

# Mazingira Bora



# TIST

The International Small Group & Tree Planting Program  
www.tist.org

English Version

An Environmental, Sustainable  
Development and Community Forestry  
Program.



East Africa TIST Participants during a joint seminar held at Gitoro Conference Center, Meru in October 2015

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## Kujengana: Don't miss the blessing for your Small Group and Cluster.

**K**ujengana is a very important part of your Small Group weekly meeting. It says in Ephesians 4:15,16 that we are to build each other up into the fullness of Christ. Each person in your TIST Small Group brings his or her own special talents and gifts to the entire group. One of the wonderful things that happen in the Small Group is recognizing, sharing and using those God-given talents.

Kujengana is a way to let those talents be seen and be used. There are two parts to Kujengana:

- Before the closing prayer, every person in the group says **one specific, positive thing** that the leader did at that meeting. For example, they smiled, kept to time, made good plans, encouraged all group members to speak, greeted me and made me feel welcome, pointed out something that was going very well in the meeting or in the work the group was doing, etc. Each member needs to say something different. This is not optional. Everyone gives Kujengana to the servant leader. Some groups also give Kujengana to the co-leader.
- In addition, if someone sees a gift shown by the leader, a group member can also say that.

With Rotating Leadership, each week a new leader will receive Kujengana. Through Kujengana, we encourage each other on the good things that week's leader did in the meeting and the talents the person showed.

Kujengana is also the way we learn to look for positive things about people and then say them. We all need to train our tongues to say the positive. In addition, the whole group learns what that group thinks is important in a servant leader. The next leaders will benefit from what they have heard in Kujengana about previous leaders and know what the groups think is important in being a servant leader.

In response to Kujengana, that week's servant leader just says, "Thank you" after each group member's specific, positive statement. There is no discussion about how it could have been done better, or differently. Often, the person is happy when he or she is told the good things he or she did during the meeting. Sometimes we learn things about ourselves we didn't know!

Kujengana helps the leader on that day recognize his or her talents and how to keep on using them. Kujengana also helps the Small Group because all the members improve their servant leadership as they learn. Kujengana is a double blessing!



## Time to plant! Try these good indigenous trees.

Indigenous trees are tree species that have developed in Africa and are well suited to the environment they developed in. They may improve soil and attract birds and helpful insects. Different trees will grow better in different places.

From TIST Seminars and Cluster meetings, TIST participants have identified types of indigenous trees that are very good and beneficial in their areas. Some of these are described below, and we thank the World Agroforestry Centre for this information on benefits and seed collection and preparation for success. Please consider some of them in your next planting season, and let us know some of the best kinds in your area!

### a. *Prunus Africana* (Kikuyu: Muiiri, Kimeru: Mweria)

This indigenous tree is mainly found in forest reserves. Seeds are available in forests during the dry season. Be sure to collect only the dark brown, ripe fruits from the crown of the tree or the ground.

Remove the pulp by soaking for 24 hours, then wash over a wire mesh. Spread in a thin layer in an airy, shaded place to dry – but for 4 hours only. The seed does not store so use the fresh seed.

Wrapping moist leaves around the seed minimizes moisture loss during temporary transport and storage. Sow directly into the seedbed or pots. Germination takes 6-8 weeks.

#### Uses:

- **Pest repellent:** Can repel some pests e.g. aphids, nematodes (those which attack crops) by its smell. Flowers have sufficient nectar and pollen for good bee forage. Produces high quality firewood.
- **Medicine:** Liquid extracts from bark are used in the treatment of prostate enlargement. Leaves are used as an inhalant for fever or drunk as an infusion to improve appetite. Water

is added to pounded bark, and the red liquid is used as a remedy for stomachache; bark extract may be used as a purgative for cattle.

- **Erosion control:** Trees can be grown along contour ridges and terraces, provides useful shade and acts as a windbreak. Soil improver and leaves can be used as mulch and green manure.
- **Ornamental:** It makes an attractive garden shade tree.

### b. *Peacock Flower (Albizia gummifera, Kikuyu: Mukurwe)*

This tree is commonly found in lowland and upland rainforest and in open habitats near forests. Fresh seeds need no pre-treatment. Stored seeds are soaked in warm water and left to cool to room temperature. The seed coat may be nicked at the cotyledon end to hasten germination. Seed germination is good, 70-80%, within 10 days. Seeds should be collected while still on the tree to minimize insect damage. Seed can be stored for at least a year if kept dry and insect free through addition of ash.

#### Uses:

- **Bee-forage, fuel wood, timber, gum, tannin, medicine:** Extracts from the crushed pods are taken for stomach pains and the bark decoction for malaria, erosion control (the root system holds soil and prevents gulley erosion).
- **Shade:** Nitrogen fixing, improves the soil, and is known as a good mulch tree as leaf litter is abundant during the leaf shedding season.
- **Ornamental** (planted in town avenues for its beauty)



- **Boundary planting:** The leaves quicken the ripening process in bananas.

**c. *Olea Africana* (African wild olive, Kikuyu: Mutamaiyu, Kimeru: Muthata)**

This tree is found in a variety of habitats, usually near water, on stream banks, and also in open woodland. It is resistant to both frost and drought. Fresh seeds are used for sowing, while old seeds can be soaked in cold water for 48 hours. Seeds are often pre-treated by cracking with a hand vice or by rolling a stone over seeds. This is because removing the endocarp can enhance germination. The seeds can be stored at dry room temperature for a few years.

**Uses:**

- **Food:** The main olive products are olive oil and edible olives. The plants are much browsed on by livestock as fodder. They are also used for fuel, timber, charcoal, toothbrushes and ornaments.
- **Reclamation:** The high drought tolerance suggests that it is a good candidate for reforestation in semi-arid zones of Africa.
- **Ornamental:** Olive trees have the capacity to beautify the landscape.

**d. *Syzygium guineense*, Kikyuyu: Mukoe, Kimeru: Muriru)**

This tree usually occurs in lowland rain forest and mountain rain forests. It commonly grows in moist conditions, sometimes even in water, and is usually found along streams. Seeds need no pre-sowing treatment, as germination rates are good and uniform. Rates of 80-90% are attained after 20 to 50 days.

Direct sowing into pots is recommended. Fruits are perishable, hence should be picked from the ground soon after falling. Shaking the branches

with hooks may also collect them. After collection, the fruits should be sown out immediately, as seeds will lose viability if they are dried. If this is not possible, fruit can be stored for a few days in moist sawdust and open containers in well-ventilated rooms.

**Uses:**

- Bee forage, timber, fuel wood, shade, and medicine

Note the poisonous bark has been reported to cause human deaths, so advice should be sought from people experienced in using the products for medicine from this tree.

**e. *Melia (Melia volkensii)***

This termite-resistant tree provides good fodder at the end of the dry season when other fodder may be scarce, and so can be valuable for TIST farmers. The trees, open-crowned, with gray bark, may grow to a height of 6 to 20 meters. *Melia* is common in acacia-commiphora bush land with rainfall of 300-800 mm. It sometimes borders seasonal rivers or wetlands or appears on rock outcrops. It sheds its leaves twice a year, and can be a good choice to plant along with crops.

*Melia* is often started from wildlings or root cuttings, though root cuttings may produce an unstable tree. If grown from seed, the seed should be scarified using fire (fast fires or dry grass dung) or the seed coat nicked and then seeds soaked in water for 6 hours before planting.

**Uses:**

- Provides excellent fodder for goats and cattle; timber and beehives.
- Leaf preparations are used as flea and fly repellents and are said to be particularly effective on goat kids.
- Serves as a good agroforestry tree.





## Strength in diversity: TIST protects biodiversity.

**B**iodiversity—the richness and variety of nature—is essential to a healthy environment. Variety is especially important for responding to change and challenges, like drought, pests, or climate change. Since biodiversity is so important, you might think that people everywhere are working to make sure we protect and preserve this natural richness. However, each day, because of our human actions, we are losing species and genetic diversity as forests are cut, wetlands are drained, and resources are over-exploited. We see this loss every day. Think of how many kinds of plants, birds, and animals that you saw often when you or your parents were young but that are rare or gone today? There are nine million different species of organisms on our planet, and when we destroy them, it is a permanent loss for each of the seven billion people who share this planet, for our children, and for their children.

TIST farmers are making a difference, working to preserve this rich diversity. Each tree we plant

is an important renewable resource. Each tree we plant reduces pressure on natural, diverse forest since we can use it instead of cutting forests for fuel wood, timber, and other products. When we plant indigenous trees, as many groups have in riparian buffer groves and thousands of TIST farmers have on their farms, we directly protect biodiversity. These diverse indigenous trees also provide habitat and food for insects, birds, and animals, many of which are important for pollinating our crops, eating pests, or keeping our soil healthy.

TIST farmers are also sharing their knowledge about biodiversity. Farmers are being interviewed in clusters in a pilot project to share information about biodiversity in their areas. When we learn more about the plants and animals around us, the changes in these areas, and the threats to this diversity, we can take action to preserve this amazing resource. Let's all come together, and share our knowledge, and plant indigenous trees to make a better world for all.

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## Leadership and Governance in your Cluster.

**T**oday, TIST has more than 170 active Clusters. In each Cluster, Servant Leaders support our success and share their strengths. Each Cluster has governance and leadership as follows:

### Cluster Leadership.

- Cluster Leader.
- Cluster Co-leader.
- Cluster Accountability person.

Cluster Leaders, Co-leaders, and Accountability people serve for a period of 4 months. After 4 months of service, the Cluster leader rotates out.

The Co-leader becomes the Leader while the Accountability person becomes the Co-leader. Your Cluster should democratically elect a new Accountability person. Cluster elections are important and mandatory for all TIST Clusters.

### Roles of Cluster Leadership.

#### Roles of a Leader.

1. Should be a servant to the whole cluster and exemplify TIST Values.
2. Leads/facilitates cluster activities: coordinates Cluster meeting, quantification and training schedules with other servant leaders.



3. Motivates Groups to achieve big results, including planting trees and practicing CF and helps the Cluster to remain strong and united.
4. Helps plan for well-organized Cluster meetings with other servant leaders and making sure the meetings are properly led and trained.
5. Works with Accountability Person to ensure that Cluster Meeting and Accounting records are kept properly.
6. Works with Accountability Person to ensure monthly Cluster reports and Accounts reports are sent and are accurate.
7. Helps recruit more Small Groups to be registered.
8. Helps Small Groups have their Green House Gas contracts signed, scanned and uploaded.
9. Welcomes and introduces any new visitor who might attend the meeting.
10. For payments: gets vouchers and other materials before cluster meeting. Works with Accountability Person to make sure the proper payment process is followed, and communicate any questions or problems to TIST leaders and payment coordinators.
11. Reminds Small Group members of the next meeting.
4. Allows inspection of Cluster Records to Cluster members and TIST leaders.
5. Sends both Monthly Cluster meeting and Accounting reports every month.
6. Trains the next accountability person.
7. Helps and supports other servants to serve the Small Groups.
8. During payments: hands out vouchers to groups with 2 members present, reviews vouchers, communicates with payment support coordinators, and follows the payment process accurately and honestly.

### ***Roles of a Co-leader***

1. Takes over when the leader is not there. A co-leader is to serve both the cluster members and the cluster leader.
2. Helps during Cluster Meetings in keeping time
3. Takes records during the Cluster meeting.
4. Reads the previous Minutes to the meeting.
5. Keeps record of the Minutes and discussion held in the cluster.
6. Helps train newly elected Accountability People.

### **Cluster Representatives.**

Each Cluster democratically elects 2 representatives (1 man, 1 woman) to Group of Clusters Council (GOCC). Your GOCC representatives should serve you for a period of 6 months. Thereafter, new elections are held to elect new members to GOCC.

GOCC is composed of 2 -5 Clusters that are close neighbors. GOCC members should meet once per month in the first week of the month.

### ***Roles of an Accountability Person.***

1. Receives Cluster Budget and announces budget received and spent at each Cluster meeting.
2. Works with the Cluster to plan how to use the Cluster Budget to achieve big results.
3. Keeps and maintains Cluster records in an organized Cluster record book, accurately and in proper condition.

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## Gwakana: Ukaaga kitharimo kia gikundi na cluster yaku.

**G**wakana ni gicunci kia mucemano jwa o kiumia jwa gikundi giaku gikinini kirina bata mono. luku ria Aefeso inya, ikumi na ithano gwita ikumi na ithanthatu ati nitubati gwaka o umwe wetu twerekerete uujuru bwa Kristo. O umwe ndene ya gikundi giaku gia TIST naretaga biewa kiri gikundi kionthw. Gintu kimwe gia kurigaria kiria kionekaga ndene ya gikundi ni kwona, kugaana na gutumira biewa biu bia kuuma kiri Murungu.

Gwakana ni njira ya gutetheria ieawa biu kwonwa na gutumika. Kurina icunci biiri bia Gwakana:

- Mbele ya iromba ria kuthiria, o muntu wonthe ndene ya gikundi naugaga gintu kimwe gikwirungamira, gikiega kiria mutongeria wa gikundi athithirie. Mung'uanano, nanthekerie, neekire mathaa, nathithirie mibango imiega, neekire inya amemba bonthe kwaria, nanketherie na natumire ndaigua ng'anirite, nonanirie gintu kiria gitigwitaga bwega mucemanione kana ngugine iria gikundi gikuthithagia. Bubu ni untu ukathuura kuthithia kana kurega. Muntu wonthe naakaga mutongeria. Ikundi bimwe nibiakaga kinya mutetheria wa mutongeria.
- Gukurukira kuthiurukia utongeria, o kiumia mutongeria umweru naakagwa.

Gukurukira Gwakana, nitwikanagira inya kiri mantu jamega jaria mutongeria wa kiumia kiu athithirie ndene ya mucemano na iewa biria oonanirie arinabio.

Gwakana kinya ni njira ya kumenya gutegaga mantu jaria mega kiri antu riu kujauga. Twinthe nitwitagia kuritana ndume cietu kwaria mantu jamega. Kwongera, gikundi kionthe nikimenyaga mantu jaria gikundi kiu kionaga jari jamega kiri mutongeria. Atongeria baria bakathingata bakoona baita kuumania na jaria baigitue kiri Gwakana kiri atongeria baria bakurukite.

Riria waakwa, nthumba iria itongeretie kiumia kiu iuge, "Ibwega", nyuma ya o mumemba auge gintu gikiega na gikwirungamira. Guti kwariria kwegie uria kuringi kubua nkuruki kana uria kuringi kuthithua antu a ou. Jaria maingi, mumumba ou nagwiragua riria eerwa mantu jamega kwegie uria athithirie ndene ya mucemano. Rimwe na rimwe nitumenyaga mantu kwegie batwi twingwa jaria tutikwiji!

Gwakana nigutethagia mutongeria wa ntuku iu kumenya iewa biawe na gwita na mbele kubitumira. Gwakana nigutethagia gikundi nontu amemba bonthe nibaejaga nthumba injega nkuruki o uria bakumenya mantu. Gwakana ni Kitharimo mainda jairi!





## Igita ria Kuanda! Geria miti iji imiega ya gintwire.

**M**iti ya gintwire ni mithemba ya miti iria ikuririte ndene ya Africa na iria ikubuirwa ni naria kumithiurukirite na ikuririte. No ithongomie muthetu na gukucia nyoni na tunyomoo turia tutethagia. Miti mwanya igakuura bwega nkuruki guntu mwanya.

Kuumania na semina cia TIST na micemano ya cluster, arimi ba TIST nibamenyete mithemba ya miti ya gintwire iria iri imiega mono na iria irina baita kiri ntuura. Miti imwe ya iji niariritue aja nthiguru, na nitugucokeria nkatho kambuni ya World Agroforestry Centre niuntu bwa umenyo bubu kwegie baita na kuuthurania mbegu na kuthuranira niuntu bwa uumbani. Thuganiria imwe igitene riu ringi ria kuanda na utwire miti imwe iria miega nkuruki ndene ya ntuura yaku!

### a. *Prunus africana* (Kikyuyu: Muiiri, Kimeru: Mweria)

Muti juju jwa gintwire jwonekaga mono ndene ya miitu. Mpindi niciithagirwa cirri miitune igita riria kuumi. Oja ntunda iria aki cigarukite rangi ciairua na iria cigundi kuuma kiri muti kana nthiguru.

Rita kiu kithiurukite mpindi na njira ya kurinda tunda mathaa mirongo iri na jannariu unyarie iguru ria wire. Ara utirikanirite antu ari na ruugo na kirundu nikenda ciama- indi ugakurukia mathaa janna. Mpindi itiumbaga gwikwa kwou tumira woja orio. Gukunikira mbegu na mabura jarina ruuji nikunyiagia kuura kwa ruuji igitene ririkai ria gukamata na gwika. Anda munandene kana maratasine. Kuuma kwijaga nyuma ya biumia bitantatu gwita banana.

### Utumiri:

- **Kwinga tunyomoo turia tugitaragia:** No juinge tunyomoo tumwe turia tugitaragia imera niuntu bwa mununko jwaju. Maua jarina sukari ya kung'ana kuthithia naicu. Jurina nkuu injega mono.
- **Ndawa:** Ruuji kuuma gicaune nirutumagirwa kworia kunenea kwa prostate. Mathangu

nijatumagirwa gukucia niuntu bwa gwitia kwa mwanki jwa mwiri kana jakanyuwa jakimenuue nikenda muntu omba kwenda kuria irio. Ruuji nirwongagirwa kiri gicau gikimenuue, na ruuji ruru rutune nirutumagirwa kworia kiu; gicau no gitumirwe kiri ndithia

- **Kunyiya ukamati bwa muthetu:** Miti noiandwe nterene cia mitaro na naria kwini, niejanaga kirundu kiri na baita na ninyiagia ruugo. Nijuthongomagia muthetu: Mathangu no jatumirwe gukunikira muthetu na ta mboleo imbithi

- **Kuthongomia:** Nijuejaga muti jumuthongi jwa kuanda kienine jwa kuejana kirundu.

### b. Peacock Flower (*Albizia gummifera*, Kikyuyu: Mukurwe)

Muti juju mono nijwonekaga naria gutina ibari na miitune iria iri guntu kwa mbura na ndene ya mathaka jaria jatirimagwa akui na miitu

Mpindi cioji orio itiendaga uthuraniri. Mpindi (mbegu) iria ikarite cieki nicirindagwa ruujine rwa murutira na rugatigwa kwora mwanka mwanki jwa nyomba. Gikonde kia mpindi no gikunywe aria mpindi yumagira nikenda yumba kuumanga. Mpindi niu mangaga, na ntuku ikumi. Mbeu niibati gutua cirri mutine nikenda tunyomoo tutikacigitarie. Mpindi no ciikwe nkuruki ya mwaka aki ciekwa antu gukuumo na aria gutina tunyomoo na njira ya kwongera muju jwa riiko.

### Utumiri:

- **Nijutumagirwa ni njuki kuthithia naicu, nkuu, mpao, gum, tannin, ndawa** -kuumania na mpindi cikimitwe nicinyunyagwa kworia thina cia kiu na ruuji kuumania na gikonde kia muti rugatumirwa kworia rwagi, Kunyiyia ukamati bwa muthetu (uria miri iri nigutethagia kugwata muthetu na kunyiyia ukamati bwa ruuji ni ngai),
- **Kirundu,** gwikira ruugo rwa Nitrogen muthetune (kuthongomia muthetu), kuria kujukagua kuri njira inthongi ya gukunikira



muthetu niuntu mathangu nijaguaga jamaingi igitene riajo riakugua,

- **Kuthongomia** (Nijuandagwa njirene ya town niuntu bwa uthongi bwaju),
- **Kuanda mianka**, Mathangu nijatumaga marigu jakagundanga.

**c. Olea africana (African wild olive, Kikuyu: Mutamaiyu, Kimeru: Muthata)**

Muti juju nijwonekaga guntu gukwingi mono akui na nduui na nterene cia miuro iminini n kinya ndene ya miitu ya mpao iminene. Jutigitaragua ni mpio inyingi kana uumo.

Mpindi ciumite muundene orio nicitumagirwa kuanda. Mpindi inkuru no cirindwe ruujine rwa mpio ntuku ijiri. Mpindi niciambagwa kuthuranirwa na njira ya kuuna gikonde na gantu ga kugwata na njara kana kwingiritiria iiga iguru ria mpindi iu. Bubu nibuthithagua niuntu kurita gikonde giki nigutumaga muti jukaumanga. Mpindi iji no ciikwa atu gukuumo miaka imikai.

**Utumiri:**

- **Irio:** Biria muti juju juejanaga na wingi ni maguta na ntunda cia kuria. Imera bibi nibirijagwa ni ndithia mono. Kinya nijutumagirwa ta nkuu, mpao, makara, mirashi ya maigo na kuthongomia.
- **Gucokia uria munda jwari:** Uumbi bwaju bwa gutuura kinya igita ria uumo nibutumaga jukaa muti jumwega jwa kuanjia miitu kairi guntune gukuumo ndene ya Africa.
- **Kuthongomia:** Muti juju nijuumbaga kuthongomia uria muunda jukari

**d. Waterberry (Syzygium guineense, Kikuyu: Mukoe, Kimeru: Muriru)**

Muti juju nijwonekaga ndene ya miitu ya mbura iria iti irimene na kinya iria iri irimene. Mono niumaga guntu kurina ruuji rionthe, mono kinya ndene ya ruuji, na niithagirwa mono nterene cia nduui inini.

Mbegu itiendaga kuthuranirwa mbele ya kuandwa, niuntu kuuma nikwijangaga na kwambagiria o rimwe.

Nijukurangaga niuntu nijwithagirwa jukunenea mono ndene ya ntuku mirongo iiri gwita

mirongo itano. Kuanda o rimwe turatasine nigwiikagirwa.

Matunda nijathukangaga na kwou nijabati kwojangwa nthi jarikia kugua orio.

Kinya nojojwe warikia kwainainia muti na rwogoro. Joojwa, matunda jaja nijabati kuandwa orio niuntu nijathukangaga jooma. Kethira bubu butiumbika, itunda noriikwe ntuku inkai jaumbiki kiri sawdust na jari mikebene itikuniki nyomba iri na ruogo rurwega

**Utumiri:**

- **Kuthithia naicu, Mpao, Nkuu, Kirundu, Ndawa**

Menyeera: gicau kiu kiri sumu na kairi no gitume muntu akue, kwou nubati kwamba kuuria baria batumirite gikonde kia muti juju kiri kuthithia ndawa

**e. Melia (Melia volkensii)**

Muti juju jutirijagwa ni muthwa ni irio bibiega mono muthiene jwa igita ria uumo riria irio bingi bitikwoneka, na nojwithire jurina bata mono kiri arimi ba TIST. Miti iji, iikunurite iguru, irina gicau kia rangi ya gray, noyume inenee mwaka uraja bwa meter ithanthatu gwita mirongo iiri. Muti juju nijwonekaga mono miitune ya miti ya acacia-commiphora iria irina ngai ya milimita magana jathatu gwita magana janana. Rimwe nithagirwa yankanite na nduui cia igita ria mbura kana irimbene kana ikauma maigene jaria jaumirite nthiguru. Nijugwithagia mathangu jairi mwaka, na ni jumwega jwa kuandaniria na imera.

Melia jwaandagwa kuumania na iria yuumite yongwa kana miiri igitwi, kinyethira miiri igitwi no iume muti jutikurungama jungwa. Jwaumithua kuumania na mpindi, mpindi yomba kuritwa kirema na mwanki (mianki ya ntuti kana ya nyaki injumu) kana gicau kia mpindi kiomba guturwa riu mpindi ikarindwa ruujine mathaa jantatu mbele ya kuanda.

**Utumiri:**

- Irio bibiega mono bia mburi na ng'ombe; mpao; mauki
- Mathangu jathithitue nijatumagirwa kwinga ndaa na ngii na nijaritaga ngugi mono kiri twana twa mburi.
- Muti jumwega jwa kuandaniria na imera



## Inya kiri mithemba imingi: TIST nikaragia wingi bwa mithemba.

**W**ingi bwa mithemba—unoru na wingi bwa nyomoo na imera—burina bata kiri guntu kurina thiria. Wingi buri na bata nkuruki niuntu bwa kuthiria kugaruka na magitaria ta uumo, tunyomoo tutui, kana kugaruka kwa rera. Niuntu wingi bwa mithemba burina bata mono, nouthugagnie ati antu kunthe nibakurita ngugi kumenyeera ati nitugwika wingi bubu buturaga o. Indi-ri, o ntuku, niuntu bwa mantu jaria antu bathithagia, nituguta wingi bwa mithemba na ruciara o uria miti ikugitwa, irimba bikanyarua, na into biria tui bigatumirwa nkuruki ya uria bibati. Nitwonaga kuura guku ntuku cionthe. Thuganiria ni mithemba ing'ana ya imera, nyoni na nyomoo iria woonaga akui rionthe riria ugwe kana aciari baku bari babethi indi nandi ni inkai kana itio narua? Kurina mithemba milioni kenda mwanya ya nyomoo na imera ndene ya nthiguru iji, na riria tuminyangagia, ni kwaga kwa mwanka gutirio kiri antu bilioni mugwanja baria bagaanaga nthiguru iji, kiri aana betu na kiri aana bao.

Arimi ba TIST nibakuthithia mwanya, kurita ngugi gwika wingi bwa mithemba. O muti juria tuandaga ni gintu gia gutumika kirina bata. O muti juria tuandaga

nijunyiagia urito kiri miitu iria irina mithemba imingi iria ituuraga o niuntu notumitumire antua kugiita miitu nikenda twona nkuu, mpao na into bingi. Riria tuandaga miti ya gintwire, ta uria ikundi bibinini biria birina miunda iri nterene cia ruuji na ngiri cia arimi ba TIST barinayo miundene yao, nitukaragia wingi bwa mithemba. Mithemba iji imingi ya miti ya gintwire kinya ni gikaro na irio kiri tunyomoo, nyoni na nyomoo, nyingi cia iria cirina bata mono kiri guciara kwa imera bietu, kuria tunyomoo tutui kana gwika muthetu jwetu jurina thiria.

Arimi ba TIST kinya nibakugaana umenyo bwao kwegie wingi bwa mithemba. Arimi nibakuurua biuria ndene ya cluster kiri mubango jwa kwambia jwa kugaana umenyo kwegie wingi bwa mithemba ndene ya ntuura ciao. Riria tukathooma jangi kwegie imera na nyomoo iria cituthiurukite, kugaruka kuria kuri kiri ntuura iji, na magitaria kiri wingi bubu, tutoomba kujukia itagaria gwika gintu giki gia kurigaria. Twijeni twinthe amwe, tugaane umenyo na tuande miti ya gintwire nikenda tuthithia nthiguru injega kiritwi twinthe.

## Utongeria na wathani ndene ya cluster yaku.

**N**arua, TIST irina nkuruki ya cluster igana rimwe na mirongo ithatu iria cithithagia mantu ja TIST rionthe. Ndene ya cluster cionthe, atongeria bauthumba nibatutethagia na bakagaana inya ciao. O cluster irina wathani na utongeria ja uju:

### Utongeria bwa cluster

- Mutongeria wa cluster
- Mutetheria wa mutongeria ndene ya cluster
- Mwiki mauku na mumenyeeri mbeba cia cluster

Atongeria ba cluster, atetheria ba atongeria na amenyeeri mauku na mbeba cia cluster baritaga ngugi ndene ya igita ria mieri inna. Mieri inna ya ngugi yathira, mutongeria wa cluster naumaga utongeriene. Mutetheria wa mutongeria naejaga mutongeria riu mwiki mauku na mbeba cia cluster akaa mutetheria wa mutongeria. Cluster yaku nibati kuithuurira mwiki mbeba na mauku ja cluster

umweru. Ithurano bia cluster biri bata na nibia mwanka kiri cluster cionthe cia TIST.

### Ngugi cia atongeria ba cluster

#### Ngugi cia mutongeria

1. Nabati kwithirwa ari nthumba kiri cluster yonthe na nabati gwitira mantu jaria TIST iikirite.
2. Natongagiria mantu ja cluster: natongagiria micemano ya cluster, utari miti na mibango ya uritani bwa cluster amwe na atongeria bangi.
3. Neekagira ikundi motisha ya kwenda kuthithia mantu jamanene, amwe na kuanda miti na kurima na urimi bubwega. Natethagiria cluster gukara irina inya na ngwataniro
4. Natethagia kubangira micemano ya cluster amwe na atongeria bangi na kumenyeera ati micemano nigutongerua na nikuritanwa bwega.



5. Naritaga ngugi na Mwiki mbeba na mauku ja cluster kiri kumenyeera ati rekondi cia micemanio ya cluster na utumiri mbeba nigwikwa bwega.
6. Naritaga ngugi na Mwiki mbeba na mauku ja cluster kumenyeera ati ripoti cia mweri cia cluster na cia utumiri mbeba nicitumi na cirri cia jaria jario jongwa.
7. Natethagiria gutonyithia ikundi bibinini bingi kiri TIST nikenda biandikithua.
8. Natethagia ikundi bibinini gusaina kandarasi cia GhG na gucitonyithia kiri computer
9. Nagwataga ugeni na akamenyanithia mugeni umweru uria withirikua ari mucemanione.
10. Igitene ria kuria ikundi: nagiraga vocha na into bingi biria bikuendeka mbele ya mucemanio jwa cluster. Naritaga ngugi na Mwiki mauku na mbeba cia cluster kumenyeera ati njira iria ibati nigutumirwa kiri kuria na akareta biuria na thina iria ciumira kiri atongereria ba TIST kana abangiri ngugi ya kuria mbeba.
11. Narikanagia amemba ba ikundi bibinini ntuku ya mucemanio jou jungi.

*Ngugi cia Mwiki mbeba na mauku ja cluster*

1. Najukagia mbeba cia cluster cia o mweri na akeera cluster mbeba iria baei na uria itumiri kiri o mucemanio jwa cluster.
2. Naritaga ngugi na cluster kubangira njira ya gutumira mbeba cia cluster kiri kuthithia mantu jamanene.
3. Neekaga na aakamenyeera rekondi cia cluster ndene ya iuku ribangi bwega ria rekondi ciamma cia cluster na njira iria ibati
4. Neetikagiria gutegwa kwa rekondi cia cluster ni amemba ba cluster na atongereria ba TIST.
5. Natumaga ripoti cia mucemanio jwa cluster na utumiri mbeba o mweri
6. Naritanaga mwiki mauku na mbeba cia cluster uria ukathurua nyuma yawe.
7. Natethagia na gwikira inya atongereria bangi kuritira ikundi bibinini ngugi.
8. Igitene ria kuria: nanenkanagira vocha kiri ikundi biria amemba bairi kana nkuruki bari mucemanione, agategera vocha, akaria na atetheria ba kuria na akathingatira njira ya kuria uria ibati na umma

*Ngugi cia mutetheria wa mutongereria*

1. Najukagia utongereria riria mutongereria atiku.

2. Mutetheria wa mutongereria nabati kuritira amemba ba cluster na mutongereria ngugi .
2. Natethagiria gwika mathaa micemanione ya cluster
3. Najukagia rekondi micemanione ya cluster
4. Nathomaga mantu jaria jaririrue mucemanione jwa muthia ndene ya mucemanio jwa cluster
5. Neekaga rekondi cia mantu jaria jariritue ndene ya cluster.
6. Natethagiria kuritana mwiki mauku na mbeba cia cluster umweru.

**Arungamiri ba cluster.**

O cluster niithuraga arungamiri bairi(murume na muka) ba kubarungamira kiri kiama kia gikundi gia cluster inkai (GOCC). Arungamiri benu ndene ya GOCC nibabati kuburitira ngugi igita ria mieri ithanthatu. Nyuma ya igita riri, ithurano bibieru nibithithagua kuthuura amemba baberu ba GOCC. GOCC nithagirwa iri ya cluster ijiri gwita ithano iria ciri atuuri. Amemba ba GOCC nibabati gutirimana rimwe o mweri ndene ya kiumia kiambele kia mweri.

**Ngugi cia arungamiri ba cluster ndene ya kiama gia gikundi gia cluster.**

- 1) Kumanya na kugaana miitire iria miega buru kuumania na cluster;
- 2) Kumenyeera uritani bwa iguru buru bwa cluster bukithingatagira jaria TIST iikirite;
- 3) Kumenyeera utari miti bwa iguru buru bukithingatagira jaria TIST iikirite;
- 4) Kumenyeera into bia ngugi bia kuritana na gutara miti;
- 5) Gwikia mantu jaria jagusumburana na kuatha kiama kia ntuura inene mantune ja kuthithia mawatho;
- 6) Gutaambia TIST gukurukira cluster iria irio;
- 7) Kuthithia micemanio ya kugambithia riria mutari miti kana muritani arungamua ngugi nikenda bategera jaria jakarikite na baathana kwegie kurungamua kou;
- 8) Kuthithia micemanio ya kugambithia riria mutongereria wa cluster atikuthingatira jaria TIST iikirite;
- 9) Kuatha kwegie antu baria babati kuumania na gikundi gia cluster kiri ngugi ingi ndene ya TIST ta mutegi ngugi, TSE kana muritani umunene

Atongereria bangi ba TIST ndene ya cluster ni amwe na atari miti, aritani na atongereria ba mantu mwanya mwanya ( ta urimi bubwega, kumenyeera nteere cia ruuji na miti ya gintwire).



# Mazingira Bora



# TIST

The International Small Group & Tree Planting Program  
www.tist.org

**Kikuyu Version**

An Environmental, Sustainable  
Development and Community Forestry  
Program.



East Africa TIST Participants during a joint seminar held at Gitoro Conference Center, Meru in October 2015

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## Gwakana: Ndugatigirirwo ni irathimo cia gikundu na cluster yanyu.

**G**wakana ni kindu kia bata muno hari gikundi thiini wa mucemano wa o kiumia. Thiini wa Ephesians 4:15,16 yugite ati twakane turi thiini wa mwathani. O mundu thiini wa gikundi kianyu akoragwo na kiheo giake kiria angihēe gikundi giothe. Umwe wa maundu maria ma magegania thiini wa ikundi ni gutamburana, guthomithania na kuhuthira iheo ciitu.

Kujengana ni njira ya gutuma iheo ici cioneke na cihuthike. Kuri miena iiri ya kujengana:

- Mbere ya mahoya ma muthia, o mundu thiini wa gikundi akauga kaundu kamwe kari na mworoto na ga guteithi karia mutongoria eka thiini wa mucemano. Kwa muhiano, niathekire, niaigire mathaa, auma na mibango miega, niekirire amemba hinya wa kwaria, niangeithirie na atuma njigwe ndi mucii, agweta kaundu kamwe karia gatumire mucemano wagire muno kana wira-ini wa gikundi. O mumemba agiriirwo nikuga kaundu gake ka mwanya. Kaundu gaka nika o muhaka. O mundu akaheana kujengana kuri mutongoria. Ikundi ingi niciheanaga kujengana kuri munini wa mutongoria
- Iguru ria uguo, mundu angiona kiheo kionanio ni mutongoria, memba wa gikundi no auge uguo.

Niundu wa utongoria wa guthiururukana, o kiumia o mutongoria niariheagwo kujengana. Kuhitukira kujengana, nitwikiranaga hinya maunduini maria twahota kiumia kiuu thiini wa micemano na iheo iria mutongoria ucio onania.

Kujengana ningi ni njira ya guthoma maundu maguteithia maria megii andu na ukamauga. Ithuothe nitwagiriirwo ni guthomithia nimi ciitu kwaria maundu mega. Na makiria, gikundi giothe gigathoma kiria gikundi kireciria nikia bata hari mutongoria. Mutongoria ucio ungi nieguteithika na maundu maria aigua mucemano-ini na amenye maundu maria gikundu kironamari ma bata hari mutongoria.

Niundu wa kujengana, kiumia kiu mutongoria akauga “Ni ngatho” thutha wa mumemba kwaria wega wake. Gutiagiriirwo nikwariririo uria gukwagiriirwo ni guthii kana uria gukwagiriirwo nigwikwo ngurani. Maita maingi, mutongoria niakenaga riria erwo maundu mega thiini wa mucemano. Maita mangi nituthomaga maundu maitu tutaroi!

Kujengana niguteithagia mutongoria muthenya ucio guthambura iheo ciake na agathii na mbere na gucihuthira. Kujengana niguteithagia ikundi tondu amemba othe nimathomaga. Kujengana ni kirathimo maita 2!



# Ni ihinda ria kuhanda miti! Geria miti ino miega ya ki-nduire.

**M**iti ya ki-nduire ni miti iria ikoretwo kuo thiini wa Africa na itwaranaga na riera riakuo. Niwagirithagia tiiri na ukaguciriria nyoni na ugakuria tutambi. Miti ngurani niikuraga kundu ngurani.

Kuma semina ya TIST na micemanio ya cluster, Arimi a TIST nimonete miti ya ki-nduire iria ingikura kwao. Miti ta ino igwetetwo haha, na nituracokeria World Agroforestry Center niundu wa gutuhe uhoro uyu wa kungania kwa mbegu na gucihariria niguu tugie na umithio. Geria imwe yayo ukihanda na utwire iria yakwagirira!

**a. *Prunus africana* (Kikuyu: Muiiri, Kimeru: Mweria)**

Muti uyu wonekaga mititu-ini. Mbegu niconekaga mititu-ini riria kuri na riuu. Ungania mbegu iria nguru kana matunda maguo.

Rida maai-ini niguu ngothi ya iguru yume wega gwa kahinda ka 24hrs na uthambirie iguru ria mesh wire. Aragania wega handu kiruru-ini niguu ciume gwa kahinda ka mathaa mana tu. Mbegu citikaraga na kwa uguo huthira iria njiugu na citaikarite muno.

Oha na mahuti niguu ndugate ugunyu uria ungikorwo ho. Handa thiini wa tuta kana mikrbe-ini.

Cimeraga thutha wa 6-8 weeks.

**Mahuthiro:**

Niuingataga tutambi: no uingate tutambi ta aphids, nematodes kuhitukira munungo waguu. Mahua maguo nimakoragwo na mahungo ma uuki maigi.niukoragwo na ngu njega.

**Dawa:** Maai maguo nimahuthagirwo guthondeka kunenehia undurume. Mahuti nimathondekaga homa na kwongerera wendi wa kuria. Maai nimongagirirwo kuri mutu wa makoni na maai macio matune nimathondekaga nda na guthondeka mahiu.

Kugitira tiiri: niukuraga kuria kuinamu na ugakorwo na kiiruru kiega na ukanyihia ruhuho.

Kwagirithia Tiiri: mahuti maguo nimahuthagirwo guthondeka thumu.

**Uthaka:** niuthondekaga mugunda ugathakara muno.

**b. Peacock Flower (*Albizia gummifera*, Kikuyu: Mukurwe)**

Muti uyu wonekaga kundu kwaraganu na kwambatiru kuria kuri na mititu .

Mbegu ciaguo citirabatara guthondekwo mbere ya kuhandwo na cirindagwo maai-ini mararu na cigatigwo. Makoni ma mbegu nomoragwo niguu cimere na-ihenya. Mbegu nicimeraga wega, na gicunji kia 70-80% na cikamera thutha wa thiku 10. mbegu ciagiriirwo kunganio ciri miti-ini niguu citigathukio ni tutambi. Mbegu nocigwo gwa kahinda ka mwaka 1 cingikorwo ciri nyumu wega na niwega wikire muhu.

**Mahuthiro:**

Mahungo ma uuki, ngu, mbau, nganu na dawa(makoni nimahonagia ruuo rwa nda hamwe na Malaria), niugitagira gukuuo gwa tiiri(miri yaguo niinyitaga tiiri wega),



**Kiiruru:**, kwagirithia unoru wa tiiri, mahuti nimathondekaga thumu mwega muno.

**Uthaka:** uhanditwo town nimuthaka muno.

Mihaka, mahuti maguo nimeruithagia marigu na-ihanya.

c. ***Olea africana* (African wild olive, Kikuyu: Mutamaiyu, Kimeru: Muthata)**

Muti uyu niwonekaga kundu kuingi muno na makiria njuui-ini na migunda-ini. Niwiritragia riuu.

Mbegu nichuthagirwo kuhandwo. Mbegu njithi nicirindagwo maai-ini mahehu gwa kahinda ka 48hrs.

Mbegu nicithondekagwo na njira ya gwaturwo na ihiga. Uu nitondu kuruta gikoni niuhotithagia kumera.

Mbegu nocigwo handu homu kwa miaka miingi.

**Mahuthiro:**

**Irio:** indo nyingi cia maguta niconnekaga. Irio cia mahiu: mahuti maguo nimendetwo muno ni mahiu. Niukoragwo na nbau na ngu njega ohamwe na makara na mikinyi na ciuma.

d. ***Waterberry* (*Syzygium guineense*, Kikuyu: Mukoe, Kimeru: Muriru)**

Muti uyu makiria wonekaga kuria kwaraganu na irima-ini. Ikuraga kundu kugunyu na maita maingi maai-ini na njuui-ini.

Mbegu citibataraga guthondekwo mbere ya kuhandwo tondu nicimeraga na njira njega. Cimeraga na gicunji kia 80-90% na ni thutha wa 20-50 days.

Kuhanda mugunda-ini nikwega. Matunda maguo nimathukaga na-ihanya na kwa uguo nimagiriirwo gutuo na kunganio na ihanya, handa mbegu orio niguo citigakorwo ciathuka. Angikorwo uu gutingihoteteka, matunda nomaigwa gwa kahinda hanu hagunyu hari na muura kundu kuri na riera riiganu.

**Mahuthiro:**

Mahungo ma uuki, mbau, ngu, kiiruru na dawa.

**Ririkana:** makoni nimari poison na nomorage mundu, uririria uria ukuhuthira dawa kuma muti-ini uyu.

**Melia (*Melia volkensii*)**

Muti uyu uria wiritragia muthua niukoragwo na irio njega cia mahiu kimera kia riuu riria miti iria ingi yothe iitite mahuti na noukorwo uri wa bata muno kuri arimi a TIST. Muti uyu uria ukoragwo na makoni ma grey miukuraga na uraihu wa 6-20 meters. Muti uyu muno wonekaga kuria kuri na mbura githimi kia 300-800 mm. Muno niukoragwo ruteere-ini ra njuui kana itomboya-ini. Uitaga mhuti maita 2 hari mwaka na ni muti mwega kuhandaniria na irio mugunda.

Melia wambiriirie na miri kuma githaka onagutuika miri noikorwo itari na hinya muiganu. Ungikurio kuuma mbegu-ini, mbegu ciagiriirwo gucinwo kana ciaturwo na ihiga mbere ya kuhandu.

**Mahuthiro:**

Mahuti na irio cia mahiu, mbau, njuki.

Mahuti nimaigataga tutambi tuothe na nimega kuri twana tunini.

Nimwega kuhandaniria na irio muguda-ini.





# Hinya hari ukukuranu wiu:TIST niigitagira biodiversity.

**B**iodiversity na kwagira kwa maundu ma nduire ni kwa bata hjari ugima wa miiri itu na mituurire iitu na muno niundu wa mogaruruku maria tuona ma riera, ngaragu, tutambi. Na tondu biodiversity ni ya bata, no wicirie andu angi nimararuta wira gutigirira nitwa inyitira, no ona kuri o uguo o muthenya niundu wa maundu maria twikaga niturate indo cia hinya na cia bata niutu wa gutema mititu. Maai makahua na indo ingi cikooro. Tageria gwiciria ni mithemba iriku ya nyoni wonaga tene ugikura na riu ndumionaga? Kuri na mithemba 9 million ya indo iria iri muoyo thiini wa thi na riria twacianaga ni tukurirwo ni indo nyingi ithui andu 7 billion aria tukoragwo thi.

Arimi a TIST mari na ugaruruku, kwirutaniria kugitira deversity. O muti twahanda niwabata. O uti twahanda niwagirirthagia maundu na handu

hagutema miti niundu wa ngu na indo ingi handa na umimenerere. Riria twahanda miti ya ki-nduire, ta uria ikundi nyingi ciikite kuria kwaraga hamwe na migunda-ini ya makiri ma arimi, nituragitira biodiversity. Miti ngurani ya ki-nduire niiheaga nyamu gwa guikara hamwe na kuhe tutambi irio hamwe na nyoni na nyamu ingi, nyingi ciacio niciteithagiriria kuhirithia irio, kunina tutambi na gwikira tiiri unoru.

Arimi a TIST nimarathomithania uhoru wigii biodiversity. Arimi nimaragerio thiini wa cluter hari mubago wa kugerio wa guthomithania megii biodiversity kwao. Riria twathoma makiria ciigii miti na nyamu iria turi nacio, mogaruruku na mogwati maria turi namo, no twoe makinya kugitira maundu maigi. Itunyitane, tuthomithanie na tuhande miti ya ki-nduire niguo twagirithie thi yothe.

## Wathani na utongoria thiini wa Cluster.

**U**muthi TIST iri na makiria ma cluster 130. O thiini wa cluster, atongoria nimanyitagirira uhotani na uhoti witu. O cluster ni iri na wathani na utongoria ta uu.

### Utongoria wa cluster.

- Mutongoria
- Munini wa mutongoria.
- Muigi mathabu

Mutongoria wa cluster, munini wake na muigi mathabu matongoragia gwa kahinda ka mieri 4. Thutha wa mieri 4 ya utongoria, utongoria

niuthiururukagio. Munini wa mutongoria agatuika mutongoria nake muigi mathabu agatuika munini wa mutongoria. Athuri na atumia nimacenjanagia giti kia muigi mathau. Cluster yaku yagiriirwo niguthurana na kihooto na utheri na nomuhaka o murimi athurane tondu ithurano ni cia bata munene.

### Wira wautongoria wa cluster.

#### Wira wa mutongoria

1. Agiriirwo nigutungata akirumirira watho.
2. Gutongoria mawira ma cluster: kuhariria micemano, utari wa miti na gothomo.



3. Gwikira ikundi hinya niguu magie na maciaro mega ta Kilimo Hai na gutigirira cluster niyanyitanira.
4. Kuhariria micemano ya cluster hamwe na atongoria angi na gutigirira micemano niyathomithanio.
5. Kurutithania wira na muigi mathabu gutigirira rekodi cia micemano na mathabu niciaigwo.
6. Kurutithai wira na muigi mathabu gutigirira ripoti ya o mweri niyatumbo na ninginyaniru wega
7. Kuingiria na kwandikithi ikundi nini.
8. Guteithiriria ikundi nini gwikira kiore kandarathi ya Green House Gas na gutuma.
9. Kwamukira na kumenyithania ageni aria maceera.
10. Hari marihi: kugiira voucher ya marihi na indo ingi mbere ya mucemano. Kurutithani wira na muigi mathabu na kumenyithania ciuria na mathina kuri atongoria a TIST na arihani.
11. Kuririkania amemba a ikundi nini muthenya wa micemano.

***Wira wamuigi mathabu.***

1. Kwamukira budget ya cluster na kumenyithania mathabu mucemano-ini.
2. Kurutithania wira na cluster kwona uria makuhuthira budget.
3. Kuiga na kumenyerera rekodi ibuku-ini.
4. Gwitikiria mathabu marorwo ni amemba a cluster na atongoria a TIST.
5. Gutuma ripoti ya mathabu nay a micemano o mweri.
6. Guthomithia muigi mathabu uria ukumumirira.
7. Guteithiriria atongoria angi gutungatira ikundi nini.

8. Hingo ya marihi, kuheana voucher, kumenyithania na arihani na kurumirira mitaratara miega ya TIST.

***Mawira ma munini wa mutongoria.***

1. Kuoya utongoria riria mutongoria Atari kuo.
2. Kuiga mathaa ma micemano.
3. Kuiga rekodi micemano-ini.
4. Guthoma minutes cia mucemano ucio ungi.
5. Kuiga minutes cia mucemano ucio ungi.
6. Guthomithia muigi mathabu mweru.

***Arugamiriri a Cluster.***

O cluster niithuraga na njira ya kihooto arugamiriri eeri( mutumia I na muthuri I) kuri gikundi gia kanju ya clusters(GOCC). Arugamiriri a GOCC yaku magiriirwo niguthungata kahinda ka mieri 6.Thutha ucio githurano gikwo na arugamiriri angi mathurwo. GOCC ithondeketwo ni cluster 2-5 iria cikuhaniriirie. Amemba a GOCC magiriirwo nigucemania mweri rita I kiumia kia mbere.

***Mawira ma arugamiriri a GOCC.***

- 1) Guthundura na kuonania mitaratara miega.
- 2) Gutigirira githomo nikia ngathi ya iguru kuri cluster.
- 3) Gutigirira utari wa miti niwa gikiro kia iguru.
- 4) Kuiga indo cia utari wa miti na githomo.
- 5) Kumenyithania mawoni na wendi wa arimi kuri kanju ya icigo.
- 6) Guthemia TIST kuihitukira cluster.
- 7) Guthikiriria maciira na gutuiria uma
- 8) Guthikiria maciira angikorwo mumemba ndaretikirow ni TIST
- 9) Kuheana mawira kuri arimi a cluster ta auditors, TSE kana athomithania.

# Mazingira Bora



# TIST

The International Small Group & Tree Planting Program  
www.tist.org

**Kiswahili Version**

An Environmental, Sustainable  
Development and Community Forestry  
Program.



East Africa TIST Participants during a joint seminar held at Gitoro Conference Center, Meru in October 2015

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## **Kujengana: Usikose baraka kwa ajili ya Kikundi na cluster yako.**

**K**ujengana ni sehemu muhimu sana ya mikutano yenu ya vikundi vidogo ya kila wiki. Katika Waefeso 4:15,16 inasema kwamba tunafaa Kujengana hadi ukamilifu wa Kristo . Kila mtu katika kikundi kidogo chako cha TIST huleta vipaji na vipawa vyake mwenyewe katika kundi zima. Jambo moja la kuajabisha ambalo hutokea katika kikundi ni kule kutambua , kuchangia na kutumia vipaji hivyo mlivyopewa na Mungu .

Kujengana ni njia ya kufanya vipaji na vipawa hivyo vionekane na vitumike. Kuna sehemu mbili katika kujengana:

- Kabla ya sala ya kufunga kikao, kila mtu katika kikundi hutaja kitu kimoja maalum cha kujenga ambacho mwezeshaji alikifanya wakati wa mkutano huo. Kwa mfano, alitabasamu, aliutunza muda, alitengeneza mipango mizuri, aliwahasisha wanakikundi kutoa mawazo, alinisalimu na kunifanya nijisikie vizuri, alitaja kitu kilichokuwa kikiendelea vizuri sana katika kikao, au katika kazi kikundi kilichokuwa kikifanya , na kadhalika. Kila mwanachama anahitaji kusema kitu tofauti. Hii si hiari. Kila mmoja anamjenga mwezeshaji. Baadhi ya makundi pia hutoa Kujengana kwa kiongozi mwenza .
- Aidha , kama mtu ameona kipawa katika mwezeshaji, mwanakikundi pia anaweza kukitaja.

Katika uwezeshaji au uongozi wa mzunguko , kila juma mwezeshaji mpya atapata kujengwa. Kupitia Kujengana , sisi hutia moyo kila mmoja katika mambo mazuri ambayo kiongozi wa wiki alifanya katika kikao na vipaji alivyoonyesha.

Kujengana pia ni njia tunayotumia kujifunza kuona mambo mazuri kuhusu watu na kisha kuyasema. Sisi wote tuna haja kufunza ndimi zetu kusema mambo mazuri. Aidha, kikundi kizima hujifunza nini kikundi hicho kinachukuwa ikiwa muhimu katika mwezeshaji . Viongozi wajao watafaidika kutokana na walichokisikia katika Kujengana kuhusu wawezeshaji waliopita na kujua nini kikundi ufikiri ni muhimu katika kiongozi mtumishi.

Baada ya taarifa ya kila mwanachama wa kundi iliyo maalum na nzuri, Kiongozi husema, “Asante”. Hakuna mjadala kuhusu jinsi gani kungekuwa bora, au tofauti. Mara nyingi, mtu hufurahia anapoambiwa mambo mema kuhusu alivyofanya wakati wa mkutano. Wakati mwingine sisi hujifunza mambo kuhusu sisi wenyewe ambayo hatukujua !

Kujengana humsaidia mwezeshaji siku hiyo kutambua vipaji vyake na kuendelea kuvitumia . Kujengana pia husaidia kikundi kidogo kwa sababu wanakikundi wote huboresha uongozi wao jinsi wanavyojifunza . Kujengana ni baraka mara mbili!





## Wakati wa Kupanda! Jaribu miti hii mizuri ya Kiasili.

**M**iti ya kiasili ni aina ya miti ambayo imekua ndani ya Africa na inayofaana na mazingira ambayo imekulia. Yaweza kuboresha udongo na kukuvutia ndege na wadudu wenye manufaa. Miti tofauti humea vizuri zaidi katika maeneo tofauti.

Kutokana na Semina za TIST na mikutano ya cluster, wahusika wa TIST wamebainisha aina nyingi za miti ya kiasili ambazo ni nzuri sana na zenye faida katika maeneo yao. Baadhi ya aina hizi zimeelezwa hapa chini, na tunashukuru Kituo cha dunia mzima cha kilimo cha Mseto (World Agroforestry Centre) kwa sababu ya maelezo kuhusu faida na ukusanyaji na maandalizi ya mbegu ili kufanikiwa. Tafadhali fikiria kupanda baadhi ya aina hizi msimu ujao wa kupanda, na utuambie baadhi ya aina bora zaidi katika eneo lako!

### a. *Prunus africana* (Kikuyu: Muiri, Kimeru: Mweria)

Mti huu wa kiasili unapatikana sana katika hifadhi za misitu. Mbegu zipo misituni wakati wa kiangazi. Kusanya tu matunda yaliyoiva ya hudhuru kutoka taji la mti ama ardhini.

Toa rojo kwa kulowesha masaa ishirini na nne, kisha uoshe juu ya waya wenye matundu. Eneza kwa safu nyembamba katika eneo lililo na hewa na lililo na kivuli ili kukauka- lakini kwa masaa nne pekee. Mbegu haikai kwa hivyo tumia mbegu mpya.

Kufungia majani yakizunguka mbegu hupunguza upotevu wa unyevu wakati wa kusafirisha na kuweka.

Panda kitaluni au mifukoni moja kwa moja. Kuota huchukua wiki sita kufika nane.

### Matumizi:

- **Dawa ya kukimbiza wadudu waharibifu:** yaweza kukimbiza wadudu waharibifu kama chawa, viwavi (ambao hushambulia mimea) kwa harufu yake. Maua yana nta na poleni tosha ya kulisha nyuki. Ina kuni bora.
- **Dawa:** Rojo kutoka kwa gome hutumiwa kutibu uvimbe wa kibofu. Majani hutumiwa

kuvuta ili kutibu homa ama kunywa kama njia ya kuboresha hamu ya kula. Maji huongezwa kwa gome lililopondwa na maji hayo mekundu kutumiwa kutibu maumivu ya tumbo; dondoo la gome kutumiwa kulisha ng'ombe.

- **Kuzuia mmomonyoko wa udongo:** Miti yaweza kupandwa matutani, huwa na kivuli chenye manufaa na huzuia upepo. Huboresha udongo. Majani yaweza kutumiwa kufunika udongo ama kama mbolea.
- **Urembo:** Huwa mti mzuri wa kivuli unaovutia katika bustani.

### b. *Peacock Flower (Albizia gummifera, Kikuyu: Mukurwe)*

Mti huu hupatikana sanasana katika misitu ya mvua iliyo mahali tambarare au nyanda za juu na katika makazi wazi karibu na misitu. Mbegu safi hazihitaji kutibiwa kwanza. Mbegu zilizowekwa huloweshwa katima maji yenye joto na kuachwa kupata baridi kwenye joto la kawaida. Gome la mbegu laweza kuvunjwa ili kuharakisha kuota. Mbegu huota vizuri, asilimia sabini kufika themanini katika siku kumi. Mbegu zafaa kukusanywa zikiwa bado mtini ili kupunguza uharibifu wa wadudu. Mbegu yaweza kuwekwa kwa muda wa mwaka mmoja ikiwekwa ikiwa kavu na mbali na wadudu kwa njia ya kuongeza majivu.

### Matumizi:

- **Chakula cha nyuki, kuni, mbao, gundi, tanini, dawa** (dondoo kutokana na kuponda maganda hutumiwa kumaliza uchungu wa tumbo na maji ya gome kutibu malaria), kuzuia mmomonyoko wa udongo (mizizi hushika udongo na kuzuia mmonyoko wa udongo kupitia mitaro),
- **Kivuli,** kuweka naitrojeni (huboresha udongo), hujulikana kama mti mzuri wa kufunika udongo kwa sababu majani yanayoanguka ni mengi wakati wa msimu wa kuangusha majani,



- **Urembo** (Hupandwa katika miji kwa sababu ya urembo wake),
  - **Kupanda mipaka**, matawi huharakisha kuiva kwa ndizi.
- c. **Olea africana** (African wild olive, Kikyuyu: Mutamaiyu, Kimeru: Muthata)  
Mti huu hupatikana maeneo mengi, sana sana karibu na maji, mito na ata maporini. Ni sugu kwa baridi na kwa ukavu.

Mbegu kutoka kwa matunda hutumika kuotesha. Mbegu nzee yaweza kuloweshwa kwa maji baridi kwa masaa arobaini na nane.

Mbegu sanasana hutibiwa kwa kuvunja na kifaa au kwa kuachilia jiwe juu ya mbegu. Hii ni kwa sababu kutoa ngozi ya ndani ya mbegu husaidia kuota haraka. Mbegu huwekwa mahali pakavu na penye joto la kawaida kwa miaka michache.

**Matumizi:**

**Chakula:** Bidhaa kuu ya mzeituni ni mafuta na matunda yanayoliwa.

**Lishe:** mimea hii huliwa na mifugo. Hutumika pia kama kuni, mbao, makaa, miswaki ya meno na kurembesha.

**Kuimarisha:** kuwa sugu kwa ukavu inapendekeza kuwa mti huu waweza kutumika kuimarisha maeneo Africa yenye ukame.

**Kurembesha:** mzeituni huweza kurembesha ardhi/mazingira.

- d. **Waterberry (Syzygium guineense, Kikyuyu: Mukoe, Kimeru: Muriru)**  
Mti huu sana sana hupatikana misitu iliyo kwa tambarare na iliyo milimani. Hukua sana mahali penye unyevu, mara nyingine ndani ya maji na hupatikana kando ya mito

Mbegu hazihitaji kutibiwa, kwani huota haraka na vizuri. Huota kwa asilimia themanini kufika tisini kwa siku za kwanza ishirini hadi hamsini. Kuotesha mifukoni hupendekezwa. Matunda huharibika kwa yanafaa kuokotwa mara moja yakishaanguka. Yanaweza pia kwa kutikisa matawi. Ukishakusanya, matunda yanafaa

kuoteshwa mara moja kwani yanaweza kupoteza uwezo wake wa kuota yakikauka; kama ili haliwezekani, matunda yanaweza kuwekwa kwa siku chache kwa machujo ya mbao na ndani ya mikebe kwa chumba chenye kuingiza hewa tosha.

**Matumizi:** Chakula (Matunda), lishe ya nyuki, mbao, kuni/makaa, kivuli, dawa (tunda utumika kutibu ugonjwa wa kuhara damu, maji ya gome nayo hutumika kuzuia ugonjwa wa kuhara).

Kumbuka gome ili lenye sumu limeripotiwa kuuu watu, kwa hivyo tafuta ujumbe tosha kwa watu wenye uzoefu wa kutumia bidhaa za huu mti.

- e. **Melia (Melia volkensii)**

Mti huu usioliwa na mchwa ni chakula kizuri cha mifugo mwishoni mwa msimu wa kiangazi wakati vyakula vingine vinapopatikana kwa ugumu na kwa hivyo ni wenye umuhimu kwa wakulima wa TIST. Miti hii, ina taji lililofunguka, iliyo na gome la kijivu, yaweza kukua hadi urefu wa mita sita kufika ishirini. Melia ni mti unaoonekana sanasana katika vichaka vya acacia-commiphora iliyo na mvua wa milimita mia tatu kufika mia nane. Wakati mwingine inapakana na mito ya kimsimu ama mahali majimaji au kuonekana juu ya mawe yaliyotokea juu ya ardhi. Mti huu huangusha majani mara mbili kwa mwaka na waweza kuwa chaguo nzuri la kupanda pamoja na mimea

Melia sana sana hukuzwa kutokana na miche iliyomea yenyewe au mizizi ikiwa imekatwa, ata kama mizizi iliyokatwa yaweza kukuza miti isiyo na nguvu. Ikikuzwa kutokana na mbegu, mbegu yafaa kuchomwa (moto wa kasi au wa nyasi iliyokauka) ama gome la mbegu linatobolewa halafu mbegu inaloweshwa majini kwa muda wa masaa sita kabla ya kupanda.

**Matumizi:**

- Chakula kizuri kwa mbuzi na ng'ombe; mbao; mizinga
- Majani hutengenezwa na kutumiwa kuwafukuza chawa na nzi na husemekana kuwa nzuri zaidi kwa watoto wa mbuzi.
- Mti mzuri wa kutumika katika kilimo mseto.



## **Nguvu katika Utofauti: TIST hulinda bionuwai.**

**B**ionuwai—utajiri na aina mbali mbali za maumbile—ni muhimu kwa mazingira yenye afya. Aina mbali mbali ni muhimu sana kwa kubaliana na mabadiliko na changamoto, kama ukame, wadudu na mabadiliko ya tabia nchi. Kwa sababu bionuwai ni muhimu sana, waweza kufikiria kuwa watu kila mahali wanafanya kazi kuhakikisha kuwa tunalinda na kuhifadhi utajiri huu wa kiasili. Hata hivyo, kila siku, kwa sababu ya matendo ya binadamu, tunapoteza spici na aina za maumbile misitu inapokatwa, ardhi pevu kukaushwa na rasilimali kutumiwa kupita kiasi. Tunaona upotevu huu kila siku. Fikiria ni aina ngapi za mimea, ndege na wanyama ambazo uliona mara nyingi wakati wewe au wazazi wako walipokuwa wachanga lakini leo ni chache au zimeisha? Kuna spici milioni tisa za viumbile tofauti katika sayari yetu, na tunapoziharibu, ni hasara ya kudumu kwa kila mmoja wa watu bilioni saba wanaogawana hii sayari, kwa watoto wetu na kwa watoto wao.

Wakulima katika TIST wanaleta mabadiliko, wakifanya kazi kuhifadhi utajiri huu wa kiaina. Kila mti tunaopanda ni asilimali inayoweza kutumika tena na tena. Kila mti tunaopanda hupunguza shinikizo

kwa misitu ya kiasili yenye aina mbalimbali kwa sababu twaweza kuitumia badala ya kukata misitu ili kupata kuni, mbao na bidhaa zingine. Tunapopanda miti ya kiasili, kama vikundi vingi vilivyofanya katika mashamba yaliyo kando ya mito na vijito na maelfu ya wakulima wa TIST waalizonayo katika mashamba yao, tunalinda bionuwai moja kwa moja. Aina hizi nyingi za miti ya kiasili pia huwapa wadudu, ndege na wanyama makazi na chakula, wengi wa wale ni muhimu katika kuchavua mimea yetu, kuwala wadudu waharibifu au kuweka udongo ukiwa na afya.

Wakulima katika TIST pia wanagawana maarifa kuhusu bionuwai. Wakulima wanaulizwa maswali katika cluster katika mpango wa kuanzisha wa kugawana habari kuhusu bionuwai katika maeneo yao. Tunaposoma mengine kuhusu mimea na wanyama wanaotuzunguka, mabadiliko katika maeneo haya na hatari dhidi ya wingi wa aina, twaweza kuchukua hatua kuhifadhi rasilimali hii ya kuajabisha. Tujeni sote pamoja, na tugawane maarifa tuliyonayo, na tupande miti ya kiasili ili kuwe na dunia bora kwetu sote.

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## **Uongozi na Utawala katika cluster yako.**

**T**IST ina zaidi ya cluster mia moja sitini. Katika kila cluster, viongozi watumishi husaidia katika mafanikio yetu na hugawana nguvu zao nasi. Kila cluster inaa utawala na uongozi kama ifuatavyo: Viongozi wa cluster waliochaguliwa,

- Kiongozi wa cluster
- Msaidizi wa kiongozi katika cluster
- Mwajibikaji wa cluster

Cluster elections are important and mandatory for all TIST Clusters. Kiongozi, msaidizi wake na mwajibikaji wa cluster hutumika katika kila nafasi

kwa muda wa miezi mine. Baada ya miezi mine ya kutumika, kiongozi wa cluster hutoka uongozini. Msaidizi wake huingia kuwa kiongozi naye Mwajibikaji huwa msaidizi wa kiongozi. Wanawake na wanaume huzungukana katika uchaguzi- kama mwajibikaji ni mwanamume, huyo mwingine atakuwa mwanamke. Cluster yako yafaa kuchagua mwajibikaji mpya kwa njia ya kidemokrasia. Uchaguzi wa cluster ni muhimuna wa lazima kwa cluster zote za TIST.

### **Majukumu ya viongozi wa cluster. Majukumu ya kiongozi.**

1. Anafaa kuwa mtumishi wa cluster yote na kuonyesha maadili ya TIST.



2. Huongoza katika shughuli za cluster; huratibu mikutano ya cluster, uhesabu miti na ratiba ya mafunzo pamoja na viongozi wengine.
3. Huvipa motisha vikundi kufikia matokeo makubwa, pamoja na kupanda miti na kilimo hai. Husaidi cluster kubaki na nguvu na umoja.
4. Husaidia kupanga mikutano ya cluster iliyopangwa vizuri pamoja na viongozi wengine na kuhakikisha mikutano inaongozwa na kufunzwa vizuri.
5. Hufanya kazi na Mwajibikaji kuhakikisha kuwa rekodi za mkutano wa cluster na za uwajibikaji zimetunzwa vizuri.
6. Husaidia kuingiza vikundi vidogo vingine
7. Husaidia kuhakikisha kuwa kadarasi za GhG za vikundi vidogo zimetwa saina, kuwekwa katika computa na kuingizwa mtandaoni ikitakikana.
8. Hukaribisha na kujulisha mgeni yeyote ambaye amehudhuria mkutano.
9. Katika malipo: Huleta vocha na vitu vingine kabla ya mkutano. Hushirikiana na mwajibikaji kuhakikisha mchakato wote wa ulipaji umezingatiwa na kufikisha maswali au shida zozote kwa viongozi wa TIST na watumishi wa cluster.
10. Huwakumbusha wanavikundi vidogo kuhusu mkutano unaofuata.

**Majukumu ya Mwajibikaji.**

1. Hufikiwa na bajeti na kutangaza kiasi kilichofika na kutumika katika kila mkutano wa cluster.
2. Hushirikiana na cluster kupanga jinsi ya kutumia bajeti ya cluster kufikia matokeo makubwa.
3. Huweka na kutunza rekodi za cluster katika kitabu cha rekodi kilichopangwa vizuri cha cluster, kama ilivyo na kwa hali nzuri.
4. Huruhusu kuangaliwa kwa rekodi za cluster kwa wanacluster na viongozi wa TIST.
5. Hutuma ripoti ya kila mwezi ya mkutano wa cluster na ya uwajibikaji kila mwezi.
6. Hufunza mwajibikaji anayemfuata.
7. Husaidia watumishi wengine kutumikia vikundi vidogo.
8. Wakati wa malipo: hupeana vocha kwa vikundi vyenye memba wawili mkutanoni, hupitia vocha, huwasiliana na ratibu wa kusaidia katika malipo na hufuata mchakato wa malipo umefuata kwa usahihi na ukweli.

**Majukumu ya msaidizi wa kiongozi**

1. Hushika usukani kiongozi asipokuwa. Msaidizi wa kiongozi anatumikia memba wa cluster na kiongozi wa cluster.
2. Husaidia wakati wa mkutano kuweka masaa.
3. Huchukua rekodi wakati wa mkutano wa cluster.
4. Husoma yaliyoandikwa katika mkutano uliopiata.
5. Huandika masaa na majadiliano yaliyo katika cluster.
6. Husaidia kufunza mwajibikaji mpya aliyechaguliwa

**Wawakilishi wa cluster katika Chama cha GOCC.**

Msaidizi wa kiongozi na Mwajibikaji watatumika pia katika GOCC. Kila mmoja wao atatumika katika GOCC kwa muda wa miezi minane halafu akiwa kiongozi wa cluster, utumishi wao katika GOCC utaisha.

GOCC ina wawakilishi kutoka cluster mbili kufika tano ambazo ni majirani wa karibu. Kikundi hiki kitakutana kila mwezi ikiwezekana wiki ya kwanza na chapaswa kutuma ripoti ya kila mkutano kwa OLC.

**Majukumu ya wawakilishi katika GOCC**

- 1) Kugundua na kugawana njia bora za kufanya mambo kutoka kwa cluster;
- 2) Uhakikikisha mafunzo ya hali yaa juu katika cluster yakifuatilia maadili ya TIST;
- 3) Uhakikisha uhesabu miti wa hali ya juu unaofuatilia maadili ya TIST;
- 4) Hutunza vyombo vya kazi vya ufunzaji na uhesabu miti;
- 5) Huripoti wasiwasi zilizopo na kutoa mapendekezo ya sera kwa OLC;
- 6) Hueneza TIST kupitia cluster zilizopo;
- 7) Huita mikutano ya utawala iwapo mtumishi amesimamishwa kazi ili kuangalia mambo yaliyokuwa na kutoa mapendekezo kuhusu kusimamishwa kwake;
- 8) Huita mikutano ya utawala iwapo kiongozi wa cluster hafuatilii maadili ya TIST;

Hupendekeza watu katika GOCC watakaongezwa majukumu zaidi kwa mfano mkaguzi, TSE, ama mkufunzi mkuu na kazi zingine.



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**Kikamba Version**

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**East Africa TIST Participants during a joint seminar held at Gitoro Conference Center, Meru in October 2015**

## ***Inside:***

**Kwakana: Ndukakose uathimo wa kakundi kaku kanini na ngwatanio yaku. Page 2**

**Ni ivinda ya kuvanda! Tata kuvanda imwe kati wa miti ino ya kiene ila ni miseo. Page 2**

**Ulumu nthini wa kuyaiika (diversity): tist nisuviaa kuyaiika kwina uvathukanu wi kivathukangany'o. Page 5**

**Utongoi Na Uungamii Nthini Wa Ikundi. Page 5**



## Kwakana: Ndukakose uathimo wa kakundi kaku kanini na ngwatanio yaku.

**K**wakana nikwavata muno yila mwakomana wumbanoni wa kakundi kenyu kila kyumwa. Mbivilia

yaasyaa uu nthini wa **Aeveso 4:15,16**: Nitwaile kwanana ithyi kwa uima wa mwii wa Kristo. kila umwe nthini wa kakundi kenyu katist niwaile ute kinengo kyake na muthinzio wake . kindu kimwe kithiawa nthini wa tukundi tunini nikana nimwakanaa yila mundu ukutavya vala ulumu kana muthinzio wake ui nundu yila mwivamwe kila umwe niwonanasya kita utonya muno.

Kwakana ninzia imwe ya kutuma amwe matesi inengo syoo na mithinzio yoo mamimanya nundu niyonekaa na kutumika. kwi nzia ili sya kwakana:-

- Mbee wa mboya sya kuvinga wumbano, kila umwe niwaile uneena undu wa kwaka ula eitongoesye wumbano muthenya usu. Ngelekany'o Kukeny'a, kwia masaa, kwia walany'o museo, kuthuthany'a uthuthanisye, kuukethya, kuuthokya, aka mutongosya wenyu kwa undu museo wikie muendee na wumbano na lilkana kila umwe niwaile uneena undu. Tukundi tumwe nitunengae ula ei munini wa mutongosya uthuthio/wako kwa undu wikie museo.
- Kwa kwongeleela ethiwa mundu niwoona muthinzio wina mundu niwaile uweta vandu va kuvindisya.

Nundu wa utongoi wa kumanisya/kithyululu kila kyumwa kwithiwa na mutongoi mweu nikutumaa kila umwe akwa nundu nituthuthanasya vala kila ula eitongoetye muthenya usu wolootelawa useo wake na kuthuthw'a iulu wa mithinziop yake na kinengo kila woonany'a.

Kwakana ni nzia imwe itumaa twikala tumanyite useo wa mundu umwe kuthi ula ungi na kwimanyisya kuiweta mevo. ithyoothe nitwaile kumanyisya makanyw'a na nimi situ kuneena useo wa mundu.

kwongeleela ni kana kila umwe kakundini kau numanyaa kila kyaile nthini wa mutongoi na kila kiseo kwa utongoi.

Itina wa ndeto sya kwakana iulu wa mutongoi usu niwaile kusungia kwa kwasya nimuvea kwa kila umwe amina kuneena undu wa kwaka. Vayaile ithiwa na uneenany'a wa undu mundu eaile ika nikana withwe useo mbee nundu mundu niwonzaw'a kwa konw'a mavityo itina wa kukathiiwa. Niuseo kwakana kwa kuneena useo w'oka na ndukaneenaniw'e. Kaingi nitumanyaa maundu meu iulu witu kwa kutavwa.

Kwakana nikutumaa mutongoi wa muthenya usu amanya kinengo kyake na kukitumia. Ingi kwakana nikutumaa kakundi kenyi keana na kwongeleka nundu kila umwe nuetae kinengo na muthinzio wake kyenini yila watongosya muthenya usu. Ingi nitumanyianasya kwa nzia ino ya kwakana. Kwakana ni uathimo keli.



# Ni ivinda ya kuvanda! Tata kuvanda imwe kati wa miti ino ya kiene ila ni miseo.

**M**iti ya kiene ni mithemba yi kivathukany'o ila imeaa ilembetani ya Africa na niyithiawa yaile isioni ithi yaniaa. Niseuvasya muthanga na kuthengeesya tusuni tula natw'o tuilaa iinyu ila syanangaa. Miti mithemba kivathukany'o nimeaa na kwika nesa isioni kivathukany'o.

Kuma semina ya TIST, ala mavikite nimaneenei miti kivathukany'o ila yikaa nesa isioni kivathukany'o na ya kwendeesya na ila yithiawa na vaita kivathukany'o isioni kivathukany'o. Imwe kati wayo nituumineenea vaa itheo, nituutungia ngwatanio ya World Agroforestry centre muvea nundu wa kututetheesya kukwata uvoo uu vamwe na kututetheesya kukolany'a mbeu sya miti kivathukany'o na kuseuvya kwoondu wa kuvanda. Kwandaia sisya uvande mithemba imwe yila uuvanda mbua ingi nundu nimiseo na ututethya kwa kutunenga uvoo wa miti ingi miseo kisioni kyenyu/kyaku ila yukaa nesa.

## a. **Prunus Africana (Kikuyu: Muiri, Kimeru: Mweria)**

Muti uyu kaingi wonee mitituni yoka na ngii syaw'o syonekaa mitituni ivindani ya sua. Kolany'a ngii ila syina langi wa muthanga mukwatu kuma ungu wa muti kana mbindi ila mbiu kuma mutini iulu. Inda vandu va masaa 24, thambya noyanika kisungini kya waya muunyini vandu va masa ana. Itina wavau vanda nutonya kwia kwa kumikundikia matuni ma maiiu nikana ndikany'ae ethiwa wimitwaa vandu vaasa. Ethywa nduutwa vandu vaasa wamina kwanika vanda kivuioni na nikumea itina wa sumwa 6 - 8.

### **Utumiku**

**Kulungya tusamu:** Muti uyu nutumikaa kulungyatusamu tula twanangaa liu ta iinyu na syingolondo kwa muuke waw'o. Malaa nimanengae nzuki liu ula itumiaa kuseuvya uki, Ngu syaw'o ninzeo muno.

**Ni Muiito:-** kiw'u kyaw'o kuma ikoleni/ ikondeni yaw'o kithiawa muiito wa mee

kuneneva. Matu maw'o nimanyungiawa kuola ikua kana mundu anywa/kumatayuka nikunengae mundu mea ma liu. Kiw'u kyaw'o kuma makoleni na matuni kyavulanywa nikitumiawa ta ndawa ya ivu na ingi kiw'u kuma ikoleni ni ndawa ya indo.

**Kusuvia muthanga:** Nisuviaa muthanga yavandwa iatianie nthini wa mitau. Matu nomatumiwe ta vuu na niyanakavasya muunda na noitumiwe ta muunyi wa muthanga na kusiiia kiseve kukua muthanga muundani.

**Kwanakavya:-** Niseuvasya muuthyi wa kwendeesya muundani.

## b. **Peacock Flower (Albizia gummifera, kikuyu mukurwe)**

Muti uyu kaingi withiawa ivauukoni na kula kwi mititu ya mbua na vakuvi na mititu.

Ngii syaw'o noiindwe kana ikalea kuindwa mbee wa kuvandwa munamuno ila syauma ukethwa iyenda kuindwa. Ngii ila siitwe syendaa kuindwa kiw'uni kimuutia nakiyekwa kivo. Noutile muthya wa mbindi ithi kuitetheesya kumea na mituki. Ngii ithi imeaa nesa kilio kya 70-80% na ikuaa ivinda ya mithenya ikumi. Ngii ithi nisyendaa kukethwa syiomutini kusiiia kwanangwa nitusamu ta ngulu. Ngii/mbindi ithi nitonya kwiwa vandu va ivinda ya mwaka umwe kethiwa nisyongeletwe muu kuisiia kulikwa ni ngulu na symbalutya.

### **Utumiku wa muti uyu**

Malaa nimatumiawa ta liu wa nzuki, niwunawa ngu, ukatuwa mbwau, ukaiita ithuma, ukaumwa ngamu kana nguluu, muiito vamwe nakwithiwa ngiisyaw'o syakimwa/syathiwa nitumiawa ta muiito wa ivu na makonde na muiito wa ndetema. Ingi nisuviaa kukuwa kwa muthanga nundu mii yayo nilumasya muthanga,

Nitumiawa kwa kuete muunyi, kuseuvya nzeve



ya muthanga ila yitawa “Nitrogen”, Nunoasya muthanga nundu niwitaa matu waw’o kaingi,

**Kwanakavya:** nitumiawa kwanakavya ona kundu kwingi nuvanda nthini wa misyi minene (mataoni),

Nuvandawa mivakani naingi matu maw’o nitumiawa kuinda maiu nundu nimakalaataa kwiw’a kwamo.

**c. Mukuyu (olea africana, African wild olivu, Kikuyu: Mutamaiyu, Kimeru: Muthata)**

Muti uyu numeaa kundu kwi kivathukany’o ta vakuvi na kiw’u, nguumoni sya mbusi, kundu kutekuthungu. Niwumiiasya sua na mbaa. Ngii nzau nitumiawa kuvandwa naethiwa ningii nguu nisii ndawa kiw’uni kithithu vandu va masaa ta 48. Ingi ngii isu nitonya kwatuwa na kw’oko kana ivia yikavingilitw’a iulu nikana syatuke ila itetheeasya kwatua ikonde nikana ikamea na mituki syavandwa. Ngii sya muti uyu nusiwe vandu va myaka kauta.

**Utumiku:**

Ni liu - niinenganae mauta ala matumiawa ta liu na ta mauta, niliu wa indo nitumiawa ta ngu, kwatua mbwau, makaa, muswaki na nitumiawa kwanakavya.

Nundu wakwithiwa ni yumiiasya sua niwithiawa wimuseo wa kuvandwa kundu kula kumu na kuseuvya mititu ya kundu kwingi kwa Africa.

Miti ino niyitiawa itonya kwanakavya withyululuko.

**d. Waterberry (Syzygium guineense, kikuyu: mukoe, Kimeru: Muriru)**

Muti uyu kaingi numeaa kula kwi mbua ya weu na mbua ya iima. Kaingi imeaa kula kwi kiw’u na kuthithu kwina kimeu kaingi nguumoni sya tulusi na syandani.

Ngii syaw’o iyendaa kuiitwa mbee wa kuvandwa na nimeaa nesa itekwaa na kilio kya 80-90% nthini wa mithenya kati wa 20 na 50. Kuvanda imwe mikeveni mbee wa kuvua nikwithiawa kwaile. Matunda maw’o moaa na mituki na nimendaa ukolanw’a mavaluka oou kuma mutini. Ingi nouthingithye muti nikana

mavalukange ukolany’e, na itunda yii yivandawa yumite mutini nikana yiikasye vinya wa kumea (yiyaaile kwanikwa yikany’aa) Matunda aya nomaiwe kikoni kya musumeno kusiiiaa kwasya kiw’u vandu va mithenya minini.

**Utumiku:**

Nitumiawa ta liu wa nzuki, kwatua mbwau, ngu, muunyi, Ndawa (matunda nimaiitaa munyili nayo ikonde yaw’o niyiiitaa wituuo).

**Manya/ukany’o:** Makavo maw’o nimaetae kikw’u kwa mundu kwoou uutumia ta muiito/ndawa nonginya wonw’e undu utumiawa nala maautumia.

**e. Melia (Melia volkensii)**

Muti uyu nduisawa ni muthwa na ivindani ya sua niwithiawa wi uithyo museo wa indo yila kwithiawa liu wa indo utekw’o kaingi kwoou nowithiwe wa vata mbee kwa aimi ma Tist. Muti uyu withiwa na ngwava mbingi nd ikole/ikonde yaw’o ni wiu muuluku na wianaa uasa wa matambya ta 6 kuvika 20. Muti uyu kaingi niwithiawa weuni kula kumu nundu wendaa mbua nini ya ta 300 - 800mm. Ingi niwithiawa nguumoni sya mbusi sya kavinda naingi mivakani ya kula mbua itavikaa nesa ona kula kwi mavia. Ni witaa matu maw’o keli kwa mwaka na nimuseo kuvandaniw’a na liu (mimea).

Muti uyu wa melia kaingi uvandawa ukavo waw’o kana mwii onakau mwii muti wamea withiawa utemulumu. Ethywa wivanda muti uyu kuma mbindini/ngii nomuvaka uivitilye mwakini ilasye kana mwakini wa nyeki kana utile munya na uyiinda ndandu va masaa 6 mbee wa kuvanda.

**Utumiku:**

Nimuseo kwa liu wa indo munamuno liu wa mbui, ngu na uithi wa nzuki.

Matu maw’o nimalungasya ndaa na ngi kaingi kwa tutena twa mbui.

Nimuseo kwa kuthungya mititu.





# Ulumu nthini wa kuyaiika (diversity): TIST nisuviaa kuyaiika kwina uvathukanu wi kivathukangany'o.

**B**iodiversity - uthwii wa nthi ni wavata kwa uima wa mawithyululuko. Kivathukany'o ni kya vata muno nundu wa kuete matatwa kivathukany'o ta yua, iinyu/ngulu tusamu tula twanangaa mimea kana movinduku ma nzeve. Nundu kivathukany'o na moalyuku ni mavata, nowisilye anu kila vandu nimeuthukuma kusuvia uthwii wa nthi (nature). Onavala kila muthenya nundu wa mawiko maitu andu nituendee na kwasya kivathukany'o kiu kya mawithyululuko nundu wa kutema miti, isio sya kiw'u kutumika nai na mititu ila yumaa mbusi kwanangwa na kutumiwa nai kwa muthanga. Ni twonaa wasyo uyu kila muthenya. Isilye ni mithemba yiana ata ya miti, tusuni, nyamu woonaa tene wimunini kana asyai maku mawetaa moona yi kw'o yu? Kwi milioni kenda sya mithemba ya syindu, tusamu, nyamu syaikw'o nayu vaii, nitwasyanangie nayu iiketwa vo ingi nthi yonthe. Iivo naiikethiwa ingi ona ethiwa nisyatumikaa ikaatumika kwa isyo ila ingi syukite nundu nisyaaangiwe.

Aimi ma TIST nimaendee na kuete kivathukany'o kwa kuthukuma vamwe kusuvia Uvathukanu uu wa syindu/kundu/ivinda (diversity). Kila muti wa vandwa ni wavata nundu niuendeeasya kisyao kya muti usu, kila muti wavandwa nusuviaa mawithyululuko na mititu

nundu vandu va kwenga mititu tuimatha ngu na kila kivatikanaa mitini nituutumia ino yitu tuvandite kwa nzia ya kusuvia. Yila twavanda miti ya kiene na utee wa mbusi na ta miti mithungu kwa vamwe kwaw'o twithiwa tuisuvia mawithyululuko na uvathukanu ula vivo uendee na kwithiwa. Miti ino ya kiene nisuviaa muthanga, ikatune liu, ikithiwa yi wikalo wa nyamu na nyunyi, wikalo wa tusamu ta iinyu ila ietae unou wa muthanga na syingolondo na tusamu tungi twingi na kwikalya muthanga wi munou.

Aimi ma TIST nimaendee na kuaiana umanyi ula menaw'o iulu wa uvathukanu uu wa isio na mawithyululuko. Aimi nimaendee na kwithithwa mutiani nthini wa ngwatanio sya isio (clusters) nthini wa wia wambee wa kuaiana umanyi iulu wa Uvathukanu wa uthwii wa nthi isioni syoo. Yila twamaya iulu wa miti na nyamu ila itwithyululukite, kivathukany'o kila kiendee na kwithiwa, na kutisw'a kula kwivo kwa Uvathukanu uu, nitwosaa itambya ya kusuvia uvathukanu uu wa uthwii wa nthi. Tukei ithyoothe vamwe tu aane umanyi na utuika ula twinaw'o iulu wa miti ya kiene, na mawithyululuko maitu na mothwii maitu ma nthi kwailya I nthi nundu wa useo wa yu na uni.

## Utongoi Na Uungamii Nthini Wa Ikundi.

**U**munthi TIST yona ikundi syina ngwatanio mbee wa 130 ila syiwiani, Uthukumi wa utongoi numwe utumite tuendee na mbee nundu nimatetheaniasya. Kila kikundi na ngwatanio yina utongoi uilye ta uu

### Ngwatanio Ya Ikundi.

- Mutongosya
- Munini wake na mwii wa kinandu
- Atongoi ma ngwatanio

Munini wake na mwii wa kinandu mathukumaa vandu va myai ina na maithyululukana vala mutongoi umiaa munini wake nake mwii wakinandu aitwika muniniwake na maisakua mwii ungi wa kinandu aume na aka vala ethiwa ula eimwii wa kina ni munduume ula usakuawa vandu vake ni mundu muka.ngwatanio yenyu yaile kusakua mundu wa masavu kyenini. usakuani wa ngwatanio sya tist niwalasima na ni wavata.

### Utongoi wa ngwatanio

#### Mawia ma mutongoi

1. aile ithiwa muthukumi wa ngwatanio ayonania ngelekany'o ya mawalan'yo ma TIST.
2. Nimatongoeasya ala angi ma ngwatanio kwithiwa na mbumbano, uthiani, kuvitukithw'a nakumanyiw'a iulu wa uthukumi wa utongo.
3. kuthuthya ngwatanio kuvikiia ma walany'o ma yo vamwe na uvandi wa miti na uimi wa kusuvia(CF).
4. Utetheesya mawalany'oni ngwatanio ino na kuikiithya mbumbano nisyaaendeew'a nesa vamwe namovundisyo.
5. Kuthukuma vamwe na mundu wa kinandu Kuikiithya masavu nimeekwa nesa na Mavuku nimaandikwa undu vaile.
6. Kuthukuma vamwe na mwii wa kinandu kuikiithya livoti sya mavuku nisyatungwa na nisyaw'o.



7. Kutetheesya kwiana kwa tukundi tunini na kumamanyisya undu matonya kwiyaandikithya nthini wa TIST.
8. Kutetheesya tukundi tunini kwithiwa na “green houses” na iyikwa scanning na kwikiwa nthini wa Internet.
9. Kuthokya na kumamanyithania aeni ala mavika mbumbanoni sya ngwatanio.
10. Kwa Ndivi: Kwosa mathangu ma ndivi (vouchers) na syindu ingi ila sya ngwatanio na kukwatania na mwii wa kinandu kuikiithya nzia ila syaile sya ndivi nisyaaatiwa na ethiwa vena nthina kana makulyo kuvikya utongoini wa TIST nikana uthinikiwe.
11. Kulilikany’a ikundi nini iulu wa mbumbano ila iatiie.

**Mawia ma Mwii wa kinandu**

1. Kukwata mbesa sya ngwatanio na kunengane kieleelo kya undu syaile utumika nthini wa kila umbano wa ngwatanio.
2. Kuthukuma vamwe na ngwatanio kwona mbesa syoo undu ikutumika na kwa nzia ila yaile.
3. Kwia mavuku ma ngwatanio kwa nzia nzeo na mena uw’o.
4. Kwitikilithya kukunikilwa na kusiw’a kwa mavuku niene ngwatanio
5. Kutumaa livoti sya mbumbano sya kila mwai na masavu ma kila mwai
6. Kuvundisya ulawanyuvwa kwithiwa e mwii wa kinandu ayuma.
7. Kutetheesya athukumi ala angi na ikundi ila nini
8. Ivindani ya ndivi kunengane mathangu ma mbesa (Vouchers) kwa ene ikundi ala mena andu eli mevo, kukunikila mathangu aya mandivi na kuneenany’a na ala manenganae ndivi ino kuikiithya uw’o na ula waile niwe waivwa.

**Mawia ma munini wa mutongoi**

1. Kuungama vandu va mutongoi yila utevo na aimathukuma ene ngwatanio.
2. Ivindani ya mbumbano sya ngwatanio kuikiithya saa nisyaaatiwa
3. Kuandika kila kiendee nthini wa mbumbano
4. Kusoma kila kyaendeeie nthini wa wumbano muvituku

5. Kwia mavuku ma kila kyaneenaniw’a na kila kikaneenaniw’a
6. Kutetheesya kuvundisya alamanuvwa ta aii ma kinandu.

**Ala Maungamie Ikundi.**

Kila kikundi nikinyuvaa andu eli (mundu ume na mundu muka) kwithiwa nthini wa kanzu ya ngwatanio (GOCC). Ala munyuvite ma GOCC nimaile kwikala uthukumini usu vandu va myai nthathatu. Itina wavau usakuani ungi niwaile kuendeew’a kusakua andu angi.

GOCC yinthiawa yi ya andu maumite ikundini ta 2-5 ila ithengeanie. Memba ma GOCC nimaile ukomana imwe kila mwai nthini wa kyumwa kya mbee kya mwai.

**Mawia Ma Kanzu Ya Ngwatanio Ya Ikundi.**

1. Kumantha nzia nzau sya uimi
2. Kuikiithya kumanyiw’a kwa ngwatanio iatiie nzia nzeo sya TIST
3. Kuikiithya kuvitukithwa kwa kindu kina value yila uthiani wa miti ukwikwa
4. Kuikiithya miiyo ya uthukuma na kumanyisya nimiseo na ndina nthina
5. Kukuna livoti na lunengane mawoni kwa Kanzu ya kisio kyenye
6. Kuthathasya TIST kwisila kumanyisya ikundi nini.
7. Kusila ethiwa umwe wa atongoi ma ngwatanio niwaungamw’a. Kwika ukunikili na kunengane mwoloooto iulu wa itambya yiu.
8. Kusila ethiwa mutongoesya wa ngwatanio ndekuatia mawalany’o ma TIST.
9. Kunenga ene ngwatanio ino wia ta wa kwika ukunikili (aduting) na mumanyisya munene na mawia angi.

Athukumi angi nthini wa ngwatanio ino nita Athiai/ Avitukithya (Quantifiers), Amanyisya (Trainers) na aungamii ma maundu mekivathukany’o ta uimi wa kusuvia, Riparian, miti ya kiene, Maiko ma TIST na kuseuvya maiko aya na angi maingi.

# Mazingira Bora



# TIST

The International Small Group & Tree Planting Program  
www.tist.org

**Kipsigis Version**

An Environmental, Sustainable  
Development and Community Forestry  
Program.



East Africa TIST Participants during a joint seminar held at Gitoro Conference Center, Meru in October 2015

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# Tegetabgei: mat ibagach koberuratab krubit ak nebo kilasta.

**T**egetabgei kobo komonut en tuiyetab kurubit en kila wigi, muwoe en eposoek 4:15,16

chitugul en kurubit nebo tist koiib kabwate nenyin nekararan ko niton ko konunotiot koyob kurubit kiit ne kararan akobo kwongutik en kurubit konoiyet, bcheet ak keboisien konunotoik kiyok chekitinye.

Tegetabgei ko oret negimuchi kegeren ak keboisien, miten ortinuek o'eng chebo tegetabgei;

- Kotomo kesa nebo let en tuiyet kotinye chitugul muwaet ne tononot nebo imanit ne kayai kondointet ne kotonochin tuiyet kou, korib sait, kogon tetutik chegororon

ak alak, tinye chitugul boroindo komwa kitage netomo komwa chito age en kila wigi konyoru kondointet age tugul ne kotonochin tuiyet tekset

- En tegetabgei kinyorunen tuguk chegororonen amun ngolole biik agobo tuguk che imani onginetgei kemwa tuguk chegororonen en kutuswe kiyok amun kinyorunen konetisiet ingonetgei krubit kotugul kole bo komonut komiten kondointet, kondointet neisibu konoe kole borotet yon kagiteigei en tuiyet, en betun noton koyomegei komwa kogoi kondointet ne kotonochin tuiyet yon kogimwochi kiit nebo imanit en niton komotinye ngalalet anan ororunet, kinyorunen konetisiet niton echek, en tuiyet neisibu kinyorunen kondointet nebo betunoton kongiletabgei ak kinyorunen kimnotet, tegetabgei ko koberuret





## Kasarta nebo minset ! Yom ketichu Indigenous.

Indigenous trees ko ketik che kirute en Africa koboche keny' amun enn noton konomeke ak emon'iton. Imuche kochob ngu'ngunyek ak koik ole menye tasiritik ak tyong'ik che meng'echen . Ketik che terterchin korutu en ole terchin .

Koyob TIST seminars ak tugoshek kokonai membaek ketik che kororon che indigenous che nomeke ak komoswek chuton . Alak en chuton kosirotin en ngweny yon , kongoi en World Agroforestry Centre en ngalak che kikonech agobo seed collection ak preparation asi koruruyo . Kaikai yom iboishen alak en chuton en kasartab minset ne isubu ak kora inaisiyech agobo indigenous trees che miten komoswek kwok !

### a. **Prunus africana (Kikuyu: Muiri, Kimeru: Mweria)**

Sana sana kenyoru en forest reserves .keswek kwai kenyoru en osnet en kasartab asis . icherun che biriren kityo anan en ketit anan ko che mi ngweny.

Icherun pulp , kindo bek en saaishek 24, akityo iun en wiremesh . asi kosoyo , inde ole miten koristo ak urwet en saaishek 4.

Boishen sokek iter komaistoke bek en keswek yon kibokemine .min directly kochut seedbed anan ko pots.

Asiko rut kotore weekishek 6-8.

### Boishonik kwai :

- Bore pest: imuche kowon anan kobar pest cheu,. aphids, nematodes (che nome minutik ) angamun en smell nyenywanet. Kiboishen ko kwenik.
- Kerichek : bek chebo keti keboishen kiyoe prostrate enlargement . sokek keboishen keisto fever anan ko keboishen keimproven appetite . Bek keteshen baldet ab ketoton ak bek chon biriren keboishen kinyaen moet ;

kora extracts chebo tabandab ketit keboishen kinyoe tuga.

- Keteren ketik komala bek ngungunyek : ketik komuche korut en ridges ana ko terraces , koiku uronok che kororona k koter koriswek che yechen .tese ng'ungu;nyek sokek kimuche keboishen koik mulch ak green manure.
- Ornamental: Keti kochobe biyut ne kararan en compound .

### b. **Peacock Flower (Albizia gummifera, Kikuyu: Mukurwe)**

Sanasana kenyoru ketiton en lowland ak upland rainforest anan ko olenekityin ak osnoshek . Keswek che tako fresh komomokchin ke treatment alaktugul . keswek che kakekonor kindo bek che burgei, akityo kide ko, .kimuche ke-'nicken' seed coat en cotyledon end asi kosib korut ketit . rutunet ab ketiton kokararan, 70%-80% en betushek 10. Keswek konyolu kisib kicher en ketit kotomo konam tyongik che meng'echen .kswek kwai kimuche kekonor agoi kotar kenyit , en ole momiten be kana ko tyongik che meng'echen .

### Boishonik kwai:

- Bee-forage, kwenik , bokonik , gum, tannin, kerichek (bek chekicherunen ketiton konye moet ak komuche kobos malaria ), tere ng'ng'unyek komala bek (tikitik kwai kotere bek 'ab robta komal ng'ung'unyek),
- Urwet, nitrogen fixing (improveni ng'ung'unyek), naat ko good-mulch tree angamun sokek kwai kochoruke en season nebo sheding,
- Ornamental (kimuche kemin keti en avenues en townishek



- Kimine en tobonwokik , sokek kwai kotese ruret 'ab indizirik .

**c. *Olea africana* (African wild olive, Kikuyu: Mutamaiyu, Kimeru: Muthata)**

Kinyorunen keti, tobonwokik 'ab oinoshek ana ko tabaita anan ko open woodland . Kiboishen keswek che fresh yon kimine . keswek che yosen kindo bek koroon en saaishek 48. Kitreaten keswek chutonen en oratinik cheu kerolleni en koik anan kecracken. Istoet ab endocarb kotoreti en germination.

Keswondoni kimuche kekonor agot kenyishek cheite oeng'.

**Boishonik :**

- Omitwokik:olive products cheu olive oil ak olives che kiyome. Fodder: kititon sanasan koyome tuga .kwendet, ,bokoyot , makaa, chepsitwet.
- Reclamation:Angamun ketiton komuche komuita kasarwek 'ab asiista kimuche keboishen en ole kikitil ketik en semi-arid zones en Africa.
- Ornamental: kitit 'ab olive kokororonite imbarenika ak emit komugul.

**d. *Waterberry* (*Syzygium guineense*, Kikyuyu: Mukoe, Kimeru: Muriru)**

Kititon kinyorunen lowland rain forest ak mountain rain forests.Saidi korutu en ole miten bek , anan ogo en oinet orit , anan ko tobonwoki 'ab oinoshek.

Keswek komomokcinke pre-treatment , angamun rutunetnywai kokararan . 80-90% en betushek 25-50.

Nyolu kemin directly koba pots . lokoek komuche koyachekitun ,en noton koyoche kicher en haraka yon kokolulyo en ketit .Anan ko ne'mo non kitumtum ketit kororok lokoek

.yoche kemin keswek saait noton ,anan angot komoimugoksei inde keswek choton ole mitin sawdust che miten bek

**Ole kiboishoito:**

- Bee forage, bokoiyot , kwendet , urwet ,kerichek.

**Note:** lbwat ile tabonwokik 'ab ketiton komuche kore meet, en noton koyoche kinyor chito ne ingen asi keboishen koik kerichek.

**e. *Melia* (*Melia volkensii*)**

ketiton ne termite-resistant tree kokonu fodder yon bekunote arawek 'ab asista ,yon tuten fodder en ketik alak , komuche kobunchi maana en temik 'ab TIST . Keti chuton , open-crowned, chetinye gray bark, komuche korut agoi 6-20 m. *Melia* kinyoru sanasan en acacia-commiphora bushland che'tinye rainfall nebo 300-800 mm. Kimuche kinyor kora en seasonal rivers anan ko rock outcrops . sokek kwai koistoke mara mbili kila kenyit ago kimuche kemin ak minutik alak.

*Melia* kimuche kinam en tilet 'ab tikitik , ang'andan tilet 'ab tikitik komuche kochob ketit ne mo stable. Yon kakimin en keswot , koyoche ke scarifyen keswot noton (keboishen mat anan ko suswek che yonyotin) anan kenicken keswondonoton akityo kinde bek en saaishek 6.

**Boishonik:**

- fodder nebo tuga ak nego;;bokoiyot, anan kechoben beehives.
- preparation nebo sokek keboishen en wonet 'ab flys ako tam mkoboishe sanasana en goatkids.
- Kararan ko ketit 'ab agroforestry.



## Kimnotet en terchinois : TIST kotere biodiversity.

**B**iodiversity-mokornotet 'ab terchinet 'ab nature - kobo maana en environment . variety ko bo maana sanasana yon miten yomutik ak wolutik en emet , kou asista newon, pests, anan ko climate change.angandan kararan biodiversity,ko kila betut angamun en tuguk che kiyoe echek , ketese ta kibete species chebo ketik alak , emotinwek che twonen keistoek bek ,ak ketore resources chemiten emet . kikere kobeton kila betut . lbwat agobo chongindab minutik , toritik ,ak tyongik che kitam ikere kin ko imingin lakini ko momiten en inguni anan ko kikututikenekitun? Miten nine million species chebo organisms en emoniton nyonet , ak yon kakebar choton , kokoibet chito agetugul en ngwony agot lakog che takesiche komoitchin koker .

Temik 'ab TIST koibu walet , kokile ke korib diversity initon. Ketit agetugul nekimine ko

renewable resorses. Ketit age tugul nekiine kobose pressure ne miten nature, diverse forest angamun kimuche keboishen choton nekotokitile ketik, bokoinik, ak products alak. Yon kakimin ketik che indigenous ,kou ole tinye groupishek chechang' en riparian buffer groves ak thousands en temik 'ab TIST kotinye imbarenik kwai, kiribe diversity koechek . kora diverse ketik che indigenous kokonu menget ak omitwokik in tyongik , taritik, achtoreti en pollination chebo minutik, ome pests, anan koribwech ngungunyek chok..

Temik ab TIST kora konete kokwotinwek agobo biodiversity . Temik keintervieweni en clusters en pilot project kebchei ngal agobo biodiversity en komoswek kwai .Ongenam ke eun tugul ,agebchei ngomnotoniton ,ak kemin ketik che indigenous asi kechob emet ne kararan.

## Kandoinatet ak Bounatet en klasta neng'ung.

**E**n nguni kotinyei TIST klasta 130 che mitei en boisiet,.En klasta age tugul, kandoik che konugei kogitetai kotoret en boisiet ak kimnatenywa. Klasta agetugl kotinyei bounatet ak kandoinatet ne u;

### Kandoinatetab klasta

- Kandoindetab klasta
- Rubeiwotab kandoindet
- Chitaab hesabu

Kandoindetab klasta, rubeiwotab kandoindet ak chitab hesabu koboisie en kasartab arawek angwan. Ye ibata arawek angwanu en boisiet, kandoindetab klasta koistoigei. Rubeiwotab kandoindet koegu kandoindet ak chitab hesabu koegu rubeiywotab kandoindet. Kwonyika ak murenik kowalegei en lewenisiet- ngot ko chitab hesabu ko age ne kileweni konyolu ko kwondo. Klastaingwong konyolu kolewen en imanit chitab hesabu. Lewenisiet ko bo

kamanut ak kobo imanit ak ko nyolu keyai en klasta tugul che bo TIST.

### Boisietab kandoindetab klasta.

1. Nyolu koek ne yaei kasit en klastait tugul ak magutikab TIST.
2. Nyolu kondochi kasitab klastait , kondochi tuiyoaiekab klasta,kaitisietab ketik ak kanetisosiek kobangani ak kandoik alak.
3. Kokimit kurupit si onyor magutik che echen, che boto minetab ketik ak yomtaetab CF, kotoreti klasitait koeg ne kim ak agenge.
4. Kobangan en ntonunetab banganetab tuiyosiekab klasta ko boto kiboitinik alak che bo kurupit ak kogeer kole kaindochi tuiyosiek komie ak kanetisiet.



5. Kobois ak chitab hesabu koger kole banganutikab tuiyetab klasta ak banganutik alak kokagikonor komie.
6. Kobois ak chitab hesabu kogeer kole logoiwekab kila arawa ak che bo hesabu kogokiyokto ak ko bo iman.
7. Kotoret ko sir kurupisiek alak che lelach en klasta.
8. Kotoret kurupisiek che mengechen konde sein baronokab GH C, kebir picha ak kigokto.
9. Kotaach ak komwaita toondet ge tugul ne imuch kogannyo tuiyetab klasta.
10. En libanet :konyor baronokab libanet komait betutab tuiyet. Kobois ak chitaab hesabu kogeer kole banganetab libanet ko ne noton ago kagisib ak komwaita tebut age tugul ana ko uindo koitchi kandoikab TIST anan ko kandoikab libanet.
11. Komwachi bikab kurupisiek che mengech agobo tuiyet ne nyonei.

**Boisietab chitab hesabu.**

1. Kotaach boisietab rabinikab klasta ak komwachi ak koboisien en tuiyetab klasta.
2. Kobois ak klasta kobangan ole kimuche keboisioitoi rabinikab klasta si kenyor magutikab barak.
3. Kogonor ak korib record che bo klasta en kitabutab record che bo klasta, komie ak en oret ne kararan.
4. Kogoito kitabusiek kechigil membaek ak kandoikab TIST.
5. Koyokto tugul record che bo tuiyetab klasta ak report che bo hesabu che bo kila arawa
6. Konet chitab hesabu ne nyonei.
7. Kotoret ak kogimit kiboitunik alak che bo kurupisiek che mengech.

8. En kasartab libanet: kogoito baronokab libanet koboto membaek aeng che mi, kochigil baronok ak kogoito geeret koitchi kandoik che libani, kosibi komie ak en iman.

**Tonondaikab klasta.**

Leweni klasta agetugul tonondoikwak aeng, muren ak kwony agenge kochap kansil nebo kurupishekab klasta. Tonondoichuto bo klasta koboisie en arawek lo ak kelemen alak yeibata kasaratan. Kansol init obo klasta kotinyei klasta 2-5 che tetegei. Tuitos membaek konyil agenge en arawet noto ko en wikit netai.

**Boisietab lewenaikab kurupitab kansol chebo klasta.**

1. Kosich ak kopchei boisionik chemiach missing kobun klasta
2. Kogeer kole mitei kanetishet ne inet en klasta kesubi magutikab TIST.
3. Kogeer kole mitei tuguk chechang kesubi magutikab TIST.
4. Ripsetab tuguk chekiboisie en kanetishet ak pimanet.
5. Kobor magutik ak kokon takchinetab ng'atutik kobechi kansol nebo komoswek.
6. Kobarait TIST kobun klasta chemitei.
7. Kochab ng'alaletab kandoinatet ngotkeisto pimanindet anan ko kanetindet kochigil imanit ak kokon takchinet en istoet.
8. Kochab ng'alalet ngot ko mesubi kandoindetab magutikab TIST.
9. Kokon takchinetab bik kobun kurupishekab klasta en tesetab boisionikab TIST che tetatin cheu kerindet, TSE anan ko kanetindet neo ak boisionik alak.

Bik alak cheboisien TIST kou; pimanindet, kanetik ak sirikab boisionik cheterterchin kou sirindetab ripest ak kabatishet ak sirindetab ketikab kipkaa, chopikab stopishekab menet ak chabikab stopishek.