

# Assessment of the macroeconomic benefits of de-bushing in Namibia

## KEY MESSAGES

- Bush control and biomass utilisation has the potential to **generate substantial net benefits** of around N\$48 billion over 25 years and thus to contribute to Namibia's social welfare and economic growth.
- The key ecosystem services that are estimated to increase in value due to de-bushing will require capital investment in order to realise these potential benefits. If these investment costs are less than N\$48.0 billion, de-bushing **will generate a positive Net Present Value (NPV)**.
- Estimates are that many of the unquantified services would be **positively affected** by de-bushing.
- A national de-bushing programme will **support an estimated 10,000 jobs** per annum in mechanical operations.
- **Good rangeland management practices** will be crucial in preventing a vicious cycle of bush encroachment, de-bushing, restocking, overgrazing, and rethickening of bush.
- An **extensive programme of bush control and biomass utilisation** pioneered both by the public and private sector is recommended.

## BACKGROUND

Does de-bushing pay off for Namibia? This question can be discussed on the basis of a detailed assessment of the costs of bush control and potential benefits.

Bush encroachment has negative impacts on some of Namibia's key ecosystem services, such as livestock production, groundwater recharge, tourism, as well as biodiversity. Impacts vary depending on the immediate environment (e.g. rainfall, types of soil, vegetation), how the land is used (e.g. cattle farming, tourism), and how many people depend on the land.

De-bushing can benefit these ecosystem services and can offer economic opportunities through the utilisation of woody biomass for charcoal and firewood production, electricity generation, and other means. At the same time, de-bushing would entail costs in the form of de-bushing operations, additional emissions from livestock, and loss of soil organic carbon.

Key ecosystem services were valued and these values were fed into a cost-benefit model to estimate the net benefits of de-bushing when compared with a business-as-usual scenario of no de-bushing.

Some key assumptions form the basis of the valuation of ecosystem services. It is assumed that 60 per cent (15.8 million hectares) of the 26 million hectares of bush-encroached area can be targeted for de-bushing, that bush densities would be reduced by 67 per cent in the central case (or 33 per cent in an alternate scenario), and that 5 per cent (787,770 hectares) of the targeted area could be de-bushed per annum. The initial round of de-bushing (i.e. disregarding any aftercare) would be carried out over a period of 20 years, with the effects being captured over 25 years to allow for ecosystem services to reach their potential.

### Cost-benefit analysis - central case

Ecosystem service / activity	Cost / benefit (N\$m) <sup>1</sup>
<b>BENEFITS</b>	
Livestock production	6,371.66
Groundwater	51,609.54
Biomass Utilisation	
<i>Charcoal</i>	4,060.59
<i>Electricity</i>	10,572.07
<i>Firewood</i>	1,186.17
Residual biomass	2,110.00
Carbon	
<i>Offsets</i>	227.88
<b>COSTS</b>	
De-bushing	-26,856.42
Carbon	
<i>Loss of SOS</i>	-278.55
<i>Livestock emissions</i>	-982.01
<b>Net benefit</b>	<b>48,020.94</b>

1) 2015 prices, discounted

## KEY FINDINGS

In the central case, the total benefits from ecosystem services as a result of de-bushing are estimated at N\$ 76.1 billion (2015 prices), discounted over 25 years, while the total costs are estimated at N\$ 28.1 billion. This results in an estimated net benefit of N\$ 48.0 billion.

Sensitivity and scenario analysis indicate that the net benefits could range from N\$ 24.9 billion, in an alternative scenario, to \$111.9 billion in a best case scenario. These results suggest that the net benefits of de-bushing (in the total economic value sense) would be significantly positive and could make a considerable contribution to Namibia's welfare.

Moreover, results indicate that many of the unquantified ecosystem services would be positively affected by de-bushing.

## POLICY RECOMMENDATIONS

It is recommended that a national de-bushing programme be commenced to take substantive action on bush encroachment. Such a programme will require interministerial coordination, incentive mechanisms such as subsidy schemes for improved rangeland, value chains (e.g. animal feed, charcoal) and market development for woody products and an enabling regulatory environment that would promote e.g. sustainable bush harvesting and facilitate the development of biomass power plants among others.

The implementation of a national de-bushing programme for bush control and biomass utilisation will also require a long-term financing strategy. Through the pooling of resources between the public and the private sector, the required level of investment can be leveraged. It is important that policies such as the national development plans promote and support such programmes as the cost of inaction will be higher than the cost of action.

#### ABOUT THIS POLICY BRIEF

This brief is based on the **Assessment of the economics of land degradation related to bush encroachment in Namibia report** prepared by Namibia Nature Foundation and commissioned by the MAWF/ GIZ Support to De-bushing Project. The report is based on the methodology of the Economics of Land Degradation (ELD) Initiative and contributes to the national aim of achieving Land Degradation Neutrality. This report is available online at [www.dasnamibia.org/downloads](http://www.dasnamibia.org/downloads).

The views expressed in this brief do not necessarily reflect the position of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

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