



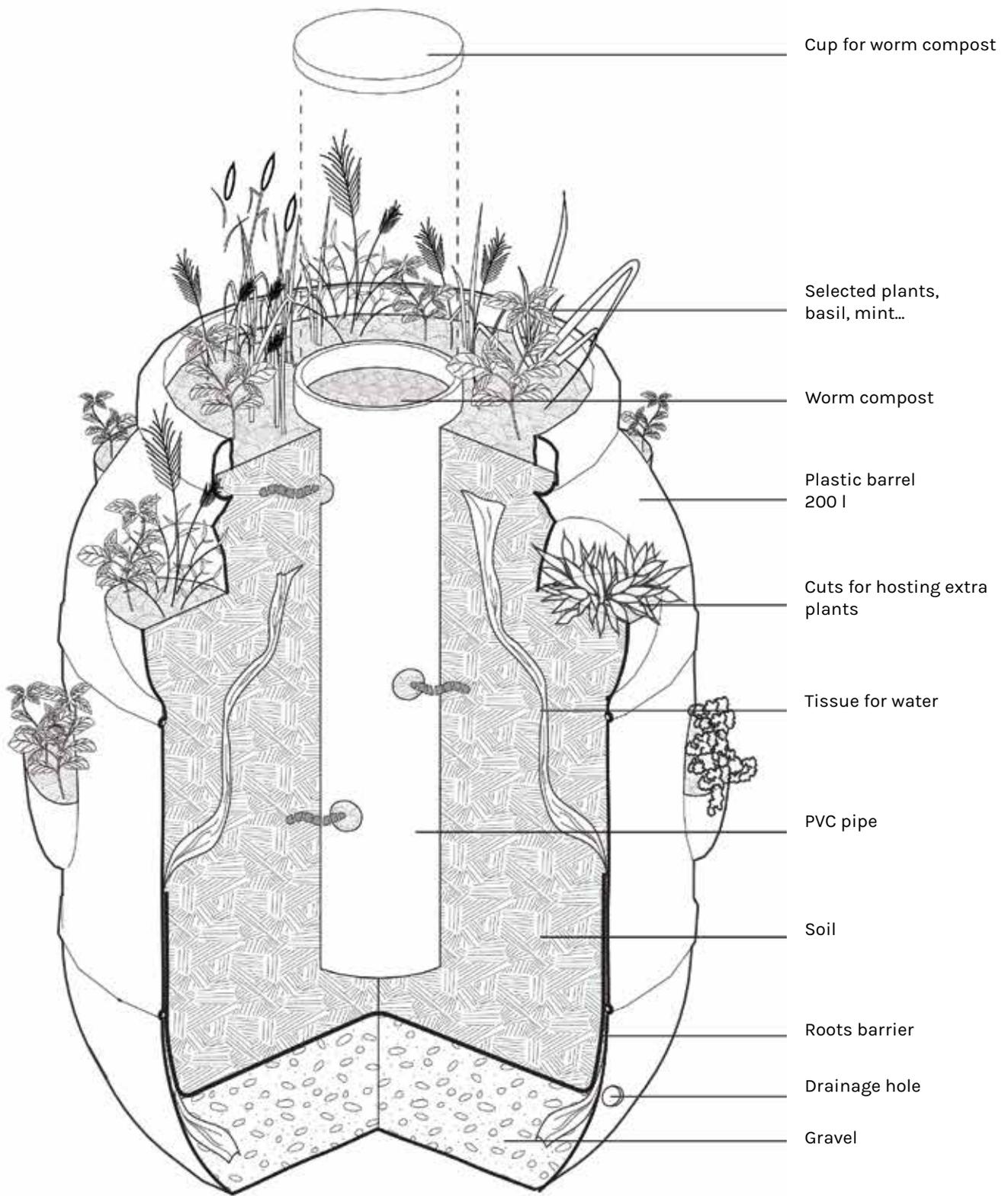
# Worm compost

## Description

Worm composting (vermicomposting) is a slow, "cold" composting method. This is opposed to fast, "hot composting", in which only thermophilic bacteria and fungi are active which can survive high temperatures (thermophilic = heat-loving).

Hot composting can kill most germs that are bad for your plants, so if some bacteria or viruses were present in the plant material you threw on the compost, they are likely to be neutralised. The same goes for seeds and the roots of weeds. So, the advantage of hot compost is that you can throw lots of different material on it, and destroy unwanted microbes and plants. The downside is that it produces more methane and nitrous gas (NO<sub>x</sub>), which are bad for the environment. Also, worm composting results in a superior compost product: the organic material passes through the digestive tubes of the worms, which makes the decomposing process very efficient and thorough. It results in very fine compost with high CEC qualities (Cation Exchange Capacity: the capacity of a substrate to hold and release nutritive salts, especially potassium).

Compost worms are a different species than earthworms. Earthworms migrate up and down in the soil, and are thus one of the most important contributors to natural soil structure and deep soil fertility. Compost



worms stay in the mulch layer, where they can continually work hard at digesting. Half of the species used as compost worms are actually tropical. The most commonly used species is the Red Wiggler, which is endemic to Europe.

## **Functioning**

Vermicomposting can be done simply in a bin with little holes for aeration and drainage. More advanced is to collect the drainage and a possibility to tap it. This "compost tea" can be used, diluted 1:10, as a liquid fertilizer. It is also good to insulate the bin against temperature changes, and to actively aerate with a fan.

There are two types of vermicomposters.

### **Continuous feed.**

One that releases compost at the bottom through rails placed at close distance from each other.

### **Stapled containers.**

Different containers placed on top each other with holes in the bottom, with adding empty containers on top of a full one, allowing the worms to migrate from the full container with fully decomposed to the new one, to be filled with new organic matter.

The container must be able to be closed off very well, or otherwise wrapped in chicken wire, to guard against mice and rats. Besides not wanting them around in general, they can eat all the worms in one all-night buffet!

Finally, ventilation is very important. Besides the fact that the composting process requires oxygen, the smell attracts flies. They can be a nuisance, as they will reproduce very successfully in the compost. With an aeration pipe, the flies are directed to the wrong place.

# Materials and construction

Fig 3.58 and Fig 3.59 worm compost barrel,  
Photos by Alessandro Rosa

The containers can be made from buckets, or from wood with a liner of geotextile.

The ventilation system can be made from pvc-pipe/drainage pipe and a 12 volt computer fan.

## Maintenance

The installation is fairly maintenance poor, but the composting process should be carefully, almost daily, monitored. It requires careful mixing, adding dry organic matter in case to wet, or humidifying when it is too dry. Also attention should be paid to the speed of adding new material. If the conditions are right, and the worms grow well, and reproduce themselves, the composting speed will be a few times faster than if they don't reproduce.

