

Committee: Environmental Commission (EC)

Issue: Preventing excessive logging in the aftermath of the yellow dust phenomenon in North-East Asia

Student Officer: Christina Charitaki

Position: Deputy President

PERSONAL INTRODUCTION

Dear all,

My name is Christina Charitaki and I am an 11th grade student at George Zois School, a small private school in Athens. I have the utmost pleasure and honor to serve as the deputy president of the Environmental Commission for the 7th annual ACGMUN Conference. First of all, I would like to congratulate all of you for choosing to be a part of this community. Participating in Model UN conferences can be a fulfilling, self-satisfactory and pleasant experience where formal and educational elements are combined with fun and social events. On a personal note, this will be my second ACGMUN and 13th MUN in total. Last year, ACGMUN made me feel so welcome, so now that I will be serving as a student officer, my goal for this year is to give back what ACGMUN gave me in the first place: Memories, fun experiences and knowledge of global and current affairs.

The topic that I will be examining in this study guide is “Preventing excessive logging in the aftermath of the yellow dust phenomenon in North-East Asia”. Though a vast amount of information regarding this issue will be provided in this study guide, being the result of extensive and thorough research, I strongly encourage you to conduct your own as well. Personal and in-depth research is crucial to understanding all aspects of the matter. Should any of you require any assistance during your preparation process, feel free to reach out to me via the following email: christinacharitaki2007@gmail.com

Looking forward to seeing you all in March for a fruitful and enjoyable experience,

Christina Charitaki

TOPIC INTRODUCTION

The yellow dust phenomenon refers to the sandstorms containing yellow dust happening all year-round impacting areas worldwide. Though it affects the regional economies and societies in different ways, its environmental impact remains unchanged. It mainly affects the ecosystems as it interacts with the Earth's chemical and biochemical processes like photosynthesis as well as with human activities taking place like deforestation. As a result, the spread of the sandstorms is being aggravated¹. This interaction has almost the same result as the greenhouse effect: as gasses like CO₂ or methane gather in the atmosphere at increasingly higher levels, more of the Earth's radiation remains trapped in the lower atmosphere, therefore causing the temperature to rise, aggravating the existing climate crisis.²

North-East Asian nations include Japan, some parts of China, North and South Korea and Mongolia. China and Mongolia share their borders with the Gobi Desert where sandstorms containing yellow are prevalent. Because of their location, the said nations all year-round experience dust storms and sandstorms (SDS) as well, impacting their society, economy and other major sectors. However, during springtime, these sandstorms are also ridden to the Korean Peninsula and Japan. Contamination by microorganisms is not limited to humans but it also damages the crops and the soil. For this reason, the inhabitants have resorted to wearing face masks and hooded jackets in order to protect themselves.³

In nations like China, Vietnam and South Korea, deforestation has made them especially vulnerable to floods, coastal storms and sandstorms. Typically, in the aftermath of a sandstorm, plenty of broken tree limbs or even uprooted trees can be seen. However, history is proof that deforestation does not actually help the situation. Excessive logging makes it easier for dust to enter the atmosphere, spread and cause problems and consequently aggravate the climate crisis. Reforestation and agricultural policies, implemented in response to the damage inflicted by sandstorms, have effectively contributed to the nations' return to prosperity.⁴

¹ <https://www.facebook.com/unep>. "As Climate Changes, Sand Storms Wreak Havoc on Desert Communities." *UNEP*, 11 July 2023, www.unep.org/news-and-stories/story/climate-changes-sand-storms-wreak-havoc-desert-communities.

² "New Report Explores the Impact of Sand and Dust Storms." *UN Environment*, 6 Nov. 2020, www.unep.org/news-and-stories/story/new-report-explores-impact-sand-and-dust-storms.

³ Teotia, Riya. "Yellow Dust Engulfs South Korea in Distress after Shrouding China." *WION*, 14 Apr. 2023, www.wionews.com/world/yellow-dust-engulfs-south-korea-in-distress-after-shrouding-china-582362.

⁴ Buckingham, Kathleen. "Crisis Response: When Trees Stop Storms and Deserts in Asia." *Wri.org*, 23 Feb. 2016, www.wri.org/insights/crisis-response-when-trees-stop-storms-and-deserts-asia.

DEFINITION OF KEY TERMS

Logging

Logging describes the “the activity of cutting down trees in order to use their wood”⁵ Despite causing more sandstorms, logging can be practiced sustainably, addressing issues like blocked transportation by selectively cutting down trees that inconvenience citizens

Deforestation

Deforestation refers to “the cutting down of trees in a large area, or the destruction of forests by people”⁶ After sandstorms, governments often mistakenly view deforestation as a protective measure, unaware it yields unintended consequences.

Reforestation

Reforestation is “the act of planting trees on an area of land that has become empty or spoiled”⁷ Such a measure is a particularly important one to be taken after a dust storm as reforestation decreases the possibility of a follow-up natural disaster.

Photosynthesis

Photosynthesis refers to “the process by which a plant uses carbon dioxide from the air, water from the ground, and the energy from the light of the sun to produce its own food and oxygen”⁸

Particle

A particle is “an extremely small piece of something such as dust, dirt, or sand”⁹

⁵ Cambridge Dictionary. “Logging.” @CambridgeWords, 9 Mar. 2022, dictionary.cambridge.org/dictionary/english/logging.

⁶ Cambridge Dictionary. “DEFORESTATION | Meaning in the Cambridge English Dictionary.” Cambridge.org, 2019, dictionary.cambridge.org/dictionary/english/deforestation.

⁷ CAMBRIDGE DICTIONARY. “Reforestation.” Dictionary.cambridge.org, dictionary.cambridge.org/dictionary/english/reforestation.

⁸ CAMBRIDGE DICTIONARY. “PHOTOSYNTHESIS | Meaning in the Cambridge English Dictionary.” Cambridge.org, 2019, dictionary.cambridge.org/dictionary/english/photosynthesis.

⁹ Cambridge Dictionary. “Particle.” @CambridgeWords, 14 Nov. 2023, dictionary.cambridge.org/dictionary/english/particle?q=particles.

Yellow Dust Season

The yellow dust season usually takes place during springtime and it is a climatic phenomenon originating in the dry deserts of China and Mongolia where dense clouds of soil particles are picked up by strong winds and blown across Eastern Asia.

Aerosols

Aerosols are “a mixture of particles and the liquid or gas that they are contained in, that can spread through the air”¹⁰

Pathogenic Microorganisms

Microorganisms such as viruses, bacteria and fungi are described as “pathogenic” when “able to cause disease”¹¹

Soil Erosion

Soil Erosion is “a gradual process that occurs when the impact of water or wind detaches and removes soil particles, causing the soil to deteriorate”¹²

BACKGROUND INFORMATION

The creation of the Sandstorms

As previously mentioned, the dust storms in North - East Asia originate from the Gobi Desert bordering with Mongolia and China. These dust storms are caused by high winds associated with Mongolian cyclones. The radiative forcing that arises from dust aerosols could affect the intensity and movement of Mongolian cyclones and cold fronts.

¹⁰ Cambridge Dictionary. “Aerosol.” @CambridgeWords, 25 Oct. 2023, dictionary.cambridge.org/dictionary/english/aerosol?q=aerosols.

¹¹ CAMBRIDGE. “PATHOGENIC | Meaning in the Cambridge English Dictionary.” [Dictionary.cambridge.org, dictionary.cambridge.org/dictionary/english/pathogenic](https://dictionary.cambridge.org/dictionary/english/pathogenic).

¹² Al-Kaisi, Mahdi. “Soil Erosion: An Agricultural Production Challenge | Integrated Crop Management.” *Iastate.edu*, 24 July 2000, crops.extension.iastate.edu/encyclopedia/soil-erosion-agricultural-production-challenge.

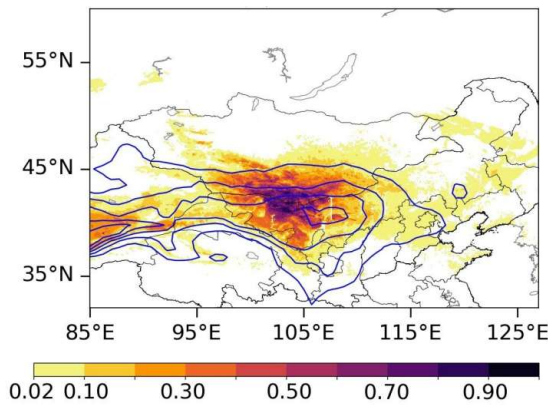


Figure 1: Graph depicting Dust aerosol concentration (contours with interval of 20000 kg/m²) caused by the Mongolian cyclone and its corresponding standardized value of the Himawari-8 red channel (shading; red coloring denotes dust)¹³

The Mongolian cyclogenesis is attributed to air masses that are related to conditions of forced convection, causing cloud cover formation and extreme precipitation. Warm and moist air over the ocean rises upward due to less density, leaving less air near the ocean surface. As a result, it starts to create a low-pressure zone. Due to the surrounding high-pressure areas, air flows into this low-pressure and eventually warms up, forming a cycle. With the constant heating rising of the warm air and evaporation process, the entire cloud and wind system starts to spin and grow. With acquiring more speed, the eye of the cyclone starts to form in the center. This central zone signifies the lowest air pressure area and is calm and clear. Further, the high-pressure air from above flows towards this region.¹⁴ Dust storms are basically walls of dust and debris that are blown into an area by strong winds from thunderstorms. These walls of dust created by a dust storm can be miles long and several thousand feet high.



Figure 2: Picture depicting a sandstorm approaching downtown Phoenix on August 11, 2012¹⁵

¹³ Atmospheric and Oceanic Science Letters. "The Formation of a Super Strong Mongolian Cyclone and Its Contributing Factors." Phys.org, 11 Aug. 2022, phys.org/news/2022-08-formation-super-strong-mongolian-cyclone.html.

¹⁴ "Cyclones: How Are Cyclones Formed, Causes, Categories, Impact & Precautions." Digit Insurance, www.godigit.com/guides/natural-disasters/how-are-cyclones-formed.

¹⁵ "What Is a Dust Storm? | NOAA SciJinks – All about Weather." Scijinks.gov, 2016, scijinks.gov/dust-storm/.

Impacts of Dust Storms

Health Effects

Exposure to dust and such particles can cause health problems and especially respiratory issues to the general public but mainly to those exposed with a history of lung diseases. The most common reactions are coughing and wheezing but exposure can also lead to lower respiratory tract infections including viral, bacterial and fungal, obstructive airway diseases.

Healthcare admissions and specifically in the emergency department, are increased during yellow dust season.¹⁶ Along with respiratory cardiovascular (19.6%–25.0%) and all-cause (9.5%–15.9%) diseases were the second and third most frequently studied conditions, respectively. Some infectious diseases can also be transmitted by dust. A prime example is Meningococcal meningitis. Another case in point is the transmission of valley fever – a potentially deadly disease -by acting as a transporter of *Coccidioides* fungi spores.¹⁷

Economic Effects

In terms of the economy the yellow dust phenomenon mostly impacts the agriculture sector impacting indirectly the economy. Specifically, it damages the soil and the crops by burying seedlings under sand deposits and is associated with livestock deaths or injuries reducing their productivity. Moreover, it also affects the transport sector. Road accidents are mostly common both because of the dust covering transportation routes increasing the risks of sliding and because of broken tree limbs harming incautious passengers and preventing drivers from getting to their destinations. Even more, the yellow dust phenomenon has an effect on airlines and marine lines in terms of long delays which can result in hotel cancellations as well as lower rates of tourism at this specific time of the tourist season. Finally, there is much lower commercial activity in the business sector as most of the citizens report avoiding commuting unless for emergency or necessary movement when sandstorms occur in order to protect themselves. Even though all of the above do not harm the economy directly, their cumulative impact over time can lead to significant and enduring economic challenges.

¹⁶ Gross, Jane , et al. American Thoracic Society PATIENT EDUCATION | RAPID RESPONSE SERIES Www.thoracic.org CLIP and COPY. www.thoracic.org/patients/patient-resources/resources/sand-and-dust-storms.pdf, <https://doi.org/10.26616/NIOSH PUB2018129>.

¹⁷ World Meteorological Organization. “Sand and Dust Storms.” Public.wmo.int, 8 Feb. 2017, public.wmo.int/en/our-mandate/focus-areas/environment/sand-and-dust-storms.

Environmental Effects

Since the yellow dust phenomenon is a climate abnormality it influences the environment in a plethora of ways, both positive and negative. First of all, it fertilizes the Amazon rainforest. This happens as the Amazon rainforest depends on nutrients like iron and phosphorus in order to flourish. Such nutrients are also known to benefit marine biomass production in parts of the oceans suffering from the shortage of such elements. In the concept of logging, according to a paper published by National Aeronautics and Space Administration (NASA) on February 24th, 2015, fallen decomposing leaves and organic matter provide the majority of nutrients, which are rapidly absorbed by plants and trees after entering the soil. However, phosphorus - a much needed nutrient- is washed away by rainfall into streams and rivers, draining from the Amazon basin. According to Hongbin Yu, a Research Physical Scientist and lead author of the said paper “The phosphorus that reaches Amazon soils from Saharan dust, an estimated 22,000 tons per year, is about the same amount as that lost from rain and flooding”¹⁸

Regarding the negative effects, dust contains a wide variety of microorganisms—including fungi, bacteria and viruses. Most of these pathogens come from dryland soils and are highly resistant to desiccation, temperature extremes, conditions of high salinity and exposure to ultraviolet radiation. They are therefore typically able to survive in the atmosphere for many days.¹⁹ Apart from the above, the water is also impacted as it is being contaminated. More specifically, a long - term experimental investigation between 2017 and 2020 in the Sistan Region, Iran - a most susceptible area to high dust levels- proved that dust particles worsened the physico-chemical quality of the water.²⁰

A general but most important consequence is global warming. Microorganisms, despite being abundant in every part of the world, are also the prime drivers of global geochemical cycling, critical symbionts of global crops, and important producers and consumers of greenhouse gasses leading

¹⁸ Garner, Rob. *NASA Satellite Reveals How Much Saharan Dust Feeds Amazon’s Plants* - NASA. 22 Feb. 2015, www.nasa.gov/centers-and-facilities/goddard/nasa-satellite-reveals-how-much-saharan-dust-feeds-amazons-plants/.

¹⁹ “New Report Explores the Impact of Sand and Dust Storms.” *UN Environment*, 6 Nov. 2020, www.unep.org/news-and-stories/story/new-report-explores-impact-sand-and-dust-storms.

²⁰ Majid Galoie, et al. “Experimental Assessment of the Impact of Fine Dust and Sand Storm on the Physico-Chemical Quality of Drinking Water.” *Natural Hazards*, 1 Dec. 2023, <https://doi.org/10.1007/s11069-023-06323-0>.

to global warming.²¹ As far as water pollution is concerned, it is interconnected with health consequences. Specifically, contaminated water and poor sanitation are linked to transmission of diseases such as cholera and diarrhea. Absent, inadequate, or inappropriately managed water and sanitation services expose individuals to preventable health risks.²²

Logging and Sandstorms

How logging accelerates the climate crisis

Forests play an important role in the global carbon cycle. Trees remove CO₂ from the atmosphere when they grow, and they release CO₂ to the atmosphere as they decompose. Forests help reduce global warming as they absorb more carbon than they emit as they grow but at the same time they worsen climate change when trees emit more carbon than they absorb as they decompose.²³

Excessive Logging

It is an indisputable fact that deforestation makes a nation more vulnerable to climate phenomena like floods and sandstorms. This occurs due to soil erosion. Erosion normally happens when the soil interacts with moving water and strong winds. The trees are actually protecting the soil with their roots, fallen leaves, and branches, and forests by shielding the topsoil from harmful elements. However, when trees are being cut down the soil is exposed.²⁴ In addition, photosynthetic activity is also delayed. Thus, reforestation and attempt of re-vegetation is key to overcoming the harm primarily done in the agricultural sector. A case in point is Kuwait. The Kuwait city, sustainable to sandstorms coming from Iraq because of the Arabian Desert since 2015, in 2019 managed to cut down the excessive number of SDSs from 80 a year to less than 5 through reforestation.²⁵

²¹“Microbes and Climate Change – Science, People & Impacts: Report on an American Academy of Microbiology Virtual Colloquium Held on November 5, 2021.” *PubMed*, Washington (DC), American Society for Microbiology, 2022, www.ncbi.nlm.nih.gov/books/NBK580166/.

²² World Health Organization. “Drinking Water.” *World Health Organization*, 13 Sept. 2023, www.who.int/news-room/fact-sheets/detail/drinking-water.

²³ Oregon Wild. *Increased Logging Is a Threat to Our Global Climate*. Feb. 2004.

²⁴ Soken-Huberty, Emmaline. “10 Negative Effects of Deforestation.” *Human Rights Careers*, 15 July 2022, www.humanrightscareers.com/issues/negative-effects-of-deforestation/.

²⁵ <https://www.wired.co.uk/article/kuwait-fights-sandstorms-with-trees>

Reasons behind Logging

Logging usually occurs for economic reasons, usually to support the agricultural sector. The agricultural sector is transformed in terms of reducing crop yields by burial of seedlings under sand deposits, the loss of plant tissue and reduced photosynthetic activity as a result of sandblasting delaying plant development, increasing end-of-season drought risk, causing injury and reduced productivity of livestock, increasing soil erosion and accelerating the process of land degradation and desertification.²⁶ For that matter, the wood extracted from the trees is used for agriculture as well as cattle-ranching, mining, oil and gas extraction, development, and subsistence-farming.²⁷

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

China

China, along with other North-eastern countries, is particularly prone to the yellow dust phenomenon due to its location. China's economic growth and industrial activities result in an increasing frequency and toxicity of dust storms as well as cause tensions with South Korea and Japan. This happens because, according to meteorologists, the dust picks up heavy metals and carcinogens such as dioxin and passes them over Chinese industrial regions, before hitting North and South Korea and Japan.²⁸ According to Chinese authorities, sandstorms in the region have been increasing in frequency since the 1960s due to rising temperatures and lower precipitation in the Gobi wilderness.²⁹ In a severe sandstorm in March 2008, acknowledging the health aspect of the issue, the Chinese authorities suggested the closure of kindergarten and primary school students because of their weaker immune system. During other times, other measures taken include shelterbelt forest and removing livestock. Lastly, to address illegal logging, a most prevalent issue, in 2019 the nations revised the Forest Law and issued a regulation referring to the "purchasing, processing, or transporting timber that is known from illegal sources".³⁰

²⁶ Stefanski, R, and M V K Sivakumar. "Impacts of Sand and Dust Storms on Agriculture and Potential Agricultural Applications of a SDSWS." *IOP Conference Series: Earth and Environmental Science*, vol. 7, 1 Mar. 2009, p. 012016, <https://doi.org/10.1088/1755-1307/7/1/012016>.

²⁷ Algee, Lisa. "What Is Logging?" *Mongabay*, 2018, rainforests.mongabay.com/kids/lesson_plans/lisa_algee/logging.html.

²⁸ "China's Killer "Yellow Dust" Hits Korea and Japan." *Reuters*, 3 Mar. 2008, www.reuters.com/article/environment-korea-dust-china-dc-idUSSEO7974120080303.

²⁹ Ku, Yuna, et al. "Yellow Dust: Sandstorms Bring Misery from China to South Korea." *BBC News*, 13 Apr. 2023, www.bbc.com/news/world-asia-65247927.

³⁰ Forest Governance and Policy. "China." *Forest Legality*, forestlegality.org/risk-tool/country/china.

Mongolia

Mongolia is the place of origin of the yellow dust phenomenon as the Gobi Desert is situated there. Citizens describing the situation mention that precipitation started in 2004 and by 2015 there were far fewer rainy periods between droughts. Mongolian scientists have long been warning about this situation. According to them, Mongolia may already have passed a tipping point. They claim that the region is drier and warmer than at any point in 260 years and the trend towards a drier climate may be irreversible. Mongolia has long suffered from desertification. In the 1990s, Mongolia initiated market reforms to relieve poverty. That led to major expansions of mining and livestock grazing. The grasslands have been threatened by overgrazing and unregulated mining ever since. According to statistics there were 24.8 million head of livestock in the country in 2022, up from 7.11 million in 1982, and far above sustainable levels.³¹

The United States of America (USA)

Even though the US is not located in North-East Asia, it suffers a lot from the yellow dust phenomenon as well. A landmark event is the “Yellow Dust Bowl” which was the name given to the drought-stricken southern plains region of the United States, which suffered severe dust storms during a drought in the 1930s. This climate phenomenon resulted in a number of deaths of both humans and livestock as well as a lot of failing crops. The Dust Bowl is characterized by several economic and agricultural factors, including federal land policies, changes in regional weather, farm economics and other cultural factors. Also known as the “dirty thirties”, it started in 1930 and lasted for about a decade, but its long-term economic impacts on the region lingered much longer. Dust storms are still frequent. SDSs are responsible for many fatal accidents particularly over roadways as they can obstruct a driver’s vision.³²

World Meteorological Organization (WMO)

WMO is an organization that focuses on meteorology, hydrology, and geophysical sciences and the protection of the environment and climate. In collaboration with NHMS it protects humanity and promotes the application of meteorology and hydrology while supporting the implementation of UNFCCC and a

³¹ Xia, Zhijian. “China and Mongolia Team up to Fight Sandstorms.” China Dialogue, 18 July 2023, chinadialogue.net/en/climate/china-and-mongolia-team-up-to-fight-sandstorms/.

³² McCausland, Phil, and Evan Bush. “Dust Storms Have Killed Hundreds and Are a Growing Problem in Parts of the U.S.” NBC News, 4 May 2023, www.nbcnews.com/science/environment/dust-storms-killed-hundreds-are-growing-problem-parts-us-rcna82889.

number of environmental conventions.³³ Furthermore, the WHO provides information about all aspects of Dust Storms as well as services including evaluation, assessment of critical and non situations and provision of guidelines. Lastly, the WMO has established operational dust forecast services in Beijing, China and in Barcelona, Spain that cover Asia and Northern Africa, the Middle East and Europe.³⁴

United Nations Environmental Programme (UNEP)

UNEP provides up to date information regarding sandstorms happening globally, as well specific cases of dust storms. In addition, the organization, through various articles has explained the correlation between the climate, the atmosphere and the outcome of Dust storms while providing the readers with invaluable insight regarding how it affects the climate, how it is connected to the current climate crisis and the different types of ecosystems.³⁵ Moreover, UNEP, following calls by Member States, contributed to the establishment and early achievements of the coalition, created in September 2018 , launched at the United Nations Convention to Combat Desertification Conference of Parties (UNCCD COP14) through the UN Environment Management Group. Its objectives, among others, include the Preparation of a global response which could be used to develop a UN system-wide approach and the development of a strategy and action plan to identify entry points for supporting affected countries and regions to implement response measures.³⁶

TIMELINE OF EVENTS

Date	Description of event
1930s	Yellow Dust Bowl in the US
March- April 1960s	Sandstorms frequency in increased in China

³³ WMO. "Overview." World Meteorological Organization, 4 Jan. 2023, wmo.int/about-wmo/overview.

³⁴WMO. "WMO Highlights Efforts to Tackle Sand and Dust Storms." *World Meteorological Organization*, 13 July 2023, wmo.int/media/news/wmo-highlights-efforts-tackle-sand-and-dust-storms.

³⁵ Environment, U. N. "Tracking Sand and Dust Storms." *UNEP - UN Environment Programme*, 19 June 2017, www.unep.org/explore-topics/air/what-we-do/tracking-sand-and-dust-storms.

³⁶ ThinkLandscape. "UNEP Helps Launch New Global Coalition to Combat Sand and Dust Storms." #ThinkLandscape, 13 Sept. 2019, thinklandscape.globallandscapesforum.org/viewpoint/unep-helps-launch-new-global-coalition-to-combat-sand-and-dust-storms/.

9 May 1992	The United Nations Framework Convention on Climate Change (UNFCCC)
5 June 1992	United Nations Convention on Biological Diversity (UNCBD)
17 June 1994	Policy Advocacy Framework for Sand and Dust Storms, part of the United Nations Convention to Combat Desertification (UNCCD)
12 to 14 September 2004	The “Sand and Dust Storm Warning Advisory and Assessment System” by the WMO is initiated
May 2007	The “Sand and Dust Storm Warning Advisory and Assessment System” is put into practice
May 2016	First global assessment of sand and dust storms by UNEP
6 September 2019	United Nations Convention to Combat Desertification Conference of Parties (UNCCD COP14) in Delhi

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

- United Nations Convention to Combat Desertification Conference of Parties (UNCCD COP14), Delhi, 6 September 2019³⁷
- [Policy Advocacy Framework for Sand and Dust Storms](#), part of the United Nations Convention to Combat Desertification (UNCCD), 1994³⁸
- United Nations Convention on Biological Diversity (UNCBD), Rio De Janeiro, 5 June 1992³⁹

³⁷ United Nations Environmental Programme. “UNEP Helps Launch New Global Coalition to Combat Sand and Dust Storms.” *UNEP*, 13 Sept. 2019, www.unep.org/news-and-stories/story/unep-helps-launch-new-global-coalition-combat-sand-and-dust-storms.

³⁸ POLICY ADVOCACY FRAMEWORK for SAND and DUST STORMS.

³⁹ United Nations. “United Nations Convention on Biological Diversity.” <https://wedocs.unep.org/Bitstream/Handle/20.500.11822/8340/>

- [United Nations Framework Convention on Climate Change \(UNFCCC\)](#), Rio De Janeiro, New York, 9 May 1992⁴⁰

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Reforestation by Vietnam

Vietnam has lost more than 80 percent of its mangrove forests since the 1950s and therefore has become extremely vulnerable to natural disasters like tropical cyclones. Vietnam specifically issued a national climate plan, which falls under the category of the “Intended Nationally Determined Contribution, (INDC), pledging to increase forest coverage to 45 percent and increase the area of protected forest in coastal areas.⁴¹ Forests in Vietnam have been degraded by decades of logging. After the Vietnam War, state forestry companies extensively logged forests throughout the country until the mid 2000’s That is why, the World Land Trust in cooperation with the Vietnamese government launched the Carbon Balance project. Specifically, the organization collaborated with the locals seeking alternative ways for them to make a living without actually relying on illegal logging.⁴²

Reforestation by South Korea

The Korean War and a heavy reliance on wood scattered previous reforestation efforts, contributing to the current situation and emphasizing the urgency for a new reforestation project. South Korea received financial aid from the U.S. Agency for International Development and the World Bank in order to focus on developing domestic sources of fuel and the transportation infrastructure to deliver it to the population ⁴³

Sand and Dust Storm Warning Advisory and Assessment System by the WMO

The WMO, noticing the prevalence of the yellow dust phenomenon and generally of sandstorms all around the globe, in 12 to 14 September 2004, the

[Convention%20on%20Biological%20Diversity,%20June%201992-19923086.Pdf?Sequence=2&%3BisAllowed=](#), 5 June 1992.

⁴⁰ UNFCCC. *United Nations Framework Convention on Climate Change*. 9 May 1992.

⁴¹ Kathleen Buckingham “Crisis Response: When Trees Stop Storms and Deserts in Asia.” [Www.wri.org](#), 23 Feb. 2016, [www.wri.org/insights/crisis-response-when-trees-stop-storms-and-deserts-asia](#).

⁴² Farrows, and World Land Trust. “Logging, Livelihoods and Forest Restoration in Vietnam.” World Land Trust, 11 May 2020, [www.worldlandtrust.org/news/2020/05/logging-livelihoods-and-forest-restoration-in-vietnam/](#).

⁴³ Kwon, Yong. “South Korea’s Reforestation Campaign.” [Thedi diplomat.com](#), 1 Nov. 2021, [thedi diplomat.com/2022/07/south-koreas-reforestation-campaign/](#).

organization initiated a programme under the name “Sand and Dust Storm Warning Advisory and Assessment System” (Forecast Maps) which was finally put into practice three years later in May 2007 by the Fifteenth World Meteorological Congress. It creates joint efforts between nations and permits them to share and collaborate on sand and dust storm forecasts through international cooperation regarding research and operational communities.

Global assessment of sand and dust storms by UNEP

In May 2016, the UN Environment Programme and partners published the world’s first global assessment of sand and dust storms. The report describes the sources of dust, outlines key trends, and offers specific policy recommendations. It is meant to lay the scientific foundation for strong policies and effective action on sand and dust storms. This report aims to depict the environmental and socio-economic causes and impacts of SDS and propose technical measures for their resolution while demonstrating sustainable development benefits and strategies.⁴⁴

POSSIBLE SOLUTIONS

Enhancing healthcare systems

Even though sandstorms and the yellow dust phenomenon is happening all year around, during springtime it reaches its peak. That’s why during that time, the countries’ governments most affected by the sandstorms should enhance the healthcare system in terms of hiring more trained staff so potentially multiple patients can be treated at once, creating a large stock of protective gear like face masks and hooded jackets, reforming infrastructures with more beds and equipment making it possible for patients to be treated in case that all healthcare facilities are stuffed.

Sustainable logging through regulations

The acts of deforestation and logging aggravate the situation and let the dust create more damage. That is why each government should enforce domestic regulations which will only allow sustainable logging in cases that broken tree limbs make transportation difficult or in order for harvested trees to be kept away from waterways in times of flood so as to avoid erosion and runoff. Sustainable logging should also be enforced in cases of rainforests and jungles like the Amazon rainforests that are home to an excessive number of wildlife, fish, and plant species where nutrients from the decomposing trees are needed. Any and all violations of this regulation should be penalized.

⁴⁴ United Nations (UN), “Global Assessment of Sand and Dust Storms.” Unep.org, 2016, wedocs.unep.org/handle/20.500.11822/7681,

Enhancing monitoring mechanisms by local meteorological agencies

In order for the North-eastern Asian nations to be better prepared for the sandstorms and create action plans that will benefit their people they should establish or empower their local meteorological agencies with state-of-the-art technological devices or closer monitoring. The local meteorological agencies could open appendices in different regions with each operational unit being in charge of a specific area of the nation in order to have better coordination. When the yellow dust season approaches, all units should assemble in a conference and compare their findings resulting in a report and consulting with the WMO as well so as to come up with evacuation plans. This report will then be forecast to the citizens so as to be aware of the situation and take personal protective measures.

International transparency in the signs of sandstorms

In order for the issue to be tackled at hand there should be international transparency amongst governments and meteorological agencies. For that matter, a world forum could be created, under the supervision of the UN in which meteorological organizations could upload their findings and their research aiming for mutual assistance and prevention. For example, should the government of Mongolia observe that there are imminent sandstorms, this fact along with proof should be uploaded in this forum so that neighboring and other prone to sandstorms nations can take preventive measures or send assistance to where it is needed.

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