

# Value addition to encroacher bush wood in Namibia

Most rangelands in Namibia's farming areas are severely bush encroached and suffer from drastically reduced grazing capacity, groundwater recharge and soil moisture content. Encroacher bush has to be thinned to recover the productivity of the land, but this is an expensive activity. Costs of bush control easily run into thousands of dollars per hectare (N\$/ha) and given the large size of commercial farms, into millions of dollars for a whole farm. Few farmers can afford such an investment despite the undisputed long-term benefits of bush control. However, bush control becomes feasible if wood harvested from encroacher bush is turned into an economically useful product that can be sold to defray the costs of control or even generate an extra income, such as:

## Charcoal



Charcoal production is an established industry in Namibia. Very little is used domestically and most is exported, making Namibia the world's 5th largest exporter with an estimated export volume between 100,000 and 120,000 tonnes per annum. Most charcoal is produced on commercial livestock farms, e.g. in the areas of Grootfontein, Otjo, Otjiwarongo and Okahandja.

Charcoal is typically produced by individual workers on farms and sold to processors, which package and export the product.

## Animal feed



Animal feed is an ideal value chain for livestock and game farmers. The value chain allows for the production of animal feed from encroacher species. Various species can be used; mainly small branches and leaves are best input material for bush feed. Wooden parts with too much lignin hamper the digestion process but can be used if the right feed mixtures are applied.

The process of production is based on harvesting of the bush, selecting the branches suitable for bush feed production, milling with a hammer mill and mixing the chopped bush with different supplements (e.g. molasses, urea, and pods of local plants) depending on the purpose of the ration (survival/production/ feedlot) to increase the feed's nutritive values.

## Firewood



The use of wood for cooking in Namibia is significant. It is estimated that 550,000 tonnes of wood are used per year for firewood. The 2011 population census data for Namibia indicates that 53% of Namibian households use firewood for cooking and 46% for heating.

The value chain of firewood is poorly developed. Most of the population dependent on firewood for heating and cooking are from rural areas. In these areas, the price of firewood is lower than its potential market price and it is produced on a non-industrial basis. Only at the higher end, when wood is used for barbecues and heating, prices are attractive for commercial wood harvesters.

## Poles



Poles are a common product produced from Namibia's encroacher bush. The poles are used for construction of traditional houses and fencing. The market usually requires straight poles of standardised length and diameter.

Studies found that Namibia produces 334 000 m<sup>3</sup> of poles per annum; moreover, wooden poles to the value of about N\$2 million are imported.

## Compressed firewood



Compressed firewood is another product produced at an economic scale from encroacher bush. It is known as "biomass briquettes" or "wood logs". A Namibian product, which is currently produced by the Cheetah Conservation Fund in Otjiwarongo, is called "bushbloks". The product is made through a process of fine grinding the biomass and subsequently compacting it. Compressed firewood is mainly used for heating and leisure activities such as barbecuing. Due to their high density, briquettes have longer burning times than conventional firewood.

## Wood carvings



Carving is a small scale opportunity for encroacher bush utilisation. Various species are suitable for carving and the invasive species *Prosopis* is particularly popular among carvers due to its hardness and size of the stems.

Carving objects from wood is an age-old tradition in various regions of Namibia and respective experience is widespread.

Carved objects have utility value, e.g. handles for cooking utensils, bowls etc., or ornamental value.

Wood carvings can have a high profit margin, but have only a relatively small market size.

## Building materials



Wood based construction material can be produced in numerous forms within the two main groups; bricks/blocks and boards/panels.

Different products are manufactured on the basis of wood and cement, such as solid or hollow bricks, panels and prefabricated walls. They are used as outdoor construction material, for partitioning, ceilings, acoustics applications, wall cladding, roofing and shuttering, mostly out of medium density fibre boards.

Products can also be produced combining wood and plastic, also known as wood-plastic composites. Such products are ideally made from saw dust and polythene material and can for example serve as flooring/decking material.

## Wood chips



Using encroacher bush for bio-energy applications, bears great potential for Namibia. Encroacher bush is harvested by mechanised means and processed into wood chips (depicted) of specified sizes. Potential applications include industrial heat generation and electricity production (mini-grids or on-grid electricity).

In Namibia two companies have already installed biomass boilers (Ohorongo Cement and Namibia Breweries). NamPower currently assesses the feasibility of biomass power plants, which is in line with the recently developed Renewable Energy Policy for Namibia.