

Research Report | XXVI Annual Session

Environmental Commission

Measures to combat desertification



MODEL UNITED NATIONS
THE INTERNATIONAL SCHOOL OF THE HAGUE

Maartje van Lelyveld

Forum:	Environmental Commission
Issue:	Measures to combat desertification
Student Officer:	Maartje van Lelyveld
Position:	President

Introduction

The global population is growing, the number of global citizens is not the only thing that is increasing, the amount of food produced and consumed by us is growing too. Therefore the preservation and sustainable use of our agriculturally used land is very important. Desertification is not only a threat to the amount of agriculturally produced food but also to the housing of the people living close to the affected areas, the fauna using the dryland as a source of food and housing, the tourist-based and the agriculturally export based economy.

Desertification is an increasingly growing issue threatening our global population. Desertification is a kind of land degradation of dryland ecosystems that affects all flora and fauna in the surrounding area. Although this is a natural process, deserts have increased and decreased in size for as long as we know, human activities affect this as well. About half of earth's land is dryland and this land is home to a third of our population. Many of these inhabitants rely on the benefits of these large amounts of dryland. The poorest and most vulnerable populations live in these areas. The cause is the unsustainable use of the already scarce resources such as water and fertile soil.

General overview

Originally the population of dryland lives from a mixture of hunting, gathering, herding and farming. The pressure of the population led to an extension of cultivated lands in dryland areas. This caused conflicts between the farmers and the herders since they both claim the same land. It is quite hard to find concrete numbers on this matter but approximately one fourth of the world's total crop land is affected by degradation severe enough to restrict its productivity. Most estimates run somewhere between 25% and 38%. Deserts have been formed by natural processes over a very long period of intervals of time. They have grown and shrunk over the past decades due to natural causes, independent of human activities. In the past, many empires suffered from desertification such as Carthago, Greece, and the Roman Empire. It has also caused displacement of populations. This also caused desertification, if irrigation is poorly executed, this will result in waterlogging, salinization, water pollution, eutrophication, and excessive groundwater use. The salinization can for example cause dryland to get even dryer and make it impossible for trees and plants to grow. Without any plants, the soil will not be held in its place and will just be blown away by the wind and often occurring desert storms. Another cause of desertification is deforestation. The alarmingly decreasing numbers of forest are very concerning. Because of industrial pressure,



a massive amount of forest in the size of Panama is removed every year. All these processes result in turning dryland into desert, this results in many issues such as;

Lost of harvest land

On desert soil, it is impossible to produce any goods. Therefore desertification and land degradation result in farmers that do not have any fruitful soil to produce enough food and to provide an income and meal for their families. As mentioned in the introduction, our global population is growing. Due to the increasing financial stability we consume more, it is expected that our consumption will have increased with %50 by the year 2030. In order to feed the future global population, we need to find more sustainable and productive ways of agriculturally producing foods.

Wildlife

Wildlife needs flora to survive, without any flora wildlife will move to another area with vegetation, this affects the hunters and this will decrease the amount of tourist attracted to this area. Therefore this will have a negative effect on flora, fauna, and the local economy. Fauna is not only victim in this case but also one of the causes, by consuming all plants and grass. This causes overgrazing, the fertile soil will no longer be protected against windstorms and without this support, dryland and arid areas turn into desert. In a natural situation overgrazing is not an often occurring theme since wildlife moves to another area when they have consumed enough. This makes sure no vegetation is harmed. In the current situation, many grazing animals are domesticated. These grazing animals do not get the opportunity to move around and therefore cause overgrazing.

Other aspects

Other issues caused by desertification. the circumstances cause farmers to move to urban areas as the result of the low income. Urbanization to already overpopulated urban areas will cause already alarming issues such as air pollution, decreasing quality of healthcare and lack of jobs. Another result of desertification is that the desert causes desert storms which turns even more dryland into desert and make the living-circumstances for the local population even harder.

Sandstorms

Many small villages on dryland neighbouring deserts are being jeopardized by Dust-Sand Storms and Desertification (DSSD). China is most severely targeted by these storms. 27.9% of China's land is desertified, this is caused by growing population pressure, drought and limited progress in re-vegetation. The dust-sand storms are seen as an effect caused by desertification. The dust-sand storms can be so harmful that they cause many farmers to move to urban areas or industrialised areas.

Deforestation

Due to industrial pressure, already scarce vegetation will be cut down in order to financially support the industry. Removing this vegetation means removing the protection and support of the scarce fertile soil. The industry pressuring the removal of vegetation causing deforestation often does not care for local minorities such as farmers and the environment.



Loess plateau

A very big example of land degradation is the Loess plateau in China. Also known as the Huangtu Plateau, the Loess plateau is a very large plateau which covers an area larger than 640,000 km² near the Yellow River in China. The soil is consisting of Loess. Loess is a silty sediment which has been deposited by Dust-Sand storms. This soil is often victim to erosion, in fact, the soil in this region is seen as “the most highly erodible soil on earth”. Due to this erosion, the area of the Loess Plateau has a high chance of being desertified.

Desertification affects world’s entire population and we need to solve this issue.

Major parties involved

This matter globally affects all countries, every minute we lose 23 hectares of agricultural ground to desertification or soil degradation. In order to feed our growing world’s population, we need to maintain this agricultural ground.

Sahel

The most affected area is the Sahel, the Sahel is located in northern Africa from western Africa to eastern Africa. The Sahel covers parts of (from west to east) northern Senegal, southern Mauritania, central Mali, northern Burkina Faso, extreme south of Algeria, Niger, extreme north of Nigeria, central Chad, central and southern Sudan, and northern Eritrea.

FAO

The UN's Food and Agriculture Organisation (FAO) predicts demand for food will increase 60% by 2050. Experts say the world will need an additional 120 million hectares of agricultural land to support the required food production – that is a new farm the size of South Africa.

UNCCD

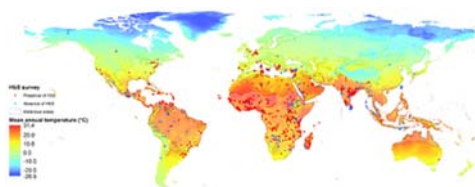


The objectives of the United Nations Convention to Combat Desertification (UNCCD) seeks to improve land productivity, to restore (or preserve) land, to establish more efficient water usage and to introduce sustainable development in the affected areas and more generally, improve the living conditions of those populations affected by drought and desertification.

China

As seen in the General Overview, the nation of China has the Loess Plateau which brings the threat of desertification to China. China is very concerned about this area which poses a threat to a large amount of their population. On the other hand, China is part of the group of BRIC countries and is industrializing very rapidly. This increasing population and industrialization cause a pressure on the Chinese industry which makes it more complicated for the government to take measures against desertification





this map shows the global hydration. Of course, these parties are not the only involved. The Sahel (which is the first area that comes to your mind) is currently the biggest arid area. If the practices causing degradation and desertification, keep on happening,

other areas like Australia, West-America, and South America will suffer from this issue too.

Therefor we should see every country as a major party involved. (image:

<http://www.haematologica.org/content/100/9/1108>)

Timeline of key-events

- | | |
|---------------------|--|
| September, 1973 | Inter-State Permanent Committee on Drought Control in the Sahel (CILSS) established by 9 Sahelian countries |
| September, 1977 | United Nations Conference on Desertification (UNCOD) held in Nairobi, Kenya - Desertification addressed as a worldwide problem for the first time and a Plan of Action to Combat Desertification (PACD) adopted |
| 3 to 14 June, 1992 | Rio earth Summit, Desertification, along with climate change and the loss of biodiversity, were identified as the greatest challenges to sustainable development. |
| October, 2002 | China adopts a decision to designate land degradation as its focal area and establish the GEF as a mechanism of the UNCCD. |
| 2006 | International Year of Deserts and Desertification. |
| 2010 | start "Desertification decade", until 2020. |
| September, 2011 | United Nations General Assembly high level meeting on desertification, land degradation and drought (DLDD) brings together world leaders to debate on the importance of addressing DLDD for sustainable development and poverty eradication. |
| 12-23 October, 2015 | Ankara, Turkey, the two-week meeting of the twelfth session of the Conference of the Parties to the UN Convention to Combat Desertification (COP 12). COP12 adopted 35 decisions. Civil Society Organizations actively participated in the session, bringing the issue of land rights for the first time to the negotiation table. |

Definition of key-terms

Waterlogging

When soil is waterlogged, it means that there is saturation of soil with water. This makes it very difficult for farmers to produce any goods.

Salinization

Salinization is often caused by poor irrigation systems. When water gets too warm (dryland often has high temperatures) it will evaporate. Not every element of water is able to



evaporate, that is why all salts and minerals stay behind. The salt on the ground will make it impossible for plants to grow.

Water pollution

The official definition of water pollution is :”addition of harmful chemicals to natural water. Sources of water pollution include industrial waste, run-off from fields treated with chemical fertilizers.” This makes already not very fertile land even dryer and more likely to turn into desert.

Eutrophication

Eutrophication is the enrichment of an ecosystem with chemical nutrients, typically compounds containing nitrogen, phosphorus, or both.

Overgrazing

Grazing by wildlife is a natural matter, however overgrazing is one of the main causes of land degradation. If fauna consumes vegetation without letting the soil regrow the vegetation, the soil degrades. Dryland is often supposed to support a too large amount of grazing animals. In the natural ecosystem, this would never have been an occurring issue because livestock moves within a larger area and would never remain in the same place until the land is entirely degraded.

Previous attempts to solve the issue

There are many small-scale projects to combat desertification, they are often quite successful but they are labour-intensive and not very effective. Many organizations who work in small villages fight very hard against desertification, although the effort is there, many farmers could work more efficient with the use of a fitting education. On this website is more information;

<http://www.unccd.int/en/programmes/Capacitybuilding/CBW/Resources/Pages/Organizations.aspx>

One very wrong way of combatting Desertification and salinization is using even more water in a poorly executed irrigation system, this will cause even more salinization and increase the desertification.

Possible solutions

There are many very good ideas on how to solve this issue. Because of the large amount of small organizations and local initiatives, there are many people working on it every day. If all these initiatives and organizations would work together, way more progress would be made. Some of the ideas are listed down here;

Policy Changes Related to How People can Farm.

In countries where policy change will actually be enforced on those in the country, policy change related to how often people can farm and how much they can farm in certain areas could be put into place to help reduce the problems that are often associated with farming and desertification. This can also include punishments for farmers who use soil damaging farming techniques.



Policy Changes to Other Types of Land Use.

When land is being used for its natural resources or as a place to live on, policies should not support land degradation but lead citizens to make good use of land. Current Policies allow inhabitants to harm the land. A good policy change should be depending on the type of land use at hand.

Storing rainwater

Many arid/dry areas have a wet season (approximately 4 months) and a dry season (approximately 8 months). The slightly revegetated areas in the wet season will die again in the dry season. The moment rain falls down on the warm dryland, it evaporates and leaves it salts and minerals behind. So instead of hydrating the soil it will only degrade it more. In order to make this land more harvest, rainwater should be stored in order to reuse the water for natural irrigation purposes instead of causing salinization and drought.

Education

Education In developing countries, education is an incredibly important tool that needs to be utilized in order to help people to understand the best way to use the land that they are farming on. By educating them on sustainable practices, more land will be saved from becoming a desert.

Technology Advances.

There has not been enough research on preventing desertification caused by nature. We need to research on better advancements and technologies that prevent desertification from happening and push our knowledge to a next limit in order to stop desertification .

Putting Together Rehabilitation Efforts.

Land that has been pushed into desertification is not easy to rehabilitate and make it useful again. The technologies to do this cost a lot of money and time, this is worth it. There are many small organization already working very hard on this, these organizations need money and more advanced technologies. If we provide this, we can prevent desertification from becoming even more widespread in already affected areas. The use of agroecology could double food production and protect our soil from degrading.

Sustainable practices to prevent desertification from happening.

Many poor farmers do not use the most efficient and sustainable ways for farming. If these farmers use more sustainable practices that do not support desertification, desertification could be combatted. This can be done by providing education to local farmers or adjusting the related policies in order to stop desertification.

Farmer-managed natural regeneration

There is a theory used for desert reclamation called Farmer-managed natural regeneration (FMNR), this is a very successful technique against land degradation. In Niger, this has been used since 1980 for reforesting degraded landscapes. It has made the regeneration of degraded land for 30,000 square kilometers in Niger possible. The World Bank's BioCarbon Fund gave money to the Humbo Assisted Regeneration Project in order to make the use of FMNR possible. Even though it is a low-cost technique, it needs to be explained to the local farmers.



Useful links

This is the link to the website from the United Nations Conference to Combat Desertification, it could be very useful to have a look; <http://www.unccd.int/en/Pages/default.aspx>

these are the links of some passed resolutions the issue of desertification by the UN;

<http://www.un.org/documents/ga/res/44/a44r172.htm>

<http://www.un-documents.net/a31r108.htm>

<http://www.preventionweb.net/files/resolutions/N1249126.pdf>

these are the Secretary-General's messages on the topic of desertification (starting from 2001); <http://www.un.org/en/events/desertificationday/2016/sgmessage.shtml>

The Food and Agriculture Organization of the United Nations has a website which could be very useful for research; <http://www.fao.org/nr/land/degradation/en/>

The UNCCD helped to produce a mini documentary on the issue of desertification; <https://www.youtube.com/watch?v=w9RxnuBiFbq>

This is the link to a paper submitted to the World Forestry Congress, on dust-sand storms in China; <http://www.fao.org/docrep/ARTICLE/WFC/XII/0859-B5.HTM>

these two websites on deforestation and desertification are very useful for research purposes; <http://scienceheathen.com/2012/12/13/deforestation-effects-causes-and-examples-top-10-list/>

<http://scienceheathen.com/2015/01/05/desertification-effects-causes-examples-top-10-list/>

Bibliography

"Causes and Effects of Desertification." Causes and Effects of Desertification. N.p., n.d. Web. 20 Jan. 2016. <<http://desertificationb.tripod.com/id3.html>>.

Climate Change and Desertification." Climate Change and Desertification. N.p., n.d. Web. 20 Jan. 2016. <<http://www.unesco.org/mab/doc/ekocd/chapter4.html>>.

Csd-16/17, and Desertification. DESERTIFICATION (n.d.): n. pag. Web. 20 Jan. 2016.

"Desertification, Desert, Drought, Arid, Climate Change, Drylands, Poverty, Ecosystem, Biodiversity, UNCCD." UN News Center. UN, n.d. Web. 20 Jan. 2016. <<http://www.un.org/en/events/desertificationday/background.shtml>>.

"Desertification." N.p., n.d. Web. 20 Jan. 2016. <<http://dictionary.reference.com/browse/desertification>>.



"Desertification." N.p., n.d. Web. 20 Jan. 2016.
<<http://www.encyclopedia.com/topic/Desertification.aspx>>.

N.p., n.d. Web. 20 Jan. 2016. <<http://www.bbc.co.uk/education/clips/zcg76sg>>.

"Salinization." N.p., n.d. Web. 20 Jan. 2016. <<https://en.wikipedia.org/wiki/Salinization>>.