# *Conservation Investment Blueprint: Nb Community Forestry*

## *i. Overview of the conservation need/opportunity*

**The Conservation Need**

Indonesia has one of the highest rates of primary forest loss in the tropics[1], which is having significant impact on the country's biodiversity and GHG emissions[2]. Small-scale agriculture and small-scale mixed plantations are responsible for almost one fifth of deforestation in Indonesia[3].

On the island of Java, where the Nb Lestari Community Forestry project ("Nb") has started, only 5% of the Western Java Rainforest ecoregion remains. This contains one of two remaining populations of the world's most threatened mammal species, the critically endangered Javan rhinoceros. The ecoregion is home to 101 mammal species including five endemic and near endemic species including Canut's horseshoe bat, the Javan mastiff bat, Silvery gibbon, Javan warty pig and Bartel's rat. More than 350 bird species are known to occur in the ecoregion, including 9 endemic and near endemic species. There are 3,800 plant species in the ecoregion including two endemic genera[4].

Protected areas only cover 7% of the ecoregion but illegal farming and felling even within protected areas are widespread. Anthropogenic fires are common, and over the centuries burning has resulted in monospecific stands of fire-resistant species.

At the same time, smallholder farming and community forestry in Indonesia plays an important role in achieving sustainable forest management as well as reducing poverty in rural areas[5]. Nb's group scheme supports smallholders in progressing step by step towards FSC forest management certification. FSC forest management standards include several criteria relevant to the conservation of native ecosystems, and also for managing critically important forest areas, referred to as High Conservation Value (HCV) forests. FSC requires forest operations to protect rare and threatened species as well as their habitat (FSC Principle 6).

## *ii. Describing how the Blueprint contributes to conservation goals*

**Overall statement**

The Nb project sells timber sourced from small holding forestry plots and community collectives. It provides a fair price to primary producers and provides them with support to produce timber through the sustainable forestry management techniques, in accordance with FSC guidelines.

This is achieved through the development of a timber hub at the district level. The hub whas the capacity to identify and organize the harvesting of suitable forestry plantations, provide technical support, administer FSC Group Certification for the local smallholders, and process timber. The hub then has a mill facility with a capacity of 500m$^3$ per month, kilns, other equipment and local marketing expertise. From this basic platform

[1] WRI (2019). *The World Lost a Belgium-sized Area of Primary Rainforests Last Year*. Available from: https://www.wri.org/blog/2019/04/world-lost-belgium-sized-area-primary-rainforests-last-year

[2] Austin et al. (2018). *A review of land-based greenhouse gas flux estimates in Indonesia*. Available from: https://iopscience.iop.org/article/10.1088/1748-9326/aab531

[3] Austin et al. (2019) https://iopscience.iop.org/article/10.1088/1748-9326/aaf6db

[4] WWF (no date). *Indonesia: Island of Java*. Available online: https://www.worldwildlife.org/ecoregions/im0168

[5] CIFOR (2015). *Making timber plantations an attractive business for smallholders*. https://pdfs.semanticscholar.org/7820/b5ea5fc25ac1883a760b313b931db16dc329.pdf

it will be possible to add additional value through Group Certification, improvements in silviculture and the provision of better seed stock.

The project takes pressure off of natural forests, both within the local region and across SE Asia by producing a sustainable source of timber such as mahogany which helps divert away demand for natural forest species. Acacia produced by the project is sold to Japanese markets, replacing Keruing timber derived from natural forest species in the Dipterocarpus genus and Meranti timber (from Shorea spp.) is substituted by Albizia spp. in core veneer for plywood. At a global level it also helps substitute demand for the import of tropical hardwood Sapele timber from West Africa into Indonesia.

Nb is also encouraging smallholders to plant 40+ agroforestry species in their plantations to support important bird, monkey and insect populations. Whilst each individual plot is very small (typically <1 hectare) at a landscape level this can have an important impact on forage availability. In the areas Nb is working semi-industrial limestone mining is a key threat to the local ecosystem. The Community Forestry model is helping individual farmers to group together and defend against these threats.

Nb is promoting an approach that encourages primary producers into a sustainable forest management framework through certification and provides a mechanism to extend the area under a simple rollout process one hectare at a time. It also provides a conduit for environmental education through a commercial incentive. By purchasing the standing trees Nb has a much more direct relationship with the smallholders than more conventional conservation projects. Table 1 below describes the ways in which the project adds value across environmental, social and financial themes:

**Table 1: Project value addition across environmental, social and financial themes**

| Environmental | Social | Financial |
|---|---|---|
| 1. Sensitive harvesting/extraction | 1. Collective organization | 1. Better marketing / add value through certification |
| 2. Monitoring of high conservation values | 2. Collective protection of land tenure rights & recognition | 2. Economies of scale and technological innovation |
| 3. Permanent sample plots established | 3. Cohesive presence in the market | 3. Better recovery from the mill |
| 4. Species matched with site suitability (and inclusion of native fruit bearing trees) | 4. Build trust through the community's priorities | 4. Improved downstream processing |
| 5. Riparian zones and critical areas protected | 5. Creating local employment | 5. Increased returns to the primary producers |
| 6. Environmental education through group membership | | 6. Planning for improvements to next rotation |

Key outcome indicators to measure progress against the conservation goal are the following:

a) A rolling program of FSC Group Certification for small hold and collective forest plots. The goal is for 50 ha per month joining the scheme.

b) A supply chain from standing trees to point of export providing FSC certified timber. The trademark will add a premium to the product and increase returns to the primary producers. The proof of concept phase has identified demand for FSC certified mahogany that would expand production by over 20%.

c) Improved recovery and reduced waste. The current industry standard for this type of operation is less than 45% recovery when converting logs to sawn timber in the small village mills. With better technology and economies of scale, improvements of up to 70% are anticipated in various types of wood.

**STAR analysis**

In addition, a STAR analysis was performed for the Sumedang regency (Kabupaten Sumedang), where the proof of concept was carried out. In Sumedang, abating threats to species within their existing habitat can contribute to a reduction of approximately 0.01% of the global species extinction risk as expressed by the global STAR treat abatement score. This is equivalent to approximately 0.16 % of Indonesia's total STAR threat abatement score. Restoring lost habitat for threatened species in Sumedang presents the opportunity to reduce approximately 0.08 % of Indonesia´s threat abatement score. Indonesia's threat abatement score is the highest in the world, accounting for 7.8% of the global total threat abatement score.

STAR analyses for Sumedang are based on the presence (current or historic) of 67 globally threatened species including 17 mammals, 48 birds and two amphibians. The main threats to these species in both their current habitat and the habitat they have lost over time stem from biological resource use, agriculture & aquaculture and residential & commercial development.

Additional Outcomes:

d) In Sumedang District, the average household income is under US$2,500 per year. One hectare of standing trees is worth US$ 3,000+, therefore any marginal increase in returns makes a very big difference, even on an irregular basis.

e) A collective recognition through FSC Group certification allows individuals to secure much stronger land rights and reduces problems with formulation and demonstration of land tenure.

f) The hierarchy of FSC Group Scheme certification provides a robust independent governance structure that provides a level of international protection from domestic market issues.

Within one plantation cycle of 12 years, it would be possible to increase the productivity of 1 ha from around 100 m3 of logs to 200 m3 and improve the recovery in the mill from 40% to 60%. This would mean 1 ha of plantation moving from producing 40m3 of sawn timber to producing 120m3 – a three-fold increase. Table 2 below illustrates this:

**Table 2: Productivity increases achieved through the Nb model**

| Current | Future |
|---|---|
| Poor planting density and silviculture = 100 $m^3$/ha | Improved management & seedling = 200$m^3$/ha |
| Smaller logs = poor recovery 60% waste | Larger straighter logs = 40% waste |
| Total quality timber per ha = 40$m^3$ | Total quality timber per ha = 120$m^3$ |

## *iii. The business model*

**Organisation and governance**

Nb is a small-medium social enterprise start-up. A "Lestari" company in Indonesian context is incorporated at local level and as the company expands beyond its proof of concept phase it will be incorporated into a PT company able to operate more widely outside Java and would be able to apply for an export license.

Its Community Forestry project is managed by five operational divisions:

1. **Supply Division:** responsible for the identification of standing timber, taking inventory, negotiating with plantation owners, harvesting and transportation for milling.
2. **Processing Division:** responsible for scaling and grading, milling, and kiln drying timber both for in-house operations and sub-contracted work. The Processing Division also has close contacts with the customer base to both understand their requirements and also ensure the customers are aware of what products and wood species are available

3. **Marketing & Product Development Division:** responsible for the demand side, dealing with customers, understanding their requirements, and managing the logistics of delivery.
4. **Group Certification Division:** responsible for internal governance, ensuring that all the standards required for FSC certification are established and maintained. It works with the other divisions to develop Standard Operating Procedures, Working Practices and internal M&E mechanisms that can be easily adapted to allow independent monitoring.
5. **Administration Division:** responsible for finance, human resources and training.

The certification process requires there to be a robust internal and external governance structure, including internal and external complaints resolution procedures, evidence of works and indigenous rights being protected, transparency over compliance with all legal requirements and public access to both planning and monitoring procedures.

## Products and services being sold

The final product varies, ranging from high grade veneer, furniture grade and construction grade timber, to products requiring lower grade timber including pallets, charcoal and firewood.

It can be sold as round lots, rough saw, green or kiln dried, verified legal or fully certified timber. Customers and markets are highly diverse, from high-end exports to USA, Europe or Japan to lower end demand from the Chinese and Indian mass markets. Nb has partnered with major exporters on a small scale during its proof-of-concept phase and is exploring purchase agreements with other partners such as Crate & Barrel, Integra Group, Pottery Barn and Pt Interkayu Nusantara. Table 3 below identifies the different product types, customers and their requirements.

**Table 3: Nb products and customers**

| Type | Customers | Products | Requirements |
|---|---|---|---|
| High Value | Europe, North America and Japan | • Furniture<br>• Flooring<br>• Doors | • Premium grades<br>• Small error tolerance<br>• Legal log origin verification<br>• Certifications (FSC, KOMO)<br>• Price sensitive but price elastic when there are high demand |
| Mid-Range | China, India, Africa, Vietnam, South Korea & Middle East | | • B grades, high volumes<br>• Small error tolerance<br>• Highly price sensitive<br>• Short lead times |
| Local | Indonesia | • Construction Timber<br>• Windows Frames<br>• Doors Frames<br>• Musical Instruments<br>• Firewood/ sawdust* | • C grades<br>• Larger dimensions<br>• No legal verification needed<br>• Price sensitive |

By identifying markets and placing each species of timber, Nb will maximise returns on products and invest profit back into improving and expanding the Community Forestry project. If Nb can expand to 30 communities with an annual log production of 180,000 m3, then it would control nearly 3% of the FSC-certified Mahogany market. In specific niche areas such this Nb is looking to focus on establishing a dominant position with over 20% of the Indonesian market in order to become a price maker.

Recurring revenue is the principle revenue model. Large manufactures supplying international markets want reliable sources of certified material – though the supply chains are currently disjointed; Nb Lestari maintains a reliable source. Alongside the recurring revenue stream will be transaction revenue for 'one off' customers and by-products sold on an occasional basis.

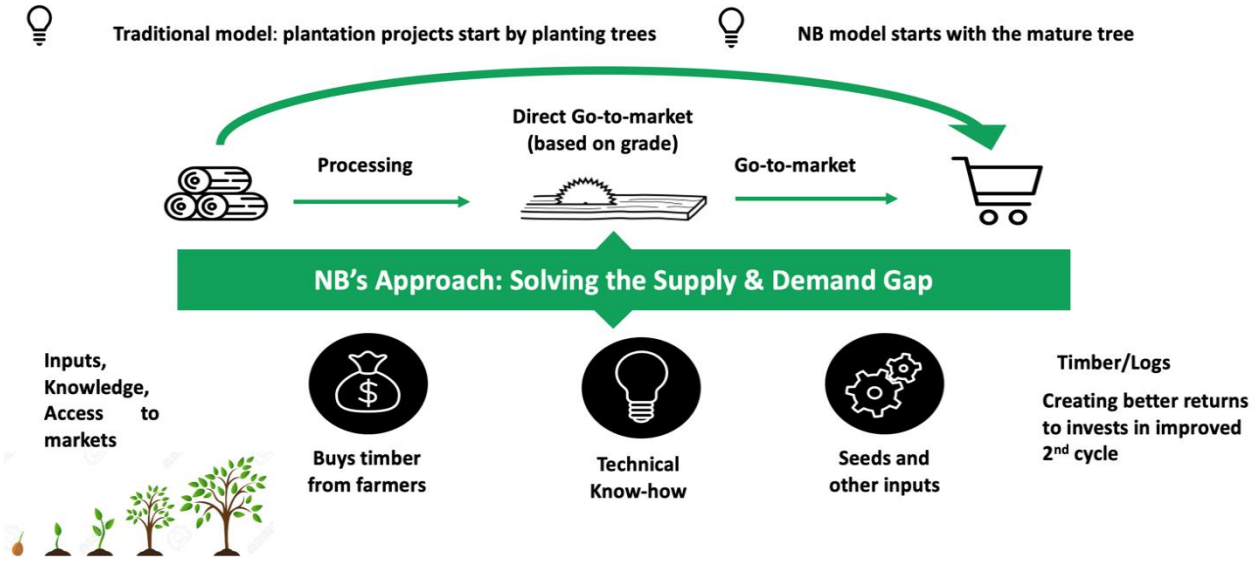
The product differs from normal timber sales in that it is from a sustainable source, environmentally responsible, and it is produced with good governance.

Under the environmental aspects of the triple bottom line there is the potential for carbon sequestration and possible other Payment for Ecosystem Services (PES) options associated with establishing tree cover, while Nb is willing and able to consider incorporating the requirements of any such scheme into its management planning, direct marketing of any such product is not part of the current business plan. Any partner who would like to negotiate or have access to carbon credits or monitories aspects of the 25,000 ha a year potential in lieu of part of the interest would be of interest to us. In relation to the potential for carbon 10 -year old plantations have not reached their maximum rate of sequestration but over 3 cycles, 30 years there will have been a lot more carbon absorbed than a stand growing for 30 years.

## Cash flows and commercial sustainability

The traditional plantation/forestry business timeline starts at the point when trees are planted. With the Nb project, the business cycle starts when the standing trees are ready to be harvested. Therefore, it is possible to take an inventory and valuation of the timber available, with the time of the initial investment to harvesting, processing and marketing taking only three months – so the cash flow is quick.

**Figure 1: Nb's Business model**




For example, a hectare of trees bought by Nb for US$ 3,000 can be harvested, transported and processed for US$ 2,000. Overall sale value will be between US$ 5,500-6,000 within three months. If this cycle can be reproduced four times a year, the initial US$ 5,000 investment will generate a US $2,000 to US $4,000 profit. This allows for the establishment of nurseries and other support for the re-establishment of the plantations, FSC certification and other costs.

During the proof of concept phase Nb bought just under IDR 1 billion (US$66,000) worth of standing trees at an average cost of US$ 56/m3 (1,200 m3). The cost of harvesting, transporting and carrying out primary processing varied, some were sold as raw logs and the cost of processing for some customers was greater than others, but the average cost of processing was around US$ 32 /m3 (US$ 38,000). Recovery varied significantly too; smaller diameter logs have a much lower yield than larger ones but on average it was just over 40% recovery (though the 60% 'waste' was often utilized). The sales return was around US$ 122,000 showing a trading profit of just under 20%.

The desired investment is debt rather than equity so the business knows the outgoings. The anticipated financial returns to the investor would be 7.5%. The social return is that each farmer increases their household income.

Though it is not easy to quantify, carbon sequestration and sustainable land use management are equivalent to the financial returns; therefore 7.5 x 3 = 22.5% return.

Based on the model to date the US$ 122/m3 sales value:*

- US$ 56 goes to the primary producer
- US$ 38 goes into local economy for harvesting, transport and processing
- US$ 28 operating profit (taxed at 20%)

(**This is an adjusted figure – the waste factor means that the sale value of processed timber is far greater than $122)*

This is a very simplistic model and there are a number of additional assumptions one can make.

- With more investment capital it is possible to procure more high value plantations, while many of the production cost remain similar the recover in the mill is improved and the margin on sales is greater
- With investment the quality of the mills can be improved and recovery can increase from 40% to over 50%
- FSC certification opens up the potential for selling to premium markets and securing long-term contracts
- There is very limited volumes of certified mahogany available in Indonesia – with relatively low levels of production it would be possible to become a market maker rather than a price taker.
- The cycle from investing in the standing tree to the point of sale and getting the proceeds back is around 3 months so it is possible to turn around capital 4 times in a year

The capacity of an individual timber hub in a district maybe 5,000 m3 standing trees per month (this would need to be tested). In the initial phase Nb has identified at least 8 potential sites in West Java and more in Central Java, NTB and South Sumatra. The model is very simple to scale up and with that additional economies of scale support additional technologies in harvesting and transport as well as milling for greater efficiency.

The business model will be further refined but the approximate outline is shown in Table 4. For year 1 the approximate costs are US$ 1.6 million ( purchase US$ 1 million, processing US$ 600,000) with potential sales of US$ 2.2 million.

**Table 4: Nb log production**

| Year | Hubs | Total log production (m3) |
|---|---|---|
| 1 | 1 (75% capacity) | 18,000 m3 |
| 2 | 3 (1 on 100% capacity and 2 new hubs at 50%) | 48,000 m3 |
| 5 | 5 (all 100% capacity) | 120,000 m3 |

There is potential to set up hub sites in locations such as South Sumatra and Kalimantan where there are sources of raw material managed by communities rather than individual farmer – where timber prices are lower but there is poor infrastructure and access to markets weaker therefore initial investment will need to be higher. There are also opportunities to work in Eastern Indonesia with communities with high volumes of very valuable species planted 50 years ago.

By 2025 it would be possible to be producing 250,000 m3 community-based timber, and bringing 25,000 ha of plantation under sustainable forest management.

## External dependencies

**Deregulation of small business**
Over the last 20 years Indonesia has deregulated the small business sector significantly – it would not have been possible to consider an operation like Nb until quite recently and bureaucracy in other SE Asian countries could remain a barrier to this model.

**International legislation on timber legaility**
At the same time as domestic legislation has declined international requirements have increased on the verification of legal timber (e.g FLEGT and the U.S Lacey Act). As smallholder plantation timber is considered low risk the enabling environment has supported the development of the Nb initiative. The Indonesian government is relaxing requirements on verification of timber from legal sources. This could put at risk the timber trade with EU markets who require verified legal timber. To mitigate this risk, Nb will be able to offer verified legal timber, as per FSC requirements. Likewise, China is placing more emphasis on legality of timber with a revision to the country's Forest Law, banning the trade in illegal timber, which could further advantage Nb.

**Additional enabling conditions**
There are additional partnership opportunities which further enhance the scalability and reach of the model, though are not considered as essential for its functioning. In Indonesia the Community Forestry Trade Network was setup in 2011, a non-profit that can work in parallel with Nb providing training and capacity build, we have also worked with TELEPAK one of the largest advocacy NGOs in the sector in Indonesia to test the approach in one area of South Sumatra. Nb has also developed a partnership with Kostajasa, a community forestry project with 1,400 members. Partnerships have also been set up with:

- The Center for People and Forests (RECOFTC), an NGO focused on enhancing the capacity for stronger rights, improved governance and fairer benefits for local people in sustainable forest landscapes in the Asia- Pacific region
- MFP 4, an initiative in Ministry of Forestry & Environment funded by UK Government supporting business in the natural resource sector.
- Peterson Portable Sawmills, a manufacturer of quality portable log mills and slabbers.
- The Morton Arboretum, a research institution focused on the planting and conservation of trees.

## Risk management

**Managing risks for growers**

For the individual smallholder selling their stock of standing trees at eight to 10 years, is often a decision taken for domestic rather than commercial reasons – a family wedding, education costs or health charges. Having made the decision to sell early, they are not in a strong position to negotiate, if the local mill does not want the type of timber they are selling, then they have to sell below the market price.

The FSC Certified group, because it has higher volumes and more diverse markets, can provide more options. For example, if a smallholder has to sell the standing trees at year 8 before they are fully matured – The group will give 60% of the value now, providing the trees are not harvested for two years, when the money can be paid back.

The main mitigation for the group is through the certification process. To remain FSC certified, the group has to undergo an annual audit. Not only does it provide an independent verification of sustainable management, it also means that there is an independent evaluation of the whole management structure on an annual basis.

**Managing broader commercial risks**

Timber is a diverse product with a wide range of marketing options. If there is a slump in demand for furniture grade timber in Europe, for example, it can be countered by an increase in another market. As the business

model is to provide downstream manufacturing with raw materials rather than depend exporting finished products, it is simpler to switch to where the demand is greatest.

The main expenditure will be on securing the standing tree stock around each hub area where it is envisaged 3 months stock, 6,000 m3 of standing trees will be bought and be an asset on Nb's books with a value of around US$ 250,000 in each case. One advantage of trees is if demand dips they can remain in the ground and carry on growing, in the event of a 2008 type economic shock where many of the downstream industries were effected a drop in demand would mean Nb would be holding 6 months stock rather than 3 months and this would be manageable.

As an example, Nb is well suited to managing risks from the COVID-19 pandemic due to their supply chain structure:

- Lower risk of workforce going into lockdown due to the flexibility and the rural location of smallholders;
- Unlike most agricultural commodities, delaying the harvest of trees can improve the quality of trees and increase carbon sequestration; and
- Despite a decrease in export demand, there is a large domestic demand for timber products. NB has wide networks in the export and domestic markets that it can react and adapt to at short notice to continue to offtake from the supply side.

## *iv. The investment model*

### The financial instruments being sought to fund the business model

The role of debt and equity financing in the business model

The preference is to seek a combination of grants and debt. The initial grant/interest free loan will be to develop the model that has been tested in Sumedang and West Java, allow some of the assumptions made about economies of scale to be tested further, to fund some of the introduction of technologies that have been identified and allow Nb to operate with some of the larger companies downstream needing a guarantee of larger volumes each month. In addition, this funding would allow for the development of a robust business model that will test the potential for the expansion of the model over the subsequent 4 years. Nb would be open to a structure of repayment that would put that initial $250,000 aside to specifically explore the opportunities in the out islands of Indonesia.

### The relative size of these instruments and basic information on their terms

The proposed structure of the loan is a US$250,000 injection, hopefully a grant or interest free to develop the business model more completely and the US$ 2 to 5 million is a potential credit line to be made available under terms agreed with the lender.

The proposed credit facility to be in place from 2020 to 2024 for up to US$ 5 million would be a soft loan where there would be a nominal charge for having access to the full amount with each draw-down of funds being against a specific part of the business expansion plan, so during 2020 if 3 additional hubs were to require $100,000 each that $300,000 would be available at 7.5% interest from the point the loan is accessed. Nb would seek the option to service the loan interest only up until the end of 2024 and then repay the capital over the following 5 years.

### Investor types and the finance they provide at different stages of project maturity

The target investors for the project are impact investment debt funds with a strong interest in positive environmental and social outcomes, and reasonably high risk appetite.

During the development of the expanded business model it is possible that there is the potential to identify some downstream members of the supply chain, either larger manufacturers in Indonesia or major retailers wanting to secure the raw material in their supply chain or wanting to benefit from some direct link to the environmental and social aspects of the triple bottom line in their products who would negotiate over sharing risk. With some initial investment, Nb has already established a proof of concept which established a supply chain between smallholders in the Sumedang district and buyers in Japan and the United States.

## Risk mitigation instruments used and how these were incorporated into the investment structure

Nb acts as a 'platform' company that does not own plantations. It is not aiming to build a major asset base, which allows it to be more nimble and adapt to changing market conditions.

Nb is also exploring the use of a 'Simple Agreement for Future Equity' (SAFE) arrangement in order to receive equity into the company without having to put a current value on it (due to volatile market conditions and the need to verify expansion potential). This is to reduce the risk that either Nb or investors significantly over-value or under-value the company during the uncertainty of present market conditions.

## The exit strategy employed

The exit for investors is planned at end of term: 5-10 years for the initial loan or equity investment.

## Innovative features of the investment model

The linking of primary producer with consumer happens in coffee, textiles, organic food so that aspect is not new. However, there are a range of areas as described in the table below which are innovative in the market as shown in Table 5 below.

**Table 5: Innovative features of the Nb model**

| Traditional Model | Nb Model |
|---|---|
| Smallholder has plantation ready for harvest | Smallholder has plantation ready for harvest * |
| Small harvest team negotiates a price | Nb negotiates price & Group FSC Scheme membership |
| Harvest team clears site as rapidly as possible with little environmental or OSH concern | Site is harvested leaving trees in riparian zones or very steep slopes in line with FSC |
| End of engagement with smallholder who restocks with any available planting material | Site survey for replanting – assistance with species selection – seedlings provided |
| Timber sold to local mill | Timber processed in Nb mill or under contract |
| Mill processes according to next order from the market | Logs selected for best utilization and returns |
| Sold from mill to trader | Simple management plan for each site identifying what should be monitored by Group management |
| Trader sells to consolidator getting enough volume for large scale manufacturers | Collective monitoring to identify any positive or negative tends across whole landscapes |

| | |
|---|---|
| Manufactures unaware of continuity of supply of raw materials | Links with market to facilitate data on supply of species available and upcoming demand trends |
| Lumping together of material from many smallholders and mills, no traceability – unable to enter premium export markets | Legal verification and traceability to meeting standards for export |
| | * *If trees are not fully mature Nb might negotiate to give 40% of value of stand to help smallholder meet immediate cash needs and arrange to harvest in 12 months and pay residual* |

In addition to the above, there is also the possibility to build longer rotation periods into the model, whereby Nb could buy an 8-year old tree, hold it against a loan as collateral and allow it to grow for 2 additional years to receive a carbon offset benefit, reduce soil disturbance and enhance environmental services.

## Replicability and Scalability

There are thousands of communities in Indonesia growing commercially valuable trees, tens of thousands across SE Asia, none of them have good access to markets. Over 18 months and with under US$ 100,000 initially Nb has demonstrated that it is possible to establish a supply chain from an acacia grower in Sumedang to a lorry manufacturer in Japan or a retailer in US back to mahogany plantation linking multi-billion operations with households with $1,000 worth of trees. The model and technology used is not complex and it is not looking to disrupt the existing systems significantly, therefore it could be replicated across the region. For example, one company in Laos, Burapaha wood (http://www.buraphawood.com/home/) has some of the same elements in their approach as Nb.

In Vietnam, Thailand, and the Philippines over the last 2 or 3 decades a number of government extension programmes have encouraged the planting of trees on smallholdings. The effectiveness has been variable, but a universal weakness has been a clear strategy for marketing the timber. Partly because the lead time between planting and harvesting will cover several budget cycles the support is not there when the plantations are mature. The result is that there are tens of thousands of hectares of small-scale plantations throughout SE Asia that are under-valued because of poor market access, and could benefit from the Nb model.

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