

Good Practices for Namibian Charcoal



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Good Practices for Namibian Charcoal

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Foreword

This booklet is a summary in bullet points of the most important good practices for the Namibian Charcoal Industry. For more detailed information please visit the NCA website as each chapter has more detail which is regularly updated and placed on the website.

The booklet is published as part of an intervention identified for the Industry Growth Strategy of Wood Charcoal.







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Good Practices for Namibian Charcoal

Getting Started

“Forest management shall conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and landscapes, and, by doing so, maintain the ecological functions and the integrity of the forest.”

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- Forestry Harvesting & Marketing Permit issued.
- Legal access to the production area (Legal owner of land, Tenant with rent agreement of land or charcoal producer with “permission / agreement” of land to produce Charcoal only).
- Neighbours are informed of charcoal production and communication system is in place to report veld fires and medical emergencies.
- Contract in place for all workers, including:
 - Social Security and Workmen’s Compensation.
 - All workers are trained (harvesting procedures; wood types as specified on permit).
 - First Aid training concluded and First Aid helpers identified.
 - Proper facilities are available for workers.
- A bush/tree count and vegetation composition survey has been conducted, containing encroacher bushes/trees, protected species, fodder & non-targeted species.

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Getting Started continued ...

- ❑ A farm map is available (including all environmental areas, sites and locations).
- ❑ Charcoal production areas are photographed and GPS coordinates are recorded.
- ❑ Roads are maintained for easy access to charcoal production area.
- ❑ Fire prevention equipment is in place and workers are trained.
 - Effective fire breaks around camp & border fences.
 - An area of 5m cleared around each kiln.
 - Firefighting equipment ready – fire slashers at charcoal site, village & homestead; mobile firefighters filled up and on stand-by.
 - After-care of extinguished areas, smouldering pieces on the brim of fire line, wind intensity & direction taken into consideration.
- ❑ Adhere to environmental rules not to disturb the natural habitat of protected species and controlling soil erosion.



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Harvesting Practices

... to promote the sustainable management of the environment and the use of natural resources by establishing principles for decision making on matters affecting the environment; ... (Extract from the Environmental Management Act, Act No. 7, 2007)

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- ❑ Apply patch or mosaic-type of harvesting.
 - This avoids a mono-diversity of encroacher vegetation, and keeps some of the original biodiversity composition.
- ❑ Ensure that the harvesting/management plan is strictly followed.
- ❑ Adhere to all forestry legal diameter limits (25 mm - 180 mm). The 180 mm refers to the bottom of the stem, in the middle of the bush it might be 150 mm.
- ❑ Do not harvest edible fodder bush, e.g. *Catophractes alexandri* (Gabbabos, Omukaravize, !khabab), *Tarchonanthus camphoratus* (Wild camphor, Vaalbos, Kamferbos, Omuteatupa), *Grewia flava* (Velvet raisin, Rosyntjiebos, Omuvapu).

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Harvesting Practices continued ...

- ❑ Do not harvest common species protected by Namibian legislation/Forestry. (Please refer to sheet containing information on protected species.)
- ❑ Once harvested, wood is allowed to dry for at least 2 weeks.
- ❑ Wood is packed in organised fashion, equal length and width together; bigger pieces separated from smaller pieces.
- ❑ Multi-stemmed harvesting as indicated on permit. Should big tree/bush species have two or more trunks/stems, take one or two stems < 180 mm, and leave the rest of the tree.
- ❑ Twigs & branches less than 25 mm must be left in the veld as mulch and to prevent soil erosion.
- ❑ Monitoring to be done six months after the initial harvesting, repeated thereafter every six months, preferably during the rainy season and the dry season (Aug.-Oct.), comparing the various encroachers' regrowth rate over time and season, specific species, rainfall and soil types, also keeping in mind the after-care practices of the owner/farmer in terms of browsing by livestock/ game, applying chemicals or controlled veld fires.



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Species to be harvested

Encroacher bush is a threat for our rangelands and utmost care must be taken to compile a harvesting plan to support the thinning process. Always keep in mind that even encroacher bush plays an important role in the biodiversity of the rangeland and should not be totally eradicated. Observe the guidelines provided to support the harvesting plan.

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Acacia mellifera Black Thorn, Swarthaak, Omusaona

Acacia luederitzii/reficiens Umbrella Thorn, Basterkameel, Rooihaak/ Eno'

Acacia fleckii Sand-veld Acacia, Wit-/ Sand-haak, Mungamba

Dichrostachys cinerea Sickie-bush, Sekelbos, Omutjete, Kalahari Christmas Tree

Terminalia prunioides Purple-pod Terminalia, Deurmekaarbos, Omuhama

Terminalia sericea Silver Cluster-leaf, Sand-Geelhout, Mugaro-Omugolo

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Protected Species

The bush thinning process may sometimes include specific protected species to be harvested. These must at all times be specifically included on the harvesting permit. Charcoal workers can also be fined should they harvest protected species, however, ensure that this is stipulated in the contract of employment.

| | |
|--------------------------------|--|
| <i>Acacia erioloba</i> | Camelthorn, Kameeldoring, Omumbonde, Ghuntu |
| <i>Burkea africana</i> | Wild Seringa, Wilde Sering, Omutundungu, Mutundungu |
| <i>Boscia albitrunca</i> | Shepherd Tree, Witgatboom, Omutendereti, Unkundi |
| <i>Combretum imberbe</i> | Leadwood, Hardekool, Omumborombonga, Munyondo |
| <i>Combretum apiculatum</i> | Kudu-bush, Koedoebos, Omumbuti, Kalanga |
| <i>Ficus species</i> | Wild Fig, Wilde Vy, Omukuyu, Uhoro |
| <i>Lonchocarpus nelsii</i> | Apple-leaf, Appelblaar, Omupanda, Mupanda/Mokolo |
| <i>Peltophorum africana</i> | African Wattle, Huilboom, Omuparara/--lala, Muparara |
| <i>Ptercarpus angolensis</i> | Transvaal Teak, Dolfhout, Omuhuva, Oguva |
| <i>Ricnodendron rautanenii</i> | Manketti, Manghetti, Omunkete, Ngongo |
| <i>Sclerocarya birrea</i> | Marula, Maroela, Omukando-Ongongo, Uwomgo |
| <i>Spirostachys africana</i> | Tamboti, Tamboetie, Orupapa, Mushongo |
| <i>Strychnos species</i> | Monkey Orange, Suurklapper, Omusu, Uguni |
| <i>Ximenia species</i> | Sourplum, Suurpruim, Omuninga, Kakukuru |
| <i>Ziziphus mucronata</i> | Buffalo Thorn, Blinkblaar wag-'n-bietjie, Omukaru, Omukekete |



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Production Practices

Harvesting of encroacher bush is expected to increase dramatically in Namibia, with support for bush thinning and biomass utilisation coming from government, donors and commercial institutions. Bush-thinning operations need to be carried out carefully, to avoid causing environmental harm.

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- Use an axe and a panga to harvest wood.
- Separate wet and dry wood, thick and thinner wood as well as lighter and heavier wood.
- As soon as you have gathered 600 - 800 kg of wood the combustion process can start.
- Gather dry thinner wood to start a kiln fire.
- Start small fire and put the kiln at an angle over fire to ensure enough ventilation.
- Once the kiln starter fire burns properly, prepare at least 8 air inlets spread around the base of the kiln in the ground where the kiln will stand on the ground.
- Lower kiln level onto the ground over the fire and surrounding inlets.
- Add pieces of the thinner dry wood to increase the kiln starter fire. (This wood will be burned to ash to carbonise the rest of the wood.)

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Production Practices continued ...

- ❑ When the fire is big enough in the base of the kiln on the ground, start adding the heavier, thicker and wetter wood that will not burn out too fast.
- ❑ Without crushing the fire at the bottom, the wood can be pushed in deeper with a long branch to ensure the wood is tightly packed and the maximum amount of wood gets into the kiln.
- ❑ No wood should protrude or burn out at the top of the kiln and the lid should be kept next to the opening where it can be easily accessed to control the kiln heat and close off the fire in case of a strong wind that could lead to a veld fire in the surroundings.
- ❑ Let the kiln burn/ smoulder with the lid open slightly with a stick under it so that the wood can drop, as burning proceeds. You would only do this if you are still adding wood to the kiln.
- ❑ Top up the kiln with the last bits of thinner, dryer and lighter wood that do not need a lot of burning/smouldering.
- ❑ The kiln lids are closed off and sealed between 3 to 7 hours after starting. The longer a kiln burns before it is closed off, the more charcoal it produces, but more wood is burned to ash.



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Production Practices continued ...

- ❑ Close some of the inlets at the bottom or the lid at the top of the kiln to reduce the fire intensity so that the wood does not burn out too fast or open the inlets slightly, to increase the fire, if it is too cold.
- ❑ Kilns closed off in 3 hours' time can be opened the following day but those burned for 7 hours or more can take up to 3 days to cool down.
- ❑ Assess the kiln heat by touching the outside with the outer hand; taking care not to burn your hand. Ensure the heat is spread evenly to all sides of the kiln by opening or closing the inlets at the bottom with loose sand.
- ❑ The kiln should be supervised until it is sealed to prevent the spreading of veld fires.
- ❑ Do not open the kiln before it has properly cooled down.
- ❑ When kilns are opened the charcoal is raked into a more open circle to air it, and cool it down completely for at least 72 hours before it is packed in bags.
- ❑ Charcoal is then separated from sand & ash by sieving it with a sand and a 20/25 mm sieve, to remove the fines/fine charcoal.

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Dispatch / Transportation Practices

The distribution phase, i.e. packaging, loading and transport of the charcoal from the kiln to the point of wholesale distribution or large scale industrial use, can represent up to 25% of the total production cost.

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- ❑ The bagged charcoal is removed from the production site by means of a tractor/trailer or truck to the central loading point, reloading onto trucks to be off-loaded/marketed at the preferred processor.
- ❑ The original production area is monitored regularly by the Forest Stewardship Council (FSC) Official having initially established “Fixed Photo Points” and GPS coordinates for future assessments of the following:
 - The charcoal extraction roads must recover gradually to the natural state.
 - The re-growth rate of the harvested encroachers.
 - The overall recovering of the vegetation and re-establishing of annual and perennial veld grass pastures.



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Administration Practices

Taking care of the charcoal workers will ensure good relationship over many years, which in turn will lead to better quality and enhanced production of charcoal. Favourable socio-economic conditions will enhance the working climate.

- ❑ Proper ablution and shower facilities must be provided at the camp site for both male and female workers.
- ❑ Proper housing using at least steel/corrugated iron structures should be made available; PVC structures should be avoided at all times.
- ❑ Shop facilities at the premises – allow workers to buy on credit, should be properly documented and reflected as a deduction on the remuneration sheet.
- ❑ Monthly visit/transport to nearest town should be made available.
- ❑ Protective clothing to be provided, deposit can be charged when workers start their duty. This deposit can be forfeited if charcoal worker terminates his service before the end of the agreed period. This must be stipulated on the contract of employment.
- ❑ Do not forget the SSC and Workmen's Compensation deductions and payments.

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Health and Safety Practices

The process of making charcoal is ancient, with archaeological evidence of charcoal production going back about 30,000 years. Because charcoal burns hotter, cleaner, and more evenly than wood, it was used by smelters for melting iron ore in blast furnaces, and blacksmiths who formed and shaped steel. In the Namibian context it is mainly used for barbecues, nationally and internationally.

- Clean drinking water, via a separate storage tank, should always be available.
- First Aid kit always available at charcoal site to treat minor injuries.
- In the event of a major injury, worker must first be stabilised at site and then swiftly transported to nearest clinic or hospital at the expense of the owner / rental person in charge.
- At least one charcoal worker must receive first aid training and be available in the charcoal area at all times to assist with minor injuries.
- Safety wear, including boots, gloves, protective glasses, overall and mouth dust protector must be issued when workers commence their duty.
- Central collecting point in village for all domestic & other refuse, regularly removed to appropriate and fenced-off refuse dump.



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Remuneration Practices

The process of making charcoal is ancient, with archaeological evidence of charcoal production going back about 30,000 years. Because charcoal burns hotter, cleaner, and more evenly than wood, it was used by smelters for melting iron ore in blast furnaces, and blacksmiths who formed and shaped steel. In the Namibian context it is mainly used for barbecues, nationally and internationally.

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- ❑ Each charcoal worker is allocated to a specific area in the charcoal production field. This area has to be harvested within his own time frame, ability and productivity. This means that the charcoal worker can arrange his own working hours, working days, as well as leave and off-days.
- ❑ Factors like Social Security, Workmen's Compensation have to be accommodated when the remuneration is calculated.
- ❑ Remuneration is agreed upon upfront when the contractual agreement is signed, and is calculated on an amount per ton charcoal produced and delivered.
- ❑ Taking all the factors into consideration it is a good practice to pay the charcoal worker **between 38 and 40% of the selling price of charcoal.**





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Important Contacts

The following list provides information on contacts in your areas. You should at all times get the information for the Directorate of Forestry from the local Forestry office in your region.

| Namibia Charcoal Association: | Roelien Coffee | +264 (0)67 304 220 |
|--------------------------------------|-----------------------|---------------------------|
| Alfacharcoal Namibia (Pty) Ltd: | Johan Leijenaar | +264 (0)81 122 3612 |
| Carbo Charcoal Namibia: | Hans Steyn | +264 (0)62 240 279 |
| Corridor Logistics (Pty) Ltd: | Ben-Louis van Vuuren | +264 (0)67 312 077 |
| Etosha Charcoal: | Maans Roberts | +264 (0)67 313 797 |
| Jumbo Charcoal: | Ian Galloway | +264 (0)62 240 279 |
| Kilo 40 Trading: | Gerhard Steyn | +264 (0)67 304 789 |
| King Charcoal Namibia (Pty) Ltd: | Wessel Oosthuysen | +264 (0)64 221 858 |
| Makarra Bushproducts: | Michael von Hacht | +264 (0)67 307 209 |
| Namibian Retort Charcoal (Pty) Ltd: | Dirk Kaiser | +264 (0)81 802 4321 |
| W. Diekmann: | Wolfhart Diekmann | +264 (0)81 149 5822 |
| Ignite Products: | Bernd Klingenberg | +27 (0)34 995 9905 |
| Nam-Char: | Paul Eek | +27 (0)21 976 1268 |
| Savannah Charcoal: | Johnny McLaren | +27 (0)17 826 8400 |



