

Mazingira Bora



TIST

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

English Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Kirimara (Maara/Chuka) GOCC Leaders in a group photo during their regional meeting last September.

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What are you using in your tree nurseries in alternative to plastic polytubes?

When Farmers received The July 2018 *Mazingira Bora Newsletter*, and read this article, many offered more and better ways of making alternative polytubes. Some other requested that we do this article again. As your servants, we are happy to do this article with additional innovative methods.

It's close to one year since the Government of Kenya banned the use of plastic bags. This ban affected the plastic polytubes used in tree nurseries to raise seedlings. While TIST supports this effort by the Government to rid off these harmful and hazardous plastic materials from the environment, we are concerned about the impact of this ban, specifically in the establishment of tree nurseries and generally in overall tree planting efforts.

This year, TIST farmers in Kenya have agreed on the goal of planting two (2) million new trees. By July when this article was featured, TIST Kenya had quantified 9,507,893 live trees. Today, we have 9,722,043. We want to reach 11 million trees by the end of March 2019.

Some of our farmers have devised creative ways to make alternative polytubes. Some methods are working well, while others need improvements. Some materials being used in making polytubes include:

- ✓ Used plastic bottles that are pierced on the sides. One bottle is cut into two halves and both used as polytube after piercing on the sides.

- ✓ Used grain and cement bags. They are sewed and made into sizeable polytubes.
- ✓ Use of banana leaves/backs. Farmers neatly make them into polytubes.
- ✓ Bundles of used newspapers. Again, they are neatly made but care must be taken when watering seedling so as not to wet them.

Additional innovations from feedback we received from TIST Farmers

- Milk packets
- Wash basin
- Old linen/garments
- Timber crates
- Disposable coffee cup / water cups

Please share this with your Small Group members, as well as your Cluster. Let us hear from you and your Clusters about what methods you are using as alternative to plastic polytubes. Please share it out in your meeting and share with the Cluster Servants.



Reminder: Small Group Eligibility Requirements.

In September this year, TIST Leadership Council had series of regional meetings with Group of Clusters Councils leaders. Some GOCC leaders requested that we do a reminder article on Small Group Eligibility Requirements.

During your Cluster meeting, please review these requirements and help one another to understand them. They are important in our TIST activities and in achieving high results.

Your Small Group should meet the following requirements to qualify for the TIST Program:

1. There should be 6 to 12 members in your Small Group from at least three different households.
2. Each Small Group must be willing to follow the TIST Personal and Program Values.
3. Members of each Small Group should meet together weekly using TIST Small Group Best Practices to share ideas and organize their work. Small Group members should participate in TIST training to help develop and share best practices with other TIST groups.
4. All Small Group members are required to sign the Greenhouse Gas contract.
5. Small Group members should provide proof of land ownership or control of land where they will plant, or have planted, TIST trees.
6. Each Small Group should have a minimum of 1,000 live trees within 18 months after joining the TIST program and a minimum of 5,000 live trees within five years.
7. TIST Small Groups are supposed to organize to form Clusters. A Cluster is formed by Small Groups that are all within walking distance of each other. A Cluster should demonstrate sufficient land within two years of joining TIST to plant 250,000 trees (approximately 160 hectares).
8. TIST will pay farmers US \$0.02 per live tree per year throughout the contract. In addition, when GhG revenue exceeds TIST KE Program costs, Clean Air Action will pay the farmer 70% of net proceeds from greenhouse gas / carbon credit sales.
9. For the TIST Small Groups to qualify for a carbon business, they must meet the requirements governing operations of regulating bodies (Clean Development Mechanism (CDM) or Verified Carbon Standards (VCS). Some of the rules require Small Groups to keep the trees alive for 30 years or longer.
10. Your Small Group should replant trees that die, for any reason, each year for at least five years.
11. Tree species that are treated as bushes or hedges (less than two meters tall) cannot be counted as TIST trees.
12. Trees planted at a spacing of less than two meters will count skipped at a distance of two meters and in between trees can be thinned for firewood or fodder.
13. TIST will allow limited harvesting of live trees that are 10 years or older, according to a pre-approved plan. However, total trees harvested in any year cannot exceed 5% of the group's total live trees.
14. No trees that damage the environment will be counted as TIST trees.



TIST: Trees make the environment better for us all.

In TIST, we plant trees to take part in the carbon market and earn income from carbon-offset sales. However, the other benefits of trees are enormous!

Here are just a few benefits we (and the rest of the world) enjoy:

- ❑ Trees serve as natural habitat to support a wide variety of flora and fauna. They provide a sense of privacy and security to wildlife seeking shelter in the woods and provide them with food. Protecting biodiversity makes our farms and our planet more productive and resilient to climate change and other challenges.
- ❑ Trees improve the quality of air and reduce dangerous pollution. Trees remove excess carbon dioxide and air pollutants including sulfur dioxide, ozone and nitrogen oxide. In return, they give us oxygen required for life.
- ❑ The visual quality of a landscape is improved by planting trees, which, in turn, improves the quality of life. The greenery of trees adds color to the landscape and enhances the picturesque beauty of the environment.
- ❑ Trees control the climate by moderating the effects of sun, wind, and rain. They can help prevent severe floods, landslides, and wind damage. Trees moderate flood hazards by allowing the rainwater to percolate into the soil instead of running over it.
- ❑ Trees reduce soil erosion. Their roots bind soil that would otherwise wash away in rainstorms and floods. Trees also help improve the fertility of soil. Rich soil transfers nutrients to food, which contributes to human health.
- ❑ Trees are great absorbers of noise. Noise pollution can be reduced to a great extent by planting more and more trees.
- ❑ The demand for clean drinking water can be met by planting indigenous trees. Forests and plant cover naturally slows the runoff of rainwater and filters it into the soil. Once slowed, rainwater seeps down to refill underground aquifers we depend on for our use. Trees also shade rivers, keeping water cool, and slowing its loss through evaporation.

Strength in diversity: TIST protects biodiversity.

Biodiversity - 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.

TIST Values: The strength and foundation of TIST.

Most TIST Small Groups know TIST values. Still, it is important to reflect on these Values and to be sure that we all are truly living by them. The success of TIST is based on the integrity and effort of individual members within TIST. What we can achieve depends on each of us following these Values as we plant and care for our trees, take part in training and other activities, and report our results. Who is TIST? We are!

Who We Are

- 1) We are honest.
- 2) We are accurate.
- 3) We are transparent.
- 4) We are servants to each other.
- 5) We are mutually accountable to each other.
- 6) We are Role Models.
- 7) We are Volunteers.

How We Do Things that other people can see

- 1) We do the work ourselves in Small Groups.
- 2) We develop and use best practices.
- 3) We use our head and hands.

What do we do

- 1) We plant variety of trees for long-term.
- 2) We find ways to improve our health.
- 3) We practice Conservation Farming.
- 4) We do other projects and businesses (sustainable agriculture, nurseries, citrus growing, dairy goats and farming, chickens, bee keeping, fish ponds and fish keeping, silkworm farming, etc.).
- 5) We sell carbon credits.

What we create

When follow these Values as we live and do business, we create something good that was not there before.

- 1) We create Team Work—by doing things this way, we end up working like a team.
- 2) We create Capacity—we create organization, strength, and a system that is strong.
- 3) We create Enjoyment—we see results, we accomplish big things that we enjoy.
- 4) We create Big Results—Big results in planting trees. Big results in Conservation farming and from other projects and business that we do.
- 5) We create Low Budget/ cost, yet we achieve big results.



New best practice: Raised pot beds.

TIST is encouraging farmers to try raised pot beds. Many farmers have found that this improves results. Try raised pot beds and report to your cluster what you observe, and whether this practice works better for you.

Figure 1 represents the common way of arranging pots, as described above.



Fig 1: Seedlings of *Moringa oleifera* arranged as a stack on the ground.

This traditional system of arranging pots on the ground can produce seedlings with weak roots. This is because the roots coil up inside the plastic pot. At transplanting, the roots can be weak and therefore not easily establish in the ground.

To avoid this, it is recommended to establish seedlings in **open bottom** tubes and place them on **raised beds** (Fig 2). A raised bed can easily be made from a wooden frame and wire mesh (see photo). Raised beds allow automatic root pruning because when the roots reach the container bottom, they naturally drop off (called air root pruning). This means that roots do not get injured through normal root pruning methods. The roots then tend to strengthen without growing further. This produces a healthy root system and the seedling has a better chance to establish fast and well in the field. It also eliminates the need for the labour of root pruning, a practice that is often forgotten or done too late, causing serious damage to the roots. Weed control is also easier in raised beds.



Fig 2: Seedlings of various species arranged on a raised bed.

The raised beds might appear to raise the amount of water used in nurseries. However, nursery operators have devised innovations to deal with water constraint. Some of the innovation involves digging a trench, placing planks of wood or wire mesh across it and placing the seedlings on the planks or wire mesh. The seedlings thus appear to be on the ground level but the trench under them provides the space, which aids air root pruning. The water is trapped in the trench and will keep seedlings moist through evaporation and so reduce the need for very frequent watering. A polythene sheet can also be placed in the trench to ensure water does not seep into the ground.

Questions to ask during Cluster Trainings

- What materials have Small Groups successfully used for the pot bags? Share your best practices.**
- How can Small Groups organize themselves to prepare their pot beds? How many people are needed to prepare the pots? When? How many people need to prepare the soil mixture? Where?**
- Have any groups already tried raised pot beds?**
- Do people have any other advice? Share any information at the next trainers' meeting.**

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Kimereu Version

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Mbicha ya atongoria bonthe ba GOCC ya Kirimara kuuma Maara na Chuka bari mucemanio jwao chogoria mweri jwa Kenda mwaka juju.

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Nimbi ugutumira kiri nasari yaku kanyani ka maratasi ja Nylon?

Riria arimi bagwatire ngathiti ya July mwaka juju na bathoma njira jia gutumira kiri nasari jiao jia miti nuntu bwa maatasi kuingwa, arimi baingi ni bejire na njira jiiingi inyingi na mbega. Arimi bangi nabo nibauririe ntumiri iji icokerwe ringi. Ja atungati benu, twina gikeno kuthondeka ntumiiri ingi ina mauntu jangi nkuruki.

Riu ni akuhi mwaka kuuma thirikari ikuregana na maatasi ja Nylon. Kuingwa guku ni kwa rwtire thina muno kiri uthondeki bwa nasari jia miti. Amwe na kwithirwa TIST niikugwatanira na thirikari kiri kurega utumiri bwa maratasi jaja jaretaga acara inene kiri riera, TIST noo ikuthugania uria yumba gutetheria kiri uthoki bwa miti ya nasari na gwa ukuhi kiri uandi bunthe bwa miti.

Mwaka juju, arimi ba TIST ba Kenya nibetikaniritie kuanda miti i mieru na gukinyithia miti Million Ijiri (2 million). Mwei jwa Julai riria ngathiti yandikitwe ntumiri iji, TIST Kenya yari na miti itari 9,507,893. Narua iji, turi na miti 9,722,043. Nitukwenda gukinyithia miti (11 million) mweri jwa Machi 2019.

Bamwe ba arimi ba TIST ni bathondekete njira jiiingi jia kuumithia miti. Njira imwe ni injega muno na ingi ni ikwenda ithuganirwe nkuruki. Into imwe iria igutumirwa ni ja iji:

✓ Cuba jia plastiki iria iri na ikutho miena. Cuba imwe kugitanwa maita jairi na guturwa ikutho miena na gutumika chio ijiri.

- ✓ Gutumira miuko na mpempe na maketha jangi na nkinya ya cimiti. Kugitanwa na gutumwa bweega ja tumiuko.
- ✓ Gutumira macooro/mathangu ja marigu. Arimi kwogania bweega jakathondeka ka muuko.
- ✓ Ngathiti iria itumiri. Igitanagua bweega na kuthondeka miuko indi ikamenyeerwa bweega igita ria gwikira ruuji.

Njira jiiingi riria jia umire kiri arimi

- Mbagiti jia iria
- Basin iri ikuri
- Nguo na ntaame ikuri
- Kiriti cia mbao
- Ikombe jia kauga /na nduuji

Ni ukurombwa umenyithie mu memba ungi wa gakundi gaku na nkinya memba ba clusta. Reke tumenye kuuma kiri ugwe na clasta yaku njira iria bugutumira kuthondeka nasari. Araniriani na amemba ba clasta na bumenyithie mutari wenu wa miti.



Kiririkania: Mantu jaria jendekaga ja gakundi.

Septemba mwaka juu, Atongeria ba Council Kenya ni bathithirie micemanio miena i mingi na atongeria bangi ba clasta (GOCC). Atongeria bangi ba GOCC ni ba rombire kugie na kiririkania kia mauntu jaria jendekaga ja gakundi ka nini ga TIST.

Kiri mucemanio jwenu, kurukirani mauntu jaja na butethanie kumamenya. Ni mauntu jaja na gitumi kiri ngugi jia TIST na nkinya kugwata maumithio mama nene.

Gakundi gaku ka nini ni kabwiri gukinyithia mauntu jaja nikenda getikirika gwa TIST:

1. Kethirwe kari na amemba 6 - 12 na baumite kiri mijii ithatu nkurani.
2. Gakundi no nkinya getikire kuthingatira mauntu jaria TIST ikagira muno ona nkinya muradi.
3. Amemba bonthe ba gakundi no nkinya betikirie gucemanagia o kiumia bagitumagira njira iria mbega jia TIST jia kumenyithania mauntu na nkinya kubangani ngugi jiao.
4. Amemba bonthe no nkinya ba caine kiriko gia Greenhouse Gas (GhG).
5. Amemba no nkinya boonanie ati miunda ni yao kana rutha rua kuria bakaanda miti kana baandite miti ya TIST.
6. Gakundi No nkinya kaande miti 1,000 ndeene ya mieri 18 kuuma bejiangikithia na TIST na Bakinyithie miti ngiri 5,000 ndeene ya kagiita ka miaka itano.
7. Ikundi jia TIST no nkinya jii bangi kuthondeka clasta. Clasta ithondekagwa ni tukuundi turia turi amwe antu benkithii na maguru. Clasta no nkinya ndeene ya miaka iri bonanie migunda ya kwigana kuanda miti 250,000 (ja 160 Ha)
8. TIST ikaria arimi US £0.02 oo muti bakkanda wi muoyo oo mwaka nkinya kiriko kithire. Na nkuruki, riria baita igakurukiria matumiri ja TIST Kenya, Clean Air Action ikaria murimi gicunji gia 70% kia baita kuuma kiri wenda wa Carbon.
9. Nikenda gakundi kaumba gutonya kiri biashara ya riera no nkinya gakinyithie mauntu jaria jendekaga kiri biashara iji baria batongagiria ngugi iji ni (Clean Development Mechanism - CDM kana Verified Carbon Standards-VCS). Mawatho jamwe ni jendaga gakundi kamenyeere miti gwa kagita ka miaka 30 kan ona nkuruki.
10. Gankundi nonkinya gacokerie miti iria ikauma nontu bwa gitumi o kiriku o mwaka gwa kagita ka miaka itano.
11. Miti iria itegagirua ja ithaka kana ndwego iria itukuraga nkuruki ya mita ijiri itibaterie gutarwa ja miti ya TIST.
12. Miti iria iandi na utiganu bunini nkuruki ya mita ijiri nayo ga igatigagirwa nikenda ikinyithia mita ijiri. Miti iu no igitwe igatumirwa ja nku kan ndithiene.
13. TIST igetikiria ugiti bukai muno bwa miti iria iri na miaka ikumi kana nkuruki kuringana na buria barikenie. Kunari uu miti yonthe iria ikagitwa itigakurukie 5% ya miti yonthe ya gikundi.
14. Guti miti iria ithukagia riera iga tarua ja miti ya TIST.



Miti nitumaga naria gututhiurukite gukethira kuthongi nkuruki kiri batwi twinthe.

Ndene ya TIST, nituandaga miti nikenda tuumba gutonya thokone ya ruugo na twona mbeca kuumania na kwendia ruugo.

Indi-ri, baita ingi cia miti ni inene!

Aja ni baita imwe inkai iria batwi (na nthiguru yonthe) twonaga:

- ❑ Miti ni gikaro kia mithemba imingi ya imera na nyomoo. Niiejanaga antu a gucioga kuumania na bangi na gicitho kiri nyomoo cia kithaka iria cigucua gikaro mitine na kucia irio. Gukaria mithemba imingi ya nyomoo na imera nigutumaga miunda yetu na nthiguru yetu ikagia maciara jamaingi nkuruki na ikaregana na kugaruka kwa rera na magitaria jangi.
- ❑ Miti nithongomagia ruugo na ikanyiyia kuthukua gukuthuku kwa naria gututhiurukite. Miti niritaga ruugo ruruthuku rwaingia na bingi biria bithukagia ruugo ta sulfur dioxide, ozone na nitrogen oxide. Gucokia, nituejaga ruugo rurwega ruria rendekaga kiri utuuro.
- ❑ Uthongi kiri metho bwa miunda nibuthongomagua ni kuanda miti, naku gukathongomia miturire. Rangi ya miti niongagira miunda rangi na kuthongomia uthongi bwa kimbicha bwa naria gututhiurukite.

- ❑ Miti nigaruraga rera na njira ya kunyiyia jaria jaumanagia na riuu, ruugo na mbura. Miti noitethie kurigiria kuigara kwa ruuji, kwaruka kwa nthi na magitaria ja ruugo. Miti ninyiagia mathukia ja mbura inyingi na njira ya kureka ruuji rwa ngai rutonya muthetune antu a gutira iguru ruri muguo.
- ❑ Miti ninyiagia gukamatwa kwa muthetu. Miri yayo nigwataga muthetu juria antune angi juringi gukamatwa mburene. Miti kinya nitethagia kunoria muthetu. Muthetu jumunoru nijukagira irio nutrient na kwou bikathongomia thiria ya miri.
- ❑ Miti nijukagia gituma na njira inene. Kuthukia kwa naria gututhiurukite ni gituma kwomba kunyiwua na njira inene na njira ya kuanda miti ingi na ingi.
- ❑ Kwendeka kwa ruuji rurutheru rwa kunyua kwomba gutetheka na njira ya kuanda miti ya gintwire. Miitu na imera nibinyiagia kumatuka kwa ruuji rwa ngai na kurukemba mbele ya rutonya muthetune. Kumatuka kwaru kwanyiwua, ruuji rwa ngai nirutonyaga nthi kuujuria marinya jaria jari ndene muthetune na jaria jari bata mono kiritwi. Miti kairi nikunikagira nduuji, ruuji rugakara rurina mpio na mpaari ikanyiyia kuura kwa ruuji gukurukira kujukua ni riuu.

Inya kiri mithemba imingi: TIST nikaragia wingi bwa mithemba.

Wingi 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 tuwandaga 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.

Jaria TIST iikirite: Inya na musingi jwa TIST.

Ikundi bibinini biria bingi bia TIST nibiiji jaria TIST iikirite. Amwe na bou, kurina bata kuthuganiria mantu jaja na kumenyeera ati nitujathingatira na umma. Kuumbana gwa TIST gukaumania na kuthingatira kwa jaria jabati na ngugi ya o mumemba wonthe ndene ya TIST. Jaria tukomba gukinyira jakaringana na uria o umwe kiritwi akathingatira mantu jaja riria tukuanda na kumenyeera miti yetu, tugwita kiri uritani na kiri mantu jangi, na tugacokia ripoti kwegie jaria tuthithitie. TIST nibao? Ni batwi!

Turi bao

- 1) Turi ba umma
- 2) Turi ba jaria jongwa jario
- 3) Turi ba weru
- 4) Turi atungataniri
- 5) Turi ba kumenyanira twingwa.
- 6) Turi ming'uanano imiega
- 7) Turi ba kuiritira

Uria tuthithagia mantu jaria antu bangi bakoona

- 1) Turitaga ngugi twingwa ndene ya ikundi bibinini.
- 2) Nituthuganiria na gwitikaniria mitire iria miega buru ya kuthithia mantu.
- 3) Tutumagira mitwe na njara cietu.

Nimbi tuthithagia

- 1) Nitwandaga miti mithemba imingi ya igita riraja.
- 2) Nitucwaga njira cia kuthongomia thiria yetu ya mwiri.
- 3) Niturimaga na njira ya Urimi bubwega (Kilimo Hai)
- 4) Nituthithagia miradi na biashara ingi (urimi bwa gwika unoru bwa miunda yetu igita riraja, minanda, kurima ntunda, mburi cia iria na kurima, gwika njuki, gwika makuyu, kurithia imemeo na jangi jamaingi)
- 5) Nitwendagia ruugo

Jaria tuthithagia

Riria twathingatira mantu jaja o uria tugutuura na kuthithia biashara, nituthithagia gintu gikiega kiria gitirario mbele.

- 1) Nituumbaga kuritanagiria ngugi amwe—gukurukira kuthithia uju, turigayia kurita ngugi ja timu. .
- 2) Nitwakaga—Nituthithagia kambuni, inya na njira iria irina inya.
- 3) Nitugwiragua—twona maciara, nituumbaga kuthithia mantu jamanene jaria tukenagira.
- 4) Nituthithagia mantu jamanene—Mantu jamanene kiri kuanda miti. Mantu jamanene kiri urimi bubwega na mibango na biashara ingi iria tuthithagia.
- 5) Nitutumagira mbeba inkai, indi tukathithia mantu jamanene.



TIST: Njira injeru cia kuthithia minanda ya nyongu yukiritue.

TIST ni igwikira arimi moyo kugeria kuthithia minanda yukiritue. Arimi babaingi nibonete ati njira iji ni yukiritie na njira inene gukura kwa mbegu riria cieta kwaandwa. geria gukiria munanda jwa nyongu na uringe riboti kiri Cluster yaku mantu jaria ukona na kethira njira iji ni igugutethia bwega nkuruki .

Mbicha namba 1: irungamirite njira ya kubanga nyongu o jauria twiri au iguru:



Mbicha 1: mbegu cia Moringa oleifera ibangi nthiguru.

njira iji inkuru ya kubanga tunyongu nthiguru nitumaga mbegu ikagia na mirii itina inya .Thina iji iretegwa ni miiri gwikunja ndene ya kanyongu ga maratasi. Igitia ria kuthamia mbegu iji , miiri iria nontu itina inya igutumaa mbegu iria ikarega kugwata kana miiri igatura karatasi na igacianda mithetune kuraja mono. Untu bubu ibutumaa miiri iji yenda kutematemwa mbeere ya kuanda.na iji tumaga mbegu iria ikagia thina cia mthemba.

Kwebera mantu ja jaja , ni bwega kumithia mbegu kiri mibira ikunuri bwa nthiguru na umirikire kiri minanda yukiritue (mbicha no 2) Munanda jukiritue nojuthithue ugitumagira mbau na waya (ona mbicha) Minanda yukiritue ni itikagiria kurita miiri iria itina inya na njira imbuthu nontu riria miiri igakinya nthiguru ya karatasi karia, gaikukaa yongwa. Iji itagwa njira ya ruuo ya gukura miiri. Guku ni ja kuuga miiri iji itithukangagua ni kumikuura jauria iringi thukangua ni njira ingi cia kawaida cia kumikura. Miiri itaga na mbeere kugia na inya itigukura ikuruka karatasi karia mbegu yaandiri. Iji itumaga mbegu ikagia miiri iri na inya bwega iria itumaga mbegu igwata bwega na mpwi riria

yathamua kuuma munandene.

Njira iji ninyiyagia uriti ngugi buria buringitumirwa gutematema miiri iu, ngugi iria yuragiria kana ikathithua icereri mono , untu buria butumaga miiri ikaaga inya mbeere ya kuthamua kwa mbegu. Kumeenyera iria kinya guti inya kiri minanda iji yukiritue.



Mbicha no 2 : Mithemba mwanya mwanya ya mbegu imbangi munandene jukiritue.

Munanda jukiritue nojukare jeka jutumagira ruuji rurwingi nkuruki ya minanda iji ingi ya nthi. Indi, baria karitaga ngugi minandene iji nabathithitie njira ya utimiri bwa ruuji rurukai. Njira imwe ni kwinja mutaro kana muguru na gwika maruku jagitangi kana waya na kurikira mbegu iguru ria maruku jau kana waya. Mbegu cionanagia jaka iri nthiguru indi muguru kana mutaro juria juri rungu ijutethagiria kwejana kaanya ga gukuura miiri iria itina inya. Ruuji ruria rugwatiritue mugurune / mutarone juekira mbegu iria ruuji ruria rugacikinyira riria rwaithua ii riu. Njira iji nitumaga mbegu iria itekende gukara igikairwa ruuji othaa cionthe. Karatasi ka nailoni nogekirwe mugurune juju kenda karigiria ruuji ruru gutonya mugurune.

Biuria bia kuuria kiri micemanio ya Cluster.

- a) **Ni into biriku tukundi tuniini tutumirite kuthithia tumiuko twa nyongu . Irananeni njira iria njega buru**
- b) **Natia tukundi tuniini tumba gucibangania kenda bomba kuthithia tumiuko twa nyongu?Ni antu bangana bakwendekana kuthuranira tunyongu tutu? Iri? Ni antu bangana bakwendekana kuungania muthetu jwa gwikira tunyongune? Na inaa?**
- c) **Ni ikundi bing'ana bigereritie minanda iji yukiritue?**
- d) **Kuri antu bari na mantu jamega baringi enda kwira bangi? Iraneni ntento iji kiri mucemanio juu juungi jwa aritani**

Mazingira Bora



TIST

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

Kikuyu Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Mbica ya atongoria othe a GOCC ya Kirimara kuma Maara na Chuka mari mucemano-ini wao mweri wa Kenda mwaka uyu.

Inside: Nikii urathira nathari-ini yaku kuuma mihuko ya nylon yaheo mikana? Page 2

Kirikania: Maundu maria ikundi nini ciagiriirwo ni kuhingia (Small Group Eligibility Requirements) Page 3

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Hinya hari ukuuranu wiu:TIST niigitagira biodiversity. Page 4

Ikundi nyingi cia TIST niciui values cia TIST. Page 5

TIST: Njira Njeru: Giito kia metha. Page 6



Nikii urathira nathari-ini yaku kuuma mihuko ya nylon yaheo mikana?

Hindi iria arimi a TIST mathomire ngathiti ya mweri wa July 2018 na magithoma article ino, nimatuheire mawoni meeru ma guthondeka mihuko ya gwikira miti iri giito-ini. Arimi aangi nimaturiririe tucokere rugano ruru oringi. Ithui turi atungata aanyu, nitugocekera rugano ruru ringi tuongereire mawoni meeru.

Ni kahinda ka mwaka umwe kuuma riria Thirikari ya Kenya yahuranire na uhuthiri wa maratathi ma nylon. Mukana uyu niwahotomirie maratathi maria arimi a miti mahuthagira hari nathari ciao. Onagutuika TIST niranyita thirikari mbaru hari mbara ya kuhurana na maratathi ma nylon maria makoretwo magithukia maria maturigiciirie. No twena kieha ati mukana uyu niutumite uhandi wa miti na kuhariria nathari uhuuke.

Mwaka uyu, arimi a TIST mena itanya tia kuhanda miti milioni igiri (2). Tugichaba ngatiti ino mweri wa July twari na miti 9,507,893 iri muoya na mitare. Riu twina 9,722,043. Turenda gukinyia million 11 gugikinyia mweri wa gagatu 2019.

Arimi amwe nimakoretwo makihuthira nira ngurani hari guthondeka tumihuko twa gwikira miti. Njira imwe ici ni iraruta wira wega na iria ingi ni ikwenda kugacirio. Nira imwe iratumika nita;

- ✓ Kuhuthira mikembe ya plastic iria itumikite. Ukurenga cuba maita mere na utumire icunji ciere. Niwega uture turima miena.

- ✓ Kuhithira makonia na mihuko ya thimiti. Utinie wega na utume timihuko twaku.
- ✓ Kuhuthira migoto ya marigu.
- ✓ No utumire gukunja kia ngathiti. Na umenyere riria ukuhe maai, umenyere ndukaihugie ngathiti.

Mawoni meeru maria twamukirite kuuma kuri arimi hari guthondeka mihuko ya miti nit a:

- Kuhuthira mbagiti cia iria
- Kuhuthira irai nguru
- Kuhuthira nguo nguru
- Kuhuthira Krati cia mbao
- Kuhuthira ikombe cia maratathi cia kahua kana maai

Niwega waranirie na Gakundi gaku hamwe na Cluster yaku nira iria ingi urathuthira kana oo marahuthira. Niwega utumenyithie kuhitukira Cluster servant waku.



Kiririkania: Maundu maria ikundi nini ciagiriirwo ni kuhingia (Small Group Eligibility Requirements)

Mweri wa kenda mwaka uyu, TIST Leadership Council nitwari na micemanio icigo ngurani na atongoria a Group of Clusters Councils .Atongoria amwe a GOCC nimoririe tukorwo na rugano ngathiti-ini ino hari gutirithia maundu maria ikundi nini magirirwo nigukorwo na mano.

Niwega riria muri mucemanio wanyu wa Cluster muthome munyitanire maundu maya nigetha muteithania gutauka. Maundu maya ni ma bata muno hari kuona maciaro mega na maiguru riria turaruta wira twi TIST.

Gikundi giaku kiagiriirwo ni kuhingia maundu maya nigetha mukorwo na ngwataniro njega na mradi wa TIST.

1. Gikundi kianyu kiagiriirwo ni gukorwo na amemba 6-12 na makorwo maumite makiria ya micii itatu ngurani.
2. O gikundi nikiagiriirwoi gukorwo gigithingata TIST Values.
3. Amemba a gikundi kinini magiriirwo magicemania ookiumia rita rimwe nigetha magokorwo magikuria na kubanga mawira mao. Gikundi nikiagiriirwo gigithii micemanio ya ithomo cia TIST niguu magaciririe mawira mao.
4. Amemba oothe a gikundi kianyu nimagiriirwo ni gwikira kirore ngirimiti ya Greenhouse Gas contract.
5. Amemba a gikundi nimagiriirwo nikuonania ati migunda iria marahanda miti n l yao kana mena ruutha rwa kuhanda miti.
6. O gikundi kanini kagiriirwo nigukorwo na makiria ya miti 1,000 thutha wa kahinda ka mieri 18 kuuma maingira TIST na makiria ya miti 5,000 thutha wa miaka itano.
7. Ikundi cia TIST niciagiriirwo ni guthondeka Clusters. Cluster ithondekagwo ni ikundi iri itura-ini rimwe (ikundi 30-50). O cluster yagiriirwo na gukorwo na miti 250,000 koguo makorwo na hectare ta 160 cia kuhanda miti.
8. TIST irihaga murimi dola 0.02 cia Amerika hari muti uri muoyo oo mwaka kwa kahinda goothe ga kandarathi. Thutha wa kwonjoria riera ria carbon na gharama ikorwo iri thi, Clean Air Action niikariha murimi gichunji kia 70% ya faida ya wonjorithia wa kaboni.
9. Nigetha gikundi kihhote kwonjoria riera ria carbon thoko-ini, nikiagiriirwo nikurumirira mawatho maria mekiritwo thoko-ini ni honge iria iteithagia wonjoria wa carbon na nicio Clean Development Mechanism (CDM) kana Verified Carbon Standards (VCS). Mawatho ta macio ni kureka miti ithi na mbere na gukura gwa kahinda ka miaka 30 na makiria.
10. Gikundi giaku nikiagiriirwo ni gucokia miti iria yakua niundu wa gitumi oo giothe oo mwaka gwa kahinda ka miaka itano.
11. Miti iria ihana ihinga kana rugiri (iri na uraihu wa mita igiri gucooka na thi) nditaragwo ta miti ya TIST
12. Miti iria ihanditwo kwa utiganu utakinyitie mita igiri ni iritaragwo no ikarugwo kinya hari mita igiri irikinya. Miti iyo iri gatagati itanatarwo no icoke kugetho itumike ta ngu kana mahuti ma mahiu.
13. TIST itikiragia murimi gutema miti yake yakinyia miaka ikumi guthii na mbere, no miti iria iragethwo nigikundi ndiagiriirwo ni gukira guchunji kia 5% hari miiti yoothe.
14. Miti iria ithukagia maria maturigiciirie nditaragwo ta miti ya TIST



Miti niyagirithagia maria maturigiciirie.

Thiini wa TIST, tuhandaga miti niguu tukorwo thoko-ini ya carbon na tugie na marihi kumana na wendia wa carbon. Na ningi, mawega mangi ma miti nimaingi!

Maya ni mamwe ma mawega.

- ❑ Miti niituteithagia kwagirithia maundu ma ki-nduire. Niituheaga kwiikaria na kuhe nyamu wihitho na micii ohamwe na irio ciacio. kugitira biodiversity migunda-ini iito na gutuma thi yothe yongerere umithio na kwagirithia riera.
- ❑ Miti niyagirithagia riera na kunyihia uthukangia wario. Miti niyehutagia carbon hawe na indo ingi ta Sulfur dioxide, ozonena nitrogen oxide. Naithui tukagia na oxygen njega niundu wa miturire miega.
- ❑ Uria migunda iitu iikarite niwagirithagio ni miti iitu na miturire igathakara. Uthaka wa iti niukoragwo uri mwega na tukagia na mbica njega ya migunda iitu.
- ❑ Miti niiroraga riera na kunyihia riuu, ruhuhona mbura. Miti noigitire kumana na muiyuro wa maai, ituika, na ugwati wa ruhuho. Miti niitumaga gutikagie na ng'aragu nitondu niithotithagia maai gutonya tiiri-ini wega handu ha umaruta.
- ❑ Miti niitumaga tiiri ndugakuu ni maai. Miri yayo niyumagiriria tiiri na kuuhe unoru. Tiiri munoru niutumaga irio cikure na njira njega.
- ❑ Miti niinyihagia inegene. Inegene norinyihe na njira nene unghanda miti.
- ❑ Kugia na maai matheru nogukinyirike riria twahanda miti ya ki-nduire. Mititu na miti ingi niitheragia maai na kumacunga. Riria uteng'eru wa maai wanyiha maai nimatheraga. Kiiruru kia miti nigiteithagia njuu kumana na kuhua.

Hinya hari ukukuranu wiu: TIST niigitagira biodiversity.

Biodiversity 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 cikoora. 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 niwagirithagia maundu na handu hagutema miti niundu wa ngu na indo ingi handa na umimenyerere. 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 nigu twagirithie thi yothe.

Ikundi nyingi cia TIST niciui values cia TIST.

Na ningi, nniwega kurora values ici nigu gutigirira ati turatura hamwe nacio. Umithio wa TIST ukwoneka riria twagia na uigiririki na wirutiri wa amemba thiini wa TIST. Maundu maria tungihota mararingana na values ici riria turahanda miti na tugathomithania na tukaheana maumirira. TIST nima? Turi!

Ithui turi:

1. Turi ehokeku.
2. Turi akinyaniru.
3. Turi andu a utheri.
4. Nitutungatanaga.
5. Turi na uigiririki.
6. Turi cionereria njega
7. nitwirutagira.

Niatia twikaga maundu maria andu angi mangiona?

1. Niithui twirutagira mawira thiini wa ikundi.
2. Nituhuthagira mitaratara miega.
3. Tuhuthagira hakiri na moko.

Niatia twikaga.

1. Tuhandaga miti mithemba miingi ya gutuura.
2. Nitwagirithagia ugima mwega wa mwiri.

3. Nitukoragwo na mitaratara ingi na biashara ingi(urimi wa guteithia, tuta, ukuria wa machungwa, uriithi wa mburi, nguku na uigi wa njuki ohamwe na thamaki na kuiga igunyu cia silk.
4. Niturimaga Kilimo Hai
5. Nitwendagia carbon.

Kiria tuthondekaga.

Riria twarumirira mitaratara ino na twatura na kuruta wira, nituthondekaga maundu maingi gukira mbere.

1. Turutaga wira turi hamwe – ugikaga maundu an njira ino niturutaga wira turi timu.
2. Niturekira uhoti – nitwikiranaga hinya nakugia na mitaratara iri na hinya.
3. Nituthondekaga ikeno – nituonaga umithio na tukahota maundu maingi maria tukenagira.
4. Nitukoragwo na umithio mwega – maumirira mega riria twahanda maiti, maumirira mega riria twahurthira Kilimo Hai na mitaratara ingi miingi.
5. Nitugiaga na maumirira mega na mahuthiro manini..



TIST: Njira Njeru: Giito kia metha.

TIST ni iraringiriria Arimi magerie guthondeka ciito cia kuoyo na iguru (raised seed bed). Arimi aria mena ciito ici nimonete umithio tondu miti yao niikoretwo igikura na njira njega itekuma na ihenya. Geria giito giki na umenyethie Cluster yaku kana giito gia muthemba uyu kina umuthio kana ca

Mbica ya I: Ikwonania njira ya kiunduire ya nathari ya miti.



Fig 1: mimire ya miti ya *Moringa oleifera* ibangitwo thi tiri-ini.

Njira ino ya kiunduire ya nathari iri tiri-ini niitumaga mimera yaku igie na miri itari na hinya. Gitumi ni tondu, miiri nituikaga ya gwikunja iri iratathini. Hindi ya kuhanda miti yaku, miiri ikoragwo itari na hinya na kuguo ikaremwo ni kwibanga wega tiri-ini. Ni undu wa uguo, murimi ni onaga wega agerie gukunjura miiri iyo na kumicheha na eka uguo akamikira ironda.

Kweherera thina uyu, niwega gukorwo na maratathi mena miena yeri iri utheri na kubanga thiinii wa giito kioee na iguru (mbica ya keeri). Giito kioee na iguru no giakwo na mbau na waya (wire mesh). Giito giiki nigitumaga miri ya mimera yaku ituike ya guchehwo ni riera riria yaharuruka na kuuma na thi ya iratathi. Kuguo miiri ya mimera nihotata gukorwo na hinya tondu ni riera

riramecheha na riria ukahanda muti waku, niugakorwo na hinya na umiriru munigi. Makiria ya uguo, ndugakorwo na ihinda ria wira wa gucheha miiti yaku na ukagitira ugwati wagwikira miti yaku ironda. Umithio uingi wa giito giiki ni ati ni uhuthu kurimira kana kweheria ria giito-ini giaku.



Fig 2: Mimera ibangitwo giito kioetwo na iguru.

Giito giiki rimwe nikionekaga ta gitumagira maai maingi. No nikuri njira ingi ingitumika ya kumenyerra maai na kwenja mutaro ugacooka ukabanga turubau ukaigirira mimera yaku hau iguru. Mutaro uyu niukuhota kuiga maai na ukahe mimera yaku ugunyu. Ona no ware iratathi ria munyore rrungu rwa giito giaku na utege maai maria unguhuthira oringi hari mimera yaku.

Ciirua kuri mucemanio wa Cluster

- Hari guthondeka mihuko wa miti, ikundi irahuthira njira iriku?**
- Ikundi ingihuthira njira iriku guteithania gwaka giito gia kuoyo na iguru? Ni andu aigana mangibatarania? Gwa kahinda kariku? Andu aigana kuhariria tiiri, thumu na muthanga?**
- Kuri ikundi cithondekete giito gia kuoywo na iguru.**
- Andu mena mataro ngurani? Niwega kwaririria makiria mucemanio wa mweri uguka.**

Mazingira Bora



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Viongozi wa Kirimara (Maara/Chuka) GOCC wakiwa katika picha ya kikundi wakati wa mkutano wao mwisho wa Septemba.

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Unatumia nini katika vitalu vyako katika mbadala na polytubes plastiki?

Wakati wakulima walipata jarida la *Mazingira Bora* mwezi Julai 2018, na kusoma hii nakala, wengi wao walishangia zaidi njia ya kufanya polytubes mbadala. Baadhi waliomba kwamba tunaweza kufanya nakala hii tena. Kama watumishi wako, tunafurahi kufanya nakala hii na mbinu ya ubunifu ya ziada.

Ni karibu mwaka mmoja tangu serikali ya Kenya ilipiga marufuku matumizi ya mifuko ya plastiki. Marufuku hii walioathirika polytubes plastiki kutumika katika mti vitalu kuongeza miche. Wakati TIST inaunga mkono juhudi hii ya serikali kuwaondoa mbali madhara na hatari plastiki vifaa hivi kutoka mazingira, tuna wasiwasi juu ya athari za marufuku hii, hasa katika uanzishaji wa vitalu ya mti na kwa ujumla jumla upandaji juhudi.

Mwaka huu, wakulima wa TIST nchini wamekubaliana juu ya lengo la kupanda miti mipya milioni mbili (2). Na Julai wakati nakala hii alikuwa inatolewa, TIST Kenya ilikuwa quantified miti 9,507,893. Leo, tuna 9,722,043. Tunataka kufikia miti milioni 11 ifikapo mwishoni mwa mwezi wa Machi 2019 .

Baadhi ya wakulima wetu wameshauriwa njia za ubunifu ili kufanya polytubes mbadala. Baadhi ya mbinu unafanya kazi vizuri, wakati wengine wanahitaji maboresho. Baadhi vifaa kutumika katika kufanya polytubes ni pamoja na:

- ✓ Kutumika chupa za plastiki ambazo ni mkuki pande. Chupa moja ni kukatwa katika nusu mbili na zote kutumika kama polytube baada ya kutoboa pande.

- ✓ Kutumika nafaka na saruji mifuko. Kuishona na kufanywa kuwa sizeable polytubes.
- ✓ Matumizi ya ndizi majani/migongo. Wakulima vizuri kufanya nao katika polytubes.
- ✓ Bahasha ya magazeti kutumika. Tena, ni walifanya vizuri lakini huduma ya lazima zichukuliwe wakati kumwagilia miche ili mvua yao.

Ubunifu wa ziada kutoka maoni tumepokea kutoka kwa wakulima wa TIST

- Maziwa ya paketi
- Bonde la Safisha
- Umri wa kitani/mavazi
- Mbao crates
- Kikombe cha kahawa disposable / maji vikombe

Tafadhali Shiriki hii na wanachama wako kikundi kidogo, pamoja na Cluster yako. Hebu kusikia kutoka kwako na makundi yako kuhusu mbinu gani unatumia kama mbadala kwa polytubes ya plastiki. Tafadhali kuishiriki katika mkutano wako na kushiriki pamoja na watumishi wa Cluster.



Kumbusho: Mahitaji ya ustahifu ya kikundi kidogo ya TIST.

Mwezi Septemba mwaka huu, Baraza la uongozi wa TIST lilikuwa na mfululizo wa mikutano ya kikanda na viongozi wa kikundi ya mabaraza ya makundi. Baadhi ya viongozi wa GOCC waliomba kwamba tushapishe tena nakala ya ukumbusho katika mahitaji ya ustahifu wa kundi ndogo.

Wakati wa mkutano wako wa Cluster, Tafadhali pitia mahitaji haya na kusaidiana mmoja kwa mwingine kuelewa kwao. Ni muhimu katika shughuli zetu TIST na katika kufikia matokeo ya juu.

Kikundi chako ndogo wakutane mahitaji yafuatayo kustahili kwa ajili ya mpango huu wa TIST:

1. Lazima kuwe na wajumbe 6 hadi 12 katika kikundi chako ndogo kutoka kaya wapatao watatu tofauti.
2. Kila kikundi kidogo lazima tuwe tayari kufuata TIST Values
3. Washiriki wa kila kikundi kidogo kinapaswa kukutana pamoja kila wiki kutumia TIST ndogo kikundi bora mazoea ya kubadilishana mawazo na kupanga kazi zao. Wanavikundi wanapaswa kushiriki katika TIST mafunzo ili kusaidia kukuza na mshirikishane njia bora na vikundi vingine vya TIST.
4. Wote wanavikundi wanatakiwa kuingia mkataba wa gesi chafu.
5. Wanakikundi wanapaswa kutoa uthibitisho wa umiliki wa ardhi au udhibiti wa shamba ambapo atapanda, au waliopanda, miti ya TIST.
6. Kila kundi ndogo wanapaswa kuwa na zaidi ya miti 1,000 ndani ya miezi 18 baada ya kujiunga na mpango huu wa TIST na zaidi ya miti 5,000 kuishi ndani ya miaka mitano.
7. Vikundi vya TIST wanatakiwa kujipanga kwa makundi ya Clusters. Cluster wanapaswa kuonyesha ardhi ya kutosha ndani ya miaka miwili ya kujiunga TIST kupanda miti 250,000 (takriban hekta 160).
8. TIST hulipa wakulima dola 0.02 ya marekani kwa mti kwa mwaka katika mkataba. Aidha, wakati mapato ya kikundi unazidi gharama, hatua safi ya hewa kulipa mkulima asilimia 70 ya mapato halisi kutoka gesi chafu / kaboni mikopo mauzo.
9. Kwa ajili ya vikundi vya TIST kustahili kwa ajili ya biashara ya kaboni, lazima kukidhi mahitaji zinazoongoza uendeshaji wa kudhibiti biashara (Clean Development mechanism (CDM) au Verified Carbon Standards (VCS). Baadhi ya sheria zinahitaji makundi madogo madogo kuweka miti hai kwa miaka 30 au zaidi.
10. Vikundi vidogo lazima wapande upywa wakati kuna miti inayokufa, kwa sababu yoyote, kila mwaka kwa angalau miaka mitano.
11. Mti aina ambayo ni kutibiwa kama vichaka au ua (chini ya mita mbili mrefu) haiwezi kuhesabiwa kama miti ya TIST.
12. Miti iliyopandwa katika nafasi ya chini ya mita mbili itahesabika imeruka katika umbali wa mita mbili na katika kati miti inaweza kung'oa kwa kuni au chakula ya mifugo.
13. TIST itaruhusu kuvuna miti kuishi ni miaka 10 au zaidi, kulingana na mpango kabla ya kupitishwa. Hata hivyo, miti jumla kuvunwa mwaka wowote haiwezi kuzidi 5% ya miti ya jumla ya kuishi ya wa kikundi.
14. Miti inayoharibu mazingira haitahesabiwa kama miti ya TIST.



Miti huboresha mazingira kwa ajili yetu sote.

Katika TIST, sisi hupanda miti ili kujiingiza katika soko la hewa na kupata mapato kutokana na kuuza hewa hii. Hata hivyo, faida zingine za miti ni kubwa!

Zifuatazo ni faida chache ambazo sisi (pamoja na dunia yote) hufurahia:

- ❑ Miti hutumika kama makazi asili ya kusaidia aina nyingi za mimea na wanyama. Hupeana faragha na usalama kwa wanyama wa pori wanaotafuta makazi mitini na huwapa chakula. Kulinda bionuwai au viumbe hai hufanya mashamba yetu na sayari yetu kuwa yenye uzalishaji zaidi na pingamizi dhidi ya mabadiliko ya tabianchi(hali ya anga ya muda mrefu) na changamoto nyinginezo.
- ❑ Miti huboresha hewa na hupunguza uchafuzi wa hatari. Miti hutoa hewa ya kaboni ya ziada na vichafuzi vya hewa kama dioksidi sulsuri, ozoni na naitrojini yenye oksidi. Kurudisha, hutupa oksijeni inayohitajika kuishi.
- ❑ Uboru unaoonekana wa ardhi pia unaboreka kwa kupanda miti ambayo, inaboresha maisha. Rangi ya kijani ya miti huongeza rangi kwa ardhi na kuongeza urembo wa kipicha wa mazingira.
- ❑ Miti hudhibiti tabianchi kwa njia ya kupunguza athari za jua, upepo na mvua. Yaweza kusaidia kuzuia mafuriko kali, miporomoka ya ardhi, uharibifu wa upepo. Miti hupunguza madhara ya mafuriko kwa kuruhusu maji ya mvua kuingia udongoni badala ya kupita juu yake.
- ❑ Miti hupunguza mmomonyoko wa udongo. Mizizi yake hushika udongo ambao badalayake hungebebwa wakati wa dhoruba za mvua na mafuriko. Miti pia husaidia kuboresha rotuba ya udongo. Udongo wenye rotuba huhamisha virutubisho hadi kwa chakula, jambo ambalo huchangia kwa afya ya binadamu.
- ❑ Miti ni mizuri katika kunyonya sauti. Uchafuzi wa kelele waweza kupunguzwa sana kwa kupanda miti mingine na mingine.
- ❑ Mahitaji ya maji safi ya kunywa yaweza kukamilishwa kwa njia ya kupanda miti ya kiasili. Misitu na mimea hupunguza kasi ya maji ya mvua na huyachuja yanapoingia udongoni. Yanapopunguzwa kasi, maji ya mvua huingia ardhini kujaza vyanzo vya maji vilivyo chini ya maji na ambavyo tunategemea ili kuishi. Miti pia huipa mito kivuli, na kuyaacha maji kukaa baridi na kwa hivyo kupunguza kasi ya kupotea kwa maji kwa njia ya uvukizi.

Nguvu katika Utofauti: TIST hulinda bionuwai.

Bionuwai—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.

Maadili ya TIST: Nguvu na msingi wa TIST.

Vikundi vidogo vya TIST vyajua maadili ya TIST. Bado, ni muhimu kuyafikiria haya maadili na kuhakikisha kuwa tunayafuayilia kiukweli. Kufanikiwa kwa TIST kunazingatia uadilifu na juhudi ya kila mwanaTIST. Tunayoweza kufikia kutategemeana na kila mmoja wetu kufuatilia haya maadili tunapopanda na kuihudumia miti yetu, tunapojiunga na mafunzo na mambo mengine na kuripoti matokeo yetu. TIST ni nani? Ni sisi!

Sisi ni

- 1) Sisi ni Waaminifu
- 2) Sisi huwa sahihi
- 3) Sisi ni wenye Uwazi
- 4) Sisi ni watumishi kwa kila mmoja wetu
- 5) Sisi ni wenye kuwajibika kati yetu wenyewe
- 6) Sisi ni mfano wa kuigwa
- 7) Sisi ni wenye kujitolea

Tunavyofanya mambo ambayo wengine wanaona.

- 1) Tunafanya kazi wenyewe katika vikundi vidogo.
- 2) Tunaanzisha na kutumia njia bora zaidi za kufanya mambo.
- 3) Tunatumia vichwa na mikono yetu.

Tunayofanya

- 1) Tunapanda miti ya aina mbali mbali kwa muda mrefu.
- 2) Tunapata njia za kuboresha afya yetu.
- 3) Tunalima na njia ya Kilimo Hai.
- 4) Tunafanya miradi na biashara (kilimo endelevu, vitalu, kukuza matunda ya jamii ya machungwa, mbuzi wa maziwa na ukulima, kuku, nyuki, mabwawa ya samaki na kuweka samaki, kulima buu na kadhalika) zingine
- 5) Tunauza hewa tunayosafisha.

Tunayojenga

Tukiyafulia haya maadili tunavyoishi na kufanya biashara, tunajenga kitu kizuri ambacho hakikuwa hapo mbeleni.

- 1) Tunapata Kujenga kazi ya pamoja —Kwa kufanya hivi, tunaishia kufanya kazi kama timu.
- 2) Tunapata kujenga uwezo—Tunajenga ushirika, nguvu na mfumo ulio na nguvu
- 3) Tunapata kujifurahia—tunaona matokeo, tunafikia mambo makubwa tunayofurahia.
- 4) Tunapata matokeo makubwa—Matokeo makubwa katika kupanda miti. Matokeo makubwa katika Kilimo Hai na katika miradi na biashara zingine tunazofanya
- 5) Tunapata kutumia gharama nafuu, hata kama tunapata matokeo makubwa



TIST: Ubunifu mpya wa kutumia minanda iliyo inuliwa.

TIST inawahamasisha wakulima kujaribu minanda iliyo inuliwa. Wakulima wengi wamegundua kwamba njia hii inaimarisha miche wakati wa upanzi. Jaribuni minanda iliyo inuliwa na mpeane ripoti ya matokeo kwa Cluster yenu na kama njia hii ikona manufaa Zaidi kwenu.

Picha ya kwanza (1) inaonyesha njia za kawaida za kupanga nyungu kama ulivyo elezewa hapo juu.



Picha 1: miche ya Moringa Oleifera imepangwa ardhini.

Njia hii ya kitamaduni ya kupanga vyungu hivi chini inachangia miche kuwa na mizizi ilidhoufika sana. Hii ni kwa sababu mizizi inajikunja ndani ya chungu kile ilichopandwa. Wakati wa kupandikiza, ile mizizi huwa imedhoufika ki afya na kwa hivyo huwa haianzishi vizuri wakati wa upanzi. Ama ile mizizi ina mea hadi inapita kile chungu hadi kwa udongo. Hivyo inahitaji kupogoa mizizi kabla ya kuipanda.

Kuzuia haya yote, inapendekezwa kupanda mbegu zile kwa mifuko ama vyungu ambavyo havijazibwa chini na kuziweka kwa minanda iliyo inuliwa. (picha ya pili) Minanda iliyo inuliwa inaweza kutengezwa kwa urahisi ukitumia sura ya mbao na waya yenye matundu (ona picha) Minanda iliyo inuliwa inarahisisha kupogoa mizizi moja kwa moja kwa sababu mizizi ikifika chini ya mfuko iliyopandwa, inashuka yenyewe.

Hii ina maana kwamba mizizi hawapati kujeruhiwa kupitia njia ya kawaida kupogoa. Mizizi kisha huwa na kuimarika kwa afya ndani ya bomba bila ya kumea zaidi.

Hii hutoa afya mfumo wa mizizi na miche ina nafasi nzuri ya kuanzisha haraka na vizuri mahali itakapo pandwa.

Hii upunguza haja ya kazi ya kupogoa mizizi, zoezi ambalo hufanyika mara nyingi limechelewa ama linasahaulika kabisa. Kusababisha uharibifu mkubwa wa mizizi tu kabla ya miche.

Kwenda kupandwa kwa uwanja. Pia ni rahisi kuzuia kwekwe ni rahisi kwa minanda iliyo inuliwa.



Picha 2: miche ya aina mbalimbali imepangwa kwa juu ya mnanda ulio inuliwa.

Minanda iliyo inuliwa inaweza kuonekana kama inatumia maji mengi zaidi ya yale yanatumika kwenye minanda ya kawaida. Lakini wanaofanya hii kazi ya minanda wamegundua njia bunifu za kupambana na vikwazo vya ukosefu wa maji. Njia moja bunifu inahusisha kuchimba mtaro na kuweka mbao na waya yenye matundu ikitanda mahali pale na kuweka miche kwa zile mbao ama ile waya yenye matundu. Miche inaonekana kama iko kwa ardhi lakini ule mtaro utaweka miche unyevu kupitia maji kupaa kwa sababu ya jua na kwa hivyo kupunguza haja ya kuweka maji mara kwa mara. Karatasi ya nailoni inaweza kuwekwa pia kwa ule mtaro kuzuia maji kuingia ardhini.

Maswali ya kuuliza wakati wa mikutano mafunzo ya Cluster

- Ni vifaa gani ambavyo vikundi vidogo vidogo wametumia kwa mafanikio kutengeneza vyungu ya mifuko? Shiriki njia zilizo nzuri kabisa.**
- Je, vikundi vidogo vidogo vinaweza aje kujipanga minanda yao ya vyungu? Ni watu wangapi wanaohitajika kuandaa vyungu hivi? Ni watu wangapi wanaohitajika kuandaa mchanganyiko huu wa udongo? Wapi?**
- Ni vikundi vingapi vimejaribu minanda ya vyungu iliyo inuliwa?**
- Kuna watu wana ushauri mwingine? Shiriki maelezo katika mkutano ujao wa mafunzo**

Mazingira Bora



TIST

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

Kikamba Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Atongoi ma GOCC kuma Kirimara (Maara/Chuka) nthini wa umbano wa kisio kyoo mwai wa keenda.

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TIST: Nzia nzau sya uthukumi: mbisu sya kiuvo kya kitanda. Page 6



Witumia kyau vandu va mathangu ma nailoni kivuioni?

Yila aimi manakwatie ithangu ya Mazingira Bora Newsletter ya mwai wa muonza na masoma aingi nimaneeyumisye kuee mawoni ma kila tutonya utumia vandu a mathangu ma nailoni. Angi nimakulilya undu uu uelew'e ingi kwa ithangu yii. ta twi athukumi menyi twina utanu kwika ithangu yii yina kilungu kingi ta kii twongelele nzia ingi ila aimi matumiite.

Nivakuvi mwaka umwe kuma silikali ya Kenya yakuna muungu mivuko ya nailoni. Kukunwa muungu kuu nikwavetie mathangu ma nailoni ala matumikaa ivuioni. Tist nikwatite mbau silikali ya Kenya unduni uu wa ukuna mathangu na mivuko ino muungu nundu nimuisyo, ingi twienda umanya undu undu uu ukuete kivathukanio nthini wa uvandi wa miti.

Mwaka uyu, Aimi ma tist kuma Kenya nimew'anite kuvanda miti myeu inyiva milioni ili. kuvika mwai wa muonza ithanguni yii ya Mazingira Bora nitwoo nanisye kana aimi ma kenya mena miti 9,507,893 ila yivo na mivitukithye. umuthi twina 9,722,043. Twienda uvika milioni 11 tuivika muthya wa mwai wa katatu 2019.

Amwe ma aimi maitu nimaseuvitye syindu ithi kutumia vandu va mathangu ma nailoni. Vena nzia ili kana syindu ili ila iuthukuma nesa, syindu imwe ila ikeie utumiwa nita

- ✓ Suva ila ndumiku sya tilwa na kuvuthuangwa maima. Suva umwe witalanwa keli na uivuthuwa maima ngaliko.
- ✓ Mivuko mitumiku ya simiti na mbeu. Matumawa vamwe na kuseuvya tumivuko twa uvuia miti.
- ✓ Matu ma maiu. Aimi maseuvasya mivuko namo.
- ✓ Mathangu ma neswspaper makwatanitw'e na ukuswa nesa kuseuvya muvuko, na mundu iingithya miti aingithya asuviite maikatembuke.

Nzia ingi nita

- Kuvumia mathangu ma yiia
- Tulai twa uthamba
- Ngua ila nguu
- Kilati iseuvitw'e na mbwau
- Ikombe ila itatumikaa keli

Kwandaia manyiania nthini wa tukundi twenyu na ngwatanioni syenyu iulu wa maundu meu ala mwinamo iulu wa kuvuia miti.



Kililikanio: Kila kyendekaa kakundi kanini kwithiwa katonya kwiandiandikithya.

Nthini wa mwei wa keenda mwak uyu, Utongoi wa TIST nimeethiwe na mbumbano sya atongoi ma kanzu sya ngwatanio. Atongoi amwe ma GOCC nimakulilya kulilikanwa undu wa kila kyaile kwa kakundi kuandikithw'a.

Nthini wa mbumbano sya ngwatanio sya kila mwai, kwandaia mwikulw'a mululikananie na kueleania iulu wa kila kyendekaa kwa kikundi na tukundi kuandikithywa na kuvitukithw'a. Maundu aa nimavata kwa kwailya maundu ma TIST na kuvikia mwolooto witu ta ngwatanio.

Kakundi kenyu kaile ithiwa kavikiite maundu aya nikana kavitukithw'e na kuandikithw'a kwa walanio wa TIST.

1. Mwaile ithiwa amemba kuma 6 kuvika 12 kuma nyumbani iinyiva itatu kivathukanio.
2. Kila kakundi kanini kaile ithiwa keyumitye kuatiaa mawalanio ma TIST.
3. Ene tukundi maile ithiwa maikomana kila kyumwa na kwika mawiko maseo ma TIST na kutethania kwa ndeto na mawoni. Ingi kila memba niwaile ithiwa aivika nthini wa momanyisyo ma TIST iulu wa nzia nzeo sya uthukumi sya TIST na kukomana kwailya maendeeo ma TIST ni kikundi.
4. Ene tukundi oothe nimeukulwa mekie sai ithanguni ya Greenhouse Gas contract.
5. Ene tukuni maile kwithiwa mena kindu kikwonania kana nimo ene muunda ula mevanda miti nikana methiwe matonya kwithiwa na mwolooto wa undu mevanda miti ya TIST.
6. Kila kakundi kaile ithiwa na miti iinyiva ngili umwe miti yivo thini wa myei 18 yambee kuma malika nthini wa TIST ma iinyiva miti ngili itano (5000) yivo thini wa myaka itano kuma meenyandiandikithya na TIST.
7. Kila tukundi twa TIST twaile inthiwa tukwatanite na kuseuvya ngwatanio ila niya tukundi twi kisoni kimwe lakini tutaanie utaaaniu mundu utonya utembea. ingi ngwatanio yaile ithiwa itonya kwonania muunda kana kitheka kianu thini wa myaka ili ya mbee ya kulika nthini wa TIST ya kuvanda miti ta 250,000. (isu ni ta eka 160)
8. TIST niyivaa aimi US\$0.02 kwa kila muti wivo kila mwaka kwisila contract. kwongeleela yila koti wa GhG wavituka utumiku wa TIST ke, Clean Air Action makaiva muimi 70% ya uvituku kuma kwa greenhouse gas / carbon credit sales (uti wa nzeve itavisaa).
9. Kwa tukundi tunini twa TIST kuvitukithwa kwa viasala wa nzeve itavisaa nonginya mavikie mawalanio ma kambuni ila ikiithasya mawalanio ma nzeve itavisaa ta (clean Development Mechanism(CDM)) kana Verified carbon Standards (VCS). Imwe ya miao yoo nikana kakundi kaile ikalya miti yithayu kwa ivinda ya mwaka 30 iinyiva.
10. Kakundi kenyu nikaile uvanda miti ingi yooma ona ethiwa ni kwa kitumi kiva kila mwaka wa myaka iinyiva ta itano.
11. Mithemba ya miti ila itumikaa ta wiio iteanaa kuvita mita ili nditonya utalika nthini wa walanio wa TIST.
12. Miti ivanditwe itena utaaniu wa iinyiva matambya eli kana mita ili isu ni yaile ukethwa ta ngu kana liu wa indo na kutaaniw'a utaaniu ula waile kwa uimi wa TIST.
13. Ingi TIST nitonya kwitikilya ukethi wa miti ila yina ukuu wa myaka ikumi kana mingaingi kuatiania na walanio ula wikiitwe na kwitikilwa, onakau kuketha miti kwa mwaka umwe ya kikundi ndyaile uvituka kilio kwa 5% kya miti yonthe ila yivo ya kikundi.
14. Vai miti ila yanangaa mawithyululuko italawa nthini wa TIST.



Miti niseuvasya mawithyululuko kwitu ithyoothe.

Thini waTIST nituvanaa miti nikana twithiwe sokoni wa nzeve itavisaa na kuta na kuseuvya mbesa. onakau moseo ma miti ikwitu nimaingi. Vaa ve amwe kati wa moseo asu tukwataa kuma miti ino onakau tumivandaa ta ya uta nzeve itavisaa (carbon market). Moseo aa nitutaniaa vamwe na nthi yonthe:

- Miti yithiawa yi mawikalo ma wanake, na useo mbee nundu niyithiawa yi wikalo wa nyamu na kuinenge liu. Kusuvia uvathukanu nikutumaa miunda yitu na ilembeta yitu yithiwa yi inou na kutune liu na kwailya movinduku ma nzeve.
- Miti niseuvasya nzeve ila tuvevaa kwa kuola kiko kila kilikaa nzeveni, kaingi miti niyumasya nzeve ila itavisaa kuma nzeveni na nzeve ingi thuku ta Nitrogen Oxide, Sulfur dioxide na Ozone. itina wa miti kutumia nzeve ithi thuku nitunengae nzeve nzeo ya kuveva (Oxygen) ila yendekaa kwikala thayu.
- Miti nitumaa vandu voneka vevailu na ve vavata na kwailya mathayu ala mevo na niyongelaa langi kwa nthi na kumyanakavya.

- Miti nietae movinduku ma nzeve na kuola uvyuvu kana uthithu ta sua, mbua, nzeve. Nitetheeasya kusuvia kiw'u kingi kukua, na nzeve kwananga.
- Miti ni iolaa kukuwa kwa muthanga nundu mii yaw'o nitumaa muthanga na kuukwatany'a, kiw'u ukethia nikyaolwa uthangaau ula kiiendete naw'o. Kuete unou wa muthanga yila yita matu na moa na kunenge tusamu/tulinyu tula twikalaa muthangani kukwata liu na kwoou mundu nake akwata liu umwianie yila waima muthanga usu.
- Miti niolaa kineene.
- Miti niseuvasya kiw'u kwa kukithesya. mititu na miti ya kiene yavandwa niseuvasya kiw'u kwa kusii muthanga na kiko kukuiwa kula kiw'u kitwiikene kya kutumia. miti niyikiaa muunyi na kusii kiw'u kukuwa ni nzeve kwoou uyinthia kivakuvi kwa mundu kwisa na kukitjumia.

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

Biodiversity - 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. livo naiikethiwa ingi ona ethiwa nisyatumikaa ikaatumika kwa isyo ila ingi syukite nundu nisyaaanangiwe.

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 nusuvia mawithyululuko na mititu nundu vandu va kwenga mititu tuimatha ngu na kila kiwatikanaa 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 twithiawa tuisuvia mawithyululuko na uvathukanu ula wivo uendee na kwithiwa. Miti ino ya kiene nisuvia 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 kwithiwa 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 l nthi nundu wa useo wa yu na uni.

Moseo ma TIST: Misingi na molumu ma TIST.

Ikundi mbindi sya TIST nisyisi mawalany’o na miao ya TIST. Ingi ni useo kusisya vaita / mawalany’o aya ma TIST nikana twikale twisi nesa na kwikala namo undu vaile. Kwaila kwa TIST kwithiawa kwi ungu wa molumu na mawalany’o/misingi ino na kila umwe nutataa nikana amivikie kwoondu wa useo wa kila umwe. Kila tutonya uvikia kiendanasya na undu kila umwe ukuatiia mawalany’o aya na kusuvia miti na kwithiwa e umwe wa ala memanyiasya kuvanda na mawiko ma tist kuvikia matunda ala twiete mbee.

TIST Nuu? Twi:-

1. Twi aiikiku
2. Twithiawa na uw’o
3. Twikaa maundu maitu kyenini
4. Twi athukumi umwe kwa ungi
5. Twithiawa tuisuviana umwe kwa ungi
6. Twi ngelekany’o
7. Ni twi yumitye

Undu twikaa maundu ala andu angi monaa.

1. Tuthukumaa twi tukundi tunini
2. Nitiaa mawalany’o na kutumia nzia nzeo
3. Nitutumiaa mitwe na moko maitu.

Twikaa ata

1. Nituvandaa miti kivathukany’o vandu va ivinda iasa.

2. Nitumathaa nzia sya kwailya uima witu
3. Nitutumiaa nzia ya uimi wa kusuvia
4. Nitwikaa maundu angi vamwe na viasala ingi (ta uimi uungamiika, ivuio, kuvanda misungwa, kuithya mbuis sya yiia, kuithya nguku, kuithya nzuki, kuithya makuyu na iinyu sya kuseuvya ndii na maundu angi maingi).
5. Nitutesaa nzeve itavisaa (Carbon credits)

Kila tuseevasya

Yila twaatiia mawalany’o aya yila tukwikala na kwika viasala nituseevasya kindu kiseo kila kiteiivo mbeeni

1. Nituseevasya kuthukuma vamwe - nundu wa kwika maundu vamwe muthya withiaa twithukuma ta kikundi
2. Nituseevasya ngwatanio - nitwikianaa vinya na kuseuvya ngwatanio numu.
3. Nituseevasya muyo - yila twavikiiia walany’o witu ithyoothe nitwiwaa muyo na kila umwe ayendeew’a
4. Nituetae usyao munene - Nitukwataa usyao munene nundu yila twavanda miti ti kuta nzeve kwoka tutethekaa nakw’o indi ve ngu, unou wa muthanga na kuseuvya mawithyululuko kwa kila umwe.
4. Nituetae utumiku munini na kuvikia matunda manene.



TIST: Nzia nzau sya uthukumi: mbisu sya kivuio kya kitanda.

TIST nithuthasya aimi kutumia nzia ya kivuio kya kitanda. Aimi aingi nimonete kana undu uu utumaa withiwa na ivuso iseo ya miti yaku mingi kwiuyumiisya na kuelea kuma. Tatai nthini wa ngwatanio yenyu museu vye kivuio kii kya kitanda nikana mwone undu kiuthukuma nesa kwenyu.

Visa uu I. wionania nzia ya tene ya kwia miti kivuioni kya nthi.



Visa I. ii nimiti muthemba wa Moringa Oleifera ila ivangitwe kivuioni kya nthi.

Ndia ino ya tene ya kuvanga miti kivuioni kya nthi itumaa miti yithiwa na mii itena vinya. Kii nikwithiwa mii yikunziaa mathanguni aa. Yathamiiw’a muundani uyinyia mii nimyosu na kukwata kwa muti uyithia kwina vinya nindu iyisa utambuuka na kwambiia kuthi na nthi nikukua ivinda. Ingi ethiwa ti uu ukethia ethiwa mathangu ti makunike ungu niyamea na kutwaa mii na nthi vala ivuitwe na ithamw’a ila mii nitilikaa na kutuma muti usu wathamw’a withiwa mwosu kukwata. Nikana kumanwa na nthina uyu vuia miti mathanguni **matemakunike itina** na kwia **kivuioni kya kitanda** (Visa.2). Kitanda kya kivuio ni useuvya okwa nzia ite vinya kuma mbwauni/mitini na waya wa kisungi kina maima mathathau. Kivuio kya kitanda nikitumaa mii yinzea na ukethia niyamea kuinanthi nundu ithangu ti ikunike itina. Mii yaasava na kuvituka ithangu nisuaa na ikaendee na kwithiwa na vinya na tumili tula twanzeve nitwinzeaa kwoou muti nduumia usewa mii. Kwoou muti uyu watwawa muundani withiawa utonya ikwata na kumea kwa mituki. Ingi wia wa kusea mii

withiawa waoleka ula ni wia kaingi wulaa kana ukekwa wi muselee muno, na uiete wanangiko munene kwa miti ino iyumwa kivuioni. Ingi vayithiawa na yiia kwoou kuimbia kivuio kuivo.



Visa 2: mithemba kivathukanio ya miti kivuioni kya kitanda.

Ivuio sya kitanda nitumaa kiw’u kitumika kingi. Onakau ala mena ivuio ii mena nzia ya usiia kiw’u kuthi kingi. Nzia imwe ila menayo ni kwisa mutau, kwikia matilo ma miti na kwiliila miti vo. Ingi miti yeekiwa kivuioni takii withiaa yioneka ta yinthi onakau ungu va mutau .Kiw’u kila kyalika mutauni uu nikikalaa vo na kwikalya miti yina kimeu kwoou uyuthia ndiungithw’a kaingi. Ingi nutonya kwalania ithangu ya nailoni kukolania kiw’u kila kyetika kikanthi.

Makulyo ma ukulya yila kwina umayisyo wa ngwatanio.

- a. **Ni matilio syiva mutumiite kuseuvya mbisu sya uvanda miti? (mathangu ma nailoni kana)**
- b. **Tukundi tunini nata tutonya kwiuyumbanisya kivuio kya kitanda? Na nia andu meana ata mendekaa kuseuvya imbisu? Indii? na ni andu meana ata mendekaa kuseuvya na kuvulania muthanga? va?**
- c. **Ve kikundi kimwe kitatite kivuio kya kitanda?**
- d. **Vena mundu wina utao ungi? Nenanisyai uvoo uu yila mwina umbano wa amanyisya.**

Mazingira Bora



TIST

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

Kipsigis Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Kirimara (Maara/Chuka) kondoikab GOCC en kurubit komiten tuiyet nebo koyometabgei en arawetab sogol.

Inside: Nee tuguk che oboisien en kabetisiek ye kiin matakumugak keboisien seleleisiek?
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Nee tuguk che oboisien en kabetsiek ye kiin matakumugak keboisien seleleisiek?

Nekiit kenyit agenge ye kingoger serikali keboisien seleleisiek kou chebo kabetsiek. Kitinyech missing amun matakumugak kibiit keswek kab ketik. Echeke en TIST ko kigiyochi serikali akobo niton amun tinyegei ak wegetab itondab emet ak kitinye magetab kotestai minetab ketik.

En kenyini kotinye temik chemi en TIST maget komin ketik cheite 2million kongeten kanametab kenyini. En ikuni ketinye ketik che sobtos 9,507,873. Kitinye maget kele koite arawetab somok 2019 komiten ketik 11million.

Alak en temik ko kochobchigei tukuk cheboisien en kabetsiek kwak. Alak en tuguchoton koboisie komie ko alak komoche kotagigimit asi koboisie komie. Choton cheboisie kou,

- ✓ Mitten chuboisiek chebo plastic che kimuche kepchei koyob oengu.
- ✓ Kimuche keboisien kunietab bandek anan nebo cementi kinobe kosibgei ak maget ne imoche.
- ✓ Balalenikab indisiot koik lolet boisie nitok komie.

- ✓. Kartasisiek che kakimaman konyikisit ak kerib asi komaichot bek.

En orit Kagaene TIST Kilasta en tuiyetab arawet neko kobata.

- Milk packets
- Wash basin
- Old linen/garments
- Timber crates
- Disposable coffee cup / water cups

Ongalalen en kurubit ak membaek ak en tuiyetab kilasta. Kimoche kenyorun kabwatet age akobo tuguk che obiten ketik en kabetsiek. Niton kotinye aliet nemi ngwony ak kenyorunen melekto nemiten barak. Cheng balaliatab indisiot neyamat til koindab 30cm tebesindo ko 15cm maman koit 2.5cm en age tugul. Aruny tebesindo konyor 2cm ak icheng borowetab indisiot igichen kogimit agimichi keswot.



Ogibwaat, koyochinet nebo magutik chebo kurubisiek che mengechen.

En arawetab sokol, ko kitinye kondoik chebo Leadership Council tuiyosiek che kiisibgei en keheberwek che chang koboto kondoik chebo kurubisiek chebo kilasta council. Alak en kondoik chebo GOCC kotinye koyochinet agobo koyochinet nebo mogutik che kurubisiek.

En betut neotinye tuiyetab kilasta obwotyigei agobo nitok asikobit konai missing biik alak amun bo komonut en agobo boisionikab Tistamun kinyorunen kelunoik che miten barak.

Chu komogutik che nyolu kotinye kurubit asi komuch kosultaen en bandab tai en TIST.

1. En kurubit konyolu komiten membaek chebo kabchiisiek somok che terotin.
2. En kurubit age tugul konyolu kosib tetetab TIST ak kosibutikab koyochinet.
3. En kurubit konyolu koyomndosgei en kila wiki ak koboisenen tetetik chebo Tisten kokyometababgei nebo kobwotutik ak kosibet nebo boisionikwak chebo kotugul. Chitugul en kurubit kotinye boroindo konyor konetisiet ak boisionik.
4. Membaek tugul en kurubit konyolchin konte siet koyochinet agobo (GHG) contract.
5. Chitugul en kurubit konyolu kotinye imabaret ole kimichin ketikab TIST, kotinye koyochinet anan chomchinet.
6. Kurubit age tugul konyolu kobotoito kenyit ak orowek sisit kotinye ketik 1,000 ak yeibata kenyisiek mutu kotinye ketik 5,000 che sobtos.
7. Nyol chin kurubisiek kotoo kilasta. Kilasta koyometab kurubisiek che ityingei abokora che nekiten. Nyolchin kilasta kotinye imbaret neyome amun ye ipata kenyisiek oengu kotinye ketik che morekunen 250,000 noton ko kerkei ak (160 hectares).
8. Kosibgei ak koyochinet konyoru temindet US dollar 0.02 en ket ake tugul. Yeit konyor TIST Kenya kaumanik tugul che kiboisien ak konget. Komuche kokochi temik 70% en ngetunanik ko kakeisto chebo boisiet tugul.
9. Asi koityi kurubit konyor mongutik chebo mungaret, konyolu korib magutik che tononchin (clean development mechanism (CDM) anan ko verified carbo standards (VCS). Ake en ngatutik ko kerib ketik kot koit kenyisiek 30 komiten en chametab gei.
10. Nyolchin chitugul en kurubit komin anan kokiran nekime en kila kenyit kot koit kenyisiek mut.
11. Ketik che kiiumak kou buget komaiyanat en TIST.
12. Ketik che kisibiny en minet komo giiti tugul kobaten kitwalindaen kochekonget kinemu koik kwenik.
13. Yeimoche ikes ketik itinye chomchinet ye kait ketik kenyisiek 10 ak kosibgei ak tetet ne kararan. En kurubit konyolchin kokes 5% en ketik tugul che otinye.
14. Ket agetugul netinye ngemetab itondab emet komoianat en Tist kou (Chebkogutgei)



Ketik kokororonite emet nyon komyeit.

En TIST, kemine ketik asi ketestch en carbon markets akityo kesich chebkondo chebo carbon sales .lakini manufaachebo ketik kochang ochei.!

lchochu ko alak en manufaa che kinyoru en keitik;

- ❑ Ketik ko ole menye tyongik che chang' chebo flora ak fauna. Ikochin tyongik ole urenke ak ole unyen ke asi makibar . ribet 'ab osnoshek ko toreti minutik chok komosib komeyo yon miten climate change.
- ❑ Ketik kokonu koristo ne kararan ak koisto koriswek che yachen en emet. Ketik koisto carbon di oxide chechng' an emet ak koriswek che yachen cheu sulfur dioxide, ozone ak nitrogen oxide. Akityo kokonech oxygen nekimokchinike .
- ❑ Kororonindab emet ketesen minet 'ab ketik , ne en let kotese kororonindab sobet . yon nyalil emet kokararan.

- ❑ Ketik kocontroleni atep tab emet kou asista, koristo ,ak robta. Imuch koter floods, landslides, ak koriswek che yachen . ketik kotere floods yon kochomchi bek koba ngweny, ne katarwae en barak .
- ❑ Ketik kobose ibet 'ab ng'ung'nyek yon korobon . tikitik kwai koyoe ng'ung'nyek konamke ne katarwoe ak bek. Ketik kora koimproveni fertility nebo ng'ung'nyek. Ng'ung'nyek che kororon kokochin minutik omitwokik asitya en let koik echek chesiche health nekararan.
- ❑ Isto bolet . Noise pollution kimuche kebos yon kakimin ketik .
- ❑ Maket 'ab bek che tililen kimuche kenyor yon kokimin ketik che indegenous.. ketik kokochin uronok bek 'ab oinoshek , agityo koyai kokoititekibun akityo kobos evaporation nebo bek.

Kimnotet en terchinoik : TIST kotere biodiversity.

Biodiversity-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 keisto en bek, ak ketore resources chemiten emet. kikere kobetonon kila betut. lbwat agobo chongindab minutik, toritik, ak tyongik che kitam ikere kin ko imingin lakini ko momiten en inguni anan ko

kikotutikenekibun? 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 tnye 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 kokwotiwek 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.

TIST Values: Kimnotet ak foundation nebo TIST.

Chechang' en groupishek chemengechen kongen agobo TIST values. Kora kobo maana keker values ichuton asi kenai angot kisubi. Boratet 'ab TIST kotienke kokilet 'ab ke nebo chi tugul nemiten en TIST. TIST ko ngo? Eчек ko ki!

Eчек ko ki

- 1) Kibo imanit.
- 2) Ki accurate en che kiyoe.
- 3) Kiyoe kasit en ole maungat
- 4) Ki kiboitinik ab alak .
- 5) Ki accountable agobo agetugul en eчек .
- 6) Ki koborunet.
- 7) Ki konuke en kasit.

Ole kiyoitoi kasishek kokoker alak .

- 1) Kiyoe kasit ko eчек en groupishek.
- 2) Kinomchinike oratinwek che chechoget.
- 3) Kiboishen metoekchok ak eunekchok.

Kasishek che kiyoe

- 1) Kimine ketik che terterchin en long-term
- 2) Kicheng'e oratinwek chekimuche keimprovenen health neyonet
- 3) Kiyoe Conservation Farming.
- 4) Kiyoe kasishek alak che (sustainable agriculture, nurseries, citrus growing, dairy goats and farming, chickens, bee keeping, fish ponds and fish keeping, silkworm farming, etc.).
- 5) Kioldoi carbon credits.

Eчек ko ki

Yon kakisib values ichuton chebo TIST keyoe

- 1) Kechobe Team Work-yon kakiyai kou niton ke iku teamit nekararan.
- 2) Kechobe Capacity-kenyoru organization , kimnotet ak system.
- 3) Kechobe Enjoyment-kikere rurutik ak keyai tuguk che yechen
- 4) Kenyoru rurutik chechang'-rururtik chechag' en mine tab ketik . results che yechen en Conservation farming ak projects alak che kiyoe .
- 5) Kiyoe bong'onutik ne miten ng'wony ak kenyoru rurutik chechang'.



TIST kotinyei boisiet ne kararan neton ko kabeti ne kanabtaiyat.

gimiti TIST temik kotoi kabeti ne kanabtaiyat anan ko nemiten barak. Konyor temik che chang koguiyo kole kororonen ketik en kabetinon amun sobtos yekimin, yomten akoboniton itou en gaa ak yeibata ibu wolutik chegenyuru kobwa kilasta.



Fig 1: Seedlings of *Moringa oleifera* arranged as a stack on the ground

En kaborunet nebo tai kaboru ole kagitetita akoboniton **F1 kaboru keswekab moringa ak** chebo emitik che kakitet en ngwony. En kaborunoni kotinyei konyor keti nyalunatet amun tinyei tigitik kaimetab gei. Amu rotegei tikitit en tiubit orit, anan alake komuji komantaen kot konam ngwony, en niton kotomo kemin koyochi getil tikitit niton kogochin konyor ketit kaimet. Keistoen gei oraniton koge Cheng tiubisiek che isengengotin komoswek twan ak **gekanaba kabeti kwo** barak asikosiki **tigitik komantaen** F2 kaboru oletebtoi niton. Nyumnyum keisto amun iboisien biremisiek ak inte waiyat netere ketik imuche iger en bichait. Ye kaichum tikitik koyomtos amukonyor koristo, mou che yoche kisambut tikitik. Ikochin ketit konyor tililinto ak kogimit, asi yekibe kemin komotinyei konogut. Nyumnyum ka semberet amumonyoru timto neo



F2. kaboru kombot ketik che kigiruruch en kabeti.

Kabeti initon kkoboisien beek che chang amun miten barak. Mwoe anyun biik chegikoboisien kole ingoyum tounik oleimiche kobosto beek amun chang, kou gebal bereisit ak getet ak waiyat ak kinte baragut ketik asikomuch tikitik komantaen. Ak konyor ketit koititindo en abakora. En ngwony kemasta takolkol asikobos beek che miten kwony.

Tebutik che kimiche keteb en tiuyetab kilasta.

- (a) Tos kimuchi keboisien nee ne kararan asi kibitin kitik en kabetisiek?**
- (b) Imukto ano bikab kurubit koyumak ak kotoi kabeti? Ou? Biik at ache mokotin kobat ngungunyek? En ou?**
- (c) Tos miten kurubit ne kiyomta? Akoboniton?**
- (d) Tostinyei biik alak kabwatet agei? Obchei ak biik en tuyetab kilasta.**