

# Mazingira Bora



# TIST

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

English Version

TIST is an innovative, time - tested,  
afforestation program led by the  
participants.



Gatulani TIST Cluster meeting on 19/3/2021 with 142 TIST farmers attending. The next meeting will be on 23/4/2021.

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# How TIST Works to Achieve Sustainable Development Goals.

**T**IST Vision has always been to empower Small Groups of subsistence farmers to reverse the devastating effects of deforestation, drought, and famine. TIST farmers work together to identify local sustainable development goals that include tree planting and sustainable agriculture. TIST creates a communication and administrative structure that also addresses health (including HIV/AIDS), education, and nutrition.

Most TIST farmers feel the work they are doing is closely matching the global goals popularly known as **Sustainable Development Goals (SDGs)**.

The **Sustainable Development Goals (SDGs)**, officially known as **transforming our world: the 2030 Agenda for Sustainable Development** is a set of 17 “Global Goals” with 169 targets between them. They are spearheaded by the United Nations through a deliberative process involving its 193 Member States.

The 17 SDGs are listed below, together with TIST Contribution in italics:

## **Goal 1: No Poverty**

**No Poverty** - End poverty in all its forms everywhere

- Extreme poverty has been cut by more than half since 1990, however, more than 1 in 5 people live on less than \$1.25 a day.
- Poverty is more than lack of income or resources. It includes lack of basic services, such as education, hunger, social discrimination and exclusion, and lack of participation in decision-making.
- Gender inequality plays a large role in the perpetuation of poverty and its risks. They then face potentially life-threatening risks from early pregnancy, and often-lost hopes for an education and a better income.
- Age groups are affected differently when struck with poverty. Its most devastating effects are on children, to whom it poses a great threat. It affects their education, health, nutrition, and security. It also negatively affects the emotional and spiritual development of children through the environment it creates.

### **What TIST Farmers have done**

*Many TIST farmers have made their degraded land productive again. Through tree planting, Conservation Farming (CF) and Agro forestry practices, thousands of hectares of small farms have gained fertility and productivity.*

- *Though rotational and servant leadership is all service and leadership points of TIST, both women and men have gained equal access to opportunities and benefits.*

## **Goal 2: Zero Hunger**

**Zero Hunger** - End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

### **What TIST Farmers have done.**

- *Many TIST farmers have practiced Conservation Farming. Majority of them have reported increased yields through CF.*
- *Today, thousands of TIST farmers who have planted fruit and nut trees are reporting good harvest of fruits and nuts thereby increasing their nutritional supply for their families.*

## **Goal 3: Good Health and Well-being**

**Good Health and Well-being** - Ensure healthy lives and promote well-being for all at all ages.

### **What TIST Farmers have done**

*TIST farmers through seminars and Cluster trainings receive HIV and Aids, malaria, nutritional, hygiene trainings, etc. They encourage and support those in need.*

## **Goal 4: Quality Education.**

**Quality Education** - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

### **What TIST Farmers have done**

- *In TIST, we have heard farmers sharing stories of how tree payments incentives help with school fees and or learning materials.*
- *TIST Mazingira Bora Newsletters and training at Clusters promote lifelong learning opportunities.*

## **Goal 5: Gender Equality.**

**Gender Equality** - Achieve gender equality and empower all women and girls.

### **What TIST Farmers have done.**

- *At the Small Groups, Cluster level, GOCC and LC level, members practice rotational leadership, thereby giving women more empowerment.*
- *In TIST, the number of women working and serving farmers is even. Women have equal opportunity for leadership training, etc.*

## **Goal 6: Clean Water and Sanitation.**

**Clean Water and Sanitation** - Ensure availability and sustainable management of water and sanitation for all.

### **What TIST Farmers have done.**

- *Through Riparian program that was received well by farmers whose land touch on water ways, many of them reported increased water quality and quantity.*
- *At Cluster meetings and through newsletters, farmers share a lot of ideas of how to improve hygiene and sanitation.*

## **Goal 7: Affordable and Clean Energy.**

**Affordable and Clean Energy** - Ensure access to



affordable, reliable, sustainable and modern energy for all.

**What TIST Farmers have done.**

- *When TIST introduced clean stoves, most farmers embraced them because they were affordable and helped save wood fuel and reduced smoke in the cooking areas.*
- *Through pruning and thinning of trees, farmers are now able to get sustainable fuel source - wood, and improved ways to use.*

**Goal 8: Decent Work and Economic Growth**

Decent Work and Economic Growth - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

**What TIST Farmers have done.**

- *TIST farmers led program has engaged more than 150 persons with flexible hours to allow continued management of primary asset - the farm.*
- *As trees matures, they continue to provide valuable income to support livelihood through sale of fruits, nuts, honey, wood products, etc...*
- *Cash income via tree payment incentives.*

**Goal 9: Industry, Innovation and Infrastructure**

Industry, Innovation and Infrastructure - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

**What TIST Farmers have done.**

*TIST use of innovation, Information Technology and existing transport to allow youth, women, and men to immediately access new 'industry' (carbon) and create a 'virtual cash crop', which eliminates infrastructure limitations and restores productivity of degraded lands.*

**Goal 10: Reduced Inequalities**

Reduced Inequalities - Reduce income inequality within and among countries.

**What TIST Farmers have done**

- *TIST farmers have shown incredible support for youth and women especially at the Cluster meetings*
- *Tree incentives are additional income to the farmers, increased income through improved yields, making degraded land productive again, etc.*

**Goal 11: Sustainable Cities and Communities**

Sustainable Cities and Communities - Make cities and human settlements inclusive, safe, resilient and sustainable.

**What TIST Farmers have done.**

- *TIST farmers have embraced diverse cultures working closely with different languages, communities and supporting one another.*
- *TIST values encourage inclusion, safety, and sustainability.*

**Goal 12: Responsible Consumption and Production.**

Responsible Consumption and Production - Ensure sustainable consumption and production patterns.

**What TIST Farmers have done**

*TIST have improved land fertility through CF, compost manure, agro forestry thereby increasing production sustainably, and provide for consumption.*

**Goal 13: Climate Action.**

Climate Action - Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy.

**What TIST Farmers have done.**

- *Today, TIST farmers worldwide have planted 16+ Million trees, thereby improving adaptation strategies to cope with vagaries of climate change*
- *Today, out of tree planting efforts, TIST farmers have removed over three million tonnes of CO<sub>2</sub> from the air.*

**Goal 14: Life Below Water.**

Life Below Water - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

**What TIST Farmers have done.**

*A significant number of farmers have planted water friendly trees in wetlands and along the waterways thereby protecting aquatic life.*

**Goal 15: Life on Land.**

Life on Land - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

**What TIST Farmers have done.**

*TIST farmers have planted millions of biodiversity enhancing trees and kept alive, bee habitats have thrived, agro forestry, degraded land put into productive use again*

**Goal 16: Peace, Justice and Strong Institutions**

Peace, Justice and Strong Institutions - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

**What TIST Farmers have done.**

*TIST works with diverse communities, promoting cohesion through Cluster meetings, TIST Values!*

**Goal 17: Partnerships for the Goals.**

Partnerships for the Goals - Strengthen the means of implementation and revitalize the global partnership for sustainable development.

**What TIST Farmers have done.**

*TIST works with different partners including Taylors of Harrogate.*



# Seed Storage & Pre-treatment.

## Seed Storage.

- ❑ Make sure that if you are transporting fruit from the site of seed collection that you keep them dry, shaded and well ventilated so that the seeds inside the fruit do not spoil.
- ❑ Transport your fruit and seeds in woven sacks or baskets. Do not transport them in plastic bags or tins which have no ventilation and can cause the moisture to collect and spoil the items.
- ❑ Make sure you have sorted the good quality seed first (see unit 2) and that the seed is clean and dry before being stored. Dry seed rustles and cracks when you shake it. Most seeds need to have been dried in the sun for 2-3 days before they are ready.
- ❑ Store your seeds in a dry, shaded place. Use storage material such as cloth sacks or clay pots to reduce the chances of mould. Use airtight containers or jars for high-value seeds, filling your containers completely to reduce air space.
- ❑ If you do not have enough seed to fill your containers, fill the gaps with material such as charcoal, rice husks, or crumpled newspaper. These will absorb air moisture.
- ❑ Use wooden pallets or poles to make sure the seed containers do not touch the ground (this can make them more susceptible to changes in temperature, damp, pests etc.). If you are using sacks or bags, you can hang them.
- ❑ Obtain advice from your nearby small groups and local extension workers to know if you need to use a pesticide or fungicide to protect your particular seeds from pests. For example, neem oil or leaves, gliricidia leaves and soap may offer some protection.
- ❑ Remember to check your seeds regularly to ensure they are not being damaged.
- ❑ Obtain local information on how long your seeds can be stored for. This is dependent on the species. Many species, if stored properly, can be kept for a year or more.
- ❑ You can experiment at different time periods to check the germination rate of your seeds. Pick a small sample of seeds (for example, 100), record the number of seeds chosen, sow them and count how many germinate. If you do this every month, for example, you will be able to see when the seed quality is starting to deteriorate. Share your findings with your cluster.
- ❑ The cooler the storage environment, the longer your seeds can be stored for. Ensure the seeds are not exposed to light. If the storage area is too humid the seeds will spoil more quickly.
- ❑ Note there is one category of seed called 'recalcitrant seed'. These seeds ideally need to be sown straight away after collection and extraction because they require high moisture content. If they are wrapped in damp cloths they can be stored for a few days up to a week. Recalcitrant seed dies once it is dry. Tree species which are examples of recalcitrant seeds include: *Artocarpus heterophyllus* (jackfruit), *Azadirachta indica* (neem), *Calamus* species (rattans), *Duriozibethinus* (durian), *Eusideroxylon zwageri* (ulin), *Theobroma cacao* (cacao) and many dipterocarps (*Shorea*, *Hopea*, *Palaquium*, etc).





- ❑ Finally, when you are transporting your seeds to the nursery, remember to keep them dry and covered.

**What kind of pre-treatment might be needed?**

- ❑ Sow some seeds and see how long they take to germinate. If they take longer than one week, consider pre-treatment.
- ❑ If you are not sure which of the following advice is best, do an experiment and try different pre-treatment techniques and share your findings with your cluster leader to share the best practices.
- ❑ If the seeds have a very small or thin coat often no treatment will be needed e.g. Croton megalocarpus, Neem, Cassia species and Kei apple can be sown directly into a pot.
- ❑ If you have collected fruit, you can soak the fruit for 1-2 days, then get a wire mesh and squeeze the fruit against it to release the seed using water to wash away the fruit pulp e.g. for Syziumcumini, Dovyaliscaffra, Trichiliaemetica, Vitellariaparadoxa, Prunus Africana, Gmelinaarborea (gmelina), Azadirachtaindica (neem) and Tamarindusindica (tamarind).
- ❑ Some fruit just needs the outer layer removing by rubbing together e.g. Tectonagrandis (teak) and Calamus species (rattans).
- ❑ Some fruits have seeds that need to be pounded. After soaking the fruit for 1-2 days, pound the fruit with a pestle and mortar e.g. for Meliavolkensii, Meliaazedarach, Sclerocaryabirrea, Cordia Africana.
- ❑ Some pods need to dry for 3-5 days (in the semi-shade) and then be threshed to extract the seed e.g. Leucana species, Calliandracalothyrsus, Acacia species, Sesbaniasesban, Grevillearobusta, Casuarina species and Eucalyptus species.
- ❑ Seeds that have thick coats will need some form of pre-treatment. Some need to have their seed coat cracked with a hammer or a stone after drying for 3-5 days to allow water to enter the seed for germination. Seeds should be planted immediately after cracking. Species that may need cracking include Melia (mukau), Podo species, Croton megalocarpus, Adansoniadigitata, Swieteniamacrophylla, Delonixregia. For small, hard seeds place them in a jar lined with sand paper and shake hard, enough to scratch the surface.
- ❑ Some seeds just require a small cut in the seed coat to help water infiltrate (nicking). Do not cut the part that was attached to the pod or capsule as this part contains the baby plant.
- ❑ Some seeds respond well to soaking in hot water e.g. Calliandra, most Acacias, Tamarind, Leucaena and Albizia. Put the seeds in a container, boil the water and pour it over the seeds. Allow the water to cool remove the seeds from the water after they look swollen.
- ❑ Some seeds can be soaked in normal (cold) water for 12-24 hours e.g. Sesbania, Tephrosia, Dalbergia species, Gmelina, Gliricidia and Acacia augustissima. Put the seeds in a container and add the cold water (roughly double the volume of the seeds). Remove any seeds which are floating.

All seeds, once pre-treated, need to be planted straight away.



## Nursery Care.

### A. Pest control.

Organisms like fungi, bacteria, viruses, nematodes and insects (e.g. ants, termites, aphids) can damage seedlings.

A common nursery disease is called damping off and is caused by fungi. It causes seeds to rot before germination, roots to decay before the shoot appears and the shoot to become thin and collapse.

The typical symptoms are:

- The thinning and death of the stem at ground level
- The subsequent wilting and falling over of the seedling.
- The leaves turn yellow.
- The seedling eventually dies.

Control damping off by:

- Changing seedbed soil every 1-2 years. Loosening the soil also helps.
- Immediately removing affected seedlings and burning them
- Avoiding excessive watering
- Ensuring good drainage
- Providing better aeration
- Weeding effectively and on time
- The soil should not be overly fertile. The proper ratios of the soil should be followed. Reduce nitrogen content by applying less manure.
- There should be enough spacing between seedlings to avoid overcrowding.
- Make sure that the nursery is clean at all times.

Diseases can also be managed by the proper use of chemicals and insecticides. It is best to use natural insecticides as chemical ones can be expensive and may damage the environment e.g.

- Application of ash.
- Ensure the seedbed is clean to avoid encouraging pests.

### B. Root pruning.

Move the seedlings around once a week so that the taproots do not sink into the ground and need to be cut. A healthy taproot helps the trees get water after transplanting.

When the seedlings are growing in the pots after 3-4 months (depending on species and climate) their roots start to grow out of the bottom of the pots. These roots should be cut every 1-2 months with knives. Note that care must be taken when lifting the pots so as not to damage the young roots.

Alternatively, try the raised nursery beds (see Unit 4) which reduce the need for root pruning as the roots drop off naturally.

### C. Watering, weeding and shading.

- Sprinklers should be attached to the watering cans so as not to cause soil erosion.
- You can also use a pierced tin.
- Avoid too much or too little watering, roughly 20 litres for 1000 seedlings. Too much water can weaken the seedlings and attract pests and fungus. One sign of over-watering is a thin film of algae or green moss on the soil surface.
- Water every morning and evening when possible.
- Sandy soils will need more watering than clay soils.
- Direct the water to the soil, not to the leaves.
- Water slowly to ensure it penetrates the soil.
- Be careful not to damage roots when weeding.
- Do not leave the weeding too late. Weeding is necessary as the weeds increase competition for light, soil water and nutrients.
- Some seeds require shading – make sure simple shades are constructed.
- During the rainy season, cover the seedlings using dry grasses or hay. Seedlings should be moved away from under trees so water does not drip onto the seedlings and cause damage.
- Fence off the nursery to protect from cattle and playing children.
- Let the seedlings grow to about 30 cm before transplanting. This may take from 1 month to 6 months. See transplanting notes. Also remove the shade during this time.

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Kimereu Version

TIST is an innovative, time - tested,  
afforestation program led by the  
participants.



Mkutano wa nguzo ya Gatulani TIST mnamo 19/3/2021 na wakulima 142 wa TIST wakihudhuria. Mkutano unaofuata utakuwa tarehe 23/4/2021.

**Inside:** Uria TIST iritite ngugi gukinyira mworoto jwayo jwa Gukura. Page 2

Gwika mbeu na kwithuranira niuntu bwa kuanda. Page 4

Kumenyeera minanda. Page 6



## Uria TIST iritite ngugi gukinyira mworoto jwayo jwa Gukura.

**T**IST yakurirue ni arimi ba irio biria bitumagirwa nja cietu mwanka barathithia ikundi biniini biria batetherie kuthiria kutemwa kwa miti, mpara na kiara muu. Arimi ba TIST baritanirie ngugi bari amwe kumenya njira cia gukuria micii amwe na kwaanda miti and urimi bwa gwita na mbere. TIST niyambiritie mitaratara ya kwaniriria na ni amwe na ugima bwa mwiri amwe na HIV/AIDS, kithomo na biakuria bibiega

Mwari muthiru, nindombire kugwatira TIST kiri mucemano jwa Carbon Africa jugwati mbaru ni UNFCC, Nairobi Framework Partnership, UNDP amwe na bangi. Mucemano juu jwa thithitue Conotou, Benin naria West Africa. Nindaririe iguru ria mawega ja **Climate Action na uguni bwa SDG**. Ja kanya gakwa ga kwithuranira na kumenya antu baria betetite kwariria urimi bwa gwita na mbere, jaba **Sustainable Development Goals (SDGs)**, indathithirie unchukuni mutandaone jwa Wikipedia. Ndienda kubwaa nteto oiria ndacithomere and mburie buntethie gutaara njira iria TIST yumba gutetheria na mioroto iji na kwejana njira iria TIST igachangira mono kinya au nyumene.

Kiri mutaratara juu jwa witi na mbere jaba **Sustainable Development Goals** buria bugwitua kugarura nthiguru mworoto jwa muratara jwa gukuura mwaka jwa 2030 (**Transforming our world: the 2030 Agenda for sustainable Development**) ni gikundi ka mwioroto ikumi na

mugwanja ya kinthiguru iri na mioroto igana ria mirongo itantatu na kenda (169) gatigati kayo. Itongeretue ni Ngwataniro ya Kinthiguru jayo United Nations gukurukira mutaratara jwa gwikinyiria juri na amemba ba nthiguru igana ria mirongo kenda na ithatu (193)

Mioroto iji ikumi na migwanja niyariritue aja nthiguru. Bujathome kenda bujamenya. Kiri mpongeri, nimbikirite mathuganio kuuma kiri antu bangi uria TIST yumba kwongera na maandiko jamaceke.

### Mworoto Jwa Mbere: Guti Ukia Kana Kuthina

**Guti Ukia** : Kuthiria Ukia kana Kuthina na njira ciabu mwanya mwanya guntu kunthe

- Ukia buria bwingi nkuruki nibuthiritue na akui nusu yabu kuuma mwaka jwa 1990 indi nkuruki ya muntu umwe kiri antu batano baturaga na rungu rwa dora imwe na ingotore mirongo iri na bitano (1.25) o ntuku.
- Ukia kana kuthina ni kwaga njira ya kureta mbeca kiri nja cietu. Niamwe na kwaga into ja kithomo, mpaara, kwonerwa na kimicii, na gutiganirua amwe na kurega kugwatanira na bangi kiri Ubangi bwa mitaratara.
- Kwithirwa guti na unganania bwa akuru na ekuru ni kwongagira mono uthini kana ukia bubu. Aka mono nibo bari atarine ya mantu ja aari kugia aana bari baniini na kwaga wirigiro bwa kithomo kana kinya njira cia kwona mbeca cia kubatethia kuthiria ukia bubu
- Nthuki kinya cio nicigatagwa ni mantu mwanya riria bagwatwa ni thina kana ukia bubu. Twaana mono nitu tugwatagwa ni mauthuku nkuruki kumania na mantu ja uthini. nikuthukagia kithomo kiao, inya ya kimwiri, kwaga biakuria biagutethia mwiri na ukaria . niithukagia mono kinya mithuganirie yao na gukura kwao gwa moyo .

### Uria Arimi Ba TIST Bathithitie .....

- **Arimi babaingi ba TIST nibokiritie miunda yao ikagia mboreo kairi gukurukira waandi bwa miti, kurima na njira ya kurigiria (CF) na kungania miti na imera, miunda imiingi niigite mboreo inyongi na yambiria kugia imera bibingi nkuruki.**
- **Gukurukira urimi bwa kuthiurukania mimera na utongerira bwa uriti ngugi bwa TIST akuru na ekuru nibombitie kwithirwa baari na twanya tunganene kiri kwona mawega.**

### Mworoto jwa iri: Guti Mpara.

Kuthiria Mpara: Kuthiria mpara, gukinyaniria ukaria na irio na kwongera irio bibiega na urimi bwa gwita na mbere.

### Uria Arimi ba TIST bathithitie...

- **Arimi babaingi nibathithitie urimi bubu bwa kurigiria na babaingi na baringite riboti ati nibongerete maketha gukurukira (CF)**
- **Narua mangiri ja arimi baria baandite miti ya matunda na nkandi nibaringete riboti ati nibonete maketha jamega na niuntu bubu kwongera irio bibiega kiri micii yao.**

### Mworoto jwa ithatu: Inya ya kimwiri na Gukura bwega

Inya ya kimwiri na Gukura bwega: Kumenyera inya ya kimwiri na gukura bwega kiri antu ba nthuki cionthe

### Uria Arimi ba TIST bathithitie...

**Arimi ba TIST gukurukira uritani bwa micemano yetu na ya Cluster nibaritani mantu ja HIV/AIDS, rwagi (malaria), kumenyera mirire imiega na utheru. naboragua guthetheria baria bari na ubatu.**

### Mworoto jwa Inya : Jithomo Gikiega.

Kithomo gikiega: Kumenya ati kithomo ni nigigukinyira bonthe baria bari na ubatu bwakio na kumenya ati kuri na kaanya ga gutura ga gwitithia na mbere kithomo giki.

### Uria Arimi ba TIST bathithitie...

- **Ndene ya TIST, nitwigitue arimi bakiejana ntento iguru iria marii ja miti jabatethie kuria mbeca cia cukuru na kugura mauku ja kuthoma najo.**
- **Nkathiti ya Mazingira Bora na uritani buria buthithagirua micemanione ya Cluster ni kwejaga arimi kaanya ga gutura ga gwita na mbere kuthoma**

### Mworoto jwa Itano: Twanya Tung'anene.

Twanya Tung'anene: Gukinyira antu a twanya tunganene kiri ekuru na aari.

### Uria Arimi ba TIST bathithitie....

- **Kiri Ikundi Biniini, mucemano jwa Cluster, GOCC and LC, amemba bathithithagia utongerira bwa kuthuriukana na njira iji niejaga ekuru kaanya ga kugwata inya ya utongerira kinya bo.**
- **Ndene ya TIST, namba ya ekuru baria bakurita ngugi na kuritirwa ngugi ninganene. Ekuru kinya bo bari na kanya kanganene na kiri utongerira na uritani.**

### Mworoto jwa Itantantu: Ruuji rurutheru na kwebia ruko.

Ruuji rurutheru na Kwebia ruko: Kumenya ati kuri na ruuji rwa kungana na rumenyeri na kwebia mati na njira iria yagiri.

### Uria arimi ba TIST bathithitie....

- **Gukurukira mubango jwa naria kuri na ruuji thiguru juria jwamukirwe ni arimi na njira ya nkeeru mono baria miunda yao iri akui na ruuji, babaingi bao nibongerete ruuji rurwega na rwaingia nkuruki.**
- **Kiri micemano ya Cluster na gukurukira nkatheti , arimi niberanaga mantu jamaingi iguru ria uria bakongera utheru na guta ruko uria kwangiri.**

### Mworoto jwa Mugwanja: Njira iti na goro na intheru cia gutumira mwanki.

Njira iti na goro na intheru cia gutumira mwanki – Kumenya kuri na njira cia mwanki jwa kuruga na ngugi ingi juti na goro, juria jugeta na mbere kwithirwa juri oo kinya nyuma ya kagita kenda jutumirwa ni antu bonthe.



**Uria Arimi baTIST Bathithitie.....**

- *RiriaTIST yaretere mariko jamatheru ja kuruga, arimi babaingi nibajwamukire niuntu jutari na goro na nijwabatetherie niuntu jatitumagira nku inyingi na kunyiyia togi naria biakuria birugagirwa.*
- *Gukurukira gwita miti cakasi na guchekeyia miti, arimi nandi nibombaga kwona nku cia kuruga na njira injega cia gutumira*

**Mworoto jwa Inana: Ngugi Injega na Gukuria biashara**  
Ngugi injega na gukuria Biashara – Gukuria ngugi cionthe iria itumaga twona mbeca igatwika bwega na tucikuria na njira ya kwejana ngugi cia kuria antu micaara.

**Uria Arimi baTIST bathithitie....**

- *Arimi baTIST batongererie mubango jwa nkuruki ya antu igana ria miringo itano (150) baria bari na mathaa jatikubainyiria beta na mbere kubangania miunda yao*
- *Miti itite na mbeere gukura, ni itaga na mbere kubaa mbeca cia mpogeri iria igwataga mbaru uturo bwao na njira ya kwedia matunda, nkadi, naincu, na into bingi bithithitue na mbau.*
- *Mbeca cia mpogeri kumania na marii ja miti.*

**Mworoto jwa kenda: Viwanda, Njira Injeru cia gwita ngugi na barabara.**

Viwanda, Njira Injeru cia gwita ngugi na barabara - gwaka barabara injega , gukuria njira injeru cia kuthithia mantu, na viwanda biri na wirigirowa gutura.

**Uria arimi baTIST bathithitie...**

*TIST nitumagira njira injeru cia kuthithia mantu, gutambia nteto na njira cia kinandi kenda twitikiria antu babethi, ekuru na akuru kaanya ga gukinyira viwanda bibieru (Carbon) na bathithia kimera gikieru gia mutambo kiria gikurukaira ithimi bia barabara na gucokia unoru bwa miunda iria miondu.*

**Mworoto jwa Ikumi: Gutaukirwa ni ung'ananu.**

Gutaukirwa ni ung'ananu: Kunyiyia twanya twa kwona mbeca cia mpongeri thigurune yetu na nthiguru ingi.

**Uria arimi baTIST bathithitie...**

- *Arimi baTIST nibonanitie ugwati mbaru bwa antu babethi na ekuru mono mono kiri micemani ya Cluster.*
- *Mbeca cia marii ja miti ni mbeca mpogeri kiri arimi, mpongeri gukurukira maketha nkuruki na kwongera mboreo miunda iria miondu.*

**Mworoto jwa ikumi na jumwe:** Micii iminene iri na witi na mbere na ntura cietu Micii iminene iri na witi na mbere na ntura cietu – kuthithia micii imenene na ikaro bia antu bibiega ,biri na ukaria na biri na witi na mbere.

**Uria Arimi baTIST bathithitie...**

- *Arimi baTIST niamukirite mikarire ya antu mwanya mwanya nani ba kurita ngugi na nthiomi mwanya, ntura mwanya na bakagwatana mbaru.*
- *Mauritani ja TIST ni amwe na Ukaria na witi na mbere.*

**Mworoto jwa Ikumi na iri: Gutumira na guciarithia na umenyeri.**

Gutumira na guciarithia na umenyeri- kumenya uciarithia na utumiri nibigutumirwa bwega.

**Uria arimi baTIST bathithitie....**

*TIST nitethetie gukuria mboreo ya miunda gukurukira CF , mboreo ya kirinya, urimi bwa kungania miti na imera na uju kwongera iciarithia na utumiri.*

**Mworoto jwa ikumi na ithatu: Mathithio ja Kiriera**

Mathithio ja Kiriera: kujukia itagaria iguru ria ugaruku bwa riera rietu na ugaruruku buria bwijaga na njira ya kunyiyia riera ririthuku na gukuria mwanki juria jugakara kara igita ririraja

**Uria arimi baTIST Bathithitie...**

- *Narua Arimi baTIST nthiguru yonthe nibaandite miti nkuruki ya million ikumi na ithanthatu, na njira iji kwongera njira injega cia kumenyera riera na ugaruruku bwario.*
- *Narua , kuuma kiri inya ya kwaanda miti, arimi ba TIST nibaritite nkuruki ya tani million 3 na nusu cia Carbon kuuma kiri riera.*

**Mworoto jwa ikumi na Inya: Uturo bwa rungu rwa Ruuji.**

Uturo rungu rwa Ruuji – Kumenyera ba gutumira Iria, na nduui ingi bwega na njira iria igatuma uturo bwa rujiine butikathire

**Uria arimi baTIST bathithitie...**

*Arimi babaingi nibaandite miti iri ucore na ruuji naria miundene iri na ruuji kana iri akui na ruuji na kwou kumenyera uturo bwa rungu rwa ruuji.*

**Mworoto jwa Ikumi na Ithano: Uturo nthigurune injumo**

Uturo nthigurune Injumo: Menyera na ucokanirie urimiri bwa miitu, kuthiria ndwanda na kuthiria kuthukua gwa miunda.

**Uria Arimi baTIST bathithitie...**

*Arimi baTIST nibaandite mamillioni ja miti ya kumenyera riera na gwika njuki iri moyo na kungania miti na imera na gucokaniria miunda iria yondere.*

**Mworoto jwa Ikumi na Itantatu: Ukiri, Ugambi, na micii iri na inya**

Ukiri, ugambi na micii iri na inya – Gukuria ukiri kiri micii yetu kenda tuumba kwithirwa na gukura, kwejana twanya kiri twinthe twa ugambi na gwaka micii imiega kiri mantu jonthe.

**Uria arimi baTIST bathithitie...**

*TIST iritanagiria ngugi na micii ya antu mwanya mwanya, gutetheria kugwatithania antu gukurukira micemano ya Cluster na mauritani ja TIST.*

**Mworoto jwa ikumi na mugwanja: Ngwataniro ya mioroto**

Ngwataniro ya Mioroto – gikwira inya uriti ngugi na kugwatithania ngwataniro ya mioroto kenda gukura gutura.

**Uria arimi baTIST bathithitie...**

*TIST iritaga ngugi na agwati mbaru babaingi amwe na Kenya Forest Service, Taylors Harrogate, Freshfiels na USAID.*

Nandi turienda butwee maoni jenu iguru ria mantu jaria ugwe na gikundi kienu kiniini kithithitie kenda koingera kiri mioroto iji ikumi na Mugwanja (17SDS)

Nitukwenda kumenya mathuganio jaku iguru ria uria Arimi baTIST kana micemano ya uritani ya TIST yumba gutetheria guchangira kiri mioroto iji SDGs kenda tumba kwithirwa na mpumi inene nkuruki na utumiri buniini bwa mbeca.

Muriti ngugi wenu wa Cluster akethirwa na rwaria na babwi kiri mucemano juu jungi jwenu jwa Clsuter na aandike email kiri ni uria bukanga na mpumi cia rwaria ruu.



# Gwika mbeu na kwithuranira niuntu bwa kuanda.

## Gwika Mbeu.

- Menyeera ati kethira nugukamata matunda kuuma antu aria ukuuthurania mbeu, jeke janyaari na antu kurina kirundu na kuwi na ruugo nikenda mpindi iria iri ndene ya ntunda itithuka.
  - Kamata itunda riaaku na mpindi iri nkuniene kana gikabune. Ugaikamatira kiratasine kia nailoni gitina antu a gukurukia ruugo na aria gugatuma ruuji ruuthurane amwe na kuthukia ntunda na mbeu iu.
  - Menyeera ati ukuathurana mbeu injaga mbele na ati mbeu nitheri na niumi mbele ya gwika. Mpindi injumu niciritaga sauti na kuunika wainania. Mpindi iria nyingi niciendaga kuumua riuene ntuku ijiri gwita ithatu mbele ya cibua cia gwika.
  - Ika mbeu yaku antu gukuumo na kurina kirundu. Ikira nkuniene kana nyongune ya muthetu nikenda uniyia kanya ga kuthuuka. Tuumira mikebe itigutonyithia ruugo riria ugwika mbeu ya goro na ujurie mikebe iu buru nikenda uniyia kanya ka ruugo.
  - Kethira utina mbeu ing'ani kuujiuria mikebe yaku, ujuriria na gintu ja makara, mati ja mucere kana maratasi ja ngazeti. Bibi bikajukia ruuji ruria ruri ruugone.
  - Tuumira mpau kana mbito kumenyeera ati mikebe iu irina mbeu itigutonga nthiguru (guku nigutumaga mbeu ikathukua ni kugaruka kwa murutira, ruuji, na tunyomoo). Kethira uritumira nkunia kana mibuko, curia.
  - Uria kirira kuumania na ikundi bingi biria bigukuiritie na ariti ba ngugi ya gutetheria arimi nikenda umenya uria ugutumira dawa cia tunyomoo na cia iria nikenda umenyeera mbeu yaku kuumania na tunyomoo.
- Mung'uanano, maguta kuumania na muarubaine kana mathangu, mathangu ja muti jugwitwa gliricidia na sabuni imwe nocikue utethio.
- Rikana gutega mbeu yaku o nyuma ya igita ririkai nikenda umenyeera ati itirathuka.
  - Cuaa umenyo kwegie ni igita ring'ana mbeu yaku iumba wikwa. Bubu bukaringana na muthemba jwacio. Mithemba imingi, igekwa bwega, noikare mwaka kana nkuruki.
  - No ugerie gwika igita ria uraja mwanya nikenda utegera ni ririku ritumaga mbeu ikaumanga na mpwi. Jukia mpindi inkai (mung'uanano igana), andika ni ing'ana wathuura, ciumithie na utare ni ing'ana ikauma. Ukaththia uju o mweri, mung'uanani, ukomba kwona riria uthongi bwa mbeu bukambiria kuthira. Gaana jaria ukoona na cluster yaku.
  - O uria antu aria wikite mbeu yaku kurina mpio nou igakara igita riraja nkuruki. Menyeera ati mpindi iu itiki werune. Kethira antu aria ugwika kurina ruugo rurina ruuji rurwingi, mbeu ikathukanga na mpwi nkuruki.
  - Rikana ati kurina mithemba imwe ya mbeu ciitagwa 'recalcitrant' mbeu iji niciendaga kuandwa orio ciothuranua kuuma mitine na ciaritwa ntundene niuntu niciendaga ruuji rurwingi. Cikaogwa na nguo irina ruuji no cikare ntuku inkai mwanka kiumia kimwe. Mpindi iji nicikujaga ciaga cioma. Mithemba ya miti iria iri muthemba juju jwa mbeu ni amwe na *Artocarpus heterophyllus* (jackfruit), *Azadirachta indica* (muarubaine), *Calamus species* (rattans), *Durio zibethinus* (durian), *Eusideroxylon zwageri* (ulin), *Theobroma cacao* (cacao) na mithemba inyingi ya dipterocarps (*Shorea*, *Hopea*, *Palaquium*, na nkuruki).



- Muthia, ukithamia mbeu yaku wikia munandene rikana guciika itina ruuji na cikunikiri.

**Ni uthuraniri bwiku buumba kwendeka?**

- Umithia mbeu imwe na woone ni igita ring'ana ikujukia kuuma. Ciajukia nkuruki ya kiumia, tugania kwithuranira.
- Kethira utikumenya bwega ni uthuraniri buriku kiri njira iji ubati gutumira, geria na njira mwanya na ugaana jaria ukoona na mutongeria wa cluster yaku nikenda ugaana nawe njira iria njega buru.
- Kethira mpindi niinini mono kana irina gikonde gigiceke jaria maingi guti uthuraniri bwendekaga ja mithemba ya *Croton megalocarpus*, *muarubaini*, *Cassia* na *Kei apple* no iandwe mikebene o rimwe.
- Kethira nuuthuranitie matunda, no urinde matunda jau ruujini ntuku imwe gwita ijiri, riu ujukie nkunju uinye matunda nacio nikenda urita mbeu ugitumagira ruuji kurita itunda mung'uanano kiri *Syzium cuminii*, *Dovyalis caffra*, *Trichilia emetica*, *Vitellaria paradoxa*, *Prunus Africana*, *Gmelina arborea* (gmelina), *Azadirachta indica* (neem) na *Tamarindus indica* (tamarind).
- Matunda jamwe nijendaga gikonde kia iguru kiriti na njira ya *gukirithania* matunda jairi mung'uanano mithemba ya *Tectona grandis* (teak) na *Calamus* (rattans).
- Mithemba imwe ya matunda iri mpindi iria ciendaga gukaburwa nainya. Warikia kurinda ntuku imwe kana ijiri, kabura na muti na ntiri mung'uanano *Melia volkensii*, *Melia azedarach*, *Sclerocarya birrea*, *Cordia Africana*.
- Mithemba ingi niendaga kuumua ntuku ithatu gwita ithano (kirundune kirina riu ririkai) riu ikaurwa nikenda mbeu iitwa mung'uanano *Leucana*, *Calliandra calothyrsus*, *Acacia*, *Sesbania sesban*, *Grevillea robusta*, *Casuarina* na mithemba ya mibau.
- Mpindi iria ciri makonde jamanene niciendaga muthemba jwa uthuraniri. Imwe niciendaga gikonde gikaringwa na nondo kana iiga nikenda kiunika ciarikia kuumua ntuku ithatu gwita ithani nikenda ruuji rumba gutonya mbeune nikenda iuma. Mbeu nibati kuandwa orio warikia kuuma gikonde. Mithemba iria yendaga kuunwa ni ta *Melia* (mukau), *Podo*, *Croton megalocarpus*, *Adansonia digitata*, *Swietenia macrophylla*, *Delonix regia*. Mpindi inini cirina gikonde gikiumu niibati gwikwa mukebene juthiuruki na sand paper ndene na jukainainua nainya, mkanka mbeu ikang'arangwa.
- Mbeu imwe niciendaga kugitwa antu anini gikondene nikenda ruuji rumba gutonya. Ukagita aria mpindi iu iragwatene na gicau niuntu aja niu gukaumira.
- Mpindi imwe niciendaga kurindwa ruujine rwa mwanki ja *Calliandra*, *Acacia* iria nyingi, *Tamarind*, *Leucaena* na *Albizia*. Ikira mbeu mukebene na ucamukie ruuji riu witurire mpindi iu. Eteera ruuji rwore riu wite mpindi ruujine ciakara jaka ciimbi.
- Mpindi imwe no cirindwe ruujine rwa mpio mathaa ikumi na jairi gwita mirongo iiri na janna mung'uanano *Sesbania*, *Tephrosia*, *Dalbergia*, *Gmelina*, *Gliricidia* na *Acacia augustissima*. Ikira mpindi iu mukebene na wongeere ruuji rwa mpio mwanka rukinye maita jairi aria mpindi ikinyi. Rita mpindi iria cikwerera.
- Mpindi cionthe, ciarikia kuthuranirwa, niciendaga kuandwa orio



## Kumenyeera minanda.

### A. Kuniyia tunyomoo.

Tunyomoo notuthukie miti iria ikuuma. Kurina murimo jumwe juria jwonekaga mono kiri minanda juria juretagwa ni fungi. Nijutumaga mbeu ikaumma mbele ya iuma, miri ikoora mbere ya kimera kiumira na ringi kimera kiu gikuuma gigaceng'a na gikagwa. Murimo juju jwonekaga aria:

- Kimera kiu gikuuma gigaceng'a na gigakua mbele ya kiumira iguru ria muthetu
- Kimera kiu gikuuma kinyaraga na kugua
- Mathangu nijagarukaga jakaa yellow
- Muti nijukuujaga nyuma ya kagita

Murimo juju nojuthirwe na njira ya:

- Kugarura muthetu jwa munanda o mwaka kana o miaka iiri. Kuunanga muthetu kinyaku nigutethagia.
- Gwita kimera kiria kiajitue orio na ugakiithiria.
- Kwebera gwikira ruuji rurwingi nkuruki ya ruria rukwendeka.
- Kumenyeera ati ruuji rutikwigara
- Kumenyeera ati kurina ruugo bwega
- Gukurira iria bwega na kurio
- Muthetu jukethira junori mono. Uungania muthetu na mboleo uria kubati. Nyiyia nitrogen iria ugwikira na njira ya kuniyia mboleo.
- Nikubati kwithirwa kurina kanya gakeega gatigati ka miti nikenda itainyane.
- Menyeera ati munanda nijutheri magitene jonthe.

Mirimo no inyiwe na njira ya utumiri bubwega bwa dawa cia tunyomoo. Ni bwega nkuruki gutumira dawa iti cia nduka niuntu cia nduka ciri goro na nocithukie naria gututhiurukite. Mung'uanano;

- Utumiri bwa muju
- Kumenyeera ati munanda nijutheri nikenda jutigakucie tunyomoo.

### B. Kuniyia miiri.

Garurira aria o muti juri rimwe o kumia nikenda miri imiraja itigatonye muthetune mono

iija gwitia kugitwa. Muri jumwega nijutethagia miti gucua ruuji jwarikia kuthamirua muundene.

Riria muti juandi mukebene jwakinya mieri ithatu gwita inna (kuringana na muthemba na rera) miiri yaju niambagiria kuumira nthiguru ya mukebe. Miri iiji nibati kugitwa o mweri jumwe gwitaiiri na gaciu. Menyeera riria ugukiiria mukebe utikagitarie miri iu niuntu itikuri.

Antu a kuthithia ou, geria guukiria munanda untu buria bunyiagia bata ya kugita miri niundu miri nigujaga iri yongwa.

### C. Gwikira ruuji, gukuura iria na kirundu.

- Tuminyi nitubati kwithirwa turina mikebe ya kuminya nikenda tutigatume muthetu jukamatwa.
- No utumire kinya mukebe jurina makutho
- Ebera gwikira ruuji rurukai kana rurwingi mono, ikira miti ngiri ruuji lita mirongo iiri. Ruuji rurwingi niruthiragia imera inya na rugakucia tunyomoo. Gintu kimwe kiria kionanagia ruuji rurwingi ni kuuma kwa imera bibinini bikari ja kimira muthetune.
- Ikira ruuji o ruukiri na ugoro kwombika.
- Muthetu jwa muthanga jukenda ruuji nkuruki ya muthetu jwa clay
- Ikira ruuji muthetune ti mathangune.
- Ikira ruuji mpaari nikenda rutonya muthetune.
- Menyeera utikagitarie miiri riria ugukurira iria.
- Ugeteera mono mbele ya ukuurira iria. Gukurira iria kurina bata niuntu iria karicindanagira weru, ruuji na irio.
- Mbeu imwe niciendaga kirundu – menyeera ati irundu nibithithitue.
- Mburene, kunikira mbeu na nyaki injumu. miti iu ikuuma nibati kuthamua kuuma ruungu rwa miti nikenda ruuji rutikagwire mbeu rugitaria imera.
- Irigira munanda nikenda ujumenyeera kuumania na ndithia na twana tuguchetha
- Reka miti iume mwanka uraja bwa centimita mirongo ithatu mbele ya kuthamiria muundene. Bubu no bujukie kuuma mweri jumwe gwita mieri itantatu. Thoma kwegie kuthamia. Rita kirundu riria ukwenda kuthamia.



# Mazingira Bora



# TIST

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

**Kikuyu Version**

*TIST is an innovative, time - tested,  
afforestation program led by the  
participants.*



**Mkutano wa nguzo ya Gatulani TIST mnamo 19/3/2021 na wakulima 142 wa TIST wakihudhuria. Mkutano unaofuata utakuwa tarehe 23/4/2021.**

**Inside:** Uria TIST ikoretwo ikihingia matanya ma uthii wan a mbere. Page 2

Uigi mwega wa mbegu na guthondeka. Page 4

Umenyereri wa Nursery. Page 6



# Uria TIST ikoretwo ikihingia matanya ma uthii wan a mbere.

**T**IST yambiriirio ni arimi anini magithondeka tukundi tunini negetha mahoota kuhurana na thina wa guthukangia kwa mititu, riuwa inene na ng'aragu. Arimi a TIST marutaga wira na ngwataniro nigetha mahote gucaria ihonia na kugia na ciiko iria iri hamwe ni uhandi wa miti na urimi mugaciru. TIST niikirite mitarata miega iria ihotithagia guthomithia andu uhoro ukonie ugima wa mwiri (hamwe na githomo kia murimu wa muingo) na mirire miega.

Mweri muthiru, nindagiire na kamweke ga kurugamiririra TIST thiini wa mucemano wa Africa Carbon Forum uria warugamiriirwo ni UNFCCC, Nairobi Framework Partnership, UNDP hamwe na honge ingi. Mucemano ucio wari bururi wa Benin, Afrika ya ithuiri, mucii wa Cotonou. Ningagiire na kamweke ga kwaririria umithio uiria wonekaga kumanagia na wira wa kuhurana na ucenja wa riera ungiringithanio na Sustainable Development goals ( uthii wan a mbere mugaciiru). Hari mehariria makwa, ndina umenyo ati maundu mari makaririo ni makonie uthii wan a mbere mugaciiru, nidekire utuiria kuuma mtandao wa internet ugitwo Wikipedia. Nigwenda gukumenyithia maundu maria ndathomire na ngurie ututeithie hari ni njira iriku tungimanya wega ati wira waku wi murimi wina umithio uthiite kuhanana ta SDGs na makiria ya uguo tuthomithanie ni atia tungigaciiria.

Matanya maya ma uthii wa nambere mugaciru (**Sustainable Development Goals - SDGs**) na nomo maukaine ta Kugacirithia thii itu: agenda wa mwaka 2030 hari uthii wa na mbere (**transforming our world: the 2030 Agenda for Sustainable Development**). Matanya maya ni ikumi na mugwanja (17) mena ichunji 169 gatagati kamo. Matongoragio ni ruhonge rwa United Nation na kunyitwo mbaru ni mabururi 193.

Matanya maya 17 ndimandikite haha muhuro. Mathome wega. Hamwe nauguo, niheanite ngerekano kuuma kuri andu mwanya uria TIST ikinyaniirie matanya maya:

## Goal 1: Kunina ukia

**Kunina ukiay** – Kunina ukia wa muthemba o wothe kundu guothe

- Ukia munene niukoretwo unyihite na gichunji kia nuthu kuuma mwaka wa 1990. No onakuri uguo, mundu umwe hari andu atano onoga mbecha nini makiria ya dollar 1.25 kana shilingi 125 o muthenya.
- Ukia to kagwa mbecha kana utonga. Ukia ni hamwe na kwaga githomo, gukorwo na ng'aragu, guthutukano, kwaga kamweke ga gutua matua bururini kana maturaini.
- Kwaga uigananu wa arume na atumia niguchangagira muno hari kuongerereka kwa ukia. Atumia nimakoragwo na ugwati riria manyita nda mari na miaka minini na makaga mieke ya githomo na wira mwega
- Marika onamo nimanyitagwo ni ukia kwa njira ngurani. Ciana ni ikoragwo ugwati-ini tondu ukia niutumaga mage guthoma, kwaga ugima wa mwiri, irio njega ona ugitiri.
- Age groups are affected differently when struck with poverty. Its most devastating

## Uria arimi a TIST mahotete gwika....

- **Arimi aangi a TIST nimahotete guchenja migunda yao iria itagiaga kindu na riu kugia na umithio. Kuhanda miti, urimi wa CF, gukuria**

**miti ya gutwarana na irio mugunda, migunda miingi niigite na unoru wa tiri na kugia na umithio.**

- **Kuhitukira utongoria wa gucenjania na utungata thiini wa TIST, atumia na athuri nimagite na mieke miigananu na uteithio**

## Goal 2: Kunina Ng'aragu

**Kunina ng'aragu** – Kunina ng'aragu, kugia na irio cia kuigana na kugacirithia urimi

## Uria arimi a TIST mahotete gwika....

- **Arimi aangi a TIST nimarimite Conservation Farming( CF). aingi aao nimaugite nimonete maciaro maingi kuhitukira CF**
- **Nginyagia riu, arimi makiri a TIST aria mahandite miti ya matunda na makandamia nimaugite nimonaga magetha mega ma matunda na ngandamia koguoguo makongerera irio ciao matunda.**

## Goal 3: Ugima mwega wa mwiri na muikarire mwega.

**Ugima mwega wa mwiri na muikarire mwega** – Gutigirira ugima mwega wa miiri na muikarire miega hari andu oothe.

## Uria arimi a TIST mahotete gwika....

**Arimi a kuhitukira seminars na micemano ya Clusters nimamukiraga ithomo cia murimu wa muingo, malaria, mirire miega, uthuru na maingi maingi. Arimi nimahenaga hinya kuria aria me hatikaini.**

## Goal 4: Githomo kiega

**Githomo kiega** – Gutigirira githomo kirakinyira andu oothe na gutigirira kwina mieke ya mundu guthi na mbere na guthoma muturire-ini wake.

## Uria arimi a TIST mahotete gwika....

- **Thiinii wa TIST, arimi nimakoretwo magitwira uria marihi ma miti yao makoretwo makimateithiriria hari kuriha marihi ma cukuru na kugura mabuku na turamu.**
- **Ngathiti ya Mazingira Bora na urutani thiinii wa Clusters niuheaga andu mieke ya kugia na umenyi miturere-ini yao.**

## Goal 5: Uiganinia wa Arume kwa Atumia

**Uiganania wa Arume kwa Atumia** – Gutigirira ni kwagia na uigananu wa arume kwa atumia na kuhe uhoti atumia na airitu.

## Uria arimi a TIST mahotete gwika....

- **Kuuma ikundi nini, Cluster-ini, GOCC na LC, amemba nimakoragwo na utongoria wa mithiururukano koguoguo ukahe atua mieke miega ya utongoria.**
- **Thiinii wa TIST, namba ya atumia aria marutaga wira nay a arume niiganaine. Atumia makoroga na mieke iganaine ya utongoria na maundu maangi.**

## Goal 6: Maai matheru na uthuru wa ciooro

**Maai matheru na uthuru wa ciooro** – Gutigirira kwina maai ma kuigana na uthuru wa ciooro.

**Uria arimi a TIST mahotete gwika....**

- **Kuhitukira mubango wa kuhanda miti hakuhi na njuui, arimi aria mahandite nimakoretwo makiuga ati nimonete utheru na uongereku wa maai.**
- **Kuhitukira micemanio ya Clusters na ngathiti ya Mazingira Bora, arimi nimechenjanagia uugi hari uhoro wa utheru wa micii.**

**Goal 7: Uhoti wa kugura mwaki na mwaki mutheru**

Uhoti wa kugura mwaki na mwaki mutheru – Gutigirira andu nimagia na Uhoti wa kugura mwaki na mwaki mutheru

**Uria arimi a TIST mahotete gwika....**

- **Hindi iria TIST yarehire mariko ma ngui nini na kunyihia ndogo, arimi aangi nimamukirire mariko macio tondu mari ma mbeca nini, nimahotaga kuhonra ngu, na kunyihia ndogo kuuma riko-ini.**
- **Hindi iria arimi maguchehe miti yao kana kwahura iria itumanite, nimahotaga kugia na ngu cia kuigana.**

**Goal 8: Wira mwega na gukura ki utonga**

Wira mwega na gukura ki utonga – Gutigirira andu othe nimagia na wira mwega na gukura ki utonga

**Uria arimi a TIST mahotete gwika....**

- **Program ya TIST niyandikite makiria ya andu 150 na ikamahe mathaa mega maria mamahotithagia mahote gutungata migunda yao.**
- **Riria miti irathii na mbere na gukura, noguo irarehe utonga kumanagia na wendia wa matunda, ngando, uuki, mbaao, ngu.**
- **Marihi ma miti ni njira ya kuongerera utonga.**

**Goal 9: Iganda, uhumburi wa maundu na miako.**

Iganda, uhumburi wa maundu na miako – Gukuria Iganda, uhumburi wa maundu na miako.

**Uria arimi a TIST mahotete gwika....**

**TIST niuhuthagira maundu meeru ta kuhithira njira cia computer, gutumira maundu ma kiriu kuhotithia andu ethi, atumia na athuri magie na mieke miega hari wonjorithia wa carbon.**

**Goal 10: Kunyihia kwaga waragania**

Kunyihia kwaga waragania – Kinyihia kwaga waragania wa utonga thiini wa bururi na gatagati ka mabururi.

**Uria arimi a TIST mahotete gwika....**

- **Arimi a TIST nimonanitie wendi munene hari guteithia andu ethi na atumia thiinii wa Clusters**
- **Marihi ma miti nimateithagia kuongera utonga, o hamwe na wendi wa magetha ma CF.**

**Goal 11: Micii ya ma-town na nduriri**

Micii ya ma-town na nduriri – Kuona micii ya ma-town na kuria andu maikaraga kwina ugutiri na miikarire miega.

**Uria arimi a TIST mahotete gwika....**

- **Arimi a TIST nimarutithanagia wira wega me nduriri na thiomi mithemba miingi.**
- **TIST values ni iteithagia andu gukorwo na urumwe na thayu.**

**Goal 12: Utumiri na uthondeki muigiririku**

Utumiri na uthondeki muigiririku – Gutigirira kwina **Utumiri** na uthondeki muigiririku na wa gutura.

**Uria arimi a TIST mahotete gwika....**

**Arimi a TIST nimagacirithitie migunda yao kuhitukira urimi wa CF, utumiri wa mborea ya mahuti ma mugunda, gukuria miti na irio na kiguo makongerera uthondeki wa irio makiriria na koguo makigia na indo cia gutumira**

**Goal 13: Wira ukonie kuhuruna na ugaruruku wa riera (Climate Action)**

Wira ukonie kuhuruna na ugaruruku wa riera (Climate Action)- Kwina bata wan a ihenya kuhuruna na ugaruruku wa riera na kunyihia ndogo ya iganda na kuthemia mwaki uteri na miruki miuru ta solar.

**Uria arimi a TIST mahotete gwika....**

- **Nginyagia riu, arimi a TIST thiinii wa thi nimahandite miti makiria ya milioni 16 iria iteithiriirie kuhuruna na ugaruruku wa riera.**
- **Kumanagia na miti iyo, arimi a TIST nimatheritie tani million 3.5 cia riera ria carbon**

**Goal 14: uturo na nyamu cia maai-ini**

Uturo na nyamu cia maai-ini – Kugitira iria na icigirira cia maa-ini.

**Uria arimi a TIST mahotete gwika....**

**Arimi aangi a TIST nimahandite miti miega na maai hakuhi na njuui iria iteithitie nyamu iria ikoragwo maai-ini.**

**Goal 15: Uturo na nyamu iria ikoragwo thi nyumu**

Uturo na nyamu iria ikoragwo thi nyumu – kugitira mititu, kuhuruna na uthukia wa mititu na kugitira guthuka kwa migunda.

**Uria arimi a TIST mahotete gwika....**

**Arimi aangi a TIST nimahandite miti ya kiunduire iria ihotithitie indo ta njuki na ingi, guthondeka migunda**

**Goal 16: Thayu, kihooto na honge nu'mu.**

Thayu, kihooto na honge nu'mu – Kugacirithia thayu, unyitaniri na gutigirira kwina kihooto kuri andu othe.

**Uria arimi a TIST mahotete gwika....**

**Arimi a TIST nimarutithanagia wira me hamwe ona maumite nduriri ngurani kuhitukira Cluster meetings na makurumirira TIST Valuaes.**

**Goal 17: Ngwataniro hari kuhingia matanya maya**

Ngwataniro hari kuhingia matanya maya – Kunyitanira hari gutigira matanya maya nimahinga

**Uria arimi a TIST mahotete gwika....**

**TIST nikoretwo ikirutithania wira na honge ingi ta Kenya Forest Service, Taylors of Harrogate, Freshfields na USAID.**

**Riu, tukwenda kuigua woni waku uria gakundi kanini gaaku gekite ukonainie na matanya maya 17 ma SDGs**

**Ningi, nitukwenda wendekithia waku uria arimi a TIST kana ithomo cia TIST ingithondekwo wega nigetha ihotithie gukinyaniria matanya maya – nigetha tuthii na mbere kugia na umithio munene wina gharama nini. Cluster servant waku niakamuteithiriria mucemanio-ini wa Cluster na atwandikire mawoni maaku na email.**



## Uigi mwega wa mbegu na guthondeka.

### Uigi wa mbegu.

- Tigirira ati angikorwo niurathamia matunda kuma kuria uronganiria niwagiriirwo ni kwamba kumomithia na kumaiga kiiruruini na makorwo na riera ria kuigana na ndukamathukie.
- Kuaa matunda maku na makonia ma gutumwo kana ikabu. Ndumamakuue na makonia ma plastic kana mikebe iria itari na kundu gwa kuingiriria riera na gutuma magie na ugunyu muingi na mathuke.
- Tigiriira niwacagura matunda maria mega mbere na makorwo mari matheru na makomithio mbere ya gukuuo. Umithia matunda na miatuka riria ukuinainia. Mbegu nyingi citibataraga kumithio riuaini gwa kahinda ka 2-days mbere ya gukorwo cirri njega..
- Iga mbegu cirri nyumu na cirri hehu. Huthira indo njega cia kuiga ta itambaya kana nyungu cia ndoro niguo unyihie kuguma. Huthira indo citangiingiria riera kana mikebe ya kuiga mbegu, na uihurie mikebe biu niguo gutikagie na mwanya wa riera.
- Angikorwo nduri na mbegu njiganu cia kuihuria mukebe, huthira indo ingi ta makara, mahuti ma mucere kanamaratathi ma ngathiti niguo cihote kunina ugunyu.
- Huthira turubau kuigirira niguo gutigirira mikebe ndiikarite thi niguo citikanyitwo ni tutambi kana mirimu na ugaruruku wa riera. Angikorwo urahuthira makonia noumacurie iguru.
- Geria gwetha utaari kuma kuri ikundi iria cirri kwanyu niguo umenye kana niukuhuthira dawa cia kuingata tutambi niguo ugitire mbegu ciaku. Kwa muhiano, maguta kana mahuti ma neem, mahuti ma gliricidia na thabuni nocihuthikekugitira
- Ririkana kurora mbegu ciaku maita maingi niguo gutigirira citirathukio.
- Geria gwetha uhoru wa kuria uri wigii kahinda karia mbegu cingiigwo. Uu nikuringana na mthemba wa mbegu. Mithemba miingi ingiigwo wega niikaraga miaka miingi.
- Nougérie kurora mahinda maingi niguo umenye cimeraga na njira iriku. Cagura mbegu cia kugeria ta 100, andika muigana uria woya, handa na ucitare na wone nicigana cikumera na ungika uu o mweri kwa muhiano niukwona riria na uria mbegu ciaku cingimera na uheane uhoru uyu thiini wa cluster yanyu.
- O uria haria uigite mbegu hari hahehu noguo mbegu ciaku ciguikara na utigirire mbegu ciaku citinanyitwo ni riuu. Angikorwo kuria uigite nikugunyu niciguthuka naihenya.
- Ririkana kuri na mithemba iiri ya mbegu, “recalcitrant seed”. Mbegu ici ciagiriirwo ni kuhandwo marimaini thutha wa kunganio tondu cibataraga ugunyu muingi. Cingikunjwo na gikuo kigunyu nocikare ta wiki kana mieri.
- Recalcitrant cikuaga riria cioma. Mithemba ya miti iria ni ya recalcitrant ni *Artocarpus heterophyllus* (jackfruit), *Azadirachta indica* (neem), *Calamus species* (rattans), *Durio*





zibethinus (durian), *Eusideroxylon zwageri* (ulin), *Theobroma cacao* (cacao) and many dipterocarps (*Shorea*, *Hopea*, *Palaquium*, etc).

- Muthia, riria urakuua mbegu nginya nathariini ririkana guciiga cirri ngunike wega.

### **Ni njira iriku cia guthondeka mbegu ciagiriire?**

- Amba uhande mbegu imwe niguu wone kahinda karia cikwoya kumera. Angikorwo nicikwoya kahinda kanene niwagiriirwo ni gucithondeka. Angikorwo nduri na uuma ni njira iriku njega geria njira ngurani na wone niiriku njega ya guthondeka na uheane uhoru ucio kuri cluster yanyu.
- Angikorwo mbegu cirri nangothi huthu nikuuga ndurabatara guthondeka kwa muhiano *Croton megalocarpus*, neem *Cassia* na Kei apple nocihandwo imwe kwa imwe marimaini.
- Angikorwo niunganitie mbegu, nourinde maaiini gwa kahinda ka 1-2 days thutha ucoke wethe waya ya gicungina wanike mbegu ho na uhihinye niguu ciime wega ucoke uhuthire maai gucithambia ta *Syzium cuminii*, *Dovyalis caffra*, *Trichilia emetica*, *Vitellaria paradoxa*, *Prunus Africana*, *Gmelina arborea* (gmelina), *Azadirachta indica* (neem) and *Tamarindus indica* (tamarind).
- Matunda mangi mabataraga o gukumuthwo niguu mambegu ciime ta *Tectona grandis* (teak) and *Calamus species* (rattans).
- Mangi nimakoragwo na ngothi ibataraga kunurwo thutha wa kurinda maai-ini gwa kahinda ka 1-2 days, uraga makoni na ndiri ta *Melia volkensii*, *Melia azedarach*, *Sclerocarya birrea*, *Cordia Africana*.

- Makoni mamwe nimagiriirwo ni kumithio 3-5 days kiiruruini na ningi marutanio niguu mbegu ciime ta *Leucana species*, *Calliandra calothyrsus*, *Acacia species*, *Sesbania sesban*, *Grevillea robusta*, *Casuarina species* and *Eucalyptus species*.
- Mbegu iria cirri namakoni momu niciagiriirwo guthondekwo. Imwe ciagiriirwo kuragwo na nyundo kana ihiga thutha wa kurindwo maai-ini thiku 3-5 niguu maai maingire wega na cihote kumera wega. Mbegu ciagiriirwo nikuhandwo imwe kwa imwe irimaini thutha wa kuragwo na mithemba iria yagiriirwo ni gwikwo uguo ni (mukau), *Podo species*, *Croton megalocarpus*, *Adansonia digitata*, *Swietenia macrophylla*, *Delonix regia*. Niundu wa mbegu iria nyumu na ni nini, ciikire mukebeini na uthuke nginya cikue.
- Mbegu ingi cibataraga o gutinio hanini. Ndugatinie mwena uria uri na kamera tondu hau niho mbegu imeragira.
- Mbegu ingi nicikoragwo cirri njega riria warinda maaiini mahiu ta *Calliandra*, most *Acacias*, *Tamarind*, *Leucaena* and *Albizia*. Ikira mbegu mukebeini, therukia maai na uitiririe mbeguini. Eterera maai mahore na urute mbegu thutha wa kuimba.
- Mbegu ingi nociikirwo maaiini mahehu mathaa 12-24 ta *Sesbania*, *Tephrosia*, *Dalbergia species*, *Gmelina*, *Gliricidia* and *Acacia augustissima*. Ikira mbegu mukebeini na wikire maai mahehu na wongerere mangi tamo ucoke wehuti mbegu iria cikureera.
- Mbegu ciothe, riria ciathondekwo ciagiriirwo ni kuhandwo orio.



## Umenyereri wa Nursery.

### A. Kugitira tutambi.

Indo ta fungi, bacteria, viruses, nematodes na tutambi(muthua, thuthi na ingi) nocithukie mimera. Murimu uria uikaine muno wa nathari ni damping off na urehagwo ni fungi. Utumaga mbegu ciume mbere ya kumera, miri ibuthe mbere ya kumera na mimera ikorwo iri miceke na ikoma. Dalili ni;

- Gucekeha na gukua kwa mumera
- Kuhoha na kugua kwa mumera
- Mahuti gucenjia rangi
- Mimera gukua.

Kugiririria murimu uyu.

- Gucejia tiiri wa nathari thutha wa miaka 1-2. Kuhuthia tiiri noguteithie.
- Kwehuthia mimera iria ihotetwo na kumicina
- Ndukahe mimera maai maingi makiria
- Tigirira maai nimarathertera.
- Gutigirira riera ni riingi
- Kurimira maita maingi
- Tiiri ndwagiriirwo gukorwo uri na unoru makiria. Uigananau wa tiiri na unoru niwagiriirwo ni kurumirirwo. Nyihia nitrogen na gwikira thumu
- Tigirira utaganu ni muiganu mugundaini
- Tigirira nathari ni theru hingo ciothe

Mirimu noihotwo na kuhuthira dawa iria ciagiriire nadawa cia tutambi. Niwega kuhuthira dawa cia kiimereracia tutambi tondu cia duka cirri goro na nocithukie maria maturigiciirie.

### B. Guceeha miri.

Garura mimera rimwe hari wiki niguu muri wa itimu ndukaingire muno thin a niyagiriirwo ni gutinio. Muri mwega wa itimu uteithagia kugucia maai.

Riria mimera irakura thutha wa mieri 3-4 9kuringana na muthemba wa miti na riera) miri yayo yambagiriiria gukura kuma nathi ya nathari. Miri ino

yagiriirwo nigutinio o thutha wa mieri 1-2 na kahiu. Ririkana umenyereri niwa bata riria uroya mikebe ya miti niguu ndugathukie miri.

Njira ingi, oya nathari na igurunjira iria igiragiriiria miri gutontya tiiriini na kumitina gugakorwo kuri kuhuthu.

### C. Kuhe maai, kurimira na kuhe kiiruru

- Tunyamu twa kuhe maai twagiriirwo ni kunyitithanio na ndoo ya kuhe maai niguu tiiri ndugakuu ni maai.
- Nouhuthire mukebe muture marima
- Menyerera ndukahe maai maingi kana manini, makiria 20lts har mimera 1000. Ungihe maai maingi niukunina mimera hinya na uguciririe tutambi na fungus. Dalili imwe ya gukwonia ati niurahe maai maingi ni mareru.
- He maai o rucini na hwaiini kungihoteka.
- Tiiri uri na muthanga muingi wagiriirwo niguitiririo maai maingi.
- Ikira maai mumeraini na ti mahutiini
- Itiriria maai kahora niguu maingire tiiriini wega.
- Menyerera ndugathukie miri riria urarimira.
- Ndukarimire riria mahinda mathire muno, kurimira k=ni kwa bata tondu riia niricindanagira maai na riuu na mimera yaku.
- Mimera ingi niibataraga kiiruru – tigirira niwekira kiiruru na mahuti
- Hingo ya mbura, humbira mimera na mahuti ma miti kana nyeki. Mimera niyagiriirwo kwehuthio kuma rungu rwa miti niguu miti ya kuma mahutiini ma miti ndigathukie mimera yaku.
- Irigira nathari yaku niguu mimera ndigathukio ni mahiu kana ciana cigithaka.
- Reke mimera ikure nginya 30cm mbere ya guthamia. Njira ino noyoe kuma mieri 1-6. Thoma uhoro wa guthamia mimera. Na ningi wehuthie kiiruru kahiondaine gaka.

# Mazingira Bora



# TIST

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

**Kiswahili Version**

*TIST is an innovative, time - tested,  
afforestation program led by the  
participants.*



**Mkutano wa nguzo ya Gatulani TIST mnamo 19/3/2021 na wakulima 142 wa TIST wakihudhuria. Mkutano unaofuata utakuwa tarehe 23/4/2021.**

***Inside:*** Jinsi TIST Inavyofanya Kufanikisha Malengo ya Maendeleo Endelevu. Page 2

Kuhifadhi na kutibu mbegu kabla ya kupanda. Page 4

Utunzaji wa vitalu. Page 6



# Jinsi TIST Inavyofanya Kufanikisha Malengo ya Maendeleo Endelevu.

**T**IST ilianzishwa na wakulima wadogo ili kuwawezesha kuunda vikundi vidogo vinavyoweza kuwasaidia kutupilia mbali madhara mabaya ya ukataji miti, ukame na njaa. Wakulima wa TIST wanafanya kazi pamoja ili kutambua vitendo vya maendeleo endelevu vinavyojumuisha kupanda miti na kilimo endelevu. TIST inaunda miundo ya mawasiliano na utawala ambayo pia inashughulikia afya (ikiwa ni pamoja na VVU / UKIMWI), elimu na lishe.

Mwezi uliopita, nilikuwa na fursa ya kuwakilisha TIST kwenye mkutano wa Carbon Afrika Forum uliofadhiliwa na UNFCCC, Nairobi Framework Partnership na UNDP kati ya wengine. Mkutano huo ulifanyika Conotou, Benin, Afrika Magharibi. Nilizungumzia juu ya faida za matendo ya mazingira yanayolenga Mafanikio ya *SDG* almaarufu (**Co-benefits of Climate Action on the Achievements of SDG**). Kama sehemu ya maandalizi yangu na kujua kuwa watu wanaohudhuria wangekuwa wakijadili Malengo ya Maendeleo Endelevu (*SDGs*), nimefanya utafiti na kuchunguza kwenye Wikipedia. Ninataka kuwajua yale niliyojifunza, na kuomba usaidizi kutambua njia ambazo TIST inachangia kwenye Malengo hayo, na kupendekeza njia ambazo TIST inachangia hata zaidi nyakati zijazo.

Malengo ya Maendeleo Endelevu (*SDGs*), yanayojulikana rasmi kama **kubadilisha dunia yetu: Agenda ya 2030 ya Maendeleo Endelevu** ni mojawapo ya 'Malengo ya Kimataifa' kumi na saba (17) yenye Malengo mia moja sitini na tisa (169) kati yao. Inachangiwa pakubwa na Umoja wa Mataifa kupitia mchakato wa makusudi unaohusisha majimbo yake mia moja, tisini na tatu (193). Malengo hayo ya Maendeleo kumi na saba (17) yameorodheshwa hapa chini. Tafadhali uyatathmini. Nimeweka mawazo ya hapo awali kutoka kwa watu wengine kuhusu jinsi TIST inaweza kuchangia katika italiki (*Italics*) ili kuongezea:

## Lengo la 1: Hakuna Umaskini

**Hakuna Umasikini** – Kuondoa umaskini wa aina wowote, kila mahali.

- Umaskini uliokithiri umekatwa kwa zaidi ya nusu tangu mwaka wa 1990, hata hivyo, mmoja kati ya watu watano (5) wanaishi chini ya dola 1.25 kwa siku.
- Umaskini ni zaidi ya ukosefu wa kipato au rasilimali. Inajumuisha ukosefu wa huduma za msingi, kama elimu, njaa, ubaguzi wa kijamii na kutengwa, na ukosefu wa ushiriki katika maamuzi.
- Usawa wa kijinsia una jukumu kubwa katika kuendeleza umaskini na hatari zake. Wanawake wanakabiliwa na hatari zinazohatarisha maisha kutoka mimba za awali, na matumaini potevu ya elimu na mapato mazuri.
- Vikundi vya umri vinaathiriwa tofauti na umasikini. Madhara yake huwa makubwa zaidi kwa watoto, ambao huwa tishio kubwa. Inathiri elimu, afya, lishe, na usalama. Pia huathiri vibaya maendeleo ya kihisia na kiroho ya watoto kupitia mazingira ambayo yanajengwa.

## Yale yaliyofanywa na wakulima wa TIST.....

- **Wakulima wengi wa TIST wamefanya ardhii yao iliyokuwa na uharibifu kuwa na uzalishaji. Kupitia upandaji wa miti, Kilimo cha Uhifadhi na mazoea ya misitu ya Agro, maelfu ya hekta za mashamba madogo yamepata uzazi na uzalishaji.**
- **Kupitia uongozi wa mzunguko na mtumishi katika sehemu zote za huduma na uongozi wa TIST, wanawake na wanaume wamepata**

*upatikanaji sawa wa fursa na faida.*

## Lengo la 2: Kuondoa Njaa

**Kuondoa njaa** – Ondoa njaa, hakikisha usalama wa vyakula na kuboresha lishe na kukuza kilimo endelevu.

## Yale yaliyofanywa na wakulima wa TIST .....

- **Wakulima wengi wa TIST wamefanya Kilimo cha Uhifadhi. Wengi wao wameripoti mazao yaliyoongezeka kupitia Kilimo cha Uhifadhi, Leo, maelfu ya wakulima wa TIST ambao wamepanda matunda na miti ya mbegu hutoa mavuno mazuri ya matunda na karanga na hivyo kuongeza usambazaji wao wa lishe kwa familia zao.**

## Lengo la 3: Afya Bora na Ustawi.

**Afya Bora na Ustawi** - Kuhakikisha maisha mazuri na kukuza ustawi kwa wote kwa miaka yote.

## Yale yaliyofanywa na wakulima wa TIST.....

**Wakulima wa TIST kupitia semina na mafunzo ya Cluster hupokea mafunzo kuhusu VVU na Ukimwi, malaria, lishe bora, mafunzo ya usafi, nk. Wanahimiza na kuwasaidia wale wanaohitaji.**

## Lengo la 4: Elimu Bora.

**Elimu Bora** - Kuhakikisha elimu yenye ubora na usawa na kukuza fursa za kujifunza kwa kila mtu kwa wote.

## Yale yaliyofanywa na wakulima wa TIST.....

- **Katika TIST, tumewasikia wakulima wakiongea kuhusu jinsi malipo ya motisha ya miti yanavyowasaidia kulipa karo ya shule na vifaa vya kusoma.**
- **Majarida ya TIST Mazingira Bora na mafunzo katika Cluster hupeana fursa ya masomo ya muda mrefu.**

## Lengo la 5: Usawa wa Kijinsia.

**Usawa wa Kijinsia** - Kufikia usawa wa kijinsia na kuwawezesha wanawake na wasichana wote.

## Yale yaliyofanywa na wakulima wa TIST.....

- **Katika vikundi vidogo, kiwango cha Cluster, kiwango cha GOCC na LC, wanachama hufanya uongozi wa mzunguko, na hivyo huwapa wanawake uwezo wa kutosha.**
- **Katika TIST, idadi ya Wanawake wanaofanya kazi na kuwahudumia wakulima ni ya wastani. Wanawake wana nafasi sawa ya mafunzo ya uongozi, nk.**

## Lengo la 6: Maji Safi na Usafi.

**Maji safi na usafi** - Kuhakikisha upatikanaji na usimamizi endelevu wa maji na usafi wa mazingira kwa wote.

## Yale yaliyofanywa na wakulima wa TIST.....

- **Kupitia mpango wa Riparian uliopokelewa vizuri na wakulima ambao ardhi yao inagusa juu ya njia za maji, wengi wao waliripoti kuongezeka kwa ubora wa maji na kiasi.**
- **Katika mikutano ya Cluster na kwa njia ya majarida, wakulima wanashiriki kwa kubadilisha mawazo juu ya jinsi ya kuboresha usafi na usafi wa mazingira.**

## Lengo la 7: Nishati ya bei nafuu na safi.

**Nishati ya bei nafuu na safi** - Kuhakikisha upatikanaji wa nguvu za bei nafuu, za kuaminika, za kudumu na za kisasa kwa wote.



**Yale yaliyofanywa na wakulima wa TIST.....**

- **TIST ilipoanzisha pofu safi, wakulima wengi waliitumia kwa sababu zilikuwa na gharama nafuu na zilisaidia kuokoa mafuta ya kuni na kupunguza moshi katika maeneo ya kupikika.**
- **Kwa njia ya kupogoa na kuponda miti, wakulima sasa wanapata vyanzo vha mafuta endelevu - mbao, na njia bora za kutumia.**

**Lengo la 8: Kazi nzuri na ukuaji wa uchumi.**

Kazi nzuri na ukuaji wa uchumi - Kazi nzuri na Ukuaji wa Kiuchumi - Kukuza ukuaji wa uchumi unaoendelea, jumuishi na endelevu, ajira kamili na yenye ufanisi na kazi nzuri kwa wote

**Yale yaliyofanywa na wakulima wa TIST.....**

- **Wakulima wa TIST wakiongozwa na mpango wamewakabili watu zaidi ya mia moja hamsini (150) wenye masaa rahisi kuruhusu usimamizi wa mali ya msingi - shamba.**
- **Jinsi miti inavyokomaa, inaendelea kutoa mapato ya thamani kwa kuunga mkono maisha kupitia uuzaji wa matunda, karanga, asali, bidhaa za mbao nk**
- **Mapato ya fedha kupitia motisha ya malipo ya miti.**

**Lengo la 9: Sekta, Uvumbuzi na Miundombinu**

Sekta, Uvumbuzi na Miundombinu - Kujenga miundombinu ya ustawi, kukuza viwanda vya umoja na endelevu na kukuza uvumbuzi.

**Yale yaliyofanywa na wakulima wa TIST.....**

**TIST ina matumizi ya uvumbuzi, Teknolojia ya Habari na usafiri wa kisasa ili kuruhusu vijana, wanawake, na wanaume kupata nafasi kwa 'sekta' mpya (kaboni) na kujenga mazao ya fedha, ambayo hupunguza mapungufu ya miundombinu na kurejesha uzalishaji wa nchi zilizoharibika.**

**Lengo la 10: Kukosekana kwa Usawa**

Ukosefu wa usawa - Kupunguza usawa wa mapato ndani na kati ya nchi

**Yale yaliyofanywa na wakulima wa TIST.....**

- **Wakulima wa TIST wameonyesha msaada wa ajabu kwa vijana na wanawake hasa katika mikutano ya Cluster.**
- **Vidokezo vya miti ni mapato ya ziada kwa wakulima, kuongezeka kwa mapato kwa njia ya mazao bora, na kuzalisha ardhi yenye uharibifu, nk.**

**Lengo la 11: Miji na Mikoa endelevu.**

Miji na Mikoa Endelevu - Kufanya miji na makazi ya watu kuwa ya kwa pamoja, salama, ustahimilivu na endelevu.

**Yale yaliyofanywa na wakulima wa TIST.....**

- **Wakulima wa TIST wamekubali tamaduni mbalimbali kwa kufanya kazi za karibu na lugha tofauti, jamii na kusaidiana**

**Lengo la 12: Matumizi ya Ufanisi na Uzalishaji**

Matumizi ya Ufanisini na Uzalishaji – Ili Kuhakikisha smatumizi endelevu ya uendeshaji na mifummo ya uzalishaji.

**Yale yaliyofanywa na wakulima wa TIST.....**

**TIST imeboresha uzazi wa ardhi kupitia ukulima wa uhifadhi, mbolea ya mbolea, misitu ya kilimo na hivyo kuongeza uzalishaji kwa ustawi, na hutoa matumizi**

**Lengo la 13: Hatua ya Hali ya Hewa.**

Hatua ya Hali ya Hewa - Kuchukua hatua ya haraka ili kupambana na mabadiliko ya hali ya hewa na athari zake kwa kusimamia uzalishaji na kukuza maendeleo katika nishati mbadala

**Yale yaliyofanywa na wakulima wa TIST.....**

- **Leo, wakulima wa TIST ulimwenguni kote wamepanda miti ya milioni kumi na sita (16), na hivyo kuboresha mikakati ya kukabiliana na kukabiliana na athari za mabadiliko ya hali ya hewa**
- **Leo, mbali na jitihada za kupanda miti, wakulima wa TIST wameondoa tani zaidi ya milioni tatu unusu) (3.5) za CO<sub>2</sub> kutoka kwenye hewa.**

**Lengo la 14: Maisha Chini ya Maji.**

Maisha Chini ya Maji - Uhifadhi na kutumia viendelevu bahari, bahari na rasilimali za baharini kwa ajili ya maendeleo endelevu.

**Yale yaliyofanywa na wakulima wa TIST.....**

**Idadi kubwa ya wakulima wamepanda miti ya kirafiki ya maji katika maeneo ya mvua na karibu na njia za maji na hivyo kulinda maisha ya majini**

**Lengo la 15: Maisha kwenye Ardhi.**

Maisha ya Ardhi - Kulinda, kurejesha na kukuza matumizi endelevu ya mikoa ya ardhi, kusimamia misitu, kupambana na vurugu, na kusimama na kuharibu uharibifu wa ardhi na kusimamisha kupoteza kwa maisha ya wanyama na mimea.

**Yale yaliyofanywa na wakulima wa TIST.....**

**Wakulima wa TIST wamepanda mamilioni ya miti ya kuimarisha viumbe hai na kuendeleza uhai, mazingira ya nyuki yameongezeka, misitu ya kilimo, ardhi yenye uharibifu huwekwa katika matumizi ya uzalishaji tena**

**Lengo la 16: Amani, Haki na Taasisi Zenye Nguvu**

Amani, Haki na Taasisi Zenye Nguvu - Kukuza jamii za amani na umoja kwa ajili ya maendeleo endelevu, kutoa fursa za haki kwa wote na kujenga taasisi za ufanisi na za umoja katika ngazi zote

**Yale yaliyofanywa na wakulima wa TIST.....**

**TIST inafanya kazi na jamii mbalimbali, kukuza ushirikiano kupitia mikutano ya Cluster, TIST Values!**

**Lengo la 17: Ushirika kwa Malengo**

Ushirikiano kwa Malengo - Kuimarisha njia za utekelezaji na uimarishaji wa ushirikiano wa kimataifa kwa maendeleo endelevu

**Yale yaliyofanywa na wakulima wa TIST.....**

**TIST hufanya kazi na washirika tofauti ikiwa ni pamoja na Huduma ya Misitu ya Kenya, Taylors of Harrogate, Freshfields na USAID.**

**Sasa, tunataka mapendekezo yako kuhusu mambo maalum ambayo wewe au Kikundi chako Kidogo kimefanya kuchangia kati ya SDG zozote kumi na saba (17).**

**Tunataka pia kujua mawazo yako kuhusu jinsi wakulima wa TIST au jinsi mafunzo ya TIST yanaweza kuboresha michango yetu kwa SDG zilizotajwa - ili tuweze kuwa na MATOKEO BORA kwa Bajeti ya Chini!**

**Mtumishi wako wa Cluster atakuwa na majadiliano kwenye mkutano wa Cluster unaofuata, na ataandika barua pepe kwangu kuhusu mapendekezo yako na matokeo.**



# Kuhifadhi na kutibu mbegu kabla ya kupanda.

## Kuhifadhi mbegu.

- Hakikisha ikiwa unahamisha matunda kutoka pahali pa kukusanya mbegu uyaweke yakiwa pakavu, yamefunikwa na kufikiwa na hewa vilivyo ili mbegu zilizo ndani ya matunda ziziharibike.
- Beba matunda na mbegu zako zikiwa katika magunia au vikapu. Usizibebe katika makaratasi ya plastiki au mikebe isiyo na hewa na ambayo inaweza kufanya unyevu kukusanya na kuharibu mbegu hizi.
- Hakikisha umechagua mbegu nzuri zaidi kwanza na kuwa mbegu hiyo ni safi na kavu unapohifadhi. Mbegu kavu hupiga kelele na kuvunjika unapotikiza. Mbegu nyingi huhitaji kukaushwa juani kwa muda wa siku mbili kufika tatu kabla ya kuwa tayari.
- Hifadhi mbegu yako pahali pakavu na penye kivuli. Tumia kifaa cha kuhifadhi kama gunia au chungu cha udongo ili kupunguza uwezekano wa mbegu kuharibika. Tumia mikebe isiyoruhusu hewa kuingia au kutoka unapohifadhi mbegu zenye thamani ya juu, na ujaze mikebe yako kabisa ili kupunguza pahali pa hewa.
- Ikiwa hauna mbegu tosha kujaza mikebe yako, jaza ukitumia kitu kama makaa, maganda ya mchele au magazeti yaliyokunjana. Haya yatanyonya unyevu ulio katika hewa.
- Tumia mbao au fito kuhakikisha mikebe haiguzi chini (jambo hili laweza kuzifanya mbegu kushambuliwa na mabadiliko ya hewa, unyevu, wadudu na kadhalika kwa urahisi. Iwapo unatumia magunia au mifuko, waweza kuining'iniza.
- Uliza mawaidha kutoka kwa vikundi jirani au wafanyikazi wa kilimo kujua ikiwa unahitaji matumizi ya dawa za wadudu kulinda mbegu zako kutokana na wadudu. Kwa mfano. Mafuta au majani ya muarubaini, majani ya gliricidia na sabuni zaweza kukupa ulinzi.
- Kumbuka kuangalia mbegu zako kila baada ya siku chache kuhakikisha hazijaharibika.
- Tafuta ujuzi kuhusu muda mbegu yako yaweza hifadhika. Muda huu hulingana na aina. Aina nyingi, zikihifadhiwa vizuri zaweza kukaa mwaka au zaidi.
- Waweza jaribu muda wenye upana mbali mbali kujua ni mbegu ngapi zinaota. Chukua mbegu chache (kwa mfano, mia moja), andika nambari uliochagua, zioneshe halafu uhesabu nambari iliyoota. Ukifanya jambo hili kila mwezi, kwa mfano, utaweza kujua ni lini thamani ya mbegu yako inaanza kudhoofika. Gawana matokeo yako na cluster yako.
- Jinsi pahali pa kuhifadhi kupo baridi ndivyo muda ambao mbegu yako yaweza kuhifadhiwa huongezeka. Hakikisha mbegu yako haijawekwa palipo na mwangaza. Ikiwa pahali pa kuhifadhi pana unyevu mwingi mbegu itaharibika kwa haraka zaidi.
- Jua kuwa kuna kikundi kimoja cha mbegu kinachoitwa “mbegu kaidi”. Mbegu hizi kwa kawaida huhitaji kuoteshwa mara moja baada ya kukusanywa na kutolewa kwa tunda kwani huwa zinahitaji unyevu mwingi sana. Zikifungwa kwa nguo zenye unyevu, zaweza kuhifadhiwa siku chache ata kufika wiki moja. Mbegu hizi hufa zinapokauka. Aina za miti zilizo mfano wenye mbegu hizi ni pamoja na: *Artocarpus heterophyllus* (jackfruit), *Azadirachta indica* (neem), *Calamus* (rattans), *Durio zibethinus* (durian), *Eusideroxylon zwageri* (ulin), *Theobroma cacao* (cacao) na aina nyingi za aina zinazoitwa ‘dipterocarps’ (*Shorea*, *Hopea*, *Palaquium*, na kadhalika).
- Hatimaye, unapohamisha mbegu kuzipeleka



kitaluni, kumbuka kuziweka zikiwa kavu na zimefunikwa.

### **Ni matibabu gani yaweza kuhitajika kabla ya kupanda mbegu?**

- Otesha baadhi ya mbegu ili huoneni muda gani zinachukua kuota. Iwapo zitachukua saidi ya wiki fikiria kuzitibu.
- Ikiwa hauna uhakika ni mawaidha gani hapa ni bora zaidi, jaribu njia mbali mbali za kutibu na ugawane matokeo yako na kiongozi wa cluster yako kuhusu njia bora zaidi.
- Ikiwa mbegu ni ndogo sana au ina ganda nyembamba mara nyingi haihitaji matibabu yoyote kwa mfano aina za *Croton megalocarpus*, *Neem*, *Cassia* na *Kei apple* zaweza kuoteshwa moja kwa moja mkebeni.
- Ikiwa umekusanya matunda, unaweza kuyalowesha majini kwa muda wa siku moja au mbili, halafu uchukue waya na kuitumia kufinya tunda na kutoa sehemu majimaji ili kutoa mbegu ukitumia maji kuosha hayo mabaki ya tunda kwa mfano katika mbegu za *Syzium cuminii*, *Dovyalis caffra*, *Trichilia emetica*, *Vitellaria paradoxa*, *Prunus Africana*, *Gmelina arborea* (gmelina), *Azadirachta indica* (neem) na *Tamarindus indica* (tamarind).
- Baadhi ya matunda huhitaji tu maganda ya juu kabisa kutolewa kwa kuyagwaruzana kwa mfano matunda ya *Tectona grandis* (teak) na *Calamus species* (rattans).
- Baadhi ya matunda huwa na mbegu inayoitaji kugonwa kwa nguvu. Baada ya kulowesha tunda katika maji kwa muda wa siku moja au mbili, bonda tunda kwa mchi na chokaa kwa mfano matunda ya *Melia volkensii*, *Melia azedarach*, *Sclerocarya birrea*, *Cordia Africana*.
- Maganda mengine huhitaji kukaushwa kwa siku tatu kufika tano (chini ya jua lenye kivuli) halafu kufinya kwa kutumia waya ili kutoa mbegu kwa mfano maganda ya *Leucana*, *Calliandra calothyrsus*, *Acacia*, *Sesbania sesban*, *Grevillea robusta*, *Casuarina* na mikaratusi.
- Mbegu zilizo na maganda manono huhitaji matibabu ya aina maalum. Baadhi huhitaji maganda yake kuvunjwa kwa kutumia nyundo au jiwe baada ya kukaushwa ka siku tatu kufika tano ili kuruhusu maji kuingia ili mbegu iweze kuota. Mbegu zafaa kupanda mara moja baada ya kuvunja maganda. Aina ambazo huhitaji kuvunjwa ni kama *Melia* (mukau), *Podo*, *Croton megalocarpus*, *Adansonia digitata*, *Swietenia macrophylla*, *Delonix regia*. Mbegu zilizo ndogo na ngumu ziwekwe katika mkebe uliowekwa karatasi ya mchanga ndani na mkebe utikizwe kwa nguvu hadi ganda likwaruzwe.
- Baadhi ya mbegu huhitaji kukatwa kidogo tu ili kusaidia maji kuingia. Usikate ambapo mbegu ilishikana na ganda kwani sehemu hii ndio iliyo na mmea utakaokua.
- Baadhi ya mbegu hutibika vizuri zinapoloweshwa kwa maji moto kwa mfano *Calliandra*, most *Acacias*, *Tamarind*, *Leucaena* na *Albizia*. Weka mbegu katika mkebe, chemsha maji na uzimwagilie mbegu. Ruhusu maji yapoe halafu utoe mbegu kutoka kwa maji baada yakuona kuwa zimefura.
- Baadhi ya mbegu zaweza kuloweshwa kwa maji baridi kwa masaa kumi na mawili kufika ishirini na manne kwa mfano *Sesbania*, *Tephrosia*, *Dalbergia*, *Gmelina*, *Gliricidia* na *Acacia augustissima*. Weka mbegu katika mkebe na uongeze maji baridi (mara mbili mbegu zilipofika kwa mkebe). Toa mbegu zinazoelea.
- Mbegu zote, baada ya kutibiwa, zahitaji kupandwa mara moja.



## Utunzaji wa vitalu.

### A. Kudhibiti wadudu.

Viumbe hai kama fungi, bakteria, virusi, minyoo na wadudu (kwa mfano mchwa, vikugu) waweza kudhuru miche.

Ugonjwa aina moja unaopatikana sana katika vitalu huitwa 'damping off' na husababishwa na fungi. Ugonjwa huu husababisha mbegu kuoza kabla ya kuota, mizizi kuoza kabla ya mche kutokezea na mche kuwa mwembambe na kuvunjika. Dalili za kawaida za ugonjwa huu ni:

- Shina hupunguza ukubwa wake na kufa linapofikia ardhi
- Mche kunyauka nakuanguka
- Majani yanageuka manjano.
- Mche unakufa mwishowe.

Dhibiti ugonjwa huu kwa:

- Kubadilisha udongo ulio kitaluni kila mwaka au miaka miwili. Kutenganisha udongo pia husaidi.
- Kutoa miche iliyoathirika na kuchoma mara moja.
- Kuepuka kumwagia maji zaidi ya yanayotakikana.
- Kuhakikisha maji hayafuriki.
- Kuhakikisha hewa inafikia miti vizuri
- Kutoa magugu vizuri na kwa wakati mzuri
- Udongo usiwe na rutuba nyingi sana. Fuatilia viwango vya kuchanganya vinavyofaa. Punguza kiwango cha naitorjeni kwa kupunguza mbolea.
- Kunafaa kuwa na nafasi tosha kati ya miche ili kuepuka mfinyano.
- Hakikisha kitalu kipo safi kila wakati.

Magonjwa yaweza kudhibitiwa kwa utumizi unaofaa wa kemikali na dawa za wadudu. Ni bora zaidi kutumia dawa zilizo za kiasili kwani za kemikali ni ghali na zaweza kudhuru mazingira kwa mfano;

- Matumizi ya jivu
- Kuhakikisha kitalu kipo safi ili kuzuia kuwahimiza wadudu kuja.

### B. Kupogoa mizizi.

Hamisha miche mara moja kila wiki ili mizizi mirefu isije ikaingia ardhini na kuhitaji kukatwa. Mizizi

mirefu husaidia miti kutafuta maji baada ya kuihamishia shambani.

Miche inapoanza kumea katika mikebe baada ya miezi mitatu au mine (kulingana na aina na tabia nchi) mizizi huanza kukua na kutokea chini ya mikebe. Mizizi hii yafaa kukatwa kila miezi miwili au mmoja kwa kisu. Kumbuka kuwa mwangalifu unapoinua mikebe usije ukadhuru mizizi iliyo change.

Badala ya haya waweza kujaribu kitalu kilichoinuliwa ambacho hupunguza haja ya kupogoa mizizi kwani mizizi hujikata yenyewe.

### C. Kunyunyizia maji, kutoa magugu na kivuli.

- Kinyunyizi lazima kishikanishwa na mikebe ya kunyunyizia maji ili kisije kikasababisha mmomonyoko wa udongo.
- Waweza kutumia mkebe ulio na mashimo.
- Jiepushe na kunyunyizia maji mengi au kidogo, nyunyiza lita ishirini kwa miche elfu moja. Maji zaidi ya yanayohitajika hufanya miche kuwa nyoofu na kuvuta wadudu na fungi. Dalili moja ya maji zaidi ya yanayohitajika ni kuwepo kwa safu nyembamba ya mwani jua ya udongo.
- Nyunyizia kila asubuhi na jioni iwezekanapo.
- Udongo wenye mchanga utahitaji maji zaidi ya udongo unaoshikana.
- Mwaga maji udongoni, si kwa majani
- Nyunyizia pole pole ili maji yaingie udongoni.
- Kuwa mwangalifu usidhuru mizizi unapotoa magugu.
- Usiache magugu kwa muda mrefu. Kutoa magugu ni muhimu kwani magugu humea na kushindania mwangaza, maji na virutubisho.
- Baadhi ya mbegu huhitaji kivuli – hakikisha umetengeneza kivuli.
- Wakati wa mvua, funikia miche ukitumia nyasi kavu. Miche yafaa kutolewa chini ya miti ili maji yasiangukie miche na kuidhuru.
- Tengeneza ua ukizunguka kitalu ili kulinda kutokana na mifugo na watoto wanaocheza.
- Lache miche imee hadi centimita thelathini kabla ya kuihamisha shambani. Hili laweza kuchukua mwezi mmoja au ata hadi miezi sita. Angalia maelezo kuhusu kuhamisha miche. Pia toa kivuli wakati huu.



# Mazingira Bora



# TIST

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

**Kikamba Version**

*TIST is an innovative, time - tested,  
afforestation program led by the  
participants.*



**Mkutano wa nguzo ya Gatulani TIST mnamo 19/3/2021 na wakulima 142 wa TIST wakihudhuria. Mkutano unaofuata utakuwa tarehe 23/4/2021.**

**Inside:** Undu TIST ithukumaa kuvikia maendeeo ma kwikala. *Page 2*

Kwia Mbeu na undu wa kuiita mbee wa uvanda. *Page 4*

Kusuvia Kivuoio. *Page 6*



## Undu TIST ithukumaa kuvikia maendeeo ma kwikala.

**T**IST yaseuviw'e ni aimi ma nima ya liu na ndithya ite ya viasala kwa nzia ya tukundi nikana matetheesye kuvindua mauthuku ala maetewe ni miti kutemwa na kuete uvinduku wa nzeve ta mayua na Nzaa. Aimi ma TIST mathukumaa vamwe kuikiithya meko ma maendeeo kwithiwa kwa ivinda iasa ila nivamwe na kuvanda miti na nima utonyeka. TIST niseuvitye nzia sya mineenele na utongoi na kwia usyaiisyonni uima wa mwii (ila ni vamwe na uwau wa muthelo), kisomo na malii ma kwaka mwii.

Mwai muthelu, nineethiwe na ivuso ya kuungama kilioni kya TIST nthini wa wumbano wa Carbon Africa Forum ula waiviiitwe ni UNFCC, Ilovi (Nairobi) Framework Partnershi, UNDP na angi. Conference / wumbano uu wai Conotou, Benin thini wa West Africa. Ni na neeneie mavaita wa itambya ya kwosa iulu wa uvinduku wa nzeve na kila kivikiie nundu wa kwosa itambya ya kwikia maendeeo ma kwikala (**Co-benefits of Climate Action on the Achievements of SDG**). Ta nzia imwe ya kwiyumbanisa wumbano uyu na nisi kana andu aingi ala me uvika nimatonya kwithiwa maineene kwia woni wa Maendeeo ma kwikala, ni neekie ukunikili mbeange na nasisa thini wa Wikipedia. Ni kenda kumuia kila neemaisye na kukulya mutetheesye kumanya nzia ila TIST yiyumasya kuvikia mawalanio aya na angi maingi ivinda yukite.

Mawoni ma Maendeeo ma kwikala (**Sustainable Development Goals (SDGs)**), mesikanie kwa kuvindua nthi yitu nthini wa agenda ya 2030 ya maendeeo ma kwikala ni me thini wa set 17 "Global Goals" mena woni wa kuvikia 169 kati woo. Matongoew'e ni United Nations kwa nzia ya uneenania ila yina nthi ila ni memba 193.

17SDGs ni ii vaa ungu. Kwandai sisya. kwongelelea ni nikiite mesilya ma andu amwe ma Tist na Italics.

### Ngolu ya mbee: Vai ukya

- Vai ukya** - kumina ukya wa mithemba yothe kila vandu
- Ukya muvituku niwa olilwe ta yusu kuvikia 1990 vala andu mbee wa 1 nthini wa kila 5 utindaa kwa utumia itheo wa ndola 1.25 kwa muthenya.
  - Ukya nimbee wa kukosa ikwati. Uu nivamwe na kukosa syindu sya kukwikalya ta kisomo, nzaa, kutengwa na kulea katalika andu maiamua undu.
  - Kulea kwinanw'a kwa aka na aume ni kusangiaa muno nthini wa ukya na mavuso mathuku. Aka nimethiawa na ivinda yumu na mathina maingi ta kukua mavu tene na kuelea kuendee na masomo kwoou maikosa mawia ma umanenga ukwati.
  - Ingi ukuu nukwatawa ni ukya kivathukano. Ala mathinikaa muno ni syana nundu nisyo ikwatawa ni mathina menene ma ukya ukatuma makosa kisomo, uima wa mwii, liu wa uima woo na usuvio. Ingi syana nikwatawa ni nthini wa mesilya na kwiana kiveva na mwikalile kwisila kwa mathina ma mawithyululuko.

### Undu Aimii ma TIST mekete.....

- **Aimi aingi ma TIST nimaseuvitye miunda yoo ila yai yaekie kuete usyao na ikambiaa uete usyao. Na ni kwa nzia ya kuvanda miti, Nima ya kusuvia (CF), kuvanda mititu, na kutuma heaka sya tumilunda tunini tusyoka kwithiwa na unou wa muthanga na kwithiwa na wumil ngetha.**
- **Kwisila kwa nzia ya utongoi wa kithyululu na utongoi wa uthukumana wa TIST kwa aume na aka makethiwa na ivuso ya kwina kwa kutongosya na ukwata vaita wianene.**

### Ngolu ya keli. Nzaa kuthela

**Nzaa kuthela** - Kumina nzaa, kuvikia usuvio wa kwithiwa na liu mwianu, kwongela useo wa liu wa kwii na kwambatya na kukwatiia nzia sya kwailya nima.

### Undu aimi ma tist mekete.....

- **Aimi aingi ma tist nimethiitwe mayika nima ya kusuvia (Cf) aingi maitana nikwithiwa**

*ngetha ni mbongeleku nundu wa nzia ino ya nima ya kusuvia.*

- **Umuthi makili ma aimi ma TIST ala mavandite miti ya matunda na mbindi nime utunga livoti ya ngetha nzeo ya matunda na kwoou kwailya uima wa andu ma misyi yoo kwa kumane liu ula waile.**

### Ngolu ya katatu. Uima museo wa mwii na kwikala nesa

**Uima museo wa mwii na kwikala nesa** - kuikiithya andu nimekala nesa na kwisuviana na mauwau kwa muika w'oonthe.

### Undu Aimi ma TIST mekete.....

- **Aimi ma tist kwa nzia ya semina na movundisyo ma ngwatanio ni mama manyiit'we undu wa kwisuviana na muthelo, Ndetema, utheu, malii ma kuete uima wa mwii, movundisyo na amundu angi.**
- **Nimathuthanasya kukwata mbau na kumatethye ala osu na mena mavata.**

### Ngolu ya kana: Kisomo kithianu

**Kisomo kithianu** - Kuikiithya kana kisomo nichavikia kila umwe na ukwata mbau ivuso iasa ya kusoma kwa oothe.

### Undu aimi ma TIST mekete...

- **Nthini wa TIST, nitwii'ite aimi maineenania undu ndivi sya miti syithiitwe syi utethyo woo kwa kumatonyethya kuiva viisi wa sukulu wa syana na kuithooea mavuku,**
- **Ithangu ya TIST ya Mazingira Bora na movundisyo ala mekawa nthini wa ngwatanio ni ivuso iseo ya kwimanyisya ivinda iasa yila mundu wi thayu.**

### Ngolu ya katano: Kianana kwa aka na aume

**Kwianana kwa aka na aume** - Kuvikia kiwango kii na kumekia vinya aka na eitu

### Undu aimi ma TIST mekete.....

- **Tukundi, ngwatanio, GOCC na Kanzu na LC na memba nimekaa utongoi wa kithyululu kwoou kunenga aka ivuso ya kwiyikia vinya nthini wa utongoi.**
- **Nthini wa TIST namba ya aka ala me uthukuma na kutumikia aimi niyanenen na ya aume. Kwoou aka mena ivuso yianene na ya aume ya kwivundisya iulu wa utongoi.**

### Ngolu ya thathatu: Kiw'u kitheu na utheu

**Kiw'u kitheu na utheu** - kuikiitya kana kiw'u kitheu nikyakwatikana nii kusuviwa na utheu kwa onthe.

### Undu aimi ma TIST mekete.....

- **Kwa nzia ya kuvanda miti nguumoni sya mbusi ila yoosiwe nesa ni aimi ala me mikaoni na nguumoni sya mbusi ni kwatungie livoti kana nikutetheesye kwongela utheu wa kiw'u na wingi wakyoo.**
- **Nthini wa mbumbano sya ngwatanio na kwisila ithangu ya mazingira bora na aimi kutethania kwa ndeto undu wa kwailya utheu na kwikalya utheu.**

### Ngolu ya muonza: Mwaki mutheu na utena ngalama

**Mwaki mutheu na ute na ngalama** - Kuikiithya vena nzia ya kuvikia mwaki wa kiumunthi ula wivo, na utena ngalama nene, na utevoa mana na utonya kwikala kwa onthe.

### Undu aimi ma TIST mekete.....

- **Yila TIST yaetie maiko matheu aimi aingi nimendeeiwe na moosa itambya ya kumaua nundu mayai na ngalama yi iulu na nimasuviaa ngu na kuola syuki vala vekuiwa.**



- **Kwisila kuseani na kuola miti aimi nimethiawa na ngu vate kwaiwa na kwailya nzia sya utumia ngu.**

**Ngolu ya nyaanya: Wia museo na kwiana kwa ikonomi.**

**Wia museo na kwiana kwa ikonomi** - nikukilasya na kukwatiia, na kuete vambe kwiana kwa ikonomi na kuete mawia ma andu kuandikwa na wia mwaitu kwa onthe.

**Undu aimi ma TIST mekete.....**

- **Walanio utongoew'e ni aimi ma TIST ni utongoesye andu mbee wa 150 kwithiwa na masaa meketeye kutuma methiwa na ivinda na kuungamia na kusuvia miunda**
- **Ingi undu miti yianite niw'o iendee na kumanenge vaita na kumatethya kwiyoungamia mikalileni kwa kuta matuna, mbindi, uki wa nzuki, na usyao ungi wa miti.**
- **Ukwati kuma miti ila iivawa ta ndivi ya nzeve itavisaa (carbon credits)**

**Ngolu ya kenda: Kambuni, kwambiia na myako Kambuni, kwambiia na myako** - kwaka myako na kwikala, kukwata mbau na kwikalya industri na wambiliilyo wa undu.

**Undu aimi ma TIST mekete.....**

**TIST itumia wambiliilya, utuika wa kompyuta na malelu ala mekw'o kunenga muka, iveti na aume ndia nzau sya umanya na uvikia industry ya carbon na kuseuvya nima ya viasala ila ivetaa mathina ma malelu mathuku na kwilya wumi na uthukumi wa miundani.**

**Ngolu ya ikumi: Kuola kulea kwianana**

**Kuola kulea kwianana** - nikwasya kana nitwaile kuola kulea kwianana kwa ukwati katikati wa nthi na nthini wa nthi.

**Undu aimi ma TIST mikite.....**

- **Aimi ma TIST nimonanitye kukwata mbau muika na iveti munamuno nthini wa mbumbano sya ngwatanio sya kila mwai.**
- **Ndivi ya uthuthio kuma mitini ni vaita mwonge kwa muimi, wongeleku kuam ukwati wa ngetha mbongeleku, na wailu wa muthanga na miunda kwithiwa na wumi.**

**Ngolu ya ikumi nemwe - matoni ma kwikala na mbai**

**Mataoni ma kwikala na mbai** - kuseuvyamataoni na mawikalo ma mundu ala maile ithiwa na muuo, usuvio na matonya umakwatiia.

**Undu aimi a TIST mekete....**

- **Aimi ma TIST nimetikilanite na mituo ya mbai kivathukanio na kuthukuma vamwe na andu mena ithyomo kivathunano na kukatana mbau kwa vamwe umwe kwa ula ungi maitwiikana.**
- **Mawalanio ma TIST nimathuthitye uumwe, usuvio na kwikala**

**Ngolu ya ikumi na ili: Utumiku na useuvya italika Utumiku na useuvya wa syindu utalika** - ni kuikiithya useuvya was syindu na utumiku ni syaendania kwa vamwe.

**Undu aimi ma TIST mekete....**

**TIST niyongelelee unou wa muthanga kwa nzia ya nima ya kusuvia, kuima na kuvanda miti kwa vamwe na kuende undu liu isu, miti itonya utumuka na ni kwa ivinda yiendee vate kutilika.**

**Ngolu ikumi na itatu: Itambya ya uvinduku wa nzeve**

**Itambya ya uvinduku wa nzeve** - Kwosa itambya ya mituki kuola uvinduku wa nzeve na manthina ala

maetawe ni nzeve ila yumaw'a ni maendeeo thni wa vinya ula utumikaa uitungiliilwa.

**Undu aimi ma TIST mekete....**

- **Umuthi, aimi ma TIST nthi yoonthe nimavandite miti mingi mbee wa milioni 16, kwoou makailya na makaola uvindu wa nzeve.**
- **Umunthi kumana na uvandi wa miti, aimi ma tist nimaotele nzeve ta tani milioni 3.5 sya nzeve itavisaa kuma mawithyululukoni.**

**Ngolu ya ikumi na inya: Thayu ungu wa kiw'u Thayu ungu wa kiw'u** - Suvia na kwikalya ukanga, maia na kula kiw'u kithiawa kwa maendeeo makwiana na kwikala.

**Undu aimi ma TIST mekete....**

**Aimi amwe nimavandite miti ila isunga na kusuvia kiw'u nziani sya kiw'u na nguumoni sya mbusi kusuvia mathayu ala mekalaa kiw'uni.**

**Ngolu ya ikumi na itano: Thayu muthangani**

**Thayu mutangani** - Nzuvia, tungiia na sumbiliila mathayu ala mekalaa muthangani. Ikalya mititu na uiola mangalata na uii/weu na kutungiia kula muthanga mwanangiku na kuola ukui wa muthanga na kwailya kula kwanangiku muthangani.

**Undu aimi ma TIST mekete....**

**Aimi ma tist nimavanditi mamiloni ma miti kivathukanio na kumia thayu ta nzia imwe ya kusuvia mawikalo ma yamu, nzuki na kutusia muthanga na kutuma withiwa munou na utonya kuete usyao museo ingi.**

**Ngolu ya ikuni na thanthatu: Muuo, sila wa kati na mauvisi malumu.**

**Muu, sila wa kati na mauvisi malumi** - kwenda na kukwata mbau muuo na kwikia vamwe maendeeo ma kwikala na kwithiwa na sila wa kati na ulungalu utalika kwa kila mauvisi na ngaliko syothe sya mwikalile.

**Undu aimi ma TIST mekete.....**

**TIST nithukumaa na mbai kivatghukanio, na kwoou kwa nzia ya mbumbano sya ngwatanio sya kila mwai iyikiithya kukwatania na kwikalania kwa vamwe kwa mbai kivathukanio na muuo na kuatiia mawalanio ma TIST!**

**Ngolu ya ikumi na muonza: Kukwatana na kuvikia ngolu Kukwatana na kuvikia ngolu** - Vinya umaniasya kwikia na kuthukania kwa nthi yonthe kwikiana vinya kwa maendeeo me kwikala.

**Undu aimi ma TIST mekete....**

**Tist ithukumaa na ngwatanio kivathukanio ta Kenya Forest Service, Taylors of Harrogate, Freshfields an USAID mateusakua nikana kwikiana vinya.**

**Yu twienda kumya woni wa ati sisya ni ata kakundi kenyu kana we undu wikite kati wa maundu aa ma maendeeo ma kwikala ikumi na muonza (17 SDGs.)**

**Ingi nitukwenda umanya ni woni mwau winaw'o utonya kwailangya aimi ma Tist kana momanyisyo ta utethyo umwe waku wa kutetheesya nthini wa 17SDGs. - Ni kana tuvikie ukwati munene kwa utumiku munini!**

**Muthukumi wa ngwatanio yaku akamutongoesya mwithiwe na uneenania iulu wa maundu aya yila mukwithiwa na umbano wa kila mwai na aiandika na kutuma email ya mawoni, moelelyo menyu na kila muukwata.**



# **Kwia Mbeu na undu wa kuiita mbee wa uvanda.**

## **Kwia Mbeu**

- Ikiithya ethiwa wiumya matunda kuma kisioni kii kuthi kingi niwamekalya me many'au, memuunyini na vandu vena nzeve nesa nikana ngii ila syi nthini iikanangike.
- Kua matunda maku na kyondo kya ikanga kana ikunia. ndukakue na mathangu ma nailoni maikanyale na ukosa nzeve na mayanangika.
- Ikiithya niwanzakua matunda ala maseo (unit 2) na ni manyau na matheu mbee wa kumaia. Mbindi na ngii mbingi syendaa kwanikwa suani vandu va mithenya ili kana itatu iny'ae nesa.
- Ila mbeu yaku vandu vany'au , ve muunyi na ve nzeve nesa. Tumia makunia ma ikonge, mbisu nikana uole ivuso ya mbeu kuunda. Kunika na nguniko nesa wusuity'e mbeu nesa kuola nzeve nthini wa kikuu, mbisu kana ikunia yila wiite mbeu.
- Ethiwa ndwithiawa na mbeu ya kususya vala ukwenda kwikia ususya na makaa kana makanzeti nikana makanyusaa nzeve ila yina kiw'u.
- Tumia miti kuseuvya makumbi kana utaa wi yiulu kwa kwia mbeu nundu waia nthi mbeu nitonya kuunda kana kwanangwa ni uvyuvu na tusamu kuma muthangani. Ethiwa witumia makunia kana syondu no ususye mitini nyumba.
- Kulya mawoni kivathukany'o kuma kakundini kaku kala ke vakuvi naku kana kwa athukumi ma ndilikasa iulu wa utumia ndawa sya kuaa mitutu na mauwau kusuvia mbeu yaku. Ngelekany'o Matu ma Neem kana mauta, matu ma Gliricidia, savuni nisuvia mbeu.
- Lilikana Kusisya mbeu yaku kaingi kuikiithya ti mbanangiku.
- Umbany'a uvoo iulu wa mbeu ino na undu wa kumia kuma kisioni kyaku kulingana na ni muvai wiva nundu kwi imwe itaiawa kwa ivinda iasa.
- No utatithye kusianisya ivinda ya kumea kwa kwosa ngii ta 100 na kwia lekoti ya ivinda yilaiutumia kumea kwa kutala nisiana imeete kwa ivinda yiana ata. Weeka uu kila mwai ukeethiwa utonya umanya kwa ngelekany'o undu siekete kwithiwa na vinya wa kumea na wamanya tavya ala ma ngwatanio yenyu undu usomete iulu wa mbeu isu na kumanya.
- Oundu vala wiite mbeu yaku vathithite now'o itonya kwikala kwa ivinda iasa. Ikiithya mbeu ndinalika kyenini muno na ethiwa vala wiite vena uthithu muvituku nilaisi mbeu kwanangwa ni mbuka.
- Manaya kana vena mbeu syitawa recalcitrant (ila syi vinya kuvinduwa). Mbeu sya muthemba uyu nila itendaa kwiwa syendaa ukethwa ivanditwe nundu syendaa wiu mwingi. Kwa kwia kwa ivinda inini ta kyumwa waile ulinga na makula meu. Mbeu muthemba uu utavinduwa nikusaa yany'aa. Mithemba ya miti ila mbeu yasyo iilye uu nita:- Artocarpus Heterophyllus (Jackfruit), Azadirachta Indica (Neem), Calamus Species (Rattans), Durio zibethinus (Durian), Eusideroxylon zwageri (Ulin), Theobroma cacao (Cacao) na ingi ta Dipterocarps (Shorea, Hopea, paolaquiquium etc)
- Na muthya, yia uukua mbeu kuma kivuioni lilikana kumya na kuvwika.



**Ni Uiiti wau utonya kwendeka mbee wa mbeu kuvandwa?**

- Vand mbeu imwe na uisisya syikua ivinda yiana ata kumea. Ethiwa syikua ivinda iasa kwi kyumwa kimwe nuseo kwamba kuiita mbee wa kuvanda.
- Ethiwa ndwina muikiio na mawoni ala unengetwe iulu wa mbeu ino ni useo kwamba kutathya kwa nzia kivathukanyoo na uitavya amemba ma ngwatanio yenyu undu wonete itina wa kutumia nzia isu ethiwa ni nzeo.
- Ethiwa mbeu ii ni tungili tuniini kana twiona ikonde yumu ni useo kwamba kuiita ngelekany'o ya mivai ya ngii ila yithiawa na ikonde yumu nita Croton Megalocarpus, Neem, Cassia Species na kei appel ila syaile amaba uvandwa mikeveni.
- Ethiwa ukolanitye matunda amba uinde vandu va mithenya ili kana umwe, osa kisungi kya waya uvinyianisye na kusunga utiwe na iongii na kiw'u na nyama sya itunda iisungwa sume. Mithemba ya miti ila yikawa uu nita Syzium cuminii, Dovyalis Cffra, Trichilia Emitica, Vitellaria Paradoxa, Prunus Africana, Gmelina Arborea (gmelina), Azadirachta indica (neem) na Tamarindus Indica (Tamarind).
- Matunda amwe nimendaa kwamba kumwa kikonde kya nza na kutitianwa vamwe ngelekany'o Tectona grandis (Teak) na Calmus species (Rattans).
- Matunda angi methiawa na ngii ila syendaa uthiwa. Itina wa kuinda itunda vandu va muthenya kana mithenya ili, kima itunda na ndii na mwithi mithemba ino nita Melia volkensii, Melia Azedarach, Sclerocarya birrea, Cordia Africana.
- Mikea imwe niyendaa kwanikwa suani kwa mithenya 3kana 5( vandu vatena sua nyingi) na itina kutuangwa kumya mbindi/ngii. negelekany'o ni Laucana Species, Calliandra calothyrsus, Acacia species, Sesbania Sesban, Grevillea robusta, Casuarina Species na Eucalyptus species.
- Mbeu imwe syithiawa na ikonde yumu na syendaa kwamba kuiitwa. Imwe nisyendaa ona ikonde yasyo kwamba kwatuwa na yundo kana ivia itina wa kwanikwa vandu va mithenya 3 - 5 nikana kiw'u kilike na kutuma imea. Mbindi ii nisyendaa uvandwa mituki undu vatonyeka itina wa kwatuwa ila nita Melia(mukau), podo species, Croton megalocarpus, Adansnia digitata, Swietenia macrophylla,, Delonix regia. kwa ngii iola ninin na syendaa kwatuwa ikia mukeveni wina nguniko na uyikia kithangathi na uikusakusya kwa vinya nikana syatuke.
- Mbindi imwe nisyendaa utilwa o vanini kutitheesya kiw'u kulika. Ndukatile muno ndukatile munguthe.
- Mbeu imwe nisyikaa nesa kwa kuindwa kiw'uni kimuutia kana kivyuu ila nita:- Calliandwa, most acacias, Tamarind, Leucaena na Albizia. ikia mbeu mukeveni, na uyitiia kiw'u kitheukite. Eteela kiw'u kivoe na uyumya mbey ila ukwithia syaimba.
- Mbeu imwe syendaa kuindwa kiw'uni o kithithy kwa masaa ta 12-24 ila nita Sesbania, Tephrosia, Dalbergia Species, Gmelina, Gliricidia na Acacia augustissima. Ikia mbeu mukeveni ongela kiw'u kithithu kila kyaile ithiwa kundu kwili kwa imbindi, umya ila itonya kwithiwa ithambalalite.
- Mbeu yoothe yamina uitwa niyaile utwawa muundani kana kivuioni na kuvandwa.





## Kusuvia Kivuoio.

### A. Kusuvia uwau na miimu.

Tusamu ta fungi, bacterial, virus, mithowe na tusamu ta (Nduti, Muthwa, syingolondo) nitonya kwananga tumime.

Mowau amwe makwataa mbeu yi kivuioni nita uthithu wina uundu ula uetae fungi. Li nitumaa mimea yoa mbee wa itanamea kana mii ikoa mbee wa munguthe kumila na ethiwa mumea wii unambiia umea uimoso na ukw'a.

Mawonany'o amwe ma mowau aya nita

- Kwosa kwa muthamba vaaya muthangani
- Kuvova na kuvaluka kwa kamumea
- Matu kutwika yelo
- Kukwa kwa kamumea

Undu utonya usiia uundu:-

- Kusesya muthanga wa kivuoio kila itina wa mwaka kana miaka ili kila kietae kulekana kwa muthanga.
- Kuvetanga tumimea tula twakwatwa ni uwau uyu na kutuvivya
- Kunginya na kithimo vate kuvitukya kiw'u uingithya.
- Ikiithya kiw'u nikiuthi kinatumana
- Eka muthanga withiwe ulekanitye nzeve ivite nesa
- Ima nesa na ivindani yila yaile
- Muthanga ndukethiwe wi munou kuvita kiasi. Kithimo kya muthanga kwavuu nikyaile uatiiwa.
- Nivaile ithiwa na utaaniu waile katikati wa mimea
- Ikiithya kivuoio nikitheu ivinda yonthe.

Mowau ingi mnomasiwe kwa kutumi ndawa nesa. Ni useo kutumia nzia sya kikamba kwi kutumia ndawa ikwananga mawithyululuko ngelekany'o

- Tumia Muu
- Ikiithya kivuoio ni kiime kiina yiia nikana withie mututu ndina liu kwoou ndikuka kuete uwau.

### B. Kusea mii.

Sokya tumimea twaku kwa kyumwa imwe nikana mwii wa kuthi na nthi ndukangwate uendete na nthi na indi nikana usee mii ila yaasava muno . kii

kitetheeasya miti kukwata kiw'u yathamwa kuma kivuoni na kutwawa muundani.

Yila tumimea tuu tuendee kumea itina wa myai 3-4 (kulingana na muvai) mii yatwo niyambiia kumea na kumila ungu mathanguni ala ivanditwe. Mii ino niyaile utilwa kila mwai kuvika myai ili na kavyu. Manya kana niwaile usuvia yila ukukiklya mathangu aya kana mikeve/mbisu ila uviiite nthini ndukanange tumiti na mii. Ethywa ti uu tata utumie kivuoio kya kitanda (Sisya uniti 4) kila nikiolaa vata wa kusea mii nundu ikitaa uniina.

### C. Kungithya, Kuimia na Kwikia muunyi.

- Kikonyo kina mavuthi nikuyalie utumiwa mkungithyani nikana muthanga ndukakuwe
- Ethywa ti uu no utumie mukeve wina maima kungithya kivuoio
- Ndukendeew'e ni kungithya na kiw'u kingi kuvituka kana kungithya na kiw'u kinini muno, tumia ta lita 20 kungithya tumimea ta 1000. Kiw'u kingi nikietae undu ula uetae Fungus na kwongela tusamu tula twanangaa mimea. Wonany'o umwe wa kungithya kuvita kiasi ni kindiiu muthangani.
- Ngithya kila kwakya na mawioo vatonyeka.
- Muthanga wa thanganthi niwendaa kiw'u kingi kwi ilivi.
- Oneleelya kiw'u muthangani no ti matuni
- Ngithya mbola nikana kiw'u kinywe muthangani
- Sisya ndukanange mii yila ukuimia
- Ndukeseumia yiia yikalite, imia oundu yongelekete ute kuekeea yikambiie uania kiw'u kyeni, na unou wa muthanga.
- Mbeu imwe nisyendaa kwikiiwa muunyi - kwoo ikia matambya makusyikiia muunyi ethwa ve vata
- Yila kwina munyao vwika muthanga wa kivuoio na nyeki na ethiwa ni meu ikia kitaalu kuete muunyi. Ethywa syi matanguni kana mbisuni/mikeve kua utwa ungu wa muti.
- Ili kivuoio mbee wa kukua kuthamya tumimea. nitonya ukua mwai kana myai ili kivuioni. wavikiia uthamya ingi vata muunyi ivindani yii.

# Mazingira Bora



# TIST

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

**Kipsigis Version**

*TIST is an innovative, time - tested,  
afforestation program led by the  
participants.*



**Mkutano wa nguzo ya Gatulani TIST mnamo 19/3/2021 na wakulima 142 wa TIST wakihudhuria. Mkutano unaofuata utakuwa tarehe 23/4/2021.**

**Inside:** Ole imuchi TIST koboisiyoto konyor Bandab tai ne Tononot. Page 2

Konoretab keswek ak ribet. Page 4

Ribetab kabeti. Page 6



# Ole imuchi TIST koboisiyoto konyor Bandab tai ne Tononot.

**T**IST ko kitou temik che kionochoi koto kurubisiek che mengechen che kiborchigei kotononsi musugetab Timwek, Kemeut a Rubet. Kiboisaanyun Temik en kibagenge en kerenyuan ak kotete bandabtai ku minetab ketik ak koletab minutik. Kitoo TIST ortinuwek ak koborunoik che kimuchi kengalalen agobo tililindo (kou HIV/AIDS) konetisiet ak omituwogik.

En arawet ne kosirto ko kiyamuch oiti tuiyetab Tist nebo Carbon Africa Forum ne kitoreti UNFCCC, Nairobi Framework Partnership, UNDP ak alak chechang. Tuyosiek chon ko kigiyoen Conotou, Benin in West Africa. Kiya ngalalen agobo **Co-benefits of climate Action on the Achievement of SDG**. En yoton ko kiyongen ole biik che kimiten yoton komuche kongalalen agobo kobwate ne tononot nebo bandabtai, Kiyonyorunen naet ye kinonyon ogetigei. Osome ole kigochingei wolulik chuton bo kabwatet anan keret nebo TIST en betusiek che bwonei

**Keretab Tononetab Bandabtai**, ne naat kole imutech ketech Nguwondoni komiten chuton ko Agenda chebo Tononetab bandabtai ko kinyor kerutik 17 che imutech kot koit kenytib 2030. Ako tinye tokinet ab ge en kwenunywany. Tononjin united Nationen komoswekab ngwony komiten emotinwek 193.

Kerutik choton ko 17 ago miten kouni:

## **Keretab.1.** Motimiten bananda.

- Kigebos bananda ago agenge en oeng kongeten 1990, kou 1 en biik 5 konyoru che miten ngwony en \$1.25 an betut.
- Kiit neibu bananda koye monyor kii ne chutu anan ole kisigen. Yon monyor chii kou somanet, rubet, ngalalet, ngalalet en biik ak en kabwatet en kii ne imoche.
- En kobokorisiek ko nyumnyum kobe komonunet kou somanet ak imuchi kotoretyon koik chi ne nyigis.
- Ye nyor ibinda age bananda komuche koyesta en komoswek chechang. Missing kobutyin kebebertab lagok. Amun tinyei en kou; somanet, tililind, omitwogik ak komonyoru ribset. Moityin konyor mogutik chebo kimugul met en sobenyin tugul.

### **Nee kiit ne kiyai temik en TIST...**

- **Chechang en temikab tist ko kikoyai imbarenikwak konyorunen tukuk chemongerin kou (CF), minetab ketik ak rurutik, chechang en imbarenik ko kikonyor okwoindo nebo ngungunyek**
- **waletab kandoinatet ak konunetage en TIST, en murenik ak kobokorisiek ko kinyor borotet ak boroindo nebo boisiet.**

## **Keretab 2. Momiten rubet.**

Momiten rubet ye kinyoru omitwogik che imuchi koribech ago che tinyei kimnotet komuche kogochi kimnotet agobo kolset.

### **Nee kiit ne kiyai temik en TIST...**

- **Chechang en temik chuton ko kigo-omta agobo(CF), ko mwoe icheget kole nyorunen borotet neo missing.**
- **En betusiechu ko kigomin logoek biik en chongindo niton kogochin konyor omitwogik che kororonen ago chegimen.**

## **Keretab 3. Tililindo ak ribet na kararan**

En niton konyor ibinda age tugul tililindo ago itin konyor yamet en tuguk che kororonen.

### **Nee kiit ne kiyai temik en TIST,..**

**En seminaisiek ak konetisiosiek en kilastaisiek koityin konetisiet kou; HIV, AIDS, malaria, omitwogik, tililindo ko nyoru chi ne mogingen.**

## **Keretab 4: Somanet nebo barak**

Igochin chitugul en ole miten konyor somanet ak kogiletagei ak boroindo.

### **Nee kit ne kiyai temik en TIST...**

- **En ngalaletab biik chechang komwoe kole kigotoret ichek rabisiek chebo ketik en lagokwak en somanet ak konetisiet ne kikonyor chechang.**
- **Kinyorunen alak kelchin en Mazingira bora.**

## **Keretab 5: Kogimitetab kwonyik.**

Kinyor kwonyik ak tibiik kimnotet ak boisionik en koyometabgei.

### **Nee kiit ne kiyai temik en TIST...**

- **En kurubisiek, kilastaisiek, GOCC ak LC ko enchuton tugul komiten waletab kandoindet en biik tugul konyor kimnotet.**
- **Tinye kwonyik boroindo koboisiichi biik en utugul en boisiet.**

## **Keretab 6: Beek chetililen ak tugul che kiboisien.**

Ribetab beek ak ole kiboisioto en kasarta age tugul.

### **Nee kiit ne kiyai temik en TIST...**

**Chechang en Temik che kiit imbarenikwak onosiek ko kigonyor ribset imbarenik ak konyor beek che kororon ak kotesak beek en onosiekwak. Tinye temik koyometab ngalek ak biik alak.**

**Keretab 7: Boisietab kwenik ak tuguk che kiboisien.**

Miten maisiek che keboisien ago che kororonen che konu kenyorunen tililindo en abogora.

**Nee kiit ne kiyai temik en TIST...**

- **Ye kingoit Tist jikosiek che kiboisien, kocham temik amun momiten barak missing oliyet. Ago toreti en kwenik amun boisien che ngerin.**
- **En amun tinye temik ketik koitin kochor temenik ak koboisien.**

**Keretab 8: Boisiet ak kelunoik che kinyor.**

En nito kogochin tononet, ak kobarait kelunoik en biik ak konyor biik boroindo en tuguk alak.

**Nee kiit ne kiyai temik en TIST...**

- **Tinye temik kiboitinik 150 cheboisiechin en imbarenikwak.**
- **Tinye ketik chebo logoek chenyorunen melekwek, segemik, kwenik.**
- **Tinye kora rabisiek che nyoru en ketikwak.**

**Keretab 9: Musoknotet, Tounik ak Tesosiek.**

Miten anyun teksosiek ak kogimitetab tuguk che kigetoo ak ngalalet nebo musoknotet ne miten barak missing.

**Nee kiit ne kiyai temik en TIST...**

**Keitigei en ngalalet ko nyumnyum en murenik ak kwonyik kobo neranik. Kigeto kaumetab koristo (Carbon) miten kora minutik che konu rabisiek ak en let konyor imbarenik ribet ne kararan.**

**Keretab 10: Boisietab koyometabge.**

Bose melekwek che chutu en ehek ak en emotiinuek alak.

**Nee kiit ne kiyai temik en TIST...**

- **Tinye neranik ak kuwonyik toretet koyob temik noton kotogunen en tuyosiekab kilasta.**
- **Melekwekab ketik kotoreti temik ye nyoru rurutik chechang ye ribe imbarenikwak.**

**Keretab 11: Tononetab to-onisiek ak Bororosiek.**

Kigochi to-onisiek ak kimugulmet mengot, ribset ak magutik chemiach.

**Nee kiit ne kiyai temik en TIST...**

- **Itinge temik ak biikab boror en toretosiek.**
- **Igimite tolochigab tist chi tugul.**

**Keretab 12: Ribetab amituwokik ak ole kisigen.**

Nyolu komiten ribet ne kararan ak kosibet agobo niton.

**Nee kiit ne kiyai temik en TIST...**

**Tinye temiik imbarenik okwoen en toretetab**

**(CF) boisien keturek, minetab minutikak ketik konyorunen omituwogik.**

**Keretab 13: Waletab Emet.**

Ibi boroindo neo missing en tetetab watetab emet amun miten korisuwek che ngeme emet, ak koboisien tuguk che mongeme.

**Nee kiit ne kiyai temik en TIST...**

- **En inguni kotinye temik tugul en tist ketik chesire 16+ million che toreti en waletab emet.**
- **En ketik che miten kotinye konoruwetab tannisiek 3.5M che bo koristo ne yaa.**

**Keretab 14: Sobet ne miten Beek**

Ribet ak koboisien kou nyochosiek, onosiek che echen ak tuguk chegonu mogornotosiek chebo bandabtai.

**Nee kiit ne kiyai temik en TIST...**

**En temik che chang ko kigomin ketik che nomege ak beek ngeguesiek ak ole bune beek.**

**Keretab 15: Sobet en Koret.**

Nyolchin kerib kegonorchi, kerib timwek, kerib melewet komatesak ak kerib mengotosiek chebo tiony ak ketik.

**Nee kiit ne kiyai temik en TIST...**

**Kigomin temiik che chang chebo ketik chetoreti mengotosiekab segemik, timwek ak kowech imbarenik che kigage musuch koboisien konyor omituwokik.**

**Keretab 16: Kaliet, imanda ak ole somonen kipsomaninik.**

Kigimit kalyet ak keribchi biik imandanyuan asi konyor bandabtai ak konyor chi tugul naenyin kou ole kaimuch.

**Nee kiit ne kiyai temik en TIST...**

**Boisie temik ak bororiosiek che chang kogimitetab tolochigab TIST.**

**Keretab 17: Koyometab kibagengeisiek en keroniton.**

Kogimitetabge en tuguk che kimoginge en bandabtai.

**Temik en TIST...**

**Boisie tist ak toretik kou, Kenya Forest Service, Taylors of Harrogate, Freshfields ak USAID.**

**En anyun kenutichuton kainyori, kemoche igonech kabuwatengung ne noton kit ne giya kurubit ago monyuru en chu 17.**

**Kimoche kora igonech naengu ole imuchi kotoretito temik anan ko konetisiet ne momiten en chuton asi kimuch kenyorunen melekwek che miten barak.**

**Ongalalen en tuiyetab kilasta as komuch koyok kiboitiyot nebo kilasta.**



## Konoretab keswek ak ribet.

### Konoretab kesuek

- Ibuat ine yon imoche iib logoek kongeten olekebuten komising iyamsi
- Koyomio. ko kararan iur ak kosich koristo ne ome asi mowech kesuot en orit.kararan ingeboisien kuniok chemotinye kongik chebo asi konyor logoek ak keswek koristo
- Maiyanat keboisien tukuk kou sebebeisiek anan plastikisiek amun motinye konyik chebo koristo komuche kowechob tuguk.
- Ibwat ile cheta ko chekororonen ko choton chesib kekonori,amun tililen kiyamsi ak kekonor.
- Amun keswek che yomnyotin ko ngebor koboroksei keswek chechang kemoe en betusiek 2-3 en asistab . kotomo kochobok .
- konor anyun keswek en ole tinye urwet ago yamat. Boisien tuguk kou kuniet ne tinye ole chute koristo ak teretab kipkaa asi momunyok. Konoren tuguk che kororonen asi mowechok keswek ak irib komochut koristo.
- Ago kend lolet keswek ago yemanyi imuchi itesi tuguk kou nesek metetekab muchelek ak alak Cheyomyotin niiton kotoreti koyamsi kititindab koristo ne mi orit.
- Ingoteben anyun bogoyot asi mutiny ng'wony keswek amun imuche kowalak konamak anan kochut susurik ak alak tugul che imuch koiti.
- Chang kabwatet en bik alak en kurubit anan ng'omotik asi iteben ngo kimuchi keboisien Kerichek keteren susurik, korokut kou neemol gliricidia leave ak sobunit komuche kotoret.
- Ibwat igergere keswek en abogora asi mowechok, tiny kora ile toss tore betusiek chetian Keswek asi mowechok . niiton kotiyenge koimbot keswek anan korikab keswek amun miiten Chetebie kasarta negoi kou kenyit agenge .
- Imuche iyai korokut en kosorwek che terotin asi iguiye ile ibe keswot agetugul kasarta
- Netyan en rutunet . Inemun keswek 100 ak inde kabeti asi inai ile ata chekorut ak chemorut
- Niiton koboru kimnotet nebo keswek. Obchei ak biik alak en kurubisiekab kilasta.
- Ingotebi keswek ole kaitit asi kokochi kotebi





kogagei. Mokimoe keswek en asista agot Konyor ole kaitit missing koweckoksei keswek. Naiy ile miten keswek che kemine kou

- Noton che mokiyomsie anan kekonor amun moche beek chechang asi korut. Korikab keswechuiton
- Koyomtos en chokinet kou Artocapus, heterophillus (jack fruit) Azadirachuta indica (neem) calamus Rattaus Durio zibethinus (duria) Theobrome (cacao) ak alak che chang .
- Nebo let anyun ibwat ile yon iibe keswek koba kabeti konyolu koyomiotin .

### **Nee ne kimokinigei asi keteren.**

- Miin keswek che ng'eriny asi iker kasarta neibe . Angot koib kasarta nebo wikit keib kasarta Kinya angot ko metinye kayanet ko onchu kosibutik ne tai ko iyai koborunet ak obchei ak Kondoikab kilasta asi onyuru walutik .
- Angot ko keswek che tinye makatet ne nyikis anan ko mengechen ko motinye kinde kerichek kou keleluet neem cassia ak kei apple kimuchi kemin kou noton

- Miten alake che kinuri en beek betusiek (1-2) asi komuch konur magatete asi
- Komong keswot kou kipkarkaryat chepkomon ak saunet.
- Keswek alak kebore asi komong tenderek . alak kindo koteben beek betusiek (1-2)
- Alak ketue ak kenut kou melia volkensis, melia azadarach ak che chang
- Keswek alak kimuchi kiyamsi betusiek (3-5) asi komuch komong tenderek kou sebesebe. Chepitet ak alak che chang
- Logoek che tinye magatete ne nyigis kimuchi kema en asista asi koter magatet anan ketui. Alk en logoek kimuchi ketil asi kobit ole bune beek asi korut keswot ak irb kometil ole rutunen
- Alage koboisien beek che loltos kou calliandra chebitet ak chepkomon ketorchin beek
- Ak kebakach kotgokoititegitun beek kelol. En saisiek 12-24 ko en keswek che kabwa barak ilolu Amun yachen choton
- Keswek tugul che kagetoret konyolu kemin en sait noton.



## Ribetab kabeti.

### **A - teretab susurik.**

Susurik kutik ak alak kou toik chepkimoik ak somunyk komuche kowech en kabeti

Miondo ne korom missing en kabeti ko koristo ikochin niiton nunet keswek. Kotomo korut

Tinye koborunet kouni:

- ✓ Sokite keswek ak koyam
- ✓ Chorirendos sokek ak kobutyo
- ✓ Tolelyokitu sokek
- ✓ Nebo le komeyo

Teret ne nyolu

- ✓ Wal kabeti yeibata kenysiek (1-2)
- ✓ Ketit ne kang'emak itutu
- ✓ Mat inde beek che chang
- ✓ Ker ile kosich ole mondoen beek
- ✓ Ingonyor koristo
- ✓ Sember en abogora
- ✓ Mat konyor ng'ung'unyek anan okwoindo neo.
- ✓ Mat kochilge ketik en kabeti
- ✓ Ingotililit betit en abogora

Mionwek kimuchi keboisien kerichek , missing ko chebo kipkaa amun motinye kowech. Boisien kou orek Rib kabeti asi maimuch kobwa susurik

### **B- Toretetab tigitik**

Rib missing kabeti asi maimuch koba tigitik kokoegitun ketile asi konyor ketit itondo

Ne kararan. En kasarta nebo orowek (3-4) konam anyun tigitik komong'unen teret . Kimuchi ketil en kila en arowek (1-2) ak rotwet .

Kou noto itech betit ne kanaptaat asi komawechok tigitik .

### **C-Tumchin beek, sember ak iur**

- ✓ Boisien watering can asi mowech kabeti
- ✓ Matinde beek che chang anan ko chetutikin , beek chechang koweche keswek
- ✓ Tumchin en koron ak koskolen
- ✓ Emet netinye ng'ainet komoche beek en abogora kosir menet.s
- ✓ Matinkotiny beek sokek
- ✓ Rib tigitik ye isemberi
- ✓ Sember abogora amun timdo kokochin keik amoegekitun amub moche beek ak asista
- ✓ Keswek alak komoche urwet
- ✓ en kasartab robta ituch keswek ak suswek cheomotin asi moib beek
- ✓ Rib en tuguk alak tugul kou tuga amun imuch kowech
- ✓ Ingonyo ketit agoi 30 cm kotomo iwe imin imuchi kotar arawek (1-6) en kasari iiste urwet en kabeti asi kokochi ketik konyor asista ak kogimegitun