

Desertification

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What is Desertification?

- If we had viewed Earth from space for thousands of years, we would describe humans as a desert-making species (Elisabet Sahtouris, Evolutionary biologist).
- Desertification is the reduction in the productivity of the land that is not reversible.
- In other words, land is desertified when it can no longer support the same plant growth it had in the past, and the change is permanent on a human time scale.
- Desertification is a type of land degradation in which a relatively dry land region becomes increasingly arid, typically losing its bodies of water as well as vegetation and wildlife. It is caused by a variety of factors, such as climate change and human activities. Desertification is a significant global ecological and environmental problem.

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- According to UNESCO, one third of world's land surface is threatened by desertification and across the world it affects livelihood of millions of people who depend on the benefits of ecosystems that drylands provide.
- 82.64 million ha or 70% of India's total land is under desertification.
- Desertification is a major environmental concern and a major barrier to meeting human basic needs in drylands and are being constantly threatened by increases in human pressures and climatic variability.
- A major discussion on ways to reverse land degradation and its outcomes was held at the 14th session of the Conference of Parties (COP14) to UNCCD in Greater Noida, New Delhi from September 2 to 13, 2019.

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Fig.: COP14 to UNCCD held in India in 2019.

Causes of Desertification

- **Overgrazing:** Animal grazing is a huge problem for many areas that are starting to become desert biomes. If there are too many animals that are overgrazing in certain spots, it makes it difficult for the plants to grow back, which hurts the biome and makes it lose its former green glory.
- **Deforestation:** When people are looking to move into an area, or they need trees in order to make houses and do other tasks, then they are contributing to the problems related to desertification. Without the plants (especially the trees) around, the rest of the biome cannot thrive.

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- **Farming practices:** Some farmers do not know how to use the land effectively. They may essentially strip the land of everything that it has before moving on to another plot of land. By stripping the soil of its nutrients, desertification becomes more and more of a reality for the area that is being used for farming.
- **Urbanization and other types of land development.** Development can cause people to go through and kill the plant life. It can also cause issues with the soil due to chemicals and other things that may harm the ground. As areas become more urbanized, there are less places for plants to grow, thus causing desertification.
- **Climate change:** Climate change plays a huge role in desertification. As the days get warmer and periods of drought become more frequent, desertification becomes more and more eminent. Unless climate change is slowed down, huge areas of land will become desert; some of those areas may even become uninhabitable as time goes on.

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- **Stripping the land of resources:** If an area of land has natural resources like natural gas, oil, or minerals, people will come in and mine it or take it out. This usually strips the soil of nutrients, which in turn kills the plant life, which in turn starts the process toward becoming a desert biome as time goes on.
- **Natural disasters:** There are some cases where the land gets damaged because of natural disasters, including drought. In those cases, there is not a lot that people can do except work to try and help rehabilitate the land after it has already been damaged by nature.

Effects of Desertification

- **Farming becomes next to impossible:** If an area becomes a desert, then it is almost impossible to grow substantial crops there without special technologies. This can cost a lot of money to try and do, so many farmers will have to sell their land and leave the desert areas.
- **Hunger:** Without farms in these areas, the food that those farms produce will become much scarcer, and the people who live in those local areas will be a lot more likely to try and deal with hunger problems. Animals will also go hungry, which will cause even more of a food shortage.
- **Flooding:** Without the plant life in an area, flooding is a lot more eminent. Not all deserts are dry; those that are wet could experience a lot of flooding because there is nothing to stop the water from gathering and going all over the place. Flooding can also negatively affect the water supply, which we will discuss next.

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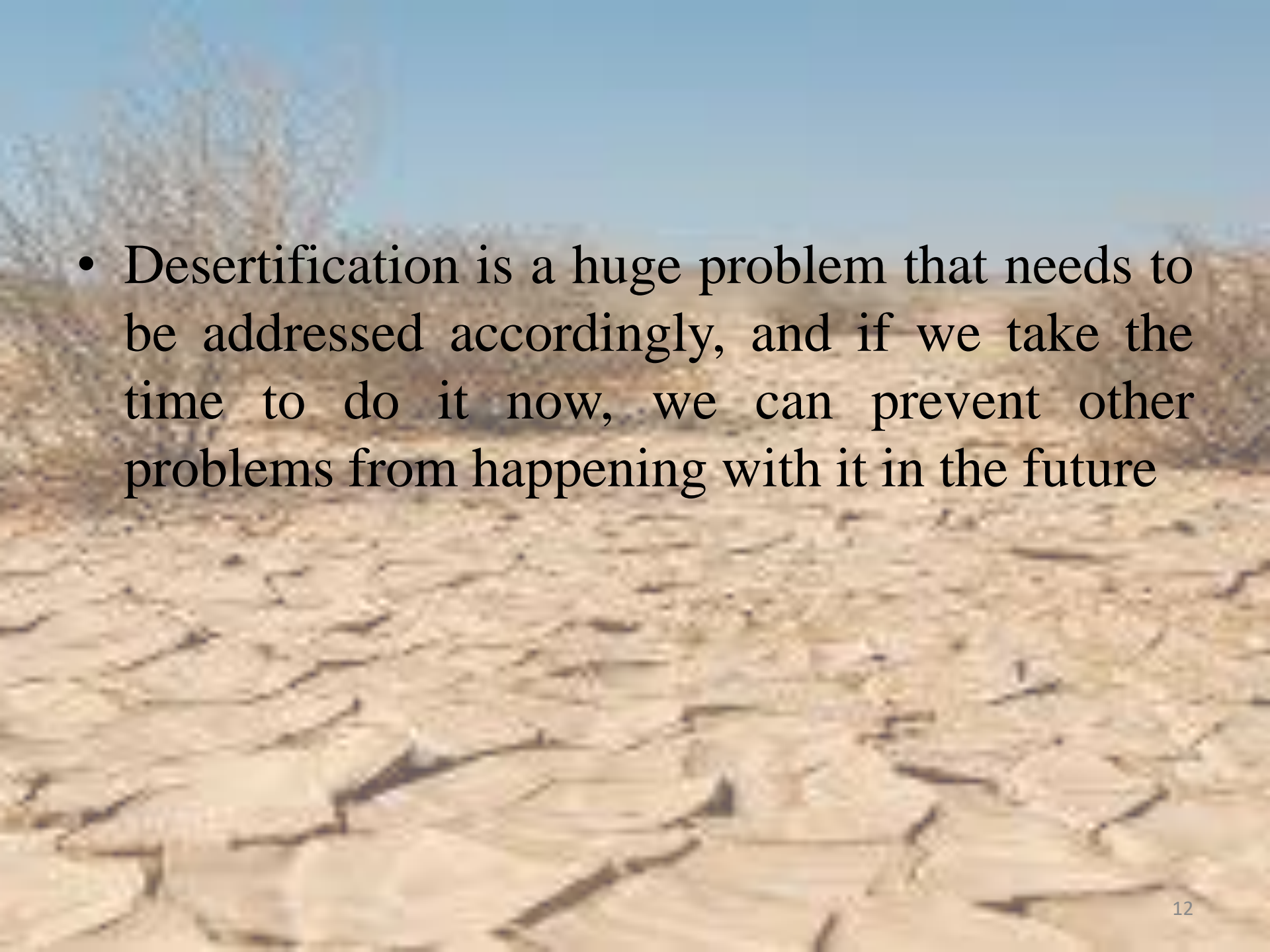
- **Poor water quality:** If an area becomes a desert, the water quality is going to become a lot worse than it would have been otherwise. This is because the plant life plays a significant role in keeping the water clean and clear; without its presence, it becomes a lot more difficult for you to be able to do that.
- **Overpopulation:** When areas start to become desert, animals and people will go to other areas where they can actually thrive. This causes crowding and overpopulation, which will, in the long run, end up continuing the cycle of desertification that started this whole thing anyway.
- **Poverty:** All of the issues that we have talked about above (related to the problem of desertification) can lead to poverty if it is not kept in check. Without food and water, it becomes harder for people to thrive, and they take a lot of time to try and get the things that they need.

Solutions for Desertification

- **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 on certain areas could be put into place to help reduce the problems that are often associated with farming and desertification.
- **Policy changes to other types of land use:** If people are using land to get natural resources or they are developing it for people to live on, then the policies that govern them should be ones that will help the land to thrive instead of allowing them to harm the land further. The policy changes could be sweeping or they could be depending on the type of land use at hand.
- **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 desert.

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- **Technology Advances.** In some cases, it's difficult to try and prevent desertification from happening. In those cases, there needs to be research and advancements in technology that push the limits of what we currently know. Advancements could help us find more ways to prevent the issue from becoming epidemic.
- **Putting Together Rehabilitation Efforts.** There are some ways that we can go back and rehabilitate the land that we've already pushed into desertification; it just takes some investment of time and money. By putting these together, we can prevent the issue from becoming even more widespread in the areas that have already been affected.
- **Sustainable practices to prevent desertification from happening.** There are plenty of sustainable practices that can be applied to those acts that may be causing desertification. By adding these to what we should be doing with land, we can ensure that we don't turn the entire world into a desert.

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- Desertification is a huge problem that needs to be addressed accordingly, and if we take the time to do it now, we can prevent other problems from happening with it in the future

Thank You!