3.3 Efficient provision of public goods

- https://www.weforum.org/stories/2022/06/incentives-free-rider-problem-climate-change-mitigation/#:~:text=To%20limit%20climate%20change%20mitigation,binding%20obligations%20%7C%20World%20Economic%20Forum
- Why the planet needs legally binding obligations to limit climate-mitigation 'free-riders' (Jun 22, 2022 – World Economic Forum)
  - Planet Earth is in crisis and global efforts to mitigate climate change have so far fallen short.
  - The voluntary nature of international climate agreements means that some countries have become 'free-riders': where one nation receives the benefits of reduced GHG emissions without contributing to the costs.
  - This is why we need globally recognized, legally binding obligations to prevent exploitation of the environment.

3.4 Open access - common property

- **Non-excludability**
  - People cannot be excluded from accessing a resource
- **Rivalry** or divisibility
  - Each person's use rivals another's use
- **Examples**
  - Parks or pools with free entry, common grazing areas for herd animals, fishing, natural resources extracted from common pools (e.g. water)
- Outcome
  - **Overuse**, everyone rushes in and captures the benefits before someone else gets them
  - The scarcity rent is **dissipated**—no one is able to appropriate the rent, so it is lost.
- Solution
  - Establish **property rights** such as sharing rules, exclusion principles, enforcement and punishment schemes

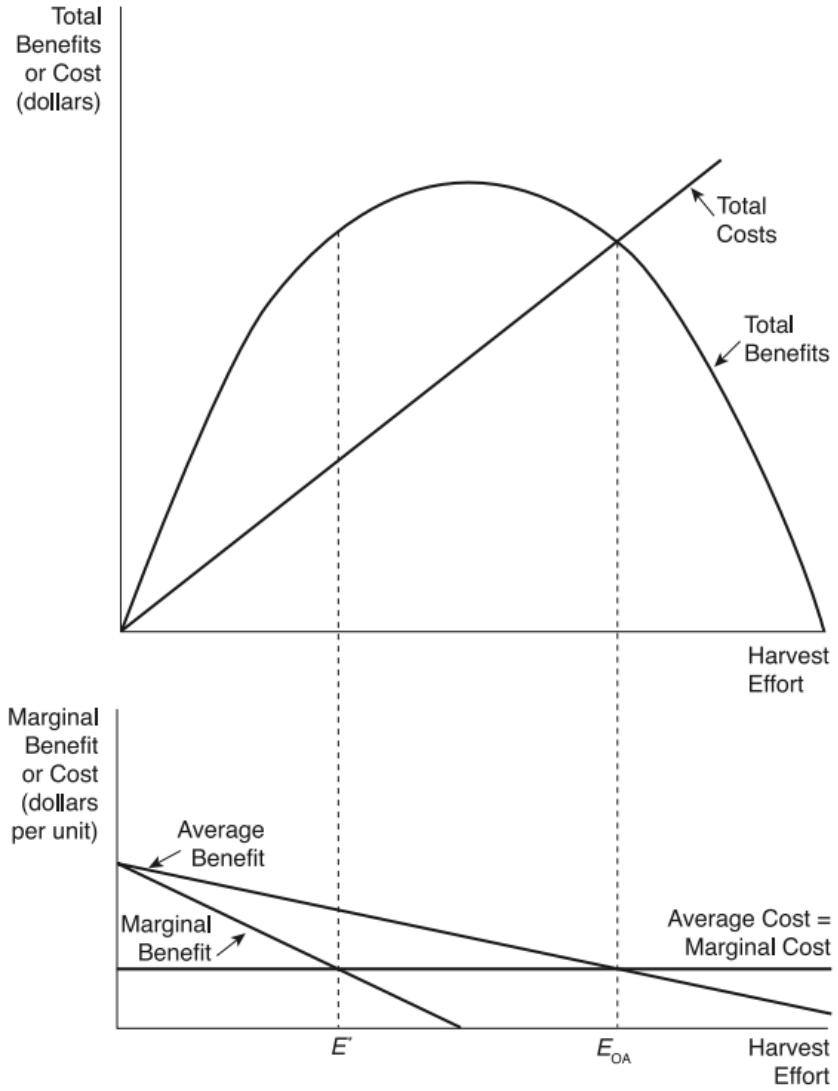
Hanley, N., Shogren, J., White, B. (2013) Introduction to environmental economics, Oxford University Press, UK - Chapter 2

3.5 Example fisheries

- A fish caught by one fisher is one fewer fish for all others to catch.
- Fishers have **no private incentive** to account for the **scarcity** value of the resource.
- They will end up with **overharvesting** the fish stock:
  - Economically inefficient
    - implicit additional cost caused to other fishers is not taken into account (it is a sort of externality for the rest of the community)
    - more costly for everyone else to catch another fish!
  - Biologically inefficient

Hanley, N., Shogren, J., White, B. (2013) Introduction to environmental economics, Oxford University Press, UK - Chapter 2

3.6 Open access: outcome of harvesting



- Upper diagram:
  - total costs and benefits of harvesting
- Lower diagram:
  - marginal costs and benefits of harvesting
- Optimum harvesting level E'
  - Marginal benefit = Marginal cost
  - Largest vertical distance between the two curves
- Actual harvesting level E_{OA}:
  - Total benefit = Total cost

Tietenberg, T. & Lewis, L.(2019). *Environmental economics and policy*. Pearson Education. 6 ed. - Chapter 4

Problem

- Assume
  - Average Benefit = 20 – Q
  - MC = 4
- Find
  - Actual harvest effort
  - Efficient harvest effort

Tietenberg, T. & Lewis, L.(2019). *Environmental economics and policy*. Pearson Education. 6 ed. - Chapter 4

3.7 Efficient provision of open access goods

- Elinor Ostrom 2009 | Governing the Commons Beyond ...
- Ending The Tragedy of The Commons | Elinor Ostrom | Big Think

Nobel Price winner in Economics in 2009