

WELLS FIELD MANUAL



Evangelical Lutheran
Church in Tanzania

**Synod of Livingstonia, Nkhoma Synod,
Synod of Zambia, Evangelical Lutheran
Church of Tanzania**

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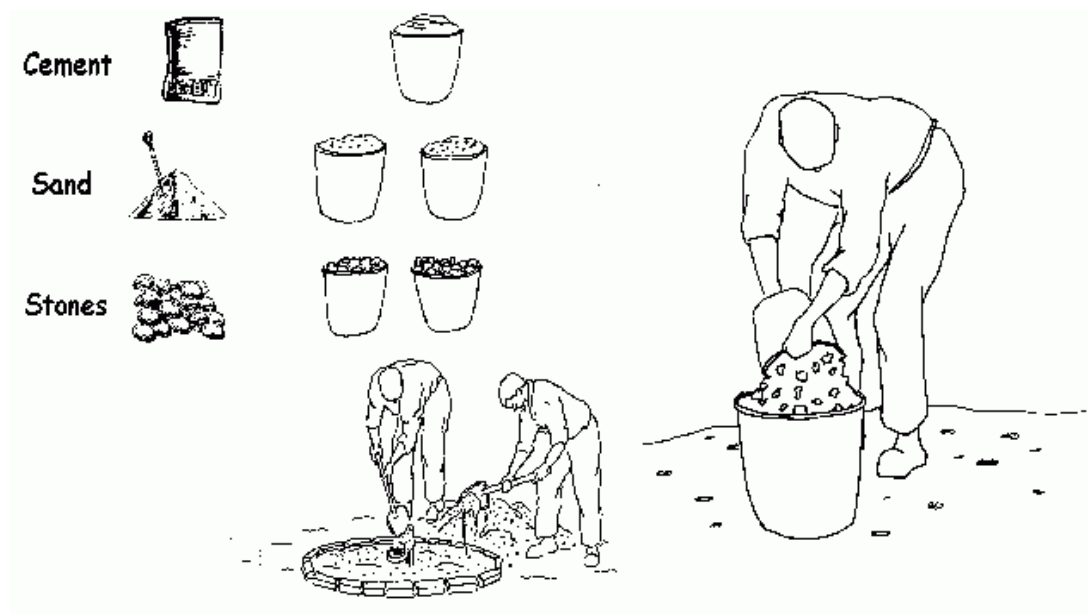
**Marion Medical Mission's
Protected Water Programme**

WELLS FIELD MANUAL

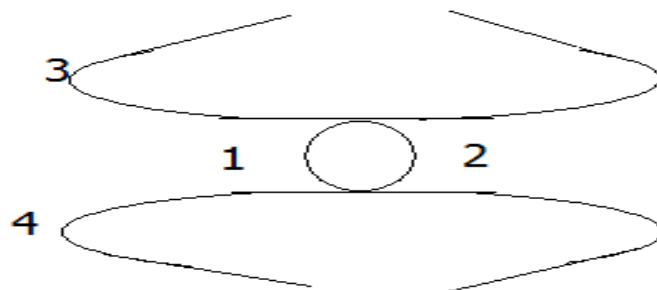
4. Para mawaya ghakubonekera kuwaro kwasilabu yinu yikukholanga yayi.
5. Oneseskani kuti pala mukusindira konkili yinu RING'I yibe ndithu levulo.

The concrete for the slab is made with a mixture consisting of 1 part Portland cement, 2 parts river sand and 2 parts of small stones.

Pakuzenga chakujara pachanya ichi tikusazga ndowo yimoza yasimenti, ndowo zibiri za mchenga na ndowo zibiri za malibwe ghachokoghachoko.



PLACING CONCRETE



Spider (Utatavu)

KAWIKIRO KA KONKILI

Yambirani pakati pa mawaya ghinu mbwenu mumphepete

Ndi ntchito ya banthu wene wachikaya kuumba njerwa nakuunjika mchenga na malibwe yakuzengela chisime. Vyose ivi bakwenera kuunjika pafupi na apo pajimikenge chisime chomene chomene mu mwezi wa August panji September.

Tchakwenerera kubonesesya kuti mchenga na malibwe ghabe ghabemi. Pala muli viswaswa panji madongo konkili yikukholanga chala.



Collect the sand, stone, clay and bricks before the well is dug.

- **4000 bricks**
Njerwa zichokozichoko ziwe 4000
- **50 pails river sand**
Mchenga ndowo 50
- **50 pails small stones - gravel**
Malibwe ghachokoghachoko ndowo 50

6. LAY THE BRICKS

ZENGANI CHISIME

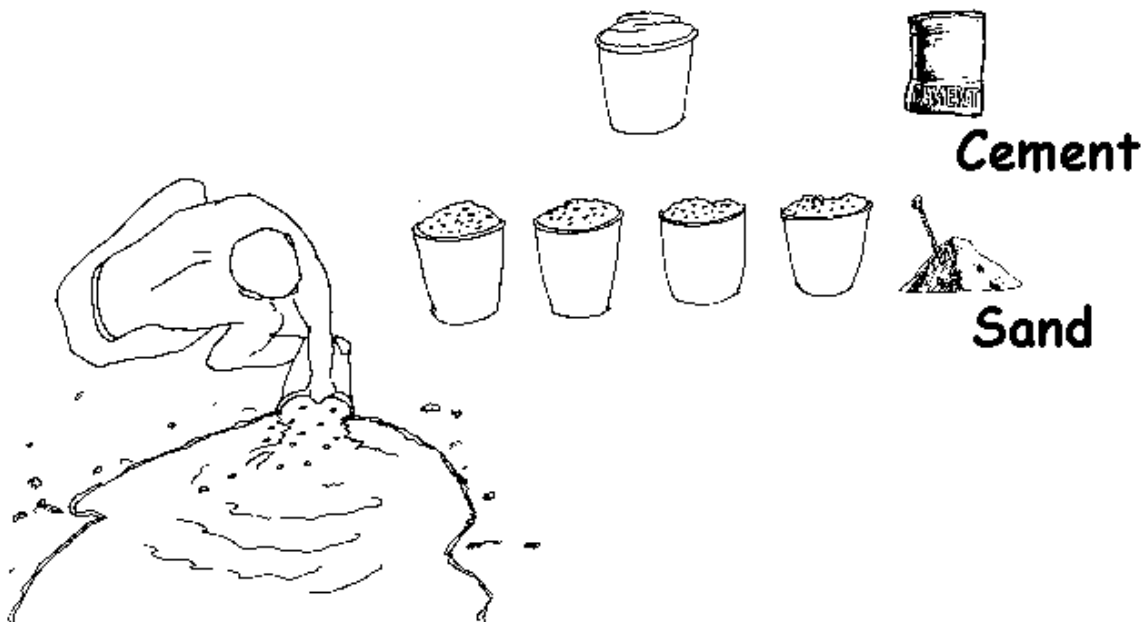
The mortar is made with a mixture consisting of 1 part Portland cement, and 4 parts sand.

As the top slab is only one meter diameter, at a certain level depending on the depth of the well you need to be reducing the diameter of the well in order to accommodate the top slab which is only one meter diameter.(This is called cobbling).

Pakuti chakujara pachanya pa chisime ntchisani mita yimoza, mwaichi ntchakwenera kuchepeskangako usani wa chisime chithu kulingana na utali wa chisime icho chikuzengeka. Mwakuti pakuzakafika pachanya usani wa chisime uyane waka na chakujara pachanya.

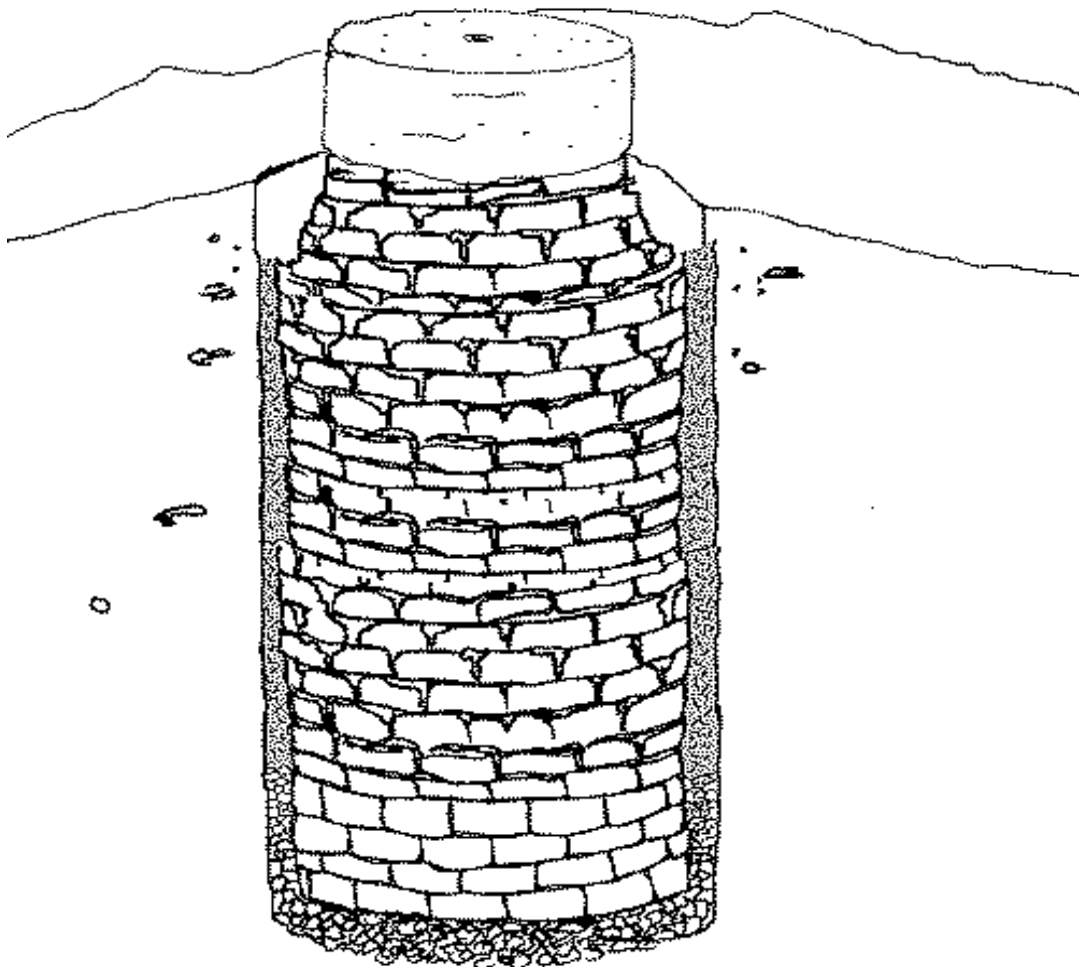
MIXING THE MORTAR

KASAZGIRO KA THOPE LITHU

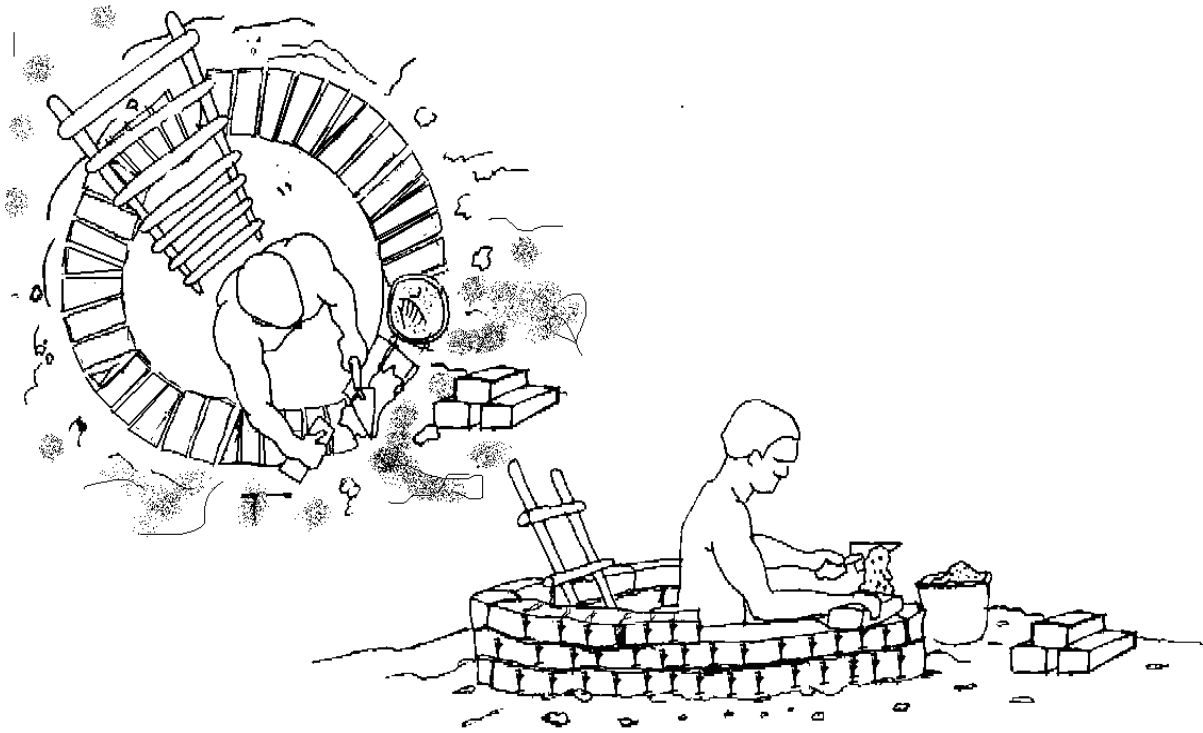


Remember to start building with a diameter of 1 meter inside the well at the bottom (i.e. you will have a diameter of 1.5m outside the well at the bottom).

When you are about 3' to the ground you need to start cobbling (that is decreasing the inside well diameter so that it can have a diameter of 1 m outside in order for top slab to fit without problems). Note: you can start cobbling at any other height other than 3ft depending on the depth of your well. Only make sure that it is not in the water zone.



KUCHEPESKA USANI WACHISIME



A double thickness brick pattern is best (headers only)

Zengani njerwa mwakulaziska ku chimati cha chisime

4 courses of bricks are built above the ground level.

Be sure the top is level.

Makozi ghanayi ghazengeke kufumira pachanya pachisime. Onesekani kuti pachanya pachisime chinu mphakuyana (levulo).

In most of the times, sandy soils do not make good well pits. It collapses. To avoid this, we use concrete rings that hold the soil from collapsing.

MAKING CONCRETE RINGS

KUWUMBA MA RING'I YA KONKILI

A ratio of 1:6 is the best mixture of concrete. Make sure you use river sand of very good quality. Place 6mm wire about 3-4" of the concrete and another wire about 3-4" above the bottom one. Leave the rings to cure for seven days.

PLEASE NOTE: water the rings three times a day.

Kusazga kwa konkili kukwenera kuba ndowo yimodza ya cement na ndowo zikhonde na imodza za mchenga. Onesekani kuti mchenga nguwemi kweneso ngwa mdambo.

Wikani waya wa mamilimita ya khonde na imodza (6mm) pafupi fupi ma inchezi ya nayi ya konkili na waya unyakhe pafupi fupi ma inchezi four pachanya.

Lekani ma ring'i kuti ghabomire kwa sabata yimodza.

CHAKUZIRWA: Kuthiranga maji pa ma ring'i yinthu katatu pa dzuwa

8. INSTALL THE PUMP

Tikondwere na kusekerera chifukwa timwenge maji ghaweme.



Collecting the yearly maintenance fee

Tolani ndalama za pa chaka za chisime

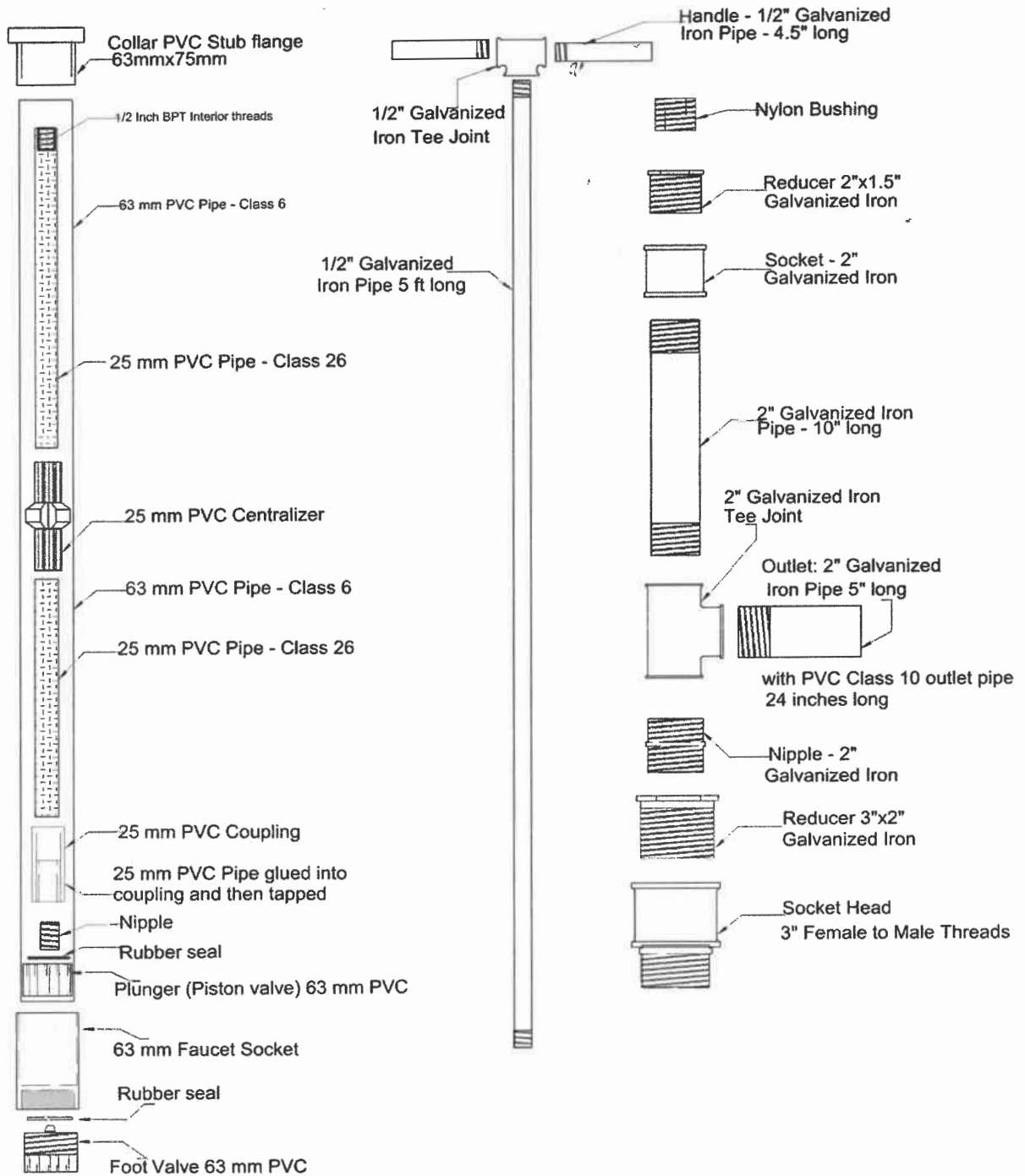
The community can pay in cash or in kind.

Benecho chisime bangapeleka
ndalama panji vyakukolora



COMMON MISTAKES

MARK 5 WELL PUMP



Drawn by: Jim Nussbaumer, 2 June 1997
 Dwg. Updated by: Jim Nussbaumer, 22 Dec. 2011
 Engineered by: Mr. H.M. Soko
 Design Updated by: Jerry Roush, 20 Dec. 2011
 Embangweni Hospital, Embangweni Malawi