

IS DEFORESTATION A NORMAL PHENOMENON IN THE DEVELOPMENT PROCESS?

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RESUME

Deforestation has become a concern of the global community, especially in the last two decades. This issue was previously purely environmental issue, has now turned into a basis for trade protection policies between developed and developing countries. Those things above raise questions related to the history of global deforestation and do deforestation only occurs (uniqueness) in developing countries?

Based on empirical studies show that global deforestation is a normal phenomenon that has occurred in the history of global development. Global deforestation occurred since the year before 1700 and was mostly in temperate forests such as Europe and the United States, and then spreads to tropical forest areas. It mean that deforestation is the early stages of development carried out by all countries to utilize natural forest resources so food needs and the availability of housing land can be fulfilled which is in line with increases in the global population.

Perhaps many people do not agree with this statement, especially the millennials generation. It's not about agreeing or disagreeing. There seems to be no option to develop at that time without deforestation. However, unlike Europe and North America carried out total and caused the loss of their native biodiversity, deforestation also occurs in developing countries to meet their needs but not adopting total deforestation and still have virgin forests as "home" for native biodiversity.

INTRODUCTION

Deforestation has become a concern of the global community, especially in the last two decades. It causes various environmental problems, such as being a threat to the preservation of natural biodiversity to contributing to global GHG (Greenhouse Gases) emissions thus triggering global warming and global climate change.

Although deforestation has existed since civilization began on Earth, the issue of deforestation has become a global public debate. Because when deforestation is linked to trade policies implemented by developed countries for developing countries. Issues of Embodied Deforestation, Renewable Fuel Standards, Renewable Energy Directives, and Indirect Land Use Change are policy instruments of developed countries for export commodities from developing countries related to the issue of deforestation.

The issue of deforestation, which was previously a purely environmental issue, has now turned into a basis for trade protection policies between developed and developing countries. To support their protectionism, these developed countries also use and fund NGOs to stop deforestation in developing countries so that exports and trade in their commodities are hampered. Deforestation by developing countries to develop their economies, as if it had never been done by developed countries.

Those things above raise questions. Does deforestation only occur (uniqueness) in developing countries? And are there was no deforestation when developed countries built their economies in the early stages of the development period? This article will discuss these questions and to answer these questions will be supported and used various literature or research results internationally.

STAGES OF DEVELOPMENT

All countries and people of the world exist and live in the same atmosphere of the planet Earth, both in the past, present, and future. The process of civilization and population growth on this planet Earth the pre-agricultural era, the industrial revolution, the green revolution that started from the mainland in Europe and North America and then spread throughout the world, have caused an imbalance in the planet's ecosystem.

The development model or paradigm generally adopted by Europe and North America which is then followed by almost all countries is based on the Stages of Development model from W. W. Rostow (1960). The development process by design makes structural changes from developing the agricultural sector to the industrial sector and then to the service sector. According to this model, the early stage of development to produce food, housing, and create income is driven by the abundance of natural resources owned by a country (endowment factor) and labor or factor-driven (Walker, 1993; Porter, 2009).

The phenomenon of the relationship between the stages of development and environmental quality has long been a concern of global experts known as the Environmental Kuznets Curve (EKC) in the inverted "U" shape (Panoyotou, 2003). The beginning of development (pre-industrial economy) is begins with utilizing natural resources (forests) for food production, creating income, and driving the economy which will be followed by an increase in environmental quality degradation (deforestation) up to the industrial economy phase. In the service economy phase, the rate of deforestation will decline and be replaced by reforestation/afforestation (Figure 1).

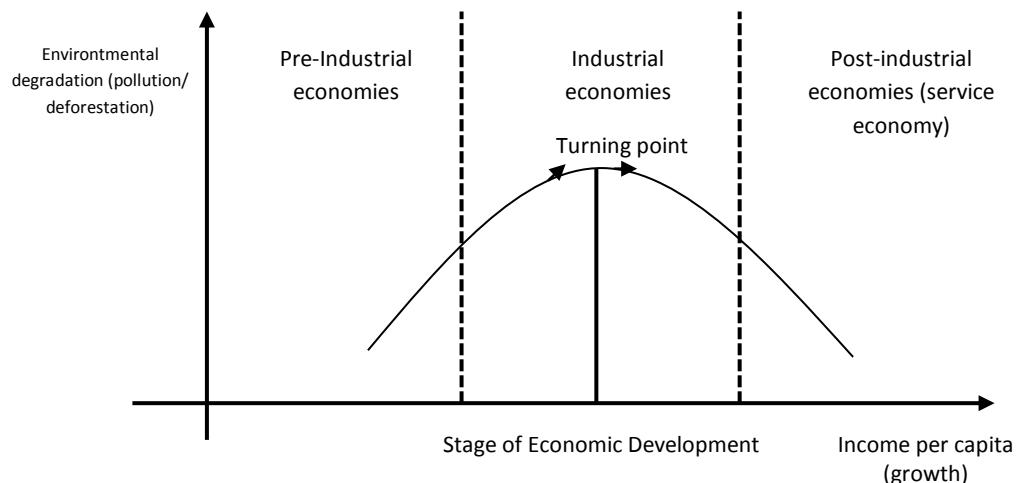


Figure 1. Environmental Kuznet Curve (Source: Panayotou, 2003)

The EKC phenomenon occurs in almost countries in the world, starting from European countries, North America, and then spreading to other countries (Walker, 1993; Egli, 2001; Bhattacharai, *et al.*, 2001; Kaplan *et al.*, 2017).

The study of Keenan *et al.* (2015) also revealed that in the period 1990-2015, countries classified as lower middle income (below USD 12 thousand/capita) still had an increasing rate of deforestation, while countries classified as high income (more

than USD 12 thousand/capita) has a drastically reduced rate of deforestation and has even turned into reforestation.

In addition to economic development goals, the rate of deforestation is also triggered by the growth in the global population both for settlements and infrastructure provision (USDA, 2014). The increasing global population caused the area of deforestations has increased during the period 1800-2010 (Figure 2).

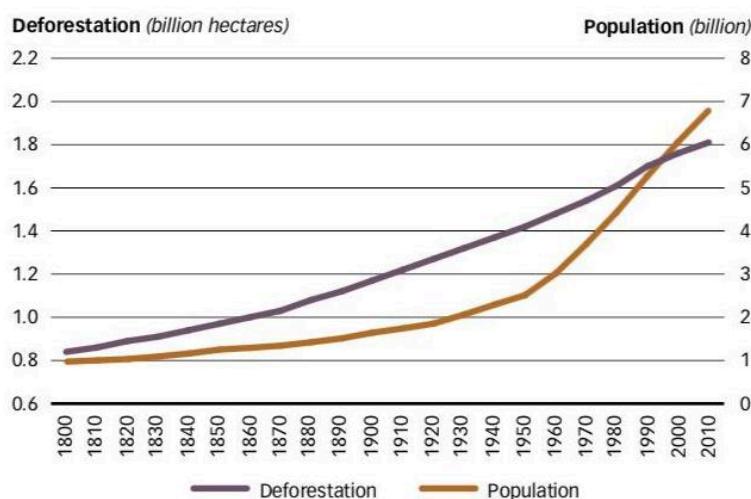


Figure 2. Relationship between World Population Growth and Deforestation (Source: UN, 1999; Williams, 2002; FAO; 2010; USDA, 2014)

DEFORESTATION FOOTPRINT

The link between the global development phase and deforestation is also confirmed by the global deforestation footprint (Figure 3). The development process that occurred in sub-tropical areas (such as mainland Europe, North America) led to the deforestation of temperate forests

earlier before the 1990s. The peak of their deforestation occurred in the pre-1700 year period. Then tropical countries that have just developed their economies, causing more intensive deforestation since the 1900s. The peak of tropical deforestation occurred in the period 1950-1979 (FAO, 2012; Roser, 2012).

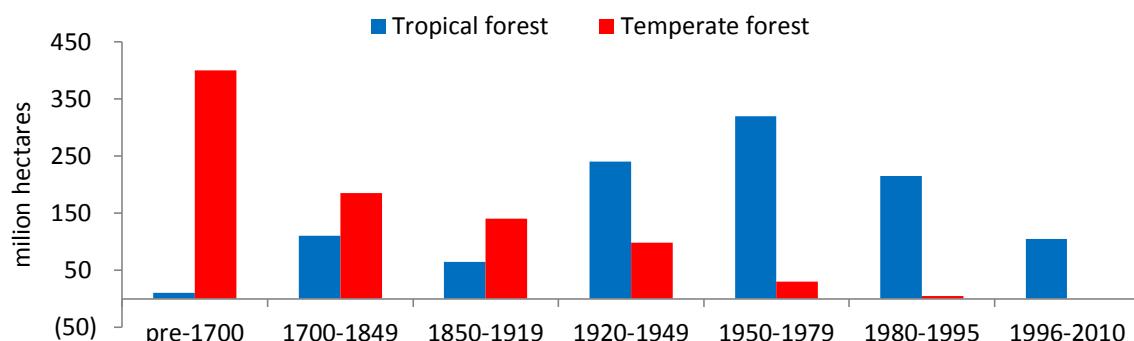


Figure 3. Estimated Deforestation by Type Forest and Time Period Pre-1700-2000
(Source: FAO, 2012)

The deforestation footprint of tropical forests and non-tropical forests is also strengthened by the study of Matthew (1983). In the pre-agricultural period until 1980 (Table 1), global deforestation has

reached 701 million hectares, consisting of deforestation of non-tropical forests (653 million hectares) and deforestation of tropical forests (48 million hectares).

Table 1. The World Forest Change (Deforestation) in the Pre-Agriculture period until 1980

	Pre Agricultural Vegetation	Vegetation 1980		Ecosystem Reduction	
	Milion Ha	Milion Ha	Milion Ha	Percent	
Total world forest	4,628	3,927	701	15.15	
Tropical rainforest	1,277	1,229	48	3.75	
Nontropical forest	3,351	2,698	653	19.50	
Woodland	1,523	1,310	213	13.80	
Shrubland	1,299	1,212	87	6.70	
Grassland	3,309	2,743	647	19.10	
Tundra	734	734	-	-	
Desert	1,582	1,557	25	1.60	
Cultivation	93	1,756	-1663	-	

Source : Matthew (1983)

Most of the deforestation of non-tropical forests occurred in mainland Europe and North America. This is reflected in the decline in forest cover in European countries before 1800 (Kaplan *et al.*, 2017) and North America (USDA, 2014). This is also confirmed by the loss of virgin forest in mainland Europe. The study of Sabatini *et al.*

(2017) revealed that currently there are only 1.4 million hectares of primary forest in Europe, which are scattered in Finland, Ukraine, Bulgaria, and Romania.

The empirical facts that mention the loss of virgin forest in Europe and North America show that these countries carried out total deforestation in the early stages of

development. This total deforestation has caused the loss of their native biodiversity. Where is the native biodiversity of Europe and North America today?

The Houghton study (1996) also confirms this pattern of global deforestation. In the period 1850-1990, the total area of global opened land increased from 289 million hectares to 2.52 billion hectares, consist of 1.6 billion hectares of temperate grassland, 508 million hectares of tropical forest, 91 million hectares of temperate forest and 4 hectares of the boreal forest.

During the period 1850-1990, the volume of logging from boreal and temperate forests increased from 1 million hectares/year to 3.5 million hectares/year. An increase in the volume of logging also occurred from temperate forests from 3 million hectares/year to 6 million hectares/year. Meanwhile, the volume of logging from tropical forests in 1850 was still very small, which is less than 0.5 million hectares/year and then increased to 2 million hectares/year in 1950 and became 8 million hectares/year in 1980. Thus, during that period it was about more than 1 billion million hectares of forest in the world have logged or about 77 percent higher than the conversion of forest to agricultural land.

With the empirical facts above, it is quite convincing that deforestation is a normal phenomenon that is commonly occurs in every country. The stages of development model adopted by almost all countries in the world and due to the growth of the global population have implications for deforestation which has become part of the development process that occurs in every country/region.

Perhaps many people do not agree with this path of deforestation, especially the millennials generation. It's not about agreeing or disagreeing. The empirical facts show that developed countries such as Europe and North America had started their stages of the development process from the results of deforestation. There seems to be no option to develop at that time without deforestation. The wealth that they enjoy today is also a result of deforestation in the past.

Developing countries today have also adopted the same stages of the development

model. Population growth and increasing food needs are unlikely to be met without deforestation. As a follower of that development model of developed countries, deforestation in developing countries may learn a lot from the history of deforestation in developed countries, which is they don't adopt total deforestation and still have virgin forests as "home" for native biodiversity.

CONCLUSION

Global deforestation is a normal phenomenon that has occurred in the history of global development. Global deforestation occurred since the year before 1700 and was mostly in temperate forests such as Europe and the United States, and then spreads to tropical forest areas.

Based on the global development model that has been adopted so far, deforestation is the beginning of the development process of a country/region to utilize natural forest resources to meet food needs and the availability of housing land, which is in line with increases in the global population. This shows that deforestation is a normal phenomenon in stages of development carried out by all countries and cannot be avoided.

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