

## **EARLY MOVER CHASING AN OPPORTUNITY: A CASE STUDY OF A CANDIDATE OF REDD + INDONESIA PROJECT DEVELOPER**

Yoga Yulianda and Erman Sumirat  
School of Business and Management  
Institute Technology of Bandung  
yoga.yulianda@sbm-itb.ac.id

**Abstract** – *One of the crucial issues today faced by all of human being is climate changing. To fight with this phenomenon, some efforts are underway to overcome it. Reducing Emission from Deforestation and Forest Degradation (REDD) is one of these efforts. Business model of this approach is quite simple; who protect or upgrade forest condition should be paid. However, while other efforts have been regulated and enjoy carbon trading in the cap and trade horizon, carbon credits from REDD+ is still floating and waiting for decision from United Nations Framework Convention on Climate Change (UNFCCC), and the available market to sell REDD+ carbon is voluntary. Since it is voluntary only, then market size becomes obstacle in delivering carbon credits produced by REDD+ project type. Along with preparation of REDD+ institution in Indonesia, an early mover ready to catch the opportunity has taken an action in the middle of some uncertainties; regulation, market, price, paradigm and so on. Besides those challenges, some options exist to be chosen in creating expected value. Then this process needs management flexibility. Being involved with voluntary market only will tend to the negative Expected Net Present Value (ENPV) direction. But with the hope of incoming regulated market, ENPV is changing. This changing ENPV is merely because of wide difference on market shares. Since this hope is only 50% being occurred, handling the project cost should extend as far as possible from grant making. Along with this effort lowering Verified Emission Reduction to sell it in high quantity should be done for the first 5 to 10 years project life cycle, face it with progressive marketing strategy, and or executes conservation activities first. Free, prior, and Informed Consent becomes the guidance for project developers in engaging communities. It is valuable both for project quality enhancement and for the practical reason in upgrading VER price under Climate, Community, and Biodiversity Alliance.*

**Key Words:** Climate Change, REDD+, Carbon Finance, Real Options Analysis (ROA), Stakeholder Analysis

### **1. Introduction**

An additional speech concerning carbon finance in Finance Management's class by the Counselor and past experience of the author have brought to this final project topic. Some events of environment degradation which can be felt very closely in day to day living invigorate the intention. An early mover named PT. Rimba Makmur Utama has developed a serious plan facing incoming REDD+ Indonesia Implementation. An initial assessment of 203.703 Ha peat land forest has been done, preliminary carbon credits amounting 187 million (30 years) ton CO<sub>2e</sub> has documented (Rezal Kusumaatmaja, 2010). PT. Rimba Makmur Utama for its first founding dedicated especially to run REDD+ project. A peat swamp forest located at Kota Waringin Timur and Katingan District, Central Kalimantan becomes the project area. Besides it is worth with carbon

sequestration, the forest enriched with unique biodiversity; Orang Utan, Clouded Leopard and Rhinoceros Hornbill. The project has a name of 'Katingan Peat land Conservation Project' (KPLC). Some

apparent challenges to protect the forest are illegal logging, forest conversion for palm plantation, and mining. Those all physical threat accompanied by the question of carbon credits selling. Related question is 'will or when the compliance markets exist for carbon from peat land.' This question arises since voluntary market predicted will not absorb all the credits. To participate in voluntary market, REDD+ project developers should follow a standardization process before it can sell its carbon. Actually it is about accounting system to verify and assure the credits which will be issued.

After verification then some Voluntary Carbon Units (VCUs) are ready to be sold. Some standard of this accounting system have been set up. However, KPLC will follow a standard named Voluntary Carbon Standard (VCS). A uniqueness of this carbon offset is, project developers may upgrade its credits price by adding other standard to the prior standard. In this case KPLC project will tag VCS with standard of CCBA (Climate, Community, and Biodiversity Alliance). This standard, in short, obliged project developers to incorporate activities concerning community and biodiversity. By tagging with this standard, the price of credits usually will increase up to two dollars (2011). This is practical reason why community engagement is important, and the entry point of it is Free, Prior and Informed Consent (FPIC).

## **2. Business Issue Exploration**

### **A. Conceptual Framework**

To face the opportunity then some business issues are mapped. From the context of KPLC project implementation there are two categorized business issues; main and secondary. Under category of main issue there are; capital budgeting, income resources, market uncertainty, emission reduction estimation/carbon quantification, and project management flexibility. Those issues are crucial to know the value of KPLC. At the other side, secondary issues which need to be addressed and still in the range of project management capacity are community engagement and FPIC. These categorization don't mean to differentiate its importance, but rather than to simplify analysis. KPLC project costs will consist of at least; cost of concession, cost relates with credits being issued, project implementation and monitoring. Project implementation divides into two big parts; conservation and reforestation (including enriching). Main stream income of KPLC project is from credits selling. Even though it is hoped in the future will generate other source of revenues; ecotourism, research, non-timber forest products, and etc. In this research the only income calculated is from credits selling.

Total preliminary KPLC's carbon credits amounting 187 million CO<sub>2e</sub> for 30 years project life cycle. Risks buffer assume that the very outside area of the project will suffer by some disturbances. Over time of project implementation using conservation and restoration approach, the condition of peat land is getting better. Since then baseline adjustment should be conducted, here this method counted for 5% increases for each five years of the project. After subtracts it with risks buffer and apply baseline adjustment, net credits can be sold approximately 99.940.000 CO<sub>2e</sub>.

Challenges usually balancing returns, and in between there are some options stand. Facing some options, flexible management needed to create optimum value. Base on this premise, asset is not the only entity that has value, but management flexibility also. Options of action now, defer, abandon, expand, and continue brings different value to the projects. People/community base planning recently is widely used in development programs. Using this approach not only can reduce the cost (long term) but it brings sense of belonging to the project. To engage communities into project implementation, project developer should use manner which will empower communities.

## **Macro Analysis**

Bargaining position of REDD+ internationally is still weak. It is proven by the evidence that till now not a single compliance market allow it to be traded in such cap and trade mechanism. But, however the road still in the process, signals which indicate toward this direction is giving a hope. It is can be said that the chance of compliance markets available for carbon from peat land is 50%.

Nationally Indonesia is still in the process of making REDD+ agency, along with that some regulations have been produced to facilitate its implementation. Some decrees are; P. 30/Menhut-II/2009, regulate procedures on emission reduction from deforestation and forest degradation, P. 36/Menhut-II/2009, regulate business licensing procedures on carbon sequestration and/or storage in production forest or protected forest and P. 68/Menhut-II/2009, regulate the implementation of Demonstration Activities on REDD.

In 2011, transaction volume of regulated market was 10.094 million tons CO<sub>2e</sub>, while at voluntary was 576 million tons CO<sub>2e</sub>. While the value \$175,451 million USD for regulated and \$576million USD. In short the ratio for voluntary compare to regulated, 1 : 100 for volume and 1: 300 for value. In 2008 crisis affected on voluntary market, both value and volume decreased. Oppositely, the regulated market seems not affected. From 2010 to 2011 in regulated markets both volume and value increased. Thus globally, in simple thought the emission that don't release either to the ground or into the atmosphere in 2011 is about 10,189 MtCO<sub>2e</sub>. If we use 2005 as emission baseline, the 2011 carbon market has offset about 3 months of world CO<sub>2e</sub> emission in 2005, *ceteris paribus*. Buyer's motivation ranking consecutively; Corporate Social Responsibility (CSR), Public Relation, resale, anticipation of regulation or commodity investment, and greening supply chain (Kathrine Hamilton, 2012). However the latest information of Certified Emission Reduction price decreased into \$0.1 USD only.

## **Industry Analysis**

### *Substitutes*

From some market transactions known that to enter VCM by selling carbon could be done through various projects. REDD+ is trying to reduce the emission by avoiding deforestation and forest degradation. Another project type instead of REDD that has been entering the market so far, such as; Wind, Afforestation /Reforestation, Landfill Methane, Biomass, Clean Cook stoves, Forest Management, Large Hydro, ODS (US-based), Fuel Switching, Run-of-river Hydro, Livestock methane , Wastewater Methane, Coal Mine Methane and some projects that not yet mapped. From the perspective of Porter's five forces Project developers outside REDD just like threat from substitutes but more closer than any other industry.

REDD project market share for 2009 to 2011, consecutively 7%, 29%, and 9% (Kathrine Hamilton, 2012). This data shows decreasing market share from 2010 to 2011. Possible rationales of this event, REDD method was questioned hardly and considered brings externalities. Some intensified issues are; land grab, neglecting of indigenous, biodiversity destruction, etc.

### *Buyers*

With the reasons of economic power and the scale of emission, the two biggest buyers are; Europe and North America. It cannot be neglected that Asia market is also promising. Japan, China, Korea will be the significant buyers come from Asia. Even Asia CO<sub>2e</sub> volume is the same with Oceania but the value is two times higher. It means buyers from Asia willing to buy at the higher price rather than buyer from Oceania. Forestry project type is the most credit which is bought by industrial process (non-industry), Agriculture/forestry, and transportation (2011). Back to premise that the top of motivation behind the transaction is CSR and PR; it is becoming simple to understand why these three sectors very interesting

in forestry project type. Based on this logic, even other sectors are welcomed to forestry project, the main target market of REDD+ developers are those three sectors followed by other sectors.

**Rivalry**

Until March 1, 2013, VCS has issued 116.8 VCUs. From 965 registered projects there were 755 projects with VCUs issued. 5 of those projects are REDD+ type project which all came from Congo. Recently, there are 4 forthcoming REDD+ type projects, and one of those is from Indonesia, Rimba Raya Biodiversity Reserve Project (InfiniteEarth). 26 projects from different type of project have been gained VCUs coming from Indonesia (vcs.org, 2013)). In the case of REDD+ Indonesia Project Developers which use VCS with additional CCB is only Rimba Raya Biodiversity Reserve Project originated from alliance of PT. Rimba Raya and infiniteEarth (Tod Lemmons, et.al, 2008)

**Suppliers**

Well-known independent Carbon Market accountings are: Voluntary Carbon Standard (VCS), Climate Action Reserve (CAR), Gold Standard – American Carbon Registry (ACR), ISO 14064, Chicago Climate Exchange (CCX), Internal of Proprietary Standard, and Plan VIVO, etc. Those accounting standard are different in market share.

Voluntary Carbon Standard (VCS) is dominating the market, Followed by CAR and so on. It can be concluded that project developers who follow VCS is very possible gaining positive market response with result on Verified Emissions Reduction selling.

**New Entrants**

Assumes that country which has wide peat land entering the market then the potential new entrants are; Canada, Russia (Asia’s part), Russia (European’s part), and USA (Alaska).

**3. Business Solution**

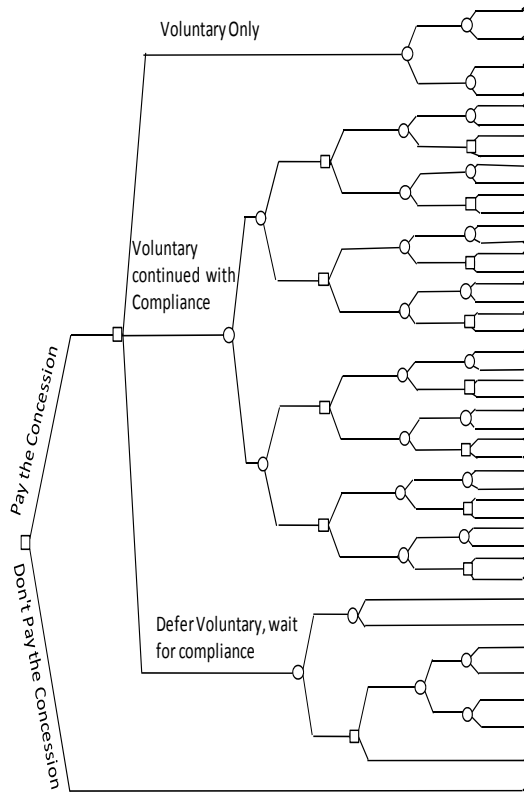
**Real Options Analysis & Decision tree**

From macro and industry analysis, the problems identified are; voluntary market demand and its price, the time that regulated market will available for peat land and its price. Those problems/uncertainties have given project developer some options. The options at least; involve with voluntary market only, waiting for the market being regulated, or combining the option of involve with voluntary continued with possibility of regulated market available. To know the value of each decision Real Options Analysis (ROA) and a Decision Tree will be presented to overcome the lack of Discounted Cash Flow which cannot value management flexibility (Tom Copeland, 2002). The information come from macro and industry analysis above and recent condition which will be used in ROA can be concluded as follow:

|   |   |                       |
|---|---|-----------------------|
| <b>Voluntary Market Information</b>     |   |                       |
| Price High                              | > | Price Low             |
| Price High Demand High                  | < | Price High Demand Low |
| Price Low Demand High                   | > | Price Low Demand Low  |
| <b>Compliance Information</b>           |   |                       |
| Regulated                               | = | Unregulated           |
| Price Regulated High                    | < | Price Regulated Low   |
| <b>Voluntary Probabilities Judgment</b> |   |                       |
| 60%                                     | > | 40%                   |
| 30%                                     | < | 70%                   |
| 60%                                     | > | 40%                   |
| <b>Regulated Probabilities Judgment</b> |   |                       |
| 50%                                     | = | 50%                   |
| 40%                                     | < | 60%                   |

Net Present Value (Doug Haste, 2013) will calculate and possibilities judgment then will be used to weight of each combination between decisions and events. Other information to construct ROA via decision tree is that regulated market will occur at year 7 of project life cycle. Besides those possibilities other assumption (analysis) which will be used are; maximum credits selling in voluntary market is 50% from KPLC's credits available and its minimum is 15%. High Price of voluntary market is \$8 USD and its low price is \$4 USD. The possibility of market being regulated is 50% with its high price of \$10 USD and its low price is \$1 USD.

Inputting all those variables then the constructed decision tree is depicted below:



Decision tree above actually produce 44 terminals, with 13 positive NPVs, 30 negative NPVs and a zero NPV. The result of the calculation (Brandao, et.al, 2005); ENPV of voluntary only is negative, ENPV of defer ended with positive and ENPV of Decision Voluntary continued with compliance is positive. Decision of voluntary continued with compliance has the highest ENPV. Significant management flexibility in this highest ENPV is the availability of 'execute credits selling', with probabilities of 'voluntary's low demand with high price' and 'compliance's high price' in its tree.

**Stakeholders Analysis**

Community engagement plays an important role, even its influence and importance to the project categorized as low, but it is can be move to high influence and high importance. This situation can be happened since the project involving multi stakeholders approach. Besides, under Climate, Community, and Biodiversity Alliance (CCBA), appropriate community involvement will gain additional standard which will upgrade the credit price. To make this happened, project developer should pass the need of Free, Prior and Informed Consent which is the main contain is to empower communities.

4. Conclusion and Implementation Plan

Decision should be chosen is 'voluntary continued with compliance'. The availability of this option makes the project is worth to be exercised further more. But still, the voluntary market only is the available reality today. Marketing strategy development shall be constructed in year 7 or soon after the signal of market being regulated overcast certainly and the declaration of unregulated is the whistle for its execution.

Over time, to expand the project and to enhance community engagement, project developers may develop microbusiness activity whether to save further project implementation in the long run or to upscale communities' dependent forest wellbeing as a variable of project quality. Consequence of this choice perhaps will have impact on costs. As describe before, the source from grant making cannot be neglected to covers this activity. Covering startup cost, selling credits to wholesaler in high quantity should be tried in the first 5 – 10 years project life cycle. In this research, the option to separate implementation of conservation and restoration do not calculate. But it is actually can be try to avoid high startup cost (Tilman Silber, 2011), regardless credits selling process.

For Indonesia context, REDD+ agency becomes important if government seriously intended to reduce the emissions of 26% in 2020. To attract more REDD+ Indonesia project developers giving incentives such as lowering concession fee will open up widely REDD+ Indonesia implementation. Indeed the future of carbon credits from REDD+ tends to depend on political will of some international institutions, therefore international lobbies/dialogs involving International Development institutions, Governments, Environment NGOs, Private sectors, and civil society in general may be sought. Last, the approach of 'decision making' need to be balanced with the 'participatory processes', transferring this area to the communities is a challenging option to the true empowerment, that is 'Free, Prior, and Informed, Consent' and to prove that this paradigm would bring benefits for project developers and communities as well.

#### **Acknowledgement**

Thank you in advance to Mr. Rezal Kusumaatmadja (Starling Resource) who first introduced me with Mr. Dharsono Hartono, President Director of PT. Rimba Makmur Utama who provided me information and fruitful discussions.

#### **References**

- Brandao, Luize E. Dyer, James S. (2005) *Decision Analysis and Real Options: A Discrete Time Approach to Real Option Valuation*, Austin, TX; Springer Science and Business Media.
- Copeland, Tom. (2002, Nov 21 ). *Real Options A Practioners Guide*. [online] (<http://capitalismmagazine.com/2002/11/real-options-a-practitioners-guide/>). Accessed: April18, 2013).
- " \_\_\_\_".(2008). *Forest Trends, and the Ecosystem Marketplace. (2008). Payments for Ecosystem Services. " \_\_\_\_": Ecosystem Market Place.*
- " \_\_\_\_". (2010). *Market Profiles.Forest Trends and the Ecosystem Marketplace."* \_\_\_\_": Ecosystem market Place.
- Gray, Clifford F. Larson, Erik W. (2006) *Project Management: Managerial Process*, 1221 Avenue, NY (USA): Mc. Graw Hill.
- Haahtela, Tero. (2012). *Differences between financial options and real options: Lecture Notes in Management Science (2012) Vol. 4: 169–178. 4th International Conference on Applied Operational Research, Proceedings*.Ca:Tadbir Operational Research Group Ltd.
- Hamilton, Kathrine. At, al. (2012). *State of Voluntary Market 2010. " \_\_\_\_": Ecosystem Market Place & Bloomberg Energy Finance.*

- Haste, Doug. (2013). Reviews the Difference Between Cash Flows and Profit Flows and the treatment of taxation." \_\_\_\_": CIMA
- Jennings, David. Wattam, Stuart (1998): Decision Making: An Integrated Approach, Financial Times Pitman Publishing, 1998.
- Kusumaatmadja, Rezal. (2010). Katingan Peat Land Conservancy & Restoration Project. Bali, ID: Starling Resource & PT. Rimba Makmur Utama.
- Lemons, Todd. et, al. (2008). Rimba Raya Biodiversity Reserve Project Document. Jakarta.ID: Infinte Earth.
- " \_\_\_\_ ". " \_\_\_\_ ". Project Database. [online]  
(<https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=VCUs&a=1&t=2>. Accessed: April 11, 20013)
- Silber, Tilmann. (2011). Conservation and Reforestation of Peat Lands in Indonesia: Can the Private Sectors Do the Job. Zurich, Gmy; ETH.