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Environmental Ethics and Technology

Junior Sophister Students
Academic Year 2025

Assignment to present their posters
on the following topics:

- The Tragedy of the Commons, Ideas and Concepts of Justice,
- Agriculture & Animal Farming, Food & Fisheries,
- Mineral Extraction,
- Intrinsic and Instrumental Value, Sustainable Transport,
- Habitability, Social Ethics,
- Engaged Buddhism.



Dr Cathrional Russell

LECTURER – TRINITY COLLEGE DUBLIN 2025





HUMANS & ANIMALS: A SYMBIOTIC RELATIONSHIP

The Role of Animals in Sustainable Farming

- **Soil Systems** - Grazing maintains landscapes, preserves biodiversity, and prevents overgrowth. (Larman et al., 2021)

- **Nature's Recyclers** - Livestock convert inedible materials into food

- Cows convert materials inedible to humans and synthesize from human food into milk and meat
 - Materials from humans for a human diet, but have nutritional benefits for cows
- In the U.S., 37 pounds of human-inedible agroproducts are generated per 100 pounds of human food (Kilbourne, 2020)



- Livestock support multiple industries, including leather, wool, and pharmaceuticals. (Hansen, 2020)

Ethical Debates in Animal Farming

- **KILLING OF ANIMALS** for food

- **ENVIRONMENT** - Cows emit potent greenhouse gases (Woolley, 2020; Smith, 2020)

- **OVERGRAZING** - Poorly managed farming damages biodiversity and degrades soil (Smith, 2020)

- **UNAPPROPRIATE HUMANEITY** - Studies show that slow time in meat leads to give better taste (Gordon, 2020)

HOWEVER

- Both humans and the environment get substantially when animals are included in sustainable agriculture systems. (Smith, 2020)

- **Mutual emotional attachment** - Humans can act as a social companion for animals, leading to research for both the human and non-human members of the community.

- Able to human quality of life and may even be used to help humans from problems like mental disturbance or drug abuse (Fry, 2020)

- It has been suggested that the relationship is a form of symbiosis (Smith, 2020)

The Future of Animal Farming

- **More research and innovation** is a necessary component to a more sustainable future (Smith, 2020)

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HUMANS & ANIMALS:

A SYMBIOTIC RELATIONSHIP



The Role of Animals in Sustainable Farming

- **Ecosystems** – Grazing maintains landscapes, preserves biodiversity, and prevents overgrowth. (Jarman et al., 1982)
- **Nature's Recyclers** – Livestock convert inedible materials into food
 - Cows convert materials inedible to humans and byproducts from human food into milk and meat.
 - Materials too fibrous for a human diet, but have nutritional benefits for cows
 - In the U.S., 37 pounds of human-inedible byproducts are generated per 100 pounds of human food (Colorado State's AgNext)



- Livestock support multiple industries, including leather, wool, and pharmaceuticals. (Vonne Lund and I. Anna S. Olsson, 2006)



Reform Over Abolition

While some ethicists support abolishing animal farming (Singer, 1975 and Regan, 1983), well-managed farming can benefit the environment. The focus should be on organic practices, prioritising sustainability, animal welfare, and ecosystem health. (Padel et al., 2004).

➔ ORGANIC PRACTICES INCLUDE:

- | | |
|------------------------------|--------------------------------------------------------|
| 1. INCREASED SPACE ALLOWANCE | 3. NO PREVENTIVE ANTIMICROBIAL USE |
| 2. PERMANENT OUTDOOR ACCESS | 4. STRICTER TREATMENT MANAGEMENT OF ANTIMICROBIAL USE. |

- Some traditional systems combine animal welfare and sustainable farming, e.g. Spain's Dehesas & Portugal's Montados models (Peco et al., 2002).
 - Norwegian Free-Grazing Systems allow livestock to roam freely, returning to human care seasonally

Positive developments in the EU - (EU Agricultural Economic brief, 2023)

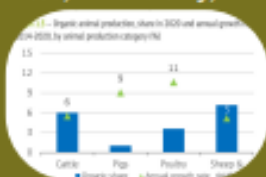
- In 2020, **42%** of the EU's organic land was permanent grassland for organic livestock (meat and dairy)

HOWEVER:

Organic animal farming remains limited; In 2020 only;

- 6% of cattle
- 7.2% of sheep and goats
- 3.6% of poultry
- 1% of pigs

were raised organically.



Ethical Debates in Animal Farming

1. **KILLING OF ANIMALS** for food.
2. **ENVIRONMENT** - Critics argue farming depletes resources (Matheny, 2003; Gold, 2004).
3. **OVERGRAZING RISKS** - Poorly managed farming damages biodiversity and degrades soil (Gold, 2004).
4. **INAPPROPRIATE HUMAN DIET** - Studies show that diets low in meat tend to give better health (Berkow and Barnard, 2005).

HOWEVER:

Both humans and the environment gain substantially when animals are included in sustainable agriculture systems. (Price, 1984).

- **Mutual emotional attachment** - humans can act as a social companion whose presence itself is rewarding for both the human and non-human member of the partnership
 - Adds to human quality of life and may even be used to help humans from problems like mental disturbances or drug abuse (Price, 1984).
 - It has even been suggested that the relationship is a form of symbiosis (Rollin, 1995)

The Future of Animal Farming

THE SHIFT TO ORGANIC FARMING IS ALREADY UNDERWAY (SEE GRAPH BELOW):

KEY MEASURES HAVE BEEN PUT IN PLACE:

- **EU Organic Farming Action Plan (2004):**
 - Lays the foundation for ongoing support and growth of organic farming in the EU.
- **Common Agricultural Policies (CAPs):**
 - EU Member States are encouraged to set organic farming targets.
 - Austria, Belgium, Germany, and Sweden aim for 30% organic farmland by 2030.
 - CAP ensures long-term support for organic farming through funding, environmental schemes, and research.
- **EU Organic Action Plan (2021):**
 - Supports organic farming through sustainability, research, and innovation.
 - Aligns with the European Green Deal, Farm to Fork, and Biodiversity Strategy



The EU is committed to integrating organic farming and into broader environmental and agricultural strategies.



TRAGEDY OF THE COMMONS DEBUNKED

Lila Travers

Trinity College School of Social Sciences

What is the Tragedy of the Commons?

In 1832, economist William Forster Lloyd wrote that in common property systems resources will be exhausted that exceed common property and that the tragedy of the commons is not a tragedy at all, but a tragedy of the commons.

The Shared Pasture Model



Two Solutions

Privatization

or

Government Intervention

Elinor Ostrom

"Well, he just made this up."

Ostrom's research on the commons showed that communities can manage their own resources sustainably. She argued that the tragedy of the commons is not a tragedy at all, but a tragedy of the commons.

Her work showed that all people have the capacity to be good and to work together. She argued that the tragedy of the commons is not a tragedy at all, but a tragedy of the commons.

"We are neither angels nor devils. We are merely human beings who must strive to live together."

Hardin's Tragedy of the Commons was coercive Population control

Hardin's argument that the commons is a tragedy is based on the idea that the commons is a tragedy of the commons.

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How Namibian Conservancies avoid tragedy according to Ostrom

Define outlines & criteria for successful systems which are not by the Namibian Conservancy system?

1. Clear boundaries and well-defined Community: Conservancies are formed by groups of people living in communal lands that formed in 1996.
2. Soluble monitoring of the shared resource: Together they participate in ways to have wildlife populations and water to manage living within the community.
3. A reasonable balance of costs and benefits for participants: Since the development of conservancies, conservancies have been successful in providing a sustainable source of income for the community.
4. A process for resolution of conflicts: Elected committees work together with all members of a conservancy. With all community members present they work together to resolve conflict.
5. Punishments for those who cheat: All members are committed to conservancies within the conservancy lands, and there are strict rules in place to ensure that they are not violated.
6. A good relationship between community members and authority: The National Conservancy Model is a conservancy that has been successful in providing a sustainable source of income for the community.

Ostrom's criteria explain key structures of many conservancy efforts and critiques Hardin's pessimistic argument.

1. Criteria directly from "The Miracle of the Serengeti" by Michelle Hibbs
2. Quote from youtube video by Dabala "Elinor Ostrom on the Myth of Tragedy of the Commons"
3. Quote "The Miracle of the Serengeti" by Michelle Hibbs

TRAGEDY OF THE COMMONS DEBUNKED

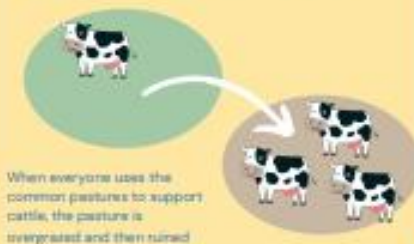
Lila Travers

Trinity College School of Social Sciences

What is the Tragedy of the Commons?

In 1968, Garret Hardin argued it is inevitable that a rivalrous common resource will be depleted and ruined because all people will act out of self-interest, and use the resource to maximize their own benefit.

The Shared Pasture Model:



Two Solutions

Privatization
or
Government Intervention

Hardin's Tragedy of the commons was coercive Population control

Hardin was worried about the ruin that would be caused by fast population growth, but he feared runaway growth of only certain communities.



Hardin's colonial and racist mindset saw people, especially in developing countries, as a set of passive set of needs, and "wealthy nations as the lifeboat" that may sink if it accepts too many passengers.

Amartya Sen's groundbreaking theory of justice emphasizes a **capability approach** that Hardin's theory does not allow for. Sen would oppose Hardin for not considering the possibility to build institutions that allow for collaboration and empower citizenship.

Elinor Ostrom

"Gee, he just made this up"₁

Ostrom criticized the simplicity of Hardin's hypothetical situation, and insists tragedy is not inevitable. She criticizes it as unrealistic, and is quick to point out he does not even consider the fact that community members would communicate.

Her work does not shy away from the complexity that explains why success is specific to each community. She insists tragedy can always be avoided without Hardin's solutions of privatization or top-down government control but by

"We are neither trapped in inexorable tragedy nor free of moral responsibility"₂



Image shows the division of land formalized by the conservancy system (West Namibia in 2016, Sian Sullivan)

How Namibian Conservancies avoid tragedy according to Ostrom

Ostrom outlines 6 criteria for successful systems which are met by the Namibian Conservancy system*

1

Clear boundaries and well-defined Community:

Conservancies are formed by groups of people living on communal land first formalized in 1998

4

A process for resolution of conflicts

Elected committees work together with all members at a yearly council. With all community members present they work together to resolve conflict

2

Reliable monitoring of the shared resource:

Together they participate in surveys to track wildlife populations and quotas to manage hunting within the community

5

Punishments for those who cheat

All members are committed to conservation within the communal lands, and there are strict rules in place to ensure quotas are not exceeded.

3

A reasonable balance of costs and benefits for participants:

Income from campgrounds, guide services, and trophy hunting supports the conservancies. Conservancies employ local community members who wish to protect the land and have the knowledge to do so

6

A good relationship between community members and authority

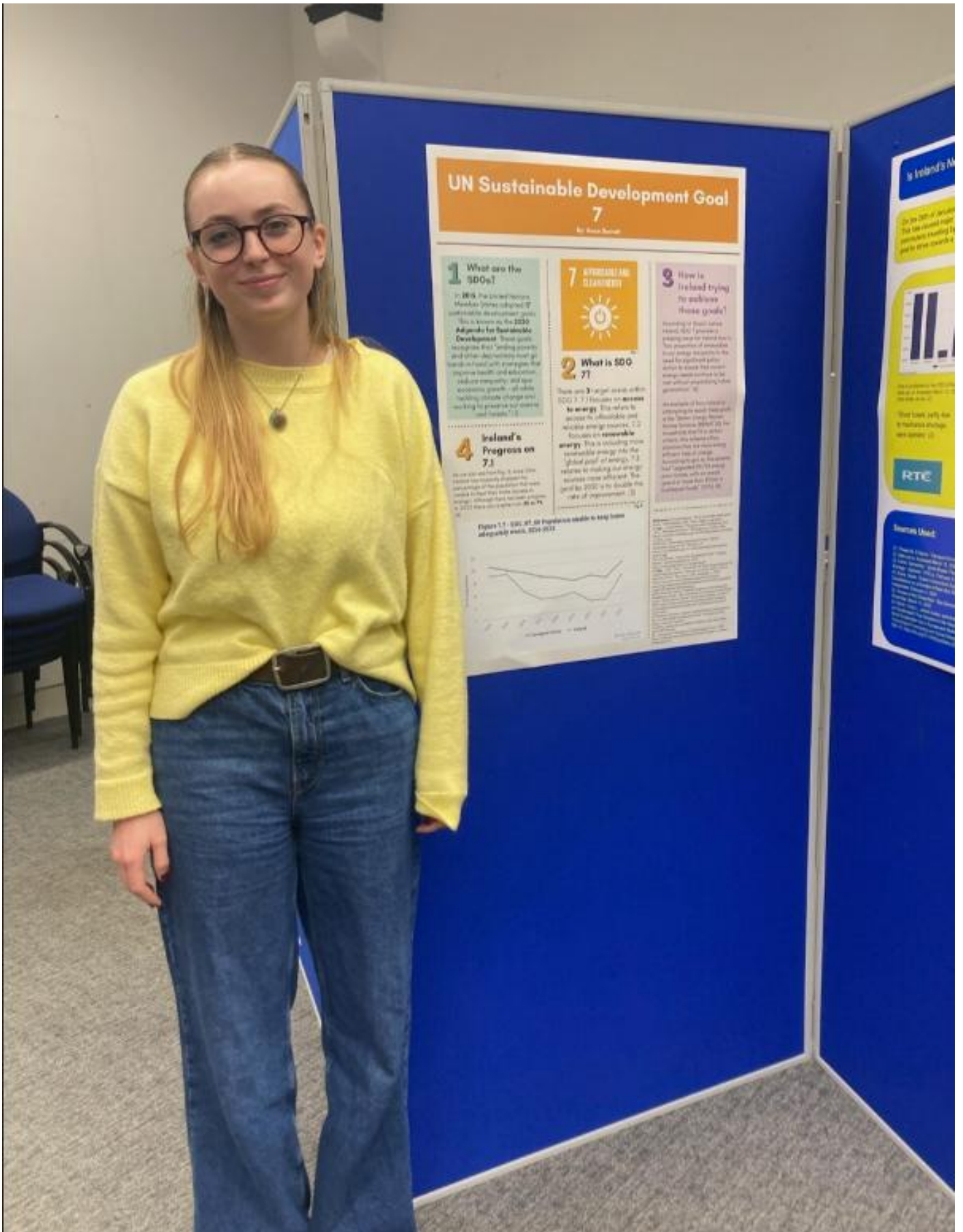
The National Conservation Ministry cooperates with local conservancies to empower community members who have the knowledge to protect the land

Ostrom's criteria explain key structures of many conservancy efforts and critiques Hardin's pessimistic argument

*6 criteria directly from "The Miracle of the Commons" by Michelle Nijhuis

1. Quote from youtube video by [diphtheria](#) "Elinor Ostrom on the Myth of Tragedy of the Commons"

2. Quote "The Miracle of the Commons" by Michelle Nijhuis



UN Sustainable Development Goal

7

Affordable and Clean Energy

1 What are the SDGs?

In 2015, the United Nations Member States adopted 17 Sustainable Development Goals. These are known as the SDGs. **Agenda for Sustainable Development** These goals recognize that "ending poverty and eradicating hunger must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests".

4 Ireland's Progress on 7.1

Since 2010, Ireland has made significant progress in meeting its commitment to SDG 7.1. Ireland's progress is shown in the line graph below.

Figure 7.1: SDG 7.1: Affordable and Clean Energy. Ireland's progress is shown in the line graph below.



7 AFFORDABLE AND CLEAN ENERGY



2 What is SDG 7?

There are 3 targets in SDG 7.1. The first target is to increase the share of renewable energy in the global energy mix. The second target is to increase the share of renewable energy in the global energy mix. The third target is to increase the share of renewable energy in the global energy mix.

3 How is Ireland trying to achieve these goals?

Ireland is trying to achieve these goals by increasing the share of renewable energy in the global energy mix. Ireland is also trying to increase the share of renewable energy in the global energy mix. Ireland is also trying to increase the share of renewable energy in the global energy mix.

Is Ireland's Progress on SDG 7.1?

Yes, Ireland is making progress on SDG 7.1. Ireland's progress is shown in the line graph below.



Source: RTE, 2020.

RTE

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UN Sustainable Development Goal

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By: Anna Durrett

1 What are the SDGs?

In 2015, the United Nations Member States adopted 17 sustainable development goals.

This is known as the **2030 Agenda for Sustainable Development**. These goals recognize that "ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests." (1)

4 Ireland's Progress on 7.1

As we can see from Fig. 2, since 2014, Ireland has massively dropped the percentage of the population that were unable to heat their home (access to energy). Although there has been progress, in 2022 there was a spike from **3% to 7%**. (4)

7 AFFORDABLE AND CLEAN ENERGY



Fig. 1

2 What is SDG 7?

There are **3** target areas within SDG 7. 7.1 focuses on **access to energy**. This refers to access to affordable and reliable energy sources. 7.2 focuses on **renewable energy**. This is including more renewable energy into the 'global pool' of energy. 7.3 relates to making our energy sources more efficient. The goal by 2030 is to double the rate of improvement. (3)

Fig. 2

3 How is Ireland trying to achieve these goals?

According to Social Justice Ireland, SDG 7 provides a pressing issue for Ireland due to "low proportion of renewables in our energy mix points to the need for significant policy action to ensure that current energy needs continue to be met without jeopardizing future generations" (6).

An example of how Ireland is attempting to reach these goals is the "Better Energy Warmer Homes Scheme (BEWH)" (8). For households that fit a certain criteria, this scheme offers solutions that are more energy efficient free of charge. According to gov.ie, this scheme had "upgraded 119,705 energy poor homes, with an overall spend of more than €152m in Exchequer funds" (2015). (8)

Figure 7.7 - SDG_07_60 Population unable to keep home adequately warm, 2014-2022



Source: Eurostat
highcharts.com

- References:** (1) United Nations, "The 17 Sustainable Development Goals," United Nations, 2015, <https://sdgs.un.org/goals>.
(2) Fig 1 - United Nations, "File:Sustainable Development Goal 7.png - Wikimedia Commons," Wikimedia.org, October 2016, https://commons.wikimedia.org/wiki/File:Sustainable_Development_Goal_7.png.
(3) SEforAll, "Sustainable Development Goal 7 (SDG7)," Sustainable Energy for All | SEforAll, n.d., <https://www.seforall.org/our-work/sustainable-development-goal-7-sdg7>.
(4) Taoise Éireann, "Sustainable Development Goal 7 Progress, Ireland," irelandsgoal7.gov.ie, 2025, <https://irelandsgoal7.gov.ie/pages/goal7>.
(5) Fig 2 - CSO, "Goal 7 Affordable and Clean Energy Regional EU Sustainable Development Indicators for Ireland 2022 - Central Statistics Office," Wwww.cso.ie, CSO, December 6, 2023, <https://www.cso.ie/en/releasesandpublications/ep/p-eu-sd/sustainable-development-indicators-for-ireland-2022/goal7affordableandcleanenergy/>.
(6) Social Justice Ireland, "Ireland's Progress on the Sustainable Development Goals - Joint Committee on Environment and Climate Action | Social Justice Ireland," Social Justice Ireland, October 17, 2024, <https://www.socialjustice.ie/article/irelands-progress-sustainable-development-goals-joint-committee-environment-and-climate>.
(7) Ríocht na hÉireann, "Ireland's Second National Implementation Plan for Sustainable Development Goals," www.gov.ie, 2024, <https://www.gov.ie/pdf/?file=https://assets.gov.ie/258557/74586d71-167d-402e-82b9-4eb7b5077db.pdf>.
(8) - www.gov.ie, "Strategy to Combat Energy Poverty," 2019, <https://www.gov.ie/en/publication/14e2b-strategy-to-combat-energy-poverty/>.

Reinterpreting Catholic Tradition for a Habitable Planet

Philotheus K. O'Connell

Introduction
In the wake of the climate crisis, religious scholars have begun to reassess their approaches to ecology. One such example is Pope Francis, the first of the Catholic Church, who has published *Laudato Si'* and *Laudato Si'* Dear. These encyclicals seek to examine the flow of the church's current approach to the climate crisis and propose new theological approaches to move forward. Bruce Latour further expands on his own work.



Complexity of the Climate Crisis
The Pope's encyclicals and the meaning of ecology are both a source of hope and a source of complexity. Latour points to the complexity of the climate crisis as a source of hope, while Francis highlights the complexity of the climate crisis as a source of complexity. The Pope's encyclicals and the meaning of ecology are both a source of hope and a source of complexity. Latour points to the complexity of the climate crisis as a source of hope, while Francis highlights the complexity of the climate crisis as a source of complexity.



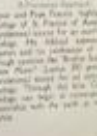
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Complexity of the Climate Crisis
The primary disconnect between Catholic teaching and environmentalism lies in the way that the church views the world. Historically, the church has regarded the natural world as a source of life and a source of life. However, this view is changing because of the complexity of the climate crisis. The Pope's encyclicals and the meaning of ecology are both a source of hope and a source of complexity. Latour points to the complexity of the climate crisis as a source of hope, while Francis highlights the complexity of the climate crisis as a source of complexity.



Fig. 1 Pope Francis' coat of arms



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Philotheus K. O'Connell, "Reinterpreting Catholic Tradition for a Habitable Planet," *Philotheus K. O'Connell* (2023).
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Reinterpreting Catholic Tradition for a Habitable Planet

Marrin Henley, REU33531

Introduction

In the wake of the climate crisis, religious traditions have begun to re-examine their approaches to ecology. One such example is Pope Francis, the head of the Catholic church, who has published *Laudato Si'* and *Laudato Deum*. These encyclicals work to examine the flaws of the church's current approach to the climate crisis and propose new theological approaches to move forward. Brune Latour further unpacks this in his own work.



Ecological Mutation

The Covid 19 pandemic and the reordering of society that came with it serve as an example that the world is constantly evolving in how it approaches problems. Latour paints this behavior as "mutating" (Latour 20), while Francis highlights that the pandemic emphasized the connection between human life and the environment (*Laudato Deum* 19). With this in mind, these theologians argue that society must also mutate and change in order to maintain the habitability of the planet. To do this, Catholic theology's stance on the earth must be reinterpreted.



Cosmology

The primary disconnect between Catholic theology and environmentalism lies in the way that the church views the universe. Historically, the church has regarded the material world as temporary and merely a stepping stone towards eternal life and a "new earth" (Latour 27). However, this view is dangerous because it creates a disconnect in humanity's relationship to the earth and promotes the idea that caring for the planet is aimless if it is an impermanent reality. To reinterpret Catholic tradition in light of the climate crisis, this cosmology has to be altered.

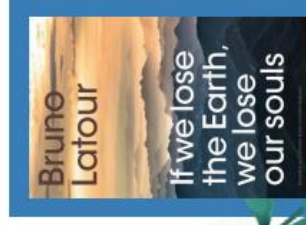


Fig. 1: Latour's book cover

A Franciscan Approach

Latour and Pope Francis highlight the theology of St. Francis of Assisi as a foundational source for an eco-focused theology. His biblical approach to creation and his celebration of nature through canticles like "Brother Sun" and "Sister Moon" (Latour 29) provide a foundational source for an eco-centric theology. Through this lens, Catholic theology can begin to reinterpret our relationship with the earth as one of kinship.



Fig. 2: Pope Francis' coat of arms

Conclusion

Reinterpreting Catholic tradition in the wake of the climate crisis requires the church to reform the disconnection between the earth and humanity promoted by its current cosmology. The Covid-19 pandemic has proven that the society, including the church, can adapt in order to make way for positive change, and the same needs to happen ecologically. The theological approach of St. Francis of Assisi provides a foundation on which to base a new theology that emphasizes a relationship of care and stewardship between people and the earth.



Fig. 3: St. Francis of Assisi

Figures

Fig. 1. Bruno Latour. *If we lose the Earth, we lose our souls* cover. Photograph. Shakespeare and Company Paris. February 9 2024. Accessed March 12 2025. Source [linkhttps://www.shakespeareandcompany.com/books/f-we-lose-the-earth-we-lose-our-souls-2](https://www.shakespeareandcompany.com/books/f-we-lose-the-earth-we-lose-our-souls-2)

Sources Francis: *Laudato Deum* [Praise God]. Vatican City: Vatican Publishing House (2023).

Latour, B. "Ecological Mutation and Christian Cosmology" in *If We Lose the Earth, We Lose our Souls*. Cambridge: Polity (2024) pp. 19-35

Fig. 2. Vatican Dicastery for Communication. "The Coat of Arms of Pope Francis". Libreria Editrice Vaticana. 18 March 2013. Accessed March 12 2025. https://commons.wikimedia.org/wiki/File:Coat_of_arms_of_Francis.svg

Fig. 3. Jusepe de Ribera. *St. Francis of Assisi*. c. 1642. Oil on canvas. 200 cm x 162 cm. Royal Monastery of San Lorenzo de El Escorial. Accessed March 12 2025. https://commons.wikimedia.org/wiki/File:Saint_Francis_of_Assisi_by_Jusepe_de_Ribera.jpg

Justice and Sustainability: Ideas vs. Theories

IDEAS

- Justice refers to fairness in the distribution of benefits and burdens in a society. In the context of sustainability, it refers to the benefits, costs, and burdens that are accrued and distributed among generations, ensuring the needs of both present and future generations.



What is a Theory of Justice and its relevance?

A theory of justice is a systematic theory that a political system is justified. This theory can be used to evaluate the justice of a political system.

THEORY: Justice as Fairness



- Justice as Fairness: This theory is based on the idea of fairness, which is the idea that we should treat people equally and not discriminate against them.
- Liberty: Liberty is the freedom of the individual to do as they please, without being constrained by the government or other people.
- Equality: Equality is the idea that all people should be treated equally, regardless of their race, gender, or other characteristics.
- Fairness: Fairness is the idea that people should be treated fairly, which means that they should not be treated unfairly or discriminated against.

The theory of justice as fairness is a systematic theory that a political system is justified. This theory can be used to evaluate the justice of a political system.

Aspect	Idea of Justice	Theory of Justice
Definition	A moral ideal (concept of what is "right" or "fair")	A systematic account of the moral principles that justify a society
Focus	General principles for society, not for individuals	Specific rules, laws, and institutions that govern a society
Goal	The ideal that is possible in a well-ordered society	How to achieve that ideal in a real world
Method	Conceptual analysis and reflection	Reasoning, logic, and empirical research

Justice and Sustainability: Ideas vs. Theories

What is Justice?

- Justice refers to fairness in the distribution of benefits and responsibilities within society. In sustainable development, it ensures that environmental, economic, and social resources are used and shared equitably, protecting the needs of both present and future generations.

1.



Idea vs Theory of Justice What's the difference?

Justice can be understood in two ways: as a broad moral idea or as a structured theory that applies justice in society. This distinction shapes how justice influences sustainable development

Different Theories of justice shape how we approach sustainability:



- **Rawls' Justice as Fairness:** Prioritises fair distribution of resources, ensuring the least advantaged benefit from sustainability policies.
- **Utilitarianism:** Seeks the greatest good for the greatest number, often balancing environmental protection with economic growth.
- **Capabilities Approach:** Focuses on enabling individuals to live fulfilling lives, considering environmental sustainability as essential to well-being.

Case Study: Climate Justice

- **Rawls Theory of Justice:** supports policies like carbon taxes, ensuring that those who contribute most to emissions bear the cost
- **Utilitarianism** advocates for solutions that maximize overall well-being, such as investing in renewable energy.
- **The Capability Approach** (Amartya Sen) argues that policies should empower vulnerable communities to adapt to climate change.



TRAGEDY OF THE COMMONS

ANALYZING HARDIN'S THEORY, ECONOMIC RESPONSES, AND THE NAMIBIAN CASE STUDY

Liliana Rosca Pinheiro

WHAT IS THE TRAGEDY OF THE COMMONS?

Garrett Hardin first proposed the idea of the Tragedy of the Commons in 1968.¹ It describes how a "selfish" population can exhaust common resources, causing social and environmental disintegration.

- Hardin used a shared pasture with several herders to demonstrate this point. Each herder gains by having more cattle, but if all herders follow this reasoning, the pasture will eventually become overgrazed and ruined.
- According to Hardin, people prioritise short-term personal gain over long-term collective sustainability, which causes shared resources to eventually deplete when left unchecked.

Hardin's proposed ideas for reform is simple, but is it realistic?

He states that there is no "technological" fix, and that the only way to avoid the tragedy of the commons is by "mutual coercion", essentially stating that unless we end over-population, by simply not continuing to reproduce or "breed" as Hardin puts it, we will always be too selfish than to simply stop using the plants's shared sources.

"Freedom to breed will bring ruin to all" - Hardin (1968)

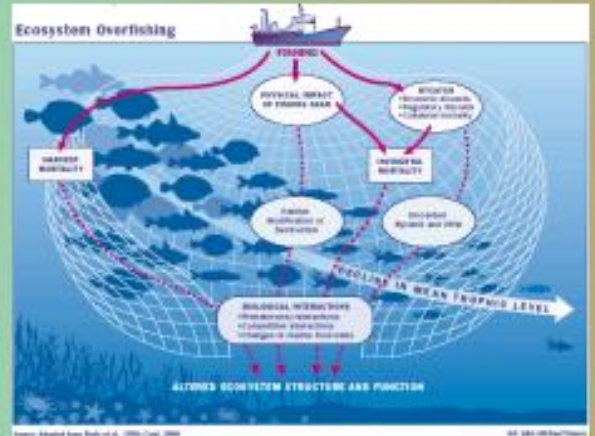


Image 1) Example of tragedy of the commons: Overfishing

ELINOR OSTROM

Challenge to Hardin's View: Commons don't always lead to overuse.

Key Ideas:

- She discovered that local organisations are capable in managing shared resources sustainably without outsourcing or government interference after doing in-depth research on actual communities.
- By suggesting that solutions should be customised to meet the demands of every community, Ostrom popularised the concept of **polycentric governance**.
- Principles for success: clear boundaries, collective decision-making, conflict resolution.

Legacy: Self-organised Communities can manage resources like irrigation, fisheries, and forests in a sustainable manner.

Critiques of Ostrom's theory: Although Ostrom's ideas are beneficial in small, local communities, some contend they might not translate well to national or international environmental issues like climate change.

THEORETICAL PERSPECTIVES ON THE COMMONS



Image 2) Ostrom explaining her reasoning for polycentric governance



Image 3) Amartya Sen and the Capability Theory

AMARTYA SEN

Challenge to Hardin's View: Scarcity isn't just about overuse but inequality in access.

Key Ideas:

- His research on famines showed that political and economic injustices that restrict access to food frequently cause food shortages rather than a real lack of food.² From this arose the:

• **Capability Approach:** Focuses on ensuring dignity and access for all, not just limiting use. Stated that policymakers should guarantee everyone the capacity to live a life of dignity.

Legacy: Emphasized ethical governance and inclusive decision-making in sustainability.

Critiques of this theory: His emphasis on equality and justice may obscure biophysical limitations, presuming that resource allocation resolves environmental problems on its own.



NAMIBIA'S COMMUNAL CONSERVANCIES: EFFECTIVE OR CONTROVERSIAL?

An innovative approach to conservation, Namibia's Communal Conservancy program gives local communities the authority to manage and profit from their natural resources.³

- These conservancies were founded in the 1990s to advance sustainable wildlife conservation, and there are now 86 communal conservancies registered by the Ministry of Environment, Forestry and Tourism (MEFT).
- The initiative adheres to Elinor Ostrom's ideas of local governance rather than rigid government control, enabling communities to manage their land.
- The Tragedy of the Commons is refuted by Namibia's conservancies' success, which shows that individuals can preserve shared resources.

Trophy hunting?

- Despite its controversial nature, trophy hunting has significance as it provides vital funds for community development, conservation, and anti-poaching programs.
- Predator species such as cheetahs, hyenas, and jackals have actually seen population increases due to strict hunting quotas and reinvestment in conservation programs.

THE TRAGEDY OR THE MIRACLE OF THE COMMONS?

The Tragedy of the Commons is refuted by Namibia's communal conservancies, which assert that individuals can preserve shared resources for future generations when they have incentives and ownership. Sustainability is achievable, as demonstrated by Sen's emphasis on equity and Ostrom's governance frameworks. The tragedy of the commons is NOT a certainty - and it can be overcome.

Picture Credits:

- <https://openstax.org/r/hardin-commons>
- <https://www.oxfordjournals.org/doi/pdf/10.1093/ajph/71.11.1647>
- <https://www.mef.gov.na/conservancies>
- <https://www.oxfordjournals.org/doi/pdf/10.1093/ajph/71.11.1647>
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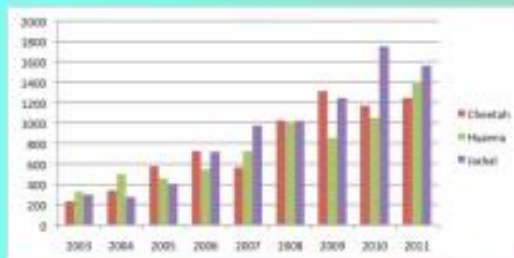


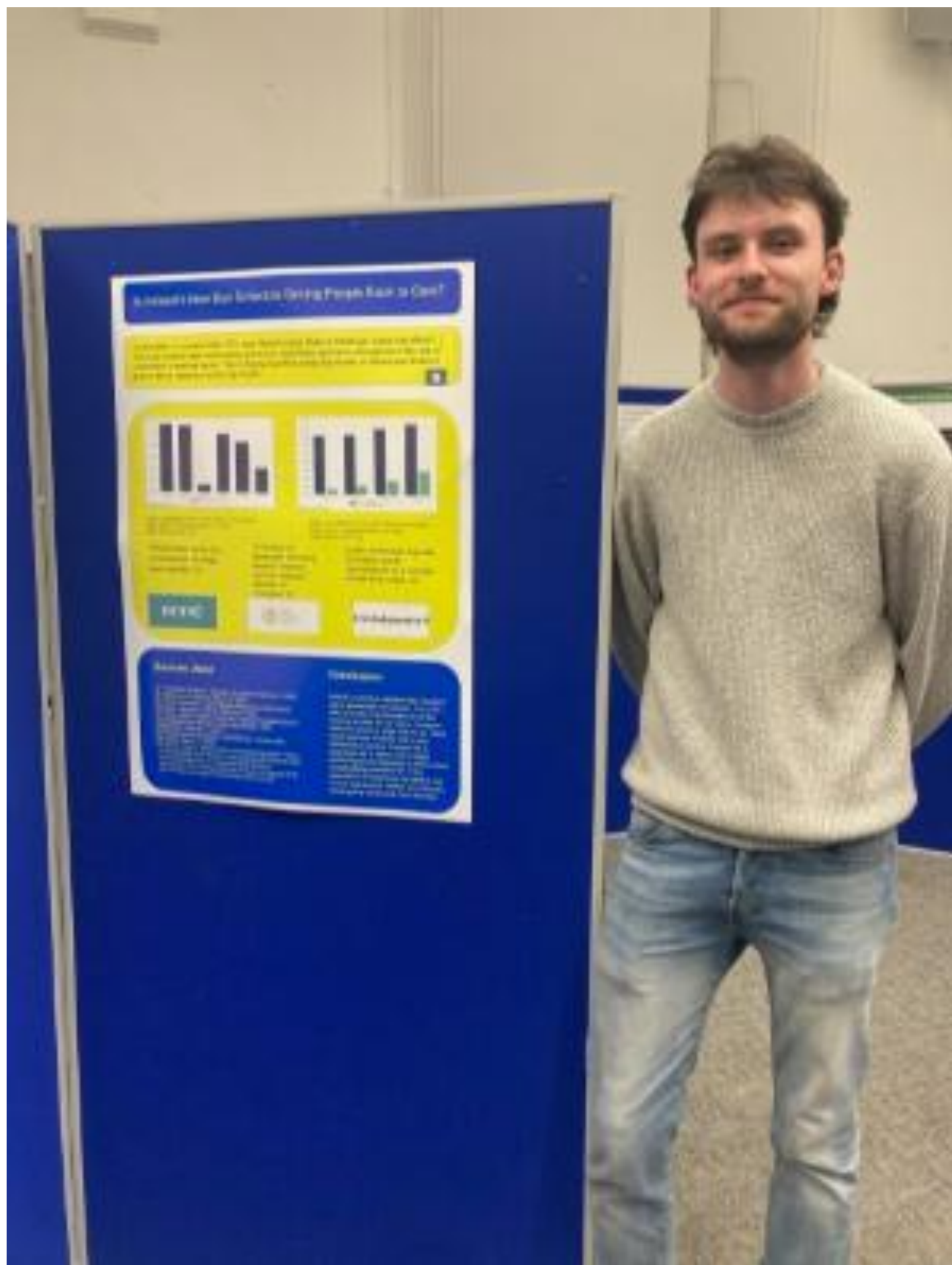
Image 4) Highlighting the growth of animal species after the implementation of communal conservancies and regulated trophy hunting



Image 5) The ministry of environment & tourism's registered communal conservancies

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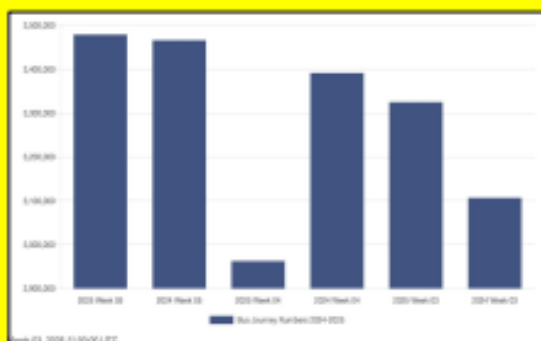
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Is Ireland's New Bus Schedule Driving People Back to Cars?

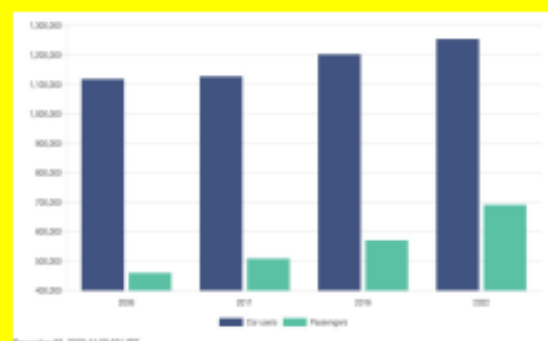
On the 26th of January 2025, TFI's new 'BusConnects Network Redesign' came into effect (1). This has caused major controversy and in turn could have sparked a resurgence in the use of commuters travelling by car. This in theory would be a step backwards in Ireland and Dublin's goal to strive towards a smart city model.

TFI



Data is published by the CSO of Bus Commuters-Data.cso.ie. Accessed March 12, 2025.
<https://data.cso.ie/>. (2)

'Ghost buses' partly due to mechanics shortage, says operator. (3)



Data is published by the CSO of Car Commuters-Data.cso.ie. Accessed March 12, 2025.
<https://data.cso.ie/>. (2)

"A number of measures are being taken to improve service reliability." - Minister for Transport (5)



Dublin commuters express frustration due to cancellations on a number of new bus routes. (4)



Sources Used:

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Conclusion:

Ireland's new Bus initiative has caused a rise in passenger complaints. The CSO data provided unfortunately is not the most up to date for car users, however I believe it shows a large hike in car users, which will only increase with a less reliable Bus service. A smart city is described as "a place where digital technologies are deployed to solve' urban sustainability problems"(6). If the population of Ireland are not able to rely on the bus service, Ireland are without a doubt going backwards from this idea.



The Tragedy of the Commons: Exploring Sustainable Solutions in Resource Management

Caroline Nolan • Trinity College Dublin, Ireland

Hardin's "Tragedy of the Commons"

Garrett Hardin argues in "The Tragedy of the Commons" (1968) that when individuals share a finite, unregulated resource, they will seek to maximize their personal outcome, ultimately exploiting and depleting the commons. He illustrates this concept with the example of a pasture open to all.¹ While the herdsman gains full benefit from each additional animal (+1 utility), the negative effects of overgrazing (-1 utility) after adding another animal are distributed among all herdsmen. Since costs are communized but profits privatized, each herdsman rationally concludes that adding as many animals as possible is in his best economic interest. Hardin warns that as population grows exponentially within a finite world, "ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons" (1244). To prevent this, he advocates for "mutual coercion, mutually agreed upon by the majority of the people affected," particularly in regulating reproduction, arguing that "freedom to breed will bring ruin to all" (1247-1248). Modern examples of the tragedy of the commons include deforestation and fisheries management.^{3, 4}



Figure 1: Deforestation - "Tragedy of the Commons" in the Amazon, Brazil. www.nature.com/articles/381001a



Figure 2: Overfishing - "Tragedy of the Commons" in our oceans. World Economic Forum, www.weforum.org/articles/2021/01/overfishing-is-a-social-tragedy-how-to-end-it-we-need-to-reimagine-how-we-fish-the-world-fishes-the-day/

Elinor Ostrom's Response: Community-Based Management

Elinor Ostrom writes that the future of the commons is not so bleak: "We are neither trapped in inexorable tragedies nor free of moral responsibility."² Her solution is community power and devolution. Through her studies of Swiss cattle herders, Japanese forest communities, and Filipino irrigators who successfully preserved shared resources and fair standards of living, Ostrom identifies key features of successful systems (see Figure 3). Ostrom argues that Hardin's depiction of resource depletion as an inevitable tragedy overlooks the complexity of human decision-making. While individuals may act irrationally, they are rarely malicious, and many communities have developed sustainable management practices. Despite Ostrom's findings, many conservationists still assume humans are inherently destructive, favoring privatization or government control while disregarding viable community-driven solutions.

1. Clear, well-defined boundaries of management
2. Reliable monitoring of the shared resource
3. Reasonable balance of costs & benefits
4. Predictable, fair, and fair conflict resolution process
5. Escalating series of punishments for cheaters
6. Polycentricity: form of governance with multiple decision-making centers and "good relationships" between the community and other jurisdictional layers

Figure 3: Ostrom's features of successful systems.

Namibian Communal Conservancy as a Revival of the Commons

The Namibian Communal Conservancy system exemplifies the revival of the commons, offering a successful model for community-based conservation that challenges Hardin's argument. In the 1980s, conservationists created a system of community game guards to help stop illegal hunting and revitalize wildlife populations, ultimately leading to controlled hunting being reintroduced. After Namibia's independence in 1990, a survey revealed that rural communities wanted a role in managing wildlife. These sentiments led to the 1996 law passed by the Namibian National Assembly allowing communities to establish conservancies. These conservancies are governed by elected committees and share revenue from tourism and hunting. They also monitor wildlife populations, set quotas, and manage conflicts between people and animals, such as directing trophy hunters to aggressive wildlife.

Complexities of Trophy Hunting: Conservation or Exploitation?

Critics contend that trophy hunting disproportionately benefits wealthy Westerners, perpetuating neocolonial control over Africa's wildlife. Moreover, many Western observers assert that 'trophy hunting in Africa has come to symbolize human transgressions against other species.'² Western activists often associate trophy hunting with figures such as Donald Trump Jr., who has been criticized for his involvement in hunting protected species, including a rare ruddy shelduck in Italy. This incident, where Trump Jr. was filmed shooting the protected bird, has fueled backlash from environmentalists and intensified concerns about the ethics of trophy hunting among wealthy Western elites.⁵ While proponents claim it funds conservation, mismanagement and unethical practices raise doubts about its effectiveness in protecting endangered animals like rhinos, elephants, and lions.



Figure 4: Donald Trump Jr. accused of shooting protected duck in Italy. CNN, www.cnn.com/2023/02/05/europe/italy-duck-hunting-trip-donald-trump-jr-intl/index.html

The Case for Regulated Trophy Hunting

International conservation groups that seek to ban trophy hunting entirely risk oversimplifying a complex issue. While unethical hunting practices exist, outright prohibition disregards the economic and ecological role hunting plays in Namibia. John Kasaona, executive director of an organization providing technical support to conservancies, argues that banning trophy hunting is "another kind of colonisation" as it undermines local authority and threatens the livelihoods of communities that have spent decades developing sustainable conservation models. He questions, "What do they say to the people whose livelihood depends on what they are trying to ban?"² Additionally, not all trophy hunting is the same, as many programs effectively manage wildlife populations and mitigate human-wildlife conflict. A more nuanced approach would focus on strengthening regulations, ensuring ethical practices, and allowing local communities to determine conservation strategies that secure both economic sustainability and ecological protection.

Trophy hunting, when properly regulated, can serve as a critical tool for conservation by providing financial incentives for local communities to protect wildlife rather than exploit it through poaching or habitat destruction. Rather than viewing it solely through a neocolonial lens, I argue that controlled hunting empowers African nations to dictate their own conservation policies while generating revenue that funds anti-poaching efforts and habitat preservation. Completely banning trophy hunting risks unintended consequences, such as increased human-wildlife conflict and diminished financial resources for conservation programs, ultimately harming the very species these policies seek to protect.

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We All Take Something. But Leave Nothing Behind

Overfishing: A Modern Take on the Tragedy of the Commons



1. A thriving underwater ecosystem with abundant predators and prey before human intervention.



2. Human harvest is sustainable with fishing communities prospering in the ecosystem's abundance.



3. Overfishing begins with the introduction of more trawlers and bigger nets along with government subsidies.



4. A once sustainable system is overfished to the point where recovery is no longer possible.



Tragedy of the Cod means Stop Overfishing Now!





We All Take Something, But Leave Nothing Behind

Overfishing: A Modern Take on the Tragedy of the Commons

'The number of
overfished stocks is
now 3x higher than in
1970' - Marine
Stewardship Council



1. A thriving underwater ecosystem
with natural predators and prey
before human intervention.



2. Human fishing at a reasonable scale
leaves repairable damage to the
ecosystem allowing for sustainable
practice.



3. Overfishing begins with the
introduction of super trawlers and
egregious net sizes along with
disproportionate catch amounts.



4. A once sustainable practice &
relationship is now left with irreparable
damage & a destroyed ecosystem.



Tragedy of the Cod-mons, Stop Overfishing Now!



TRAGEDY OF THE COMMONS

NOT TECH, BUT SOLUTIONS TO THE PROBLEM OF IT

THE TRAGEDY OF THE COMMONS

1. THE TRAGEDY OF THE COMMONS

The tragedy of the commons is a problem that arises when a resource is shared by a group of people and each person has an incentive to use the resource for their own benefit, leading to the resource being depleted or destroyed.

2. THE TRAGEDY OF THE COMMONS

The tragedy of the commons is a problem that arises when a resource is shared by a group of people and each person has an incentive to use the resource for their own benefit, leading to the resource being depleted or destroyed.

3. THE TRAGEDY OF THE COMMONS

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4. THE TRAGEDY OF THE COMMONS

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THE TRAGEDY OF THE COMMONS

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4. THE TRAGEDY OF THE COMMONS

The tragedy of the commons is a problem that arises when a resource is shared by a group of people and each person has an incentive to use the resource for their own benefit, leading to the resource being depleted or destroyed.





TRAGEDY OF THE COMMONS

NO TECHNICAL SOLUTION TO THE POPULATION PROBLEM

REU33522 Environmental and Technology Ethics
Phoebe Naughton

ELINOR OSTROM'S ECONOMIC RESPONSE TO THE COMMONS



LACK OF DATA

Hardin uses an imaginary world; no numbers and assumes people do not speak to each other nor are capable of compromise



EXPERIENCE WITH COMMUNITIES

Ostrom had studied communities that had found ways of preserving shared resources (pasture, trees, water) and providing their members with a living



SUCCESSFUL SYSTEM

clear boundaries, reliable monitoring of the shared resource, reasonable balance of costs and benefits, predictable process for the fast and fair resolution of conflicts, escalating series of punishments for cheaters, good relationships between the community and other layers of authority



SIMPLICITY OF THE TRAGEDY

People are seduced by the simplicity of the tragedy. Hardin fails to address any emotional aspects when suggesting a restriction on breeding which is not practical

A REVIVAL OF THE 'COMMONS': NAMIBIAN COMMUNAL CONSERVANCY



COMMUNITY GOVERNANCE

The Namibian Communal Conservancies restored power to local people. They govern wildlife and land through elected committees and ensure that all members share in the benefits of tourism and conservation efforts



CONSERVATION & WILDLIFE RECOVERY

The system of unarmed community game guards successfully restored elephant and rhino populations, proving that local stewardship can effectively manage and protect wildlife



ECONOMIC BENEFITS

Conservancies generate revenue through ecotourism, hunting quotas, and joint venture with lodges and guide services which demonstrates how conservation can provide sustainable economic opportunities for rural communities



CONTROVERSIES

Trophy hunting is a key source of income and helps manage human-wildlife contact, yet it is controversial as international conservation groups oppose it raising concerns about external interference

DEBUNKING HARDIN

This conservancy defies Hardin by proving that land can be conserved and used sustainably through local cooperation, as Ostrom advocated for



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Nijhuis, Michelle. The Tragedy of the Commons is a False and Dangerous Myth.
Aeon Essays, 4 May 2021.



Farming or Harming? Can we farm animals ethically and sustainably?

Factory Farming

Sustainable Farming

BILLIONS of : Chickens, pigs, cows and fish are **CONFINED** in sheds, cages, feedlots and pens, they are **DEPRIVED** of their basic behaviours causing extreme **HARM** and **DISTRESS**.⁽¹⁾

Pasture based systems:

- restore and maintain ecosystems
- ensure animal welfare
- builds natural soil fertility
- provide habitats for biodiversity
- maintain cherished landscapes
- produce nutritious food from marginal land. ⁽²⁾

DO YOU KNOW WHERE YOUR FOOD COMES FROM?

- more than 92.2 billion farmed land animals are kept and killed every year.⁽³⁾



(4)

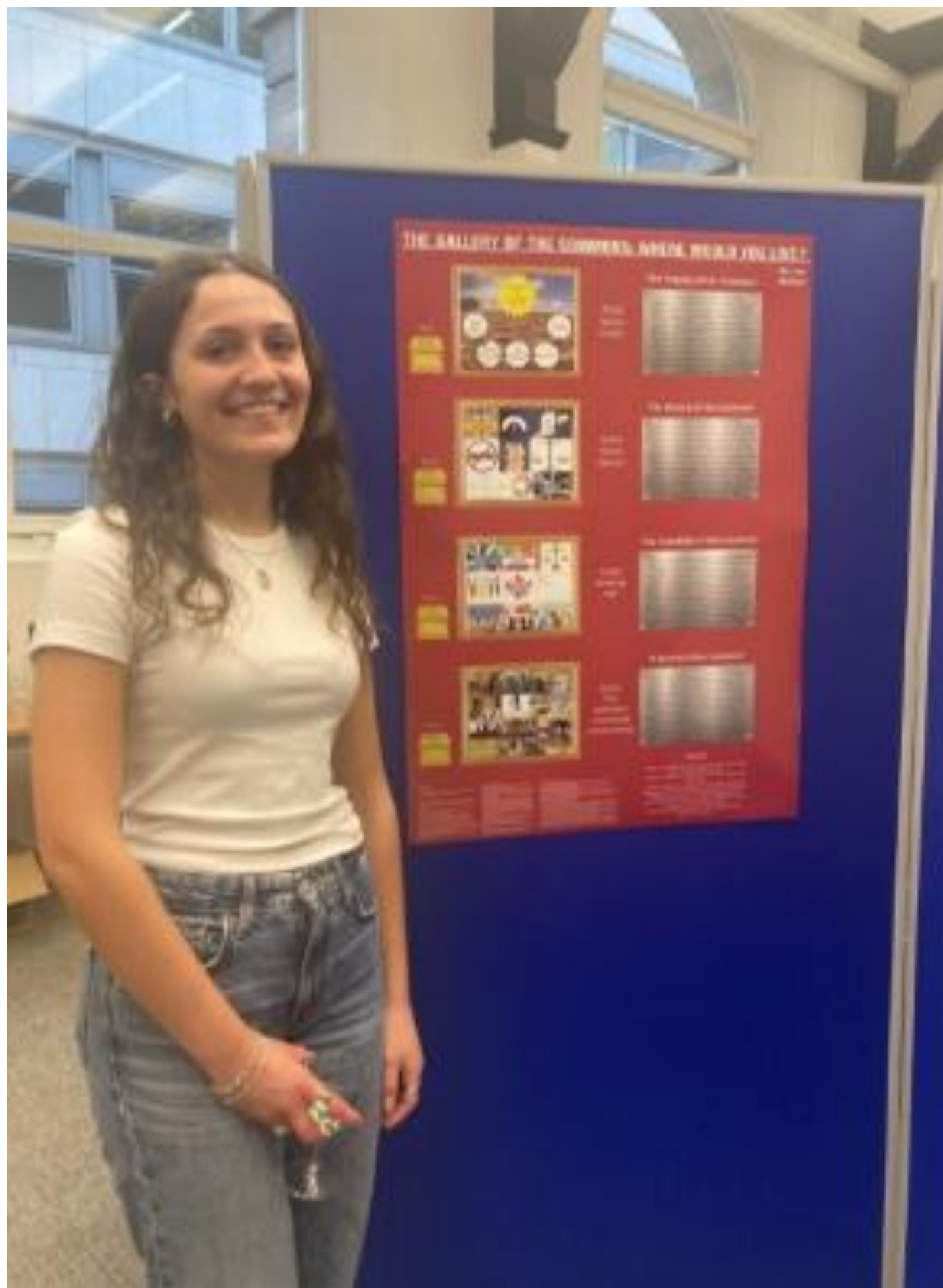
By supporting pasture based sustainable farming we are creating a better world for ourselves and animals.

By Leah Healy



Google images

1. [the impact of factory farming](#)
2. [sustainable livestock](#)
3. [commit meat reduction 2024 save animals people and planet](#)
4. [cifw_uncharter_english_web.pdf](#)



THE GALLERY OF THE COMMONS: WHERE WOULD YOU LIVE?

By Lucy McAleer

Figure 1



Artist:
Garret
Hardin

'The Tragedy of the Commons'

Hardin posits that when faced with a finite resource, it is within human nature to seek maximal individual gain without considering the interests of others leading to the depletion of the resource. In order to effectively manage the commons and prevent tragedy, he suggests that freedom should be stripped from the commons and coercion should be enforced through means of privatisation and governmental authority. He does not recognise the potential of collaboration or development at a societal level, instead he emphasises the role of institutions and legislation in the preservation of the commons. (Hardin, 1968)

Figure 2



Artist:
Elinor
Ostrom

'The Miracle of the Commons'

Ostrom recognises humanity's capability for constructivism through collaboration. She understands human nature to be much less predictable than assumed by Hardin. She has observed how communal management of the commons can be sustained when the right management approaches are implemented, preventing tragedy from arising. She rejects Hardin's proposition that regulation is the only answer, as she highlights that simplistic solutions cannot be presented in complex situations. As society reflects the height of complexity, polycentric management can be effective to ensure the needs of the community are considered, providing contextual solutions to contextual problems. (Aldrich, 2010; Nijhuis, 2021)

Figure 3



Artist:
Amartya
Sen

'The Capability of the Commons'

Unlike Hardin, Sen adopts a capability and collaborative approach for the management of the commons. He suggests that systems should nurture human capabilities and autonomy to maximise wellbeing. He criticises Hardin's proposition for regulation and coercion, as he calls it an override approach that is not a theory of justice, as the authority of the individual is overrun. Instead, management decisions should be open to public scrutiny to draw attention to the needs of society. Sen promotes collaborative solutions that recognise the potential of social and economic development for the preservation of the commons and for the Good Life. (Sen, 1994)

Figure 4



Artist:
The
Namibian
Communal
Conservancy

'A Revival of the Commons'

To Hardin's surprise, this community highlights human incentives for collaboration. The conservancy serves as an excellent example of collaborative management of the commons. Initially the commons was unmanaged, which permitted unregulated hunting to occur. Across the region, bottom-up systems were introduced to train citizens as wildlife rangers and establish conservancies to formalise the management of the commons. Systems that allow for the utilisation and conservation of the commons were developed. Communal discussion is central, consistent with Sen's ideas. The systems are consistent with Ostrom's framework for effective management at a community level, as they are shaped around emerging contexts, prioritising the needs and wellbeing of the community, allowing for tragedy to be averted. (Nijhuis, 2021)

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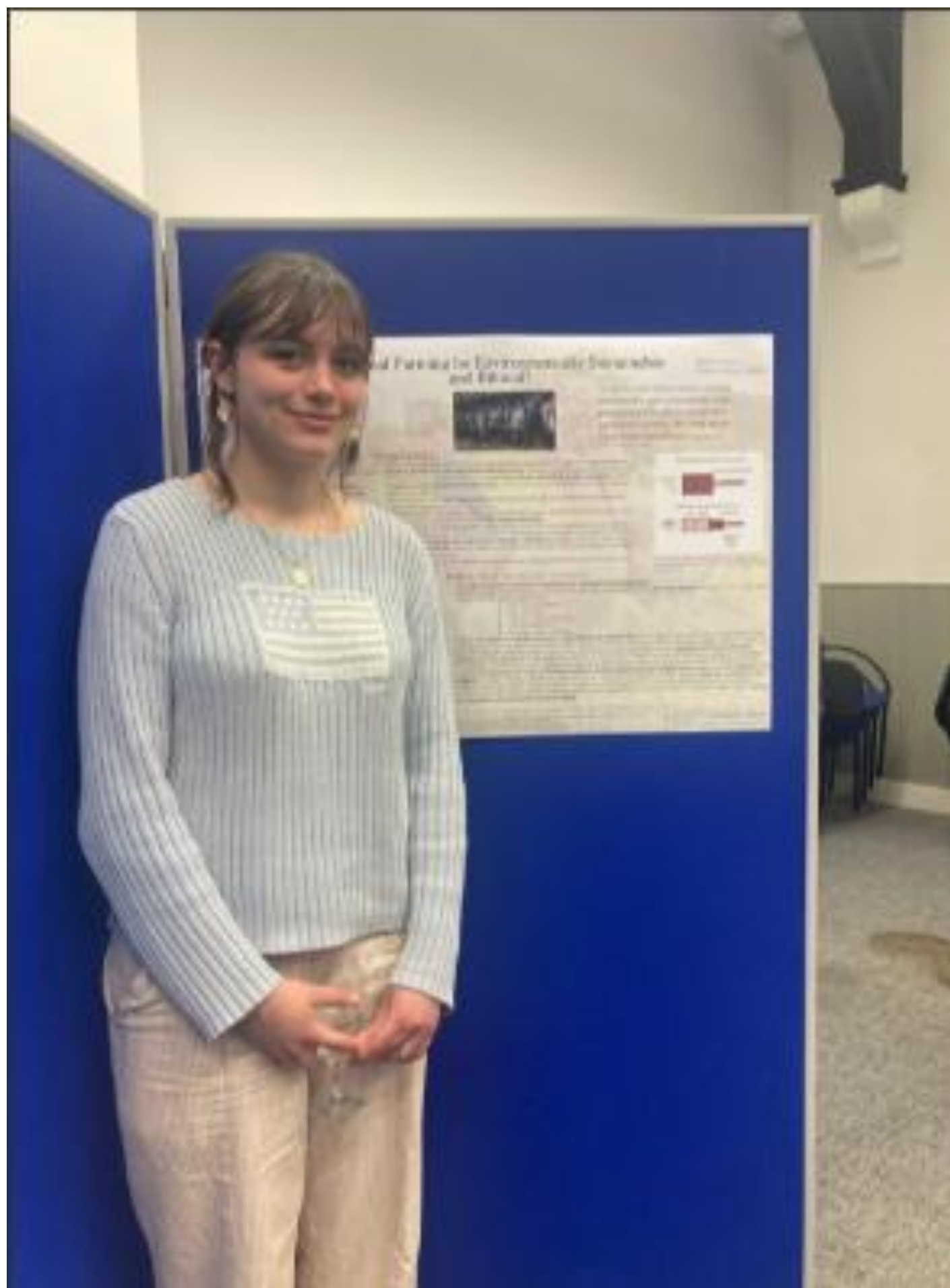
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Diagram credits

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- Figure 4: The Namibian Communal Conservancy, 2021. A Revival of the Commons. Aeon Essays, 41(12).



Can Animal Farming be Environmentally Sustainable and Ethical?

Introduction:

- Animal farming relates to the use of animals in agricultural production.
- Animal farming has been of increasing controversy because:
 - It is a significant contributor to greenhouse gas emissions and, consequently, global warming.
 - With focus to maximising production, many farms subject their animals to cruel conditions (Fig 1).
 - Animal farming oftentimes requires the premature and brutal killing of animals.
- Many animal rights advocates argue for the **total abolition** of animal agriculture on the basis that animals have an **inherent right to life and freedom**.
- They also reject its **anthropocentric presupposition** that humans are of a higher moral standing than animals and are therefore at liberty to **use animals to satisfy human ends**.
- Opponents to animal farming also protest its significant contribution to global warming, **with the livestock sector 'responsible for about 14.5% of total anthropogenic greenhouse gas emissions'** (Groot et al). Ruminant animals (cows, sheep, goats, etc.) have compartmentalized stomachs that ferment plant-based foods as they are digested. These animals produce **methane gas, the second most common greenhouse gas** (European Environment Agency).



Fig 1: Inadequate hog confinement facilities on a Canadian farm. Over-concentration of livestock causes air and water pollution (Niman).

Sustainability:

- While it is true that the livestock sector is a major contributor to our current climate crisis, **the involvement of animals in agriculture can also be beneficial to the environment**. For example, animal grazing of areas inaccessible to human harvesting increases efficiency by **transforming materials unsuitable for human consumption**. Further, **'Animals can recycle wastes from the food industry and in small-scale farming, animals can recycle household wastes'** (Lund, Olsson).
- Many animal farms use **inappropriate methods** in their raising of animals, and it is from this malpractice that environmental degradation occurs (Niman, 46). Significant changes to the livestock industry, and to animal agriculture in general, would have to occur to make the practice more sustainable and ethical. **These changes are possible**.
- Noting the cruelty of **ruminant animals** in organic farming (one of the most sustainable forms of agriculture), Anna S. Olsson and Vonne Lund offer some ideas for more sustainable animal agriculture systems: small systems of **'meat from ruminant animals raised on pasture, or animals substantially fed on agricultural products not suitable for direct human consumption'**.
- Animal farms are also over-concentrated, and this would need to change for both the environment and animal welfare (Niman) (Fig 1).

Methane emissions by sector, World



Fig 2: Methane emissions by sector. Agriculture emits the highest rate.

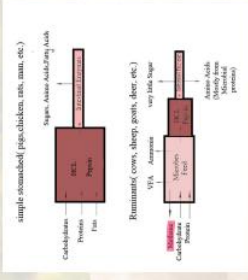


Fig 3: Modified diagram that illustrates the basic steps of the ruminant digestion process in ruminant animals. Excretion of methane (James B. Russell)

Ethics: About the Animals Themselves.

- The welfare of animals is essential to the efficiency and sustainability of animal agriculture.**
- Regulating animal welfare on farms can be achieved by adhering to programmes such as the **'Five Freedoms'** (Thompson, 131), which ensure that farm animals have the basic freedom:
 - From hunger and thirst.
 - From discomfort.
 - From pain, injury and disease.
 - From fear and distress.
 - To express normal behaviour.
- However, **the question of slaughtering remains: Is it ever ethical to kill animals for food?** Some argue that the right to life is the basis for all other rights, and that all sentient beings have inherent rights. From this point of view, the killing of animals cannot be considered ethical. However, the rights-based approach to ethical questions is not always the correct one. Establishing certain human **obligations to the environment and its inhabitants** (O'Neill), as opposed to attempting the establishment of their inherent rights, may be a more constructive approach to the problem of slaughter. As stated by Olsson and Lund, influential philosopher Peter Singer concluded that, because their awareness of their own future is so limited, **'farming animals for meat is not an ethical problem if these animals lead a good life, are killed without suffering and are replaced by new individuals'**. So what if instead of considering animal rights to life, we consider our obligation to refrain from the **'systematic or gratuitous' injury** of the environment and animals. Taking it as true that the killing of well-raised animals is non-injurious, and that the inclusion of animals in agriculture is beneficial to the environment and its ecosystems, then supposed inherent rights of animals need not be considered, and the **ethical and sustainable future of animal farming may be realized**.



Fig 1: Henry for Animals Canada / Flickr

- Henry for Animals Canada / Flickr
- Henry for Animals Canada / Flickr
- Henry for Animals Canada / Flickr



Thich Nhat Hanh's Reinterpretation of Buddhism

By Natalie Redfield-Gale

An illustration of how Thich Nhat Hanh's modernization of Buddhism promotes a more habitable planet through its focus on forming communities and connecting with the Earth.

Hanh and His Vision

- Thich Nhat Hanh was born in Vietnam in 1926¹
- Became a spiritual leader in the context of the Vietnam War²
- Thought that Buddhism could restore peace¹
- Believed that Buddhism needed to adapt to fit into a more modern context²
- Popularized engaged Buddhism and mindfulness meditation²
- Developed 5 mindfulness trainings to "create a more healthy and compassionate world"⁴ -->

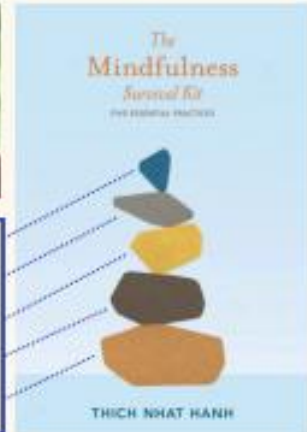
Engaged Buddhism:
the application of the wisdom gained from the Buddha's teaching and meditation to alleviate suffering in society, the environment, and politics²



Photograph of Thich Nhat Hanh¹

- 1 Reverence for Life
- 2 True Happiness
- 3 True Love
- 4 Loving Speech & Deep Listening
- 5 Nourishment & Healing

The 5 mindfulness trainings as described in Hanh's book²



Plum Village



From Vesak Day celebrations at Plum Village in 2022¹

- The first (and largest) Monastic Community founded by Hanh in 1982⁴
- Located in the Southwest French countryside near Bordeaux²
- Began as a care center for Vietnamese refugees²
- Now a place that many people travel to for retreats where they learn about mindfulness and engaged Buddhism²
- The village has established a relationship with the surrounding community and is now very integrated into the fabric of the area²

Scope and Other Ventures

Sanghas



A map depicting the location of Sanghas across the world³

- 1153 Sanghas across the world²
- Sangha is a Sanskrit word for inseparable³
- Consists of a community of Buddhist practitioners (can include monastics and lay practitioners)⁴
- A place for people to practice Buddhism as well as find community and support⁴
- Hanh encourages people to continue to create more Sanghas²

Key
Dark Blue: The 11 Main Practice Centers
• 3 in the US, 4 in Europe, 2 in Australia, 1 in Hong Kong, 1 in Thailand
Light Blue: Traditional Sanghas
Green: Wake Up Sanghas
• An affinity sangha for ages 18-35



Online Monastery



Connection to Nature



A walking meditation taking place at Plum Village¹

- Encourages walking meditation as a form of mindfulness¹
- Uses the calming and restorative qualities of nature as a place to form community¹
- Hanh describes the connection that people can have with the Earth by saying "The Earth is in you, you are the Earth"¹
- Some leave a society that they view as destroying the environment to join the society of Plum Village²



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The Truth Behind the Tragedy of the Commons

Dr. Kelly Ferguson

The Commons

The commons is a resource that is shared by a community. It can be a physical resource like a forest, a body of water, or a pasture, or it can be a non-physical resource like a language, a culture, or a tradition. The commons is a resource that is shared by a community, and it is a resource that is often taken for granted. The commons is a resource that is shared by a community, and it is a resource that is often taken for granted.

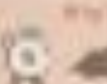
Why it's important



HOAX



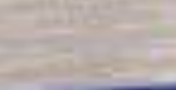
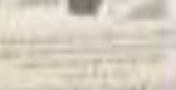
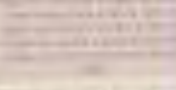
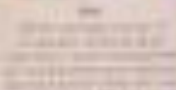
The Tragedy



Forms of Resource

- Renewable resources
- Non-renewable resources
- Common-pool resources
- Private resources
- Public resources
- Open-access resources
- Exclusive resources
- Common-pool resources
- Private resources
- Public resources
- Open-access resources
- Exclusive resources

The Tragedy



The Truth Behind the Tragedy of the Commons

By: Katie Farrington

Hardin's Argument

Hardin bases his argument that freedom in the commons brings ruin to all on the historic commons of England. He claims farmers use the commons to graze their cattle and view adding another cattle as beneficial and only slightly harmful, as they share the harm with all the other farmers. Therefore, all farmers continue to add cattle until the commons are destroyed (Hardin, 1968).

Argument's Issues



Lack of communication



Commons provide food which provides incentive to work together

HOAX

Inaccurate representation of what happened with the English commons



A comedic piece on the communication issues within the Tragedy of the Commons ("The US and 'Tragedy' of Commons", 2017)

The True Story



The peasant commons in England existed for hundreds of years and never succumbed to tragedy.



However, in 1804, thousands of parliamentary enclosure bills siphoned off more than a fifth of the English countryside (Amer, 2023).

Why?



Large landowners would deliberately overgraze the commons, not to fatten or expand their cattle, but so the commons would fail and be privatised. These were the only few cases of overgrazing and 'tragedy' that occurred (Glass, 2011)



Hardin claims privatisation is the solution to the tragedy of the commons but in reality it was the motivation.



The British Commons (History Guild, 2024)

Harms of Privatisation

- Unequal Access
- Power Imbalance
- Loss of Equal Freedom
- Potential Exploitation
- Enhancing Corporate Power
- Weakening Public Power and Democracy
- Widening Racial and Economic Disparities
- Dampening Worker Power (Cordelli, 2020) (Stiglitz, 2021)

The Implications

Then



Hundreds of villages vanished because the people who lived there had to leave



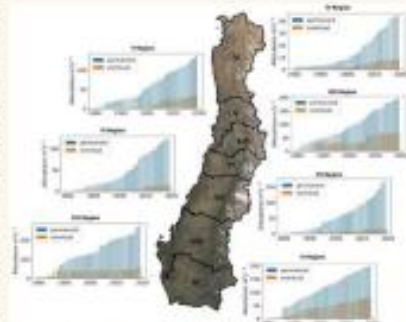
No longer had a means of sustenance



No longer had work

Now

Hardin's proposed solution of privatisation had similar global implications. Hardin's idea supported and possibly influenced privatisation laws such as Chile's Water and Land Market Reforms of 1981. This law was meant to contribute to water security by instituting private property rights to water to enable permanent access but instead promoted unequal access that mostly harmed small farmers (Budds, 2020).



Water allocations from 1980 for the different regions studied and granted as permanent and eventual consumptive water rights

(Fuentes et al., 2021)

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The Ethics of Chicken Farms



Violability

When we consider the lives of chickens, we often think of them as mere commodities. However, they are sentient beings with the capacity for pain and suffering. This raises ethical questions about the treatment of these animals on farms.



The Value of Eggs

Eggs are a valuable source of nutrition for humans. However, the production of eggs often involves the confinement and mistreatment of hens. This raises ethical questions about the value of eggs and the conditions under which they are produced.



Productivity

Chickens are often bred for high productivity, which can lead to health problems and shortened lifespans. This raises ethical questions about the pursuit of productivity and the well-being of the animals.



Natural Predators

Chickens are natural prey for many predators, including foxes and coyotes. This raises ethical questions about the role of predators in the ecosystem and the impact of human intervention.



Animal Welfare

Chickens are sentient beings with the capacity for pain and suffering. This raises ethical questions about the treatment of these animals on farms and the impact of human intervention.



Soil Erosion

Chickens can contribute to soil erosion by disturbing the soil with their feet. This raises ethical questions about the impact of human intervention on the environment and the role of chickens in the ecosystem.

The Ethics of Chicken Farms



Versatility

30% of total meat production comes from poultry, and without it, billions would go hungry. Unlike other animals, chickens are able to thrive almost anywhere, allowing even the most remote countries to harvest them for food. Local farming also reduces the risk of large disease outbreaks that would come from factory farms.



The Value of Eggs

In the United States alone, chickens produce over 6 billion eggs annually. With each hen laying more than 250 eggs per year, the country's 300 million egg-laying chickens provide a vital, sustainable food source that feeds millions—even without the need for slaughter.



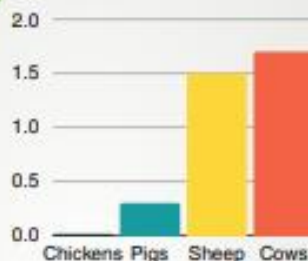
Profitability

Chickens can be extremely profitable for farmers who cannot afford larger cattle. They mature in only 7 weeks, allowing for a quick ROI. They also produce a variety of goods, from eggs to fertilizer to the chicken itself, allowing for multiple revenue streams and a larger customer base.



Natural Pesticides

Raising chickens eliminates the need for pesticides, as they naturally feed on insects and weeds. This not only protects the farmer's soil but also creates a healthier environment for all the animals as well. By reducing the use of pesticides, it minimizes the risk of chemicals entering the food supply.



Acres Per Animal

Chickens require the least amount of land to live compared to other livestock. This reduces their strain on agricultural land and allows for farmers to own many more at a time. This also allows for chickens to be farmed in urban environments, eating kitchen scraps and reducing their owner's carbon footprint.



Soil Enrichment

Chicken manure is rich in nitrogen, phosphorus, and potassium, all essential nutrients for plants. It improves soil health, enhances water retention, and reduces the need for synthetic fertilizers, which are harmful to the environment. This process supports regenerative farming and promotes sustainable food production.



Ideas vs. Theories of Justice



&

What is their impact on Sustainable Development?

1 Idea vs. Theory of Justice

What is the Difference?

Idea of Justice = Broad, conceptual understanding of 'Fairness & Morality'

- E.g. Sen's "Idea of Justice"

Theory of Justice = Structured framework which applies justice in certain legal and political contexts

- Rawls' theory of "Justice as Fairness"



2 What is Sustainable Development?

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Brundtland Report (1987)

The UN has identified 17 "Sustainable Development Goals" which aim at ending poverty, protecting the planet, and ensuring prosperity for all by 2030.



3 Three Core Dimensions of Sustainable Development

- 1) Economic Sustainability
- 2) Environmental Sustainability
- 3) Social Sustainability



4 Who are the key "Justice Thinkers?"

J.Rawls : 'Justice as Fairness'

Emphasis on fairness and protecting the least advantaged

A.Sen : 'Idea of Justice'

Advocates for a comparative, real-world approach to justice

P.Ricoeur : 'The Just'

Focus on ethical responsibility to protect the environment for future generations

5 Impact of these ideas on Sustainable Development

Rawls: Justice as Fairness --> Supports Polluter Pays Principle & Environmental Justice

Sen: Capabilities Approach --> Realistic, Community-based Solutions

Ricoeur: Ethical Responsibility --> Corporate & moral accountability in sustainability

'Intrinsic Value' as a Poor Basis for Conservation Decisions: The Case of the Spotted Owl

Pablo Donohue

What is Intrinsic Value?

The idea of intrinsic value is that all beings possess value in themselves. That is, something can have value for its own sake, regardless of what qualities it possesses or external relationships. This can be contrasted with "instrumental value," where something is considered valuable because it serves a purpose. So how does intrinsic value relate to conservation ethics? Many conservationists believe that intrinsic value should be the primary basis for conservation decisions, arguing that it reflects the integrity of all species and protects them from human short-sightedness. On paper, it seems reasonable. However, it does come with major setbacks in terms of practicality.

PROS

- Intrinsic value reflects the principle of nature having value outside of human interaction.
- Ideally, intrinsic value eliminates the influence of human bias in conservation decisions. As all species under this viewpoint possess value regardless of their relationship with people, conservation choices will be made from a completely objective perspective.
- It encourages long-term protection. Conservation efforts are less likely to be affected by shifting economic or practical priorities which could interfere with long-term protection.

CONS

- Due to limited funds and personnel, compromises need to be made in terms of what projects can go ahead. This means that some projects must have priority over others, and intrinsic value doesn't provide an effective method for making these comparative based choices.
- When conservation goals conflict with economic or human interests, intrinsic value alone is less likely to be favoured as opposed to more quantifiable elements such as money or human development.
- Viewing every species as having intrinsic value can result in the disregard of their role in an ecosystem and prioritising more ecologically redundant species.

THE CASE OF THE SPOTTED OWL



What Happened?

- Found in the forests of the Pacific North West, the spotted owl population has been rapidly declining due to deforestation.
- After heated negotiation, the spotted owl was declared as 'threatened' under the ESA.
- This resulted in a dramatic decrease of logging in the area.

The Problems

- Many people feared the restrictions on logging would lead to economic decline.
- Reports showed that, compared to the industry on a national level, timber employment declined by 28%.¹⁰
- The spotted owl population never bounced back, partially due to competition from the invasive barred owl.

This underscores the issue of intrinsic value, focusing on species rather than ecological systems.

CONCLUSION

- Despite its appealing philosophical ideals, intrinsic value is not a strong basis for conservation decisions predominantly due to its practical limitations.
- A more suitable and balanced method is the 'integrity of systems' approach, which focuses more on ecosystems than single species as well as considering human needs and incentives.
- This provides a more integrated approach to conservation which intrinsic value alone has failed to achieve.

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WHAT DOES A JUST WORLD LOOK LIKE?

Theories of Justice

Fairness

- Need based, any inequalities within a system exist only to favour those who are least well-off within it.

The Good Life

- Goodness is understood when we live it.
- Justice is an unnatural enactment that we perform.

Capabilities

- Justice is measured by the freedoms of the members of society, instead of the commodities they possess.

Theories are great, but if what if we enacted them?



Photo by Shana Pflaum on Unsplash

Sustainable Development in a 'Just World'

'Sustainable Development'?

- To have people's needs be met in the present without getting in the way of future generations meeting *their* needs.

- In a 'fair' just society, development should begin from the bottom up, providing the poorest members of society with the most aid.
- In a 'good' just society, development begins in the reconstruction of unjust systems
- In a 'capable' just world, all members of society are free in their capability to get whatever it is they may need.



Photo by Paddy MacMahon on Unsplash

"...how do we go about developing a theory that will come to the aid of practical men and women who are moved by their passion to work towards a more just world?"
S.R. Osmani

Source:
Osmani, S. R. "Theory of Justice: an Important World-Banking Strategy for a World Justice." *Journal of Human Development and Capabilities* 11, no. 4 (December 2010): 565-587.
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Sorcha Kelly, 2025

Defining Sustainability: A Timeline

1968 (UNESCO)

Sustainability is understood in relation to the economy and social issues.^[1]

1977 (Pirages)

Sustainable growth is understood by focusing on economic growth that can be supported by the physical and social environments. ^[2]

1979 (Coomer)

Sustainable growth is understood under explicit “self-perpetuating” limits imposed by the environment.^[3]

1984 (Brundtland)

Sustainable Development:
“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”^[4]

Sustainable Development: A Bridge

The definition of sustainable development addresses both environmentalism and productionism in its call for progress. A key concept in environmentalism includes minimizing harm to the Earth, as well as the future wellbeing of people being synonymous with the future wellbeing of the Earth. Sustainable development does not focus exclusively on the conservation of nature, but rather on the maintenance of environmental resources for human use.

Scope and Limitations

Sustainable development needs are not universal. This definition assumes that we have enough resources to meet our own needs and those of future generations

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[2] *ibid.*

[3] *ibid.*

[4] *ibid.*

Elizabeth
Michael

The Tragedy of the Commons: Hardin vs Ostrom

(Fionn Munnelly)

Hardin

Premise (herdsman metaphor)

Each 'rational' herdsman will add an additional animal to the commons since

- he gains full benefit of additional animal,
- the burden of the additional animal is shared by the entire commons.

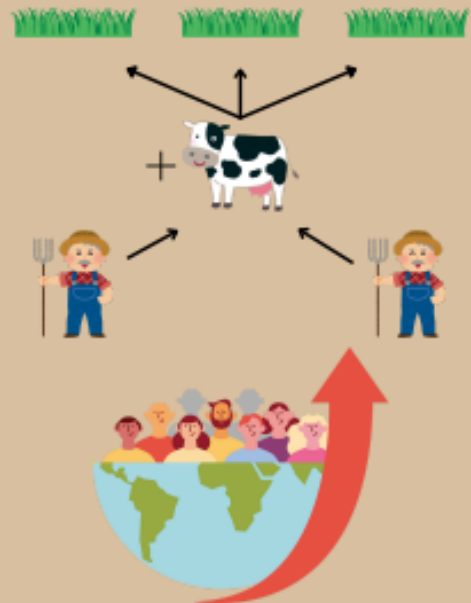
Result: the commons is overgrazed, i.e. the common resource is depleted for all herdsmen.

Application (overpopulation of the Earth)

- Unregulated population growth will lead to depletion of finite resources and pollution of the environment (the 'global commons').

"Solution" (State involvement in family planning)

- 'Freedom to breed will bring ruin to all.'
- Replace with 'mutual coercion, mutually agreed upon', contradicting UN stance on family planning as a human right.



Ostrom

Counterargument

Overly simplistic / needlessly pessimistic to assume that humans

- are unaware of the negative consequences of maximising individual benefit or
- assume the worst of other people and act accordingly in their own self-interest.

Resource depletion / deterioration of the commons can be avoided by cooperative, community-based approaches which

- monitor resources;
- balance cost/benefit for participants;
- resolve conflicts fairly and
- use escalating punitive measures for violations of mutual agreements.

Counterexample: Namibian Communal Conservancies (Nijhuis)

Conservancies are established/run by communities in Namibia with government approval.

Thoughtful management of wildlife, e.g. by

- regulation of hunting via quotas and game guards;
- directing hunting towards aggressive animals for community protection;
- establishing zones for settlement, farming, tourism etc.



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ENHANCING SOCIETY THROUGH SUSTAINABLE MOBILITY

Ella Murray, School of Psychology

The benefits of public transport



Social Benefits [5]

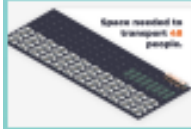


Fig 1: Quantity of vehicle type needed to transport 100 people [6]



Reduces traffic congestion by reducing the amount of vehicles on the road



Public Health Improvement: Reduces air pollution, lowers risk of respiratory disease. Gets people active - improves cardiovascular health, lower chances of obesity...



Improved Accessibility: Provides mobility for low-income groups, the elderly, and people with disabilities.

What is Public Transport?

"buses, trains, and other forms of transport that are available to the public, charge set fares, and run on fixed routes" [1]



Economic Benefits

Creates jobs
bus drivers, mechanics, engineers...

Increases productivity of GDP
Increases income, increases productivity, large company benefits workers...

Increases property value
drives economic growth

Cost savings for individuals and households cheaper than a car - tax costs, fuel costs,.... [6]



Fig 2: Cost per km per mode in Sydney [8]

Environmental Impact

one of the main contributors of climate change - causes forest fires, rise in sea levels, ice cap melting, air pollution.... [4]

29% of world's CO2 emissions due to transport by car [3]

Lowers CO2 emissions by 45%!!! [2]

Emissions decrease through the use of public transport.

Compare average with car vs CO2 Compared CO2 per Passenger km



Fig 3: CO2 emissions per km of different modes of transportation [4]

Sen's Capability Approach [7]

A Theory of Justice for an Imperfect World emphasizes the importance of real freedoms that allow individuals to achieve well-being, instead of merely looking at resources (e.g., transport infrastructure) or utility (e.g., travel time saved). Sen's framework asks: do the systems allow people to live the lives they value? **Capabilities** - opportunities and freedoms people have to engage in social, economic, and civic life.

Public transport enhances capabilities by:

- Providing access to essential services eg jobs, healthcare, education
- Reducing social exclusion as car dependency can exclude non-car users from economic and social opportunities without reliable transport, job seekers in low-income neighborhoods may be trapped in unemployment due to inaccessibility.
- Empowering vulnerable groups: public transport restores autonomy to those who can't drive eg wheelchair-accessible buses improve mobility and dignity for disabled passengers.
- Enhancing sustainability - environmental justice

Sustainable development goals supported by use of Public Transport



sustainable cities and communities:
reduces traffic and air pollution
enhances mobility for marginalised groups
promotes efficient land use



good health and well-being
reducing air pollution promotes better respiratory health



industry, innovation, infrastructure
increases and encourages investment in transport infrastructure
increases business investment by increasing the attraction of a city



climate action
lowers carbon emissions, mitigating climate change

Fig 4: sustainable development goals [10]



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All small icons courtesy of Canva.com



1. The Issue

If sustainable economic development means meeting the needs of the present without compromising the ability of future generations to meet their own needs¹, then a seismic shift in human attitude to how much, and in what way, we produce and consume is required. How are geologists' ethical decisions about mineral extraction to be informed by insights from the world religions?



Fig. 2: Planetary Boundaries 2022 (Source: Stockholm Resilience Centre)

2. Nature as Creation

The supreme moral principle in Judaism (Lev 19:18), Christianity (Matt 7:12) and Islam (Hadith Anas ibn Malik) is to do unto others as you would have them do to you: the Golden Rule. The associated creation stories narrate the origin and nature of the universe in relations of opportunity, covenant, accountability and responsibility (Q33:72; Gen 2:15) and the earth as good, the place where God and nature is encountered, as it continues to unfold (Q48:13; Gen 1:28-31). In Hindu religion the universe is ordered and self-generating. In Buddhism there are few creation narratives, it is the self that is central, existence is a process passing through cycles². Meditation transforms motivation to generosity, loving kindness and the wisdom that recognizes its interdependence with the rest of the biosphere³. Religious legitimization of exploitation is well known, so too responsible stewardship of natural resources based on anthropocentric and anthropocosmic ethics⁴. And in recent times the image of earth from space, reveals the uniqueness and fragility of the planet and the depth of our responsibility.



Fig. 3: The web of life—Bacteria, Archaea and Eucaryotes are the major life-forms (Bowers & © 2013 / 2015 Laidlaw Production, conception/Bamba Souleika, montage photo: Peter Thurnham)

3. Anthropocentric or Ecocentric Ethics: an unhelpful distinction?

A hierarchy where humans have dominion by divine mandate includes mineral extraction, since it is a bounty for human societies and points to fulfillment. The financial windfall from US oil has been interpreted as part of God's providence allowing unlimited growth infinitely expanded by human ingenuity and technology⁵. Yet extracting and using these resources does not automatically contribute to resilience. And human cooperation to work with nature to protect planetary boundaries and protect biodiversity for future generations could also be interpreted as providential, dominion as cooperation not domination. Geologists can factor shared values into decisions about social justice and environmental integrity



Fig. 4: Earthrise from Apollo 11 (Source: NASA)

4. Anthropocosmic Ethics

Another conceptualization that better places human acting in a world context is anthropocosmic ethics^{6,7}. This expresses the life-giving relationship between the world, the divine and the human. It takes elements from Buddhist, Christian, Confucian, Hindu, and primal traditions. Part of creation, humans co-create. They respect the web of life and are responsible for creation (Fig. 3). Anthropocosmic ethics inspires values to influence geoethics.

5. The UN Framework: Classification (UNFC) and Resource Management System (UNRMS)

The UNFC and UNRMS (Fig. 4) seek to align the mineral extractive industry with the UN Sustainability Goals (SDGs). Only mineral projects that are well defined, technically, environmentally, socially, and economically feasible should be developed (see UNFC). The UNRMS views sustainable mining as a service to society where metals retain their highest value as long as possible in a circular economy. Sustainability is achieved inter alia by good governance, reuse and recycling, social partnerships with local communities, environmental protection and mine site habitat restoration. Sustainable development is a shared responsibility for every individual along the mining cycle supply chain.

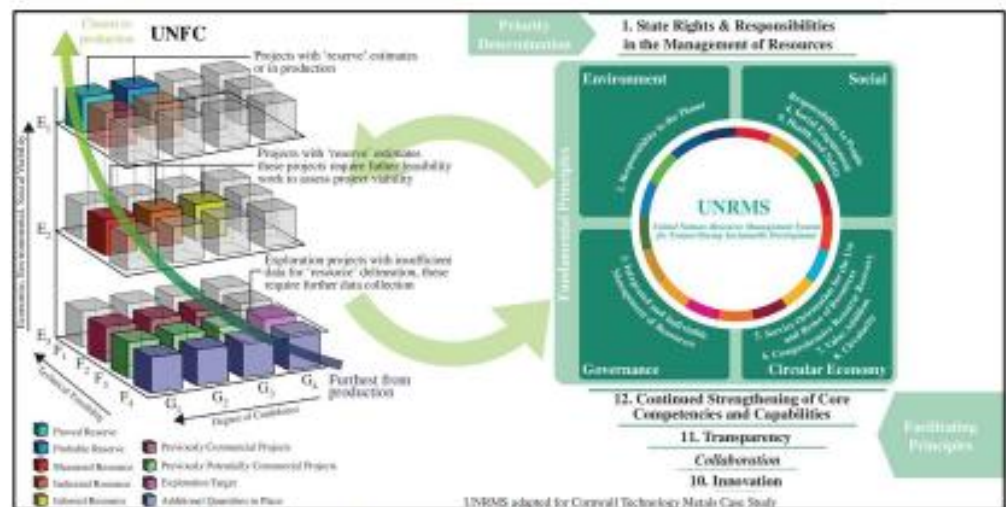


Fig. 4: UNRMS adapted for Cornwall Case Study (Source: Cambridge School of Mining)

6. Geoethics Response

Geoethics is defined as "research and reflection on the values which underpin appropriate behaviours and practices, wherever human activities intersect with the Earth system"⁸. It concerns a geologist's responsibility in conscience: honest, collegial, respectful in the service of society, transparent on environmental impact and honouring the irreplaceability and natural dynamics of Earth Systems, preserving and even restoring it for future generations. The UN Resource Management System (Fig. 4) provides a framework for appropriate behaviour, practices and value judgements by geologists guided by the cultural wisdom acquired over millennia and found in world religions.

7. Conclusion

Geologists are key decision-makers in mineral extraction activities. Researchers in natural resource development recognise that a fundamental change in human behaviour is required if the destruction of biodiversity and ecosystem services is to be avoided. A cosmic worldview, as noted in world and tribal religious traditions, influences people of faith. A geoethical worldview, formed by geologists, and used in the training of geologists, would contribute significantly to achieving responsible and morally defensible sustainable mineral extraction.

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NUTRITIONAL ENHANCEMENT THROUGH FOOD BIOTECHNOLOGY

Millions of people worldwide suffer from malnutrition and micronutrient deficiencies, particularly in nations with limited resources. Food biotechnology provides answers in the form of probiotics, biofortification, and genetic modification to increase the nutritional value of basic foods.

Genetic modification lowers allergens and improves nutrient value:

1. Oil from high-oleic soybeans contains higher levels of heart-healthy lipids.
2. In development countries such as Uganda, vitamin A deficiency is treated by synthetically produced bananas.
3. Peanuts with lower allergens are safer for allergy sufferers.

By using genetic modification to improve the nutritional value of crops, biofortification strengthens them through:

1. Golden rice fights vitamin A deficiency through the manufacture of beta-carotene.
2. Beans and wheat enriched with iron and zinc boost general health and lower anaemia.
3. The same levels of nutrients are produced by biofortified crops, increasing the availability of food.

Probiotics improve digestion and immunological function:

1. Strains of Lactobacilli that have undergone genetic modification are tolerant to stomach acidity and support a healthy gut.
2. Probiotic yoghurts improve digestion and immunity.
3. Good bacteria in the intestines are supplied with nutrition by prebiotics.

Impacts on Sustainability and the Health of Others:

1. Malnutrition and illnesses linked to diet are decreased by more nutritious foods.
2. In places that are at risk, greater output from agriculture helps ensure food security.
3. Effective biofortification reduces its impact on the environment.

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Theory of Justice and Sustainable Development

Solomiiia Rohovska

Sustainable Development – “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This includes such components as: security, economic development and social development.

Rawls' Distributive Theory of Justice

Equal Opportunities and Distributive Justice

The idea of equal opportunities can be reflected through the **distributive justice concept**, which provides for the equal distribution of goods/burdens according to negative/positive contributions to the situation and to the needs. It is often true that those countries which do not contribute the most to the environmental problem take the most hit in terms of the outcome of the actions of other states. Thus, when talking about the needs of present and future generations, those are referred to the needs of the world's poor.

The theory of justice formulated by John Rawls includes the idea that opportunities have to be distributed in a manner that would take into consideration the ‘needs’ of future generations. Therefore, the current generation needs to take this into account while using resources. This has to be reflected in economic development tendencies.

Intragenerational Equity

This model of “**distributive justice**” was applied in *Mockienė v Lithuania*, where the European Court of Human Rights (ECtHR) found that reduction of some welfare benefits was in the public interest of protecting more vulnerable groups in times of economic crisis.

The **European Convention on Human Rights** (ECHR) is a framework which operates specifically to protect the rights of people who could not have their rights protected effectively under national laws. Ireland is a signatory state to the ECHR and thus is bound by its provisions. The question is how it is possible to use the framework in climate change litigation and implement the idea of Rawls to consider the needs of future generations, sort of as distributive justice to the future.

Intragenerational equity is an interesting concept that essentially means that courts have to take into account the needs of future generations in adjudicating the rights of individuals. The focus is on how the decision would impact future generations rather than on the human rights of a particular person. In this sort of scenario, the court would most likely need to look at domestic law, as the ECtHR did recognise in *Mockienė* that it “finds it natural that the margin of appreciation available to the legislature in implementing social and economic policies should be a wide one and will respect the legislature's judgement as to what is “in the public interest” unless that judgement is manifestly without reasonable foundation”. It sets quite a high threshold, because it is quite improbable that the Court would find any legislative decisions to be “manifestly without reasonable foundation”.

Economic development as means or as an end?

Rawls believed that economic development is viewed as a means to achieving the goal of the establishment of just institutions, rather than an end. Just institutions, meanwhile, ensure equality in opportunities by operating in an environmentally sustainable manner, which constitutes the basis of Rawl's theory of justice.



Critics

Sen's Idea of Justice

The problem with the theory of justice formulated by Rawls for Amartya Sen was that it is in and of itself possible to create just institutions. According to Sen, the world can be less unjust but never just. It is partially because just would require a universal approach to justness, which is not often the same depending on the social norms of a particular society.

Nozick's Libertarian Theory of Justice

Robert Nozick, as opposed to Rawls, believes that the distribution of wealth through non-voluntary transactions, such as redistributive taxation, cannot exist in modern society, because wealth “is not like manna falling from heaven.” His theory strongly emphasises **property rights**, taking as example ideas of John Locke. However, both the Constitution of Ireland and ECHR recognise that property rights are not absolute and can be limited for the common good by the state. Nozick's theory of justice approves the idea of charity and gifts, meaning **voluntary transactions**, which, on the other hand, can play a role in environmental justice by corporations adopting responsible business policies (ESG), but that it is done through legislative intervention, less so through moral obligations.

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A Coadjuvant Relationship or an Ethical Dilemma?



A Pillar of Sustainable Food Systems?

Leo Schwartz

A Sustainable Agriculture Perspective

Regenerative animal farming can enhance **soil fertility**, reduce dependence on **synthetic fertilisers**, and support **biodiversity**¹. When livestock are integrated into cropping systems, they help **cycle nutrients** and contribute to local food security. The key challenge is scaling up these practices to replace more harmful, industrial models



Grazing animals help **stimulate plant growth**, promoting healthier pastures that naturally sequester **carbon dioxide (CO₂)** from the atmosphere. Unlike intensive factory farms that require vast amounts of **water for feed crops**, more sustainable systems rely on **rain-fed pastures**, reducing water stress.



Depicted above, "Dehesas" in Spain offer a more ethical alternative to factory farming. Dehesas are **vast agroforestry** landscapes where animals like cattle and Iberian pigs roam **freely**, graze on natural pastures, while **sustaining** the rural economy. Dehesas maintain a diverse understory of grasses and shrubs. This vegetation **anchors** the soil, reducing runoff and subsequent **nutrient loss**².

Welfare, Sentience, and Responsibility

The **core ethical dilemma** in animal agriculture is not just welfare, but the **inevitability of slaughter**. While some **utilitarians** argue that humane conditions justify animal farming, a **rights-based perspective** rejects it outright³—killing a sentient being, regardless of conditions, remains an ethical violation.



Some argue that it is **morally permissible** to kill animals as they possess lower intelligence and cannot communicate complex emotions. However, if intelligence or communication determined **moral worth**, on this basis some humans (infants, cognitively impaired individuals) could also be excluded, a position most would reject. If suffering is the basis of moral worth, farmed animals endure fear, pain, and distress—yet their rights are **ignored**. Even the **"happy meat"** argument fails to address this; as a well-treated animal is still prematurely killed⁴. With plant-based and lab-grown alternatives emerging, can animal agriculture still be considered **justifiable**?

The Dilemma

The challenge remains: can **sustainable** models like Dehesas replace factory farming on a **global scale**, or is true ethical reform only achievable by **moving beyond** animal agriculture altogether?

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TRAGEDY OF THE COMMONS ITS' CRITIQUES AND OVERSIGHTS?

BY JAMIE WARD

THE COMMONS?

BEFORE WE CAN ANALYSE THE TRAGEDY OF THE COMMONS AND ITS CRITIQUES, WE MUST CLEARLY DEFINE WHAT HARRISON MEANS BY 'THE COMMONS'. HARRISON DESCRIBES THE COMMONS AS A SYSTEM OF RESOURCES WHICH ARE TO BE A 'PASTURE OPEN TO ALL,' WHERE NO SINGLE INDIVIDUAL HAS EXCLUSIVE CONTROL OR OWNERSHIP. IN SUCH A SCENARIO, EACH INDIVIDUAL NATURALLY TENDS TO MAXIMIZE PERSONAL GAIN BY INCREASING THE SIZE OF THEIR HERD, INITIALLY FACTORS SUCH AS TITHING, WOLF, POUNDING, AND DESTRUCTION OF NATURAL LIMITS (CAPACITY, REGENERATION, AND REPAIR) WILL BECOME THE ONLY LIMITS TO EXPLOITATION. HOWEVER, HARRISON ARGUES THAT WHEN THESE CHECKS FAIL, INDIVIDUAL INCENTIVES INEVITABLY LEAD TO OVERGRAZING, DEPLETION, AND EVENTUAL DESTRUCTION OF THE RESOURCES, ILLUSTRATING THE FUNDAMENTAL TRAGEDY OF OPEN-ACCESS COMMONS.

HARRISON MODELS THE OPEN PASTURE AS A NON-ZERO-SUM GAME, IN WHICH INDIVIDUALS PURSUE PERSONAL BENEFIT BY GRABING WHAT IS AVAILABLE, WHILE THERE CAN BE SOME MUTUAL BENEFIT, HE ARGUES THAT RATIONAL, SELF-INTEREST LEADS TO COLLECTIVE HARM.

WHEREIN LIES THE TRAGEDY?

FUNDAMENTALLY HARRISON ARGUES THAT THE UNRESTRAINED NATURE OF THE COMMONS AND ITS FREEDOM FOR ALL, IS WHAT INEVITABLY LEADS TO ITS COLLECTIVE DESTRUCTION. AS HE PUTS IT, 'THIS IS THE DILEMMA TOWARD WHICH ALL INDIVIDUALS, EACH PURSUING HIS OWN BEST INTEREST IN A SOCIETY THAT BELIEVES IN THE FREEDOM OF THE COMMONS.' HE STATES THAT THE COMMONS IS NOT SOME THING WHICH THE INDIVIDUALS CAN USE AS A 'PASTURE OPEN TO ALL,' BUT IT IS SOMETHING WE HAVE UNDERSTOOD SINCE THE BEGINNING OF AGRICULTURE AND THE PRIVATIZATION OF LAND. AN EXAMPLE OF THE TRAGEDY OF THE COMMONS IS NATIONAL PARKS SUCH AS FORESTS AND THE INCREASING DEMAND FOR TOURISM. HE ARGUES THAT SUCH NATIONAL PARKS COMPLETELY THE COMMONS - THEY ARE OPEN TO ALL AND FREE. HARRISON STATES THAT HE WOULD DEPART FROM THE IDEA OF THE COMMONS IN FAVOR OF PRIVATE LAND AND A REGULATION OF SUCH LAND TO SELECT INDIVIDUALS TO MANAGE. BY SOME ELECTRICAL SYSTEM, HARRISON ARGUES, LEAD TO THE IDEA THAT THERE MUST BE SOME FORM OF GOVERNANCE FOR THE COMMONS TO BE PRESERVED, AND IN ESSENCE BELIEVES IN LIMITING THE FREEDOM FOR ALL. WE WILL RETURN TO THIS QUESTION LATER WHEN WE DISCUSS CRITICISMS AND HIS VIEW ON THE IDEA OF THE COMMONS. HE ADVOCATES AT A SIMILAR CONCLUSION WITH DISCUSSING POLLUTION AND WASTE MANAGEMENT, EMPHASIZING THE NECESSITY OF GOVERNANCE THROUGH LAW AND REGULATION, INCLUDING THE IMPORTANCE OF SOME FEEDBACK MECHANISM TO KEEP THOSE WHO EXIST IN CHECK. HARRISON'S SOLUTION TO THIS DILEMMA IS A FORM OF GOVERNANCE HE DESCRIBES AS 'NATURAL CONTROL INTRINSICALLY ADDED UPON.'

NO TECHNICAL SOLUTION PROBLEMS

ANOTHER KEY CONCEPT WHICH HARRISON'S ARGUMENT REVEALS IS THE IDEA OF 'NO TECHNICAL SOLUTION PROBLEMS.' SUCH PROBLEMS REFER TO TECHNICAL ISSUES WHICH HE BELIEVES CAN NOT BE PERMANENTLY SOLVED THROUGH SCIENTIFIC OR TECHNOLOGICAL ADVANCEMENTS, BUT RATHER ARE ONLY SOLVED THROUGH MORAL AND ETHICAL CHANGES. PROBLEMS SUCH AS OVERPOPULATION, CLIMATE CHANGE, AND POLLUTION MAY BE TEMPORARILY CALLED BY SUCH ADVANCEMENTS BUT THEIR ROOT CAUSE IS NOT INADEQUATELY SOLVED UNLESS THERE IS MORAL ETHICS AND MORAL CHANGE. HARRISON'S VIEW OF 'NO TECHNICAL SOLUTION PROBLEMS' IS CLARIFIED BY THE IDEA THAT THE WORLD HAS TWO SUBSISTENCE IN ITS DILEMMA BUT ISSUES SUCH AS OVERPOPULATION AND CONSUMPTION BEING WITHOUT ANY OTHER BOUND.

'IT TAKES COURAGE TO ASSESS THAT A DESIRED TECHNICAL SOLUTION IS NOT POSSIBLE.' HARRISON, 1969



WHAT SAY OTHERS?

ELINOR OSTROM

ONE NOTABLE RESPONSE TO HARRISON'S 'TRAGEDY OF THE COMMONS' IS THAT OF ELINOR OSTROM. PREVIOUSLY WE HAVE SEEN THAT HARRISON ARGUES THE DILEMMA AND TRAGEDY OF THE COMMONS IS INEVITABLE WITHOUT PRIVATIZATION OR BEING STRICTLY GOVERNED BY SOME FORM OF CENTRAL AUTHORITY. OSTROM ON THE OTHER HAND ARGUES THAT THESE ARE NOT THE ONLY WAY IN WHICH THE COMMONS CAN BE PRESERVED, INSTEAD ARGUING THROUGH EMPIRICAL EVIDENCE THAT COMMONS CAN, AND OFTEN ARE ABLE TO, MANAGE THE COMMONS, WITHOUT THE PRIVATIZATION OF RESOURCES OR CENTRAL GOVERNANCE. THROUGH HER WORK, OSTROM HAS BEEN INVOLVED IN THE MANAGEMENT OF COMMONS AND HAS COME TO THE CONCLUSION THAT THE MANAGEMENT OF THE COMMONS IS EXTREMELY MORE COMPLEX THAN HARRISON HAS PROPOSED. OSTROM OFFERS A MORE DETAILED VIEW ON HOW THE COMMONS CAN BE RESPONSIBLY MANAGED, AS HARRISON'S ARGUMENTS OF TRAGEDY FINDINGS, '...A REASONABLE BALANCE OF COSTS AND BENEFITS, A PREDICTABLE PROCESS FOR RESOLVING CONFLICTS, AND AN EFFECTIVE SYSTEM OF PUNISHMENT FOR VIOLATIONS.' MORE CONCRETELY THEY ARE AS FOLLOWS.

- CLEARLY DEFINED BOUNDARIES
- RELIABLE MONITORING OF THE COMMONS RESOURCES
- REASONABLE BALANCE OF COSTS AND BENEFITS
- PREDICTABLE PROCESSES FOR CONFLICT RESOLUTION
- ESCALATING FORMS OF PUNISHMENT FOR VIOLATIONS (STANDARDIZED SANCTIONS)
- GOOD RELATIONSHIPS BETWEEN THE COMMUNITY AND OTHER LEVELS OF AUTHORITY

IN CONTRAST TO HARRISON, OSTROM HIGHLIGHTS THE POTENTIAL FOR NON-ZERO-SUM, COMMUNITY-DRIVEN SOLUTIONS. SHE CHALLENGES HIS PESSIMISTIC OUTLOOK BY ILLUSTRATING THAT NUMEROUS COMMONS HAVE SUCCESSFULLY MANAGED COMMON RESOURCES EFFECTIVELY, EVEN WITHOUT THE RIGID FRAMEWORKS AND CONDITIONS ONE SUCH EXAMPLE WE WILL LATER EXAMINE TO CONCLUDE THIS POINT IS THAT OF THE NAMIBIAN COMMUNITY CONSERVANCY.

AMARTYA SEN

UNLIKE ELINOR OSTROM'S STRUCTURE, WHICH IS BASED ON EMPIRICAL EVIDENCE AND PREVIOUS EXPERIENCE, AMARTYA SEN PROVIDES A DIFFERENT ANALYTICAL OUTLOOK OF HARRISON'S ASSUMPTIONS WITHIN THE FRAMEWORK OF HIS JUSTICE IS STRUCTURED LAW UNDERSTANDING. HARRISON'S THEORY IS BASED PRIMARILY ON HIS POSTULATE THAT HUMAN ACTIVITY WITH SELF-INTEREST. HARRISON'S PERCEPTION OF THE COMMONS AND ITS FREEDOM ALIGN STRONGLY WITH CONCEPTS OF SOCIAL THEORY WHEREIN EACH PLAYER ACTS ONLY TO MAXIMIZE THEIR GAIN. SEN ARGUES AGAINST THIS DETERMINISTIC VIEW BY ACKNOWLEDGING THE COMPLEXITY OF HUMAN NATURE, AS WELL AS THE UNIVERSAL ETHIC IDEA OF PROVIDING SOME MEANS OF ORDERING OF SOCIAL STATES AND ISSUES THAT ALIGN TO SOME UNIVERSAL PRINCIPLES. HIS ARGUMENT ON ORDERING CLOSELY RESEMBLES THE WELL-KNOWN PRINCIPLE OF WELFARE IN WHICH AN INDIVIDUAL'S COMPARISON AND ORDERING OF TWO CLASSIFICATIONS IS POSSIBLE, WHICH WOULD IMPLY THERE EXISTS SOME MEANS OF ORDERING OR EFFECTS ON IDEAS. SEN OUTLINES THE CONCEPT OF 'TRANSFORMATIONAL INDIVIDUALISM,' WHICH ASSURES THERE IS A SIMILAR SOCIAL INSTITUTIONAL ARRANGEMENT CAPABLE OF ORDERING COMPLEX SOCIAL ISSUES.

SEN TAKES ISSUE WITH THE UNREALISTIC BEHAVIOR OF INDIVIDUALITY IN THE ORDERING OF ALL SOCIAL SITUATIONS BY FORMS OF ONE SINGLE UNIVERSAL ORDERING. HIS ARGUMENT IS THAT IN FACT, DIFFERENT SOCIAL CONTEXTS PRODUCE OUTCOMES THAT ARE NOT DIRECTLY COMPARABLE BECAUSE OF DIFFERING ETHICAL STANDPOINTS, PRIORITIES, AND VALUES. SEN INSTEAD OFFERS A COMPARATIVE AND PROBABILISTIC THEORY OF JUSTICE WITH AN EMPHASIS ON THE DELIBERATION OF ETHICAL PUBLIC RESOURCES, AND A SENSITIVITY TO THE COMPLEXITY OF SOCIAL ISSUES. INSTEAD OF RELYING ON INFLEXIBLE INSTITUTIONAL FRAMEWORKS OR RIGID CHECKS AND BALANCES, SEN'S WORK EMPHASIZES THE IMPORTANCE OF CONTINUAL DEMOCRATIC DISCUSSION AND A FLEXIBLE GOVERNANCE IN THE ORDERING OF RESOURCES.

NAMBIA : A CLEAR CONTRADICTION?

NAMIBIAN CONSERVANCY (NIJHUIS)

GOING BACK TO OSTROM'S INITIAL OF THE TRAGEDY OF THE COMMONS, WE WILL NOW TURN OUR HEADS TO THE NAMIBIAN COMMUNITY CONSERVANCY, WHICH PROVIDES EVIDENCE THAT IS IN DIRECT CONTRADICTION TO HARRISON'S PESSIMISTIC VIEW. AS WE HAVE DISCUSSED, HARRISON ARGUES THAT THE FREEDOM OF COMMONS RESOURCES INEVITABLY LEADS TO THE COLLAPSE OF THE COMMONS DUE TO OVER-EXPLOITATION. HIS PROPOSED SOLUTION IS THAT OF PRIVATIZATION AND STRICT CENTRAL GOVERNANCE. WE HAVE SEEN OSTROM TAKE A DIFFERENT APPROACH TO THE COMMONS, BY EMPHASIZING MORE FINANCIAL CRITERIA FOR THE SUSTAINABILITY OF COMMON RESOURCES. NAMIBIAN COMMUNITY-DRIVEN CONSERVANCIES, HOWEVER, PRESENT A CONTRASTING EXAMPLE TO HARRISON'S THEORY AND MORE CLOSELY ALIGN WITH OSTROM'S PRINCIPLES.

ESTABLISHED IN 1996, OVER 30 CONSERVANCIES NOW OPERATE IN NAMIBIA, COVERING SUBSTANTIAL AREAS OF COMMUNAL LAND. THESE CONSERVANCIES HAVE EFFECTIVELY MANAGED WILDLIFE RESOURCES BY ACTIVELY INVOLVING LOCAL COMMUNITIES IN MONITORING, DECISION-MAKING, AND RESOURCE MANAGEMENT. AS NIJHUIS EXPLAINS IN 'THE MIRACLE OF THE COMMONS,' COMMUNITY MEMBERS ACTIVELY PARTICIPATE IN JOINTLY MANAGEMENT DECISIONS, SUCH AS SETTING SUSTAINABLE QUOTAS FOR HUNTING, CONDUCTING REGULAR WILDLIFE COUNTS, AND ENFORCING SANCTIONS FOR VIOLATIONS. THIS COOPERATIVE EFFORT HAS RESULTED IN LARGE SUCCESS, INCLUDING THE RECOVERY OF ENDANGERED WILDLIFE POPULATIONS LIKE ELEPHANTS AND BLACK RHINOS, INCREASED TOURISM REVENUE, AND IMPROVED LOCAL LIVELIHOODS.

FURTHERMORE, NIJHUIS DOCUMENTS HOW COMMUNITIES HAVE ACQUIRED A SENSE OF OWNERSHIP AND RESPONSIBILITY TOWARD LOCAL WILDLIFE DUE TO THEIR INVOLVEMENT AND DIRECT PARTICIPATION IN MANAGING AND BENEFITTING FROM THE CONSERVANCIES. FOR EXAMPLE, THE OSHANA CONSERVANCY, DESPITE FACING SEVERE DROUGHT AND LIMITED RESOURCES, CHOSE TO SIGNIFICANTLY REDUCE HUNTING BUT NOT HUNTING PROHIBITION (LONG-TERM ECONOMIC SUSTAINABILITY) OVER SHORT-TERM ECONOMIC GAIN. SUCH ACTIONS DEMONSTRATE LOCAL COMMUNITIES' ABILITY TO PROMOTE COLLECTIVE WELL-BEING AND SUSTAINABILITY, THIS IS IN DIRECT CONTRADICTION TO HARRISON'S PESSIMISTIC ASSUMPTIONS ABOUT THE INHERENT SELFISH NATURE OF HUMANS.

NAMIBIA'S CONSERVANCIES THEREFORE CLEARLY ILLUSTRATE THE POTENTIAL FOR SUSTAINABLE MANAGEMENT OF THE COMMONS THROUGH COMMUNITY-DRIVEN, FLEXIBLE GOVERNANCE, REFLECTING KEY PRINCIPLES SET FORTH BY OSTROM AND SUPPORTED BY SEN'S THEORY OF JUSTICE. THIS EXAMPLE FUNDAMENTALLY CHALLENGES HARRISON'S TRAGIC PREDICTION OF DOOMED COMMONS WITHOUT RIGID COERCITIVE GOVERNANCE, THOUGHTFUL INSTITUTIONAL DESIGN, AND RESPECT FOR COMMUNITY RIGHTS. SHARED RESOURCES CAN THRIVE THROUGH SUCH MEANS.

HOW DO THEY DIFFER?

	Harrison's view	Ostrom's/conservancy approach
Resource Use	Individual decision and rule	Community and cooperative resource management
Resource Rules	Self-enforced, leading to collapse	Cooperative, support of effective decision-making
Conservation	Requires privatization or strong central control	Community-based, democratic, flexible institutions
Wildlife Impact	Species extinction, resource depletion	Wildlife recovery, thriving biodiversity
Economic Benefit	Short-term individual gain, long-term collective loss	Economic benefits shared equitably with conservation

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JUSTICE & SUSTAINABLE DEVELOPMENT

Esther Zhang
REU33522



What is Justice?

Idea of Justice

An **idea of justice** is a broad, often **abstract** concept that reflects a general understanding of fairness, equity, and moral rightness in society.

It is not necessarily systematic or detailed but is a foundational principle guiding ethical and **moral** reasoning.

"...the essential features of a just society must be agreed upon through 'public reasoning' and that such agreement can only be reached if these features are seen to be fair by all reasonable people" (Dimari, 601).

Theory of Justice

A **theory of justice** is a **systematic**, structured "framework of reasoning" that provides a detailed explanation of what justice entails, how it should be achieved, and the principles that govern it.

It often includes specific criteria, rules, or mechanisms for implementing justice in practice and is needed "to morally evaluate the policies and actions that would take us from a 'more unjust' to a 'less unjust' state of affairs" (Dimari, 605).

How Justice Shapes Sustainable Development

Sustainable Development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland). Different interpretations of justice can significantly influence how sustainable development is enacted, as they shape priorities, policies, and resource allocation. Three pillars of sustainability: environmental, economic, equality (pictured on right)



Distributive justice ensures that **resources** like clean water, energy, and education are **allocated fairly**. Common illustration of distributive justice (pictured below)



However, **Amartya Sen** argues that there is not just one universally "impartial" way to distribute resources **fairly**. Different **ideas on justice** can all claim to be **impartial** but lead to very different outcomes: "resource allocation can be determined by a variety of principles of distributive justice—for example, based respectively on the grounds of relative needs, efficiency of resource use, and allowing people to enjoy the fruits of one's own labour" (Dimari, 602).

Each of these perspectives is **impartial** in its own way, but they **conflict** with each other. This is why **impartiality is plural**; it depends on which **principle of justice** is prioritized.

Procedural justice focuses on **inclusive decision-making**.

"The Paris Agreement, adopted under the UNFCCC, with near universal participation, has led to policy development and target-setting at national and sub-national levels, in particular in relation to mitigation, as well as enhanced transparency of climate action and support" (IPCC, 10).

As stated in the "Theory of Justice" section, "A framework of reasoning is, therefore, certainly needed to morally evaluate the policies and actions that would take us from a 'more unjust' to a 'less unjust' state of affairs" (Dimari, 605).

Sustainable development policies, such as the **Paris Agreement**, must be evaluated through a **framework of justice** that ensures **fair participation, transparency, and accountability** in global climate governance. This framework allows **decision-makers** to **assess the current state of affairs** and **implement policies** that move society toward a **less unjust and more sustainable future**.

John Rawls' **difference principle** could be applied to sustainability, ensuring that environmental policies "**are to the greatest benefit of the least advantaged**" (Russell, Theories of Justice, 29). This would mean prioritizing vulnerable communities that suffer most from climate change, pollution, and resource depletion.

Rawls' **priority of liberty**, which states that "**liberty can only be restricted for the sake of liberty**," could also justify climate regulations if they prevent future restrictions on individual freedoms due to environmental crises (Russell, Theories of Justice, 25).

Amartya Sen argues that "**economics is supposed to be concerned with real people**" rather than just maximizing GDP (Sen, 1). His **capabilities approach** suggests that sustainability should enable people to develop their full potential, rather than simply ensuring economic or environmental stability.

For example, in cases of environmental degradation, the focus should be on "**advancing justice**" by ensuring that individuals have access to clean air, water, and resources needed for a meaningful life (Russell, Theories of Justice, 37).

A justice-based approach to sustainability critiques economic growth models that prioritize profit over environmental well-being. There is "**deep ambiguity** in the concept" of sustainability, as it can be both a scientific description of ecological balance and an **ethical goal requiring justice considerations** (Thompson).

The **polluter pays principle**, for example, reflects a justice-based approach by holding industries accountable for environmental damage. However, debates persist on whether sustainability should be "**an add-on to other goals or a goal in itself**" such as economic growth (Russell, Sustainability, 12).

Conclusion

Different interpretations of justice provide unique lenses for enacting sustainable development. Integrating these perspectives ensures that sustainability efforts are **equitable, inclusive, and accountable**. By addressing inequalities, involving communities, and protecting future generations, frameworks of justice become the ethical foundation of sustainable development by continuing to shape policies that balance human development with environmental responsibility.

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