Business Model Analysis of Natural Production Forest with Sustainable Forest Management Approach

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Abstract

Deforestation and conversion of forest land in Indonesia continues. Data show that within 12 years there has been a decline in forest area in Indonesia amounted to approximately 20 million hectares, or an average of 1.7 million hectares per year. Other data show that between 1990-2010, Indonesia forest area shrank from 118 million hectares to 94 million hectares in 2010, whether caused by changes in the function of forest, forest fires, or unsustainable forest management, with the deforestation rates 450,637.1 ha/year. Sustainale forest management has been known to be effective in absorbing carbon emissions through increased in-growth and productivity of natural forests, and maintain its biodiversity and environmental functions. Currently a decline in production of natural forest area, which is caused by various factors such as a poor investment climate. The research method is based on qualitative research, ie in-depth interviews, Focus Group Discussion (FGD), SWOT Analysis, and Business Model Canvas (BMC). Result of the research shown that: 1) Business Model Canvas date suggests that customers Kaltim forest resources consist of domestic and foreign companies, universities, foreign tourists and domestik. Service to customers who want environmentally friendly wood enhanced by selling certified wood; (2) The results of a SWOT analysis indicates the certainty area (land dispute), the low to the high Law enforcement of illegal logging, not an institutional one door, timber prices are low, holder IUPHHK make messy collapse of the forest industry; (3) The Strategy of Sustainable Forest Management (SFM) through BMC improved is the element key partnership in the form of governance of institutional fixed, protecting customary rights, provide incentives for IUPHHK, while the element Key activity in the form of certified HR forestry, and the elements of Customer segement is a green marketing strategy.

Keywords: Deforestation, sustainable forest management, carbon emission reduction, the development of business models, strategic policy

Introduction

Indonesia is a country that has the third largest area of tropical forest in the world after Brazil and the Democratic Republic of Congo. This makes the forest plays a very important for Indonesia since 1967 and 1968. The Government of Indonesia enacted the Foreign Investment Law and the Law on Domestic Investment. Since then, the forest became a major source of economic growth in Indonesia, where the wood products made from natural forest wood (wood paneling, sawn timber, moldings and furniture) became the largest foreign exchange earner after oil and gas, until the period of the 90s.

Indonesia is currently facing the challenge of a decrease in the breadth and quality of its natural forest. Based on the measurement of forest area in the mid 1980s and 1996, within a period of 12 years there has been a decline in forest area in Indonesia amounted to approximately 20 million hectares, or an average of 1.7 million hectares per year (World Bank, 2001). The figure has exceeded the estimated rate of deforestation is acceptable and it ranged between 0.6 to 1.3 million hectares per year (World Bank, 2001). More recent data from the Food and Agriculture Organization (FAO) show

that between 1990-2010, Indonesia forest area shrank from 118 million hectares to 94 million hectares in 2010, whether caused by changes in the function of forest, forest fires, or the utilization of the results forests that are not based on the principle of sustainable forest management. Based Forestry Statistics Indonesia 2012, Indonesian deforestation rates in the period 2010-2012 is 450,637.1 ha / yr, of which 120,443.2 ha / yr coming from other land use.

Natural forest management system which has been known to effectively enhance the productivity-growth and natural forests and still be able to maintain the biodiversity and environmental functions and can increase their social role is natural forest management system known as Selective Logging System Line Technique Intensive Silviculture. The basic principle of this system is the planting of seed kinds of local groups intensively on the growing path in logged areas or Logged over Areas (LOA) through the Selective Logging System Line on the management of natural production forests. TPTJ-Silin can rehabilitate wet tropical forest in the form of technical improvement enrichment plants (enrichment planting) with a pattern track system so that the plants in the field easily controlled and guaranteed the success of its growth. Thus, the system is expected to reduce deforestation and forest degradation, improve productivity and quality of natural forests, increase economic growth and improve the welfare of local communities, while maintaining biodiversity and environmental functions.

The Ministry of Forestry has developed a Selective Logging System Line Intensive Silviculture techniques in several companies Utilization License Timber Forest Products in Natural Forest (IUPHHKHA) began in 1998. However, in practice has many obstacles, especially from the aspect of financing (finance and investment) , so that the necessary studies and improvement of the enabling conditions to implement it on a national scale. This research is expected to result in strategic policy recommendations, which are required in order to provide optimum results for the government's development goals that encourage strong economic growth and sustainable management of natural forests through sustainable production. The problems that arise in sustainable forest management within the framework of REDD + in East Kalimantan are as follows:

(1) The absence of a policy which has the force of law that could encourage investment in the sector of natural production forest management;
(2) management of natural production forests is a long-term investment, so that the necessary alternative business model that fit these characteristics;
(3) The absence of a policy formula that refers to the problem formulation conditions (1) and (2), which can gradually break down the problem and a solution in the medium and long term.

Based on these problems, it is necessary to identify the depth, especially in the micro-economic aspects and investment policies, so that the reality-based strategic policy formulation in the field and in line with the perceptions and expectations of stakeholders.

Research Methods

The experiment was conducted by using multiple approaches at once, namely: (a) A SWOT analysis for the determination of internal and external factors affecting the investment climate in sustainable forest management; (b) Determination of the business model by using BMC (Business Model Canvas) to a business model with long-term investment;

Results and Discussion

The world economy is currently undergoing processes of adjustment not only related to the increasingly integrated world market and a jump rise in prices of fuel oil (BBM), but also deals with the issue of climate change. How these changes impact the future of the economy has not been understood. This suggests the importance of studying not only the influence of macroeconomic policy and external factors such as interest rates, exchange rates, tariff and non-tariff and fuel prices on

economic growth, but it is also important to study the impact of economic growth on climate change, including deforestation and forest degradation.   Through REDD (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries), Indonesia in 2009 declaring a reduction target of 26% by 2020, and establishes subsekor forestry contribute to lowering emissions by 14%. In the forestry subsector, the reduction of CO_2 emissions can be achieved by maintaining and conserving the remaining natural forests and / or improve existing plantations to reforest degraded forest areas. CO_2 reduction targets to maintain and conserve the natural forest will reduce the area expansion, including expansion of agricultural areas such as for food, agriculture and forestry, and hence also will reduce its contribution to economic growth.

Climate change mitigation in the forestry sector involves many parties, one of which is the manager or management unit (UM) Business License Timber Forest Product Utilization in Natural Forest (IUPHHKHA). UM will be involved in REDD (reducing emissions from deforestation and forest degradation) are now turned into REDD +, are required to implement SFM. The plus sign on REDD + include: conservation of forest carbon stocks, SFM and enhancement of forest carbon stocks. PHL is the process of forest management to achieve one or more objectives specific management clear in producing forest goods and services required in a sustainable manner, without any reduction in the value and productivity of the forest in the future and the absence of undesirable effects on the physical environment and social (ITTO 1998 in Suhendang 2002). Thus, in the context of climate change mitigation, Management Unit (MMU) that has implemented PHL essentially has a role in global environmental issues, both through increased carbon uptake and reduction of carbon emissions. In addition, UM has implemented PHL opportunity to acquire a very promising economic benefits from carbon trading projects through REDD +. The potential economic benefits of forest carbon estimated to be very large given the high ability of forests to absorb carbon from the atmosphere (carbon sequestration) and store it in tree biomass (carbon sink). UM will benefit economically if it is able to collect a number of carbon credits generated from the various actions or forest management practices that lead to the enhancement of forest carbon sequestration. In Permenhut No.P.36 / 2009 mentioned several examples of governance practices in sustainable forest production that can generate carbon credits, both of which will increase the carbon storage such as: extending the rotation of cutting, applying environmentally friendly cutting or RIL (Reduced impact logging), and extending protection and conservation areas, and that will increase carbon uptake, for example: planting enrichment (enrichment planting), and planting of vacant land (rehabilitation). In Regulation No. P.20 / Menhut-II / 2012 on the Implementation of the Forest Carbon, noted that in addition to forest management that apply these businesses carbon storage and sequestration, can also be emission reduction activities karbon. In this regard, it is considered highly relevant to assess how much carbon credits which can be obtained by UM when doing some earlier management practices, as well as assess the value of economic benefits if UM is involved in the implementation of forest carbon. Management measures will be studied, all of whom will be formulated in a forest management scenarios (scenario PHL), which will be compared with the baseline scenario (scenario non-PHL). Additionally associated with PHL, considered important also determine PHL scenario which would produce periods of standing carbon stocks recover LOA same or shorter duration of rotation felling.

Benefits Analysis of Forest Carbon Trade

Implementation of REDD +, including carbon trading in production forests, can succeed if revenues from REDD + is greater than or at least equal to the revenue earned from the use of other alternative (Ginoga et al. 2010). Transaction costs in the implementation of forest carbon or carbon trading consist of: the cost of preparation of REDD +, and operational costs.

Based on data from the MoF (2009), obtained the amount of the cost of the preparation of the implementation of REDD + at the national and sub-national, namely $ 32.80 per ha. As for the operating costs derived from the project data MRPP as DAREDD (plot pilot REDD) in the province of South Sumatra with a value of $ 22.35 per hectare, so that the magnitude of transaction costs was $ 55.15 per ha. (Ginoga et al., 2010).

Transaction costs widely reported in the form of total fee or a percentage (percent share) of the overall budget. The transaction costs according to (Wertz-Kanounnikoff 2008 in Rochmayanto

Table 1. Existing Business Model Canvas

Key Partnership:	Key Activity:	Value Proposition:	Customer Relationship:	Customer Segment:
• Central and local government. • Societies (traditional, general, and academic society) • The owner of IUPHHK • Wooden industry • Institution of woodwork certification	• Land clearing • logging • forest farming • conservation • plating time • harvest time	Economic values of the harvested wood	Association of APHI, FSC, The Borneo Initiative	Domestic and foreign companies, universities, domestic and foreign tourists.
	Key Resources: • Protected forest • Natural sanctuary forest and tourism forest • Limitedproduction forest • Permanent production forest • Conservative production forest • lResearch forest.		**Channel:** Ships and land transportation	

CostStructure:	RevenueStream:
Forest lodging, seeds,transportation, licensing, certification,weakening of exchange rates, land clearing	Sale oftimber, sale of plywood, and sale of other wooden products (veneer, board, fiberboard)

2009) includes costs: information and procurement, scheme design and negotiation, implementation, monitoring, implementation and protection, as well as verification and certification.

According Dutschke and Wertz-Kanounnikoff (2008), based on cutting-edge design REDD mechanism, there are two kinds of needs funding, namely: (1) Cost of preparation or capacity building (readiness / upfrontcapacity building costs), and (2) Cost of emission reductions run (emission reduction ongoing costs). The running costs of emissions reduction consists of: (a) the cost of the protection of forests (Forest protection costs), in the form of policy implementation and measurement costs (costs of implementing policies and measures), and (2) The opportunity cost (opportunity costs).

Business Model Canvas is a business strategy shaped canvases in which there are nine elements (box) synergy. The nine squares in the business model canvas that covers four main areas within a business, namely customers, supply, infrastructure, and financial viability (Osterwalder and Pigneur 2012), consisting of customer segments, value propositions, channels, customer relationships, revenue streams, key resources , key activities, key partnerships, cost structure.Gambaran strategy of sustainable forest management in the province of East Kalimantan approaches Business Model Canvas (BMC) is currently before the SWOT analysis.

Companies need to know the needs and desires of each customer segment, due to not all customer segments have the same needs and desires. Product or value proposition offered will have a value if the benefits exceed the costs incurred by the customer. Companies must identify customer segments, the company decided the target markets served which is an opportunity for organizations / companies (Kotler and Keller, 2012). The increasing concern for the customer segment (world) on the ecological aspect that should not be cut down forests, an emerging threat from timber customer Kalimantan (Indonesia), wood to be sold must be certified ecolabel. The costs borne by the company has increasingly severed due to certification costs. If the company does not have the certification of timber export markets increasingly narrow because most buyers just want to buy certified wood (Borne Prees Release, 2015).

BMC-SWOT analysis at this time indicates that the forests of East Kalimantan have customers from different segments, with high-quality wood. Abundant natural resources are divided into protected forests, forest preserves and travel, limited production forests, permanent production forest, production forest that can be converted, and education / research forest. IUPHHK has a container to increase cooperation and to meet consumer needs is APHI, FSC certification and financial support of The Borneo Initiative. The main partners are the central government and local governments, communities (indigenous, general and academics), the holder IUPHHK, industrial wood users, NGOs / Institutions timber certification. Certification makes more expensive legal timber from illegal timber, resulting in illegal logging. Infrastructure to support the distribution of forest products and customer segments is not maximized the main revenue from the sale of timber economic function. The main activity of the forest business is often determined people who lack an understanding of the importance of sustainable development. Certainty area (land dispute), Law enforcement is low and the high illegal logging / illegal logging. not an institutional one door, timber prices are low, holder IUPHHK make messy collapse of the forest industry.

Table 2. SWOT Analysis Business Model Canvas

No	aspect	Strength	Weakness	Opportunity	Threat
1	Customer Segments	Various segment	Lack of infrastructures supporting customer segment	Forest tourism, woodwork industry, and timber products.	Enhancement of segment awarenessof ecological aspects.
2	Value proposition	High quality of timber products and non-timber products	Exposition of function of timber	Enhancement of income of value proposition	Damage of conservative area
3	Channels	Ships	Land transportation	-	Enhancement of fuel, the price of the ships, instability of sale price.
4	Customer Relation	Cooperation among members of IUPHHK organisation, and the knowledge of members.	-	European Timber product market (because of certified wood work by FSC)	The cost of FSC certification
5	Key Resources (main resources)	Borneo forest benchmark in Indonesia , consists of: 1) Protected forest, 2) Natural sanctuary forest and tourims forest, 3) Limited production forest, 4) Permanent production forest, 5) Conservative production forestdan 6) |Research forest.	- Infrastructure to support the distribution of forest products. - Protected forest areas, tourism and nature reserves.	-Environmental services	- The expansion of oil palm plantations and coffee causes diminishing forest land.. -Land damage as a result of coal mining led to flooding
6	*Key Activities* -	-land clearing -planting -maintenance -time planting -harvest	Logging activities.	-	-
7	*Key Partners*	-Forest development program	-Land dispute -*Low law enforcement* -Many instution	Multifunctional forest	- IUPHHK wwner collapse
8	*Cost Structure*	-	-Cost mess in forests, - nurseries, - transportation, -licensing, -certification, -land clearing, -logging, -planting,	-	Depreciation of the Rupiah against USD
9	*Revenue Stream*)	- Timber sales	-Lack of sales of goods timber -Illegal timber more expensive -Illegal logging - Bad Marketing	-Various timber	Economic decline in export destination countries, causing a decrease in purchasing power

Table 3. The New Business Model Canvas

Key Partnership:	Key Activity:	Value Proposition:	Customer Relationship:	Customer Segment:
• Central and local government. • Societies (traditional, general, and academic society) • The owner of IUPHHK • Wooden -Institutional reform forest management -Protecting Land Rights -Incentives for IUPHHK	• Land clearing • logging • forest farming • conservation • plating time • harvest time Human Resource certification of forestry	Economic values of the harvested maximized multifunction forest	Association of APHI, FSC, The Borneo Initiative	Domestic and foreign companies, universities, domestic and foreign tourists. Green marketing strategy
	Key Resources: • Protected forest • Natural sanctuary forest and tourism forest • Limited production forest • Permanent production forest • Conservative production		**Channel:** Ships and land transportation	

Cost Structure:	Revenue Stream:
Forest lodging, seeds, transportation, licensing, certification, weakening of exchange rates, land clearing	Sale of timber, sale of plywood, and sale of other wooden products (veneer, board, fiberboard)

SWOT analysis is used to find the improvement of the Business Model Canvas today. Business Model Canvas improvement efforts to fix the elements contained in the partnership (key partnership) which improved institutional governance, protecting customary rights, provide incentives for IUPHHK. HR Certification forestry management elements of the main activities of the forest industry (key activity). Awareness-raising segment of the multi-functional aspects of the ecology of the forest and create green marketing strategy is necessary. IUPHHK setback business or even go out of business because the timber marketing function less well. IUPHHK who sell legal timber faces many obstacles so that the price of the finished product is very high due to load iuaran.IUPHHK choose a washing bowl cut faster because tempted nice wood so IUPHHK not collapse until the cycle. Deforestation in the field is determined foreman who lack an understanding of the importance of sustainable development. IUPHHK owners who understand sustainable development does not go to the field supervising the felling of trees.

Business Model Canvas repaired indicates the government enhance forest, by way of institutional reform forest management that resulted in overlapping forest management policy, institutional preferably one door because during the forest industry under the department of industry, while taking care of forests Ministry of Environment and Forestry. Improvements in the field of law enforcement need the to obey rule (law enforcement) is low, the rules have been made but the government is difficult to enforce the law in society.

Certainty region needs to be done to resolve the territorial dispute between indigenous communities and the government or a dispute between the community and IUPHHK holders. Area of forest land has caused disputes between indigenous peoples and the government or employers overcome Forest Village Community Development Program (PMDH). This is one program that unites people and national needs. Forest functions required multy fungtion give a benefit to the government and the people, for example: the village forest, social forest. Goverment should provide incentives for IUPHHK caused IUPHHK bear the burden of high tuition and certification costs. Human Resource certification of forestry is important in the field of forest because logged determined foreman who lack an understanding of the importance of sustainable development. IUPHHK owners who understand sustainable development does not go to the field supervising the felling of trees.

Furthermore green marketing strategy needs to be done as a business strategy. Green marketing strategy is important to gain more customers, while still maintaining sustainable forest development. Green marketing that is part of the business is not only to satisfy customers in particular, but also must consider the interests of society. Green marketing is an attempt to characterize the product as an environmentally friendly product.

Conclusions

Business Model Canvas today shows that customers of natural resources of East Kalimantan forest consists of domestic and foreign companies, universities, foreign tourists and domestik. Services to customers who want environmentally friendly wood enhanced by selling certified wood. SWOT analysis results indicate uncertainty area (land dispute), the low to the high Law enforcement of illegal logging. In fact, institutional governance, low timber prices and domination of IUPHHK make messy collapse of the forest industry. Hence, strategy Sustainable Forest Management (SFM) from BMC improvement is a key building block of a partnership in the form of improved institutional governance, protecting customary rights, provides incentives for IUPHHK. Nevertheless, key human activity in the form of certification of forestry is vital. Customer segment is also a green marketing strategy. Overall, this study suggests more in-depth study on economic incentives should be carried within the structure of forest development policy in Indonesia, particularly in the province of East Kalimantan.

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