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GEOG-210: Global Places and Peoples

[THEME 2-3] Reading summary

In today's world, increasing food production while preserving forest ecosystems is an important issue for sustainable development. The four mechanisms amplified by economic globalization are accelerating land conversion, which has important implications about how to protect forests on a global scale. The first mechanism is called the Displacement (or Leakage) Effect; it has been described as the displacement of land use from one place to another where there is a migration of activities, thus causing land change in another locality. Developed countries have reduced their own deforestation as a result of forest protection acts, but as the demand for trees continues to increase, the reduced deforestation in their countries is transferred to other countries (e.g., Brazil) through large imports. As a result, there is an illusion of forest protection: a local increase in forest area, but no change or even a decrease in forest area on a global scale. The second, the Rebound (or Take-Back) Effect, which has a strong link to the market. The central argument is that the invention of new technologies and the agricultural intensification, while increasing the unit yield of crops, does not reduce the exploitation of arable land as one would expect. This is because from the consumer's point of view, the increase in supply leads to lower prices and thus higher market demand. In terms of producers, more efficient agriculture allows producers to increase their profits by expanding their scale, leading directly to an expansion of arable land and a destruction of forest. The third mechanism, the Cascade Effect refers to that land use change is driven by multiple factors that cascade through the land use system. First, Land use changes that are initially motivated by environmental protection are likely to be eventually offset by cascading side effects. Take bioenergy crops as an example. The increased cultivation of bioenergy crops reduces the supply of food crops and raises their market prices, and farmers may expand their cultivation on abandoned arable land or even deforest, resulting in ecological losses. Second, two geographically distant countries can have close causal links through agricultural commodities. For example, due to the surge in meat consumption in China, soybeans, an important protein feed, are being grown more in Brazil. Thus, ranching borders also continue to push into the Amazon forest. The last mechanism, the Remittance Effect, emphasizes that outmigration from rural regions affects land use through a decrease in labor force and in consumption needs, and an inflow of remittances. As can be seen from the above mechanisms, the protection of forest systems and understanding of land use systems should not be limited to a local level but should be considered with global scale factors. We should consider forest conservation in the context of an open system with large flows of goods, people, and capital.

It is worth noting that the displacement effect is also evident in the changes in the global waste recycling system. Since 2018, the world's landfills have been gradually shifting from China to Southeast Asia. The World Bank reports that high-income countries generate more than a third (34%) of the world's wastage (Kaza, Yao, Bhada-Tata, & Van Woerden, 2018). Until 2018, much of this waste would have been sold to China for landfill and disposal. However, since 2018, China has announced a reduction in plastic and paper waste imports. Countries such as the United States, Europe and Japan have started to find new recipients. Some poor Asian countries, such as Malaysia, Thailand, Vietnam, Indonesia, and India, have become new landfills due to lax import controls and the desire to import waste in exchange for funds. But due to the huge amount of garbage and the inherent difficulty of recycling, millions of tons of waste have caused serious environmental pollution, created sources of infectious diseases, caused lung diseases or death of plants and animals in the local population. This displacement can give us similar insights: the transfer of landfills from high-income countries to low-income countries is not a cure, and we should look at the waste crisis from a global perspective: reducing waste generation at the root and improving waste recycling systems are the effective solutions.

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References

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