Potential for Investment in Forest Restoration in Sabah, Malaysia

Workshop on Forest Restoration

10 November 2010

Pacific Sutera Harbor KK Sabah
Rainforests are depleting worldwide through over logging and land conversion to agriculture that has resulted in loss of habitat and contributes to nearly 20% of global carbon emissions that is effecting climate change.
Background

Deforestation alone is stated to cause more emissions than ALL the emissions from transport (cars, busses, ships, airplanes, etc) worldwide that is estimated to be about 13%.

Most deforestation is happening in tropical rainforests, which is home to the most biologically diverse habitat and animal species on the planet.
Sabah

The Forests of Sabah have been logged heavily over the past 30 years that has now resulted in most forest reserves being degraded to non-productive status.

The Forestry Department has traditionally provided the Sabah State Government with the majority of revenue needed to fund the government budgets.
Sabah

It is a critical time for Sabah to evaluate the potential to earn revenue through forest rehabilitation in the wake of Global Warming and the development of markets for Carbon Offsets coupled with long term Green Investments that can directed into forest rehabilitation.
Forestry Investments

In general populations are increasing that directly relate to an increasing demand for wood and paper products from a dwindling resources from natural forests.

Source: FAO | Forecast Widman Research
Forestry Investments

There is a general push towards *Green Investments* that focuses on plantation and forest areas.

There are numerous schemes to make money by growing trees.
Forestry Investments
Forestry Investments

Wood Land / Timber Land management in USA

Biological growth (~57%*)
- Independent of all other factors
- Largest component
- Highly predictable

Timber prices (~25%*)
- Consistently trended above inflation over the last century

Timberland prices (~17%*)
- Annual rate of change about 11%
Forestry Investments

Radiata pine plantations in New Zealand rated at rate of return of more than 16.24%\(^4\) compounded per annum for the 30 plus years of the investment.
Forestry Investments

Eucalyptus and mixed species plantations in Australia

However the project does not provide an estimated rate of return but just estimates growth rates over the harvest period and projected sales prices.
Forestry Investments

Teak tree plantations in Sri Lanka

The project estimates IRR of 21.3% based on thinning year 9 and final harvest year 15 with extremely high sales values of GBP 1,174/tree at final harvest.
Sabah, Malaysia

Sabah is a state in East Malaysia and is situated in the northern part of Borneo that contains approximately 3.7 million ha of forest mostly of logged over natural forests.
Reforestation FMU 17A

The key objective of this project is to establish a sound Environmentally friendly - Green investment project centered on restoring productivity of tropical rainforests and provide a significant return on investment to the investor.
Project Objectives

Support the Sabah Forestry Department to restore degraded forest areas through external funding to make the area economically viable within the management planning period.
Project Objectives

Planting trees and restoring degraded forests will in turn support global efforts to prevent climate change by increasing carbon sequestration in planted trees.
Sabah, Malaysia

Tree plantations of both native and exotic species are being established to supplement logs production from natural forests.

Malaysia is an open market economy which offers a stable investment climate for investors.
Forest Management Unit 17A

FMU 17A (50,020 ha) consists of Tangkulap & Sg. Pinangah Forest Reserves that is heavily degraded due to excessive logging over the past 15 years.
Forest Management Unit 17A

The project site within FMU 17A would be chosen based identification of severely degraded compartments without the ability to self regenerate.

Restoration could be conducted using a mosaic design to conserve existing valuable trees, while planting of dipterocarps and fast growing local species on the degraded areas within each compartment.
**Forest Management Unit 17A**

A compartment level inventory was conducted and identified over 80% of the area was classified as very poor forest (Strata 4).

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Forest Description</th>
<th>Number of trees ha⁻¹ ≥ 60 cm dbh</th>
<th>Area (ha)</th>
<th>% of total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Good forest</td>
<td>&gt; 16</td>
<td>143</td>
<td>0.2</td>
</tr>
<tr>
<td>2</td>
<td>Moderate forest</td>
<td>9-16</td>
<td>520</td>
<td>1.0</td>
</tr>
<tr>
<td>3</td>
<td>Poor forest</td>
<td>5-8</td>
<td>4,563</td>
<td>9.0</td>
</tr>
<tr>
<td>4</td>
<td>Very poor forest</td>
<td>0-4</td>
<td>40,536</td>
<td>81.4</td>
</tr>
<tr>
<td>5</td>
<td>Small crown forest*</td>
<td>NA</td>
<td>4,141</td>
<td>8.4</td>
</tr>
</tbody>
</table>
Project Site

The project site within FMU 17A has been chosen based on 38 compartments within the very poor strata that are considered severely degraded.

Strata 4 that has less than 50 potential crop trees/ha that does not have the ability to self regenerate naturally within a reasonable time frame.
Restoration Methods

- Mosaic system can be used to plant fast growing native trees within severely degraded sections of each of the compartments to a maximum size of 30 ha.

- Tree species to be planted are Binuang, Laran, Sentang, etc. which are suitable for chip wood plywood, laminated boards, veneer, etc.
Restoration Methods

Prior to planting compartment restoration plans need to be developed that define highly degraded patches for planting and better forest areas for conservation within each compartment.
Restoration Methods

• A maximum of 60% of any compartment within the project can be planted.

• A minimum of 40% of the project area will remain in natural forest to conserve existing valuable dipterocarps and biodiversity across the landscape.
Restoration Methods

• The Investors will earn revenue from the fast growing planted trees & carbon credits.
• Restoration will also include planting of 15-25% of the area in both fast growing & high value dipterocarps to enhance biodiversity.
• The fast growing species can provide the shade needed to grow the slower growing dipterocarps.
Basic Assumptions

• Net planting area 11,500 ha out of 23,000 ha within 38 compartments
• Planting density 3*5m  667 seedling/ha
• Harvest volume chip wood 168m3/ha @ 7 years
• Harvest volume utility timber 235m3/ha @ 15 years
• Harvest costs RM 45/m3
• SFD Land Rent USD 500/ha over project period
• SFD management fees
Investment Overview

- Revenue for investors are from logs sales of planted fast growing trees and associated carbon credits
- Initial land preparation costs may be partly defrayed by logs sales from land clearing
- Maintenance costs partly defrayed by proceeds from commercial thinning of planted trees
- Planted trees are fast growing native species and ready for harvesting by 7 years for chip wood or 15 years for utility timber.
Expected Returns

Chip wood 7 year cycle
Annualized IRR of 20%
Return on Investment of 14%
Project duration is 20 years
Investment required US $2,500 /ha US$ 28.5mil
Net total returns US$102 mil

Utility Timber 15 year cycle
Annualized IRR of 15% to 17%
Return on Investment of 18% to 23%
(After Tax 12% to 16%)
Project duration is 20 years
Investment required US $3000/ha or US$ 34.5 mil
Net total returns US$195 mil
Sabah Forestry Department

• SFD is the resource holder and manager of the reforestation project
• SFD has excellent track record from managing FSC certified Deramakot Forest Reserve
• Through this project SFD can earn management fees, land lease and timber royalties from the project
Sabah Forestry Department
Key Benefits

• No cash outlay required from SFD
• Leverage on existing management team to earn management fees
• Fully paid technical support and monitoring from GFS
• Receive paid land lease US$ 5.7 mil
• Receive management fees US$ 6.4 mil
• Receive logs sale royalty US$ 21.9 mil for utility timber or US$ 6.9 million
• Total estimated project revenue US$ 34.1 mil under utility timber and 20.5 mil under chips
Global Forestry Services

GFS will provide the technical support to design the project & monitor development / implementation and provide progress reports to the SFD & Investment Organization.

FSC & VCS standards will be adopted to ensure credibility in forest management & ensure carbon credit objectives are met.
Conclusions

• Forest restoration is economically viable based on calculations of IRR and annual rates on returns that is comparable to current market rates.

• Investment can be used to generate income to SFD that would not be available under degraded natural forest conditions.

• The use of the mosaic design to mitigate negative impacts can be used to meet certification requirements.
Thank you

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Investors Q & A

• What returns do forestry investments yield?
  Historically, returns in mixed woodland in North America have averaged 14.5% per annum over the last 30 years.

• What about fire, drought, pests and disease risks?
  With any investment there is always the element of risk. Historically, managed plantations lose 0.3% to natural influences. To mitigate these risks, fire breaks are built and proven management practices are applied to ward off pests and diseases.

• On what basis is the project’s financial model built?
  The financial model is developed using conservative assumptions based on current costs and prices. The price of timber and timber products has increased consistently in the past decade due to increasing demand from fast developing Asian economies.
Investors Q & A

• **What returns do I get?** The project’s carbon credit sale and logs sale revenue (less operating expenses, timber royalty and 5% fee) forms the main returns to the investor. Other revenue from commercial thinning of trees and land clearing will be used to offset operating expenses.

• **Who will manage the funds that is invested?** A trustee organization will be appointed to hold and disburse the funds to the project on a progress basis. Any excess funds will be invested in time deposits with reputable banks. The trustee will also prepare audited annual accounts on the funds under management.

• **How am I informed on the progress of the project?** The project designer, GFS will also monitor the project and prepare independent regular progress reports to the investor, trustee, and SFD.