

Forum: Economic and Social Council (ECOSOC)

Issue: Addressing the economic and social implications of the tragedy of the commons

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Introduction

Amongst the many issues that our world is facing today, a few of the most significant ones that threaten global prosperity include deforestation, traffic congestion, tensions over the South China Sea, and desertification. While these problems may not seem to have much in common at first glance, they are all examples of how the tragedy of the commons, an economic dilemma first developed more than 180 years ago, can play out in real life.

Definition of Key Terms

Tragedy of the commons

The tragedy of the commons is an economic dilemma first coined by William Forster Lloyd in 1833 where individuals share a common resource (ex: lake, pasture, forest) and each pursue their own self-interest but at the expense of the entire group.

The Tragedy of the Commons

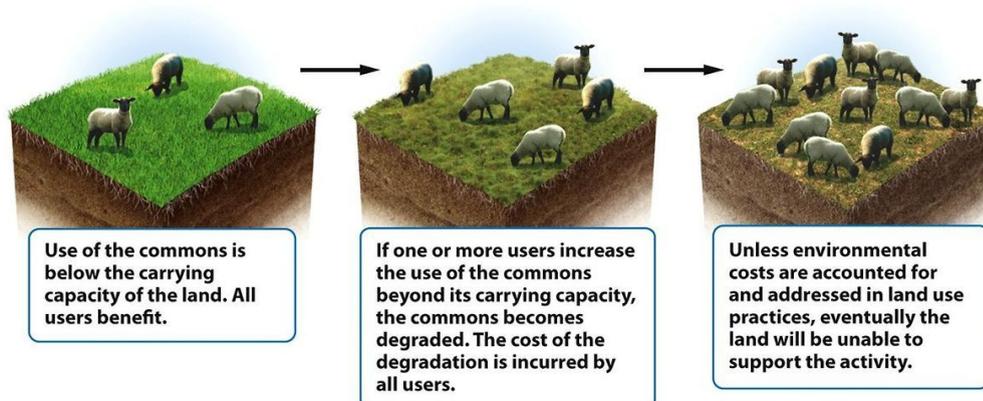


Figure 1: Graphic illustrating the tragedy of the commons

Carrying capacity and overshoot

The term carrying capacity is defined as the maximum number of people or individuals that can live comfortably in a certain area while still preserving that area's existing social, cultural, and economic conditions as well as its resources. When carrying capacity is overshoot (when the population is greater than the carrying capacity of a habitat), resources will not suffice and populations begin to decline. For example, if the population of cows in a cow pasture exceeds its carrying capacity then there will not be enough resources (grass) to feed every single cow, which will lead to the cow population to begin to die off until it is below the pasture's carrying capacity.

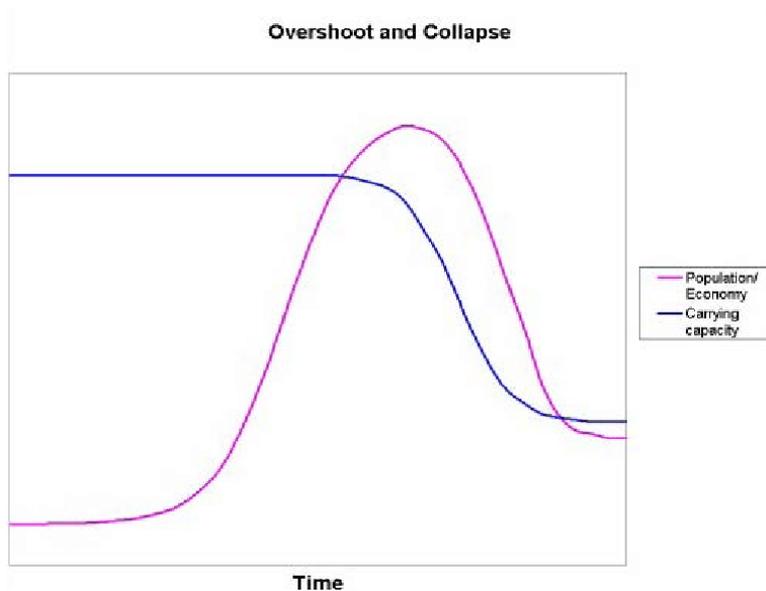


Figure 2: Graphic illustrating the concept of overshoot

Overconsumption

Overconsumption is a cause of the tragedy of the commons, and it occurs when a particular resource is utilized to a point where the resource can no longer be renewed and replenished. Examples of resources that are overconsumed by humans are fisheries, trees, roads, water reserves, etc.

Common-pool resource (CPR)

A resource that when equally shared is beneficial to all parties involved, but stops becoming of use once each individual starts to pursue their own self-interest as opposed to the greater good of the group. Common-pool resources can include pastures, irrigation systems, and fisheries- all vulnerable to the tragedy of the commons problem if not managed well.

Public good

A commodity that is accessible to all members of a group or society (i.e. opposite of a private good). Examples of public goods can include roads, libraries, parks, etc. Public goods can be subject to overuse and tragedy of the commons if there are no regulations in place.

History

In 1833, in a series of lectures delivered at Oxford University, English author and economist William Forster Lloyd first proposed his famous “tragedy of the commons” dilemma. Lloyd used the example of common, or shared, pastures to illustrate his concept. According to Lloyd, if every shepherd were to act in their own self-interest- trying to keep as many of their cattle as possible grazing on the pasture- the pasture as a resource would be completely overconsumed, thus harming the entire group. American ecologist Garrett Hardin's 1968 paper titled “The Tragedy of the Commons” popularized and expanded upon Lloyd's work.

Key Issues

Tensions in the South China Sea

The South China Sea, an area of great economic and political importance, is currently under intense tensions due to territorial disputes by countries such as China, the Philippines, and Vietnam. Nations in this region have territorial disputes over islands and other geographical features of the region like oil. Another major reason there is dispute in this region is fishing. Countries in this region rely heavily on fish as a source of food and income and because marine animals move throughout the waters of each nation no one has official rights to fisheries. This unclarity has promoted illegal fishing which not only increases tensions between the nations in the region, but also delegitimizes fishing quotas and regulations, ultimately putting species at risk of endangerment.

Desertification

Desertification, a type of land degradation in which previously fertile land becomes dry and arid due to human activities, is a major problem around the world but particularly in Sub-Saharan Africa. According to the United Nations Food and Agriculture Organization (FAO), by 2030 two-thirds of Africa's fertile land will be lost due to this issue. Again, while there are many causes for desertification, overgrazing of livestock, over-cultivation of crops, and deforestation, are among some of the major reasons. Just as in Lloyd's example, overuse results in the deterioration of these natural resources which can cause (and has caused) a loss of biodiversity and food security.

Traffic congestion

While traffic is a problem in almost every urban area, it has reached unprecedented levels in countries such as Brazil, Indonesia, and the Philippines. In the Brazilian city of Sao Paulo, for example, traffic jams can reach up to 180 kilometers, or 112 miles, during rush hour (Cabral, 2021). In addition to being incredibly inconvenient for city residents, bad traffic jams are also bad for the economy- it is estimated that billions of dollars are lost every year in cities worldwide due to lost productivity.

Deforestation

Deforestation has been an ongoing problem for decades. Destruction of the world's forests poses major threats to water supply, food production, and particularly biodiversity- it is estimated that up to 80 percent of land-dwelling plants, animals, and fungi live in forests (FAO, 2020). While recently the rate of deforestation has slowed down from 16 million hectares per year in the 1990s to 10 million hectares from 2015 to 2020, this is still quite an alarming rate of deforestation (FAO, 2020). There are many causes for this issue, however, the main one is agricultural and urban expansion- cattle ranching, soya bean farms, oil palm farms, and other agricultural projects lead to habitat destruction on large scales.

Major Parties Involved and Their Views

Association of Southeast Asian Nations (ASEAN)

The Association of Southeast Asian Nations, or ASEAN, is an international union with 10 member states: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam. The South China Sea dispute concerns many ASEAN member states- most notably Malaysia, Vietnam, Brunei, and the Philippines. The countries above have all laid conflicting claims in the South China Sea regarding its islands and reefs, such as the Spratly and Paracel Islands. While this is an incredibly strategic and important region to these countries in regards to defense and their economies, ASEAN as a whole also has close economic and social ties with China, whom many member states consider to be the primary aggressor of this conflict. For example, Cambodia received \$860 million in investment from China in 2020- making it increasingly difficult for ASEAN to come to an agreement on this issue.

Brazil

Deforestation and traffic congestion are major concerns in Brazil. Brazil's Amazon Rainforest is the world's largest tropical rainforest, housing thousands of plant and animal species, as well as an abundance of natural resources which many exploit. In January of 2022, for example, more than 430 square kilometers (166 square miles) of forest area was cleared out for agricultural, mining, and other purposes (Rannard, 2022). The current administration in Brazil has been loosening environmental

protection policies further promoting deforestation, despite facing backlash from environmentalists. The Brazilian administration claims that the main reason for easing restrictions around the harvesting of lumber is because the lumber industry provides jobs and can help reduce poverty. In addition, traffic jams are another issue in Brazil. Again, as mentioned above, traffic during rush hour can reach hundreds of kilometers at a time causing great inconvenience and economic losses. In past years, the government of Brazil has received aid from organizations such as the World Bank to fund the construction of public transportation infrastructure, which could hopefully decrease car use. However, this continues to be a major concern.

China

The current situation in the South China Sea is of high strategic and economic value to many nations, including China. China claims everything within the “Nine-Dash Line”, a U-shaped dotted line that encompasses most of the region, within its territorial claims. However, this boundary overlaps with multiple claims by other countries such as Brunei and Malaysia. To assert its dominance in the region, China has been building artificial islands and conducting military exercises, further heightening tensions in the area. In addition, China’s strong presence and assumed dominance of the region has allowed Chinese fishermen to yield greater catch than fishermen from other nations in the region. This has also promoted large illegal fleets of Chinese fishing boats to roam around the region (and also into other areas like the south-Pacific Ocean) and fish with no regards to quotas. While the Chinese government may not be directly promoting this, their persistence to gain complete control over the South-China sea threatens cooperation amongst nations in the region and could be detrimental to fisheries.

Ethiopia

Ethiopia is one of the many Sub-saharan countries that are facing the issue of desertification. As of 2022, more than 75% of its area is covered by dry land, with this percentage rapidly increasing (Kahsay, 2021). In addition to being detrimental to the environment, desertification also negatively impacts the economy. According to an Oxfam study, drought attributed to desertification in Ethiopia has caused more than \$1.1 billion USD in economic losses and a 4.4% decrease in food production. To combat this issue, Ethiopia has been conducting the Green Legacy Initiative, a project that plants millions of trees per year. In addition, Ethiopia has also been implementing environmentally friendly policies at the national level, including promoting sustainable energy sources. While these are definitely steps in the right direction and should serve as a model to other nations in the region suffering from similar issues, the quality and efficiency of these initiatives must be ensured. This is especially since Ethiopia (like most nations in the region) has a high poverty rate along with minimal governmental capacity to execute such initiatives.

India

Traffic congestion is an incredibly serious problem in India- many of its major cities such as Delhi, Mumbai, and Begaluru consistently rank amongst the world’s most congested cities. In addition to cars, buses, trucks, scooters, and other automobiles, hand-pulled rickshaws are also common vehicles that contribute to traffic, something that is unique to India and other Asian countries. Attempting to relieve this issue, the Indian government has been constructing new roads, widening existing ones, and investing in public transportation infrastructure. However, this remains a major issue as the Indian population continues to increase at an extreme rate.

Timeline of Relevant Resolutions, Treaties and Events

Date	Description of Event
1833	English economist William Forster Lloyd proposes his “tragedy of the commons” dilemma, using common pastures to illustrate his claim.
1947	China first claims the area within the Nine-Dash Line by inscribing it on an official map.
December 10, 1982	The United Nations Convention on the Law of the Sea (UNCLOS), an international treaty that outlines principles for ocean use, is adopted.
December 10, 1982	The International Tribunal for the Law of the Sea (ITLOS), a judicial body, is created under UNCLOS.
December 11, 1997	The Kyoto Protocol, an international treaty that aims to reduce greenhouse gas emissions and transition economics to renewable energy sources, is adopted.
2015	More than 1.45 million hectares of forest area is lost in Brazil (FAO, 2015).
November 4, 2016	The Paris Agreement (also known as the Paris Climate Accords) is adopted. This international treaty concerns areas relating to climate change and the environment.

Relevant UN Treaties and Events

- United Nations Convention on the Law of the Sea, 10 December 1982
- Strategic Plan for Biodiversity 2011-2020, 13 September 2007, (A/RES/61/295)
- Transforming our World: The 2030 Agenda for Sustainable Development, 25 September 2015, (A/RES/70/1)
- United Nations Strategic Plan for Forests 2017-2030, 27 April 2017 (A/RES/71/285)
- Our ocean, our future: call for action, 14 July 2017, (A/RES/71/312)
- Implementation of the United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, 21 December 2020 (A/RES/67/211)

- Oceans and the law of the sea: sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments, 9 December 2021, (A/RES/76/71)

Evaluation of Previous Attempts to Resolve the Issue

As of 2022, more than 160 countries have ratified the UNCLOS, which is widely regarded as the standard for international law. The UNCLOS sets out a framework regarding the use of oceans, one example being Exclusive Economic Zones (EEZ). EEZs are areas of the ocean, usually up to 200 nautical miles from a nation's territory, that can be used for resource extraction by that country. Areas of the ocean that extend past EEZs are known as the high seas (or international waters), which are outside of the jurisdiction of any nation. Another example of such a framework is the ITLOS, which resolves disagreements over matters regarding UNCLOS, such as marine conservation, resources, and navigation. While the UNCLOS provides a quite detailed outline for how the oceans should be used, there are many criticisms of this treaty. One criticism is that the UNCLOS cannot be effective unless all countries ratify it- most notably, the US has not. As a result, maritime conflicts such as the one in the South China Sea are increasingly difficult to resolve.

The Paris Agreement is a legally binding international treaty signed by 197 countries, first coming into effect in 2016. Nations agree to aim to keep the increase in temperatures to below 2 (ideally 1.5) degrees Celsius and achieve a carbon-neutral society by 2050 through 5-year cycles of action through sourcing energy from renewable, sustainable sources as well as reducing the detriment of essential carbon sinks such as large forests and oceans. With the first cycle, nations were expected to submit their nationally determined contributions (NDCs) in 2020 outlining their plans for action as well as their long-term low greenhouse gas emission development strategies (LT-LEDS) focusing on future action and development. This treaty places particular emphasis on more economically developed countries (MEDCs) providing financial support/aid to less economically developed countries (LEDCs). Despite this, climate change experts still warn that the pledges set out in the Paris Agreement are not enough to stop global warming. Another criticism is that there is no framework and/or mechanism to ensure that countries actually follow the pledges they set out for themselves, again reducing the effectiveness of this treaty.

One solution that has been implemented in Latin America to reduce traffic congestion is *pico y placa* (Spanish for "peak and plate"). *Pico y placa*, first introduced in Bogotá, Colombia is a government-mandated restriction of the number of vehicles that can be on the roads on specific days of the month depending on a car's license plate number (for example, in Bogotá, vehicles with license plate numbers ending in even numbers cannot be on the road during even-numbered days). While this has

helped minimize traffic congestion in these places, it is very inconvenient for some, and traffic congestion still remains a problem as many citizens (especially those of the upper class) evade this regulation by owning multiple vehicles all with different plates so they can drive every single day.

Possible Solutions

1. Direct government control of common-pool resources

- **Pros:** Governments can ensure that there will be no overconsumption and that the resource will be renewed to prevent complete expenditure through enacting policies such as fish-catch quotas or a limit on how many trees may be cut down in a forest. This will present legal consequences to those who over consume and help prevent the tragedy of the commons.
- **Cons:** In LEDCs there is commonly the issue of corruption, which will inevitably result in a decrease in the effectiveness and efficiency of direct government control. Additionally, enforcing these regulations can be difficult for nations with governments that have a low capacity to do so, which is very common in places where these strict regulations are needed .

2. Empowering local communities with controlled fish farms (aquaculture) or other controlled sources.

- **Pros:** When communities have access to a private, controlled resource along with a public resource, they become less reliant on the public resource while also making it less likely to over consume and suffer from the consequences of doing so.
- **Cons:** When it comes to the implementation, maintenance, and sustainability of this solution, there are many issues. Firstly, constructing facilities that most effectively cultivate resources for harvesting can be expensive, which is an issue for communities in rural or impoverished areas and low-capacity governments. Secondly, especially in regards to aquaculture or controlled animal feeding operations (CAFOs), the spreading of disease is very likely and detrimental to these operations. Also, they must be sanitary and kept-up in order to ensure their longevity. In order for this solution to be feasible, the communities who oversee these operations must be well-informed on how to troubleshoot and regulate them. They must be received sufficient education on how to properly maintain their resources if they are to receive one.

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Appendix or Appendices

- I. Useful resource on the tragedy of the commons and other economic terms: <https://www.investopedia.com/terms/t/tragedy-of-the-commons.asp>
- II. ASEAN and the South China Sea: <https://www.policyforum.net/aseans-dilemma-in-the-south-china-sea/>
- III. Resource on desertification: <https://www.carbonbrief.org/explainer-desertification-and-the-role-of-climate-change>

IV. Resource on deforestation statistics:

<https://www.fao.org/state-of-forests/en/#:~:text=Between%202015%20and%202020%2C%20the,80%20million%20hectares%20since%201990>