

## THE STRATEGY TO STOP THE DEGRADATION OF TROPICAL RAIN FOREST IN INDONESIA AND HOW TO IMPROVE THE CONDITION

### *Strategi Menghentikan Degradasi Kualitas Hutan Tropika Basah di Indonesia dan Bagaimana Memperbaiki Kondisinya*

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#### ABSTRAK

*Deforestasi dan degradasi kualitas hutan hujan tropika di Indonesia dimulai tahun 1960 yaitu sejak diperkenalkan sistem Tebang Pilih Tanam Indonesia (TPTI) terhadap 64 juta ha hutan produksi dan konversi hutan tropika menjadi lahan non-hutan seluas kurang lebih 30 juta ha. Kebijakan pemerintah atau pengambil keputusan, rencana tataguna hutan, kesalahan manajemen perusahaan hutan produksi oleh perusahaan-perusahaan swasta dan penebangan liar telah memicu kerusakan hutan. Bagaimana cara memberhentikan deforestasi dan degradasi hutan, maka perlu dilakukan strategi khusus untuk memperbaiki kondisi hutan seyogyanya dilakukan pendekatan melalui revisi kebijakan pemerintah, penerapan pengelolaan hutan lestari dan perbaikan kondisi ekonomi masyarakat. Stabilitas dari manfaat hutan hujan tropika di Indonesia tidak bisa dicapai apabila degradasi dan deforestasi hutan hujan tropika tidak bisa diberhentikan.*

#### INTRODUCTION

Indonesian tropical rainforest rank third in the world after Brazil and Zaire. Before 1960 it was initially estimated to 164 million ha (1.64 million km<sup>2</sup>). Total land areas is about 190 million ha, so the forest land area was about 86.3% of total land. With those abundant forest resource, if properly managed with Sustainable Forest Management (SFM) System will be able to supply national need of wood and also international market. Since **wood product** concept had been changed to **forest product** concept, the advantages of the tropical rainforest Indonesia will make more margins.

Unfortunately since 1960 it has been happening **deforestation** and **degradation of forest quality** in almost all forest areas in Indonesia. It is very interesting to study **why** and **how** it has been happening. According to the Director General of Forest Protection and Nature Conservation (1988): 64 million ha had been considered as production forest, 30.5 million ha as protection forest, 18.9 million ha as conservation forest and it was considered 30 million ha as conservation forest.

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## NEGATIVE IMPACT FROM THE GOVERNMENTAL POLICY

Before 1960 almost all tropical rainforest outside of the Jawa Island had not been exploited. The only forest were exploited is Jawa forest, especially, teak Plantation Forest with large 2.5 million ha or 19% of total land. Since 1960 **Indonesia Selective Logging System** had been used to exploit tropical rainforest outside Jawa, especially in Kalimantan Island and Sumatra Island. In 1994 it was recorded that 61.7 million ha rainforests has been managed by **private companies** with Indonesian Selective Logging System and then Changed to be **Indonesian Selective Logging and planting system** from 18 Concession Units in 1968 to 578 Concession Units in 1994.

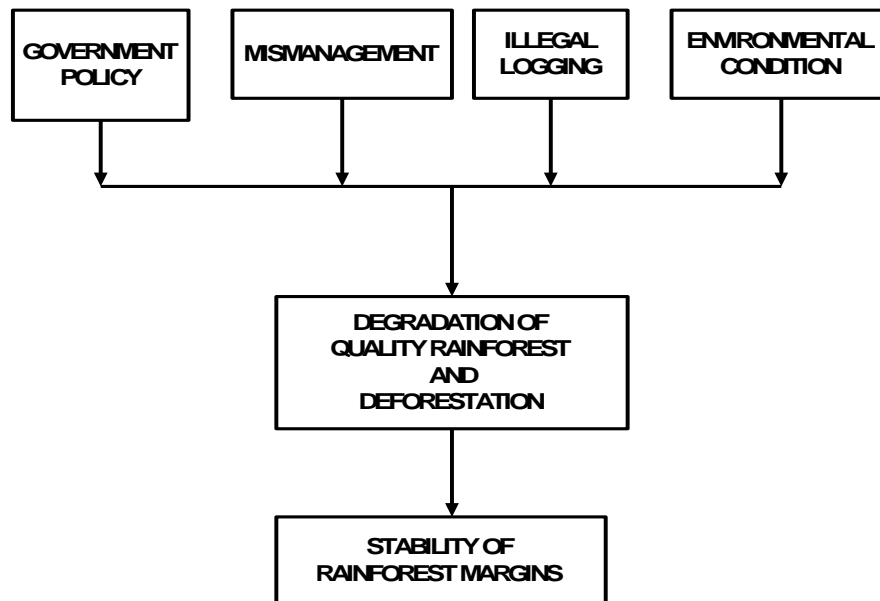


Figure 1. Relation between stability of rainforest condition with rainforest margins

Limited monitoring and controlled by the government to the implementation of selected logging have been created a lot of degradation of forest quality, wood production decreased from 63.7 million m<sup>3</sup> per year in 1985 to 31.4 million m<sup>3</sup> per year in 1989-1994.

To stop degradation of natural rainforest, plantation forest system had been introduced in 1984 and the Government planned to developed about 6 million ha or 100.000 ha per year, but the result forest plantation 1984-2000 is not to promising.

In 1994 from 61.7 million ha production forest estimated will produce 61.7 million m<sup>3</sup> per year (growth rate 1 m<sup>3</sup> per year/ha). Wood industries had been developed with big capacity especially for plywood industry, sawmill industry, molding industry and furniture industry. Mismanagement by private companies (does not follow sustainable forest

management system) have created degradation of forest quality and supply and demand for industrial wood become unbalance. In year 2000 estimated will be negative supply between -16 to -24 million m<sup>3</sup>. Predicted by Marimin *et al* (2000) negative supply of wood will always increase, in year 2018 will be -42 million m<sup>3</sup>. Wood supply capacity in year 2000 estimated only 28.4 million m<sup>3</sup> (total demand 44.3 million m<sup>3</sup>) (Massijaya, 2000).

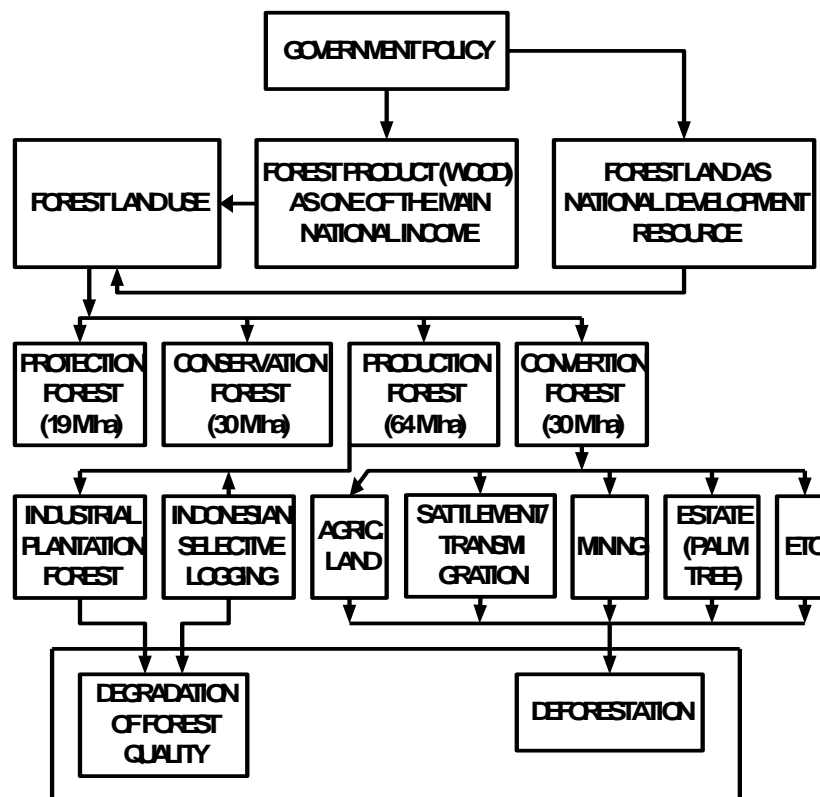


Figure 2. Negative impact from the government Policy

The unbalance condition of wood supply-demand lead to created illegal logging to fulfill the negative supply of wood for industries.

Since the government had considered 30 million ha of rainforest will be changed to non-forest land, deforestation has been occurred, forest land changed to agricultural land, settlement land, mining land, estate land, etc.

In 1986 to 2000 (14 years), **Palm tree plantation** area has been increased 2.35 million ha (total area from 606,780 ha in 1986 to 3 million ha in 1999). About 8 million ha forest has been planned by the government to change to be palm tree plantation, and

about 4 million ha had been approved, 0.62 million ha from production forest and 3.26 million ha from conversion forest and 0.12 million ha from other land (Manurung, 2000). According to Dephutbun (2000) or Ministry of Forestry and Estate crops rate of deforestation in 1985-1998 not less than 1.6 million ha and 1999/2000 estimated increased to 1.7 million ha.

### **NEGATIVE IMPACT FROM THE MISMANAGEMENT OF THE PRODUCTION FOREST BY PRIVATE COMPANIES**

Sustainable forest Management (SFM) concept is a new concept in Indonesia. Ministry of Forestry introduced this concept in 1993 and it had been taken time for forest managers to implement the concept of SFM and the consequences **degradation of forest quality** have been accrued. In 1990 from 64 million ha of production forest only 37 million ha left in a good condition and also reported that in 1983, 11.8 million ha of production forest land already without forest anymore. Log or wood production has been decreasing steeply.

### **NEGATIVE IMPACT FROM THE ECONOMIC CRISIS**

Indonesia has a big population, in year 2000 estimat already reached 210 million people. During economic crisis from 1997 up to now (year 2000) has been increasing unemployment people included people living around the forest land, and they have been doing illegal logging to support their life a lot of wood industry companies have also been sponsored the activities of illegal logging. The illegal logging have been created deforestation and degradation of forest quality and in the same time law enforcement to individual, group or company who already done illegal logging has been very weak.

### **NEGATIVE IMPACT FROM FOREST FIRE**

Forest fire in Indonesia has been serious problem in destroying the Indonesia forest since 1982/1983 had destroyed 3.6 million ha of forest in East Kalimantan only, and in 1997/1998 had destroyed about 5 million ha of forest.

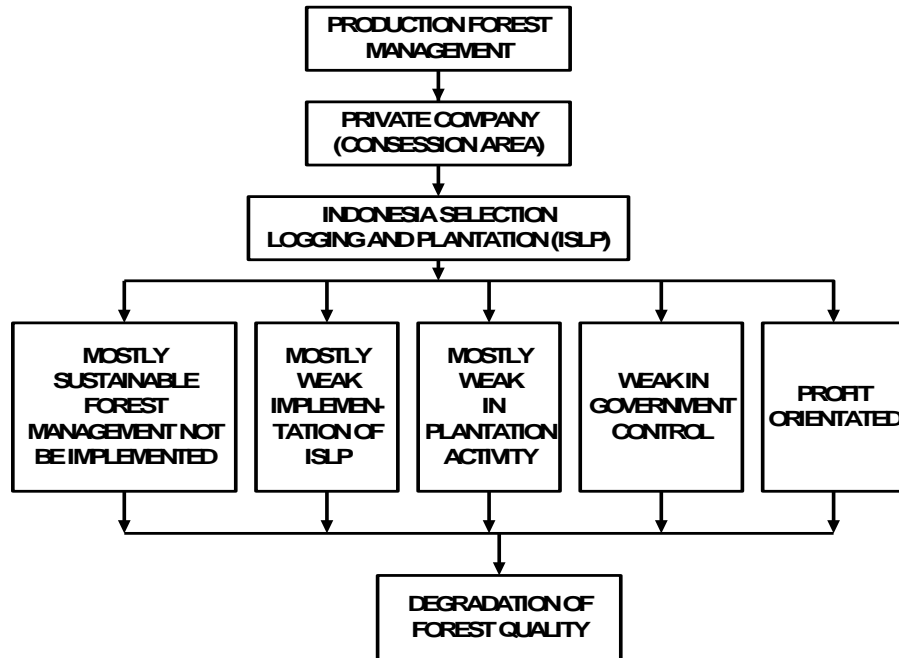


Figure 3. Negative impact from the production forest management

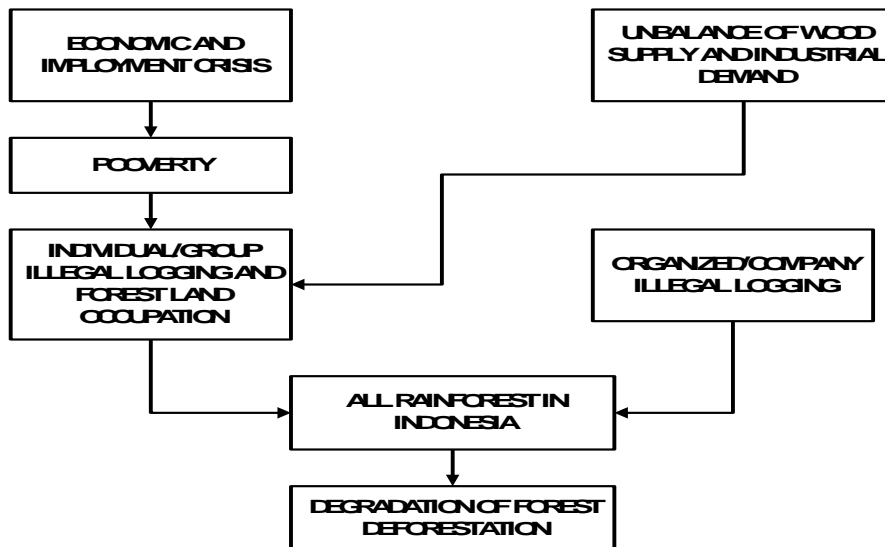


Figure 4. Relation of economic crisis and employment, unbalanced wood supply-demand to illegal logging and degradation of forest quality and deforestation

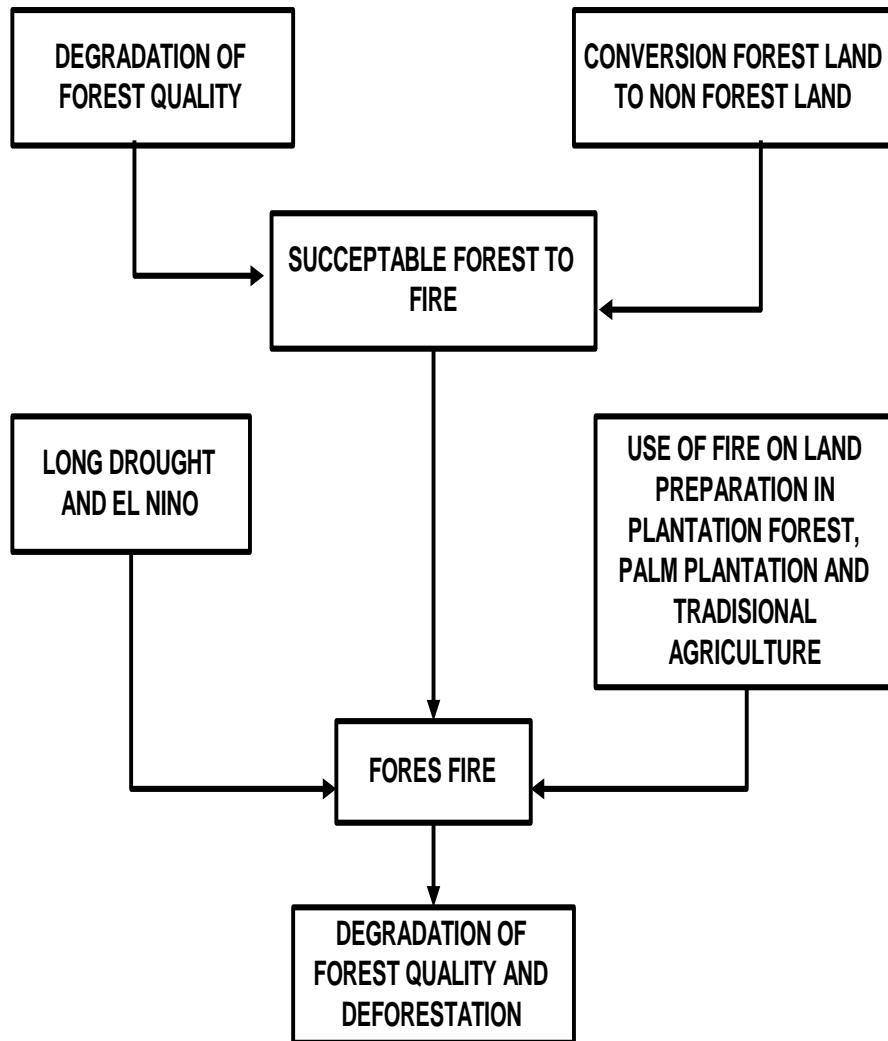


Figure 5. Relation of forest fire and degradation and deforestation

In the normal condition and in a good forest management forest fire only affected less than 0.001% of the total forest land area, since the government opened the natural rainforest for wood production (Indonesia selective logging), conversion 30 million ha of forest, mismanagement of production forest and illegal logging. It had changed the natural rainforest which is resistance to fire becoming susceptible to fire, and last but not least **long drought** period (every 10 years) and **El Nino** phenomena had been created **forest fire**

in a large area especially during long drought and **El Nino** in 1987, 1991, 1994, 1997, 1998 and already predicted that in 2001 El Nino will come again.

Forest fire has been destroying the rainforest in Indonesia seriously. It will be more serious because Indonesia has not enough trained manpower and equipment to prevent and control on forest fire.

### **THE STRATEGY TO STOP THE DEGRADATION THE RAINFOREST IN INDONESIA**

Before improving the rainforest condition in Indonesia, should be stopped the causes of deforestation and the degradation of forest quality.

The strategy to stop the degradation is to eliminate all causes as follow :

1. Revise the government policy in forest land use
2. Implementating sustainable forest management system
3. Reward and panishment and law enforcement to forest managers, companies, individual and group of people who use the forest from mismanagement and illegal logging
4. Improving the economical condition especially people around the forest
5. Reforestation
6. Strong protection on protection forest and conservation forest
7. Reduced the pressure on natural rainforest such as :
  - a. wood not as one of the main national income
  - b. full tree utilization system, this system to minimize wood waste left in the forest (estimated about 60 thousand m<sup>3</sup> per year)
  - c. using lesser known species
  - d. using species with small diameter ( $\leq 50$  cm)
  - e. rationalizen between potential wood industry with potential wood product from production forest
8. Public participation on forest management and introducing private forest program

### **IMPROVING THE RAINFOREST IN INDONESIA**

1. In 1990 estimated that only 37 million ha (58 %) of the production forest is still in good condition, it means about **27 million ha** should be improve the condition. According Manurung (2000), 30 thousand ha land in a critical condition should be rehabilitated. Illegal logging has been happened also in conservation forest and protection forest, those area should be putted in the first priority in rehabilitation program. It can be concluded that **rehabilitation** or **reforestation** program should be done in a very large forest area and will take a long time and a lot of money.
2. Rehabilitate the habitat and improve the fauna population, especially in conservation forest.
3. Improving and strong protected the biodiversity

### **CLOSING REMARKS**

1. Review and revise the government's policy, plans and programs on the rainforest land in Indonesia
2. Strong control on private company in implementating of sustainable forest management system
3. Improve the employment and the economical condition of the people especially on people especially on people who live around the forest to stop illegal logging and mest land accupation
4. Control on using fire on shifting cultivation and lan preparation
5. Law enforcement
6. Reforestation on degraded forest
7. Rehabilitation or reforestation on conservation forest and protection forest
8. Rehabilitation on habitat, fauna, biodiversity and forest affected by fire

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