

How forest plantations can contribute to economic renewal in South America

I. Tomaselli

In those South American countries where forest plantations are important or have potential for development, investment in them is one option for creating jobs.

Although the current economic crisis began in the United States of America, it is now affecting most countries around the world. Demand and prices are declining, economic activities are slowing down and unemployment is increasing. Almost one year after the crisis started, there is no consensus on how the global economy will be affected and when recovery will start.

Crisis in South America started in late 2008. Large economies in the region have seen demand for and prices of their exported products decline. Foreign direct investment has decreased and capital repatriation and dividend remittances have increased, contributing to the devaluation of national currencies, economic slowing and increasing unemployment.

The forest sector is important in several countries in the region, and forest-based activities have potential for development. Investment in forest plantations is one option for generating employment in the region in a relatively short time. In the long-term, forest plantations can

provide raw material to a competitive timber industry, contributing to the sustainable development of the region.

This article describes the impacts of the global financial crisis on the region's economy and the forest sector in particular, and examines the potential for creating jobs based on a forest plantation programme.

IMPACTS OF FINANCIAL CRISIS IN SOUTH AMERICA

Most countries in the region have not properly assessed the impact of the crisis on their economies or the potential implications for their societies or, in some countries, for their eventual political stability. Furthermore, as in other parts of the world, opinion diverges on the likely duration of the crisis and the efficacy of measures taken by governments to reverse the current downward trend.

The impacts of the crisis vary among the world's countries depending on several factors. South American economies, for instance, with a few exceptions, are less globalized than those of most developed

Workers in a large-scale nursery, Brazil: plantation establishment involves high labour demand



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TABLE 1. Importance of exports: Brazil compared with some Asian economies, 2007

Country	Exports (billion US\$)	Exports as percent of GDP
Brazil	200	15
Malaysia	196	49
Singapore	350	66
Taiwan (Province of China)	273	36
Republic of Korea	458	35

Source: CIA, 2009.

and rapidly developing countries; thus international trade represents a relatively small share of the national gross domestic product (GDP).

Brazil has the largest economy of the region, but in spite of its efforts to increase international trade, its exports in 2008 reached a little more than US\$200 billion, representing not more than 15 percent of the country's GDP. In contrast, in most Asian countries exports are higher in both absolute and relative terms (Table 1). The Asian Development Bank (Pilling, 2009) estimates that 60 percent of the final consumption of Asian products takes place in developed countries, and this is a good indicator of how Asian countries have been participating in the globalization process.

The economic downturn that has taken hold in importing developed countries is thus expected to affect South American countries less than Asia's export-oriented countries. China, Japan and the Republic of Korea reported reductions of around 30 percent or more in their exports in the first few months of 2009; declining exports are expected to translate into a drop in economic growth of 2 to 7 percent in some Asian economies.

Most South American countries' exports, on the other hand, are based on commodities. The increase in international commodity prices over the past few years was largely associated with the growing demand for raw materials in Asian countries, where demand is now declining.

The decline in commodity demand and prices is affecting South American econ-

omies to varying degrees. It is estimated that exports from the region in 2009 will be about 30 percent lower in value than in 2008. Based on the contribution of exports to local economic development, Patu and Fagundes (2009) predicted that the decline in exports alone could limit the region's economic growth in 2009 to less than 1 percent, with some countries expected to enter a recession.

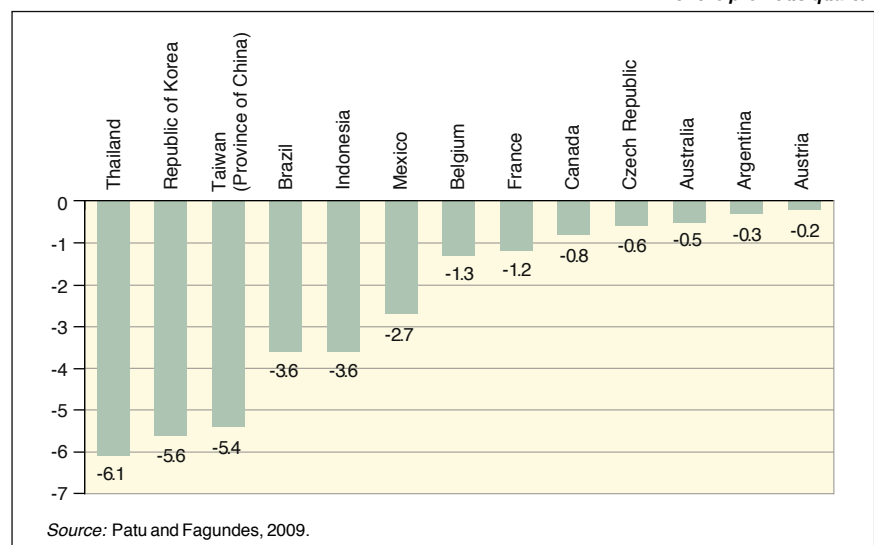
Bolivia, Ecuador and Venezuela have seen their export earnings strongly affected by the drop in oil and gas prices. Bolivia, Brazil and Chile are affected by the reduction of demand for and prices of minerals in the international market. Argentina and Brazil face enormous reductions of earnings from agricultural exports as prices of soybeans and other agriculture commodities have declined. In the relatively developed South American economies, declines in exports of

manufactured goods are also a problem. Car exports from Brazil, as from Mexico, were almost halved in volume over the first few months of 2009. These are some examples of the breadth of the crisis in geographic and sectoral terms.

The intensity of the crisis in South America varies among countries. In early March 2009, Brazil officially announced that in the last three months of 2008 the country's GDP declined by 3.6 percent compared with the previous quarter, and further reductions were expected to take place during the first months of 2009 (Patu and Fagundes, 2009). This places Brazil as one of the most affected countries in the world (Figure 1). In other South American countries, such as Argentina, the impact (so far) has been less intense.

The strong reduction of economic activity in Brazil shows that reduction in international trade is not the only factor affecting economies around the world. Capital movements around the world are possibly even more important than exports. In South American countries, as in other developing and emerging countries, foreign direct investments are quickly

1
GDP reduction in selected countries during the last quarter of 2008 as compared with the previous quarter



Forestry is Chile's second most important economic activity, contributing more than 3 percent to national GDP



PHOTO: SPATIE BEIJER

declining. Transnational companies have increased the repatriation of capital and remittances of dividends to solve liquidity problems faced by operations in other parts of the world. One example is the car industry in Brazil, a highly profitable operation that sent several billion dollars to company headquarters in the first few months of 2009.

The International Labour Organization (ILO) (cited by Schwartz, 2009) estimates that another 50 million people around the world will be unemployed in 2009. Growing unemployment in developed economies will have an impact in those developing countries that had had high rates of emigration. Remittances by migrant workers to their countries will be reduced, and unemployed migrant workers will return to their home countries; thus unemployment will basically be transferred to the developing world. Some countries in South America and Central America will be particularly affected. Mexicans working overseas sent home around US\$24 billion in 2008 (*Gazeta Mercantil*, 2009), which represents a significant share of the country's GDP. Ecuador and many Central American countries also have a significant percentage of their citizens working abroad, mainly in the United States and Europe. These countries can expect a reduction in capital inflow and an increase in unemployment.

Because of several factors (including reduction of foreign investments, uncertainties, dividend remittances and capital repatriation by transnational companies), national currencies of some

South American countries depreciated over the last months of 2008. Depreciation has partly helped to compensate for the lower international prices and to maintain export volumes, especially in countries where commodity exports are important. On the other hand, the devaluation of the local currency has contributed to further decline in international prices of some goods, and has created a burden for companies that financed investments and have payments due in foreign currency.

SOUTH AMERICAN FOREST SECTOR AND THE CRISIS

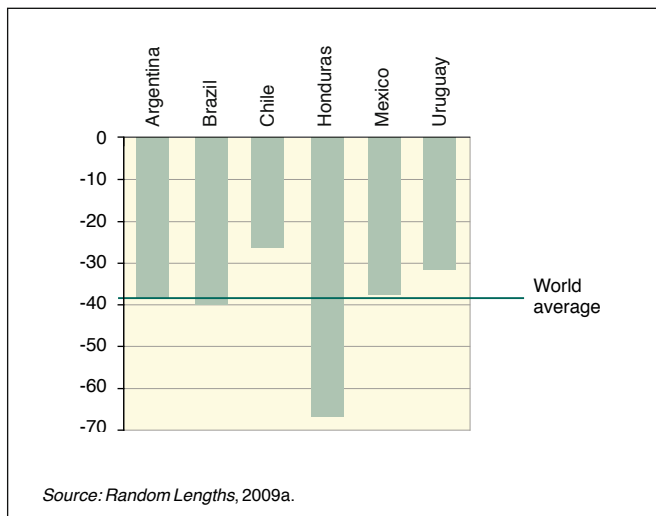
Forestry is an important economic sector for many South American countries, especially Chile, Brazil and more recently Uruguay. The Chilean forest industry contributes more than 3 percent to national GDP and approximately 7 percent of total exports (INFOR, 2009); it is the country's second most important economic activity. In Brazil, the forest sector accounts for more than 3 percent of GDP and around 5 percent of total exports (ABRAF, 2009).

The region's forest sector has been directly and indirectly affected by a slow-

down of economic activity in the United States, Europe and Asia. With the decline in demand and prices of pulp, paper and wood products, many companies in Brazil and Chile have reduced their production, while some have phased out their activities and most have postponed or cancelled new investments.

The devaluation of the Brazilian currency against the United States dollar at the end of 2008 had a strong impact on the forest industry. Temporary benefits that might have resulted from the devaluation, such as a gain in competitiveness in international markets, were lost as prices declined at basically the same rate. The quick change of the markets and the devaluation of the local currency undermined the financial strategy of leading companies, causing Aracruz Celulose, for example, to postpone its investment plans and restructure its debts.

The strong decline in the housing sector in the United States, an important market for South American producers, caused the region's softwood timber exports to the United States to collapse. In volume terms, 2008 global imports of softwood timber declined by 31 percent compared with 2007 (*Random Lengths*, 2009a). In



Central America, exports from Honduras dropped more than 60 percent – a strong impact for a relatively small economy (Figure 2). Several sawmills in South American producing countries have had to shut down. This situation is not expected to change much in 2009.

The structural wood panels sector has undergone a similar decline. United States imports of softwood plywood in 2008 were 25 percent lower in volume in 2008 than in 2007, the lowest since 2002. In 2008, South America supplied 94 percent of all United States softwood plywood imports, Chile currently being the main exporter. Imports from Brazil, the leader from 2003 to 2007, dropped 44 percent, while those from Uruguay were reduced by almost 50 percent. Prices of structural wood panels dropped by 20 percent from 2007 to 2008. Thus exports of structural wood panels to the United States lost around 45 percent in value (*Random Lengths*, 2009b).

Other important markets for South American forest industries have also collapsed. Imports of mouldings by the United States were significantly reduced in 2008, and Brazil and Chile (the main moulding exporters in the region) have shut down mills. Decline in the demand for and prices of flooring material in the United States and other importing markets has affected the flooring indus-

try, mainly in Brazil and Bolivia; it has also affected South American timber exporters, as China's imports of tropical hardwoods for use in flooring declined in terms of volume and price.

The social and economic implications of the global crisis for the forest sector, at the national and regional levels, have not yet been thoroughly assessed. There are indications that the impact will be significant in Bolivia, Brazil, Chile, Uruguay and parts of Argentina. Within each country, regions where the forest sector makes an important contribution to the local economy are expected to be most affected by the reduction in demand for and prices of forest products. For example, in Paraná State, Brazil, where the forest sector contributes around 5 percent to GDP, employment in the timber industry was reduced by 21 percent in 2008. In Brazil as a whole, however, the reduction in employment was less – 6 percent – with pulp and paper, reconstituted panels and the charcoal-based pig iron industry taken into account (ABRAF, 2009). Most of the reduction was associated with reductions in forest plantation activities by the pig iron industry.

As in other parts of the world, prices of forest products have diminished in most South American countries in line with the reductions in international demand. In

Brazil and Chile, prices dropped around 30 percent in the second half of 2008 (Figure 3) and are now down to the levels of 2005–2006. Most of the price reduction reported for 2008 is related to the devaluation of the local currencies, as prices in local currency have changed little. The exchange rate in the first quarter of 2009 was stable, and prices in United States dollars continued to decline. In the second semester of 2009, local currencies of most South American countries started to appreciate and prices tended to be stable.

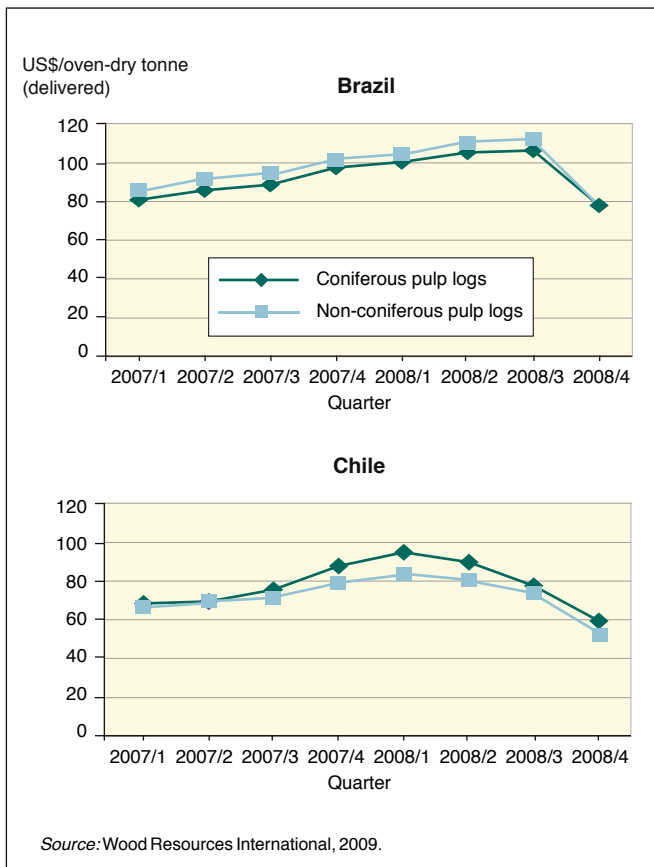
FOREST SECTOR INVESTMENTS IN SOUTH AMERICA AND THE GLOBAL CRISIS

Recent and future investments

Most of the ongoing and announced investments in the region's forest sector are linked to forest plantations in Brazil, Chile and Uruguay. In Brazil, direct domestic investments are the most important, while in Chile and Uruguay the main investors are foreign companies. The pulp and paper industry is the largest investor in all three countries, but institutional and other private investors are gaining importance.

The forest sector investments in Brazil over the past five years have been largely associated with the expansion of the pulp and paper, reconstituted panels (medium-density fibreboard and particleboard) and charcoal-based pig iron industries. As shown in Figure 4, forest sector investments in the country dropped 26 percent from 2007 to 2008, and companies' projected investments for the subsequent five-year period dropped 36 percent.

Uruguay has received immense investments in the forest sector over the past few years, but investments in the country have slowed down as a result of the global financial crisis (Wood Resources International, 2009). The Finnish company Botnia, which had recently invested in a pulp mill with a capacity of around 1 million tonnes per year, has reduced produc-



3
Recent wood fibre prices in Brazil and Chile

Peru and Colombia are considering the implementation of forest plantation programmes, but have not yet developed structured plans.

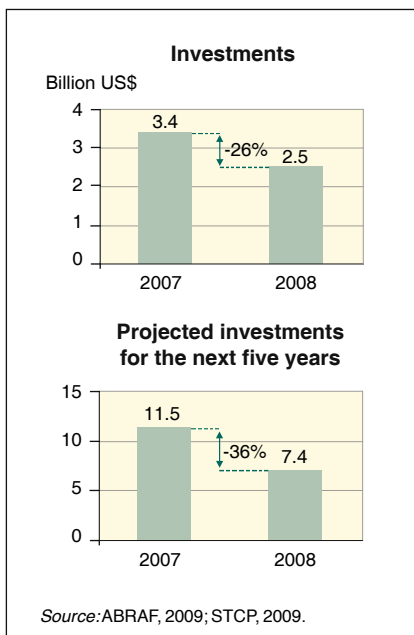
Forest plantations and employment

Forest plantations are long-term investments. In a short time, a well-structured plantation programme can create (directly and indirectly) permanent jobs in rural areas, helping to mitigate the effects of financial crisis. But it will also foster socio-economic development in the long term, attracting investment in wood processing activities that facilitates the creation of a cluster, generating employment in the industry and services.

The investment required to establish and manage a forest plantation and generate employment varies largely in the region, depending on the local soil and climate conditions, tree species, technology, forest management requirements and work productivity, among other factors. For example, the establishment of large-scale, fast-growing plantations by the pulp industry tends to generate less employment than smaller-scale long-rotation plantations established to produce high-quality timber for the solid wood industry. The balance between capital and labour requirements may vary. For example, mechanization can be used for planting in flat terrain, while on slopes most operations are manual. Soil variations from site to site have implications for soil preparation, fertilization, weed control and other costs. Some species require more fertilizers and chemicals than others.

Table 2 presents a cost range for establishing and managing plantations in Brazil, which could also be applied to other countries of the region. The information is derived from actual operations based on manual and mechanized planting of pine and eucalyptus in different locations, managed for the solid wood industry (larger-diameter logs). Investments are

4
Impacts of the crisis on forest sector investments in Brazil



tion because of the weak markets. ENCE, a Spanish paper company, has encountered a slowdown in investment for a planned pulp mill. Portucel Soporcel, a Portuguese paper company, faces the same problem in establishing a planned pulp and paper mill in Uruguay.

In 2007, Ecuador adopted a National Plan for Forestation and Reforestation which includes a target of establishing 1 million hectares of new plantations over the next 20 years (Tomaselli, 2008). The forest sector was made one of the ten priority development sectors, and US\$75 million from the national budget was made available for direct investment in plantations. However, because of the need to revise the government budget in view of the financial crisis, only a small amount was invested in forest plantations in 2008; most of the allocation was transferred to other priority programmes.

TABLE 2. Forest plantation costs in Brazil (pine and eucalyptus)

Investment phase	Range (US\$/ha)
Planting	1 100–1 600
First year (maintenance)	210–550
Second year (maintenance)	130–340
Following years	90–130
Total (full rotation)	2 500–3 700

Source: STCP, 2009.

TABLE 3. Labour demand in forest plantation, Brazil

Investment phase	Labour demand (person/ha)
Planting	0.025–0.132
First year (maintenance)	0.010–0.047
Second year (maintenance)	0.005–0.040
Following years	0.010–0.015

Source: STCP, 2009.

heavily concentrated in the first two to three years. The total investment for one full rotation varies from US\$2 500 to US\$3 700 per hectare. In Brazil, rotations for solid wood are relatively short – 12 to 14 years for eucalyptus and 18 to 20 years for pine.

Table 3 shows the direct labour demand created in establishing and managing forest plantations in Brazil, excluding jobs created indirectly at the nursery, in the supply chain and in harvesting operations. The demand for workers is mostly concentrated in the plantation establishment phase. It can be estimated that for each direct job in planting and management operations, two indirect jobs are created.

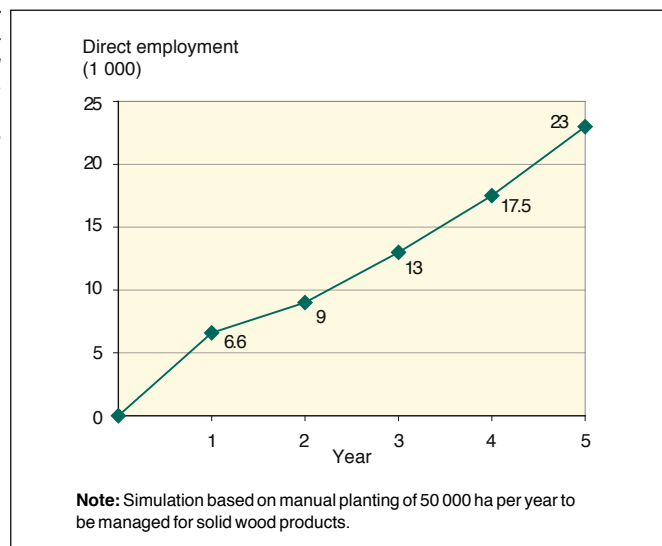
Figure 5 presents a simulation of direct job creation if Ecuador (as an example) were to plant 50 000 ha of forest plantations per year as part of its strategy to reduce the socio-economic impact of the financial crisis. It predicts that employment in the forest sector would gradually increase so that at the fifth year around 23 000 new direct jobs (in forest plantation establishment and management operations) would have been created. If indirect jobs are considered as well, around

70 000 people would be employed in the fifth year. The total accumulated investment required to implement such a programme over a five-year period would reach around US\$480 million (Figure 6). The annual investment would tend to stabilize at about US\$120 million after year five.

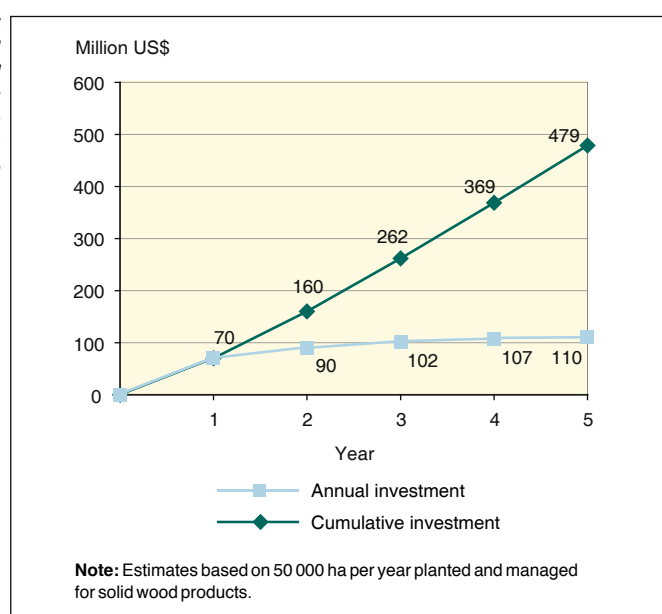
Based on this simulation, for each job created, Ecuador would have invested less than US\$5 000 per year, a relatively small amount considering the immediate social benefits and especially the

benefits that the plantations would generate in the future. The Corporation for Export and Investment Promotion of Ecuador (CORPEI) estimates that the plantation programme has the potential to generate over US\$2.5 billion annually based on trade of products in international markets (Tomaselli, 2007). The expansion of forest plantations is the only option for sustaining the development of the country's forest industry and making its export programme feasible.

5
Simulation of direct employment potential based on Ecuador's forest plantation programme



6
Estimated investments required for implementing Ecuador's forest plantation programme



CONCLUSIONS AND RECOMMENDATIONS

The global financial crisis is affecting economies around the world; unemployment is growing and developing countries will need to find strategies for mitigating the social impacts. For some South American countries, part of the solution can be found in the forest sector. Forest plantations are a competitive business in the region, and their expansion can immediately increase employment. The investment capital can come from government incentives, local or international financing programmes or direct investments from private investors.

The cost involved in a plantation establishment programme will most probably be equivalent to that of any social programme that would be put in place to support unemployed workers. The difference is that while mitigating the social effects of the crisis, the programme would also be creating value.

In order to ensure that future benefits are maximized and sustainable, plantation establishment needs to be part of a long-term development strategy; this is more important than job generation in the short term. In this case relatively short economic cycles cannot be considered, although adjustments can be made over the long term to accommodate eventual market changes.

Several countries in South America, including Brazil, Chile and Uruguay, have already demonstrated the effectiveness of including support for the establishment of large plantations in the national development strategy. These countries are currently the main receivers of direct investments in the forest sector in the region. As a result, in these countries the forest sector is an important contributor to national socio-economic development. ♦



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