



Omauyelele

CUVE integrated water
resources management
waters

Oku hakela omeva efundja moNooli-upokati yaNamibia

Eshongo

Omutungilo woNooli-upokati waNamibia ouna Oishana. Oku dilila koUninginino wa Angola okwa dja omhilonga edi hadi tondoka omeva omafimbo amwe da uka moshilongo fiyo omevakango lomongwa laEtosha pomafimbo omafundja. Ongushu yomeva ohai kala ashike ili nawa pefimbo lodula. Omeva ohaa ende taa ningi nai meendelelo ngee kwa kukuta omolwa etukepo lomeva osho yoo ekakeko okudja kovanhu noinamwenyo. Opo nee tu etepo oikunino ipe fye tu i tekela nomeva efundja omoishana opa totwa/opa eta oilongifo yokuhakela nokutuvikila omeva efundja oo haakala moishana pefimbo kuhena omeva. Omashongo akwao ongaashi oku kuna oimeno noku kala ile oku longa novanafaalama vopetameko (opo tave lihongo). Ovanhu ava tava longwa navo ovopomudingonoko nova pumbwa yoo oku pewa omadeulo kombinga yokutunga, osho yoo yekalekepo nawa loilonga. Opa pumbwa yoo pa kongwe oitungifo yomomudingonoko oyo tai monikapo. Omukalo ou mupe owa pumbwa yoo u tulwe moilonga nomahangano opamudgingonoko.

Omukalo

Elalakano loku hakela omeva efundja oku tuvikila omeva efundja moiuvikilo yopaunonganoni yoilambo yee “ponds” neetenga da tungwa popepi noiOshana. Omeva omoiShana ohaa pombelwa moiuvikilo nopomba yomahooli pefimbo lodula manga omeva natango e na ongushu iwa. Ponhele yomalolelo yomlipopo ope na omukalo muwa

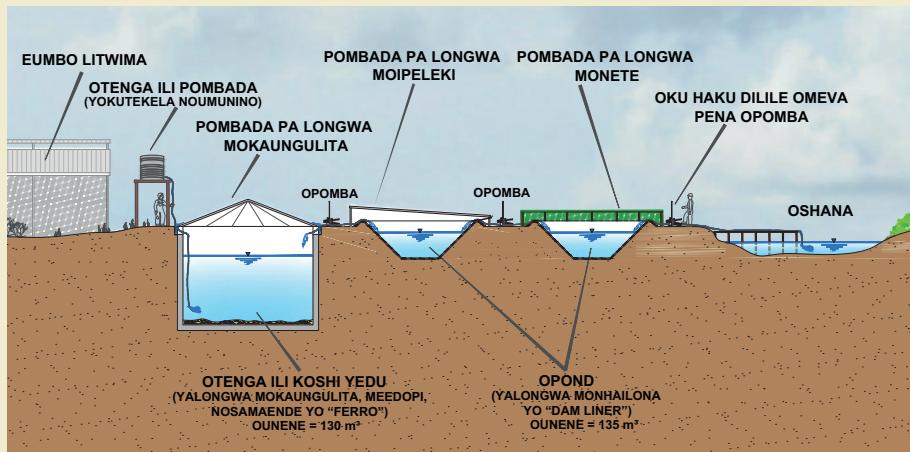
woku tekela noumunino, oo hau kwa telepo omeva nohau tandaveleke omeva oo a tuvikilwa keumbo litwima osho yoo koshikunino sha patluka shili pondje. Eumbo litwima ohali longele kumwe noitopolwa imwe yoshikunino osho shili pondje. Shahala okutya ovanafaalma oha va topolelafana oilonga osho yoo oiuyemo. Ovanafaalama ovena yoo omapya (manini) avo vene omo hava dulu va likole oilikolomwa yavo yopaumwene ile va kalandife oiimati noikwambidi. Opena ovakainhu omulongo va dja mlipopo nopo-mikunda do popepi hava limi oikunino ei neumbo litwima, noku kuna mo oikwambidi. Ovanafaalama aveshe okwali va pewa omadeulo nghene edu lina oku longekidwa, oku kuna, oku tulapo oushoso nonghee vena oku longifa omeva noukeka. Opo nee ehakelo lomeva li hapupalekwe, omeva odula ohaa hakelwa oku dja pombada yoilambo oyo yee “ponds” osho yoo pombada yeumbo litwima (tala moshifo shomauyelel oihakelo yomeva odula moNooli-upokati waNamibia). Oshihakelo shomeya eshi osha twikinikwa yoo komunino wakula womeva (eepomba) opo shi kandulepo omukundu wokuhena omeva omafimbo ale.



Oshihakelo shomeva efundja mlipopo shili popepi nOshana

Omukalo woshiwana woku hakela omeva Efundja

Oshilolelo eshi shoku tuvikila omeva efundja omoShana osha etwapo koituvikili yomeva ya yoolokafana (tala ke-fano lilipedu). Oshina otenga yokoshi yedu noilambo yee "ponds", shimwe osha tuvikwa nonete nashikwao onoipeleki. Oshihakelo eshi oshina ounene wee cubic 400 (m³). Elalakano lomeva aa oku tekela oimeno yomeumbo litwima osho yoo moshikunino osho shili pondje. Oikwambidi oyo yafika oku landifa otai dulu oku kulila meni leumbo litwima, shaashi oimeno oya amenwa keenne detango, komhepo nokoupuka.



Source: Christoph Treskatis

Osho sha monikapo

- ▶ Ehakelo lomeva efundja olili ashike keenhele odo dili popepi noiShana, shaashi omeva ohaa kala unene eshi okulineekelwa pomafimbo odula.
- ▶ Omavalulo a ningwa shinasha noshimaliwa osho shalongifwa kufaanifa nomauwa oa ulika kutya omeva omoilambo yee "ponds" odo da longwa monhailona yo "dam liner" noya tu-vikwa nonhete oyo iwa oku tuvikila omeva.
- ▶ Oku faafanifa omeva oo e na ongushu ili pedu nomeva odula ka e na nande oupyakadi koimeno.
- ▶ Konyala oilongifo aishe yoku tunga otai dulu oku hangika meefitola doitungifo domoshitopolwa.
- ▶ Oilambo yee "ponds", eumbo litwima osho yoo omikalo doku tekela otai dulu oku tungwa koshiwana shopomudingonoko, tashi talelwaa komunambelewa a deulwa.

Oludi londado	Ondado yoilongifo yoplanta	Ondado oyo yavalulwa yokomesho keshe moiplanta
Osh osha longifwa moku tunga Otenga yokoshi yedu (130 m ³) Oponds ya tuvikwa nonete (135 m ³) Oponds ya tuvikwa noipeleki (135 m ³) Oshikunino (1,000 m ³), mwa kwatelia oumunino vo ku tekela eumbolitwima (176 m ²)	N\$ 42,000 N\$ 23,000 N\$ 31,000 N\$ 47,000 N\$ 43,000	N\$ 32,000 N\$ 20,800 N\$ 24,500 N\$ 35,250 N\$ 30,000
Oilonga noku pangela (keshe kodula) Oilongifo ngaashi (eetenga, eeponds noluumbo) Oshikunino (omukalo woku tekela woumunino, eembuto, omaushosho nomiti doupuka)	N\$ 1,500 N\$ 2,500	N\$ 1,125 N\$ 1,875

Omolwa omatomhelo a yooloka, etulo moilonga ola pula oshimaliwa shihapu mokufaanifa nomavalulo opetameko. Omavalulo okomesho oa tengeneka kutya oilongifo yoku tunga (mwa kwa telwa ewapalekululo), okulongifa, nekalekepo otai ka landwa momuvalu muhupu pefimbo limwe. Komesho oikwakutungwa aishe yoshihakelo shomeva efundja otai kala ashike oilambo yee "ponds" tai tu-vikwa neenete, eshi yoo oprojeka ei yatwa kumwe nasho. Omawapalekululo manini a ningwa paemhito adishe oa tengeneka kutya oilonga yekalekepo (nomawapalekululo) oshimaliwa she N\$1,000 ≈ € 77 (May 2015)

Omauwa nomaupyakadi

Omauwa

- ▶ Oku likola noku tuvikila omeva ohaku xwe-popeke elunduluko longhalo yomepo noku kala yoo noimeno efimbo alishe ngee kwa kukuta.
- ▶ Oikulya noundjolowele ovanhu owa xwe-popala.
- ▶ Ounongo kombinga younafaalama nokutekela owaxuma komesho.
- ▶ Opa holoka eemhito omulongo doilonga tai kalelele, osho sha eta omukumo kovanafaalama nkelunduluko leliko.
- ▶ Omaumbo oena oiuyemo ya wedwapo yadja moku landifa oimeno.
- ▶ Ekalekepo, oilongifo yomoshikunino, eembuto nosho tuu, ota di dulu oku landwa koilyo yongudu.



Ovanafaalama vomomukunda utwima lipopo tava kunu

Oipumbiwomwa nomaupyakadi

- ▶ Eendado odo da yandjwa odo ilongifo ashike. Eendado dikwao da wedwapo: odo vanailonga voposhitopolwa, ekwatelepo lokutunga, oilongifo, omadeulo moikunino nomokulela ongudu.
- ▶ Epangelo ola pumbwa oku vatela pashimaliwa shokutunga nosho ku wapalekulula omatungo.
- ▶ Eeprojeka doku hakela omeva odula noefundja tadi ke uya komesho odina oku kwatakanifwa neeveta edi da Namibia tadi ka totwa.
- ▶ Oupyakadi woprojeka tai dopa molwa omaupyakadi eli mongudu, ouhefi, eedjo dixupi doimaliwa ile omaupyakadi manini opautechnika.



Okulikola ounakamudesa momukunda utwima mlipopo

Osho sha enda nawa metulo moi longa

Etameko

- ▶ Oku pumbwa omeva a wedwapo oku tekela
- ▶ Ekalekepo lehalo lovakwashiwana va tunga noku longifa eetenga doku hakela omeva odula noikunino

Oshiwana nomutungilo

- ▶ Omadeulo mokukalekapo ongudu: eemhangoo doilonga yelifa, omafimbo oku longa, nghene una oku landifa oilikolomwa nekwato nawa loinima.
- ▶ Etulolumumwe loomeme nootate veedula da yooloka ohashi kwashilipaleke eyokomesho loilonga
- ▶ Ovakainhu tava kufa omhito vamone oimaliwa noku xumifa komesho ounongo wavo, tava kwafelwa yoo va kale vena oshisho
- ▶ Ekwatafano noilyo yongudu yopamudingonoko
- ▶ Oshinano shixupi shokuya komaumbo no kovalandi

- ▶ Ewiliko longudu oule weedula nhano

Outekinika

- ▶ Evatelo kombinga yoku shanga omambo oimaliwa noku shiivifa oilikolomwa
- ▶ Omadeulo kombinga younafaalama: nghene hai dala, ekelelo loupuka, oku tunga oluumbo, nekwatelepo loinima
- ▶ Omadeulo mekwatelepo laalushe loilongifo opo ku keelewe omawapalekululo akula
- ▶ Omavatelo adja pondje opaunafaalama osho yoo opautechnika
- ▶ Eedjo da we dwapo domeva opo ku kwashilipalekwe kutya oikunino otai longo nongee ku hena odula
- ▶ Ongushu yedu yawana
- ▶ Oluumbo lakola tali a mene koimuna (> 1.5 m)
- ▶ Omhito yokumona oilongifo moshitopolwa

Omhunda yoku hakela omeva odula no efundja

Oprojeka oya etapo omhunda komauyelele oku hakela omeva efundja osho yoo odula. Omhunda ei oya lalakanenewa omahangano novanhu koohandimwe ovo vena ehalo loku etapo eeprojeka dinasha noku hakela omeva odula no efundja, no

ina omauyelegele nghene shina okuningwa nomambo oku tunga omaludi aeshe eetenga noinima yokutekela. Omhunda ei oto dulu yoo oku i mona kepandja eli:

<http://www.cuvewaters.net/Toolkits.112.0.html>

Contact

Namibia

General information

Sophie Kasheetta

Ministry of Agriculture, Water & Forestry (MAWF)
Directorate of Agricultural Production, Extension
and Engineering Services

Phone: +264 61 208 7477

E-mail: kasheetas@mawf.gov.na

Scientific accompaniment

Dr. Adedayo Ogunmokun

Faculty of Engineering and Information Technology
University of Namibia, Ongwediva
Phone: +264 65 232 4005
E-mail: aogunmokun@unam.na

Implementation of projects in central-northern Namibia

Okashana Rural Development Centre
Phone: +264 65 285 312/244 100
Fax: +264 65 285 315
E-mail: reservations@okashanardc.com

Consultancy

Floodwater harvesting construction and horticulture training

Isaac Kariuki

OWC – One World Consultants, Kenya
Phone: +254 72 174 4096

E-mail: oneworldcc2005@yahoo.com

Germany

General information

Dr. Nicola Schuldt-Baumgart

ISOE – Institute for Social-Ecological Research
Science Communication and Public Relations
E-mail: schuldt-baumgart@isoe.de

Technical information

Prof. Dipl.-Ing. Dr. nat. tech. Wilhelm Urban
Technische Universität Darmstadt
Institut IWAR, Chair for Water Supply and
Groundwater Protection
E-mail: w.urban@iwar.tu-darmstadt.de

Published by:

ISOE – Institute for Social-Ecological Research
Hamburger Allee 45
60486 Frankfurt am Main/Germany

Authors: Alexander Jokisch, Oliver Schulz, Isaac Kariuki,
Alexia Krug von Nidda, Jutta Deffner, Stefan Liehr, Wilhelm Urban

Translation to Oshiwambo: Epfania Lepaleni
Efatululo moshiwambo ku: Epfania Lepaleni



September 2015

www.cuvewaters.net

SPONSORED BY THE



Federal Ministry
of Education
and Research

Institute for
Social-Ecological
Research



IWAR

TECHNISCHE
UNIVERSITÄT
DARMSTADT



FONA
Sustainable
Water Management
BMBF



SWING DREN
The University of Darmstadt
for environmental engineering



BGR

giz