



THINK NAMIBIA
Sustainable Forest
Management

MBAPIRA YAMAPUKURURO KUHAMENA:

Ufwandi wawiya muNamibia

Shitambo shambapira yino shakufwaturura rudi rwaufwandi ndjenditito nalifano lyawiya muNamibia.

LITWAROMO

Nampiri ndi momu ashi Namibia shirongo sharutetenyi shakaro kuurundu waSahara kapi shakara tupu namburundu. Mvhura kuroka unene kutundilira kuutokero yi yende kuupumeyuva ntani kutunda urundu yi yende mukuro ovyo vyakorangedango likutapero lyalifano narudi rwafwandi mushirongo. Ufwandi kwakara watamunuka shirongo mudima, unene po kwakara naupyu mukatji kashirongo, mburundu utokero nakwaraurundu ntani livhu lyavitondo ndi wiya kwara mukuro pakatji ntani mukuro upumeyuva kuruha rumwe rwashirongo. Wiya waNamibia runone rwamulyo rwashirongo nampiri momo vyakara ashi kapi vyayivikwa nawa-nawa pakuvyukilira.

Kutwara mumbunga yaFAO's lifwatururo lyawiya waNamibia kwaungungunyikira ghukwatakane livango lyakutika kuperesenta 8.4. Ovi kutwara mumapukururo ogho ghapiro kuvyukilira, vina kuneghedo mpumbwe yalikonakono yayipe kutwara mulifwatururo lyawiya lyambunga yaFAO's.



Lifano1: Limoneko lyokuvyukilira lyawiya mukuro upumeyuva waNamibia

Unene waruha rwashirongo, kwaungungunyikira kutika kuperesenta 66 yalivango lyalivhu, yayo kwalifikilira kwavikundurukida vishwa navimenwa vyakuparuka muupyu, ovyo va fwaturura ashi "livhu lyavitondo".

Wiya kutanta ashi "livango lyayandjumuko kutika kuhekitera 0.5 navitondo vyavire kupitakana metera 5 ntani nambando yakupitakana kuperesenta 10% pawiru ndi vitondo vyakuvhura kutika kumutika wavitondo" (FAO, 2020).

Livhu limwe lyavitondo kwalifwaturura ashi "mbando yavitondo mukatji kaperesenta 5 ndi 10%, vitondo vina hepa kutika kumetera 5 mumakurayi ghavyo" ndi "mbando yavitondo vyakutika kuntji ya 5%, ene ngoli yakuvhonga navishwa navishwaghona ntani navitondo vyakaro 10% pawiru, rambangako mavango ghavishwa navishwaghona opo papiro kukara vitondo" (FAO, 2020).

Lifwatururo lyauviri lya "livhu lyavitondo" kugwanita po ufwandi muNamibia, shinene po ruha rwapakatji, oro rwakara navishwa ovi vyapato unene navishwa vyavingi vyapampo yira kankankata (*Acacia melifera*) namweghe (*Dichrostachys cinerea*).

Kuupa ko mafatururo ghapauyivi runone rwamuNamibia kwakara mulyo paumwene, pamaulitiro, paekonomi napantambo damaulitiro, oyo vyakaro ashi kuvhatera maruha naghantje ntani kutapa mulyo waunene kulikutundakano lyavimeno navikorama.

MARUDI GHAUFWANDI NTANI NANDJENDITITO MUNAMIBIA

Lifwatururo lyaufwandi kwakara mulyo unene mukuwana ndjenditito yauhunga mukurughanita runone rwavitondo. Lifwatururo lyalinene lyaufwandi waShirongo kwalirughanine Giess mu1971, lyalyo kwanegheda ashi lyavyukilira. Lifano kwagaunine shirongo mumaruha 14 ghaufwandi ghakukushuva. Shimpe nda yakarera ndjokarata yayinene va rughanita mushirongo, kuna kukwama kuproyeka oyo yi vhuro kuwapukurura karata yino nakutapa mapukururo ghamayingi kuhamena maufwandi.

Ndundu navishwa ntani wiya wakuvhonga

Kwakara pakatji kaNamibia munda yamukunda waOtjozondjupa naOtjikoto. Mauturo ghakushuva-shuva ghakaro mo yira ndundu, madamenena ntani wiya walivhu wakaro namarudi ghakushuva-shuva yira:

- Mpungurume (*Kirkia acuminata*)
- Kanguru (*Berchemia discolor*)
- Lipoko (*Securidaca longepedunculata*)
- Mukarakasha (*Olea europea Africana*)
- Mundjaru (*Spirostachys Africana*)
- Mfughu (*Ficus cordata, sycomorus and thoningii*)

Wiya wavishwa navitondo vyavikuni

Kwatamunuka kutunda mukuro upumeyuva washirongo mumukunda waZambezi dogoro kuupumeyuva waOwamboland ntani wakaghurumuka kuWaterberg Plateau Kwakara mo vitondo vyakushuva-shuva rambangako:

- Uhahe (*Baikiaea plurijuga*)
- Ughuva (*Pterocarpus angolensis*)
- Mautundungu (*Burkea Africana*)
- Maugongo (*Schinziophyton rautanenii*)
- Ushivi (*Guibourtia coleosperma*)
- Maguni (*Strychnos cocculoides and pungens*)
- Maghudjwa (*Combretum species*)
- Mbundje (*Grewia species*)

Vishwa namauntu

Kwakara mumukunda waKunene watamunuka nka ghuyende kuOmusati, Oshanana, Oshikoto. Kwakara navitondo yira:

- Mauntu (*Colophospermum mopane*)
- Vishwa vyaVaherero (*Sesamothamnus guerichii*)
- Mugumbahambo (*Commiphora species*)

Vishwa vyomiya

Ruha rwaufwandi waunene mukatji kaNamibia kwakara munda yamukunda waOtjozondjupa ntani watamunuka mumukunda waErongo naKhomas. Wagho kwakara narudi rwavitondo vyavikuni yira:

- Unkudi (*Boscia albitrunca*)
- Maudjwa (*Combretum apiculatum*)
- Ukekete (*Ziziphus mucronate*)
- Vitondo vyakuyuhunuka ngodi (*A. hebeclada, A. erubescens, A. fleckii, A. erioloba* vyakara kuntere damukuro, navimwe nka vyavingi)

Mavango ghamanene nadimuhanguro ghapata unene navishwa vyakankakata (*Acacia mellifera detinens*) ntani namweghe (*Dichrostachys cinerea*).

Livhu lyakuyeruka naVishwa

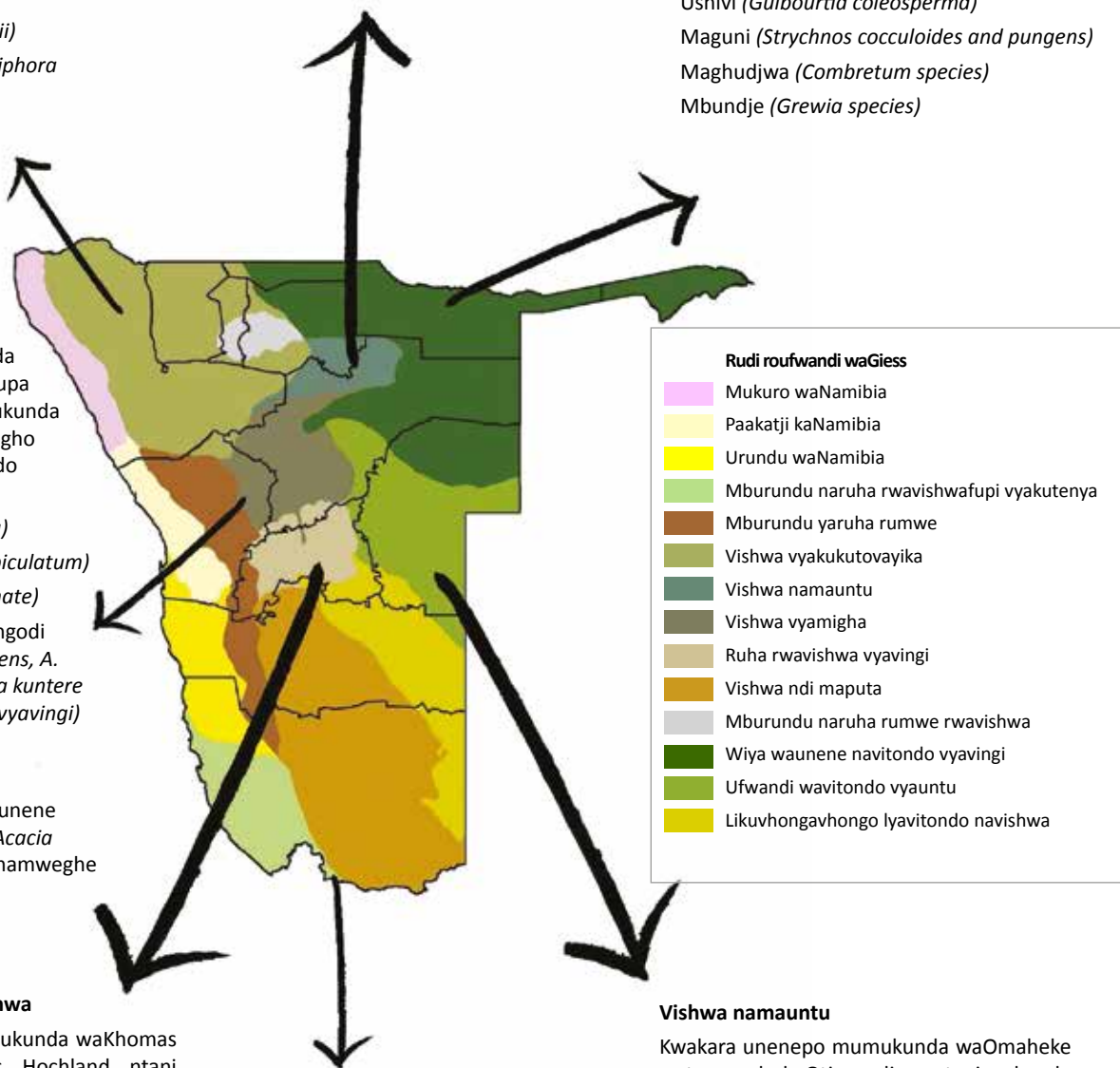
Kuliwana unene po mumukunda waKhomas ntani ruha rwaKhomas Hochland ntani ruha rwaundundu yaAvis. Wiya kwakara mo vitondo yira:

- Maudjwa (*Combretum apiculatum*)
- Ukekete (*Dombeya rotundifolia*)
- Kankata (*Ozoroa crassinervia*)
- Uginda (*Searsia marlothii*)
- Munuu (*Euclea undulata*)
- Lipoko noMuwowo (*Olea europea africana*)

Mburundu yaNamibia, vishwa nakaufwandi kokadidi

Kwakara mwayendo utokero naruha rwaurundu washirongo. Kwakara mo vikwa vishwaghona navipupushwa papepi. vitondo vyavisheshu vyakuwana mo mavango ghamwe kuwana mo:

- Uce (*Tamarix usneoides*)
- Kandjengena (*Euclea pseudebenus*)
- Udjwa (*Catophractes alexandrii*)
- Rudi rwauparara (*Parkinsonia africana*)
- Shingi sharudi rwavitondo vyamburundu vyakupira kukura ntani vimwe vyatenya vyakuyika tupu mauturo gharukukutu.



Lifatururo lyawiya kuna kunegheda rudi rwavitondo u vhura kuwana muwiya. Lifatururo rwashingi shawiya nakumukuro kuupumeyuva waNamibia kwadwata nawa namarudi 9 vina kutiko kuperesenta 90 mumudjumo. Marudi matatu ghavyo, pakuvitwenyaura: ughuva (*Pterocarpus angolensis*), uhahe (*Baikiaea plurijuga*), ushivi (*Guibourtia coleosperma*) vyavyo kwavi yangwiranga morwa mulyo wavyo waunene.

Mukuweda ko ufwandi ogho a fwaturura Giess, wiya wakukuvhonga namushoni kughu wana pepi natumukuroghona twa kukundembaghura yira Zambezi, Kwando, Orange, ntani Kunene. Wiya wakukutetaura wawo wakwara madamenena kupita muwiya peke muNamibia ungandu (*Acacia nigrescens*), ugumbahambo (*Albizia versicolor*), utu (*Diospyros mespiliformis*), Ugoro (*Faidherbia albida*), Uguni (*Garcinia livingstonei*), Uvhunguvhungu (*Kigelia africana*), lidjokwani (*Philenoptera violaceae*), libuku-buku (*Syzygium cordatum*), ntani litaurankongo (*Syzygium guineense*).

MUHANGURO DAWIYA

Muhanguro dawiya kuna tamba rupe omo wafana wiya, mbando yokuwiru muure, ure wavishwa, mutika wavitondo, muhanguro wavitondo vyavididi muunene omo wayimana mudjumo, navimwe ngoweyo. Ovi vifanayika kwayitita po viviyauko yira litamunuko lyalivango, livhu namurokwa, ntani kuvhura va vi vhundure yira maulitiro, mudiuro, ntani navirughana vimwe vyavantu yira likenito mavango. Muhanguro wawiya ukurona kumukuro upumeyuva waNamibia kwauhangura kuvitondo vyakulinapuka nambando yayire, muhanguro wavishwa, ntani muhanguro wauwa wamushoni.

Vitondo vyaundambo unene po vyakukura kadidi ntani kukuwederera parusheshu, unene po morwa vitundwamo vyapauntjitwe ndi linyateko lyantjitwe. Vitondo vimwe yira ughuva (*Pterocarpeus angolensis*) kukura nantambo dalikuro, omu vyafanga vi vyuke palivhu ntani kukura nka shimpe ntjene vina wapere kukura. Livyuko kunyima unene po kwashoroka nga ntjeneshi shishorokwa shamudiuro. Mbuto yayisheshu kwayiwana yavitondo yira maugongo (*Schinziophyton rautanenii*) ntani mauuva (*Pterocarpeus angolensis*).

Shitafura 1: Likwatakana lyashetakano lyamuhanguro walishetakanito lyauufwandi kumukuro upumeyuva waNamibia (De Cauwer et al., 2018)

| Muhanguro waufwandi kumuro upumeyuva walivhu lyavitondo | |
|---|----------------------------|
| Pakushetakana madi UMS (cm) | 29.9 |
| Pakushayera UMS (cm) | 52.8 |
| Pakushetakana ure wavitondo (m) | 12.0 |
| Livindakano lyavitondo (m ² /ha) | 5.6 |
| Mutika wamahako/ Rudi | Lihako Ilyakuyandjumuka |

UMS = Ure munaupatji waShitondo

MATJILITO GHAMARUDI GHAMAUFWANDI

Ufwandi wandiyoyo livango kwakara muutjirwe wapantjintwe ntani nalinyateko lyantjitwe. Matjilito ghamwe ghakara nankondo, ano kumarudi ghamwe ghakukarera oku yashorokera nga ndi kutunga.

Shitafura 2: Matjilito ghamanene ghaufwandi muNamibia

| Matjilito kuufwandi muNamibia | |
|--|---|
| Mudiuro wakehe ruvede washoraukango kuuhura waShivaka sharukukutu | Matjilito ghamanene kumukuro upumeyuva, kwadjonaulitanga likuro, kusheshupita mukumo ghomadi ghavitondo, kudjonaulita nka muhanguro waufwandi. |
| Liyanguro lyakupitakenena lyavitondo | Matjilito ghamanene kumukuro upumeyuva shinene po liyeruko lyampumbwe davitondo. Runone rumwe, yira likakata, kwaliyanguranga kupitakenena. |
| Rukukutu namvhura yakukutovayika | Shinema shashire sharukukutu, shamonayika kumavango naghantje ghaNamibia kutunda mwaka wa2013 dogoro 2020 shina yita lidjonauko lyalinene mwayendo shirongo nashintje. |
| Liulito vitondo kapishi paveta | Matjilito po kuruha rwaaurundu waNamibia. Vitondo vyaviteke kuviyangura kapishi paveta nakuvi ghulita pamaulitiro ghakapishi paveta morwa liyeruko lyampumbwe. |
| Mpumbwe darudi romautiliro ghapandje | Utjirwe wavitondo vyaparukango shirugho shashifupi ntani, tumukuroghona mushirongo narudi yira makanya ghamuwiya vitondo vyaushungu vikwa rupertwi ntani mpumbwe daviirongo vyapandje. Mukatji ntani ruha rwamukuro washirongo unene po kwakara nampumbwe davitondo rudi ro apere (<i>Opuntia Species</i>). |
| Maulitiro naudito wamalyero | Utjirwe wamaruha ghamangi ghashirongo malyero kudemenena vitondoghona ntani vitondo vimwe vyavididi kudjonaulita likuro lyavyo ndi kuvi dipagha. |
| Likutjindjo lyoukaro ghoMpepo | Ukaro warukukutu kwakara ruteni rwatundango kulikutjindjo lyaukaro wampepo. Ovi vyayititango po mvhura yakupira kughayarera. Udito waunene kuufwandi mushirongo kuughayarera mukusheshupita utovanyenye wavitondo vyamahako. |
| Lindjonuko lyauturo namadjonauko ghamavango | Udito wamavango ghokutetaura muwiya, unene po kuvi yitita po likenito lyalivhu nakonda yaunandima. |

LIKANDANO PO LYAMAUDITO GHAUFWANDI

Maudito ghawiya kuvhura kugha sheshupita po nandjenditito dino dina kukwamo ko:

- Kushetakanita runone kupitira mulivaruro vitondo ntani kudimburura maudito naghantje ghakuvhura kushoroka, kukwamita ko kuyitita po rudi rwandjenditito namaghano ghandjenditito, morwa kehe rudi rwapalivango tungiro kwakushuva.
- Kukulika ntani kutura muvirughana, ku maufwandi ghakukushuva-shuva, maghano ghakukeverera muniro ghakutwikira shivaka nashintje, mavukito, likandano lyamashorau.
- Kukeverera mukughupa po viyimwa vyaghushungu mulivango namarawiro ghangandi.
- Kunkondopeka ndjenditito dalirughanito runone ntani kutura muvirughana veta daliyanguro runone rwamuwiya. Kukeverera ashi vakengeli veta va yive ashi rudi oro, rwarunone munke va takamitanga.
- Kuyitita ko ndjenditito yakukeverera maunitiro, Yira kutjindja mavango ghamaulitiro ghavimuna, ntani kukeverera ashi vimuna navikorama kuna kukuyenda nalivango lyamalyero.
- Kushana mapukururo kuhamena liwapukururo likuro lyavitondo mukulimburura kumaudito ghakutundilira kulikutjindjo lyaukaro wampepo, ntani kurughanito vitondo vyakukuyenda naukaro wampepo, unene po muliktundakano lyawiya navikorama.

Kughupa ko lipiro murokwa wauwa mushirongo, mwakara vitondo vyavingi vyakukushuva-shuva mumaufwandi. Mpiri momo vyakara namatjililo ghangandi pakara mpito dadiwa kuwiya mukuwapukurura ntani kuvhura ghuyite viyera mo vyavingi kuvantungi mo mudimukunda mukukeverera liyendito lyaliwa ntani nalirughanito runone rwamuwiya munaruwa.

LITOROKO LYANKANGO

Linyateko ntjitwe [Anthropogenic]:

Ntjenditito, yamadjonauro ndi vitundwamo vyakutundilira kuvirughana vyavantu.

Mukumo walivango [Carrying capacity]:

Shivaro shamuhoko warudi rwalivango nauturo wakuvhura gwanena runone mukukara mogho uturo.

Mulivango [In Situ]:

Mulivango lyakukarerera po mukutungu

Rudi rwakukutovaghika pamavango [Endemic species]:

Kehe rudi rwamonaghikango pamavango ghangandi tupu.

MAPUKURURO GHAKUWEDA

Craven, P. & P. Vorster, 2006. Patterns of plant diversity and endemism in Namibia. *Bothalia*, pp. 175-89.

De Cauwer, V., 2020. The timber harvest peak of 2018 in Namibia. *Roan News*, Namibia Environment & Wildlife Society, Windhoek.

De Cauwer, V., N. Knox, R. Kobue-Lekalake, J. Lepetu, M. Ompeloge, S. Naidoo, ... & R. Revermann, 2018. Woodland resources and management in Southern Africa. *Biodiversity and Ecology*, 6, pp. 296-308.

FAO, 2020. *Global forest resources assessment 2020: Main report*. FAO, Rome.

Giess, W., 1998. A preliminary vegetation map of Namibia. *Dinteria*, No 4, Windhoek.

Kabajani, M., 2016. *An assessment of the natural regeneration of valuable woody species in the Kavango regions of north eastern Namibia*. Namibia University of Science and Technology, Windhoek.

Okitsu, S., 2005. Factors controlling geographical distribution in Savanna vegetation in Namibia. *African study monographs*, pp. 135-51.

Otsub, M. D., M. Shilongo, J. Mwiikinhii, & J. Mukonda, 2003. *Forest Management Plan For M'Kata Community Forest*. Directorate of Forestry, Windhoek.

Sprung, R. D., 2021. Community Forestry in Namibia: Integrated forest management. *Travel News Namibia*, 3/6, Windhoek.

Strohbach, B. J., 2001. *Vegetation survey of Namibia*. Namibia Scientific Society, Windhoek, pp. 93-124.

Thompson, S., 2021. *The effect of long-term climatic trends on vegetation phenology of Namibia's forests and woodlands*. Namibia University of Science and Technology, Windhoek.

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