

February 2012

BUILD A VERTICAL BOTTLE GARDEN



BACKGROUND

Food security and the cost and availability of food in South Africa has reached critical levels. We need to constantly investigate and experiment with different ways of growing food.

The concept of a “Vertical Bottle Garden” came from the window gardens found in Europe. There are many skyscrapers that have huge window gardens in the buildings. They use specialised pumps to circulate water. The Vertical Bottle Garden in this “How To” has been modified to suit South Africans needs and accessibility to resources.

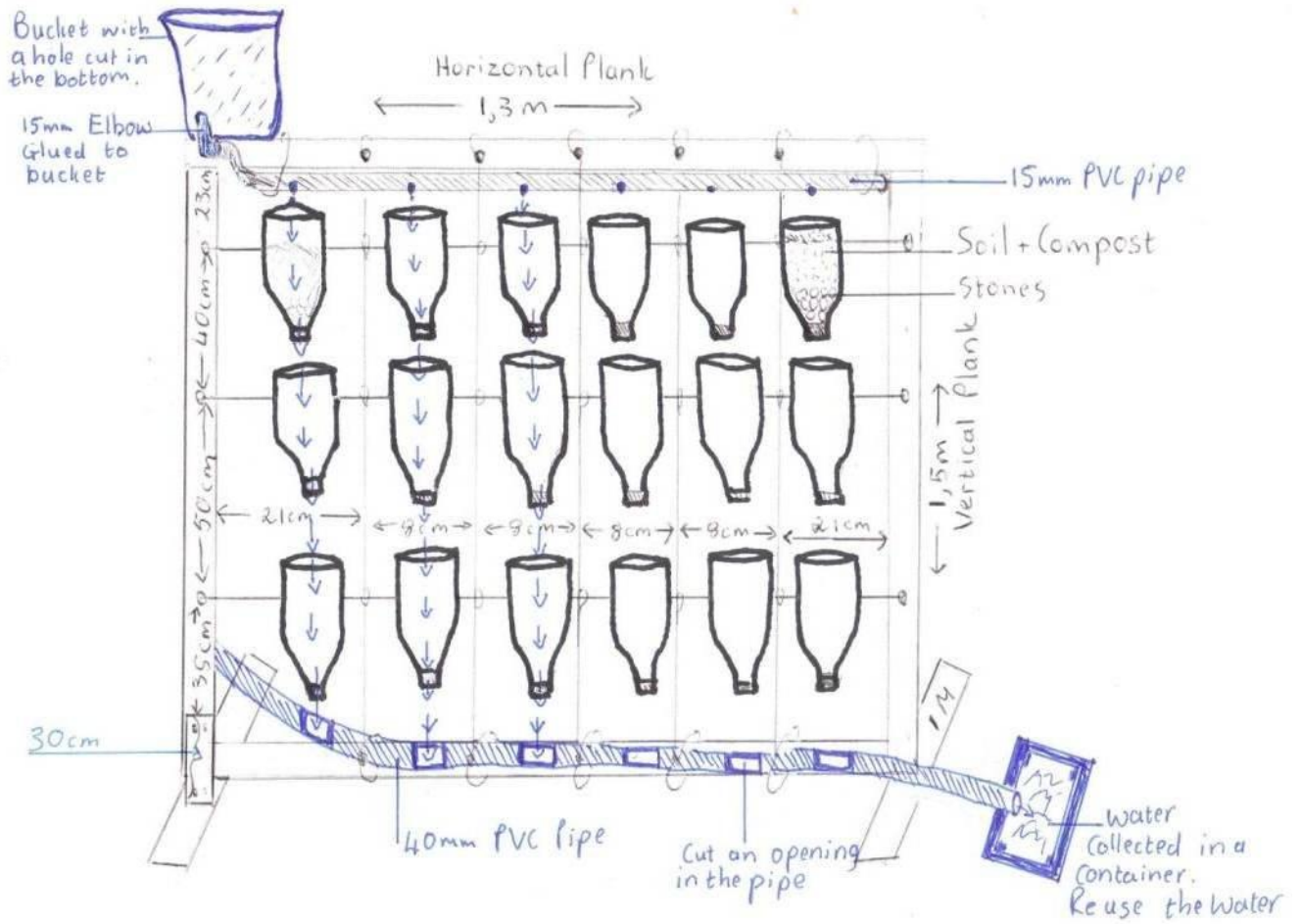
Building and using a Vertical Bottle Garden can have many benefits, including:

- The garden is vertical and can be placed anywhere.
- It works on gravity feed to irrigate the bottles.
- You are re-using plastic bottles.
- Water is recycled through this process.
- It is cheap and easy to construct.
- You have a high yield of vegetables.
- It looks beautiful!



Acknowledgements: This 'How To' is an adaptation of the resource 'How to build a vertical bottle garden', developed by Louise Williamson for the WESSA Eskom Energy and Sustainability Programme.

Vertical Bottle Gardens Schematic Diagram



Building a Vertical Bottle Garden

You will need:

- 18 two-litre bottles
- 3 x 76mm x 50mm x 3m plank
- 100mm nails
- 15m of 2.5mm wire
- 1.2m of 15mm PVC pipe
- 2mm of 40 mm PVC pipe
- 5mm drill bit
- 10 litre Bucket
- 1x 15mm elbow
- Glue
- Wire cutters

Step 1: Collect 18 two-litre bottles and remove the label sticker. Rinse out the bottles and cut off the bottom of the bottles about 6cm from the base.

Step 2: Remove the caps and make 5 small holes in the cap. You can do this by heating up a nail to burn the holes. Screw the caps back on the bottles.



Step 3: Measure 6cm from the base and burn 2 holes opposite each other. This is where you will feed the wire through to hang the bottles. Ensure you measure and mark the bottles correctly or else the bottles will hang skew.

- Step 4:** Construct the frame (use the schematic diagram on page 2 for ease of measurements).
- Step 5:** Once you have drilled the holes in the vertical planks, you can start to string the bottles for the horizontal line.
- Step 6:** Make sure you align the bottles correctly otherwise the water flowing to the next bottle will not reach it.
- Step 7:** Do this process for the next 3 rows.



- Step 8:** Now you can feed the vertical wire. You simply loop it around the horizontal wire. The purpose of the vertical wire is to provide support for the weight of the bottles.

Irrigation system

Step 9: Make a hole at the base of the bucket, feed in the 15mm elbow and glue it. Once dry, you feed the 15mm PVC pipe into the elbow and mount the bucket with pipe on the of the top horizontal Plank. Secure the PVC pipe to the centre underside of the plank. You could use some wire to secure the pipe. Burn a small hole in the pipe where it lies opposite the bottle. When you pour water into the bucket, it runs into the pipe and out the small holes and into the bottle garden. The water will now, through gravity, feed the bottle below and so on. Cut a hole in the top of the 40mm pipe to allow for the wastewater to be collected. The wastewater runs out and is collected in a container. This water can then be re-used to water the garden.



Preparation for planting

Step 10: Collect small stones and place in the bottles. Fill to about 10cm from the cap. The stones assist with drainage.



Step 11: Fill the bottles with a mixture of soil and compost.

Step 12: You can now plant your seedlings or seeds.

Step 13: Fill the bucket with water. It will start to irrigate each bottle.



Left: A bean seed germinating



Beans in the bottom row do really well in the bottle garden.
They creep up and make use of the wire for support



The second row has Rocket, Sweet Basil, Origanum, Spinach, Mint, Parsley and Thymes



WESSA Share-Net

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