



# MAZINGIRA BORA

## January 2009 Newsletter

### ENGLISH VERSION



[www.tist.org](http://www.tist.org)

## The International Small Group and Tree Planting Program (TIST)

An Environmental, Sustainable Development and Community Forestry Program.



Planting of trees will help in mitigation of climate change and make our country effectively achieve vision 2030.

### Editorial

## TIST: Understanding Global Warming and Climate Change.

Many of the TIST farmers - through various forums including TIST seminars, in-house trainings and at cluster meetings - have anxiously been wanting to learn more about the global warming and its effect on the climate and the mitigation factors. This month's newsletter has dedicated itself to shed more light to these farmers and many others who would like to understand global warming and climate change better. Just to illustrate a few instances that have been associated with global warming, notable examples include elnino floods of 1998 that wrecked ravage most of the country and

the succeeding long drought, tsunami hurricane of 2004 and the most recent fall of snow-like substance in Nyahururu that covered more than 100 acres. Other notable illustrations are the gradual wearing off the glaciers at the peak of Mt. Kenya, unpredictable weather patterns that have resulted to crop failures in many areas, drying of water springs and water catchments areas among many others.

We will begin by defining each term and explaining it further. You are going to learn how your trees play a significant role in mitigating the effects of global warming.



## What is Global Warming?

Global warming refers to an average increase in the Earth's temperature, which in turn causes changes in climate. A warmer Earth may lead to changes in rainfall patterns, a rise in sea level, crop failures, and a wide range of impacts on plants, wildlife, and humans. When scientists talk about the issue of climate change, their concern is about global warming caused by human activities.

Is the Earth getting warmer? Yes! The Earth has warmed by about 1°F over the past 100 years. Many of the world's leading climate scientists think that things people do are helping to make the Earth warmer e.g. burning of fossil fuels, trash, coal and natural gases.

## What is the Greenhouse Effect?

The greenhouse effect is the rise in temperature that the Earth experiences because certain gases in the atmosphere like carbon dioxide, nitrous oxide, sulphur dioxide, and methane trap energy from the sun. Major sources of carbon are: deforestation, gases emitted from industries, gases emitted from motor vehicles, gases emitted from burn of wood fuel, charcoal or burning of forests.

## What are dangers of Global Warming?

- ❖ Severe water stress in the arid and semiarid land areas. This would result to more areas becoming desert.
- ❖ Increased spread of diseases like malaria. As more areas become warmer, the more they attract mosquitoes and this increases risks of malaria infection. Many families and health institutions become affected, average life spans decline, and infant mortality rates rise.
- ❖ Decreased agricultural production in many tropical and subtropical countries, especially countries in East Africa. Due to decreased rainfall and increased breeding of pests due to increased warming, the production of food crops continue to decrease and this results to poverty and hunger among many families and communities.
- ❖ Higher worldwide food prices. As more farmers get less yields and food supplies

become scarce, the prices increase because the demand is high and supply is low.

- ❖ Major changes in the productivity and composition of critical ecological systems particularly forests. Water catchments areas in the mountains and forests continue to dry up will affect the ability to irrigate crops and will reduce stream flows necessary to keep dams and reservoirs replenished. This will further affect generation of hydro-electric power. Our industries, hospitals and other institutions that heavily rely on electricity power will be severely affected. Also supply of piped water to urban areas as well as rural homes will also be affected.
- ❖ Tens of millions of people at risk from flooding and landslides, driven by projected increases in rainfall intensity and, in coastal areas, rising sea levels.

## How to prevent Global Warming.

### Planting of trees.

As mentioned above, carbon is one of the gases that cause global warming. Trees absorb carbon emitted to the air during photosynthesis and store it in the wood, roots and soil as cellulose carbon. However, when trees are cut and burned, they release the carbon they had stored back to the air.

### **Did you know each tree can create a micro climate?**

Trees and their cover cool the surface of the earth. When the ground stays cooler, the ground holds more moisture longer. This means that trees on your land will help improve the amount of water in your soil for a longer time. This will help your crops and also even help the water users in your area a bit.

### **What are Carbon credits?**

Over 10 years ago, a number of countries signed an UN agreement which said that all signing countries would work together to reduce how much they pollute. This



agreement was called the Kyoto Protocol. It was named after the Japanese city of Kyoto where the agreement was signed.

Under the Kyoto Protocol many industrialized nations have agreed to reduce their levels of carbon dioxide. One way to do this is by taking carbon dioxide out of the atmosphere and storing it in the ground or in trees. Trees absorb carbon dioxide from the air during photosynthesis and store it in the wood, roots and soil as carbon.

This absorption of carbon dioxide can be sold on the world market as carbon credits. Buyers can purchase these credits to offset their carbon dioxide emissions.

For instance, TIST is able to sell the carbon absorbed in trees just like sugar and milk. The trading of carbon credits is done in New York, Chicago, London, and a few other cities. At these markets, carbon is bought and sold in very large volumes for money. Some measurements and calculations are made to measure the amount of carbon TIST farmers' trees have absorbed. Note here trees are never actually taken to the markets. They remain in the shamba and the longer they stay alive the longer the period of receiving payments. So the farmer keeps the trees and the fruits and the nuts. The money that TIST makes is then given to the TIST Small Groups. In this way planting trees can provide a source of income because they absorb and store carbon. This source of income is what referred to as Carbon credit is. Trees also provide many other environmental, material and medicinal benefits the trees naturally provide.

#### **Do all trees absorb the same amount of carbon?**

No. Trees that have wider circumference (more biomass) store more carbon than trees that are thin. Taller trees also absorb more carbon than short trees. Therefore, trees that are thick will bring more income from carbon credits. This means trees planted in a good spacing have a chance of growing big and tall. They do not compete for soil nutrients and water as much as trees that are closely spaced.

Therefore, in order to receive good payments out of our trees, it is important to plant them in a good enough spacing that will allow them to grow healthy, tall and big.

#### **Where / who are the buyers of carbon credits?**

Currently there are Four main carbon markets:

1. Certified Emission Reductions (CERs) for the Clean Development Mechanism (CDM) represents the largest potential market. These carbon credits must be verified and certified under the CDM process for use by the industrial countries that have made GhG reductions commitments under the Kyoto Protocol. Verification and Certification is done by independent Designated Operational Entities (DOEs) and approved by the Executive Board of CDM.
2. Another market that requires verified emission reductions are the non-Kyoto compliance markets. In the US, which is not a signatory to Kyoto, some of the individual states are requiring GhG reductions. While the approval process will require that the emission reductions be verifiable, and possibly verified by an independent party, it is a separate and different process than the CDM procedures.
3. There are two types of voluntary markets. The first is a small market made up of people willing to give money to encourage people to plant trees. Examples include paying tree planting projects to make a wedding or a conference carbon neutral.
4. The second type of voluntary market is a much larger potential market made up of companies in the US and other non-Kyoto industrial countries, that are making voluntary commitments to reduce their GhG emissions either because they are good stewards of the environment or they are preparing for future regulatory requirements



# Condition of groves: For quantification

In your local areas there are TIST staff called quantifiers. They are employed to collect data on TIST tree groves. They collect information on the number of trees planted, the spacing, the circumference, the shape and location of the grove and pictures of the grove. The information is used to calculate how much money a group should receive and to prove to people buying carbon credits that the tree groves exist.

It is important that we remain honest with our buyers. It is pointless to join TIST program, sign the green house contract and fail to abide by the contract. TIST has, in all time emphasized it's core values of honesty, accuracy, transparency, accountability and servant hood. Everyone involved with TIST including, Small Group members, Trainers, Quantifiers, Staff members and our buyers must abide by these values. For instance, if you fail the promise of keeping the trees for long-term ( 30 years and above) you end up hurting yourself and members of your Small Group. TIST wants to help improve the livelihood of all it's Small Groups.

To help the Kenya quantifiers do their job accurately there are certain tree grove requirements Small Groups should keep to:

Condition of the grove:

- a. Trees planted in rows where possible
- b. Groves cleared of weeds and bush so that trees can be counted
- a. Healthy, good-growing trees
- b. Correctly spaced according to the different species.
- c. Able to walk around the grove

Grove owners should sign the quantification form indicating the number recorded by the quantifiers is accurate. This is a requirement in order to be paid. The number should be the accurate tree-by-tree count. Groups should make sure this is correct because if it is false the group will not be paid any money and may be disqualified from the program.



TIST Quantifiers from Ntugi Field Office in a Small member tree grove doing quantification.



TIST Quantifiers from Kinyaritha Field Office in a Small member tree grove doing quantification.

## Tree planting: Weeding

Now that the rains have started you should already have transplanted your seedlings into your groves. If you have not yet transplanted your seedlings you need to do so as quickly as possible. Your seedlings need to be transplanted now so that they can grow strong

in the rainy season and survive the drier months.

We need to make sure we look after our seedlings so that they survive to become strong trees. The most important activity this month is to **weed** your seedlings. Keep



the area where your seedlings are as clean as possible. Pull up any weeds that are growing near your seedlings.

Weeding is important for these reasons:

1. Your seedlings need water, soil nutrients and light to grow strong. If there are weeds they will compete with your seedling for these things. The weeds will use the soil nutrients and water that your seedlings need. The result is that your seedlings will be weaker and may not survive.
2. If your area is not weeded there will be more pests attracted to the area. Pests can damage and kill your seedlings. The fewer weeds there are, the less chance there will be of snakes and insects.

Here are some of the advantages of weeding your groves:

- ☐ Trees grow faster because weeds don't take the nutrients and water from the soil

- ☐ Trees will become stronger and grow taller in a shorter period of time
- ☐ Trees can get the sunlight they need unhindered
- ☐ Trees are not exposed to as many diseases
- ☐ Trees are more protected from a fire spreading
- ☐ Clean groves indicate that small groups are maintaining them and are good examples of the TIST program. This will attract many people to come and see your work.
- ☐ Clean groves enable the quantifiers to count the trees quickly and accurately

Remember to protect the seedlings so that animals (e.g. goats) do not eat them or trample on them. Consider fencing the grove or surrounding seedlings with some thorn bushes.

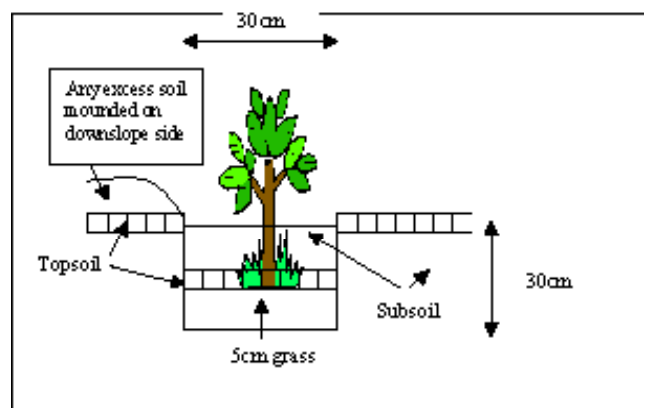
If you have some days with no rain remember to water the seedlings.

## Tree Planting : Transplanting

Just in case you have not transplanted your seedlings, you need to follow the below techniques in order to make your seedlings survive:

- ☐ Transport the seedlings in an upright position
- ☐ Mark out a circle with a diameter of 30cm in the field
- ☐ Remove the topsoil and place in a pile
- ☐ Remove the next soil layer to a depth of 30cm and place in a separate pile
- ☐ Put in a 5cm layer of grass (dry grass in rainy season, fresh grass in dry season), (called *mulching*). Some groups add manure as well.
- ☐ Remove the seedling from the polythene bag. Do not break the earth-balls around the roots.
- ☐ Place the seedling in the hole
- ☐ Replace the topsoil first, then the second soil layer.

- ☐ Some groups do not fill the hole completely, but leave a gap of a few cm. This helps the rainwater enter the hole and infiltrate the soil.
- ☐ Any remaining soil can be placed in a mound on the downhill side of the seedling. This will help trap any rainwater and divert it into the hole.
- ☐ Water the seedling.





# Improved Stoves: Energy saving Jikos

## What are improved stoves?

Many people in Kenya still use the three firestone stove for cooking. This consumes a lot of firewood quickly. Improved stoves include mud stoves that use less firewood and direct smoke out of the kitchen.

The main materials for making improved stoves are soil and water. Therefore, they are a cheap and easy improvement for the home.

- Saves time for women searching for firewood.
- The stove uses one fire to heat up to three pots, thus saving time and firewood.
- Smoke is taken out of the kitchen and so reduces health-related problems from smoke such as respiratory disorders.

## The advantages of improved stoves compared to traditional stoves:

### 1. For the user

- Improved stoves minimize the use of firewood. Firewood used for three days in a traditional stove can be used for a week in the improved stove.
- Heat lasts longer in the improved stove as the fire stays inside the stove.
- Minimizes accidents by the fire, as the fire is covered.
- Minimizes cost of buying firewood.

### 2. For the environment

The reduced demand for firewood helps to:

- Reduce deforestation
- Reduce desertification
- Prevent flooding
- Protect water resources and catchments areas
- In order to prepare for this, the following materials will be required:
- Clay soil, Sand, Cow dung, Ash, Water, Grass

## Lamuria Field Office : continuing serving Small Groups.

Lamuria field office is situated in laikipia East. It borders Naromoru field office, and Wiyumiririe TSE.

We serve an area that is predominantly semi arid area. However, since we joined TIST program in 2004, we have witnessed a tremendous increase on number of new trees. The local community has embraced TIST program fully and heeded its call for planting trees to make a difference.

Besides tree planting, Small Groups in our area of operation have also practiced other sustainable development projects such as stove jikos, kilimo hai (Conservation farming (CF)).

Our main target is to have more trees planted, so as to eradicate poverty that has been the biggest challenge in this region. So far, we have expended to new areas including Arbon in mweiga, lamuria, mitero, njoguini. New 300 Small Groups have been registered and 15,300 new trees planted.

We remain truly committed to serve our Small Groups. We encourage our members to take advantage of this rainy season and plant more trees.

**TIST Kenya invites Small Groups members to prepare and submit their articles for publishing in this Newsletter.**

**We would like to hear from you the benefits you have achieved since joining TIST and areas that you would like us improve.**

**To reach us, you can contact Martin -0722-846501. [martinweru@tist.org](mailto:martinweru@tist.org).**

**You may also contact our Field Offices Staffs in Narumoro, Lamulia, Ntugi, Kinyaritha, Chugu, Wendo and Kirimara. Also TSEs in Laikipia West, Nyahururu, Wiyumiririe, Timau, Imenti North, Igembe, Tharaka or Kirinyaga.**

**We will be at your service.**

**Thank you.**

*Thoughts leads on to purposes; purposes go forth in action; actions form habits; habits decide character; character fixes our destiny.*



# MAZINGIRA BORA

NOT FOR SALE.

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### KIMERU VERSION

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**The International Small Group and Tree Planting Program (TIST)**

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Uhandi wa miti ni ugutethia muno hari kugachiria maria maturigichirie hamwe na gukinyiria vision 2030.

## **TIST: Kumenya Kugwata murugutira Nthigurune na Kugaruka Kwa Riera.**

Arimi babaingi ba TIST kumania na semina, moritani nja ciao na biuthuranone bingi ibendaga kuthoma mantu jaria jegie kugwata murugutira nthigurune na uria juthukagia ruugo. Gaseti ya mweri juju niciejene na ikatharira arimi baba nab aria bangfi bakwenda kumenya bwega kugaruka kea ruugo na kugwata murugutira nthiguru Kugweta mung'uanano jumwe ni; Ngai ya Elnino ya 1998 iria yaurire guntu gukwingi mono nthigurune na nyumene kwaara igiita riraaja na Tsunami ya 2004 na oorua nka-

mia iria yagwiire naria Nyahururu yakunika nkuruki ya Ika igaana cia munda. Untu bungi buuria bukwoneka ni kuthira kwa nkamia kirimene kia Mt. Kenya na kwithirwa kuri na ngai utiumba kumimenyera mwanka yatuma imera biathuka guntu gukwini, nduuji ciongwa amwe na ithima ni binyarite.

Tukambiria na kuthoma ngugi na kweresa uria miti yaku yiumba kurita kenda irigiria kurugutira kwa nthiguru.

**Kurugutira kwa nthiguru nimbi?**

Kurugutira kwa nthiguru ni kwongereka kwa murugutira juria jwithagirwa jurio nthugurune juria jutumaga kwithirwa gukireta ugaruruku kiri riera.. Nthiguru yarugutira nitumaga mubangi jwa ngai iria iuraga jugaruruka.,gwitia kwa migombe ya iria, imeera bikarega kubua na imera bikaringika mono amwe na nyomoo cia kithaka na antu. Riria ataaramu baragiria mantu ja kugaruka kwa nthiguru beethegirwa bategeerete mono kurugutira kwa nthiguru kureti ni mathithio ja antu..

**Nthiguru ni itite na Mbere ikigijaga murugutira?**

Nthiguru niirugute mono na 1% F ndene ya miaka 100 iria ithiri. Ataaramu barithugania mathithio ja antu nijo jatethagiria kurutira kwa nthiguru, Mung;’uanano ni kuuthia into biria bithithagia maguta na miruki iria yiumaga nthiguru.

**“Greenhouse Effect” nimbi?**

Iji ni thina iria yiumaga riria murugutira jwa ingia ndene ya nthiguru niuntu bwa miruki imithuku ta Carbon Dioxide, Nitrous Oxide, Sulphur dioxide na Methane igwata inya ya riuu. Miriku iji yiumanagia na kurika miti kwa wingi, toogi iria yiumaga kiri macini cia kampuni, toogi ya ngari, toogi ya makara na kwiithua kwa muti.

**Nthiina Iria ciumanagia na kurugutira kwa Nthiguru Ni iriku?**

Kunyia kwa ruuji Rwanda kuria gutumaga guntu gukingi kua Rwanda. Gutambaa kwa mirimo ta malaria .Oo uria nthiguru ikugwata mwanki niu rwagi rwitaga mbere kuingia na antu bakagwatwa ni murimo. Nja inyingi ni iringikaga na cibitari cietu na miturire ya antu ikanyia na twana tukanyia miturire.

Maketha jakanyia mono nthiguru cai Africa niuntu bwa ngai kunyia na kwingia kwa tunyamu twa nthiguru niuntu bwa kwongereka kwa murugutira. Imeera bigeeta na mbeere kunyia mwanka ukia bukaingia amwe na mpara ndene ya njaa cietu.

Maguri ja irio ja gaitia mono. Oo uria arimi bakwaga

maketha nou uguri bwa into bugwitia niuntu wendia bwa into buri iguru ria uria bikuonekana.

Kuri na ugaruruku kiri onoru bwa miunda na na kuthirua kwa miitu. Ithima bigeeta na mbere kunyia na kugwa mwanka ruujii rwa kurima na ru rukaura amwe na ruuji rwa kurita sitima. Guntui gwetu kuria kwendaga sitima ta cibitari gukaringika mono. Kinya nduujii cietu cia miberethi ikanyia.

Mamillioni ja antu bakeethirwa bari na ugwati ta bwa gukondorua ni miguu ta gutobokerwa ni irima kuria kuretagwa ni wingi bwa ngai iria ijaga tutimirigirite na gwitia kwa iria.

**Njira iria tumba gutumira kurigiria kwongereka kwa murugutira ndene ya nthiguru.**Uuandi bwa Miti.

Tauria tugwetere ruugo ruthuuku niru rutumaga nthiguru igia murugutira. Miti irijaga ruugo ruru ruthuku na ikarwika mitine jungwa ns mirine. Na riria miti ikarikwa ruugo ruria ruthuuku ruri muti jugwikite rugacoka ruugone.

**Ni wiji Oo muti nijuthithagia riera?**

Muti na kirundu kiaju ibikunikagira nthiguru. Riria nthiguru ikagia mugunye, nthiguru niumbaga kugwatiira ruuji igita riraaja. Kwou ikwonesia miti iria iri mundane jwaku nitethagiriria kugwatira ruuji muthetune kagiita gakaraja. Ikwonesia miti igatetheria imera amwe na baria batumagira ruuji aniini.

**“Carbon Credits” ni mbii?**

Nkuruki ya miaka 10 iria ithiriite nthiguru inyingi iciacainirie iretikaniria oo nthiguru ikariaga ruugo ruria oo nthiguru ikathukia. Wirane bubu bwitagwa Kyoto Protocol. Wirane bubu bwaerwa rwita riri kumania na Town ya Japan iria itagwa Kyoto aria bacainire wirane bubu.

Kumania na wirane bubu bwa Kyoto Protocol nthiguru iria iri na ikurite kii kuthithia into icietikiririe kunyia ruugo ruthuku ruria baritaga. Njira ya kuthithia uju ni kurita ruugo ruthuku rugone na kuruika miriine ya miti na mitine. Miti ikuchagia ruugo ruru ruthuku kuuma ruugone



na njira ya photosynthesis na ikarwika mitine na mirirne mwanka muthetune. Gukuchia guku kwa ruugo ruthuku ikwendagua thokone ya nthiguru na aguri ibaguraga “carbon credits” iji kenda banyia ruugo rwa ruria baritite ruugone.

Kwa mung’uanano, TIST niumbaga kwendia ruugo ruuthuku ruria ruriti ruugone rwekwa mitine ta uria uguraga iria kana sukari. Biashara ya ruugo ruru ithithagirua New York, Chicago, London na town ingi inkai. Ndene ya thoko iji ruugo ruru niruguragwa na rukendua na kithimi na mbeba inyingi. Kuri na ithimi na masabu jataragwa kenda boomba kumenya kithimi kia uria arimi ba TIST bombite kunyia ruugo ruru ruthuku ruugone. Meenya aja ati ti muti jungwa jwikagua thokone. Mitine itigagwa miundene yetu na o igita riria igukara miundene yetu nou ikwonere murimi mbeba. Kwou murimi niwe withagirwa ari na miti, matunda amwe na makandamia. Mbeba iria TIST ithukumaga iriaga arimi bao ba tukundi tunini. Kwou waandi bwa miti uburetagira murimi mbeba niuntu miti niirijaga ruugo ruuthuku. Njira iji na wooni bwa mbeba niyo itagwa “carbon Credits” Miti iji kinya nituretagira into ta ndawa, mbau na into bibiingi.

### **Miti yonthe ni ikuchagia ruugo ruthuku umwe?**

Aari. Oo uria muti jiri na umatu bubunnene niu jwikaga ruugo rurwingi nkuruki ya muti jumucheke. Kinya miti imiraaja nou ikuchagia ruugo rurwingi nkuruki ya miti imikui. Kwou, miti iria mimatu ikaretera murimi mbeba inyingi. Kwou ikwonani

## **Uria munda jwa Miti jubwirite kwithirwa jukari kenda utarirwa.**

Ndene ya ntura cienu kuri na aritri ngugi ba TIST beetagwa Atari ba miti (Quantifiers). Baandiki ni kenda beejaga kwona uria miti yaku ikari. Ibejaga ns ithabu ria miti yaku, utiganu bwa miti, waarii, uria aria uandite miti gukari na mbica ya kamunda kau. Mantu jau jonthe jendekanaga kenda tuumba kumenya mbeba iria gikundi ing’ana oo gikundi kibwirite kuriwa na kenda bwithirwa buru ukuuji kiri aguri ba ruugo ati miti iu irio.

Kenda tuumba gutetheria ataari ba miti ba Kenya boomba kurita ngugi yao bwega kuri mantuu jaria tukundi twa TIST tubwirite kuingia.

miti iria iandi itaraniritie bwega iri na kaanya ka kumata na kurea. Iticindanagira biakuria muthetune na ruuji nkuruki ya iria iandi iinyene.

Kwou, kenda imba kwona mbeba injega kumania na miti buri bata kwaanda miti yaku itaranititie bwega kenda yumba gukura iri na inya irei na imati.

### **Inaa/Ibaau baguraga ruugo?**

Mwanka nandi thoko cia kwendi ruugo ni inya:

1. Certified Emission Reductions (CERs) for Clean Development Mechanism (CDM)  
Iji niyo irungamagiira agurii baria anene ba ruugo. Carbon Credits no mwanka itegeerwe na ikurukuwe iri ndene ya CDM ni nthiguru iria nene iria citikaniririe kunyia ruugo ruuthuku nthigurune iria itagwa Kyoto Protocol. Mantu ja kuraitha jathithagua ni kiama kia giaonka kia Designated Operational Entries (DEOs) na igakurukua ni kiaman kia CDM.
2. Thoko ingi iria yeendaga Verified Emission Reductions ni Non-Kyoto compliance. Thoko ya USA iria iti kiri Kyoto. Nthiguru imwe nikwenda kunyia kwa ruugo ruthuku ruugone. Iji iri na mwanya na CDM kinya kethira kinya yo nikwenda yamba gutegerwa ni gukurukua.
3. Kuri na thoko ijiri cia guciendera. Ya mbere ni kathoko kanini ka antu baria baciejene kuejana mbeba kenda boomba gwikira antu mwoyo jwa kuanda miti.

### **Uria kibwirite kujuria:-**

- a) Miti ithirwe iandi na laini kwombikana
- b) Miti ithirerue kithaka na iria kenda yumba gutarwa bwega.
- c) Miti ithirwe iri na inya
- d) Gutaaraniria bwega kuringana na mithemba ya miti (3-4M)
- d) Kwithirwa mutari wa miti akiumba kuthi-uruka muunda juo jwa miti.

Eene miti baria bari ba gikundi bacaine fomu ya uteri bwa miti ikionagia ithabu riongwa. Bub



nibwendekanaga kenda gikundi kiumba kuriwa. Ithabu no mwanka rithirwe riri ria ma ritari muti



TIST Quantifiers kuuma Ntugi Field Office imagitarira mumemba wa gakundi kanini miti yake.

kwa muti. Gikundi no mwanka kione ati uteri buri umene tontu bukethirwa buti mee gikundi gitiriwa



TIST Quantifiers kuuma Kinyaritha Field Office magitarira mumemba wa gakundi kanini miti yake.

## Waandi bwa miti: Kurimira.

Tontu ngai ikwambiria ,nubwiritie kwithirwa nandi uthamiritie mbeu yaku mundane. Ukehtirwa utithithities uju, nubwiritie kuthithia na mpwi. Miti yaku nibwiritie kwithirwa yaandi nandi ngaine kenda yumba kuuma na ikura na inya kenda yumba kuumiria kwaara.

Itubwiritie kumeenyera mbeu cia miti kenda ciumba kugwata ir na inya. Untu buria burina bata nandi ni kurimira. Iika aria uandite miti yaku kwithirwa kutheri kuura iria riria riumite ari waandite miti.

Kurimira miti kuri na gitumi niuntu bwa:-

Miti yaku nikwenda ruuji, mborea na weru kenda ikura na inya. Gukethirwa kuri na iria bigacindanira into bibi. Iria rigatumira mborea na ruuji oo biria miti yaku ikwenda. matunda na miti yaku ikaaga inya na yoomba kurega gukura.

Ikethira aria waandite waandite miti gutirimiri tunyomoo tukejaa o. Tunyomoo twomba kuthukan-

gia na kuuraga miti yaku.

### Aja kuri na mawega ja kurimirira aria uandite miti yaku.

- Miti ni ikuraga na mpwi tontu iria ritikuria biria biendekanaga muthetune kana kunyua ruuji kuuma muthetune.
- Miti igakura I na inya na ikareanga na mpwi.
- Miti ikoona weru bwa riuu itikurigiirua .
- Miti ikethirwa ikigwatwa ni mirimo.
- Miti ikethirwa irigiritue kuithua ni mwanki.
- Aaria iandi ikwonania gikundi ikemenyagiira miti na iji mbica injega ya TIST. Buu bugakuchia antu babaingi kwija kwona miti yaku.
- Miti iria antu atheru nitarikaga ns mpwi mono.

Riikana kumeenyeara miti yaku itikariwe ni ndithia cietu (ta mburi) kana gukinyangwa. Thuga-

## Waandi bwa Miti: Kuthamia.

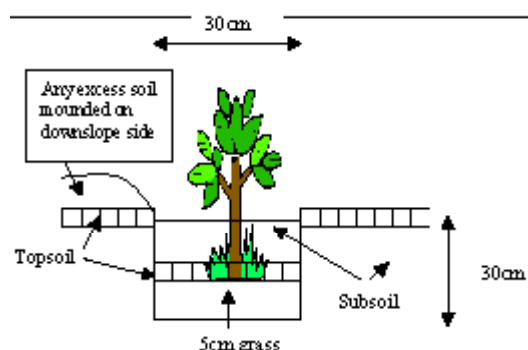
Ukethirwa utirathamia miti yaku kuuma nasarine, thingata njira iji kenda igwata :-

- Kamata miti yaku irungi
- Ikira arama ya kithiuruko kia 30cm mundene.
- Rita muthetu jwa iguru ujuthuranire amwe
- Rita muthetu juu jungi kworokera kwa 30cm na umiike antu angi mwanya.
- Tandika nyaki injumo irinyene 5cm. (nagine injumo na riuene imbithi)
- Ikundi bimwe ni bionagira mboreo.
- Rita muti jwaku kamubukone ka nylon . Ukathuthura muthetu juria juri mirrine ya kamuti.
- Ikira mbeu yaku irinyene.
- Cocki mutheru jwa iguru mbere ucoke wikire

ju u jungi.

- Ikundi bimwe bitithikaga irin ya buru indi no utige centimita inkai kenda ruujnui rwa ngai rutonya muthetune .

Kundia kamuti gaku ruuji.





# Mariiko: Riiko ria gutumira nku inkai.

Mariko jaja ni ijariku?

Antu babaingi Kenya no batumagira mariko ja maari jathatu. Jaja jatumagira nku inyingi na mpwi. Mariko jaja meeru jaakagwa na ntaka na jatumagira nku inkai na toogi niuamaga riikone bwega.

Biria biendekanaga kuthithua marikone jaja ni ntaka na ruuji.kwou ni ja ngarama inkai na maendeleo ja raisi ja nja.

**Weega bwa Mariko jaja meeru orinagnithia na jaria makuru.**

## 1. Kiri mutumiri.

- Jatumagira nku inkai.Nku iria itumagirwa ntuku ithatu marikoone jaria makuru jiomba gutumirika kiumia kimwe kiri mariko jameeru.
- Muruutira ni jukaraga igita riraja rikone ririeru tontu jwithagirwa juri riikone ndene.
- Jutiumba kugwatithia gintu na mpwi tontu mwanki ijwithagirwa jukunikiri.

- Irijinyiagia ngarama ya kugura nku.
- Nirionokagia thaa inyingi cia ekuru baria bacuaga nku.
- Riiko riri niritumagira mwanki jumwe kuruga nyongu ithatu,kwou ijunyiagia utumiri bwa nku.
- Toogi niumaragua rikone kwou nijiagia mirimo iria iretagwa ni gukucia toogi.

## 2. Kiri biria bituthiurukirite (Environment)

- Kunyia kwa utumiri bwa nku nikutethagia:-
- Ikunyiagia winyangia bwa miti.
- Ikurigagiria nguntu gutikae rwanda.
- Nikurigagiria muguu
- Nikumenyagirira ndujii na ithima.

Nikenda tuumba gwaka riko riri into bibi nibio

# Obici ya Lamuria:Gwita na mbere ku-ritira ikundi ngugi.

Obici ya Lamuria Ithagirwa iri ndene ya Laikipia East district na yankene na obici ya Naromoru na TSE ya Wiyumiririe.

Turitaga ngugi na guntu gukuumo.kuuma mwanka jwa 2004 riria twambirie TIST,turi na ukuuji bwa kwongeeraka kwa miti.Aturi ba guku ni baciejene na ibaigitue mwito jwa waandi bwa mitii kenda tumbakugarura guntu guku.

Amwe na uandi bwa miti ikundi bietu ni biritite ngugi ingi cia gwita na mbere ta waaki bwa mariiko jameeru na urimi bubwega (CF).

Irekeria rietu ni kuanda miti imingi kenda tuumba kwinga ukia buru guntu guku gwetu.Mwanka nandi nitumbite gukinya guntu ja Arbon naaria Mweiga,Lamuria,Mitero, Njoguini, na twandikithia ikundi 300 biri biandite miri 15300 mwanka nandi.

# YEAR 2009

1

## JANUARY

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

## FEBRUARY

SUN	MON	TUE	WED	THU	FRID	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

## MARCH

SUN	MON	TUE	WED	THU	FRID	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

## APRIL

SUN	MON	TUE	WED	THU	FRID	SAT
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

## MAY

SUN	MON	TUE	WED	THU	FRID	SAT
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

## JUNE

SUN	MON	TUE	WED	THU	FRID	SAT
	1	2	3	4	5	6
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21	22	23	24	25	26	27
28	29	30				

## JULY

SUN	MON	TUE	WED	THU	FRID	SAT
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

## AUGUST

SUN	MON	TUE	WED	THU	FRID	SAT
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

## SEPTEMBER

SUN	MON	TUE	WED	THU	FRID	SAT
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

## OCTOBER

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

## NOVEMBER

SUN	MON	TUE	WED	THU	FRID	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

## DECEMBER

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	



# MAZINGIRA BORA

## Ngatheti ya Mweri wa January 2009

NOT FOR SALE.



[www.tist.org](http://www.tist.org)

**KIKUYU VERSION**

**The International Small Group and Tree Planting Program (TIST)**

An Environmental, Sustainable Development and Community Forestry Program.



Uhandi wa miti ni ugutethia muno hari kugachiria maria maturigichirie hamwe na gukinyiria vision 2030.

**Kuma kuri Mwadiki**

## **Kumenya iguru ria wongerereku wa urugari thi hamwe na uchenjia wa riera.**

Aingi a arimi a TIST - Kuhitukira mitaratara mithemba na mithemba nginya hamwe na themina cia TIST, Urutani wa maturaini na michemanio ya ikundi – nimakoretwo mari na wendi na wetereri munene guthoma iguru ria wongerereku wa urugari hamwe na uria mangiagiria. Ngathiti ino ni ikirite na kinyi nigetha guteithia andu aria mangienda kumenya iguru ria wongerereku wa riera hamwe na uchenjia wa riera. Nigetha kuheana ngerekano, hari maundu mahanikite makonainie na wongerereku wa riera bururini, maya nita; mbura ya Elnino

ya mwaka wa 1998 iria yachungiri-ire ng'aragu nene muno, ingi nita ruhuho runene -tsunami – rwa mwaka ya 2004 na mbarabu iria yonekanire mwena wa Nyahururu. Maundu mangi monekanite nita guthira kwa mbarabu kirimaini gia Kirinyaga, riera ritaramenyeka uria ritarii na kuniara kwa icigo iria ikoragwo ciarahite mai guku buruini.

Tukwanjiriria na kumutariria maritwa. Niu-guthoma uria miti iteithagia kuhurana na kuingiha kwa urugari guku thi.

[www.tist.org](http://www.tist.org)

*P.O Box 1508 Nanyuki, Kenya*

**Wongerereku wa urugari ni kii?**

Ni wongerereku wa urugari thin na ugachungirira uchenjia wa riera. Thi irina urugari muingi no itume uria mbura yuraga guchenjia, mimera yage gukura, mimera ichenjia makiria, nyamu cia githaka nacio icenjia orohamwe na andu na muikarire wao. Riria ataaramu mararia iguru ria uchenjia wa riera, makoragwo makiria makirora mawira maria andu marutaga.

**Urugari thi niwongererekete?**

Ii! Gwa kahinda ka miaka 100 thi niyongerekete urugari na gichunji gia 1°F. Ataaramu aingi marageria gwiciria ati maundu maria ithui ta andu twikaga nimo machungiri-ire wongerereku wa urugari uyu. Maundu maya nita; takataka hamwe na indo ingi iria tuhuthagira nigetha gutwarithi na mbere iganda citu.

**Machungirira ma Greenhouse nikii?**

Machungirira ni wongerereku wa urugari niundu riera riria rithiaga rieraini ta; carbon dioxide, nitrous oxide, sulphur dioxide, na methane ni rigiragia hinya wa riuu ukinye thi uria kwagiri-ire. Riera riri ria Carbon riumananga na; Gutema miti, riera riria riumaga igandaini citu hamwe na mitokaa itu na guchina miti, makira kana mititu.

**Ugwati wa wongereku wa urugari thi nikii?**

- ❖ Ichigo nyingi cia mai hamwe na iria ciarahaga mai no ciume.
- ❖ Wongerereku wa mirumi ta malaria niundu wa ichigo nyingi kugia na urugari, na nogwo citumaga rwagi rwongerereke na machungirira malaria makongerereka. Andu aingi hamwe na mathibitari makagomerwo ni mariria na machungirira muturire wa andu ugakuhiha na ciana nyingi igakua.
- ❖ Magetha makanyiha muno makiria mabururini maingi na makiria mabururi maria mari gichigoini gia irathiro ria Africa. Niundu wa unyihu wa mbura hamwe na wongerereku wa tutambi kumana na wongerereku wa urugari, magetha nimanyihaga na gukagia na ngaragu nene muno ichigoini citu.
- ❖ Thogora wa irio ukongerereka muno. Magetha ni manini na ubatari wamo ni muingi na kogwo thogora ukambatira muno.
- ❖ Maundu maingi maria matuthiururuki-irie na makiria mititu ni ichenjetie muno. Ichigo

nyingi iria ikoragwo na mai ikaniara na kogwo urimi wa irio ukihuthira mai ukarituha makiria niundu wa kwaga mai hamwe na kuniara kwa njuu nini. Uu no gutumaga ichigo iria irutagwo hinya wa thitima itharare. Iganda citu, mathibitari hamwe mathukuru maria mahuthagira hinya wa thitima magatharara. Mai ma miberethi ichigoini citu hamwe na maturaini magatharara aro namo.

- ❖ Makiria ma andu million 10 mari ugwatini wa kugumirwo ni kiguo na kumomoka gwa iharuruka na irima nene. Niundu wa wongerereku wa hinya wa mbura na uchenjia wa githimi gia gichuaini.

Ben, tukigweta machungirira maya me haha iguru, niturahota kwonia murimi uria wongerereku wa urugari uri ugwati munene. Wakeri, machungirira maya marihaha iguri nimonekete. Wagatatu, murimi nionete bata munene wa kuhanda muti. Orona kuri ouguo, mwandiki ndarenda gukumkia no arenda gukumenyithia.

**Uria tungigiririria wongerereku wa urugari thi Kuhanda miti**

Tauguo twa gweta hau iguru, riera ria Carbon ni rimwe riria riongagirira urugari thi. Miti ni ihotaga kunyua carbon iria ikoragwo rieraini na ikamiiga mirini, ndumbi-ini na tirini wago. No riria miti yatemwo na ya chinwo ni ihotaga kurekereria carbon iria yeigiire na igathii rieraini ororingi.

**Niui ati oro muti no uhote guthondeka kariera kanini kega?**

Miti hamwe na machangi maguo ni ihotaga kuhethia thi. Hindi iria tiri utari na urugari muingi, noguo uhotaga kuiga mai maingi. Uu nitakuga ati muti uria uri mugundaini gwaku niugutuma mai maria mari tirini maikare makiria. Mimera yaku ni iguteithika na mai nimakwongerereka gichigoini giaku kana kianyu.

**Carbon credits ni kii?**

Makiria ya miaka ikumi mithiru, mabururi maingi nimaiguithani-irie ngirimitini ya urumwe wa mabururi (UN) iri metikaniri-iri uria mabururi macio makugeria kunyihanyihia kiria mathukia. Witakanirio uyo wetagwo “Kyoto Protocol.” Ritwa riri riaumanire na mucii umwe uri bururini wa Japan



kuria ngirimiti ino yetekani-irio.

Kuhitukira Kyoto Protocol mabururi maingi ni mageretie kunyihanyihia riera ria carbon dioxide. Njira imwe ya kunina riera riri ni njira ya kurinina riera-iri na kuriiga mitiini. Mirti ni ihotaga kunyua riera riri hindi iria irathondeka irio ciaguo na ikari-iga tirini kana thii wayo. Kunyuo kwa riera riri ni miti no kwendio na kunine riera ithuku riria rirekagiririo ni iganda ciao.

Kwa ngerekano, miti ni ihotaga kuyua carbon iria iri rieraini orotauria sukari uhotaga kunyuo ni iria. Wendi uyu wa ni utwarithagio na mbere mabururini ma New York, Chikago, London na mangi manini. Mabururi maya maguraga na thogora mwega. Kuri mathabu mekagwo nigetha kumenya gichunji kiria miti yanyu iria muhandite ininite gia carbon. Ririkana miti nditwaragwo ndunyu no iikaraga migundaini, na uria yaikara kuo noguo marihi maguthii na mbere na kurihwo. Kogwo murimi agukuria muti wake hamwe na akagunika na matunda maria uriciaraga. Mbecha iria TIST igiaga kumana na miti ino irihagwo arimi anini a TIST.

Na njira ini, uhandi wa miti no utwike njira njega muno ya kuimbaimbia muhuko waku tondu iri nyuaga na ikaiga riera ria carbon riria ritarendekana bururini. Mbecha ichi cionekaga kumana na unini wa carbon rieraini nicio ciitagwo Carbon credit.

Miti ni ikoragwo na mawega manini ta ndawa na mawega mangi maini.

### **Miti yothe inyuaga githimi kimwe gia carbon?**

Acha, miti iria iri na gitumbi kinene noguo ihotaga kunyua na kuiga carbon nyingi, miti miraya oronayo

ni ihotaga kunyua riera riingi. Kwogwo miti iria mitungu ni igukurehera mbecha nyingi. Uu nitakuga ati miti iria ihanditwo na utiganu uria wagiriire no ihote gutunguha na noihote kuraiha makiria. Miti ino ndichindanagira mai na tiri munoru ta miti iria ihanditwo ikuhaniriirie.

Nigetha ugie na mbecha nyingi niwega kumihanda na utiganu uria wagiri-ire nigetha ikure iri na hinya na inenehe.

### **Aria maguraga Riera riri ria Carbon Nima na mariku?**

Gukinyiria hau turi, kuri na thoko inya nene cia riera riri ria carbon.

1. Certified Emission reduction (CERs) niundu wa CDM.  
(CDM) niyo thoko iria nene muno. Riera riri nonginya rithimwo na ritikanirio kuma kuri CDM makihuthira mabururi maria manene marirungu rwa Kyoto Protocol. Kwona kana riera riri niriega gwikagwo ni ikundi thure mwana na ukahitukio ni anene a CDM.
2. Thoko iria ingi ni iria itari rungu rwa Kyoto bururini ya US, uria utari umwe wa Kyoto, icigo imwe nicirenda kunina riera ria carbon kuma igandaini ciao. Riria gikundi kierugamia kio kiene ni undu ngurani makiria gukira riria mitataraini ya CDM.
3. Kuri na thoko igiri cia kwirutira. Yambere ni thoko nini ithondeketwo ni andu aria merutiire kuheana mbecha nigethe andu mahande miti ta ngerekano ni kuriha ikundi iria cihandaga miti nigetha kuhurana na riera riri ria carbon.

## **Utari wa miti.**

Thiinii wa itura rianyu, wanaona Atari wa miti kuuma TIST ari tumetaga Quantifiers. Wira wao nigutara miti yaku, hamwe guthima utiganu wa miti, utungu wa miti na kuhra mbica miti yangu na kuthima ya mugunda waku uri hari mapu ya thi.

Matumagira machine cia komputa iria icokaga igatuma uhoro ucio kuri aguri a miti na niguteithagia hari gutara marihi ma miti hamwe na gukorow na uigiririku kuri aria maguraga riera na ni ma arimi nikakorwetwo makihand miti.

Koguo, nitwagiriirwo turi arimi tukowro turi and ehekeku. Aguri a riera nonginya matwihoke. Ni mahitia manene gukorwo na arimi amwe aria

magukorwo magitarirwo miti yao nno thutha wa kahinda kanini macoke mamiteme yothe.

Nigetha tugacirie mbiashara ino ya riera na hamwe guteithiriria Atari a miti, mugunda waku wa miti wagiriirwo gukorwo uhana ta uu:

- a. Miti ikirow ihanditwo na raini.
- b. Miti ikorwo ithereirio ria kana githaka ogiothe.
- a. Miti yaku ikorwo ina hinya na miti irakura wega.
- b. Mugunda uria uhandite miti ukorwo ati mutari no ahote kuuthiririuka.
- c. Utigithania wa kuuma kuri muti nginya uria



ungi ukorwo wi mwega.

Ene miti ( amemba a gikundi kianyu) nimagiri-irwo ni gusaini form ya quantification iria koragwo na quantifiers. Form iyo magusaini gwitikira ati ithabu ria miti yao iria yatarwo ni quantifiers ni ria ma ( hangikorwo na nganja niwagiriirwo wee hanwe



TIST Quantifiers kuuma Ntugi Field Office imagitarira mumemba wa gakundi kanini miti yake.

na atarai muchoke mugunda ringi na mutare wega).

Kungioneka thutha-ini ati, ithabu rianyu ria miti tirio ria ma, gitumi ta kiu nogitume magwe kurihwo na muingatwo kuuma mradi wa TIST kungikoneka thutha wa uthuthuria ati ithabu rianyu



TIST Quantifiers kuuma Kinyaritha Field Office magitarira mumemba wa gakundi kanini miti yake.

## Urimiri wa miti.

Riu tondu mbura niyambiriirie niwagiriire gukoruo urutite mimera giitiro-ini ukamituara mugunda. Angikoruo nducenjetie mimera wagiriiruo Gwika uguo na ihenta ouria kungihoteka.Mimera yaku yagiriiruo gucenjio riu nigetha ikure na hinya kimera kia mbura na ihote gutoria kahinda kariua.

Twagiriruo kumenya niturarora mimera itu nigetha ihote gutuika miti inahinya.Undu uria munene andu mareka mweri uyu nikurimira mimea yao.Kuiga haria mimea yao iri hari hatheru ouria kungihoteka.Kuruta ria oriothe riria rirakura hakuhi na mimea yao.

Kurimira kuri bata nitondu wa itumi aci.

Mimera yaku niyendaga mai,tiri na utheri nigetha ikure iri na hinya.Angikoruo kwina ria nicicindanaga na mimera yaku. Ria rihuthagira tiri na mai iria mimera yaku yendaga.Maimirira niati mimera yaku noikoruo itari na hinya na iremuo nigukura.

Ongikoruo mugunda waku nduri na aria nogukoruo na tunyamu tuingi tuguciririo ni mugunda. Tunyamu tuu ni tuthukagia na tukoraga mimea yaku.Kwina ria inini,mweke munini noukoruo uri

wanyoka na tunyamu tunini.

### Mawega ma kurimira miti yaku.

- Miti ikuraga na ihenya nitondu ria ritiriaga tiri na mai kuma tiri-ini.
- Miti noikoruo ina hinya na ikure iri minene gwakahinda kanini.
- Miti noikoruo ikiona riu riria irenda.
- Miti niigiragir iti ndinyitaguo ni mirimu miingi.
- Kurimira miti ni kugiragiriria kugwata kwa mwaki wa githaka.
- Gutheria mugunda nikumenyithagia ati tuku-ndi tunini ni mamimenyagirira na nimiega. Kwamuhiano TIST program.Ino niigucagiriria andu aingi magoka na makona wira wanyu.
- Gutheria niguteithagiriria atari (*quantifiers*) gutara miti naihenya na wega.

Ririkana kugiriria mimera nigetha mahiu (kwamuhiano mburi) itiramiria kana kugerera kuri yo.Irigira mugunda kana thiururukiria mimea ina miigua.



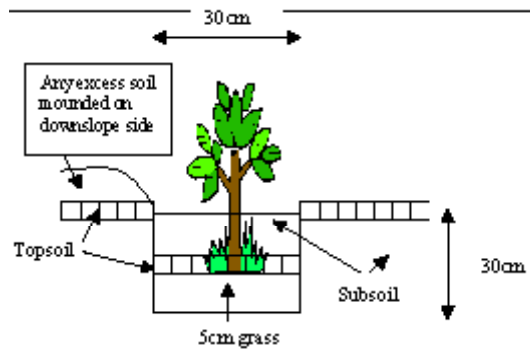
# Uhandi wa miti.

Ongikoruo nducenjetie mimera yaku kuma giitiro- ini, wagiriiruo ni kurumirira njira ici nigetha mimera yaku iture muoyo.

- Twara mimea kuringana na uria iminene.
- Cora githiururi haria urenda kuhand muti waku kina warii wa 30cm kana fiti imwe.
- Enja irima na uige tiri wa iguru kamwena- ini.
- Ruta tiri ucio ungi nginya uriku wa fiti imwe na tiri ucio ndugatukanio na waiguru.
- Ikira nyeki 5cm(nyeki nyumu hindi ya mbura,nyeki njigu hindi ya riuwa),itaguo mulching.Ikundi imwe nicingagirira thumu owega.
- Ruta mimea iratathi- ini .Menyerera tiri Meyerera tiri ucio ndugakuange uria uthi-

ururukiirie miri.

- Handa mimera irima- ini.
- Ikira tiri wiguru mbere, ucoke wikire tiri wakeri.
- Ikundi imue itihuragia tiri irima biu, nimatigagia fiti nini. Niitethagiriria mai mambura kuingira
- Matigari omothe ma tiri nimaigaguo kam-



## Mariko meru: Energy saving Jikos

### Riiko riri niria muthemba uriku?

Andu aingi a Kenya nimahuthagira riko ria mahiga matatu hari kuruga. Riko riri nirihuthagira ngu nyingi na ihenya. Riko riri rieru riria rikorawo ri umbwitwo na ndoro rihuthagigira ngu nini na rigateithia kruta ndogo na nja.

Indo iria ihithikaga hari gwaka riko riri ni tiri na maai. Kuguo ni uhuthu kuriaka miciini itu.

### Mawega ma riiko riri kuringithania na matene

#### 1. Kuri ahuthiri.

- Riiko riri rihuthagira ngu nini. Mariko matene mahuthagira Ngu maita matatu omuthenya ngu icio nocihuthiruo kiumia kimwe na riko riri
- Urugari niuikaraga ihinda inene na mwaki ni uikaraga thi- ini wa riko.

- Nirigagiriria mitino ya mwaki, tondu mwaki ni murigichirie.
- Ninyihagia uguri wa ngu
- Ninyihagia mathaa kuri atumia magwetha ngu
- Riko nirihuthagiruo kurugiruo na nyungu ithatu, nicinyihagia mathaa na utumiri wangu.
- Ndogo nitwaraguo nja wariko na ikanyihia mathina mamwiri kuma kwi ndogo.

#### 2. Kuri kuria maturigicirie

Kunyihia uhuthiri wangu uteithagiriria kuri:

- Kunyihia gutemenguo kwa miti.
- Kunyihia gutherma kwa weru ( kundu kumu).
- Kurigiriria kiguu.

## Lamuraia Field Office: Guthii na mebere gutungatira ikundi.

Office ya Lamuria ikoraguo thi- ini wa laikipia East. ikoraguo ihakanite na office ya Naromoro na Wiyumiririe TSE.

Tutungatagira bururi ukoragwo na riuu rinene. Kuma twambiriria TIST 2004, nituri na wuiru munene wakuongerereka kwa miti. micii miingi andu nimetikirite TIST biu na magetikira ni ritana ria kuhanda miti nigetha macenjje.

Hamwe na kuhanda kwa miti tukundi tunini

thi- ini wa gwitu nimareka na nomarahota gukuria wira ta mariko ma jiko , kilimo hai Conservation farming (CF)).

Itumi citu ciakuhanda miti mingi, nigetha tunyihanyihie thina uria ukorituo ukigia itura riri. Nginya riu . Kuma riu ni nitutwarita nginya maturaini meru ta Arbon thi- ini wa Mweiga, Lamuria. Mitero, Njogu- ini. Tukundi tunini Magana matatu(300) nimeandikithitie na miti iria

# YEAR 2019

## JANUARY

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

## FEBRUARY

SUN	MON	TUE	WED	THU	FRID	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

## MARCH

SUN	MON	TUE	WED	THU	FRID	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

## APRIL

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

## MAY

SUN	MON	TUE	WED	THU	FRID	SAT
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

## JUNE

SUN	MON	TUE	WED	THU	FRID	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

## JULY

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

## AUGUST

SUN	MON	TUE	WED	THU	FRID	SAT
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

## SEPTEMBER

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

## OCTOBER

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

## NOVEMBER

SUN	MON	TUE	WED	THU	FRID	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

## DECEMBER

SUN	MON	TUE	WED	THU	FRID	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	