

Towards Resilient Futures Community of Practice

Case Study Bamboo & Mining

Alignment with the NDP



Plants can grow fast, produce things and remediate land

We provide an overview on how the growth of this industry could contribute to the economic goals of the NDP:

1. Promote employment in labour-intensive industries
2. Inclusive growth
3. Diversify the SA economy
4. Embrace SA's current advantages:
 1. Substantial base of skilled workers
 2. Large pool of unskilled workers
 3. Deep financial markets
 4. Sophisticated infrastructure
 5. Globally competitive firms in certain sectors and
 6. A proximity to African markets

There are a variety of plant groupings which can be used to remediate mining land, the choice of which influences the alignment to the NDP. One such example is plants selected for their rapid growth and fibre components in particular, such as **bamboo**, **hemp** and **flax**.

We provide an overview on how the growth of this industry could contribute to the economic goals of the NDP. While the discussion below is given in terms of bamboo, we recognise that other similar, fast-growing, fibre- rich plants such as hemp and flax may also be of value.

1. Promoting employment in labour-intensive industries

The bamboo industry itself is a labour-intensive industry and can therefore act as a big employment generation opportunity.

In India, for example, it was estimated that it takes 8-10 person days to harvest a tonne of bamboo and an additional 2 days to load, handle and stack the bamboo.

Furthermore, the bamboo industry is strongly linked to a wide variety of industries such as wood, forestry, pulp and paper, textiles and electronics.

The effect that a viable bamboo industry will have on the employment prospects of these industries is dependent on their capital/labour ratio. For example, the textile industry is labour intensive while the pulp and paper industry uses more capital.

Therefore, we would expect a productive bamboo sector to generate more jobs in the textile sector than in the pulp and paper industry.

2. Inclusive Growth

Although South Africa experienced a sustained period of high economic growth before the 2007/08 financial crisis, little progress was made towards reducing unemployment, poverty or economic inequality. This was because economic growth largely benefited highly-skilled individuals, who comprise a tiny proportion of the workforce.

The bamboo industry (and that of associated fast-growing fibre-rich plants) has large potential for inclusive growth because it can be cultivated in rural areas and does not require much skill. A survey of 200 bamboo craftsmen in rural Bangladesh found that many are uneducated and approximately 50% are women.

Furthermore, many bamboo businesses are family-owned, indicating the ease with which a bamboo business can be set up. The study concludes that the bamboo industry is crucial to employment and income generation in rural Bangladesh, especially for rural women. The gender dynamic is important because having a job can lead to a form of self-empowerment for women.

There are strong parallels between rural Bangladesh and rural South Africa. The Department of Women for example, found that rural South African women were the group most likely to experience unemployment and poverty. Furthermore, they were the least educated group.

In this context, the bamboo industry offers exciting opportunities to include a group that has historically been excluded from the South African economy.

3. Diversifying the South African economy

Although the South African economy is regarded as one of the more diversified economies on the continent, 25% of its exports are still from minerals. An over-reliance on minerals exports means economies are susceptible to external shocks, which can lead to many job losses. Furthermore, it is recognised that mineral resources are finite so economic areas built on primary mining operations by their nature have a limited lifespan.

Greater diversification can lead to more sustainable economic growth, lower output volatility and greater macroeconomic stability. Bamboo is the ideal candidate to serve as one key portal through which to increase diversification of the South African economy. According to Bamboo Import Europe over 1000 products are currently made from bamboo. At the bottom of the value chain, bamboo can be used to make mats, baskets, toothpicks, fences and pencils. Moving up the value chain, bamboo can be used as floor tiles, window frames and scaffolding material. With further processing, its conversion to textiles such as rayon and biocomposites is feasible.

The flexibility of bamboo means that individuals who may begin with a low number of skills can learn additional skills when they create more sophisticated products from bamboo. With additional skills comes a greater wage. In other words, the bamboo industry offers a good opportunity for social mobility in South Africa by providing the chance for unskilled workers to become skilled workers without having to invest in expensive higher education.

4. Embrace SA's current advantages

Finally, the NDP hopes to raise exports by exploiting South Africa's current advantages. This comparative advantage includes a substantial base of skilled workers, deep financial markets, a sophisticated infrastructure, globally competitive firms in certain sectors and a proximity to African markets. In particular though, the NDP identifies certain industries in which SA currently has a comparative advantage, which includes semi-skilled manufacturing – a category to which certain bamboo products would fall under (e.g. furniture or clothing).

The export market for bamboo is forecast to be between \$15 - \$20 billion in 2017, representing an annual growth rate of between 2 – 3% from 2011 [10]. China dominates the export market with 38% of all exports, followed by the EU (9%), Indonesia (7%), Thailand (2%) and USA (2%). The top importers of bamboo were the USA (20%), EU (19%) and Japan (10%) – all lucrative export markets.

Currently, South Africa does not have a well-established bamboo industry, with the only production of bamboo occurring on small (1 and 5 hectare) plots in the rural Eastern Cape. However, South Africa has certain favourable conditions which could make a sustainable bamboo industry a reality.

Firstly, we have a large pool of unskilled individuals, especially in the rural areas. Growing bamboo provides a good opportunity for these individuals to earn a wage income and accumulate human capital.

Secondly, South Africa can develop a market for bamboo in Southern Africa. All other African countries who are examining the feasibility of a bamboo industry are in East Africa (Ethiopia) or Central Africa (Burkina Faso). Apart from Zimbabwe, Southern Africa is relatively politically stable and has strong economies. Given the economic strengths of South Africa noted above, the economy can take a leading role in building a bamboo industry in the region.

Through focusing initially on combined mine waste land rehabilitation and development of bamboo crops, bamboo production will be initiated in regions with existing infrastructure (developed by the mines) and large populations looking for financial opportunity (drawn to the mines but not all accommodated by them). This will provide the potential for longevity in livelihoods beyond the life of mine.