RIGHTS AND RESOURCES INITIATIVE
SUPPORTING FOREST TENURE, POLICY AND MARKET REFORMS

Key data from "From Exclusion to Ownership"

Global

Worldwide, in 2008:

- There are approximately 4 billion hectares of forests.
- At least 350 million hectares of forest land are **owned by communities and indigenous peoples** (larger than the size of India) (9% of the world's forests).
- At least 427 million hectares of forest land are **owned by or public land designated for communities and indigenous peoples** (11% of the world's forests)
- At least 466 million hectares of forest land are **owned by individuals or firms** (12% of the world's forests).
- At least 412 million hectares of forest land are **under industrial concession** (in just 15 countries) (10% of the world's forests).

In the 25 complete country cases in *From Exclusion to Ownership* (which account for 80% of the world forest estate):

- The total forest area under state ownership declined during the period 2002-2008, while the area of forest designated for use by communities and indigenous peoples, the area owned by communities and indigenous peoples, and the area owned by individuals and firms all increased.
- The area of public forest land administered by government **decreased 7%** from 2.58 billion hectares in 2002 to 2.41 billion hectares in 2008.
- The area of forest designated for use by communities and indigenous peoples **increased 56%** from 49 million hectares in 2002 to 76 million hectares in 2008.
- The area of privately owned community and indigenous forest land **increased 20%** from 246 million hectares in 2002 to 296 million hectares in 2008.
- The area of forest land owned by individuals and firms **increased 36%** from 339 million hectares in 2002 to 461 million hectares in 2008.
- From 2002 to 2008 the area of forest land designated for communities and indigenous peoples increased in ten countries, stayed the same in 14 countries, and declined in one country.
- From 2002 to 2008 the area of forest land owned by communities or indigenous peoples increased in seven countries, remained the same in 16 countries, and decreased in two countries.
- If the rate of change remains constant until 2015, the area not under government administration will have almost doubled since 2002.
- In the developing countries studied in the 2002 publication *Who Owns the World's Forests* 22% of the forest lands were owned by or designated for communities and indigenous peoples in 2002. In 2008 27% of the forests in the same countries were owned by or designated for communities and indigenous peoples.

Regional

In **Africa** (Angola, Cameroon, CAR, Congo, DRC, Gabon, Sudan, Tanzania, Zambia – accounting for 67% of African forests):

- From 2002 to 2008 the area of public forest lands legally designated for use by communities and indigenous peoples increased 410% from 1.2 million hectares to 6.1 million hectares, most of this change can be explained by Tanzania.

- There are only 0.11 million hectares of forest lands owned by individuals and firms.
- The area of concessions in just 5 central African countries (Cameroon, CAR, Congo, DRC and Gabon) is at least 73 million hectares. In the same countries only 1.6 million hectares of forest lands are designated for use by communities.
- Tanzania has made some of the most progress in the region under its Participatory Forest Management program, increasing the forest area designated for and owned by communities from 0.4 million hectares in 2002 to 3.62 million hectares in 2008, an increase of 900%.

In **Asia** (China, Australia, Indonesia, India, Myanmar, Papua New Guinea, Japan – accounting for 78% of Asian forests):

- At least 147 million hectares of forest land are owned by communities and indigenous peoples, an increase of only 0.5% since 2002.
- There was very little change in the total area administered by government, designated for communities or owned by communities.
- The Indian 2006 Tribal Rights Act, which has yet to be implemented, will transfer forest land from government to communities and households.

In **Latin America** (Bolivia, Brazil, Colombia, Venezuela – accounting for 78% of Latin American forests)

- At least 146 million hectares owned by communities and indigenous peoples, an increase of 43% since 2002.
- At least 190 million hectares owned by or designated for communities or indigenous peoples, an increase of 60% since 2002.
- The process known as *saneamiento* to clarify land tenure has led to an increase of forest lands legally owned by communities and indigenous peoples, from 2.8 million hectares in 2002 to 9.04 million hectares in 2008.

Definitions of categories

Public lands administered by government*:* typically include all forests in the legal forest estate that are owned and administered exclusively by the government and that are not designated for use by communities or indigenous peoples. Note that this category includes some protected areas and forest lands awarded as concessions for logging, agroindustrial or silvicultural plantations, and mining.

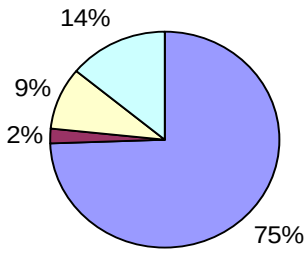
Public lands designated for use by communities and indigenous peoples are lands set aside on a semi-permanent but conditional basis. According to the 2002 publication: "governments retain ownership and the entitlement to unilaterally extinguish local groups' rights over entire areas. Under this arrangement, local groups typically lack rights to sell or otherwise alienate land through mortgages or other financial instruments. Although the distribution of rights between government and community in this category is different in almost every country, governments invariably retain strong authority to extract and manage forest resources."

Private lands owned by communities or indigenous peoples refers to forest lands where rights cannot be unilaterally terminated by a government "without some form of due process and compensation." In theory, private land owners typically "have rights to access, sell or otherwise alienate, manage, withdraw resources and exclude outsiders." However in the real world, there are some situations where not all of these rights are awarded to private land owners, and others where some of these rights are conferred to people on public, designated for community-use forest land. For this reason, the legal right of the government to terminate a land right with or without due process and compensation serves as the chief criterion for distinguishing public from private forest tenure. Note that in some cases where private lands are said to be owned by communities or indigenous peoples, the state is considered to be the ultimate owner under statutory law, though the communities and indigenous peoples are recognized as the lawful right holders.

Private lands owned by individuals or firms are those where the rights cannot be unilaterally terminated by a government without due process or compensation.

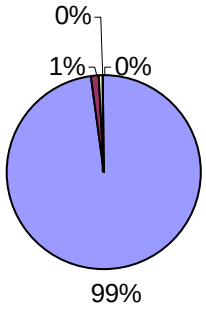
Distribution of tenure globally and regionally

Global (25 Complete Cases from From Exclusion to Ownership - 80% of world forest estate)

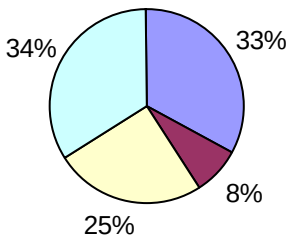


- Administered by government
- Designated for use by communities and indigenous groups
- Owned by communities and indigenous groups
- Owned by individuals and firms

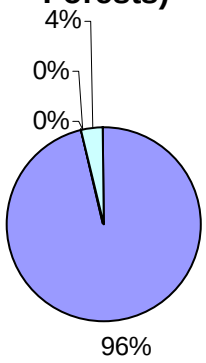
Africa
(DRC, Sudan, Angola, Zambia, Tanzania, CAR, Congo, Gabon, Cameroon - Accounts for 67% of African Forests)



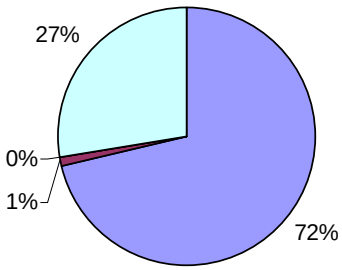
Latin America
(Bolivia, Brazil, Colombia, Venezuela - Accounts for 78% of Latin American Forests)



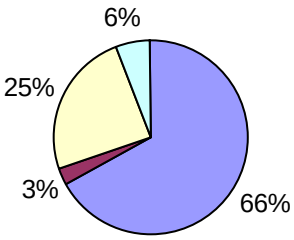
Europe
(Russia, Finland, Sweden - Accounts for 86% of European Forests)

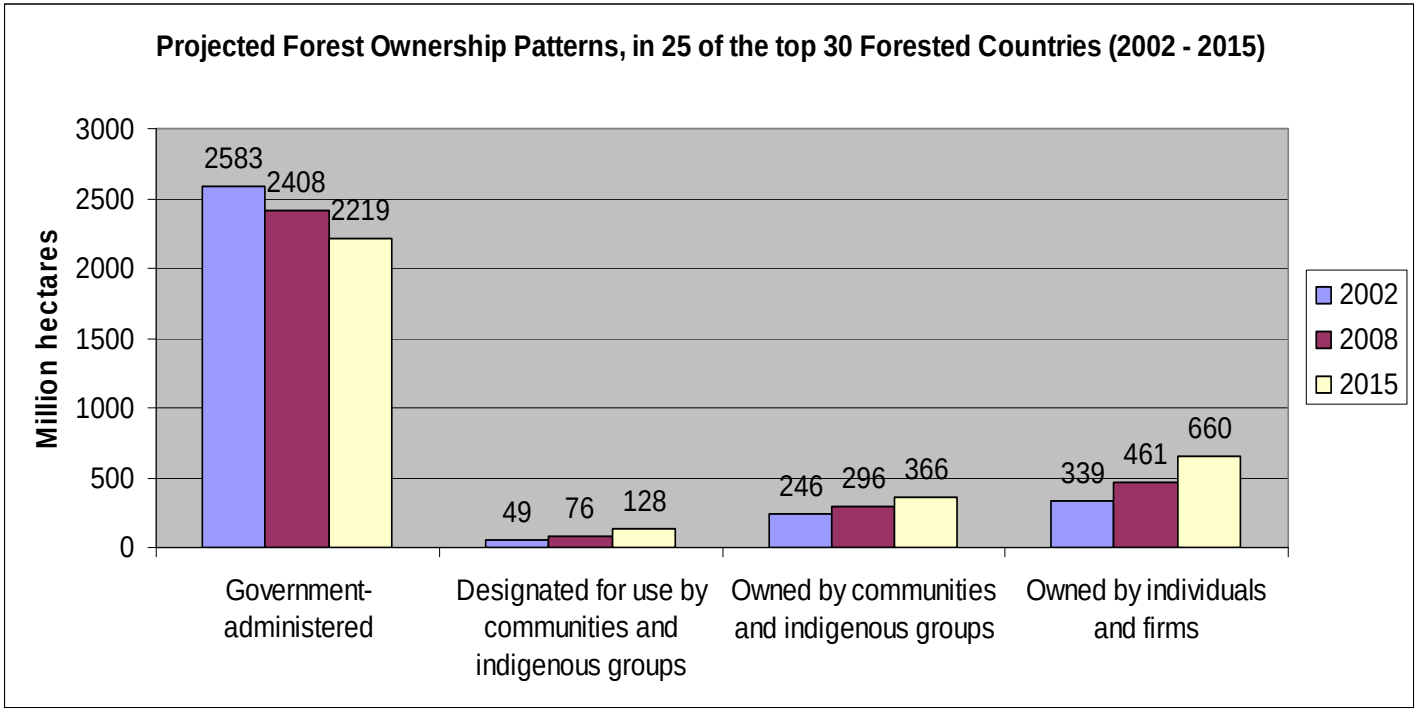


North America
(Canada, USA - Accounts for 87% of North American Forests)



Asia
(China, Australia, Indonesia, India, Myanmar, Papua New Guinea, Japan - Accounts for 78% of Asian Forests)

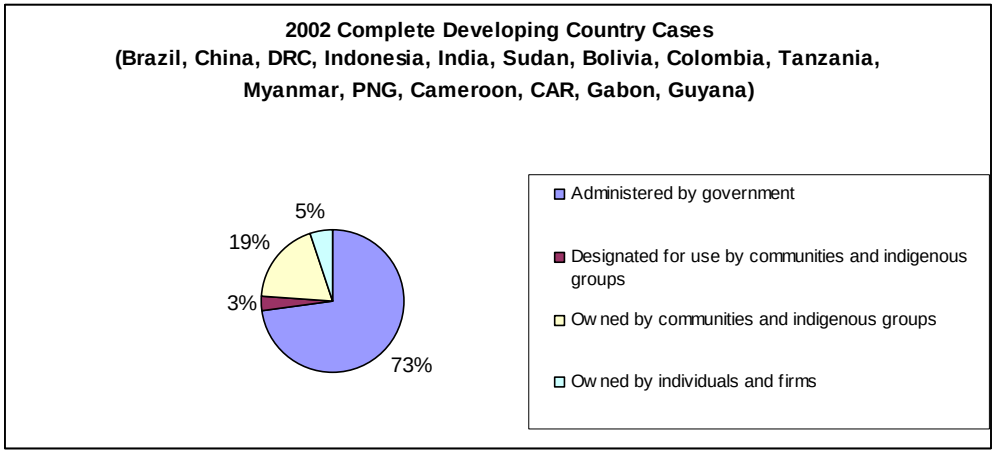


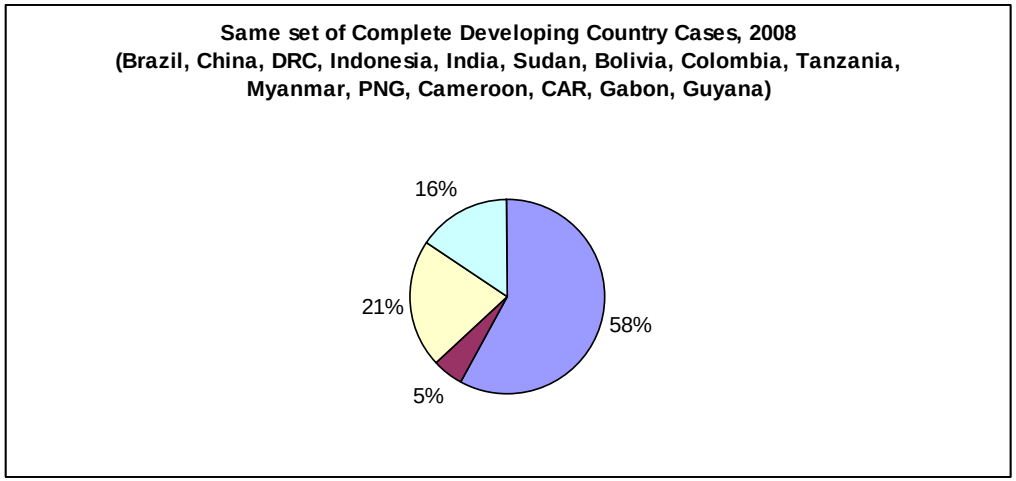


Yearly rates of growth, 2002-2008

Government administered	Designated for use by communities and indigenous groups	Owned by communities and indigenous groups	Owned by individuals and firms
- 1.16%	7.7%	3.1%	5.3%

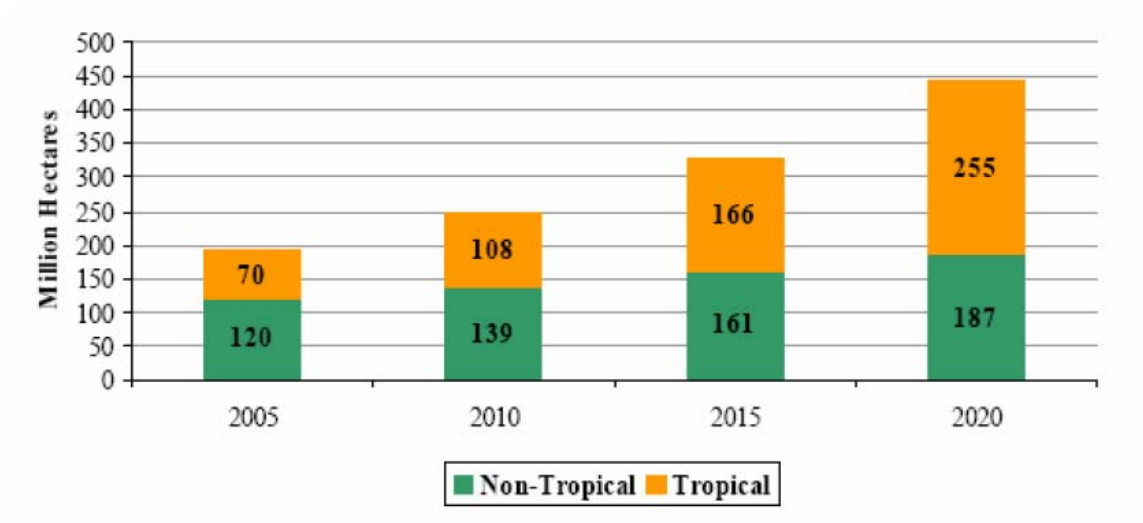
Comparison of the complete 'developing countries' in the 2002 Who Owns and 2008 data





	Designated for use by communities and indigenous groups	Owned by communities and indigenous groups	Total
2002	3.3%	18.6%	21.9%
2008	5.3%	21.4%	26.7%

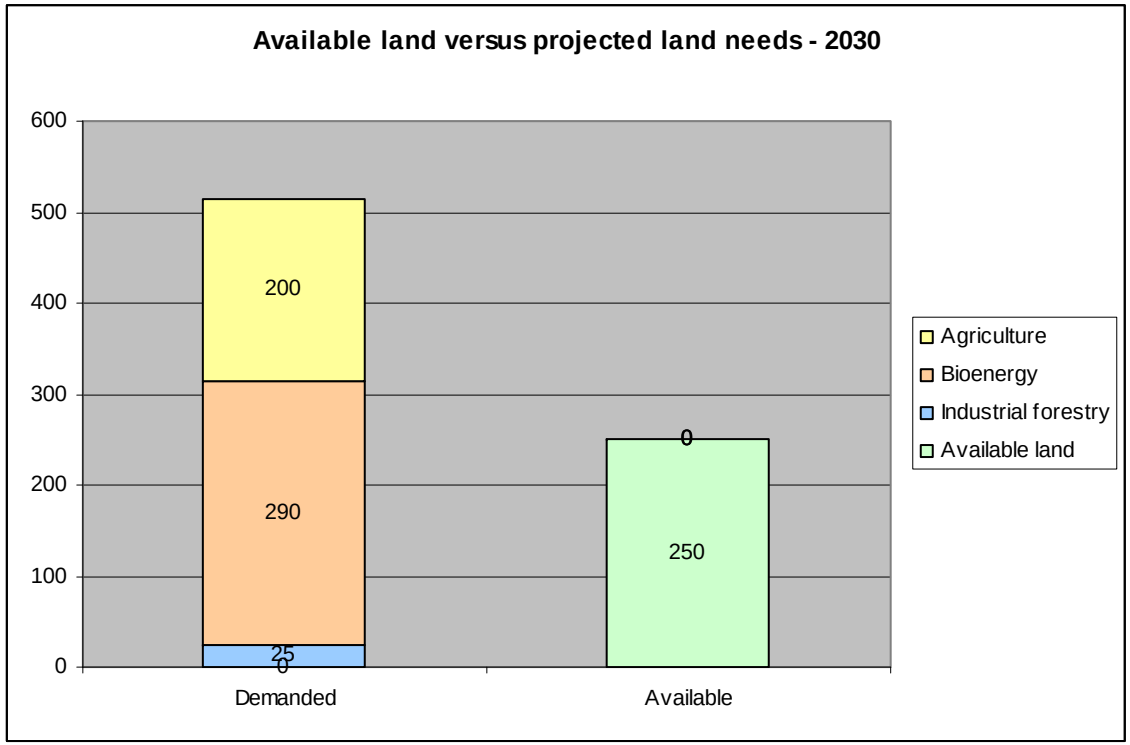
Figure 1: Projected forest plantation area



Source: STCP (2007) estimates.

Source: Nilsson, Sten. 2007. The Boomerang – When Will the Global Forest Sector Reallocate from the South to the North?. Rights and Resources: Washington DC.

Where is the land coming from? Projections of land availability and demands for land in 2030



Source: Roberts, Don and Sten Nilsson. 2008. Convergence of the Markets for Fuel, Food, Fiber: A Forestry (and Land-Use) Perspective. Powerpoint presentation. Council of Forest Industries 2008 Annual Convention. April. Kelowna, British Columbia

III. Demand on Bioenergy

Earlier I discussed that there will be continued demand at a substantial level on fuelwood and charcoal in certain regions of the world (e.g., Africa, India, China, Latin America). Plantations for just production of fuelwood have not been that successful over time (Persson, 2006). People in the developing countries prefer to collect the fuelwood in the existing forests. Therefore there does not seem to be that high competition on land between fuelwood plantations and industrial plantations.
As discussed above cellulose fibers for production of heat and electricity is superior to biofuels with respect to energy efficiency and environmental impacts. The future demand for heat and electricity production will depend on future energy prices. With higher prices the demand on cellulose fibers for heat and electricity will increase and an increased competition on land between energy plantations and industrial plantations will be the result. With respect to biofuels we can get a feeling for the future demand by looking at the development of road vehicles. WBCSD (2004) made a study on future mobility. From this study the following can be excerpted. The fuel use and potential biofuel demand is assessed to be a lower bound if compared with other energy scenarios.

Table 10: Road vehicles and energy consumption

	Vehicles (in million)	Energy consumption (in billion TOE)
2005	800	1.5
2030	1400	2.2
2050	2200	3.0

To get a rough assessment of the land needed for biomass production in this situation we have used a rule of thumb that 1 ha can supply 5 future cars (Deutsche Energy-Agentur, 2006). To fuel the vehicle fleet in 2030 with biofuel would require 280 million additional ha of biofuel plantations in addition to the increased demand on agriculture land discussed earlier.

According to OECD/FAO (2007) Brazil plans to increase its sugar cane ethanol production from its current 16 billion to 44 billion liters by 2016. Based on Girard et al. (2006) technology assessment, this corresponds to an increase of about 4.5 million ha of high productive land. China is planning to increase its corn-based ethanol production from 1.5 billion liters to 3.8 billion liters during the same time period. This corresponds to an additional high quality land demand of 75,000 ha.

OECD/IEA (2006) assesses future biofuel consumption as illustrated in Table 11. This means some 100 million Toe of biofuels (in the case with subsidies). This corresponds to, in a very conservative estimate, some additional 35 million ha of land.

But the second important message from Table 11 is that it is assumed that substantial subsidies will go into the production of biofuels. That the subsidies are substantial can be illustrated by a table presented by Doornbosch and Steenblik (2007).

Government projections of land needed for crops that produce biofuels

Country	Current area (million hectares)	Projected area (million hectares)
Brazil[i]	28	88 - 128 (by 2020)
China[ii]	nd	+ 13.3 (by 2020)
India[iii]	nd	+ 14 (by 2012)
Indonesia[iv]	6.5	16.5 - 26 (by 2025)
Malaysia[v]	4.2	5.2 (by 2010)

[i] Soy and sugar cane plantations.
Altieri, Miguel A and Elizabeth Bravo. "The ecological and social tragedy of crop-based biofuel production in the Americas." Food First, Institute for Food and Development Policy. http://www.foodfirst.org/node/1662 Accessed 19 March 2008.

Nilsson, Sten. 2007. *The Boomerang—When Will the Global Forest Sector Reallocate from the South to the North?* Rights and Resources Initiative and International Institute for Applied Systems Analysis. http://www.rightsandresources.org

[ii] Mainly forest crops (wood and bamboo) expressly intended for use in biodiesel production and power generation, according to an announcement from the State Forestry Administration in early 2007. Official policy is to focus this production on low-productivity lands that are not currently devoted to commercial agriculture or forestry, however some private companies like China Grand Forestry plan to convert relatively high-value secondary forests to jatropha (oilseed) plantations.

Roberts, Don G. 2008. Convergence of the Fuel, Food and Fiber Markets: A Forest Sector Perspective. Draft. Rights and Resources Initiative and CIBC World Markets. http://www.rightsandresources.org.

[iii] GRAIN. 2007. "Agrofuels special issue, July 2007." Seedling: Biodiversity, Rights and Livelihood. http://www.grain.org/seedling_files/seed-07-07-en.pdf

Monbiot, George. 2007. "The western appetite for biofuels is causing starvation in the poor world." *The Guardian*. November 6, 2007. Accessed February 27, 2008. http://www.guardian.co.uk/commentisfree/story/0,,2205948,00.html

[iv] Oil palm only.

Roberts, Don G. 2008. Convergence of the Fuel, Food and Fiber Markets: A Forest Sector Perspective. Draft. Rights and Resources Initiative and CIBC World Markets. http://www.rightsandresources.org.

Colchester, Marcus, Norman Jiwan, Andiko, Marua Sirait, Asep Yunan Firdaus, A. Surambo, Herbert Pane. 2006. “Promised Land: Palm Oil and Land Acquisition in Indonesia: Implications for local communities and indigenous peoples.”

Smolker, Rachel, Brian Tokar, Anne Petermann, and Eva Hernandez. 2007. “The real cost of agrofuels: Food, forest and the climate.” http://www.globalforestcoalition.org/img/userpics/File/publications/Therealcostofagrofuels.pdf

Holt-Giménez, Eric. 2007. “Biofuels: Myths of the Agro-fuels Transition.” Food First Backgrounder, Vol 13 No 2, Summer 2007. http://www.foodfirst.org/node/1712

Business Watch Indonesia. 2007. *Biofuel Industry in Indonesia: Some critical issues.* http://www.fair-biz.org/admin-bwi/file/publikasi/20070828100425.pdf

[v] Oil palm only.

Colchester, Marcus, Wee Aik Pang, Wong Meng Chuo and Thomas Jalong. 2007. “Land is Life: Land Rights and Oil Palm Development in Sarawak.” http://www.sawitwatch.or.id and http://www.forestpeoples.org