janeiro adopted the Rio Declaration on the Environment and Development, Agenda 21, which stated that national desertification programs are needed to combat the problem. The National Action Plan to Combat Desertification in Mongolia (NPACD) provides a comprehensive framework for action to combat land degradation and desertification over brief time periods.

The NPACD strategy adheres to the principle of attacking the cause of degradation rather than treating problems. It underlines the importance of preventive measures. Since the causes of degradation are often linked to human activity, effective participation is a major orientation, especially infield projects.

Another important orientation of NPACD is to focus on rangelands management. To sustain the results, the activities that lead to them must be integrated into their physical environment and socio-economic and institutional contexts. A coherent approach means accounting for all factors affecting desertification and mobilizing resources to combat desertification.

Protection of soil would help improve agricultural conditions and combat desertification. In socio-economic and institutional rural environments, mobilization of user groups or marketing facilities could be used to incentivize the population and promote local anti- desertification programs.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

The Three-North Shelterbelt program

In 1978, the Chinese government launched the Three North Shelter Belt project, which planned to plant millions of trees along the border between 2,800 miles (4,506km) of the growing deserts in northern China, while increasing global forest cover. Estimates place the cost of the Green Wall at \$1.8 billion, and that mapping and database control systems will cost an additional \$1.2 billion. This project will prevent desertification while increasing the amount of carbon dioxide absorbed by trees.

Forestry will also contribute to combating soil erosion and accelerating desertification. The project is scheduled to be completed by 2050, by which time approximately 88 million acres of forest will be planted – this year, it was reported that the project has progressed by raising forest coverage in the area from 5% to 13.5% of the 15 per cent target.

The Forest Law of the People's Republic of China (1998)

This law was designed to protect and expand China's forests. In China, forests belong to all people, collectives, whereas trees and woodland owned by individuals. The Forest Department, subordinate to the State Council, is responsible for the country's work in forestry.

The forest department of the government is responsible for the forest work in their respective areas. The full-time law was adopted at the 7th Session of the Standing Committee of the 6th National People's Congress on September 20, 1984, and amended and approved at the 2nd Session of the 9th National People's Congress on April 29, 1998.

POSSIBLE SOLUTIONS

Economic-Finance measures

Financial support should be distributed to the areas affected by the expansion of the desert, support which will be explicitly targeted for the purposes of environmental research as well as for the creation of programs aimed at combating desertification.

The environmental surveys will collect data from the soil and subsoil of an area to tackle the problem successfully. The programs that will be created will be staffed by experienced personnel, who, will be experts in these will hopefully succeed in helping those affected by desertification.

Another solution is the implementation of effective economic measures such as the carbon sequestration that will reduce greenhouse emissions and facilitate the deceleration of desertification. Climate change and carbon dioxide emissions are the main causes of desertification. Thus, the application and implementation of the above measures will reduce emissions and consequently the rapid expansion of the Gobi Desert.

Agricultural developpement

Emphasis should be placed on finding long-term solutions, such as improvement of irrigation systems. This will minimize the loss of water, a catalyst in the expansion of desertification;

In most areas of the Gobi Desert the irrigation systems are undermaintained. If this persists, it will cause excessive wastage of natural resources. Pollution of the water

supply and evaporation of water from the soil is also due to improper application of irrigation systems. Upgrading irrigation systems is imperative as it will prevent the concentration or easy evaporation of water from the soil and consequently minimize desertification.

Windbreaks could also be created, which would aim to create lines of fast-growing trees planted to form a natural hedge against the area's surface winds. Windbreaks also slow wind erosion of soil as well as wind desertification.

Simultaneously, by ensuring the trees planted throughout the Gobi Desert are not used for any other industrial purpose, the desertification of the Gobi Desert is expected to be halted. The continuous conservation of the desert soil and forest trees by the authorities or even the United Nations, is also imperative.

Establishment of special programs and institutions

Authorities should set up programs that inform people affected by desertification, with appropriate instructions, on how to deal with the consequences of desertification. Citizens who are not affected by the spread of the desert but are at risk should also be regularly informed to be better prepared for a possible escalation of the situation.

Advisably, the establishment of a UN sub-commission to ensure that projects such as the "Great Green Wall" in China are successful. If not, environmental experts who will compose this task force will cooperate with authorities to resolve the issue immediately. The leadership of this agency will be appointed by the United Nations Environmental Program (UNEP) with which the commission will cooperate to address the consequences of desertification. The commission will also examine other potentially expanding deserts, to prevent similar situations.

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