



How to build a jug tank (tangi la mtungi) of 2500 litres for rainwater harvesting





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Materials:





- Cement 6 bags
- Chicken wire 6m (if 180cm wide, 10m if 90cm wide)
- Sack cloth 10m
- Sand 40 buckets/debe
- Gravel 2 buckets/debe
- Bricks 20 or stones only for the foundation
- Pipe, GS pipe $\frac{3}{4}$, 6 inches long with a bracket welded at the end
- Lime $\frac{1}{2}$ sack (10kg)
- Sawdust/rice husks/sand to fill





How to build:





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| | <p>Sew the sack material as follows by sisal string: Join the two widths of the material to get a total width of 230cm (this is the height of the tank up to the mouth ring) Sew the two diagonal sewing lines so that the bottom with becomes 140cm and the top end 220cm Make the top end narrower by sewing its sharp corners off from 175cm height from the bottom</p> |
| | <p>Prepare the foundation. Remove all the loose top soil till you reach firm ground. Measure the foundation so that the diameter is 170cm (radius 85cm). Lay biggish stones firmly together. Bricks (20pc) can be used for the outer edge, but it is possible to form the edge by stones as well.</p> |




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|  | <p>Use pegs and wire to keep the construction together.</p> |
|  | <p>Mix mortar with a ratio of 1 : 3 : 5 (cement : sand : gravel). Pour water on the construction.</p> |
|  | <p>Then start adding the mortar on the foundation stones.</p> |
|  | <p>Making sure it goes to the gaps between the stones. Use a wooden trowel.</p> |

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|  | <p>And tramp the mortar to gaps by a self-made tool as shown in the picture.</p> |
|  | <p>Day 2. Fill the bag first by sand and then by any lighter stuff such as rice husks or dry manure. At the top add sand again to get a firmer mould around the mouth. Gather all the extra fabric around the mouth by sewing it by a string. Place a basin to the mouth. It helps in making the edge of the mouth accurate. You will use the same basin for making a lid. Make sure your basin tapers down (inside).</p> |
|  | <p>Plaster for the first time. Use a mixture of 1 : 2 (cement : sand). Make a layer of about half an inch or one inch towards the bottom.</p> |
|  | <p>Day 3. Tighten chicken wire around the tank.</p> |

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|  | <p>Bind it together carefully so that it follows the surface of the tank tightly.</p> |
|  | <p>Gather it around the mouth by using a wire.</p> |
|  | <p>Fix the pipe for the tap in its place.</p> <p>The pipe has two about 5cm long pieces of metal welded to its end. This helps to hold it (hang it) together with the chicken wire.</p> <p>Make sure the pipe is at the right height for taking water by a small bucket.</p> <p>Pierce a hole to the first plastering through the pipe.</p> |
|  | <p>Use wire that goes around the whole tank to fix the pipe firmly in its place.</p> |

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|  | <p>Plaster for the second time. Again half-one inch.</p> <p>When the second plastering has dried enough, plaster again. This might be in the evening of the same day or the following day.</p> |
|  | <p>Start making the lid.</p> <p>Use two round objects to get a cement ring of about 4cm thick. This is the funnel through which water comes to the tank.</p> |
|  | <p>Put chicken wire in-between before adding the cement.</p> <p>Make sure you cut the chicken wire about 15cm higher than the ring as it needs to reach into the slab (the actual lid) that this ring will be attached later.</p> <p>Leave it to dry.</p> |
|  | <p>Plaster the tank for the fourth time.</p> |

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|  | <p>When the cement ring has dried make the second part of the lid. This is the cement plate that forms the actual lid for the mouth of the tank.</p> <p>Fill the basin that was on the top of the tank up to about two inches from the top. Put a piece of plastic on top of the sand. Place the ring on top so that the chicken wire bends first inwards and then outwards.</p> |
|  | <p>Use a tin in the middle to keep it open. This is where the water passes through to the tank.</p> <p>Add cement inside and outside of the ring so that it forms about two inches thick plate.</p> |
|  | <p>Day 4 (or five). Remove the contents of the tank and clean it. Plaster once from inside.</p> <p>Make the final finishing layer on the tank. Use only cement and water and add some lime.</p> |
|  | <p>Lime added to the final layer of plastering makes the tank light grey and keeps it cooler.</p> |

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|  | <p>Day 5 (or 6). Remove the lid from its mould (basin). And remove the plastic.</p> |
|  | <p>This is how the lid looks like.</p> |
|  | <p>The slab is the same size as the mouth of the tank as they were made by using the upper edge of the same basin.</p> <p>Add the tap. Water the tank for 7 days, evenings and mornings. Cover by sacks or towels if the weather is very hot.</p> <p>Add gutters and pipes to collect water from the roof.</p> |