

# TIST

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### TIST Program Highlight of World Bank Conference.

The TIST Program came alive during a presentation at the World Bank in Washington, DC, USA on June 19<sup>th</sup>, 2002. The two-day staff exchange conference was held to bring together people working at the World Bank and people working in private industry. Patrick LeCoy of Dow AgroSciences, who visited Mpwapwa in July, 2001, had participated in the staff exchange program of the bank, and was asked to organize presentations of the TIST pilot project.

Four presentations were given which included the history of TIST, its successes, lessons learned, and what plans are for the future. The presentations included many pictures of TIST small groups in the Diocese of Mpwapwa planting trees, caring for nurseries, and implementing Conservation Farming best practices. People attending the employee exchange conference saw results and progress of the program and heard about lessons learned by the small groups.

Dr. David Sendalo, Zonal Director of Research and

### Mambo muhimu yaliyowakirishwa yahusuyo Mradi wa TIST kwenye mkutano wa Benki ya Dunia.



**HUU NI WAKATI WA KUANDAA VITALU KWA AJILI YA KUPANDIKIZA MSIMU UJAO WA MVUA.**  
*Miche ya kikundi cha Adeni Mazingira (Kongwa)*

### LATEST UPDATE FROM THE QUANTIFIERS – 04 JUNE 2002

- 652 Registered TIST Groups
- 650,876 Living Trees
- 273,542 Seedlings Ready for Transplantation

See Page 3 for more...

Development for the Ministry of Water and Livestock, and Chairman of the TIST Ltd. board from May 2000 to February 2002 was a guest of Dow Foundation and Clean Air Action Corporation, funders of the TIST program (pilot project). He was able to give an operational, on-site perspective of the program, which was a blessing at the conference and at subsequent meetings. Also presenting were Mr. Bob Charlton, vice president of Public Affairs at Dow Chemical Corporation,

Mradi wa TIST ulinekana kuwa hai wakati wa mawakilisho kwenye mkutano wa Benki ya Dunia mjini Washington, DC, USA tarehe 19<sup>th</sup> mwezi wa sita, 2002. Siku mbili za mkutano huo wa kubadilishana mawazo ziliwajumuisha watu wafanyao kazi katika Benki ya Dunia na watu wafanyao kazi katika viwanda na Mashirika binafsi. Patrick LeCoy wa Kampuni ya DOW Agro Sciences, ambaye alitembelea Mpwapwa mwaka 2001 mwezi saba (Julai) alishiriki katika mpango huo wa kubadilishana mawazo wa Benki ya Dunia, na TIST pia iliombwa kuwasilisha maada zake za mradi wa TIST.

Mawasilisho manne yalitolewa ambayo yalijumuisha historia ya TIST, Mafanikio yake, waliyojifunza na mipango yake ya baadaye. Mawasilisho yaliambatanishwa na picha nyingi za miti iliyopandwa na vikundi vidogo vidogo katika Dayosisi ya Mpwapwa, utunzaji wa vitalu, na kuanza matumizi ya Njia Bora za kilimo hai. Watu waliohudhuria mkutano wa mabadilishano ya waajiriwa waliona matokeo na maendeleo ya mradi na kusikia juu ya kile walichoijifunza wanavikundi wa vikundi vidogo vidogo.

*Inaendelea ukurasa wa 2*

Mr. Patrick LeCoy of Dow AgroSciences (who visited Mpwapwa in July, 2001), and Mr. Ben Henneke, President of Clean Air Action Corporation and co-leader of mission teams to the DMP from Truro Church, USA in 1998-2000. Each presenter gave a perspective of the TIST program. Also attending the conference were Barbara Gothard-Thompson from The Dow Chemical Company who came to Mpwapwa in the November of 2000; Jerry Martin who came to Mpwapwa in the summers of 1999 and 2001 and Doug Fountain and Vannesa Henneke, visitors to Mpwapwa many times.

Dow and Clean Air Action see TIST as a world class sustainable development program. Among the highlights of the presentation were:

- 975,000 live trees and seedlings quantified to date
- 652 small groups participating in the program
- 2-3 times the yield of maize from shambas planted using Conservation Farming best practices
- Most groups have received basic training in tree planting, conservation farming and small groups best practices
- Approximately 200 groups have received advanced training in tree planting, nursery maintenance and conservation farming
- The HMM is an important tool for spreading information on what is happening in the TIST program and sharing emerging best practices
- Replication of TIST has begun in Morogoro, Tanga, and southern India. Other areas of Tanzania, Uganda and Kenya are interested in beginning the project there.

During the week of the World Bank presentations, meetings were also held with the acting Tanzanian ambassador to the US and members of his staff, USAID, (a US organization that gives funds to projects all over the world), staff from the Namibian embassy interested in the program, and key US officials involved in the development of GhG policies.

The strength, dedication, encouragement and persistence of TIST small groups and their contributions to the pilot project were discussed again and again at the presentations and at the meetings. Look for further news in the HMM on how others will be benefiting from the examples set by the groups in tree planting, creation of nurseries, and Conservation Farming best practices.

## TAARIFA YA MWISHO KUTOKA KWA MAKWANTIFAYA – 04 JUNI 2002.

- 652 Vikundi vidogo vidogo vilivyosajiliwa na TIST
- 650,876 Miti iliyo hai
- 273,542 Miche iliyotayari kwa kupandikizwa.

Dr. David Sendalo, Mkurugenzi wa utafiti wa kanda ya kati wa Wizara ya Maji na maendeleo ya Mifugo, na Mwenyekiti wa Bodi ya TIST Ltd. kuanzia mwezi Mei 2000 hadi Februari 2002 alikuwa ni mgeni wa Kampuni ya Dow na Clean Air Action Corporation, ambao ndio wadhamini (Watoa fedha) wa Mradi huu wa TIST.

Aliweza kutoa ufafanuzi wa utekelezaji wa mradi, maeneo waliojifunza ambayo yanafaa kwa mradi, mambo ambayo yalikuwa ni baraka katika mkutano na hata kwa vikao vilivyofuata. Pia mawasilisho yalifanywa na Bwana Bob Charlton, makamu wa rais wa mambo ya jamii katika Dow Chemical Corporation, Bwana Patrick LeCoy wa Dow AgroSciences (Ambaye alitembelea Mpwapwa mwezi wa Saba, 2001), na Bwana Ben Henneke, Rais wa Clean Air Action Corporation na Muwezesaji wa kundi la wamisionari hapa Dayosisi ya Mpwapwa kutoka Kanisa la Truro, Marekani mwaka 1998 – 2000. Kila muwasilisha mada alitoa mtazamo wake juu ya mradi wa TIST. Pia waliohudhuria mkutano huo walikuwa ni Barbara Gothard Thompson kutoka Kampuni ya Madawa ya Dow aliyekuja hapa Mpwapwa Mwezi Novemba mwaka 2000, Jerry Martin aliyekuja Mpwapwa kiangazi cha 1999 na 2001 na Doug Fountain na Vannesa Henneke, ambao hutembelea Mpwapwa mara kwa mara.

Dow na Clean Air Action wanaona kanakwamba TIST ni kama Darasa la Dunia la mpango wa maendeleo endelevu.

Kati ya mambo muhimu yaliyowasilishwa ni pamoja na :-

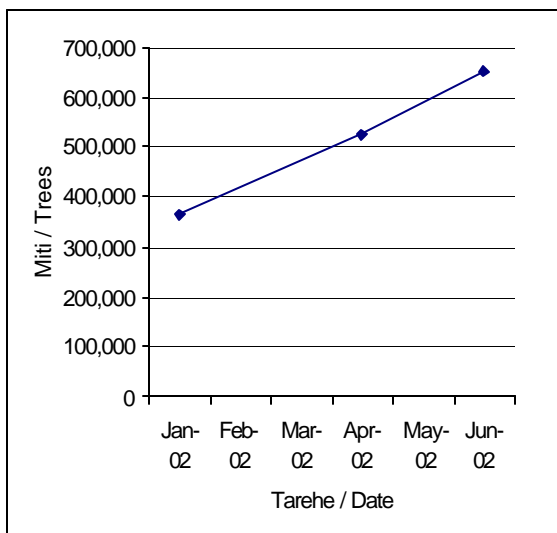
- Miti na miche 975,000 iliyohesabiwa mpaka sasa
- Idadi ya vikundi vidogo vidogo 652 vinavyoshiriki katika mradi mpaka sasa.
- Mavuno ya mahindi kwa kutumia Njia Bora za kilimo hai yameongezeka mara 2-3 zaidi ya ile **ya kawaida.**
- **Vikundi vingi vimepata mafunzo ya awali ya upandaji miti, Kilimo hai na Njia Bora za vikundi vidogo vidogo.**
- **Karibia vikundi 200 vimekwisha pata mafunzo ya hali ya juu katika upandaji miti, utunzaji wa vitalu na Kilimo hai.**
- Jarida la Habari Moto Moto ni chombo cha usambazaji habari kwa kila kinachotokea katika mradi huu wa TIST na kuwafahamisha Njia Bora za ziada.
- Uanzishaji wa mradi wa TIST katika maeneo mengine umeanza katika miji ya Morogoro, Tanga na Kusini mwa India. Maeneo mengine ya Tanzania, Uganda na Kenya yanahamu ya kuanzisha mradi huu.

Wakati wa wiki la mawasilisho ya Benki ya Dunia, vikao

## Tree Update

The TIST Quantifiers have recently been seeing record numbers of TIST groups each month. Last month one Quantifier pair saw over 50 groups! The Quantifiers make sure the TIST office has the most up to date information possible about all the small groups' trees. There are now over 924,000 trees and seedlings alive in the Diocese of Mpwapwa.

From the information the Quantifiers collect every month the TIST office works out the total number of trees and seedlings counted alive. Each month as the Quantifiers have visited more and more groups the total number of trees counted alive has gone up. This is illustrated in the graph, at the end of January there were less than 400,000 trees counted and now there are over 600,000.



The number of trees keeps increasing because the Quantifiers keep visiting new groups and recording their great efforts during the rainy season transplanting all the seedlings that had been counted before.

Many groups have planted similar trees; five the most popular species according to the Quantifiers surveys are:

Species	Trees Counted
Luciner	200,069
Mijohoro	171,735
Mimelea	117,847
Mjlonge	41,990
Papaw	18,222

The Deanery that has the most trees according to the most recent data is Mpwapwa, with Kibakwe second. When the groups in Chinyika and Mlali were last seen they still had lots of seedling to transplant, hopefully since the Quantifiers' visits these groups will have a chance to transplant their seedlings.

pia vilifanyika na kaimu balozi wa Tanzania na wafanyakazi wake, USAID, (shirika la US ambalo ndilo linalotoa fedha katika miradi mbalimbali Duniani), wafanyakazi kutoka ubalozi wa Namibia walifurahishwa sana na mradi huu, na maafisa wa serikali ya Marekani walihusishwa katika maendeleo ya sera za GhG (uuzaji wa hewa safi).

Juhudi, uaminifu, utiwaji moyo na uundwaji wa vikundi vidogo vidogo vya TIST na michango yao kwenye mradi vilijadiliwa tena na tena wakati wa mawasilisho na hata kwenye vikao. Kwa kuangalia kwa undani zaidi habari zilizomo kwenye jarida la HMM jinsi wengine watakavyoweza kunufaika kutoka kwenye mifano iliyowekwa na vikundi katika upandaji miti, utengenezaji wa vitalu, na Njia Bora za Kilimo Hai.

## Miti iliyohakikishwa mpaka hivi sasa.

Makwantifaya wa TIST wamekuwa wakiona /kuvitembelea vikundi vya TIST kila mwezi. Mwezi uliopita jozi moja ya makwantifaya waliweza kuona zaidi ya vikundi 50! Wakaguzi hao huhakikisha kuwa ofisi ya TIST ina taarifa ya kisasa zaidi ya uwezekano wa miti yote ya kikundi. Kwa hivi sasa kuna zaidi ya jumla ya miti na miche 924,000 iliyohai katika Dayosisi yetu ya Mpwapwa.

Kutokana na taarifa za Wakaguzi wanazokusanya kila mwezi ofisi ya TIST imetafuta jumla kuu ya miti na miche yote iliyohai. Kila mwezi kadri w akaguzi wanavyotembelea vikundi na kuhesabu miti zaidi na zaidi ndivyo kadri idadi ya miti na miche iliyohai inayohesabiwa inazidikuongezeka. Hii imeonyeshwa katika jedwali lililopo upande wa kushoto kwako, kuwa mwishoni mwa mwezi Januari kulikuwa na idadi ya miti iliyokuwaimehesabiwa chini ya 400,000 na kwa hivi sasa kuna miti zaidi ya 600,000.

Idadi ya miti inaendelea kuongezeka kwa sababu Makwantifaya wanaendelea kutembelea vikundi vipya na kunukuu juhudi zao kubwa walizofanya za kupandikiza miche yote ilikuwa imekwisha hesabiwa hapo mwanzo.

Vikundi vingi vimepanda miti inayofanana; Lakini miti ilipandwa kwa wingi ni miti aina tano kutokana na ukaguzi wa kwantifaya, nazo ni :-

Aina	Miti iliyohesabiwa
Lusina	200,069
Mijohoro	171,735
Mimelea	117,847
Milonge	41,990
Mipapai	18,222

Dinari zenye miti mingi zaidi kutokana na data tulizonazo hivi sasa ni Mpwapwa, ikifuatiwa na Kibakwe. Wakati vikundi vya dinari ya Chinyika na Mlali mara ya mwisho vilionekana vikiwa na miche mingi iliyokwisha kupandwa, ni matumaini yetu kuwa tangu wakaguzi walipotembelea vikundi hivi vilipata nafasi ya kuipandikiza miche yao kwenye mashimo.

Deanery	Seedlings	Trees
Chinyika	100,665	54,351
Kanisa Kuu	4,971	31,383
Kibakwe	25,030	146,965
Kongwa	4,629	51,668
Mlali	89,349	122,403
Mpwapwa	43,931	211,882
Zoissa	4,967	31,009

HMM will be providing fresh updates in the future about the trees that TIST small groups are planting. Safina group in Mseta deserves a special mention for having the most trees – over 34,000. The Amini group in Lupetta is second with nearly 25,000 trees.

## Crop Storage

Many of you will be thinking about how to best store your crops. To help discussions you might have in your small groups here are some of LITI's (Livestock Training Institute, Mpwapwa) suggestions:

### Storage and Preservation of Cereals (Maize and Sorghum)

- Let the harvested cereals dry in cribs for a long period.
- Prepare local natural pesticides for preserving cereals. See below for some of LITI's suggestions.
- Prepare granaries; construct or clean.
- Thresh the maize or sorghum and winnow it sufficiently.
- Mix the maize or sorghum with the local natural pesticide.
- Fill the treated cereals into the granaries.
- Cover the granaries for preserving the cereals.

### Natural Pesticides

#### 1. Goat Droppings Ash

- Collect enough goat droppings depending on the amount of grain to be stored.
- Burn the droppings to get ash.
- Wait for ash to cool.
- Mix three litres of ash with each bag (90-100kg) of the grain.
- Store the grain in gummy bags.

#### 2. Msakasaka (Maerna edulis)

- Take the roots of the plant.
- Pound and dry them.
- After drying pound again.
- Mix one litre of powder with one bag (90-100kg) of grain.

#### 3. Muondo (Entando phragma bussei)

- Take the bark of the tree.

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Zoissa	4,967	31,009

Jarida la Habari Moto Moto litakuwa likitoa taarifa sahihi na za kisasa zaidi hapo baadaye juu ya miti inayopandwa na vikundi.

Kikundi cha Safina cha Mseta kinasemekana kuwa ndiyo kikundi kinachoongoza kwa kuwa na miti mingi zaidi. Kikundi kina miti zaidi ya 34,000. Kikundi cha Amini cha Lupeta ni cha pili kwa kuwa na miti mingi baada ya Safina kina miti inayokaribia 25,000.

## Uhifadhi wa mazao

Wengi wenu mtakuwa mkifikiria juu ya Njia Bora ya kuhifadhi mazao.

Kwa kusaidia majadiliano ni lazima katika kikundi chenu muwe na baadhi ya mawazo/michango haya hapa kutoka kwa wataalam wetu wa LITI (Livestock Training Institute, mpwapwa).

### Hifadhi ya Nafaka (Mahindi na Mtama)

Kausha nafaka katika kichanja kwa muda wakutosha.

Andaa dawa asilia za kuhifadhi nafaka. Angalia chini kwa mapendekezo toka LITI (Livestock Training Institute, mpwapwa).

Andaa vihenge au vilindo.

Piga na Pepeta vizuri Mahindi au Mtama.

Changanya dawa ya asili na Mahindi au Mtama.

Jaza mahindi au Mtama katika vihenge au vilindo.

Ziba vihenge au vilindo kwa hifadhi.

### Madawa ya kienyeji ya kutunzia nafaka.

#### 1. Majivu ya kinyesi cha mbuzi

- Kusanya kinyesi cha kutosha kutegemeana na mazao unayohitaji kuyahifadhi.
- Choma kinyesi ili upate majivu.
- Acha yapoe.
- Changanya lita 3 za majivu kwa kila gunia lenye ujazo wa kilo 90-100.
- Hifadhi mazao yako kwenye magunia.

Msakasaka (Maerna edulis)

Chukua mizizi ya mmea.

Pondaponda na kausha.

Baada ya kukausha iponde tena.

Changanya lita ya unga wake pamoja na gunia la kilo 90-100 za mazao.

- Pound and dry bark.
  - After drying pound again.
  - Sift with a sieve to get a fine powder.
  - Mix one litre of powder with one bag (90-100kg) of grain. This should preserve the grain for up to a year.
- 4. Sunflower (Helianthus annuus)**
- Take the head of the sunflower.
  - Burn the dry sunflower head after the seeds have been removed to give ash.
  - Mix ash with grain.
- 5. Sugar Cane Palp (Succarum officinanin)**
- Collect the sugar cane palp – the leftovers after the sugar cane has been used.
  - Burn them.
  - Mix one litre of the ash with one tin of the grain.
- 6. Neem Tree – Miarobaini**
- Collect dry seeds of neem tree.
  - Pound them to give powder.
  - Mix one litre of powder with one bag (90-100kg) of grain.

## Dry Season Preparation

TIST njia bora suggest that now is a great time to start preparing for the next rainy season. While the ground is still soft it is easier to dig holes and so more work can be done. Holes can be prepared for crops and for planting new trees. Even if the holes cannot be completely prepared, e.g. with manure, they can still be dug. Now is also a good time to start nurseries so there are seedlings ready to transplant at the beginning of the next rainy season.

### Holes for Crops

LITI suggests:

#### FIELD PREPARATION FOR GROWING MAIZE AND SORGHUM

Do not remove stover from the field.

Do not burn stover in the field.

Prepare the planting holes in August - November 2002.

Dig the holes of the recommended size (1' by 1') and at the recommended row spacing (2' by 3').

In each hole, put two handfuls of farm yard manure.

Prepare terraces as recommended.

Refill the holes with soil up to half way.

Mix farmyard manure with soil in the holes.

Leave holes up to sowing time.

#### Holes for Trees

Last July experts came from Lachlan Agriculture in Nairobi. They visited the Diocese and recommended:

It is imperative that the preparation and planting of the

Continued on page 6

### 3. Muondo (Entando phragma bussei)

Chukua maganda ya mti.

pondaponda na kausha.

Baada ya kukausha pondaponda tena.

Chekecha iliupate unga mzuri.

Changanya lita moja kwa gunia moja la mazao. Hii itahifadhi mazao kwa muda wa mwakammoja.

### 4. Alizeti (Helianthus annuus)

Chukua suke la alizeti.

Kausha na kuchoma suke la alizeti baada ya kuondoa mbegu ili kupata majivu .

Changanya majivu na mazao.

### 5. Mabaki ya miwa (succarum officinanin)

Kusanya mabaki ya miwa yaliyokwisha tumika.

Yachome.

Changanya lita moja ya majivu na debe moja la mazao.

### 6. Miarobaini

Kusanya mbegu za miarobaini zilizokauka.

Pondaponda kupata unga.

Changanya lita moja ya unga na gunia moja la kilo 90-100 za mazao.

### Maandalizi ya wakati wa kiangazi.

Ushauri wa Njia Bora za TIST ambazo sasa ndiyo wakati wake kuanza kuziandaa kwa ajili ya msimu ujao. Wakati ardhi akiwa bado ni laini ambapo ni rahisi kuchimba mashimo na baadhi ya kazi nyingine nyingi zinaweza kufanyika. Mashimo yanaweza kuchimbwa kwa ajili ya kupanda mahindi au kupanda miti mingine mipya. Hata kama mashimo yatakuwa hayajakamilika, kwa mfano, na mbolea, yanaweza kuendelea kuchimbwa . Pia huu ni wakati mzuri kuanzisha vitalu , hivyo kuwa na miche tayari kwa kupandikiza mwanzoni mwa msimu mwingine wa mvua.

### Mashimo ya kupanda Mazao.

#### Ushauri wa wataalam wa LITI.

#### TAYARISHA SHAMBA LA KUPANDA MAHINDI NA UWELE.

Acha kuondoa mabua kutoka shambani.

Acha kuchoma mabua yaliyo shambani.

Mashimo yaandaliwe mwezi Agosti hadi Novemba 2002.

Chimba mashimo kwa vipimo vinavyotakiwa (30cm kwa 30cm) na umbali unaotakiwa kati ya mstali na msatli na shimo na shimo (60cm kwa 90cm).

Weka maganja mawili ya samadi katika kila shimo.

Tengeneza makinga maji kama inavyotakiwa.

Rudisha udongo kufikia nusu ya shimo.

Changanya samadi na udongo ndani ya mashimo.

Acha mashimo hayo mpaka mvua itakaponyesha.

#### Mashimo kwa ajili ya kupanda miti.

Mwezi wa saba mwaka jana walikuja wataalam wa kutoka Lachlan Agriculture wa mjini Nairobi. Walitembelewa

Iaendelea ukurasa wa 6

trees with the rains is done correctly and on time to ensure survival during this crucial first dry season after planting with no or minimal subsequent watering.

### Technical Advice.

#### Site analysis and hole layout.

Check the direction of the slope to determine water flow and run off during the rains. Avoid black cotton soils and areas that are prone to water-logging, or ensure that these areas are planted with species that can survive these conditions, such as Eucalyptus. Contour across the ridge to maximize water collection and minimize run-off and topsoil erosion. Tree holes will be best dug within the ridges. Identify the proposed use of the land beneath the trees. Inter-cropping will require wider spacing or avenue planting. Identify tree species to be planted and space according to species and use of that tree. (firewood and coppiced trees will be closer together than fruit and nut trees)

#### Hole and soil preparation.

Dig deep square holes. The bigger the better, but as a guide holes should be 60-100cm deep and 40-60 cm wide. Optimum is that the hole goes through the hard pan (depth varies from 18 inches downwards) into the sub-soil. This pan is not thick but requires a bit of sweat to break. Separate the topsoil from the panned, gravel soil and the subsoil. Mix the topsoil with farmyard manure, or mulch made from weed vegetation (cut and collected ahead of the weeds seeding.) Mix the sub-soil and pan soil with mulch and refill the hole, putting the topsoil/manure mix on top (into which the seedling will be transplanted.) Leave a few centimeters recess at the hole top to allow water collection and harvest. Place the soil balance below the hole in a semicircle, to aid rainwater harvest. Place a stick in the hole center to mark transplant spot. These preparations should be done 4-6 weeks ahead of the expected rains to allow soil/manure formation and settling, and to avoid clashing with work necessary for crop planting. (If it is possible to water the soil in the holes after preparation benefits will be derived from Microbial breakdown of the manure to useable elements.

## Preparing a Nursery

Choose a suitable place for tree nursery / Nurseries.

A place must have a slight slope of ( 1.5%)

A place must be out of floods.

A place must be nearly water source. (For example, water tap, River, canal or lake).

A place must have road, which is not seasonal.

A nursery place must be near a tree grove (a place where trees will be planted).

A place must not have clay soil or salty.

#### Seeds pretreatment.

Dayosisi ya Mpwapwa na walitoa mapendekezo yafuatayo:-

Ni muhimu au jambo la kushukuru kwamba maandalizi na upandaji wa miti wakati wa mvua yamefanyika vizuri na kwa wakati muafaka ili kuhakikisha kuwa kuna uhai wa miti ambalo ni jambo jema kwa msimu wa kiangazi wa kwanza baada ya kupandikiza kukiwa na upatikanaji wa maji kidogo au hakuna kabisa maji.

#### Ushauri wa Kitaalum

#### Maelezo juu ya sehemu ya kupanda miti na muundo wa mashimo.

Tazama upande wenye muinuko ili kutambua muelekeo na mtiririko wa maji wakati wa mvua. Kuweka makinga maji kwa zile sehemu zenye muinuko ili kuongeza kiasi cha ukusanyikaji wa maji na kupunguza kutiririka kwa maji ovyo na kuepuka mmomonyoko wa udongo. Mashimo ya kupanda miti yachimbwe vizuri kwenye miinuko. Tambua matumizi ya ardhi yaliyopendekezwa chini ya miti. Ukichanganya miti na mazao unahitaji nafasi pana au kupanda kwa uwazi. Tambua aina ya mti ambayo itapandwa kwa nafasi kulingana na aina na matumizi ya miti hiyo. (Kuni na Miti ya kawaida inaweza kuwa karibu zaidi kuliko miti ya matunda na miti ya mbegu za mafuta.)

#### Maandalizi ya mas himo na udongo

Chimba mashimo marefu ya mraba. Shimo kubwa ni zuri lakini, kwa kitaalamu yanatakiwa yachimbwe mashimo yenye urefu wa sentimita 60 – 100 na upana wa sentimita 40 – 60. Ni vizuri zaidi kama utachimba shimo refu hadi kupita lile tabaka la udongo lililo gumu Urefu wake unaweza kuwa inchi 18 kwenda chini, ndani ya tabaka la juu la ardhi. Tabaka hili lililo gumu sio pana au kubwa sana lakini huhitaji nguvu ya kutosha ili kuivunja sehemu hii. Tenganisha udongo wa juu na ule wa kwenye tabaka gumu, udongo wenye mawe mawe na ule udongo baada ya kupita tabaka gumu. Changanya udongo wa juu na mbolea ya samadi, au mbolea uliyotengenezwa kutokana na mimea ya magugu ( Yaliyokatwa na kukusanywa kutokana na mbegu za magugu). Changanya Udongo wa ndani kabisa na ule udongo wa kwenye tabaka gumu halafu ufukie shimo kwa mchanyiko huo, weka udongo wa juu/mbolea changanya juu (ambamo ndimo miche itapandikizwa). Acha sentimita chache za shimo bila kufukiwa ili kukusanya na kuvuna maji. Weka udongo upande wa chini wa shimo lako nusu duara ili kusaidia ukusanyaji wa maji. Chomeka kijiti katika shimo ili kuweka sehemu ambayoutapandikiza mche wako baada ya mvua kunyesha. Maandalizi yote haya ni lazima yafanywe wiki 4 – 6 kabla ya mvua ili kuwezesha mchanyiko wa udongo na mbolea kuchangamana vizuri na kutulia na ili kuepuka maingiliano ya kazi za upandaji wa mazao ya kawaida ambayo ni ya lazama. (Kama kuna uwezekano wa kumwagilia udongo wa shimo lako baada ya maandalizi itakuwepo faida hasa kwa upande wa mbolea kuchanyika vizuri na udongo na wadudu wadogo wadogo waliyomo kwenye mbolea hiyo.

## Kuanzisha bustani ya miche

### Kuchagua sehemu ya kuanzisha bustani

Sehemu iwe na muinuko wa kiasi (1-5%)

Sehemu isiwe na mafuriko wakati wa mvua.

Leguminous seeds have hard cover, which makes difficulty for air and water to penetrate to the inner parts of the seed. Therefore you supposed to pretreatment your seeds. E.g. *Acacia totilis*.

The hot boiled water should be poured into the seeds that were not sw allow from those which swallowed and then pretreatment them. There are so many techniques / methods of preparing the seeds e.g. by grinding with files, by removing the seed's outer part by using seed gun or hot wire, etc.

#### **How to prepare a nursery.**

A wooden frame of 25 – 30 cm height should be made (bricks or stones can be used). One side of the frame should be under the ground for 5cm as a foundation.

The width of the nursery can be 1m and length can have a certain CMS depending on the required size. The nursery has to be filled as follows: -

Down: Stones– 5cm

Middle: the mixed soil of the upper layer of the forest and the sands, half by half of 10Cm<sup>3</sup>

Top: Soft sands, which mud and dust have been removed – 5cm.

The nursery should not be filled to the maximum in otherwise the upper sand and seeds may fall down by water. On the top of the nursery the sands should be in one level and to compress by using flat wood. The nursery should be protected from the sun/ to be in shadow for the growing seeds by making a hut. Hut can be of the glass or sticks of the diameter 2cm that made with ropes of the length of 2cm from stick to stick.

All sides of the nursery should be open in order to get air.

#### **To sow seeds and how they grow.**

The seeds must be spread on the nursery. The twice space of the thick of the seed should be left from one seed to another in order to protect it from diseases not to spread. Seeds should be covered by soil as much as twice a thickness of seeds itself. The nursery should be watered every time by using watering cane very

Carefully in order the soil not to become too moisture. In the time of rain season seeds should be covered by mulching (dry grasses) tree shadow should be removed in order to avoid big water droops on the top of the nursery.

The germination process is deferred from one tree to another. Some seeds start geminate after one week and complete after two weeks e.g. *Tectona grandis* and *maesopsis eminii*.

Sehemu iwe karibu na maji ya bomba, mto, mfereji au ziwa.

Sehemu iwe na barabara inayopitika wakati wote wa mwaka.

Sehemu iwe karibu na mahali miti itakapopandwa.

Sehemu isiwe na udongo wa mfinyanzi au chumvi.

Kuhudumia mbegu kabla ya kuzisia (seed pretreatment)

Mbegu nyingi katika jamii mikundekunde (leguminosaceae) zina ganda gumu ambalo linazuia maji na hewa kupenya . Hivyo zinahitaji kuhudumiwa kabla ya kuzisia. K.m

Mbegu ya mgunga (*acacia tortilis*);

Maji yanayo chemka yamiminwe kwenye mbegu ambazo zitakuwa hazikuvimba zitenganishwe na zile zilizo vimba halafu zihudumiwe tena. Ziko njia nyingi za kutayarisha mbegu K.m. kuzisugua kwa msasa kuzikwangua kwa kisu, kutumia chombo kiitwacho bunduki ya mbegu (seed gun), waya wa moto (hot wire) n.k.

#### **jinsi ya kutengeneza kitalu**

Fremu yenye kimo cha sm 25-30 itengenezwe kwa mbao (matofali au mawe pia yanaweza kutumika). Upande mmoja wa fremu ulazwe kiasi cha sm 5 chini ya ardhi .

upana wa kitalu unaweza kuwa meta 1 na urefu meta kadhaa kutegemea na ukubwa unaotakiwa. Kitalu kijazwe kwa tabaka kama ifuatavyo:

Chini: kokoto –sm 5

Katikati: mchanganyiko wa udongo wa tabaka la juu la msitu na mchanga, nusu kwa nusu kwa ujazo –sm 10.

Juu: mchanga laini ambao mboji na tope lvumbi vimeondolewa –sm 5.

Kitalu kisijazwe mpaka juu kabisa. Ama sivyo mchanga wa juu pamoja na mbegu vitamomonyoka na maji. Juu ya kitalu mchanga usawazishwe na kushindiliwa na ubao ulio bapa. kitalu kijengewe kibanda ili kuwe na kivuli kwa mbegu zinazoota. Kibanda kinaweza kuwa cha majani au fito zenye kipenyo cha sm2 yaliyoshonwa kwa kamba kiasi cha sm 2 kutoka fito hadi fito. Pande zote za kitalu ziachwe ili kuwe na hewa.

#### **Kusia mbegu na jinsi zinavyoota**

Mbegu zisambazwe juu yaa kitalu. Nafasi kiasi cha mara mbili ya unene wa mbegu moja iachwe kutenganisha mbegu moja hadi nyingine ili kuzuia ugonjwa wa ukungu usije ukasambaa. Mbegu zifunikwe na mchanga wa kina kiasi cha mara mbili ya unene wa mbegu yenyewe. Kitalu kimwagiliwe maji kila mara kwa kutumia chombo chenye matundu madogo madogo kwa uangalifu ili mchanga usije ukaloa kuzidi kiasi. Wakati wa majira ya mvua mbegu zifunikwe kwa majani makavu halafu kivuli kiondolewe ili kuzuia uharibifu unaoweza kusababishwa matone yanayodondoka kutoka juu ya kibanda.

Mienendo ya kuota inatofautiana kati ya aina ya mti mmoja au mwingine. Mbegu zingine huanza kuota baada ya juma na kumaliza baada ya majuma mawili k.m. mtiki (*tectona grandis*) na msizi (*maesopsis eminii*).

## What's Next for TIST

This month instead of a profile we have a special feature on what's next for the TIST program.

The TIST pilot project in the DMP has been very successful in many ways. Best practices have emerged and been shared in tree planting, nursery creation and care, conservation farming techniques, accounting, and quantification of trees and seedlings. We are continuing to learn new things every day. One of the main purposes of the HMM is to let the small groups know what other small groups are finding out.

We are now entering a new phase of the TIST program. Pilot project replications using the best practices learned in the Diocese of Mpwapwa are now beginning in Morogoro, Tanga, and southern India. People in other areas of Tanzania have shown interest in the program as well as Uganda and Kenya.

The foundation of the new pilot projects is the small groups. God has shown us that people working in community as the Body of Christ are much stronger than individuals trying to plant trees on their own. The plan of the new projects is the same as what is happening now in Mpwapwa. Quantification will be done and group members will be paid 4/= per live tree or seedling 4 times per year. These payments will be funded by sales of greenhouse gas credits. Training will be given in small group best practices, tree planting, nursery care, and conservation farming. We hope that some of the trainers and group members who have developed best practices will have the chance to travel to other locations to help pass on best practices to groups there. These new projects are beginning with a few small groups in a few villages and will grow as more is learned.

Part of what makes a pilot project successful is what is learned that can be shared with others. Sometimes it is something that works very well, and others can use that knowledge. Sometimes it is something that doesn't work, and we learn not to do that again. The replications of TIST in other locations will teach us things that can also be brought back to Mpwapwa and shared.

The small groups of the DMP have given a great gift to others as TIST goes forward and expands. We pray that God will be glorified in what happens next for TIST.

## Kipi kinafuata katika mradi wa TIST

Mwezi huu badala ya kuwa na habari ya mtu fulani basi tuna kitu maalum juu ya kipi kinafuata katika mradi huu wa TIST.

Mradi wa TIST katika Dayosisi ya Mpwapwa umekuwa na mafanikio sana katika njia mbalimbali. Njia Bora zilijitokeza na kutumiwa kwa pamoja katika upandaji wa miti, utengenezaji wa vitalu na kuitunza, Njia za Kilimo hai na uhesabuji wa miti na miche. Tunaendelea kujifunza vitu vipya kila siku. Mojawapo ya dhumuni kubwa sana ya Habari Moto Moto ni kuwafanya wanavikundi wa vikundi vidogo vidogo kufahamu vikundi vingine vinafanya nini.

Kwa hivi sasa tunaingia katika ukurasa mpya wa Mradi huu wa TIST. Mafanikio ya mradi wa TIST kwa kutumia Njia Bora walijojifunza katika Dayosisi ya Mpwapwa sasa yameanza kuonekana katika Miji ya Morogoro, Tanga na Kusini mwa India. Pia watu katika maeneo mengine ya Tanzania wameonyesha kupendezewa na mradi kuanzishwa nchini Uganda na hata Kenya.

Misingi ya majalibio ya mradi mpya ni vikundi vidogo vidogo. Mungu ametuonyesha sisi watu tunaofanya kazi kwa kushirikiana kama sehemu ya Mwili wa Kristo kuwa na nguvu zaidi kuliko wale wanaofanya kazi peke yao yaani mmoja mmoja kwa kujalibu kupanda miti. Mipango ya mradi mpya ni kufuata utaratibu utakaofanyika katika Dayosisi ya Mpwapwa. Ukaguzi utafanyika na baada ya ukaguzi kufanyika kikundi kitapata 4/= kwa kila mche na mti mara nne kwa Mwaka. Malipo haya yatagharamiwa na uuzaji wa hewa taka (greenhouse credits). Mafunzo yatafanywa kupitia misingi ya vikundi vidogo vidogo, Upandaji wa miti, utunzaji wa vitalu na Matumizi ya kilimo hai. Tunamatumaini kwamba baadhi ya waalimu walijifunza mafunzo ya vikundi vidogo vidogo watasafiri kwenda sehemu zingine kufundisha juu ya vikundi vidogo vidogo ilikwenda kuwakilisha mafunzo ya misingi ya vikundi vidogo vidogo hiyo. Sehemu hizi mpya za mradi zinaanza na vikundi vichache sana vijijini na vitaongezeka kadri tunatakavyokuwa tukijifunza.

Sehemu inayoweza kufanya mradi ufanikiwe ni kushirikishana mambo mliyojifunza na watu wengine. Wakati mwingine mafanikio yalijitokeza, na wengine huweza kutumia elimu hiyo. Wakati mwingine ni mambo ambayo hayakufanikiwa, na hapo watu watajifunza kutokuyafanya tena. Kuanzishwa kwa matawi mengine ya TIST nje ya Mpwapwa yatatafundisha mambo mengine kutoka nje na kuyaleta mpwapwa kwa njia ya kushirikiana.

Vikundi vya Dayosisi ya Mpwapwa vitapewa nafasi kubwa zaidi kadiri TIST itakavyopanuka. Tunaomba Mungu atukuzwe kupitia yote yatakayotokea kadiri TIST inavyozidi kusonga mbele.