

Lecture 26

International Trade and the Environment

Environmental considerations expand the range of issues affecting economic relationships between nations. International considerations expand the economics of the environment.

- (1) a. International exchanges include transfer of species (biodiversity) and technologies.
 - The discovery of America introduced Europeans to tomatoes, potatoes, corn, etc.
 - Australia expanded the range of tree species available for forestry.
- b. There are gains from transfer of biodiversity but also losses.
 - Exotic species may dominate native species.
- c. Transfer of species may lead to diseases and destruction if unchecked.
 - Rabbits in Australia.
 - Syphilis was brought to Europe from America.
- d. The challenge is to develop policy mechanisms to optimally transfer species and to protect against undesired transfers of bio matters. Some mechanisms include:
 - Quarantines

- Ban on transfers of certain materials.
- e. Ownership of biological matters and compensation for the use of genetic materials are issues of policy concern.
- How much should developing nations be paid for the use of their species in developing medicines, new crop varieties, and other products?
 - How should the royalties for genetic materials within nations be distributed?
- (2) a. International trade may lead to the concentration of waste material, lower environmental quality, and lower human health in poorer nations.
- b. Environmental quality may be viewed as consumption goods that are empirically found to have high-income elasticity. They will be consumed more intensively in richer countries.
- c. Environmental quality characteristics and human health may be viewed as inputs in the production process. Poorer countries have relatively more of these inputs (relative to, say, capital); therefore, they should:
- Specialize in pollution-intensive products.
 - Adopt technologies that are intensive in pollution.
 - Provide waste disposal services.
 - Have more unrestricted worker safety and human health regulations.
- d. "Value of life" is the cost saving of a "statistical" life as implied by safety regulations. "Value of life" in poorer countries is likely to be smaller than richer countries.

- e. As countries become richer, environmental and safety regulations become stricter. Production activities are less pollution intensive.
 - f. Laws and safety standards in developing countries may cause loss of jobs in developed nations, which will lead to a call for "harmonization" of regulations.
 - g. Some waste accumulation activities in poorer nations may be objectionable because of their irreversible outcomes and impacts on future generation.
 - h. Income distribution considerations also affect safety regulation and environmental regulations. Comparing countries with equal average income, the countries with more uneven income distribution are likely to export worker safety, and some aspects of environmental quality may import other aspects (for the very rich).
- (3) a. Environmental consideration leads to interdependency between nations. There may be externalities between nations:
- Production externalities as in the case of acid rain.
 - Consumption externalities--people are concerned about human conditions and other countries, hunger, genocide, etc. People are concerned with environmental conditions in other countries.
- b. Correction of externality situations may require policies besides trade.
- Transfer payments to reduce pollution activities.
 - Aid to address undesirable situations (hunger, deforestation, etc.)
- c. Humans share some resources globally. Without intervention to address free-rider problems, there may be nonoptimal uses of global common resources.

- Destruction of fisheries demonstrate the failure of laissez-faire approaches for global common resources.
- Addressing problems of ozone depletion and global warming require collective action between nations.

Example: The gradual use of bans on methyl bromide, ban on aerosols, and others.

- d. Because of shared benefits of biodiversity, developed nations are interested in the presentation of resources in developing nations. Transfer mechanization (forest for debt) is needed to assure such conservation activities.
- (4) a. Gains from trade may include improvement in environmental quality.
- Trade may reduce the need to use toxic chemicals or pesticides.
Example: Export of grapes and apples from southern countries (Chile) leads to the use of less storage in the northern countries.
 - Trade may lead to export of less polluting inputs. India will benefit from exporting. Cleaner coal for energy generation to reduce air pollution increases energy production.
 - Trade enables the production of trees and food in locations (warm climate zones) where the growth rates are much higher and preserves trees in areas with low growth rates.
- (5) a. Environmental policy may be used as barriers to trade as international trade agreement leads to freer trade and reduces trade barriers. Environmental policy may be used as a means for protection.
- Food safety regulation may be used for protective purposes.
 - Agricultural policies are replaced with policies to protect "rural life styles."

- b. Mechanisms are needed to identify where policies are genuinely developed for environmental protection and when they are used for protection of domestic industries.

(6) Pests and pest control case studies.

- a. Pesticide use may result in:

- Food safety problems
- Worker safety problems
- Environmental contamination.

There are calls for limits on the trade of products sprayed with certain chemicals using reasons such as food safety and concern for "competitiveness."

There are pressures to harmonize pesticide regulations.

- b. It makes economic sense to use residue level criterion for barring exports than to bar exports depending on pesticide use in exporting countries.
- c. Some pesticide applications result in global externalities. They should be regulated by international agreements.
- d. Some areas are vulnerable to certain pests. Quarantines and transfer bans are justified in protecting environmental quality.

Global Climate Change

- Emission of CO₂ and other gases leads to global warming.

Net effects:

- Rising sea level
- Relocations
- Changes in food production patterns

- There is uncertainty about
 - Whether climate changes will occur
 - Human impact

- Policies

(1) No regret policies

- Taxation of otherwise “bad” and subsidization of “good” activities.

(2) Trading in CO₂ emission permits.

- Activities that reduce emission will receive credit.
- Generators of emissions will buy extra credit.

Sink activities

Forestry

Soil-augmenting activities (no tillage, planting of pasture)

Disagreement regarding initial allocation of permits.

