

Further bush encroachment in Namibia can be stopped without bushwood export

The [Institute for Applied Material Flow Management](#) (IfaS) in Trier (Germany) has repeatedly claimed that so much bush is growing in Namibia that the domestic market is far from being able to utilise it all. It stated that Namibia has over 450 million tonnes of bushwood, of which [18 million tonnes](#) would have to be harvested each year to at least stop bush encroachment in 2030. This is a significant amount based on a four percent annual growth in bushwood mass.

With an anticipated use of [250,000 tonnes of wood per year](#) by a biomass industrial park (BIP) proposed by IfaS, Namibia would require about **60 such industrial parks** in 2030 to utilise the declared amount of bush! (About 15 million tonnes remain after subtraction of the domestic demand for bushwood).

In a recent [report](#) published by the Hamburg environmental authority, a natural increase in bush biomass of around 19.2 million tonnes per year is predicted for 2030. The following conclusion was drawn:

„This means: in Namibia, scrub encroachment continues to increase - even when local and regional potential for use is fully exploited. Only if the bush biomass can be exported to international markets is there a chance of successfully combating scrub encroachment in Namibia.“

It is useful to examine more closely the argument that exports to international markets are necessary to stop the bush encroachment in Namibia.

Let us take a closer look at the figures

Currently, the most reliable source on the amount of scrubland in Namibia is Dagmar Honsbein's 330-page [master's thesis](#) from 2016. Using a formula and a diagram on pages 186 and 187, it is easy to calculate that an area of around **33 million hectares** of scrubland can be expected in 2020 (see the picture).

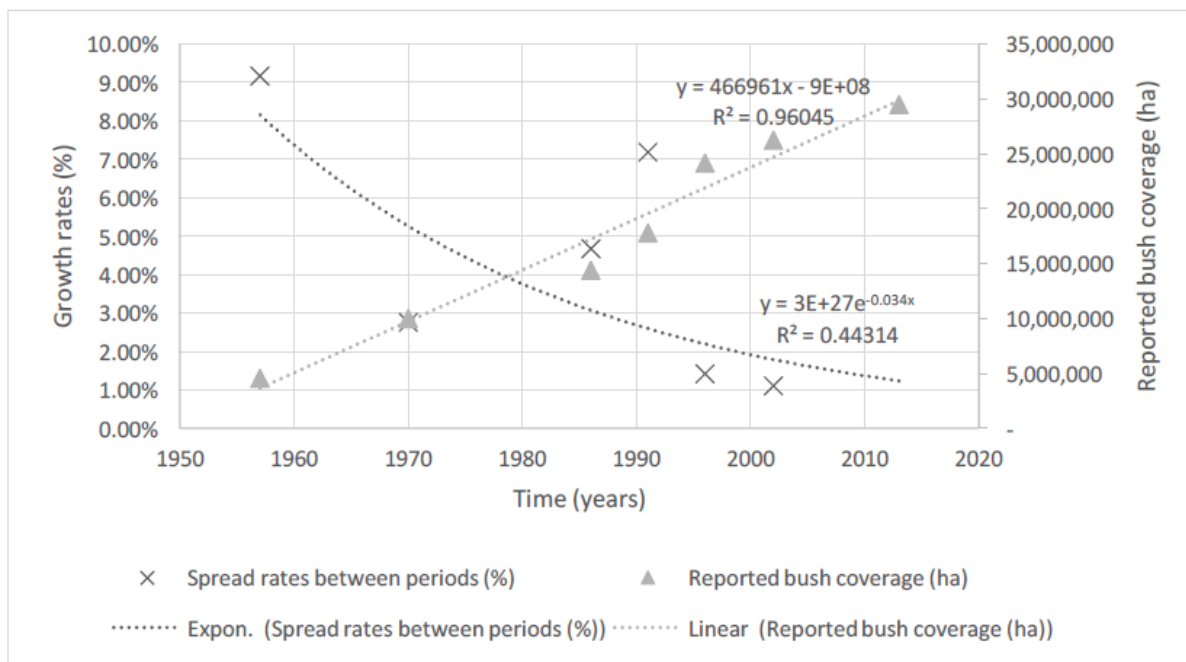
These are areas with varying degrees of bush encroachment, not just areas with particularly heavy bush encroachment.

Much larger figures, up to twice the figures of Honsbein, have been published recently. They seem to be based on the wishful thinking of interested parties.

Honsbein calculated a bush growth rate of 3.18 % per year. Based on her data, an additional bush encroached area of **1.05 million hectares per year** is anticipated (Table 1).

However, a significant proportion of the scrubland is lost to bush fires. This year (2020), losses of scrubland have been reported from [fires on farms](#) of 0.10 million hectares and extensive bushfires in the [Etosha National Park](#) of 0.25 million hectares. Not all bush fires are reported in the daily press and the fire season is not yet over. In addition, there are not exactly known bush losses due to the formation of firebreaks to stop the fires.

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This leaves an estimated increase for scrubland of about **0.60 million hectares per year** (Table 1). Rising temperatures due to the climate crisis are likely to lead to even higher fire losses in the future, even though efforts are being made to better control fire causes such as [charcoal production](#).

Table 1: Annual effective increase in scrubland

Encroached areas in Namibia	Mio. hectares per year
Annual increase	1,05
after losses due to bushfires and similar events	0,60

Bushwood quantities from area specifications

The rate of increase in scrubland should not be confused with the rate of increase in usable bushwood. According to the information provided by IfaS in ("[Calculation of the CO₂ balance of the biomass partnership project](#)"), 9.6 tonnes of bushwood (dry) per hectare are to be harvested and removed. The remainder of a stock of 30.81 tonnes per hectare, according to a [study by UNIQUE](#), is to be partly left standing, partly cut off, but left lying permanently, both to prevent soil degradation. IfaS agrees that a strip method of bush harvesting recommended by Namibian scientists should be used.

With about 31% of the bushwood available per hectare (9.6 / 30.81), **5.8 million tonnes** of bushwood per year could thus be harvested and removed in order to stop the expansion of the bush-covered areas (Table 2).

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An important aspect to consider is that not every area is suitable for bushwood harvesting. The [environmental impact report](#) for NamPower's planned 40 MW biomass power plant shows that around 40% of the potentially suitable land for bush harvesting is inappropriate (such as areas along ephemeral watercourses; rocky areas and mountains; inclined areas with a gradient of more than 12.5°; formally protected areas or areas within defined buffer zones). Another factor to consider is that there are areas where the farm owners do not wish the bush to be cleared.

Assuming a 35% defoliation rate, **3.7 million tonnes of bushwood** remain for annual harvesting (Table 2).

Table 2: Possible bushwood harvest per year to stop scrub encroachment in Namibia

Annual bushwood harvest	Mio. tonnes per year
Possible harvest	5,8
of which on usable areas	3,7

Table 3: Expected demand of bushwood for the domestic market in Namibia

Annual bushwood requirement	Mio. tonnes per year
Charcoal in general	1,2
80 MW Biomass Plants	0,5
Ohorongo Cement Plant	0,1
Heat users like breweries	0,1
Firewood	0,6
Fence posts	0,2
Animal Feed	0,05
Construction elements	0,4
Sum	3,1

Use of bushwood on the domestic market in Namibia

The calculated amount of 3.7 million tonnes of bushwood per year which needs to be harvested to avoid further bush encroachment, constitutes only about 20% of the 18 million tonnes of bushwood per year which IfaS anticipated. In fact, the 3.7 million tonnes are close to the total local demand for bushwood inside Namibia as shown in Table 3.

The estimate for charcoal includes the planned expansion of the Otjiwarongo Charcoal Factory by UNIDO and Finland. For the traditional charcoal production, 5 tonnes of wood per tonne of charcoal were used, for example in the [Environmental Impact Report](#), section 7.11.5.1. Other

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values are comparable to the demand values in a [report](#) recently published by the Hamburg Environmental Authority.

Table 4 offers a comparison with values from IfaS. In the recent [report](#) of the Hamburg Environmental Authority, IfaS stated that 1.85 million tonnes of bush biomass would probably be used in 2020. Including the planned power plants, 3.9 million tonnes of bush biomass would be used in 2030, with a natural increase in bush biomass until then of approximately 19.2 million tonnes per year.

Table 4: Comparison of the results of our own assessment with those of IfaS

Domestic demand in million tonnes per year		Possible harvest to halt bush encroachment	
Own assessment	Estimation of IfaS for 2030	Own assessment	IfaS
3,1	3,9	3,7	19,2

Table 4 shows that the IfaS estimate of Namibia's domestic demand of 3.9 million tonnes of bushwood per year for 2030 is larger than the estimate of a possible bushwood harvest of 3.7 million tonnes per year calculated here.

Our figures regarding the required harvest to halt bush encroachment are much lower than those of IfaS, because a number of factors were taken into account which were simply overlooked by IfaS when they calculated 19.2 million tonnes per year.

Much of the literature on scrubland and its bushwood content is subject to considerable uncertainty. **Our calculations show, however, that it is unlikely that an export of the raw material bushwood from Namibia will be necessary in order to avoid a further increase of bush encroachment.**

Finally, the effects of a fully mechanised industrialised bush harvesting operation will not assist to solve Namibia's social problems, especially regarding the creation of a large number of [urgently needed new jobs](#) to counter the huge levels of unemployment.

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