Executive Summary

Mekong Bamboo (MB) is a consortium led by Prosperity Initiative, a UK-based social enterprise (under its direct management); comprising of various donors, small enterprises, international businesses, farmers, processing companies and others. It was designed to kick start growth of the bamboo industry in three sub-regions in Vietnam, Laos and Cambodia (based on the successful example of the Anjin province in China with bamboo). The bamboo industry’s supply chains may be divided into three sub-sectors: industrial bamboo processing, bamboo handicrafts, and bamboo shoots.

Mekong Bamboo acts as a facilitation partner and the connective tissue between raw-bamboo farmers, small bamboo processing workshops, larger industrial bamboo processing factories and businesses, and buyers.

Mekong Bamboo is an example of how a systemic intervention at multiple points across the bamboo value chain can achieve scale in promoting local entrepreneurship, expansion of local businesses and in poverty reduction and income generation at the farmer level. Mekong Bamboo’s objectives include:

- Establishing diversified, demand-driven bamboo processing industries
- Expanding and intensifying bamboo production by small-scale farmers to meet demand from the expanding processing industries
- Establishing sector policies beneficial to bamboo enterprises and farmers.

Its ultimate goal is to move more than 350,000 people out of poverty in the Mekong region by 2020.
Introduction

Roots

In 2005, the International Finance Corporation (IFC) began work on a bamboo supply chain project in Thanh Hoa Province, Viet Nam. This project, started by the IFC's Mekong Private Sector Development Facility (MPDF), involved a number of partners and linked bamboo farmers to the international retail chain IKEA.

In 2006, Oxfam Hong Kong and IFC-MPDF built on this experience and jointly coordinated a bamboo sector feasibility study in Viet Nam, Lao PDR and Cambodia. The study involved 14 organizations and consultants working in the three Mekong countries and China. It demonstrated the poverty reduction potential of the bamboo sector over the next decade.

Prosperity Initiative was then created by Oxfam Hong Kong in 2006 to provide a long-term home to the Mekong Bamboo project and early stage work in other sectors. After the bamboo feasibility study was released in mid 2006, Oxfam Hong Kong, IFC and a growing number of partners continued to build on the work in the Thanh Hoa bamboo supply chain, working with local bamboo processing factories. Work began on a number of other pilot supply chains and bamboo sector initiatives in the region. A database of over 3500 bamboo businesses in Viet Nam was created, and links with bamboo business associations and investors in China were formed to assist in kick-starting the sector.

Source: www.mekongbamboo.org

The rationale for Mekong Bamboo came from the founder’s observations from China’s success. It was noted that “to achieve maximum utilization” of raw bamboo being converted into higher value products, a system of processing workshops needed to exist near the farmers. These workshops could add some type of value to raw bamboo and then sell them to large scale end-processors both domestically and internationally. In order however to achieve scale, both a critical mass of suppliers of value-added bamboo needed to exist, and the quality of their products consistent and up to standards. In addition the enabling environment of policy and regulation, of investors and traders and buyers also needed to change. Mekong Bamboo thus embarked upon an ambitious slate of activities designed to affect change across all these areas in the bamboo industry.

At the field level, Mekong Bamboo works with provincial government, local community-based organizations, local farmers, local small bamboo processing workshops, local traders and buyers, and other individuals. At a policy level, Mekong Bamboo works across countries in the Mekong River region (in Vietnam, Laos and Cambodia) in an attempt to replicate the Chinese success story (e.g. in Anjin province) in bamboo processing. It also works with multiple international agencies and donors such as the International Financial Corporation (IFC), and the Swiss Agency for Development and Cooperation (SDC). Thus, the work and focus of Mekong Bamboo supports lead firms, innovators and government agencies - groups responsible for creating the enabling conditions for a progressive industry.
The Market for Bamboo

According to the feasibility study of Oxfam Hong Kong (OHK) and the Mekong Private Sector Development Facility (MPDF) conducted in 2006, the world market for bamboo products is estimated at about US$7 billion per annum\(^1\) and the bamboo sector may be divided into handicrafts, bamboo shoots, and industrial bamboo including chopsticks, blinds, floorings, furniture, panels, builders’ joinery & carpentry, charcoal and activated carbon\(^2\).

Markets for bamboo can be grouped into traditional and emerging markets. Demand remains strong in the traditional markets such as handicrafts, blinds and bamboo shoots with profitable opportunities despite moderate growth\(^3\). Other traditional markets such as chopsticks are highly commoditized with low growth and low margins. Though traditional products presently accounts for a large proportion, industrial bamboo will begin to rival traditional bamboo market in the near future. Table 1 shows the world market size for bamboo products (see Annex 1 for a breakdown of the world bamboo market by subsector).

Nigel Smith’s study in 2006 of the bamboo sector also indicated that the annual market sizes of bamboo products in the Mekong region in Vietnam, Cambodia and Laos are about US$250 million, US$7 million and US$4 million respectively and employed 400,000 people. The main markets of Mekong Bamboo are the export markets including the United States (US), European Union (EU), and Asia. In addition, with the large population and high growth

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1 Nigel Smith (2006), Bamboo – International Markets Research, Enterprise Opportunity Ltd.
2 OHK-MPDF conducted the first global market sizing of the bamboo sector including handicrafts, bamboo shoots, chopsticks, blinds, floorings, furniture, panels, builders’ joinery & carpentry, charcoal and activated carbon, excluding paper and unprocessed bamboo used in construction and household uses.
3 Smith (2006)

![Figure 1: World Market Size for Bamboo Products](image)
economic rate in recent years in Vietnam, the domestic market has also gradually developed and represents potential demand in the future.

The business model of Mekong Bamboo

ACTIVITIES AND VALUE CREATION

Mekong Bamboo can be split between core and associate activities. The main activities of Mekong Bamboo include (see Annex 3 for detailed operations across each of these functions):

- **Business and markets**: Supporting businesses at all levels of the market chain by mobilizing start-ups, technology and management transfer, business services and information systems, international and domestic business, credit lines, trade fairs;

- **Farmers and resources**: Supporting smallholders to produce bamboo efficiently and competitively in the market by supporting training, field trials, traceability systems and agricultural development;

- **Policy and research**: Supporting government at local and national levels to create positive business and rural development environments by supporting research studies, exchange visits, training of officials, national and local policy and plan development;

- **Coordination and management**: Ensuring linkages between partners by providing staff resources to support project linkages, methodology, sharing, information management and dissemination.

A detailed description of Mekong Bamboo’s intervention across countries and sectors can be found below:

Figure 2: Activity Structure of the MBC Project
Within the Northern Vietnam industrial bamboo sector, the following are the scope of activities of Mekong Bamboo, led by Prosperity Initiative:\(^5\)

1. **Information generation.** Research and dissemination on aspects of the industry including:
   - Bamboo business surveys and analysis of throughput, production, labour and other factors to monitor and support business linkages;
   - Bamboo price monitoring at farmgate and other points in the system;
   - Household panel surveys to capture the effect of rising prices on luong and other species of bamboo on income and poverty;
   - Improved bamboo resource monitoring through field and remote sensing methods to ensure the state of the resource base is better understood;
   - State of the industry reporting – capturing all the above and synthesizing for routine publication and use for key stakeholders including government, business and investors;
   - Publish important case studies of Chinese or other leading industry successes such as those in India.

2. **Networking and information linkages**
   - Industry outlook and promotion days at provincial, cluster and national levels in the sub-region;
   - China linkage visits for businesses and governments through Mekong Bamboo’s formal association with the Anji Bamboo business association;
   - Chinese investor and business facilitation – to provide an important conduit for Chinese management and technology expertise to enter the industrial Northern Viet Nam bamboo cluster;
   - Hosting of a web based information exchange;
   - Instigating and supporting new investments in Pressed Bamboo technologies.

3. **Instigating and supporting the emergence of processing businesses that better utilize elements of the bamboo resource (e.g. bamboo saw dust) to take the industry structure closer to the high utilization model of Anji.**

4. **Policy and strategy reform enable governance and support a mature, competitive industrial bamboo cluster in the leading provinces in the Northern Viet Nam cluster through benchmarking and linking to the successful experiences in China.**

Securing of land ownership for bamboo producers, particularly in Houaphanh, where land reform processes are incomplete. This step is critical to ensure poverty impact through the mechanism of high farmgate sales is achieved.

Mekong Bamboo’s value creation can be analyzed as follows:

\(^5\) Source: www.mekongbamboo.org
As can be seen from the above, the focus of Mekong Bamboo’s intervention is within the bamboo business sector in Vietnam, in connecting these businesses to reliable suppliers, introducing them to value-adding technologies, finding investors and capital for them, and connecting them to markets. In addition to keeping the businesses in focus however, Mekong Bamboo has also adopted a sector-wide, integrated approach to developing the local bamboo market, and achieving scale.

**SUBSECTORS**
In particular according to the founder Dr. John Marsh, Mekong Bamboo promotes and encourages the competitiveness of the bamboo industry’s supply chains in three subsectors: bamboo handicrafts, bamboo shoots and industrially processed bamboo. Of these the largest and most important is industrially processed bamboo.

The bamboo handicrafts subsector is most important for employment creation and has highest impact efficiencies but delivers relatively few benefits to farmers. The bamboo handicrafts subsector focuses on targeting labour productivity, skills, design, marketing and supply chain organization so that more jobs are created and income generated for the farmers living in rural areas, especially in the provinces, where many minority ethnic groups live.

The bamboo shoots subsector is a high impact niche that primarily delivers high levels of benefits to a relatively small group of farmers. The bamboo shoots subsector seeks to harmonize the subsector’s expansion of resources and processors so that the sustainable
development and value can be brought to the poor by avoiding market un-stability due to unplanned developments.

**Industrial processing** is most important for overall pro-poor financial impact and is the only subsector capable of delivering widespread benefits to farmers. Industrial bamboo processing subsector focuses on material utilization and industry structure so that the value is created and added to products processed from raw bamboo materials. Purchasing and collecting raw bamboo materials with the competitive prices are encouraged to bring the benefits to the growing bamboo farmers. Industrial bamboo can create value at many levels from low to premium. According to the feasibility study conducted by Enterprise Opportunities Ltd., the levels of value creation and impact of industrial processing bamboo are significantly different.

- Premium processing has high rates of financial impact efficiency, compared to bamboo shoots, but on more than twice the scale. It also creates more employment than all other areas, except handicrafts. The scale of the industry should be maximized to take full advantage of available premium grade bamboo.

- Medium value processing creates substantial employment and has pro-poor financial impact. It has typical impact rates of the industrial processing sub-sector as a whole and should be expanded as part of a diversified industrial processing sector.

- Low value and bulk processing has impact rates of only one fifth of premium processing industries and correspondingly low total scale of pro-poor impact. However, the industry plays an important role within a diversified industrial processing industry as a value-added user of low grade bamboo, leftovers and processing waste from other industries.

- Raw culm supply has the lowest rate of pro-poor impact, but is an unavoidable part of the sector due to bamboo’s great versatility.

**BUSINESS MODEL**

Mekong Bamboo is thus a complex market development system that works across three bamboo subsectors (industrial bamboo, handicrafts and edible shoots) in three countries (Vietnam, Laos and Cambodia). It is beyond the scope of this case to be able to give a comprehensive overview of the entire system. This case study will hence focus on the largest and most important intervention so far; in the Northern Vietnam region and in the sector of industrial bamboo.

The business model of industrial bamboo can be viewed as follows:
For example, Mekong Bamboo (led by Prosperity Initiative) identifies lead industrial businesses in Vietnam, such as Tien Dong to work with. In July 2008, Prosperity Initiative introduced Tien Dong to the commercial and financial benefits of investing in Pressed Bamboo Block (PBB). They took Tien Dong to China to introduce them to contacts, equipment suppliers and the technology itself.

Based on this information, Tien Dong decided to invest in PBB production and requested Prosperity Initiative’s expertise. During this stage, Prosperity Initiative managed and partly funded product-testing activities at several test centres, advised on sales promotion, participated in a Tien Dong technology day to promote PBB, presented on PBB technology and displayed Tien Dong’s PBB products at one of Vietnam’s largest construction exhibition.

“As a result of investments into these two technologies, Tien Dong is now buying substantially more bamboo in provinces in Vietnam with high poverty rates. As of November 2009, in production of PBB and construction board (also adopted by Tien Dong), Tien Dong is currently purchasing an additional 55 tons/day from farming households from areas of high poverty rates. They have also built a production facility for construction board in Ha
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Tay province, leading to increased full time employment in another area with high poverty rates.  

OVERCOMING CONSTRAINTS IN GROWING THE BAMBOO INDUSTRY IN VIETNAM

According to interviews with the founder of Prosperity Initiative, Dr. John Marsh and other independent feasibility studies in the sector, the following were identified as major constraints that private businesses in the bamboo industry of Vietnam face. These constraints include:

- Capital investment and access to technologies: While businesses in other countries such as China are using advanced processing techniques and machinery, especially in flooring and activated carbon production, the businesses in Vietnam are characterized by relatively low capital investment and use of outdated and inefficient technologies and machinery.

- Underdeveloped pre-processing: Within the provinces studied, the dominant practice is for processors to buy unprocessed raw bamboo directly from traders or farmers. Then they carry out all of the initial pre-processing of the culm before producing the finished or semi-finished products that are sold to wholesalers or secondary processors. The research has identified a small number of instances of bamboo workshops producing different primary processed products intended for different processors in a manner that resembles the current Chinese model pre-processing hubs supplying different industries.

- Productivity: Value-added utilization rates of bamboo for premium and medium value processors, such as flooring and chopsticks, are relatively low (<20%) and only 50% of their waste materials are currently sold to other users. The remainder is either used as fuel or burnt in site as a means of disposal.

- Competition from state-owned enterprises: Despite its growth, the bamboo sector is still affected by significant market distortion from current and former state enterprises that threaten its continued development. For example, in the study provinces the increasing competition for raw material has driven many small processing workshops to the point of ceasing production as they can no longer make a profit and are unable to raise their sales price to reflect increased costs.

- Land and finance: Access to suitable land and finance for growth is also a major growth constraint on many current bamboo businesses.

In addition, the bamboo industry also faces issues related to markets, regulation, and knowledge of farmers.

- Markets: The key markets for Mekong Bamboo include the US, EU, Asia, especially the ASEAN countries. However, significant downturn in demand from key export markets because of crisis, trade problems, high fuel costs, and changes in exchange rate is market

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6 Source: xx
7 Enterprise Opportunities Ltd. Feasibility Study (needs to be expanded)
8 Association of Southeast Asian Nations (ASEAN)
constraints that need to overcome. To overcome this constraint, the businesses in bamboo industry diversified to exploit domestic or local markets. With a large population of 85 million, the domestic market represents a great potential.

- **Regulation:** Mekong Bamboo and its partners have many commitments with governments. Failure to ensure consistent, sustained commitment of both local and national government is also an important constraint. To overcome this constraint, Mekong Bamboo engaged with several provincial governments to reduce the concentration risk inherent in working with one single local government in each country. Priority should be given to provinces that demonstrate strong commitment and evidence of sound enabling environment.

- **Knowledge:** Farmers often lack the knowledge and information to plan and balance between bamboo demand and supply. Also, they lack the knowledge and skills to primarily process raw bamboo as requested by manufacturers. To overcome this constraint, Mekong Bamboo and its local partners held skill demonstration and training for the farmers.

Finally, the constraints faced by farmers, small processing workshops and traders that buy quality bamboo from smallholder farmers can be extremely varied. Below is a survey that was done of traders in the upland Northern Vietnam Industrial Bamboo clusters, and of the challenges they faced.

*Figure 5: Key Findings from the Second Thanh Hoa Bamboo Survey – Bamboo Collectors and Traders Problems and Constraints*

![Graph showing challenges faced by traders](source:image)
The Business and its Key Actors

The actors within the business model are the poor (including farmers and processing workers), businesses, Mekong Bamboo, local NGOs and local government. Farmers grow and sell bamboo as raw materials to large businesses through traders that aggregate purchases across smallholder farms. Traders purchase and collect raw bamboo from farmers to supply to businesses operating as processors. The businesses play the role of investors and organizers of production. Mekong Bamboo, local NGOs and local government respectively play the role of supportive organizations and policymakers to develop and open opportunities for the businesses doing business with the poor.

THE POOR

The poor have two sets of resources: land and labour. Bamboo subsectors can reduce poverty and improve the living conditions of the poor by increases in either farming income or waged labour. Farmers who have land may plant bamboo and sell to the businesses as raw materials. Then farmer’s income may increase through either an increase in farmed area, or when unit prices of bamboo rise. By encouraging farmers to plant quality-assured bamboo that is then locally processed at small workshops and sold to large businesses, a significant increase in income is seen through this value addition. For example, thanks to planting luong (a species of bamboo), the farmers in Thanh Hoa province have a demonstrated potential to reduce poverty headcounts by more than 75,000 of the 222,000 people currently living on less than US$1.25/day and by 80,000 of 316,000 people living on less than US$2/day in the upland luong producing community of 450,000 people.9

BUSINESSES IN THE NORTHERN VIETNAM INDUSTRIAL BAMBOO SECTOR

The businesses operating in bamboo industry play a very important role in creating and distributing value to the poor farmers. Firstly, they create opportunities and markets for bamboo growing farmers. Secondly, they are investors who set up factories for processing bamboo and adding value to raw bamboo. According to John Marsh and Ngo Viet Hung there were 104 industrial bamboo processing firms in 2008, an increase of 32 from 2005.10 This figure excludes bamboo shoots and artisanal bamboo handicraft producers. The 104 firms can be divided into three categories based on turnover (see Table 1).

Table 1: Summary of Northern Vietnam Industrial Bamboo Firms

<table>
<thead>
<tr>
<th>Scale</th>
<th>Range</th>
<th>Existing 2005</th>
<th>New 2008</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>&gt;US$2,000,000/year</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Medium</td>
<td>US$200,000 - 2,000,000/year</td>
<td>42</td>
<td>8</td>
<td>50</td>
</tr>
</tbody>
</table>

10 Prosperity Initiative (2008b)
The most important constraint that these businesses face according to Dr. Marsh is a lack of capital and inadequate management skills. With capital, they can buy land, labour, raw materials and technologies for production.

**LOCAL GOVERNMENT**

Local government at province, district and village levels are the key partners in identifying appropriate strategies for developing the local sectors. The local governments play the role of policy maker. Their activities and contributions include:

- Assess the potential impact of the bamboo sector to the local community and the economy;
- Evaluate the role of the sector’s development in local development plans;
- Identify constraints that must be removed to facilitate growth; and
- Develop appropriate policies and plans for an enabling environment for sector growth.

**OTHER KEY ACTORS**

In addition to Mekong Bamboo, there are a lot of other key actors behind Mekong Bamboo who play the role of core partners, supporters or donors for developing the bamboo industry in Vietnam. These actors include local and international organizations. Local partners include HADEVA (the most significant local partner that works in capacity building at the farmer level in upland areas), Vietnam’s Institute for Strategy and Policy for Agriculture and Rural Development, Luong Development Project, Environment and Development Consultants Laos. Other actors are from international organizations including:

- Oxfam Hong Kong (OHK), Oxfam America (Laos) and Oxfam GB (Vietnam, Cambodia)
- Mekong Private Development Facilities (MPDF)
- Groupe de Recherche et d’Échanges Technologiques (GRET)
- International Networking for Bamboo and Rattan (INBAR)
- Winrock International (Vietnam)
- SNV Netherlands Development Organization (Laos, Vietnam, Cambodia)
- German Development Organization GTZ (Laos, Cambodia)
- The World Bank
- Maddox Jolie Pitt Project (Cambodia)
- Enterprise Development Consultants (Laos)
- CIAT Small-Scale Agro-enterprise Development in the Upland of Laos and Vietnam Project (SADU).

**Results Created by Mekong Bamboo**
According to Dr. John Marsh, Project Director of Prosperity Initiative, each of the three subsectors has different potential and mechanisms with respect to creating impact.

- **Industrial bamboo subsector**: Poverty impact mechanisms are (1) farm sales and income generation, and (2) job creation, in which farm sales and income generation are more important than job creation.

- **Edible shoots subsector**: Poverty impact mechanisms are (1) farm sales and income generation, and (2) job creation, in which farm sales and income generation are more important whereas labour creation is less important because this subsector only employs a small number of low-skilled processing jobs and seasonal unskilled farm labour supply to shoots farmers.

- **Bamboo handicraft subsector**: Poverty impact mechanisms are (1) job creation, and (2) farm sales and income generation, in which job creation is more important than farm sales and income generation.

**PROSPERITY INITIATIVE’S APPROACH TO MEASURING RESULTS**

Prosperity Initiative, as the leader of Mekong Bamboo, has set itself several bottom line performance indicators (which can be aggregated at corporate level):

- People lifted over the poverty line
- Poverty gap reduction (income for people below the poverty line, and others)
- Jobs for people below the poverty line, and others

Prosperity Initiative also tracks/estimates these costs against the results for development ROI in order to be able to make ‘business case’ decisions on what Prosperity Initiative should and should not do. In addition, Prosperity Initiative’s focus on measuring impact has led it to commission many independently funded and written impact studies, as well as its own internal impact measuring studies on the interventions that it engenders in the bamboo sector. For example, regarding the poverty gap, the below is an example of what Prosperity Initiative tracks.
Thus, the Mekong Bamboo Consortium led by Prosperity Initiative has been the subject of many detailed impact studies that analyze the program’s results on income-based poverty, job creation and social and environmental results.

INCOME AND POVERTY IMPACT

The “current and future geographical location of raw bamboo production is in upland areas. In upland areas, there are limited economic opportunities and resulting high poverty rates. Poor upland farmers choose to include bamboo within their portfolio of economic activity because of its returns relative to other options. Poverty will thus be addressed through increasing raw bamboo sales. It is critical then that bamboo land use rights are secured by farmers; plantation models of bamboo production will not realize the same scale of poverty impacts.”

In 2006, the industrial bamboo supply chain was examined in three districts in a poor upland area of Vietnam called Thanh Hoa (see Annex 2 for a poverty map of the Thanh Hoa district). The three study districts (Ba Thuoc, Lanh Chanh and Quan Hoa) are among the poorest districts in the province, and they produce about 60% of its bamboo production. Land use rights for bamboo production are secure for the farmers of this study area.

The study examined, amongst many things, how changes in poverty and income differed between households with and without bamboo income.

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Median income levels per capita in households with bamboo earnings was VND 2.44 million in 2006, an increase of 23.6% since 2004. In contrast, median income levels per capita in households without bamboo earnings was VND 1.06 million which had grown by just 3.8%. In terms of the poverty incidence, the percentage of individuals with bamboo incomes below the poverty line fell from 59.1% in 2004 to 51.5% in 2006.

In contrast, for individuals without bamboo incomes the poverty headcount rose from 79.6% in 2004 to 82.6% in 2006. The differences in poverty rates between individuals with and without bamboo incomes are statistically significant from zero at 2% even though the changes between years are not. As shown in Figure 4, changes in the depth of poverty over this period were even more striking, with the poverty gap falling from 0.263 to 0.195 for individuals with bamboo incomes but rising from 0.415% to 0.448% for individuals without bamboo incomes.

Again the differences in the poverty gap ‘with’ and ‘without’ between bamboo and non-bamboo groups are statistically significant at the 2% level.”

The bamboo industry is thus transforming the local economy in an area with a population of 400,000 (Thanh Hoa province). Between 2004 and 2006:

- Total sector size measured as bamboo income through jobs and bamboo sales grew from US$11 to US$15 million
- The farm-gate price for bamboo increased from US$11.7/ton to US$14.1/ton
- The bamboo share of the economy grew from 28% to 34%
- People involved in the bamboo sector make up 61% to 70% of all households.

Source: xx
• A net figure of 21,000 people from ‘bamboo households’ moved out of poverty (i.e. over the national poverty line)

A net figure of 37,000 people from ‘non-bamboo’ households moved back into poverty (i.e. backwards across the poverty line).

This has taken place in areas where more than six out of ten people live below the poverty line. From 2006 to 2008, impact in the ‘luong’ bamboo farm sector was measured in the same Thanh Hoa province and the results are as follows:

**Figure 9: Cumulative Distribution Functions for Per Capita Incomes for Households with and without Luong Incomes, 2006 and 2008**
EMPLOYMENT AND JOB CREATION

Regarding employment and job creation in the bamboo sector, the poverty impact of the industrial bamboo subsector through waged employment is important but less significant than through farmer income generation based on bamboo production and sales.

The study did not focus on secondary effects of job creation, although it is noted that "estimates from other developing countries suggest that each dollar of additional value generated in agriculture generates about 60 cents of value added in the rural non-farm economy."

Overall, the number of FTE wage and non-wage jobs generated by the bamboo sector in the three districts rose from 8,314 in 2004 to 10,747 in 2006. Of the additional 2,433 jobs generated, 60% were for on-farm family labour, 26% for hired-in farm labour and 21% for off-farm labour.

The study determined how much created value is captured by poor communities compared to being taken as profits of larger businesses, imported production items such as fuel, interest payments, or other expenditures that do not attribute value to the local rural economy. We have used the term ‘pro-poor financial impact’ to describe this local component of total revenue that is captured within production areas.

Bamboo resource and labour together typically represent approximately 80% of total cost of production for most bamboo processing industries with profit margins of approximately 7% (ranging typically from 0% to 12%). So at the processor level, approximately 75% of revenue is captured by local costs compared to approximately 7% taken as profits. The notable exception is paper where we measure only 33% of revenue captured locally.

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13 Hazell and Haggblade, 1993
Figure 9: Impact by sub-sector product grouping in the industrial sub-sector

Source: xx

An example of gender impact in the handicrafts subsector is featured below.

Figure 10: Women in the Bamboo Supply Chains (% of total FTEs)

Source: xx

Ethnic Minority Impact

In most of the provinces covered by this study, there is a strong representation of ethnic minorities amongst bamboo farmers. For example, in Thanh Hoa and Nghe An provinces in Vietnam, of the bamboo farmers surveyed more than 75% were from the Thai, Muong and Kho Mu ethnic groups and a further 13% from other ethnic minority groups. Less than 12% were from the dominant Kinh group.
ENVIRONMENTAL IMPACT
The below is cited from a study completed by Dr. John Marsh and a partner on the impact of bamboo.¹⁴

“Cultivation and harvesting: Bamboo is widely regarded to have several environmental benefits compared to alternative land use or industrial economic development options (e.g. Environmental Bamboo Foundation). The main environmental benefits of bamboo include:

a) Bamboo is a sustainable cropping system for sloping lands, reducing soil erosion and delivering sustainable farming systems;
b) Bamboo is suitable for the recovery of degraded lands;
c) Bamboo reduces rain run off and downstream flooding and retaining additional water in the watershed;
d) Bamboo's rapid growth rate and selective harvesting sequesters up to 12 tonnes of carbon dioxide per hectare;
e) Bamboo may be produced competitively with zero fertilizer and pesticide input.

However, one main drawback is the biodiversity risk from bamboo through the development of mono-cultures, but this outcome should be compared to alternative land use options. The wider environmental impact is primarily driven by the extent to which bamboo products substitute hardwood timber products in the market”.

Growth Strategy and Future Outlook

Today, the demand for industrial bamboo is strong and growing. Although all bamboo subsectors including bamboo shoots, bamboo handicrafts and industrial bamboo, have had a significant contribution on poverty reduction, the emerging industrial bamboo cluster in recent years has demonstrated that Mekong Bamboo should follow the strategy focusing on industrial bamboo. The opportunity for industrial bamboo makes sense because:

- There is a strong market opportunity for industrial bamboo products worldwide.
- NW Vietnam has the opportunity to compete with the bamboo superpower, China.
- The industry currently represent an important source of income for at least 53,000 farming households, 60% of which are poor and a large majority from ethnic minorities.

To sustainably raise farm-gate prices and achieve poverty impact, the following four priorities are essential:

- Securing investment in new manufacturing plants for high-and medium-value finished products;

¹⁴ Source: New Bamboo industries and Pro-Poor impact

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• Raising value added per bamboo culm across the industry by identifying market opportunities for alternative higher value products and assisting small and medium-enterprises to supply them;
• Establishing sustainable buying mechanisms between buyers and farmers to ensure the sustainable exploitation of bamboo resources while meeting the needs of a growing industry;
• Ensuring poor farmers own the bamboo and therefore can benefit from rising prices and demand.

With the strategy outlined above, Mekong Bamboo believes its future outlook and impacts for 70% of farming households with existing bamboo plantations among a total population of 400,000 in upland districts of the industry:
• 126,000 people will move over the poverty line when prices reach US$40 per ton.
• 163,000 people will move over the poverty line when prices reach US$80 per ton.

Prosperity Initiative has also forecasted its desired and probable impact for 2015 and 2020.

Figure 11: Actual and Projected Per Capital Incomes for 2008, 2015 and 2020
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Annexes

ANNEX 1: RELATIONS BETWEEN PROSPERITY INITIATIVE AND MEKONG BAMBOO

History
Prosperity Initiative started as a bamboo supply chain project in northern Viet Nam. The poverty impact potential uncovered in this project, and the methodologies developed during it, eventually led our strategic partners to support the creation of a separate organization called Prosperity Initiative.

In 2005, the International Finance Corporation (IFC) began work on a bamboo supply chain project in Thanh Hoa Province, Viet Nam. This project, started by the IFC's Mekong Private Sector Development Facility (MPDF), involved a number of partners and linked bamboo farmers through the supply chain of bamboo flooring to the international retail chain IKEA. In 2006, Oxfam Hong Kong and IFC-MPDF built on this experience and jointly coordinated a bamboo sector feasibility study in Viet Nam, Lao PDR and Cambodia. The study involved 14 organizations and consultants working in the three Mekong countries and China. It established the important poverty impact potential that the bamboo sector could have if the sector developed in the sub-region over the coming decade.

Prosperity Initiative was created by Oxfam Hong Kong in 2006 to provide a long-term home to the Mekong Bamboo program and early stage work in other sectors. After the bamboo feasibility study was released in mid 2006, Oxfam Hong Kong, IFC and a growing number of partners continued to build on the work in the Thanh Hoa bamboo supply chain, working with local bamboo processing factories. Work began on a number of other pilot supply chains and bamboo sector initiatives in the region. A database of over 350 bamboo businesses in Viet Nam was created, and links with bamboo business associations and investors in China were formed to assist in kick-starting the sector. This work also began to build a strong base across government, development agency and private sector partners. These activities are now coordinated under Prosperity Initiative's Mekong Bamboo program.

In November 2007, the program formally separated from Oxfam Hong Kong to form Prosperity Initiative CIC, a UK-registered social enterprise. CICs ("Community Interest Company") are a new legal form created in the UK for non-profit companies that operate using charitable and social entrepreneur principles and exist to provide benefits to a community. In Prosperity Initiative's case, this community is poor people around the world (www.cicregulator.gov.uk).
Organizational structure

Mekong Bamboo team

Dr. John Marsh, Head of Mekong Bamboo Program
As Executive Director and Head of Mekong Bamboo, Dr. John Marsh leads the implementation of Prosperity Initiative's flagship Mekong Bamboo program. His experience includes more than 20 years spanning the public, private and, more recently, the development sectors. John came to Viet Nam in 2005 as Oxfam Hong Kong's Country Representative for Lao PDR and Viet Nam. In that role, he partnered with the International Finance Corporation (IFC) to develop and lead the Oxfam-IFC bamboo collaboration that would eventually become Prosperity Initiative's Mekong Bamboo program. John has worked in 16 countries as an independent consultant, Country Director for NGOs, agricultural/environmental engineer and market specialist. John holds a PhD in Natural Resource Planning as well as M.S. degrees in Development Economics and Environmental Management and a B.A. in Engineering.

Dr. Martin F. Albani, RBI Lead
Martin leads the RBI (Results-based Initiative) Project in Lao PDR and Cambodia, which aims to improve rural livelihoods - and women's economic opportunities in particular - through innovations and support to the bamboo handicraft sector. Before joining Prosperity Initiative, Martin was a Senior Technical Advisor with the International Trade Centre, UNCTAD/WTO, for a national trade promotion and export development project in Hanoi. Martin has more than 24 years experience in professional management and enterprise development in Southeast Asia. In 2001, based on a project tender he won from the European
Commission, Martin established and acted as the Executive Director of the European Business Information Centre (EBIC) in Ho Chi Minh City and Hanoi, which delivered more than 100 seminars and trained thousands of participants on doing business with the EU. Martin holds a PhD in Biochemistry and an M.Sc in Chemistry.

**World Market Demand by Bamboo Sub sector**

Table 1: Current size of the world bamboo market (USD million)

<table>
<thead>
<tr>
<th>Bamboo products</th>
<th>Amount</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bamboo shoots</td>
<td>1,500.0</td>
<td>22.11%</td>
</tr>
<tr>
<td>Bamboo handicraft</td>
<td>3,000.0</td>
<td>44.22%</td>
</tr>
<tr>
<td>Industrial bamboo, in which:</td>
<td>2,285.0</td>
<td>33.68%</td>
</tr>
<tr>
<td>Chopsticks</td>
<td>300.0</td>
<td>4.42%</td>
</tr>
<tr>
<td>Activated carbon</td>
<td>20.0</td>
<td>0.29%</td>
</tr>
<tr>
<td>Charcoal</td>
<td>60.0</td>
<td>0.88%</td>
</tr>
<tr>
<td>Builder's joinery &amp; carpentry</td>
<td>5.0</td>
<td>0.07%</td>
</tr>
<tr>
<td>Blinds</td>
<td>500.0</td>
<td>7.37%</td>
</tr>
<tr>
<td>Wood floorings</td>
<td>100.0</td>
<td>1.47%</td>
</tr>
<tr>
<td>Wood panels</td>
<td>200.0</td>
<td>2.95%</td>
</tr>
<tr>
<td>Wood furniture</td>
<td>1,100.0</td>
<td>16.21%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,785.0</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

*Source: Mekong Bamboo Sector Feasibility Study, Enterprise Opportunities Ltd. (2006)*

Emerging bamboo markets, particularly wood substitutes and non-traditional products such as floorings; panels; and furniture, have been pioneered by Asian producers. These represent the largest and potential growth opportunities for bamboo industry. A world large demand for wood products whereas an increased restrictions of certified timber supply create a positive outlook for bamboo markets. Additional niche market opportunities exist for processed bamboo charcoal and bamboo activated carbon. Overall prospects for a diversifies bamboo sector including three sub-sectors: bamboo shoots, bamboo handicrafts and industrial bamboo are very potential. With the emerging bamboo markets, the world demand for bamboo products is estimated as more than USD11 billion per year today and this market is projected to grow to USD15 – 20 billion per year by 20018 (Marsh, 2008).
Supporting investment in the Mekong bamboo industry is one of Mekong Bamboo’s main areas of intervention.

Mekong Bamboo directly assists innovative bamboo businesses that wish to invest in new industrial bamboo technologies.

We do this by:

- Developing and managing a pipeline of lead firms with interests in innovative bamboo technology
- Assisting firms to find investment partners
- Co-investing with selected firms to secure demonstration partners
- Capturing the impact of firm and enterprise level performance

Mekong Bamboo’s targeted investment promotion includes hosting investor visits, on-line and other marketing to potential investors, and leveraging government investment promotion activities. We
connect foreign investors with provincial government leaders and business owners to facilitate direct discussions on business opportunities and help promote pro-bamboo policy.

*Mekong Bamboo* has regularly organized bamboo investment seminars for both domestic and international attendees, including Chinese and Japanese investors.

For a small set of catalytic businesses, we subsidize their investment and/or co-invest in new bamboo processing technologies. These businesses agree to serve as example sites for *Mekong Bamboo* to demonstrate new technologies to other businesses, donors and partners. These investment partner businesses provide *Mekong Bamboo* with detailed information on the impact of the new production technologies from an input, output, price and market perspective - which is critically important in monitoring the impact of the investment in the community.

*Mekong Bamboo* conducts and provides detailed analysis of potential markets including:

- periodic quantitative assessments of demand
- price
- quality requirements
- major customer segments and channels to market
- competitor analysis and benchmarking with other producer regions to identify strengths and weaknesses as well as appropriate areas for action

Source: www.mekongbamboo.org

In addition, *Mekong Bamboo* also acts as consultants to small bamboo-related businesses in the Mekong region; building capacity in their management team, linking them with suppliers and buyers, providing quality control services and technical assistance and also finding them capital, as described above.

*Mekong Bamboo’s Business Advisory Team* is dedicated to providing specialized advice on:

- Analysing and identifying raw material supply
- Connecting businesses to the right partners and markets
- Building financial models and supporting business planning
- Improving business processes and models

We also assist businesses with product standard development or certification where needed for market entry (e.g. structural building products in the EU and US construction industries). We work to be market and product specific and linked with leading institutions worldwide.

We also provide support and development for new technologies such as pressed bamboo technology, charcoal and saw dust pellets, amongst others.

Our primary goal is to engage with and help develop a group of catalytic business/technology propositions for the integrated bamboo industry structure in Viet Nam.

Our integrated bamboo industry structure is based on benchmarking observations from China’s success. To achieve maximum utilisation of the bamboo biomass into higher value products, a group of near source processing firms is needed to supply end processors who create a range of finished products. Since this requires simultaneous operation of many firms and successful investment
depends on the security of the supply and the market for all firms in this system, the industry structure is unlikely to emerge through the private sector alone.

As demonstrated in China, initial support to some businesses that are marginally profitable in a low utilization industry model (e.g. processing of sawdust which constitutes 30% of total biomass) is required for the industry to move to full efficiency and profitability of all components.

*Mekong Bamboo* works to identify candidate business propositions relevant for Viet Nam for the biomass segment in the North Viet Nam industry that currently is underutilized. Based on identifying benchmark businesses in China and other industries, we will develop full business models/prospectuses for these propositions.

*Mekong Bamboo* plays an advisory and support role to all businesses in the bamboo industry. Our recent national business survey in Viet Nam included enquires into businesses’ working capital and financial needs. We are using this information to assess the industry’s financial needs and with our partner organizations, devise plans to address the needs on a large scale.

Source: www.mekongbamboo.org

Finally, Mekong Bamboo is also critically involved in market development activity relating to government policy and reforms in the bamboo sector.

One of Mekong Bamboo’s main areas of activity is enabling government policy and practice reforms in support of bamboo industries.

Our three major areas of work include:

- Provincial policy and practices reform
- Regional/cross provincial coordination and support
- National policy and practices reform

**Provincial policy and practices reform**

There are 8 to 10 provinces that supply bamboo to the Northern Viet Nam Cluster with an additional 4 provinces where finished goods processing is conducted. Currently, the bamboo industry is regulated by a mismatch of policy and laws emanating from various national and provincial government agencies and departments including but not limited to: agriculture, commerce and trade, and planning departments. For the industry to develop to its potential in an efficient manner, these regulations require analysis and revision.

*Mekong Bamboo* has taken a staged approach to policy analysis and reform, engaging directly with government agencies in the lead bamboo supply provinces.

**Regional/cross provincial coordination in support of economic clusters**

There is a considerable challenge in moving from a command economy to a market economy. Because of the scale required to achieve competitiveness and efficiency in the industrial bamboo cluster, provinces stand to gain by ensuring coordination and linkage between one another rather than by competing.
Mekong Bamboo brings provincial policy makers together in various forums. In addition, we have sponsored linkages between provincial governments across borders, e.g. Thanh Hoa, Viet Nam and Houaphanh, Lao PDR.

Mekong Bamboo is currently working on the establishment of a committee representing all provinces (Viet Nam and Lao PDR) to move to a process and function of coordinated support of a multi-provincial bamboo industry.

National policy and practice reform

Mekong Bamboo also works to support the bamboo industry at the national government level in Viet Nam and Lao PDR. We do this through direct interaction with national government agencies and policy research institutes that typically support government policy conclusions.

Mekong Bamboo is working with the Ministry of Agriculture and Rural Development (MARD) in Viet Nam and Ministry of Agriculture and Forestry (MAF) in Lao PDR and other relevant ministries in support of a national bamboo strategy.
The case was completed in September 2010 and released in 2011.

The information presented in this case study has been reviewed by the company to ensure its accuracy. The views expressed in the case study are the ones of the author and do not necessarily reflect those of the UN, UNDP or their Member States.

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