

Tanzania Charcoal Symposium

Charcoal production in Brazil: Does it pass the sustainability bar?

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Summary

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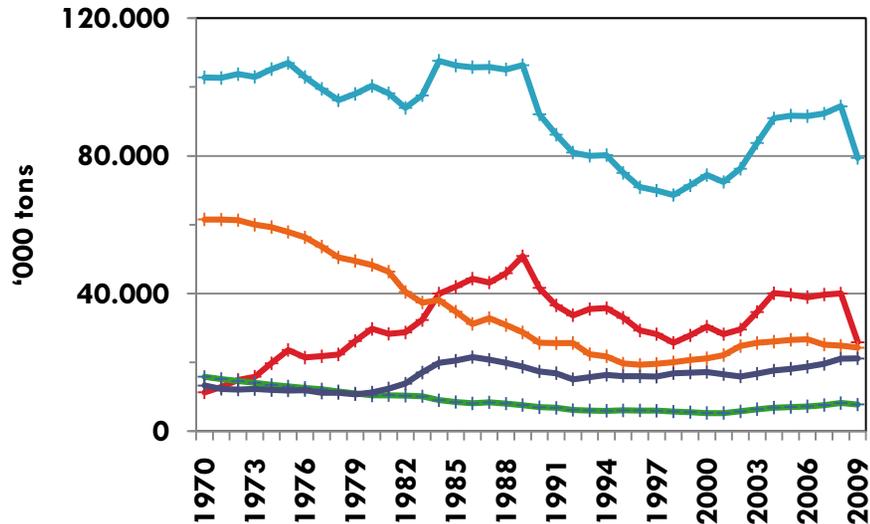
- ▣ **Introduction**
- ▣ Economic Sustainability
- ▣ Environmental Sustainability
- ▣ Social Sustainability
- ▣ Conclusions and Recommendations

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Introduction

Woodfuels in Brazil: history

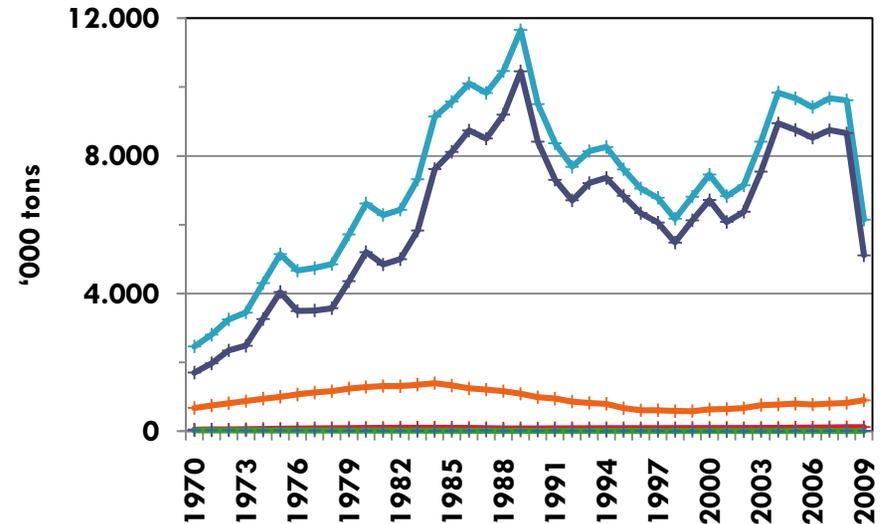
Fuelwood consumption



- Total
- Residential
- Industrial
- Transformation
- Agricultural and livestock

Source: BRASIL. Balanço Energético Nacional, 2010

Charcoal consumption



- Total
- Residential
- Industrial
- Commercial
- Agricultural and livestock

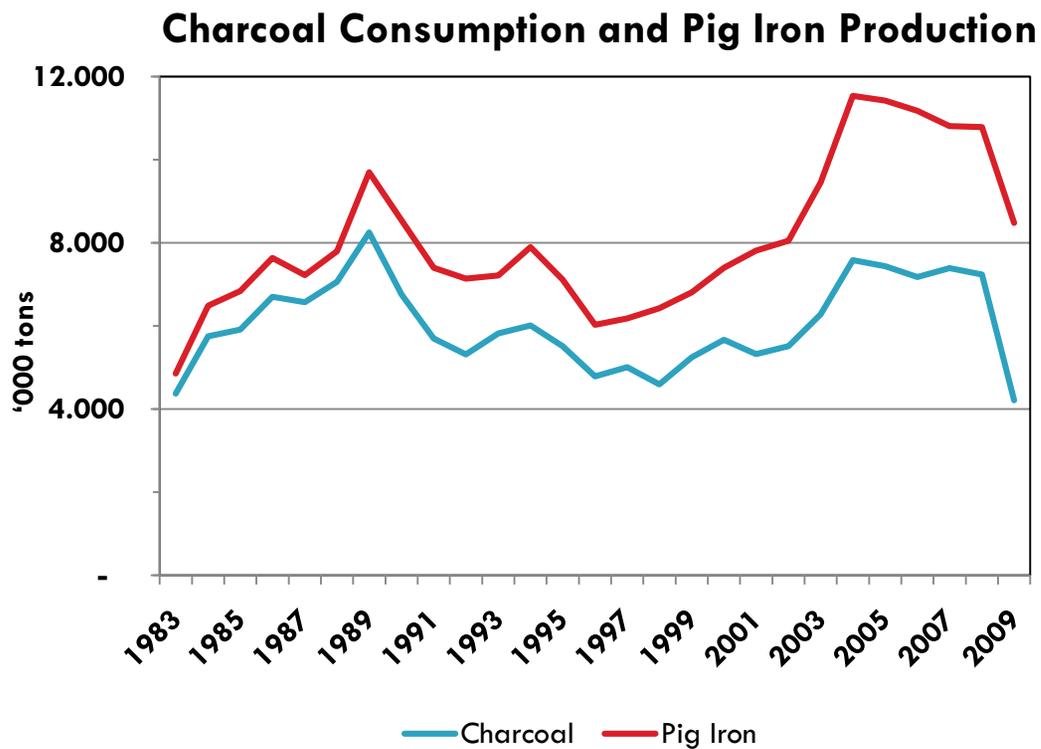
Source: BRASIL. Balanço Energético Nacional, 2010

The steel industry has a significant impact on woodfuels consumption in Brazil

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Introduction

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- The pig iron production fell in 2009 due to the world economic crisis.
- There is direct correlation between pig iron production and charcoal consumption.

Sources: BRASIL. Balanço Energético Nacional, 2010
SINDIFER. Produtores de ferro-gusa no Brasil, 2011

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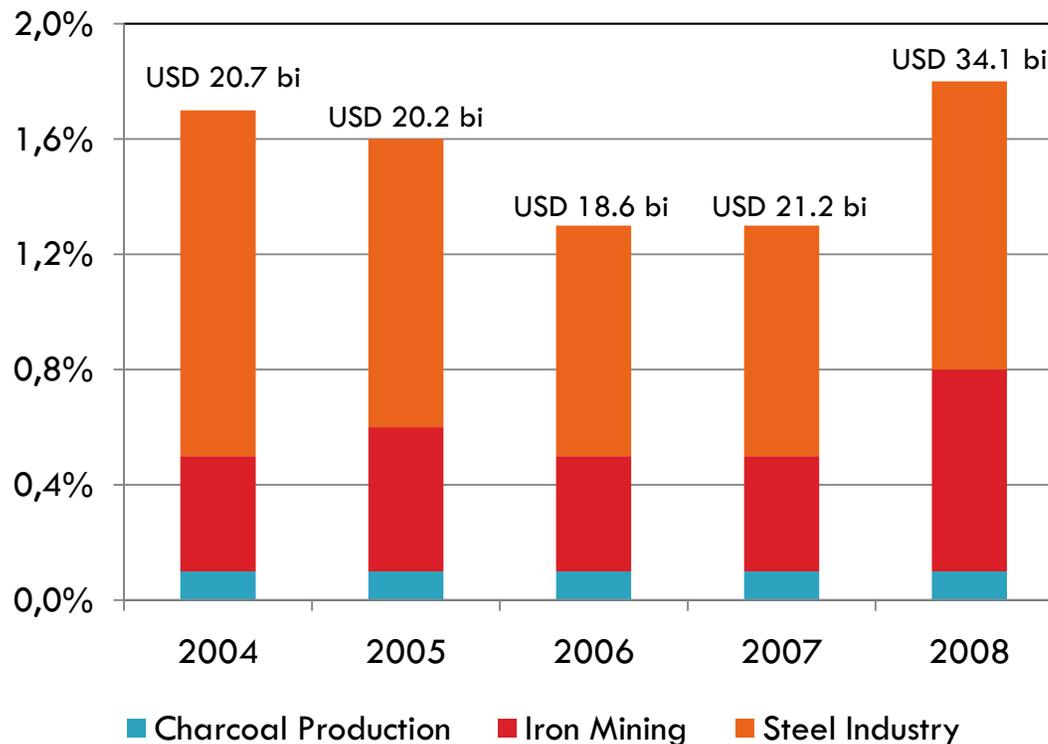
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Economic Sustainability

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Share of steel industry in Brazil's GDP in terms of value



- Brazil's GDP in 2008 was USD 1.9 trillion.
- The steel industry accounted for USD 22.9 billion of the GDP over the 2004 -2008 period.
- It represents 1.5% of the Brazilian GDP.

Sources: IBGE. Produção da Extração Vegetal e da Silvicultura, 2011
IBGE. Sistema de Contas Nacionais 2004 - 2008, 2010

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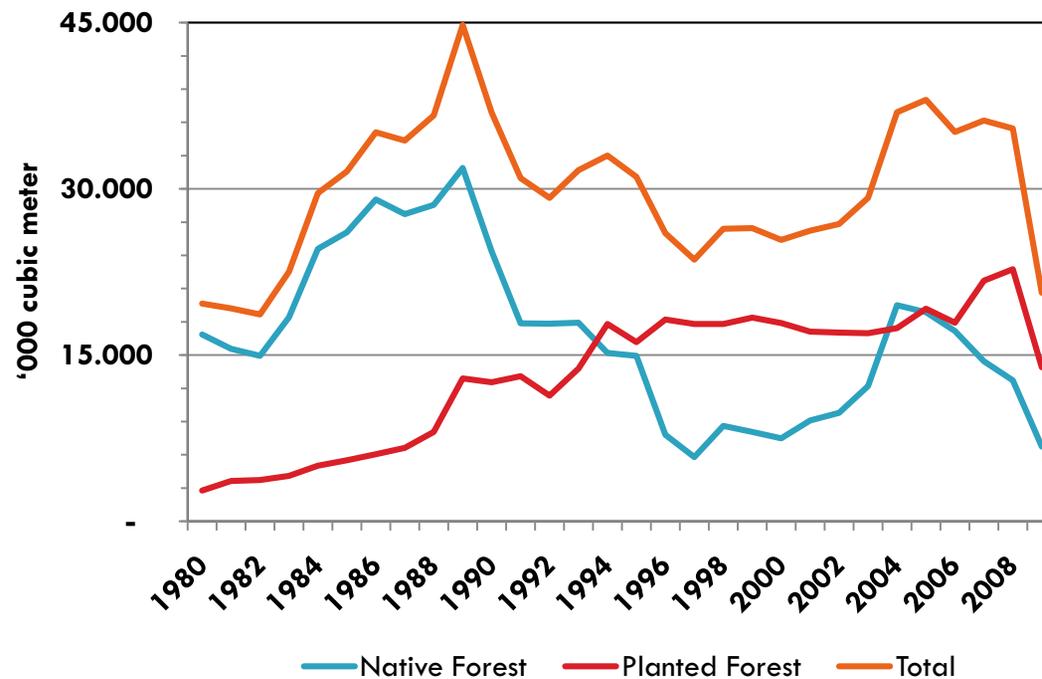
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Environmental Sustainability

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Charcoal Production by Origin



- Charcoal is 32% in steel production against 68% from coal.
- There are two possibilities for the decrease in charcoal production in 2009:
 - Due to world economic crisis.
 - Due to increased fighting against deforestation

Source: AMS. Consumo de carvão vegetal por origem, 2007

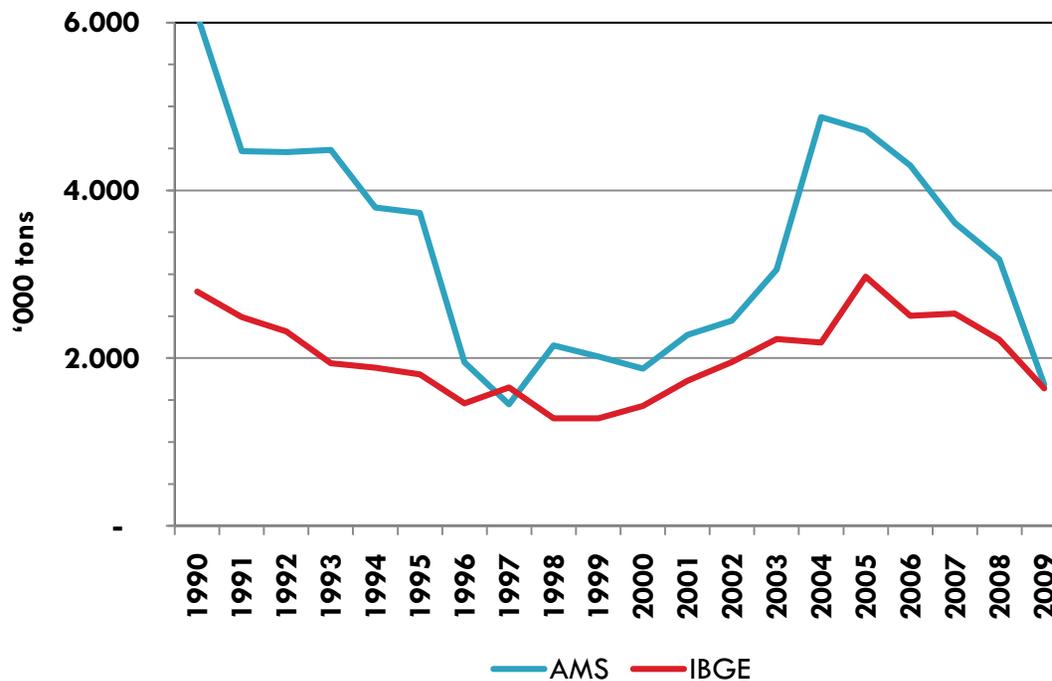
Note: Data from 2007 to 2009 was estimated by the author

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Environmental Sustainability

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Charcoal Production by AMS and IBGE



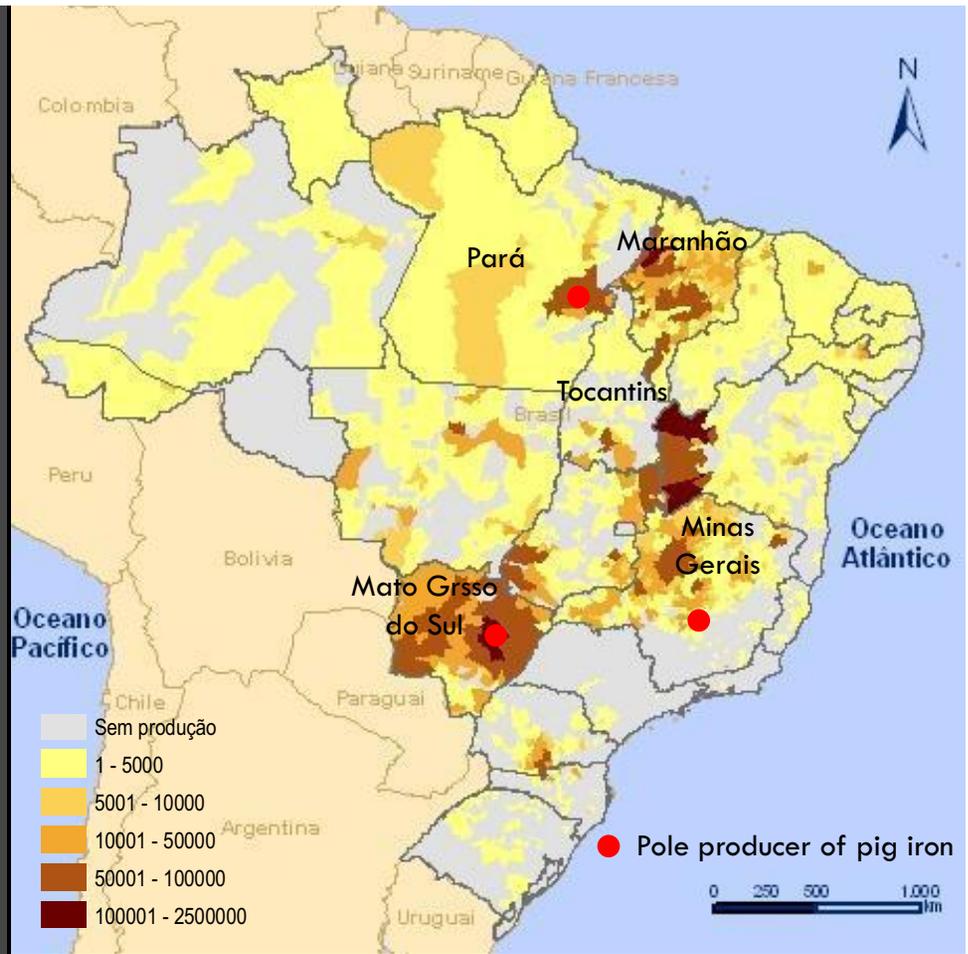
- IBGE data only considers the sales volume.
- The gap between AMS and IBGE data refers to the amount of charcoal produced from wood of unknown origin.
- On average, 248,000 ha are deforested annually due to charcoal production. It represents 15%, on average, of the deforestation in Amazonia

Sources: AMS. Consumo de carvão vegetal por origem, 2007

IBGE. Produção da Extração Vegetal e da Silvicultura, 2011

Notes: AMS – Association of pig iron industry

IBGE - Official Brazilian statistics institute



Source: IBGE. Quantidade produzida na extração vegetal e na silvicultura por tipo de produto, 2006

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Total production of charcoal from extrativism by municipality in 2005

- There are three major production complexes of pig iron in Brazil: Minas Gerais, Pará and Mato Grosso do Sul
- The production of charcoal from native forests takes place near the pig iron production complexes

Summary

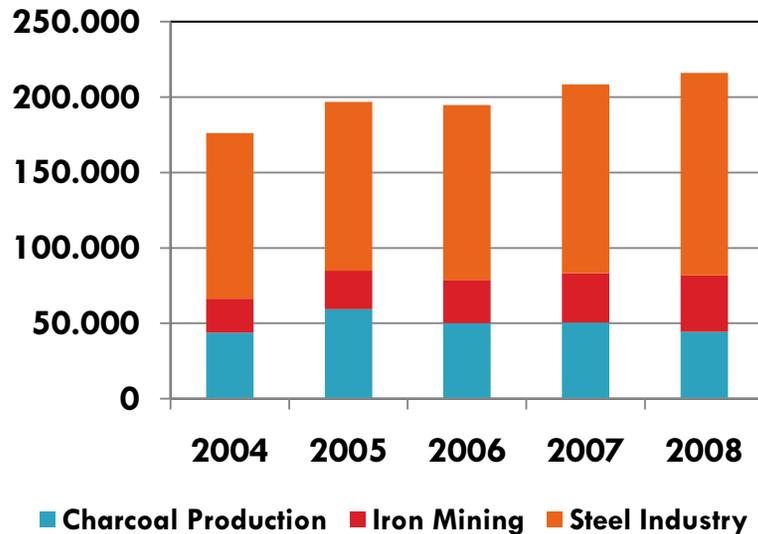
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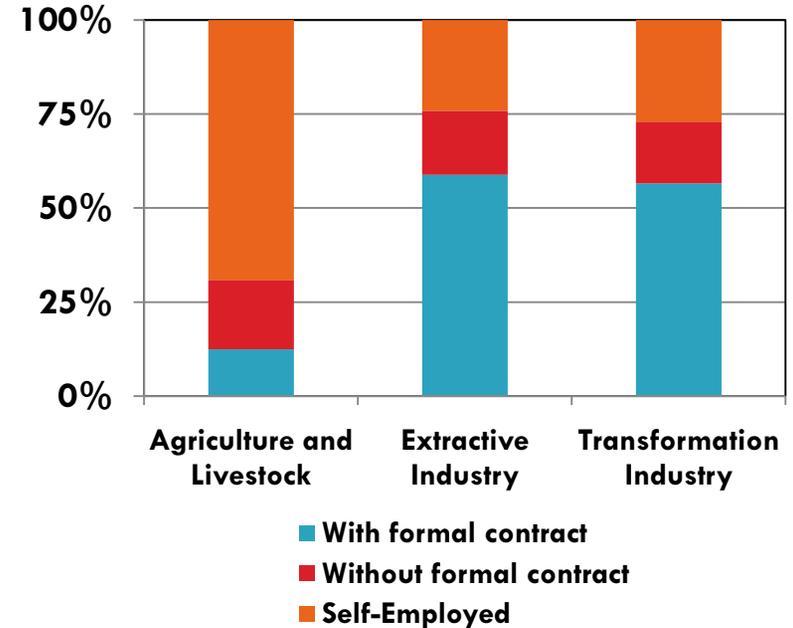
Social Sustainability

Jobs in steel industry



Source: IBGE. Sistema de Contas Nacionais 2004 - 2008, 2010
 Note: In 2008 were employed in Brazil 96.2 million people

Employment by type



Source: IBGE. Sistema de Contas Nacionais 2004 - 2008, 2010

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Social Sustainability

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Working conditions in charcoal production

- ❑ The charcoal production technique has not evolved, it remains basic and primitive, and implies nomadism. It is the same as one century ago.
- ❑ The working conditions are precarious. Charcoal workers do not use PPE and work 12 hours a day, including weekends.
- ❑ Charcoal workers have respiratory diseases and a permanent eye irritation caused by the smoke they breathe in long working hours.
- ❑ Charcoal workers are underpaid and there are accounts of slavery and child labor.

Foto: Maurício Monteiro



Rabo-quente kilns for charcoal production

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Conclusions

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Brazil is experiencing a paradox in the forestry sector. It has the world's second largest forest cover and the eighth largest forest area. Nevertheless, there is not enough wood to sustainably meet demand, in addition to critical supply issues.

Based on that, I came to two conclusion:

- Even with favorable conditions (climate, land availability and technology), wood is becoming an scarce resource in Brazil;
- Brazil has been concerned with the Amazonia and forgotten other biomes with high rates of deforestation as cerrado (savanna) and caatinga.

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Recommendations

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- ▣ I recommend the following:
 1. Preparation of a market study and improvement of forest fuels statistics;
 2. Forest zoning considering the sustainable management of forests and the expansion of reforested area;
 3. Improvement of the transformation of wood into charcoal, considering the recovery and utilization of by-products;
 4. Fighting illegal logging, expanding the surveillance of transportation and end use of wood.

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References

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