

Ecuador: Allpabambu – a family bamboo enterprise

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Allpabambu (AB) is a new, small family-run company in northwestern Ecuador that sells bamboo products to local and export markets. It currently mostly exports poles to the USA and its goal is to sell legal and sustainably harvested products for use in construction and agriculture. AB has 55 hectares of bamboo and has facilities for sawing, treating and drying bamboo poles. The main risks identified by AB are insufficient raw materials of the necessary quality for its export product and the uncertain political environment in Ecuador exacerbated by an economic crisis. Having a single main buyer in the USA is also a high risk, as the company has made significant investments to meet this client's needs. AB perceives its business has suffered due to depressed demand and discouraged investors and is taking steps to increase its access to raw material, including providing technical assistance to producer associations, and is working on alternative products such as charcoal with collaborators to reduce dependence on its main client.

3.1 Context in which Allpabambu operates

3.1.1 About Allpabambu as a business

Allpabambu (AB) was created by husband and wife team German Villarreal and Nelly Arroyo in February 2015 after a series of endeavours with previous entrepreneurial and associative initiatives, including the Asociación de Productores, Procesadores, Artesanos y Comercializadores de Bambú en el Nor-Occidente de Pichincha (APAC-Bambu)¹ in 2010 and the joint venture GEND Bamboo in 2013 and 2014. These initiatives were created to find commercial solutions for producers of introduced and native bamboo in the north of Pichincha province, Ecuador (Figure 3.1). Allpabambu uses raw materials from its own plantation as well as from several other producers in the country. It has a primary processing facility and sells a variety of bamboo products for local and export markets.

AB is a private enterprise and is authorised to operate in the forestry sector. The enterprise has plantations of giant bamboo (*Dendrocalamus asper*) (50 hectares) and *caña guadua* (*Guadua angustifolia*) (5 hectares). AB also manages a plantation owned by one of its two business associates in the US (50ha of giant bamboo), and provides technical assistance to other producers. All of the plantations it manages are registered with the Ministry of Agriculture, Livestock, Aquaculture and Fisheries (MAGAP) and have approved management plans.

1. APAC-Bambu was an association of bamboo producers, artisans and traders from Pichincha province. It was created in 2010 by 15 people but is no longer functioning.

Figure 3.1 Map of the location of Allpabambu's office



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AB works closely with two business associates in the US who provide finance and market connections and help with the logistics for AB's export business. These associates have promoted the use of bamboo as a sustainable and low-cost material to the construction sector in the US, and have helped to secure an important client there for AB.

Allpabambu's business is divided in three main activities: management, harvesting and processing of bamboo, technical assistance and construction.

Management, harvesting and processing of bamboo: AB sources bamboo from its own plantations, small producers with plantations and native forests, and intermediaries. AB's objective is to use only legal and sustainably managed and harvested bamboo from

known sources. However, to meet demand they also currently depend on intermediaries who sell bamboo from unknown and informal sources, which is likely to be harvested in an unsustainable way.

AB exports laths (3.12-metre segments of bamboo poles cut in half longitudinally) of *caña guadua* to the US for use in construction, which represents 60 per cent of its sales. Other products include 6m poles of *caña guadua* and giant bamboo for use in construction and 4.5m poles for agriculture (used to prop up banana bunches and cacao tree branches). AB is also working with collaborators to develop ways to use the residues from its processing centre, eg to produce bamboo charcoal, handicrafts and other products.

For the export of laths of *caña guadua*, AB needs poles from culms (bamboo stems) that are at least five years old and 9.5–10cm or greater in diameter. Once the culms are harvested they are sorted for quality, cut with a disk saw into laths, preserved in concrete pools in a solution of boric acid and borax, and air dried. When the laths reach a maximum moisture content they are loaded into a container and transported to the seaport of Guayaquil, where the container is shipped to the importer in the US. The *caña guadua* used in this process is a mixture of culms from AB's *caña guadua* plantation and from other sources, including Asociación Rio 7 (also the subject of a risk assessment case study – see Chapter 4) and intermediaries. AB processes the *caña guadua* from intermediaries and loads the container at its facility in Pedro Vicente Maldonado, while Asociación Rio 7 processes its own *caña guadua* and loads the container at its processing facility. AB worked with another association in Guayas for two containers, but decided not to work with them again after experiencing problems with the quality and quantity of the poles it provided.

In early 2015, AB started exporting two containers of bamboo laths every month, and it expects to do so until June 2016, when it will begin exporting three containers per month. In December 2016 it expects to increase the number of containers to four to eight per month. Every container is filled with 4,500 bamboo laths. The main constraint at the moment is the supply of *caña guadua*. AB sent samples of giant bamboo (which is abundant in the region) to the construction company in the US to see if it could be used for the same purpose as *caña guadua*. Early indications are positive and AB hopes to begin exporting containers of giant bamboo to the same buyer in 2016.

Technical assistance to producers and enterprises: AB provides training and technical assistance as a service to local producers in bamboo-plantation management and the use of bamboo for construction. AB is also working in collaboration with the intergovernmental organisation the International Network for Bamboo and Rattan (INBAR), non-governmental organisations (NGOs), local governments, and international cooperation agencies to prepare a network of bamboo producers in different parts of the country to provide good-quality bamboo for the export of laths to the US. In addition, AB aims to obtain FSC forest management and chain-of-custody certification for itself and its partner associations and enterprises (eg a guitar-manufacturing company, handicraft associations) through a group certificate to be held and managed by AB.

Construction: AB also constructs bamboo homes and is working with architects on innovative designs. It has found a significant market among Quito residents who maintain country homes in northwest Pichincha, and who are interested in bamboo as an alternative and sustainable building material. Hotels have also expressed interest.

According to AB, the demand for construction has been affected by the current poor economic situation in Ecuador. Recently, a contract that had been agreed to by clients and investors was cancelled due to perceived political and economic instability.

3.1.2 Location and regional influences

Allpabambu is operating in northwest Pichincha in Ecuador, and its main office is located in the community of Andoas, in the Pedro Vicente Maldonado district. North-western Pichincha is in an area known as the Chocó Andino region, which is of interest to scientists, researchers, conservationists and tourists due to the presence of forests, rivers and waterfalls and a high diversity of flora and fauna, especially birds. The altitude varies between 1,200 to 4,000m above sea level.

The region is highly influenced by its proximity to Quito, the capital of Ecuador (two to three hours by car). During the 1960s the area received thousands of migrants from southern and northern Ecuador escaping a long drought caused by El Niño (ENSO). Today many city dwellers own farms in the region as weekend retreats; others have decided to become farmers and stay in the countryside, like the owners of Allpabambu. The main economic activities in the area are livestock, agriculture and tourism.

Approximately 400 species of bamboo are native to the region, including caña guadua. Giant bamboo (*Dendrocalamus asper*) was introduced to Ecuador approximately 90 years ago by researchers and development projects (INBAR, 2015). This bamboo species is from South Asia and is bigger (wider and higher) than native bamboo species, which is one of the reasons researchers introduced the plant.

Initially, local people were very interested in the cultivation of giant bamboo. In the 1990s, plants in the nursery typically sold for US\$5–7, and the first culms (mature stems) sold for US\$5 per linear metre. Each culm had a height of 20–25m. The plant became very attractive to both investors and small farmers who planted it largely on degraded pastures where forests had once stood. Bamboo was also used with some tree species by the Pichincha provincial government to reforest approximately 2,000ha of concession areas that had been deforested by logging companies.

In 2010, INBAR and the provincial government of Pichincha studied the availability in Pichincha of giant bamboo in plantations, and *caña guadua* in plantations and natural forests. The results were unexpected, even for the local producers. After mapping the farms with bamboo plantations and/or natural bamboo forest, it was determined that the province held approximately 2,000ha of giant bamboo and around 800ha of *caña guadua* (Alfaro 2010).

Unfortunately, in Pichincha there is much more supply than demand for giant bamboo. This has discouraged plantation owners from managing their plantations, which involves

cutting old stems to encourage the growth of new stems of larger diameter and with thicker stem walls, and marking new stems to indicate their age for future harvests. However, the demand that does exist (for example for construction) requires the larger diameter and thicker-walled stems. Thus, the few plantation owners who implement management are the ones who enjoy access to the small market for giant bamboo.

In order to stimulate demand for the giant bamboo resources in its region the provincial government of Pichincha, at its research centre near Pedro Vicente Maldonado, has developed and produces small volumes of plywood made of giant bamboo, but growth in demand has been slow. AB perceives that if a construction code for bamboo were to be approved by the government, then the demand for giant bamboo could improve substantially.

3.1.3 Legal status and license to operate

Until 2014, bamboo forests and plantations were under the control of the Ministry of Environment (MAE). Producers had difficulty registering their bamboo forests and new bamboo plantations, as bamboo was a non-traditional non-timber forest product (NTFP) and was new to technicians in the ministry. Producers paid the same land tax whether their bamboo was grown in a natural forest or on a plantation. Due to several differences between bamboo plantations and bamboo forests, including management techniques and the paperwork needed for harvesting and transporting bamboo, many actors in the bamboo sector decided it would be best for plantation management to be moved from the purview of MAE to MAGAP. The National Bamboo Roundtable (*Mesa Sectorial Nacional para Bambú*), comprised of a variety of private and public organisations involved in the bamboo sector, has helped to achieve this change.

To harvest bamboo legally, in addition to registering the plantation, a forest-management plan should be submitted to and approved by the respective ministry. Then, when the bamboo poles are transported, the producer should submit an online application for a transportation permit (called a *guía*) by the respective ministry. Transportation permits are frequently checked along routes. In practice, transportation permits are often issued for bamboo from non-registered plantations. There are currently no controls on the volume of bamboo that can be issued from a specific bamboo forest or plantation. This allows bamboo that does not have a registered origin to be 'legalised' through the transportation process. Regarding harvest techniques, while it is illegal to clear-cut bamboo, this is the most common harvest method, and harvesting techniques are not controlled through remote sensing or field visits. In contrast, AB practices and encourages others to implement management of bamboo plantations and selective harvests based on the age of the stems (five years is usually the minimum for a sufficient thickness of the stem wall).

3.1.4 Market for bamboo

The main market for bamboo in Ecuador is for *caña guadua*, and an estimated 15.5 million bamboo poles are harvested and sold per year (INBAR, 2015). Most giant bamboo in Ecuador is grown in Pichincha and it is used in construction as well as to make bamboo flooring and panels, guitars and other high-value products. However, only 20 per cent of the total giant bamboo available in the region is consumed. More technical information is needed about this species so that it can be better promoted to industry, and training for plantation owners in management practices is also needed.

A *caña guadua* culm is typically divided into four commercial sections. One of the challenges for buying and selling bamboo is that, due to the gradual decrease of the width of the culm towards the tip, different parts of the culm have different uses and markets, and some parts have very little market demand.

In Allpabambu's case, the first segment of 3.12m is sold on the export market for use in construction (depending on the age and length of the pole, two 3.12m segments may be used). The remaining segments are sold on the local market: the 6m segment is difficult to sell, but is sometimes used in construction; the 4.5m and 2.5m segments have a higher market demand and are often used in agriculture (both lengths) or in construction (4.5m segment).

3.1.5 Actors in the Allpabambu value chain

AB has a network of bamboo producers (farmers, associations, small enterprises and intermediaries) in different parts of the country: the associations of Rio 7, Chilintomo and APROGUADUA from Guayas province; and intermediaries from the Guayas, Pichincha and Esmeraldas provinces (Figure 3.3). The undersecretary for forest promotion in MAGAP is in charge of the registry of plantations, and is responsible for approving forest-management plans for plantations, as well as authorising and issuing documentation for transporting bamboo. The forestry department within MAE is in charge of the registration and authorisation for harvesting and transporting bamboo from natural forests. Transportation of products is provided by external service providers as needed.

For the export of *caña guadua*, a host of other actors are involved (Figure 3.3). As containers of *caña guadua* laths are prepared to be shipped from the port of Guayaquil, the Ecuadorian Agency for Agro Quality Assurance (Agrocalidad) reviews the laths to issue certification regarding the presence of pests or diseases. In addition, if the container is chosen for inspection in a random sample, customs officials and narcotics police oversee the unloading of the products, the inspection of the container and laths, and the reloading and sealing of the container. Finally, a broker is used to take care of the export procedures (eg filing paperwork and paying taxes).

AB's main clients include a construction company in the US for treated laths of *caña guadua* (60 per cent of sales) and several domestic construction companies that use giant bamboo. In addition, AB is working with producers and other collaborators to improve the use of residues from the processing process (eg for bamboo charcoal, handicrafts, furniture etc).

Indirect actors in the value chain include providers of inputs for preserving the bamboo (boric acid and borax) and machinery companies. The provincial and municipal governments of Pichincha, Guayas and Esmeraldas are also involved in the registration of the plantations and natural bamboo forests at the local level.

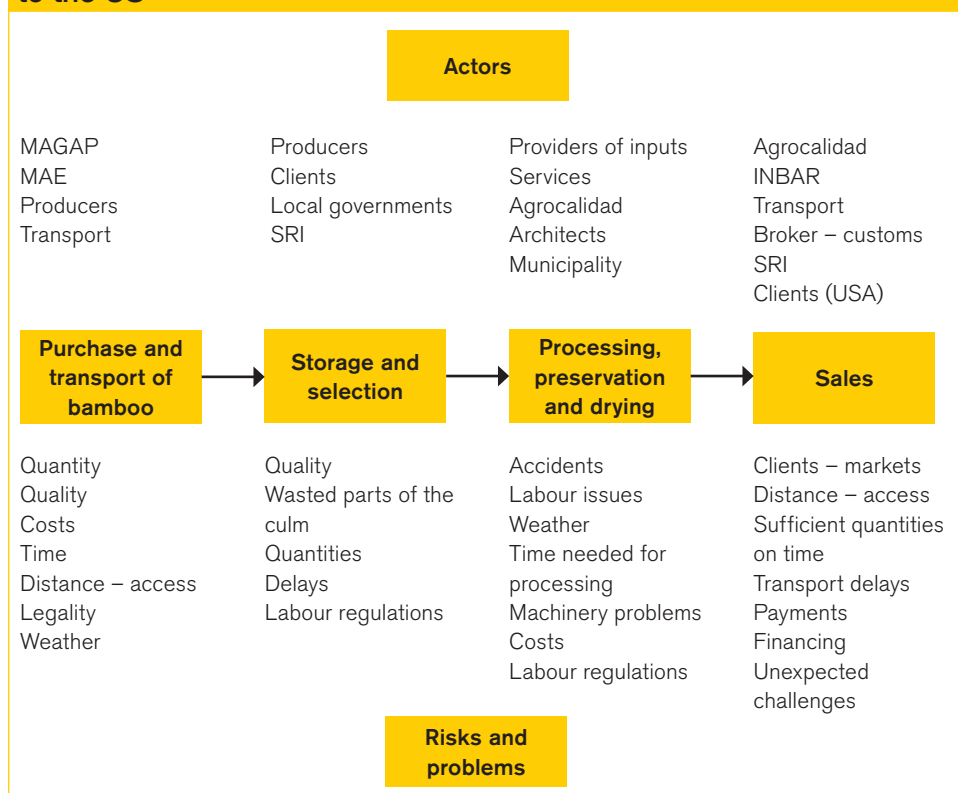
Other important actors that work with AB are the INBAR Latin American and Caribbean Office, which is located in Quito, Ecuador and the members of the National Bamboo Roundtable. INBAR is an intergovernmental organisation that works for the well-being of the different actors of the bamboo value chain in many parts of the world. The organisation has worked in Ecuador since 2003, and through development projects is

helping bamboo producers and industries to innovate and improve local capacities in order to produce better bamboo products and gain access to new markets. It provides and/or helps facilitate technical assistance, business connections, access to machinery and the organisation of events, such as workshops, symposiums, and commercial fairs.

INBAR helped establish the National Bamboo Roundtable in 2011 to assist producers, industries, governments, universities and individuals organise and develop a common agenda. The roundtable has members from across the country and meets in different provinces every two to three months to discuss common problems and opportunities. At the moment, the roundtable is facilitated by INBAR and led by MAGAP. Most actors with the capacity to help Allpabambu to address risks participate in the roundtable: MAGAP, Ministry of Industries and Productivity (MIPRO), MAE, different companies, universities and individuals, among others.

A notable public-sector member of the roundtable is the provincial government of Pichincha, which, as mentioned, has a research and innovation centre in Pedro Vicente Maldonado for processing bamboo. It was founded in 2009 with the goal of developing new technologies for using bamboo from plantations and natural forests in the region.

Figure 3.3 Value chain for Allpabambu for the export of bamboo canes to the US



3.2 What does Allpabambu see as the main barriers and risks?

Several risks were identified with the two owners of Allpabambu for each of the six categories (Table 3.1). Risks were rated on a one-to-three scale in terms of their potential to threaten the financial viability of the company. The most serious risks (marked with two asterisks) identified by the owners are a lack of volume of appropriate raw materials for the export business (in the resource access category), and a highly unstable political environment (in the security of the operating environment category) (Table 3.1). The authors of this chapter also identified the fact that AB has only one buyer in the export market as a serious risk, given the investments the company has made to meet the needs of this client and that it represents approximately 60 per cent of AB's sales. This was discussed with the owners of AB, and while they agreed it was a risk, they were confident they would continue to work with this client for at least another few years. They are also working with collaborators to develop alternative products, such as handcrafts and charcoal (Ecuador is a net importer of charcoal). Other risks of major concern, but less serious in terms of the viability of the business (marked with one asterisk) include accidents and delays in the delivery of raw materials.

Several factors are responsible for a lack of sufficient volume of raw materials for AB. First, few producers of bamboo in the country (from natural forests or plantations) use management or silvicultural techniques. This lack of management leads to a difficult and dangerous operating environment and stagnant bamboo growth. For both *caña guadua* and giant bamboo, each time bamboo culms are harvested, this stimulates the emergence of new stems, and each generation of stems is larger than the previous generation. To obtain the diameter of stems and the width of stem wall that AB needs, it usually works with fifth generation or older bamboo and lets that generation grow for five or more years to reach a minimum stem wall width. If it is not managed, a bamboo stand will become dense with small-diameter stems (which make harvesting difficult and dangerous) and regeneration levels will be low. While there is abundant technical information on *caña guadua*, small producers are rarely aware of it and there is little technical information on how to manage giant bamboo in Ecuador (as it is an introduced species).

Also, due to this lack of technical information, combined with a lack of access to credit and information on regulations and markets, producers with natural or plantation bamboo usually rely on intermediaries to harvest their bamboo and to take care of all legal documentation. Another benefit of intermediaries is that they often purchase the entire pole for both *caña guadua* and giant bamboo, while other buyers often want only specific sections of the pole. This makes it difficult for AB to compete with intermediaries when purchasing poles from producers, and thus also makes AB dependent on intermediaries for purchasing raw material. On the other hand, a disadvantage of intermediaries is that they often clear-cut harvest bamboo. Apart from the environmental damage this can cause, the cutting of all culms means producers will need to grow their bamboo at least another five years before they can offer commercial-sized stems again.

Finally, some landowners have decided to convert their bamboo stands to other crops or non-agricultural uses (or at least they have tried – it is very difficult to eradicate giant bamboo once it is established). The motivations are often a lack of knowledge regarding how to manage bamboo and the perceived lack of demand for bamboo.



Worker at the giant bamboo plantation managed by Allpabambu

The highly unstable political environment in Ecuador is due to different reasons. In 2007, Ecuador inaugurated a new government with distinct objectives based mainly on meeting the needs of the people and the conservation of nature. This strategy was framed as the national plan for good living (SENPLADES 2013)² and was ratified by a public referendum in 2013. The national plan gave many rights to social groups, including indigenous peoples and minorities, and recognised the rights of nature (in line with the new constitution) (SENPLADES 2013). However, the unexpected drop in oil prices in recent years caused an economic crisis in Ecuador. As oil income accounts for 57 per cent of the Ecuadorian GDP (El Universo 2015), lower prices made it difficult for the government to implement many of its planned activities and resulted in big layoffs of government personnel.

Furthermore, frequent changes in the laws (such as labour, tax and social security) have contributed to a worsening economic situation in the country. It is difficult for small businesses to keep track of changes to laws and to cover the associated increases in operating costs. Some larger companies have closed, and there is a perception that wealthy individuals are sending their money out of the country and are hesitant to invest in new business ventures. AB was directly affected by this recently when investors behind a new hotel that AB was to construct cancelled the project, citing the political and economic instability in the country as the main reason. This situation was reflected in the recent drop of Ecuador in the business environment ranking from 114 to 117 among 183 countries (CORDES 2015).

Regarding credit, banks and rural cooperatives still offer credit with interest rates of 12–13 per cent. However, the interviewees did not know of any small producers who had tried to obtain these loans. AB has obtained credit from its two associates in the US to invest in its processing facility.

2. 'Good living' is defined by the government as a lifestyle that enables happiness and the permanency of cultural and environmental diversity; it is harmony, equality, equity and solidarity. It is not the quest for wealth or infinite economic growth. See: www.buenvivir.gob.ec

Table 3.1 Summary of risks identified by Allpabambu

Revenue flows	Resource access	Business relationships	Security of operating environment	Brand development	Operational capacity
<p>International competition. The buyer also plans to establish its own plantations in Central America and/or the US.</p> <p>Local competition. AB's costs are higher and their bamboo more expensive than others because they comply with labour laws.</p> <p>** Dependence on one export buyer. AB has made significant investments to respond to the requirements of this client.</p> <p>Lack of financing: there is an aversion to investment and finance and a lack of government funding in Ecuador due to the current financial crisis.</p>	<p>** Lack of raw materials that complies with export requirements regarding age and thickness of the stem wall:</p> <ul style="list-style-type: none"> ■ Could AB repay the credit their partners provide if it cannot get enough raw materials? ■ Could AB retain its employees if it cannot find enough raw materials to keep production steady? <p>* Delays in delivery of raw material.</p> <p>Producers could decide to sell to other buyers (intermediaries) because AB only wants part of the culm, while intermediaries can often sell all of it.</p> <p>Most small producers sell their bamboo to an intermediary who harvests the whole plant. Then there is no more bamboo for another 5–8 years.</p> <p>Small producers of giant bamboo could decide to dedicate their land to something else or abandon it because the market for this product is not yet developed.</p>	<p>Producers could decide to not supply the agreed-upon product even if payed in advance.</p> <p>Buyers could decide not to pay for product received.</p> <p>Smugglers could hide drugs in the shipping container at any of the points it passes through ports. AB owners could end up in jail, or at the least have the business frozen until the investigation is finished. Fortunately, one of AB's US associates has worked with flower exporters for many years and handles all of the logistics for the container.</p>	<p>** Instability of the laws leads to insecurity. With the current financial crisis, the government is looking for ways to generate revenue. For example, a new law was proposed to put a high tax on inheritance and capital gains, which led to many potential clients sending their money out of the country instead of investing in boutique houses made of bamboo.</p> <p>Lack of laws for construction using bamboo. This makes people wary of using it and suppresses demand.</p> <p>Inadequate transportation paperwork for bamboo (based on timber).</p> <p>Seasonal rains can inundate roads and result in transport delays when obtaining bamboo from producers. On the other hand, it can help those producers who transport bamboo by river to get the product to AB more quickly.</p> <p>(Notes: there are no problems with pests or disease and fertilisers are not needed.)</p>	<p>Lack of information on legal producers in the region (potential supply).</p> <p>Consumer aversion to bamboo due to lack of information and preconceptions (cultural bias).</p> <p>As there is no law stating minimum requirements for the characteristics of bamboo for construction, architects could use low-quality or inappropriate bamboo materials that result in poor-quality construction or accidents. This is a risk for the image of bamboo in general.</p>	<p>* Accidents: high incidence of different types. Difficulty in persuading some workers to use personal safety equipment.</p> <p>Lack of technical information on the physical/mechanical characteristics of giant bamboo.</p> <p>Lack of technical information on the silvicultural applications of giant bamboo.</p> <p>Time required for processing.</p> <p>Defective machinery can affect quality and increase number of accidents.</p> <p>Lack of low-cost financing options limits AB's ability to respond to market changes/opportunities.</p>

Notes: ** most serious risks * risks of major concern, but less serious in terms of the viability of the business

3.3 How can Allpabambu manage risk?

Allpabambu is implementing several measures to ensure its access to *caña guadua* raw materials for its export business. First, it has provided all suppliers of raw materials with a simple metal hand tool to measure the culm diameter, the width of the culm wall when the culm is harvested, and the width of the pole wall when it is delivered to the processing facility or when the processed lath is dry and ready to be loaded in the container. Second, it has made it clear that it will not pay for stems that are rejected by its staff or by the client in the US. Third, AB is working with one association that manages its bamboo in southern Ecuador (Asociación Río 7) to provide technical assistance and financial advances to cover operating costs. AB is also present each time a container is loaded by the association to ensure product quality. Finally, it is working with intermediaries who have the advantages listed in the previous section. The disadvantage of working with intermediaries for AB is that it knows a very high percentage – if not all – of the *caña guadua* raw materials it purchases is illegally and unsustainably harvested.

In the future, AB hopes to be able to increase the volume purchased from Asociación Río 7. In addition, in 2016 it will continue to look for other associations and, once the business is better established, to work with individual small producers interested in managing their bamboo.

There is not much AB or any of its collaborators can do to address the unstable political and economic situation in the country. However, active participation in the bamboo roundtable allows it to directly access representatives of MAGAP and MAE, among others, to discuss specific issues.



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Allpabambu bamboo processing facility

Table 3.2 Risk-management options for Allpabambu

	Revenue flows	Resource access	Business relationships
Threats	<p>International competition.</p> <p>Domestic competition.</p> <p>Dependence on one export buyer.</p> <p>Lack of financing.</p>	<p>** Lack of raw materials that comply with their export buyer's requirements.</p> <p>* Delays in delivery of raw materials.</p> <p>Competition for raw materials.</p> <p>Scarcity of raw materials in the future.</p>	<p>Producers who do not comply with contracts.</p> <p>Buyers who do not comply with contracts.</p> <p>Illegal drugs smuggled in shipping containers.</p>
Opportunities	<i>None identified</i>		
Options for managing risk (business)	<p>AB could look for clients for giant bamboo.</p> <p>AB could explore uses for other parts of the stem (charcoal, crafts).</p> <p>AB already attends commercial fairs with ProEcuador.³</p> <p>AB could purchase materials at bulk prices.</p>	<p>Relies on intermediaries.</p> <p>AB plans to strengthen relationships with associations and small producers.</p> <p>AB is present at the loading of each container (quality control).</p> <p>AB has provided a simple measurement tool to suppliers of raw materials.</p>	<p>AB could provide advances to producers with clear conditions for full payment.</p> <p>Business partners could provide AB with credit.</p> <p>AB is present when the container undergoes customs inspections.</p> <p>AB is an active member in the Bamboo Roundtable.</p>
Options for policy (government/private sector)	<p>AB receives advances and loans from business partners</p> <p>Some partners are experimenting with uses of residues</p> <p>AB needs new lines of low-cost credit.</p>	<p>INBAR and provincial governments could help AB find sources of sustainable bamboo.</p> <p>MAGAP could include bamboo in species eligible for forest incentive programme.</p> <p>AB could work with MAGAP and other members of the Bamboo Roundtable to revise gaps and problems associated with the bamboo value chain.</p>	<p>AB receives to work with the Bamboo Roundtable to develop business relationships.</p> <p>AB could continue to work with ProGuadua to find new clients.</p> <p>AB could continue to work with Bamboo Roundtable members to develop and test new products.</p>

3. ProEcuador: Instituto de Promoción de Exportaciones e Inversiones (Institute for Export and Investment Promotion).

Security of operating environment	Brand development	Operational capacity
<p>** Instability of the laws.</p> <p>Lack of laws governing construction with bamboo.</p> <p>Inadequate transportation paperwork for bamboo.</p> <p>Seasonal flooding.</p>	<p>Lack of information on legal producers in the region.</p> <p>Consumer aversion to bamboo due to lack of information and preconceptions (cultural bias).</p> <p>Poor use of bamboo in construction could strengthen consumer bias.</p>	<p>* Accidents.</p> <p>Lack of technical information on the physical/mechanical characteristics of giant bamboo.</p> <p>Lack of technical information on silvicultural applications of giant bamboo.</p> <p>Time required for processing.</p> <p>Defective machinery.</p> <p>Lack of financing options.</p>
<p>AB is an active member of Bamboo Roundtable.</p>	<p>AB has participated in commercial bamboo fairs to find new clients and promote products.</p> <p>AB could obtain information on producers from MAGAP and MAE.</p> <p>AB is working on a logo with INBAR.</p>	<p>AB implements worker training.</p>
<p>AB could continue to work with MAGAP to adapt formats to include the different bamboo species and to calculate volumes correctly (bamboo is not a solid product like timber).</p> <p>AB could work with Ministry of Housing to develop a law for construction with bamboo.</p> <p>AB could work with the Bamboo Roundtable and the government to develop a policy for the purchase of sustainable materials, including bamboo.</p>	<p>ProGuadua could continue to help promote AB's products to potential new clients.</p>	<p>AB and collaborators could identify new lines of credit.</p> <p>Members of the Bamboo Roundtable are implementing or supervising research on technical aspects and potential uses of bamboo.</p>

3.4 Options to reduce risk through external support

Non-governmental organisations have been more active in trying to reduce risk for Allpabambu than government agencies. INBAR has been actively working with the owners of AB to find suppliers since 2013, and is currently working on a way to get processing machinery to Asociación Río 7 to help it meet AB's demand. INBAR also recently completed a study on the market for *caña guadua* in Ecuador and Peru, and will be sharing the results with collaborators in the near future. The bamboo roundtable members are engaged in several studies and experiments to support new uses of bamboo and to promote bamboo products.

The director and technical coordinator of the Pichincha regional government's bamboo research centre recognised the risks for AB relating to the limited supply of *caña guadua* in terms of the size, age and quality of raw materials needed, and confirmed there is a lack of managed, legal bamboo in the region. They also confirmed the lack of credit options in the region for small forestry businesses.

Government agencies could do more to support AB and reduce its risks. MAE and MAGAP could help AB identify registered plantations. MAGAP could also include bamboo in the list of species eligible for the Forest Incentives Programme, which reimburses individuals, associations and companies for reforestation and maintenance costs. Other areas of potential assistance include low-cost credit, introducing a construction law with norms for the use of bamboo, a law to stimulate the public procurement of sustainable materials, and promoting bamboo and Allpabambu products in fairs. However, with the current economic crisis, producers and processing companies are unlikely to pursue credit opportunities and changes to laws are unlikely to result in much procurement by the government or new construction by the private sector.

Another issue that came up in the research for this study was that the transportation documents that MAGAP uses have not been adapted fully for bamboo. For example, there is only one species of bamboo listed as an option on the forms, and the calculation of volume of bamboo assumes that the bamboo is solid, rather than hollow. It was decided that INBAR and AB should put this item on the bamboo roundtable's agenda for 2016.

Table 3.3 Solutions to reduce risk for Allpabambu

Risk categories and options for improving the business environment of locally controlled forest businesses	Practical potential for beneficial impact – in author’s opinion (score out of 10)
REVENUE FLOWS (concerns over profit and balancing costs)	
Low-cost finance from a government or commercial bank.	1/10 (no one wants to invest in the current economic climate)
RESOURCE ACCESS (concerns over resource access and stewardship)	
Work with INBAR, MAGAP and MAE to identify and prepare additional producers of raw material.	7/10
MAGAP could revise list of species eligible for the Forest Incentives Programme to include bamboo.	7/10
BUSINESS RELATIONSHIPS (concerns over conflict-free relationships)	
Continue to work with ProEcuador to promote bamboo and find new clients.	6/10
Continue to work with Bamboo Roundtable members to develop and test new products.	5/10
SECURITY OF OPERATING ENVIRONMENT (concerns)	
Work with Ministry of Housing to develop a laws governing construction with bamboo.	2/10
Work with MIPRO to develop a law for public procurement of sustainable materials.	3/10
BRAND DEVELOPMENT (concerns over reputation with customers)	
ProEcuador could continue to promote AB’s products with a new logo.	6/10
OPERATIONAL CAPACITY (concerns over operating efficiencies)	
None identified	n/a

3.5 Conclusions and ways forward

When asked, the owners of Allpabambu were able to quickly identify their main risks, but they did not have an explicit plan for dealing with them. This has led to a sporadic and disorganised approach to managing risks, and they had no plan for monitoring these approaches over time. They confirmed that self-assessment of risks would help them to plan more explicitly how to obtain more supply for their export activity. They discussed the importance of developing and periodically updating a strategic supply-chain plan. This would allow them to be more proactive and organised in securing supply, which could strengthen the financial viability of the company.

To build capacity in the self-assessment of risk among businesses and their partners, a workshop and training materials are needed in which different types of risks could be explained and an adaptive management model for risk presented. The workshop should include the analysis of real businesses from the region. The leadership committee of the company, as well as promising future leaders, should be the main target. In addition, trusted, close partners should participate in the workshop both so that they contribute to the risk analysis from their perspective and can better understand the business's perceptions of risk. The workshop could be given in two to three parts over the course of six months to one year as follows:

- Part 1: identify risks for two to three businesses, rate them in terms of seriousness, and develop risk management and monitoring plans,
- Part 2 (three to six months later): reconvene to discuss the impacts of risk management, update risk assessments based on monitoring, and update management plan as necessary, and
- Part 3 (six months to one year later): reconvene and repeat activities from Part 2.

To help external direct and indirect actors develop an understanding of risks, meetings could be held with those actors to share some results of the initial and subsequent risk self-assessments. Small meetings could be held with key actors who have more influence over risks to ensure their understanding of their role in causing and/or potential for ameliorating specific risks (eg with MAGAP representatives). Presentations of summary findings could be made in fora such as the bamboo roundtable to create greater awareness of the risks AB faces and to generate new ideas and commitments for helping reduce and/or manage those risks.

To help reach decision makers, partner organisations could help turn the results of the risk self-assessment into policy recommendations. Results could also be shared with academics and funding agencies to help achieve an even broader understanding of the risks faced by Allpabambu and other businesses in the sector.



Removing bamboo poles from the enterprise's plantation using a mule

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Ecuador: Asociación Río 7

Plantation workers become owners of a bamboo enterprise

by Shoana Humphries and Alvaro Cabrera

Asociación Río 7 in southern Ecuador recently took over a bamboo enterprise owned and managed for the last decade by an armed forces company. Over the next 10 years, the association must pay the government for the value of the land and the company for the value of the physical assets, including 205 hectares of bamboo. While the enterprise has a great resource base and secure local markets, it still faces some serious risks. The terms of the transfer of land and physical assets are still being defined, and the association has a high dependence on an outside manager and weak organisational capacities. While the Ministry of Agriculture, Livestock, Aquaculture and Fisheries (MAGAP) offices has committed to help with technical capacity building (such as business administration and loan management), the association knows it must also work with its partners to strengthen its organisational and business capacities.

4.1 Assessing the existing situation

4.1.1 About Asociación Río 7 as a business

This case study is about a bamboo enterprise in southern Ecuador. In January 2016, the ownership of the enterprise was transferred to the business's field workers of Asociación Río 7. The enterprise was founded in 2005 by a holding company, Hdineagro SA, of which 51 per cent is owned by the armed forces and 49 per cent by a retirement fund for military retirees. The land on which the bamboo plantations were established is federal land held by the Ministry of Defence and is located approximately one hour north of the town of El Guabo in El Oro province (Figure 4.1). Hdineagro SA has several other enterprises including banana, cacao and rice cultivation, as well as livestock and shrimp production. Its other businesses are also being transferred to small producer associations as part of the country's current land reform initiative.

There are 25 full-time field workers in the bamboo enterprise. Other employees include a full-time manager (forestry engineer) and a part-time administrator (economist). Until December 2015, all workers were officially employees of Hdineagro SA. In January 2016, the association assumed total responsibility for all employees, including the manager and administrator.

The enterprise owns 300ha of land, including 200ha planted with *caña guadua* (*Guadua angustifolia*, a species of bamboo native to Ecuador) and 5ha planted with giant bamboo (*Dendrocalamus asper*, a species introduced from Asia in the early 20th century). The plantations were established in 2005 and began being commercially harvested in 2010. The enterprise also has a bamboo processing facility, consisting of a pool for treating bamboo, and several buildings for administration and housing employees.

Figure 4.1 Map of the study area



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The business sells bamboo poles locally to intermediaries and in some cases directly to banana and cacao producers. Additionally, the business sells laths (3.12m segments of bamboo poles cut in half longitudinally) to the enterprise Allpabambu (AB), which is exporting them to the US (see also Chapter 3).

Asociación Río 7 was founded in 2013 by 33 field workers when the proposal to transfer the enterprise to the bamboo plantation workers was made. The association has an internal committee that includes a president and delegates for the different activities of the association. The transfer of the enterprise to the association from Hdineagro

SA officially took place in January 2016. This transfer was organised under the federal government's Plan Tierras Programme for land redistribution.¹

Many members of the association live within the plantation at a field camp with their families, including young children. The housing is offered free of charge, which is a big benefit to workers. However, this situation exposes the children to many risks, as there are trucks and heavy machinery operating in the area.

4.1.2 The main products

The enterprise's main products are *caña guadua* bamboo poles and, to a much lesser extent, giant bamboo poles of different lengths, mainly for the local market. A limitation for the business is that bamboo poles of high commercial value (ie with a large-enough diameter and thick-enough pole wall for construction) need to be at least of the fifth generation of poles from a plant (a plant produces one generation per year, if managed), and need to grow for at least five years. As the plantation was established in 2005, its bamboo is just starting to reach commercial size.

A *caña guadua* culm is typically divided into five commercial segments (or poles), and each segment is used for different purposes:

- Two segments of 3.12 metres each (at the base of the culm) for export and use in construction,
- One 6m pole for the local market (construction, mining, agriculture),
- One 4.5m pole for local banana production (called *cujes*), and
- One 2.5m pole (at the end of the culm, called a *puntas*) for the local production of cacao.

Giant bamboo is typically sold by the enterprise on the local market as follows:

- One 4m pole (at the base of the culm) used to build bridges in banana fields,
- Two 6m commercial culms used in construction,
- Two 3.5m poles to support banana plants in the plantations, and
- One 3.5m pole for to support cacao fruits in plantations.

In 2015, the production capacity of the enterprise was:

- 64,000 poles/year (poles for export), and
- 168,000 poles/year (*cujes*, poles to support banana or cacao plantations).

In 2015, the enterprise began selling laths of 3.12m to Allpabambu, a family business in northwest Ecuador, which exports them to the USA for use in the construction sector. Allpabambu has high standards for the quality of the laths, which requires more work for the enterprise, but they also pay fair prices. Asociación Río 7 also has some other clients in Peru, which has a very large market for bamboo (INBAR 2015), but most production is sold locally for use in agriculture or construction.

1. Plan Tierras aims to redistribute large areas of public land to farmers in the country and to promote sustainable agricultural development and access to public policies of the national government. These goals are within Ecuador's national plan for good living (SENPLADES 2013). MAGAP contracts land-titling brigades in each province to help facilitate the process of tenure transfer and to prepare new landowners to take on related responsibilities.

Bamboo has traditionally been used in agricultural production systems across Latin America. In Ecuador, bamboo is used in large quantities for banana production. Ecuador is the largest banana exporter in the world (FAO 2014). Farmers often use two to three bamboo poles to support each banana bunch, which typically weighs between 30 to 50kg. The poles are from the highest part of the bamboo culm (3.5–4 metres), which is known as a *palanca* or *cuje*. Given that a commercial bamboo pole is 16–20 meters long, farmers are currently exploring alternative uses for the remaining parts of the bamboo pole, which are normally sold to intermediaries for low prices (INBAR 2011).

The construction sector is also an important market for bamboo producers. In Ecuador, there are more than 380,000 homes made of bamboo (INEC, 2010) which house approximately 1.2 million people. There is also a growing trend in coastal areas to use bamboo in the construction of ecotourism facilities (authors' personal observation).

4.1.3 Location and regional influences

The Rio 7 plantation is located on the border of three provinces (Azuay, Guayas and El Oro) in southern Ecuador. Although the plantation is located in Tenguel district in Guayas (Figure 4.1) the plantation was registered in Machala (the capital of El Oro) which is much closer.

Several rivers run through the region, and flooding usually occurs each year for a few weeks to months. In 2008, of the 275ha originally planted with *caña guadua*, 125ha were destroyed by floods after an extreme rainy season. Later, the enterprise worked to restore and maintain affected areas and recuperated approximately 50ha, bringing the new total to 200ha.

The main economic activities in the area are agriculture (banana and cacao production), gold mining, fishing, shrimp production and commerce. Originally, the area was populated by people called '*costeños*' – people from the coastal areas. In recent years, gold mining has had a significant influence on the composition of the population, attracting people to the region from all over Ecuador, as well as from Peru. The important Ponce Enriquez mining area is located nearby.

The gold-mining activities have also affected the quality of life of the people within and around the plantation. Recently, several members of the Asociación Rio 7 were admitted to hospital after eating contaminated fish from the river which runs from the mining areas to the plantation. The company Hdineagro SA asked workers to avoid swimming in or eating fish from the river, and to keep their families from doing so.

Mining has also affected the local economy by driving up prices for services, food and goods etc. This has made it harder for Rio 7 members/workers. Many workers spend most of their wages paying debts to local retailers who provide goods on credit. After an episode where a worker with a family tried to commit suicide for not being able to pay his bills, the workers and management team decided to establish a small market in the field camp with food products at lower prices for workers.

4.1.4 Legal operating context

In 2012, the association, before it was formalised legally, applied to the government for the land title of where the plantation and field camp are located. It is also negotiating with Hdineagro SA the value of the investments the company has made in the land since 2005.

The government transferred the land in January 2016 as an asset to the National Finance Corporation and then to Rio 7, which will buy the land and pay off the debt over 10 years (after a two-year grace period). The debt is estimated at US\$360,000.

The value of the investment is still under discussion. A recent estimate placed the value at US\$1.5 million, but the association has requested another assessment and thinks the value is more likely to be closer to US\$300,000. Once the amount is agreed on, the association will begin payments to Hdineagro SA and its investors (principally an association of military retirees).



New bamboo stems growing on the bamboo plantation

© Shoana Humphries

The process is seen as returning the land to the people. In the 1960s, the Ministry of Defence appropriated large areas of land in the southern provinces which were perceived to be strategic for the security of the country, due to armed conflicts between Ecuador and Peru from 1941 to 1995 (Garcia 2014). Many rural families were displaced.

The Ministry of Defence also received additional lands in the same region two decades later when the company United Fruit closed. The company had begun cultivating bananas for export to Europe and the USA in the 1960s but was asked to leave at the end of Rodriguez Lara's presidency in 1979. The Ministry of Defence decided soon after to actively manage these lands for the production of banana, cacao and pastures for livestock, creating Hdineagro SA to manage these activities.

In 2005, Hdineagro SA decided to plant bamboo to support banana plantations in the Rio 7 plantation. The Rio 7 plantation is located one hour from the Peruvian border and the company was also interested in selling bamboo to the Peruvian market, which consumes an estimated 7.2 million bamboo poles per year (INBAR 2015).

In 2008, the government of Ecuador, through the national Plan Tierras Programme, began the process of transferring Ministry of Defence land to farmers. Farmers are expected to pay for the land over ten years. To date, the government has sold land to 78 associations (Terán 2015).

The bamboo plantation is registered with MAGAP. The same institution issues permits to harvest and transport bamboo products to different destinations, including for export. Asociación Rio 7 assumed these responsibilities in January 2016.

4.1.5 Bamboo market

Despite the importance and traditional use of bamboo in rural and urban areas, the bamboo market is largely informal. An estimated 15.1 million bamboo poles are consumed in Ecuador per year; however, only about 20 per cent of this is officially reported (INBAR 2015). During the last decade several initiatives and development projects helped local organisations and enterprises become formal entities. However, formal companies find it hard to compete in the market with informal enterprises which do not pay taxes or comply with labour and other legal requirements (Aguilar 2015).

4.1.6 Actors in the value chain

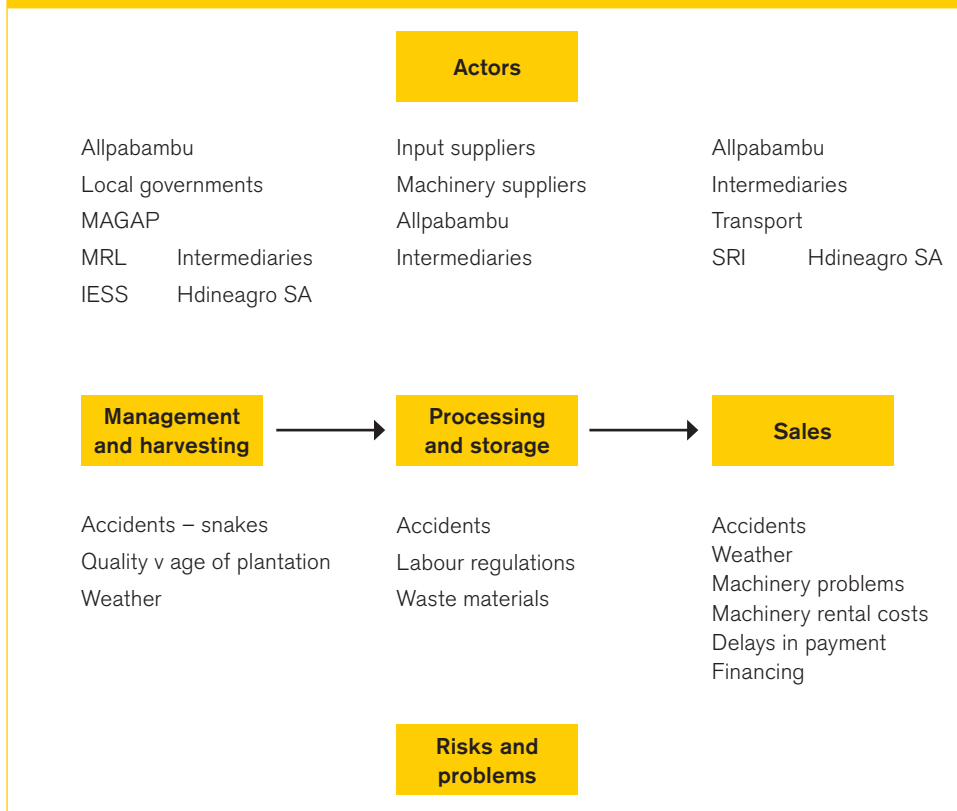
The enterprise sells bamboo to local intermediaries, banana producers and Allpabambu. Since 2010, the main product sold locally has been bamboo poles for banana plantations. In 2015, the enterprise began selling laths to Allpabambu, which has become an important strategic partner for adding value, accessing technical assistance and receiving fair prices.

The federal and local governments are important indirect actors in the supply chain. Local governments are very important to the enterprise as they maintain the roads used to transport bamboo poles. As the Rio 7 plantation is surrounded by three provinces, in some cases more than one local government has helped the association with road and bridge maintenance. At the federal level, MAGAP, which facilitated the transfer of the plantation and enterprise to Asociación Rio 7, will provide technical assistance as the workers transition from being just workers to co-owners. Other indirect actors in the value chain include the providers of inputs for the preservation treatment of the bamboo (boric acid and borax) and machinery companies.

Asociación Rio 7 has several important collaborators not necessarily involved in the value chain. Principal among these are the International Network for Bamboo and Rattan (INBAR) Latin American and Caribbean Office, which is located in Quito, Ecuador, and the members of the National Bamboo Roundtable (*Mesa Sectorial Nacional para Bambú*). INBAR is an intergovernmental organisation that works for the well-being of the different actors of the bamboo value chain in many parts of the world. The organisation has worked in Ecuador since 2003, and through development projects is helping bamboo producers and industries to innovate and improve local capacities to produce better bamboo products and gain access to new markets. It provides and/or helps facilitate technical assistance, business connections, access to machinery and the organisation of events, such as workshops, symposiums and commercial fairs.

INBAR helped establish the bamboo roundtable in 2011 to help producers, industries, governments, universities and individuals to organise and develop a common agenda. The roundtable has members from across Ecuador and meets in different provinces every two to three months to discuss common problems and opportunities. At the moment, the roundtable is facilitated by INBAR and led by MAGAP. Most of the actors who can help Asociación Rio 7 to address risks participate in the roundtable: MAGAP, Ministry of Industries and Productivity (MIPRO), Ministry of Environment (MAE), different companies, universities and individuals, among others.

Figure 4.2 Value chain for the bamboo enterprise to be taken over by Asociación Rio 7



Notes: MRL Ministry of Employment; SRI Internal Revenue Service

Asociación Rio 7 participates actively in the bamboo roundtable. Through this platform it has the opportunity to talk directly with different governmental agencies, private businesses, universities and international development organisations. Furthermore, representatives of the association were very active in the recent effort to separate the roles and responsibilities for MAGAP and MAE for plantations versus natural forests. The association provided key information for this process on the problems and challenges for producers in the production and harvesting of bamboo in plantations. The technical coordinator for Asociación Rio 7 also provided suggestions for a new way to calculate the volume of bamboo to be transported.

There are other governmental institutions that interact directly and frequently with the association, including IESS (Ecuadorian Institute of Social Security), Ministry of Labour, ProEcuador (Institute for Export and Investment Promotion, Ministry of Foreign Affairs) and the Ministry of Defence (for the land transfer process).

4.2 What does Asociación Rio 7 see as the main barriers and risks?

The most serious risks for the Asociación Rio 7 (marked with two asterisks in Table 4.1) are uncertainty about the transfer of the enterprise, the association's weak organisational capacities and its high dependence on an outside manager. In 2015, the transfer of the enterprise to Asociación Rio 7 was very uncertain largely due to delays by the municipal government in transferring the title. Up until December 2015, the association was still uncertain as to when the transfer would happen and what the terms would be. This made it difficult for the enterprise to sign contracts with buyers and to pursue credit. The land and assets were transferred in January 2016, but at the time of this study the exact terms of payment are still being worked out.

Another serious risk is that the manager is under pressure from his family to leave the enterprise and work closer to his family home. In addition to having worked to establish the plantations from 2005 to 2008, since 2014 he has been the technical manager in charge of operations, maintaining legal documentation and sales. While the manager states he would like to continue working with the association, he is considering other options that would allow him to live closer to his family in Quito (6–8 hours away by car).



Organising the bamboo poles to be transported from the enterprise's plantation

It is difficult to imagine how the association would cope with this loss of capacity and institutional memory. The authors strongly recommended that he take on an assistant in the near future. This risk is related to another risk: the lack of organisational capacity of the association. While the association has defined leadership positions among its members, they have not received much training in decision-making, conflict resolution or transparency. This threatens the ability of the association to deal with risks and challenges.

Other important but less serious risks (marked with one asterisk in Table 4.1) include a lack of market for some parts of the bamboo pole, periodic flooding, dealing with dishonest buyers, and a lack of financing. First, the enterprise's most common products are 3.12m sections of bamboo which are sold to Allpabambu; *cujes* (the last section of the bamboo before the point) and points (long tips used to support cacao trees). The enterprise is having difficulty finding a buyer for the 6m central part of the culm.

In addition, as the plantation is at sea level and a river must be traversed to reach the plantation and field camp, temporary flooding of the river and parts of the plantation are

common in January, February and March. This makes it complicated for anyone to enter and leave the plantation, including workers and trucks that transport the products to buyers. Floods can also kill the bamboo, as happened in 2008.

Due to the highly informal nature of the bamboo market, the manager has been asked several times to provide false receipts to buyers. This unfortunate aspect of the market puts pressure on the enterprise, which is operating legally, to join the informal and illegal market.

Finally, the association does not have access to finance for operating capital or investments. As a result, it depends on advances from buyers to cover some operating costs, and does not have the cash to repair machinery or respond to other emergencies. At the time of the study, the tractor, the main means of removing poles from the forest, was inoperable due to the need for very expensive repairs. The enterprise was completely dependent on using mules for transport, which are much slower.

Table 4.1 Summary of risks identified by Asociación Rio 7

Revenue flows	Resource access	Business relationships	Security of operating environment	Brand development	Operational capacity
<p>*Informal markets.</p> <p>Lack of market for some parts of the bamboo culm.</p>	<p>*Lack of financing.</p> <p>** Lack of clarity of the final terms of the transfer to the association</p>	<p>*Dishonest business partners.</p>	<p>Periodic flooding.</p> <p>Pests and diseases.</p> <p>Accidents at work.</p> <p>Frequent changes in laws and regulations.</p>	<p>(The enterprise has never promoted itself).</p>	<p>**Limited capacity in administration/ managing accounts/business management.</p> <p>**High dependence on an external manager.</p> <p>**Weak organisation (bylaws, structure etc).</p> <p>Internal conflicts.</p> <p>Lack of infrastructure – Communication (have to leave to issue guidance) – Disaster preparedness/ response.</p> <p>Poor understanding of the debts the association is taking on (for land and investments).</p>

Notes: ** most serious risks * risks of major concern, but less serious in terms of the viability of the business



Loading bamboo poles for transportation to a buyer

4.3 How can Asociación Rio 7 manage risk?

To stay abreast of developments in the transfer of the enterprise (land and assets) to the Asociación Rio 7, the manager and association president participated in meetings organised by Plan Tierras and travelled frequently to the capital to talk directly with officials in MAGAP. The participation of the association in the national bamboo roundtable has also helped give it greater access to national authorities.

Regarding the high dependence on an outside manager, the manager created a work team of association members to teach them how the association is administered, including financial management. However, this transfer of knowledge has been difficult for association members given their generally low levels of education and administrative skills.

To improve the weak organisational capacities of the association, INBAR will provide training in financial analysis and micro-finance initiatives in 2016. MAGAP and MIPRO are also expected to provide training in business management as part of Plan Tierras.

The association has been very active in coordinating with the local municipalities for help with maintaining roads and logistics for the sale and transport of bamboo. They have also approached several local governments to request assistance with machinery to clear the canals around the plantation to avoid or lessen the impacts of seasonal flooding.

Finally, the association recently agreed to a plan to provide high-quality bamboo to Allpabambu for export to the US. The plan includes training activities for harvest and post-harvest operations to reduce the harvest volume of unacceptable bamboo poles, which negatively impacts both parties.

Table 4.2 Risk-management options for Asociación Río 7

	Revenue flows	Resource access	Business relationships	Security of operating environment	Brand development	Operational capacity
Most significant threats	*Informal markets. Lack of market for some parts of the bamboo culm.	*Lack of financing. Lack of clarity of the final terms of the transfer to the association.	*Dishonest business partners.	Periodic flooding. Pests and diseases. Accidents at work. Frequent changes in laws and regulations.	(The enterprise has never promoted itself).	**Limited capacity in administration/managing accounts/business management. **High dependence on an external manager. **Weak organisation (by laws, structure etc). Internal conflicts. Lack of infrastructure – Communication (have to leave to issue guidance) – Disaster preparedness/response. Poor understanding of the debts the association is taking on (for land and investments).
Opportunities	<i>None identified</i>					
Options for managing risk (business)	Asociación Río 7 could: Conduct a market study, Diversify products offered (eg fence posts), Explore potential alliances in Peruvian market, and Provide training in disease prevention (dengue, malaria) and avoiding other hazards (eg snakes).	Asociación Río 7 could: Conduct financial analyses, Follow up with MAGAP to obtain clarity on the final terms of the enterprise-transfer process, and Produce a simple handout for workers about the land-transfer process.		Asociación Río 7 could: Continue to search for new clients, and Diversify products offered.	Asociación Río 7 could promote its products.	Asociación Río 7 could Provide training in administration and organisational capacities, Assign an assistant to the administrator, Promote its products (eg bamboo roundtable, billboards, newspaper, radio), Work with a collaborator to establish a warehouse in a strategic area, and Start a community microcredit fund.
Options for policy (government/private sector)	Regional government could help to clear drainage canals to avoid flooding.	INBAR could offer training in financial analysis. Government could help with low-cost credit. Undersecretary of Land and Agrarian Reform could offer technical assistance with land transfer and loans.		Bamboo roundtable could help with finding buyers.		Municipal government could help with road maintenance. INBAR could offer training in community microcredit funds.

4.4 What are the options to reduce risk through external support?

External actors interviewed included representatives of the Undersecretary of Land and Agrarian Reform and the Undersecretary of Forestry, both within MAGAP, and the owners of Allpabambu, a main client of the association's.

The representative of the Undersecretary of Land and Agrarian Reform was asked about the land-transfer process of the plantation to the association and how his office is supporting the association. The representative described a programme for informing, training and accompanying associations going through the transfer process once a transfer is formally initiated. This assistance is expected to begin in March 2016. In the end, however, he was very pessimistic as to whether associations who receive land transfers would be able to pay their loans. He said that only 2–3 per cent of the 78 associations currently in this process are doing so. In cases where associations default, the land will revert to the bank to be sold, and the association members will carry any remaining debt. He said that in spite of the recognition of this problem, the government is moving forward with the programme.

The representative of the Undersecretary of Forestry was asked about programmes for supporting small and medium forest enterprises. She explained that while there is a programme for incentives for plantations (establishment costs are reimbursed), bamboo is not among the species included. For technical assistance, smallholders must contract a technician, although some community forest enterprises have received assistance from the Rainforest Alliance's Training, Extension, Enterprises and Sourcing Programme (TREES) and other NGOs. In addition, she personally has worked with some communal plantation enterprises. She reported the main risks as not having title to their land (which made legal authorisation and documentation of sales difficult), low capacity in administration and financial management (including internal conflicts over funds), and problems with plant health. Her main recommendations for providing training for associations included: administration, accounting, labour laws, innovation for quality management, and technical skills for plantation management. In the end, she was very doubtful about the capacity of associations to manage land and businesses, based on what she has seen in her career to date working with different types of community businesses in Ecuador.



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Rio 7 administrator at the enterprise's bamboo plantation

The owners of Allpabambu understand the association's need for operating capital, and have set up a payment plan for each order. The association receives 30 per cent of the payment at the signing of the contract, 50 per cent when the container arrives at the company's processing centre, and 20 per cent when the company's client confirms the quality of the laths. This is both to help the association cover its costs, and to reduce Allpabambu's risk of receiving low-quality laths. In addition, to ensure the laths are of the quality Allpabambu needs, it provides technical training for identifying and harvesting the appropriate culms. It has given the association a simple hand tool for measuring culm diameter as well as the thickness of the lath wall, and Allpabambu's owners are present as laths are loaded onto the container for export.

Finally, the INBAR Latin America office in Quito in has committed to running two training programmes with Rio 7. The first is in financial analysis, to ensure the association understands its operating costs (including indirect costs for which they will soon be responsible – paying the manager and administrator). The second is for establishing and running a social savings and credit plan, an area in which INBAR has trained community groups in Ecuador for 12 years. This would be a way to eventually replace the small loans that the company Hdineagro SA used to give workers.

Table 4.3 Solutions to reduce risk for Asociación Rio 7

Risk categories and options for improving the business environment of locally controlled forest businesses	Practical potential for beneficial impact – in author's opinion (score out of 10)
REVENUE FLOWS (concerns over profit and balancing costs)	
INBAR training in financial analysis.	5/10
Government help with low-cost credit.	8/10
Technical assistance on land transfers and loans by Undersecretary of Land and Agrarian Reform.	8/10
RESOURCE ACCESS (concerns over resource access and stewardship)	
Government to help with clearing drainage canals to avoid flooding in plantations.	10/10
BUSINESS RELATIONSHIPS (concerns over conflict-free relationships)	
Members of the bamboo roundtable could help the association to identify/improve new products and buyers.	7/10
SECURITY OF OPERATING ENVIRONMENT (concerns)	
See Resource Access above	
BRAND DEVELOPMENT (concerns over reputation with customers)	
Not currently applicable.	
OPERATIONAL CAPACITY (concerns over operating efficiencies)	
Municipal government could help with road maintenance.	7/10
INBAR could provide training in community microcredit funds.	5/10

4.5 Conclusions and ways forward

When asked, the administrator and several workers were able to quickly identify their main risks, but they did not have an explicit plan for dealing with them. This has led to a sporadic and disorganised way of managing risks (ie only addressing those that seem most urgent) with no plan for monitoring risks over time. The association representatives confirmed that self-assessment of risk would help them more explicitly plan how to meet their main risks. The authors believe self-assessment of risk would specifically help Asociación Rio 7 members to:

- Better follow-up on the enterprise transfer process, including assigning specific people to take responsibility for clarifying different aspects of the process.
- Prioritise limited labour resources: identify someone to work with the manager as his assistant, so that if he leaves there is still some institutional memory and administrative capacity.

As with the case of Allpabambu in Chapter 3, a workshop and training materials where different types of risks are explained and an adaptive management model for risk is presented would help to build capacity in the self-assessment of risk for enterprises like Asociación Rio 7 and its partners.

Such a workshop should include analyses of real businesses from the region, and target leadership committees, future leaders and trusted partners. Partners have an important contribution to make to the risk analysis – and it would provide them with a better understand of how the enterprise perceives risk.

Over the course of 3 – 6 months, the workshop process could:

- Part 1: help to identify risks for two to three businesses, rate them in terms of seriousness, and develop risk management and monitoring plans,
- Part 2 (three to six months later): reconvene to discuss the impacts of risk management, update risk assessments based on monitoring, and update management plan as necessary, and
- Part 3 (six months to one year later): reconvene and repeat activities from Part 2.

Meetings with external actors to share results of the risk self-assessments would help them to develop an understanding of risks these enterprises face, for example with key actors who have more influence over mitigating risks (such as MAGAP). This would help them to understand their role in causing and/or potential ameliorating specific risks. Summary findings could be presented at the bamboo roundtable and other forums to create greater awareness and to help generate solutions and commitments.

Finally, partner organisations could help turn the results of the self-risk assessment into policy recommendations, targeting decision makers, academics and funding agencies and contributing to a wider understanding of the risks faced by businesses like Asociación Rio 7.



Fedecovera has one of the largest tree nurseries in Guatemala

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