A SIMPLE WATER SUPPLY SYSTEM

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INTRODUCTION

The article describes how we installed a very simple water supply system for Koroba District Agricultural Demonstration Projects. You can use this system where there is a small creek or spring which does not dry out in the dry season and which runs higher up than your projects. We found this an easy way to get water to our projects without any labour.

MATERIALS NEEDED

The following materials are needed to install the water supply:

- 1 x 200 litre empty oil drum
- Polythene or PVC pipe, 25 mm and 12 mm. The length depends on the distance from the pond to the projects. Note that PVC pipe is cheaper.
- Taps, 12 mm
- Joiners, 25 mm and 12 mm
- Tees, 25 mm (Poly or PVC)
- Reducers, 25-12 mm (Poly or PVC)
- EITHER: 8 pieces of 70 x 100 mm timber, cut to the length of the oil drum, for the platform.

  OR: Arc mesh and angle iron for a more long-lasting platform.
- EITHER: An old plastic benzene pump, plain wire, glue suitable for glueing plastics
- OR: A 50 x 25 mm reduction bush (to fit drum); 25 mm hose 'tail' (to join the pipe to the oil drum).
- Tools - hammer, pliers, cold chisel.

METHODS

Here are the steps that we followed in installing the water supply:

1. At the site of the water supply we dug our pond - about 5 m x 5 m and 2 - 3 metres deep.
2. A barret (channel) was dug from the pond to the project area.
3. To strengthen the sides of the pond and barret, and to prevent landslides we used posts, and planted grasses around the sides.
4. We cut a rectangular hole in the side of the oil drum in the position shown in the diagram. Mosquito netting covers this hole, to prevent rubbish from entering the drum and blocking the pipes.
5. We made a platform for the oil drum, using the 8 pieces of timber, lashed together as shown in the diagram.
6. We laid the platform at the centre of the pond and attached the drum to it firmly, using wire. The platform holds the drum in position under the water.
7. The old plastic benzene pump was screwed into the large hole in the top of the oil drum.

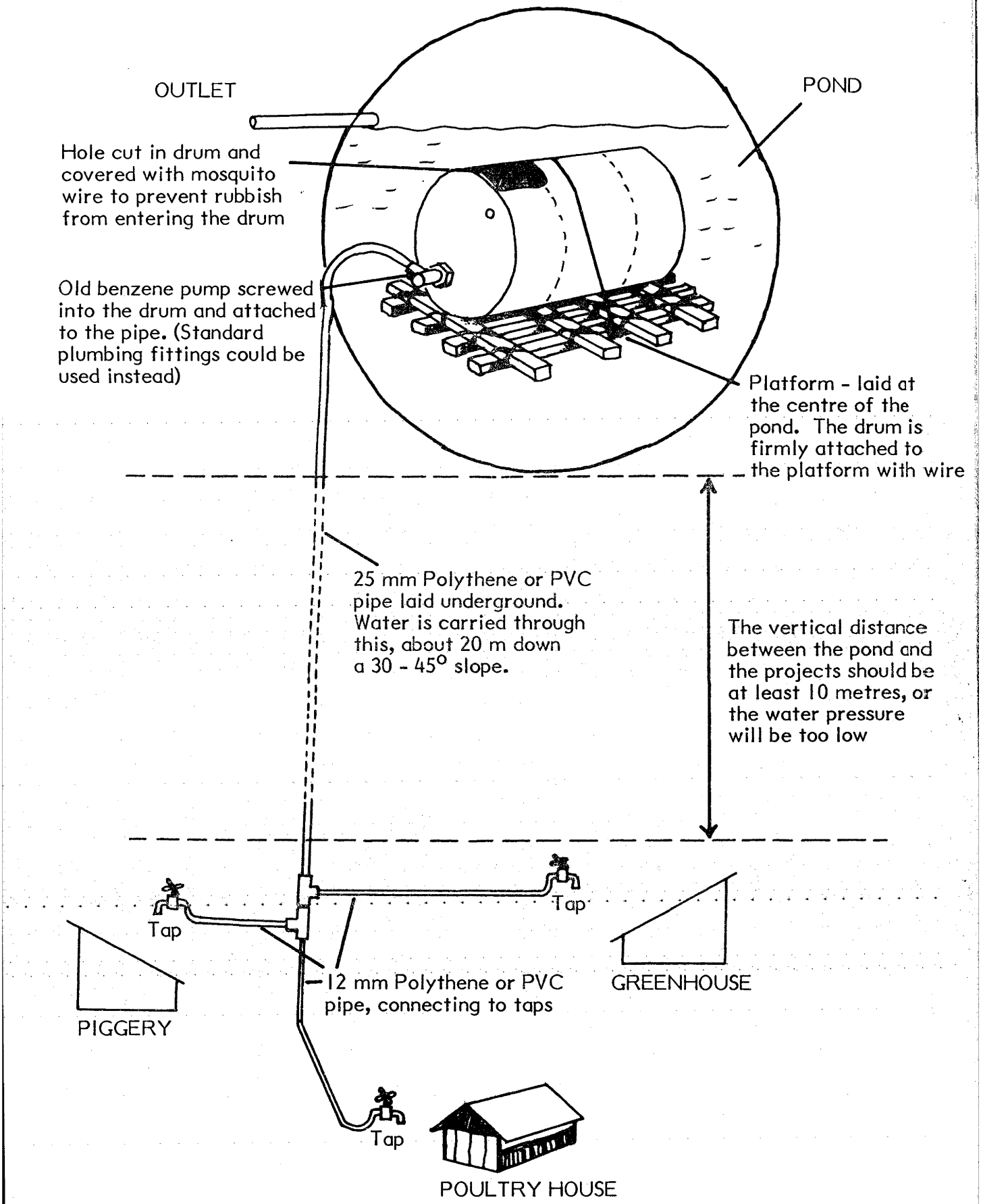

Diagram of the water system at Koroba

The water system at Koroba - the pond has just been drained. Note the vegetation growing at the sides to make the walls stronger.

The drum in position on its platform in the middle of the pond.

8. 25 mm polythene pipe was laid from the pond to the projects through the barret.

9. We then joined the polythene pipe to the open end of the pump. We used Super Glue, then tightened the joint with clean wire wound on tightly using pliers.

10. At the projects we fitted the taps to the polythene pipe, using lengths of 12 cm pipe. This makes higher water pressure through the taps.

11. Finally we covered up the barrets so that the polythene pipes were buried underground.

HOW THE SYSTEM WORKS

Since our water supply is constant, the pond fills up, covering the oil drum and filling it. Water also fills the pipes leading to the projects. So when you open the taps at the project, there is water.

At Koroba, we use this method to pipe water down a slope of 30-45°, over a distance of 20 metres. We think that water could be piped from 500 m to 1 km, depending on the slope of the land down to the taps.

This simple water supply system works very well, so why not give it a try yourself?

SOME FURTHER SUGGESTIONS

1. Distance from water supply

The water supply needs to be at least 10 m higher up (measured vertically) than the projects if the water is to be used for jobs like washing down a piggery floor. If the height is less than 10 m, then the water pressure will be too low.

At the same time, to keep costs down, the water supply should be nearby. If this means that the difference in height has to be less than 10 m, then you can use a tank to store water before it is used.

2. Costs

PVC pipe is cheaper than the Polythene pipe used in the system at Koroba. It is sold in 6 metre lengths. 25 mm PVC pipe costs about K4.00 per 6 m length; 12 mm PVC pipe costs about K2.50 per 6 m length.

Instead of using an old plastic benzene pump, you could use the standard plumbing fittings as listed in 'Materials Needed'.

Using PVC pipes and standard plumbing

fittings, the system at Koroba would cost about K60.00 - that is, water piped 20 metres from the pond, to 3 taps , as shown in the diagram. The cost of the oil drum and platform is not included. You should contact your nearest plumbers supplier for prices and advice.

3. Make a longer-lasting platform

Instead of using timber to make the platform, you can use arc mesh and angle iron. This will last a lot longer.

Another way to hold the drum in position under the surface of the water would be to drive 4 star pickets into the bottom of the pond, and tie the drum to these using wire.