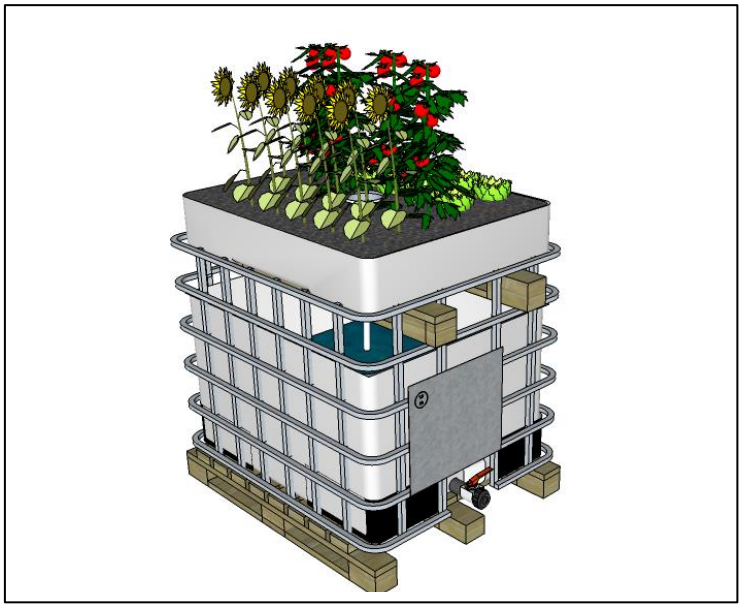

Version: 1.0 **Date**: 20-07-2015

List of changes:

- N/A

Media Bed Aquaponics

Henrique Sánchez

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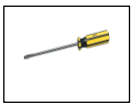
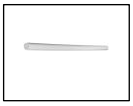
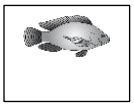
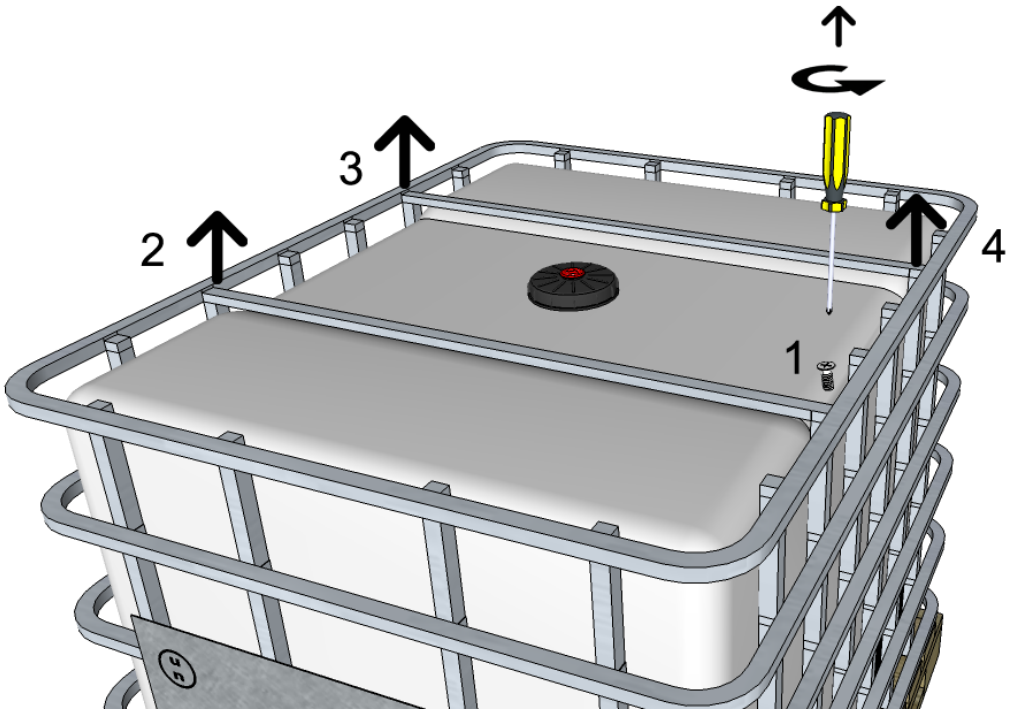
Material List

Number of steps: 22

	Food grade Intermediate Bulk Container (IBC), #1		T-40 screwdriver or equivalent size flat-head screwdriver, #1		Lava gravel Ø=12-18mm, 230 liters
	Water pump, minimum 1 meter head & 1200L/h flow rate . #1		Measuring tape or ruler, minimum 2 meters		Pencil or pen, #1
	Plastic pipe Ø=30-33mm, 1 meter		Hacksaw, #1		Ammonia source for cycling, see References
	Opaque flexible pipe/hose Ø dependent on water pump outlet, 1.5 meters		Drill, #1		Fish fry, maximum 5kg total biomass full grown (10 fish, 500g each)
	Wood pallete (1000mm x 1200mm), #2		5mm drill bit, #1		Chosen seedling species
	Plastic pipe Ø=15cm, 23 centimeters		30mm drill bit, #1		Fish feed, maximum 50g/day


3
2
4
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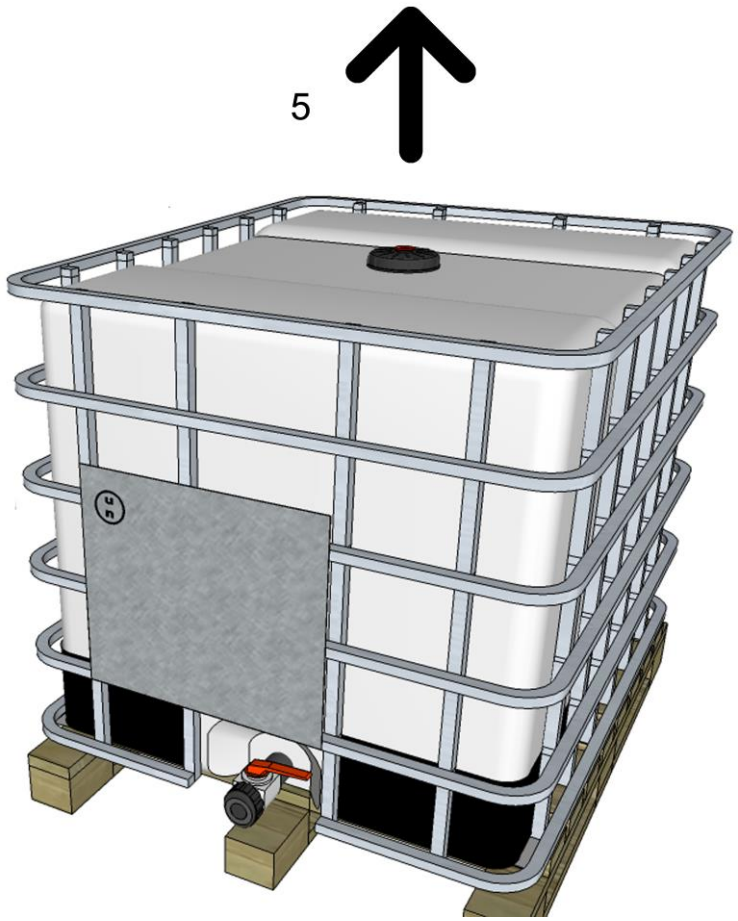
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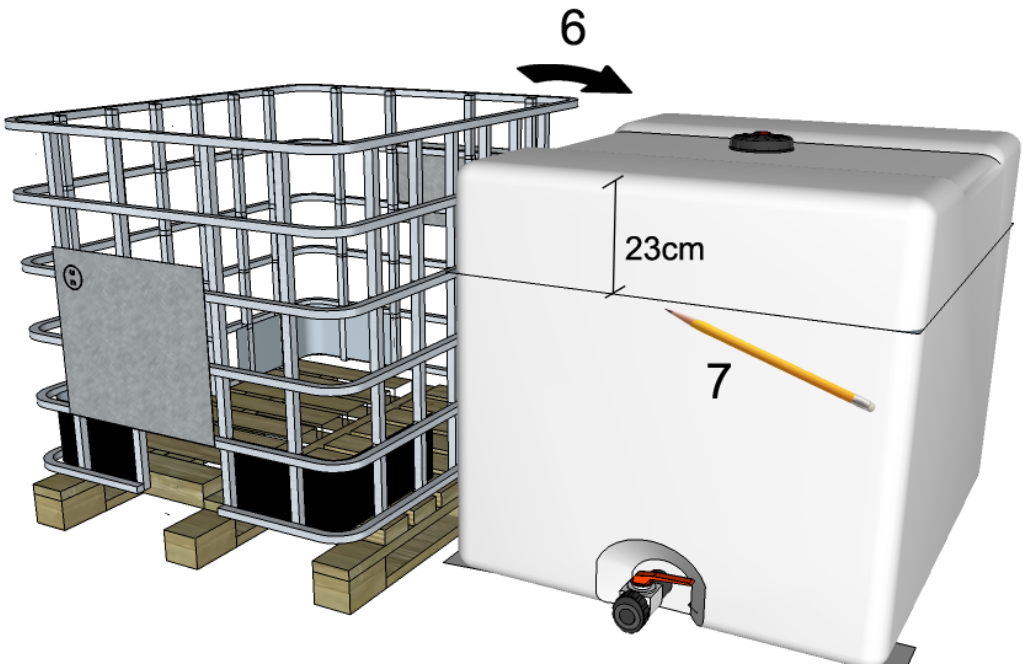
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23cm
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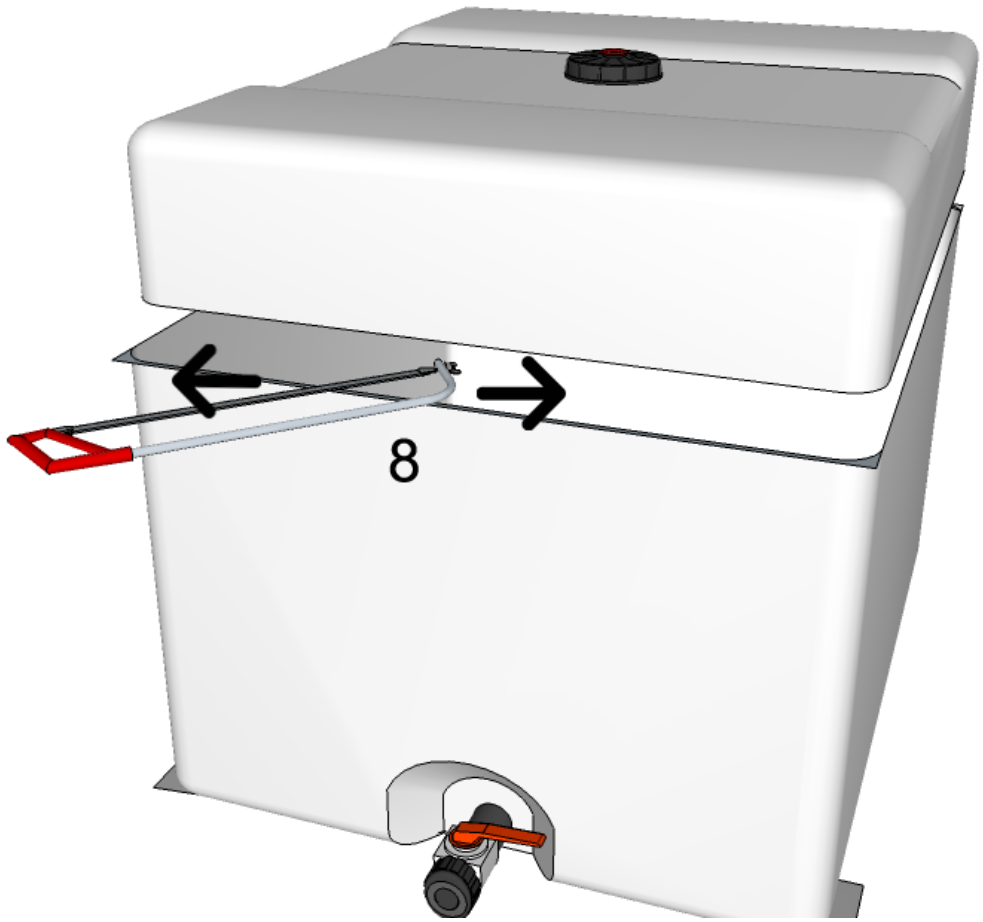
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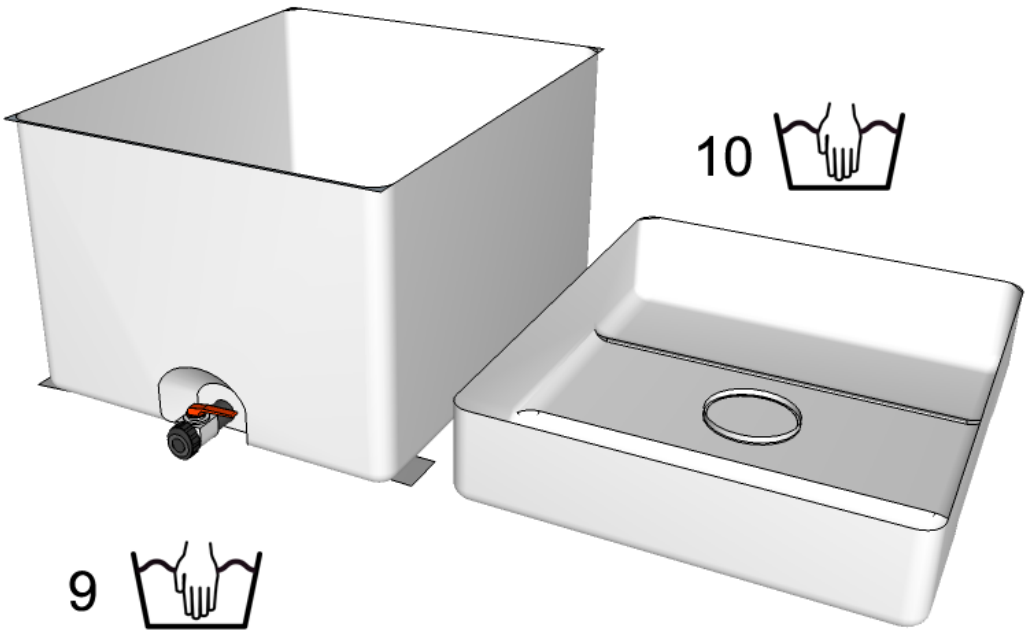

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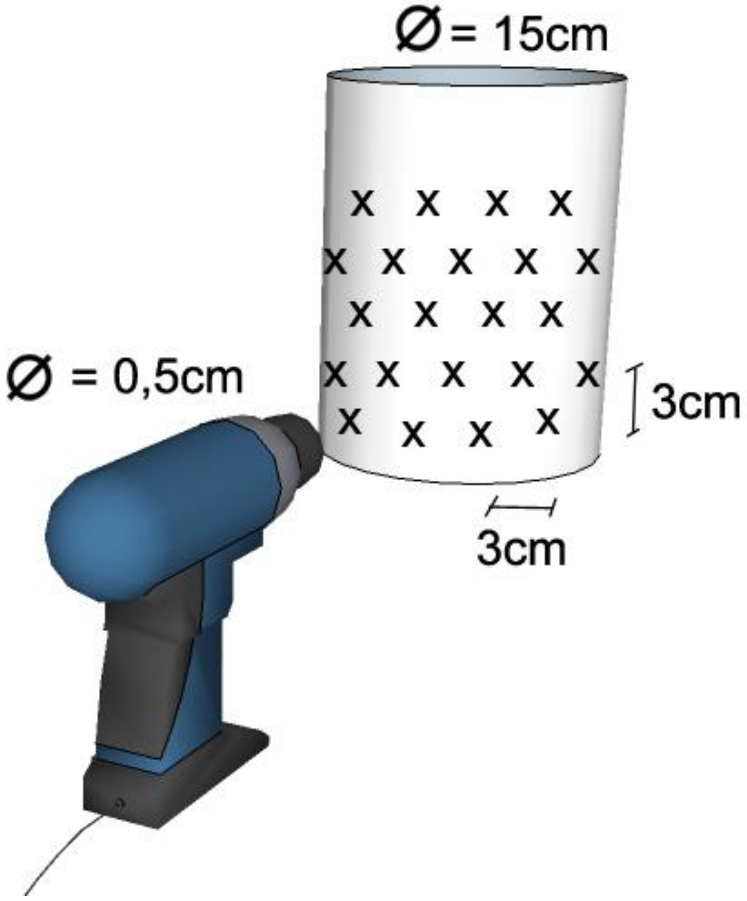

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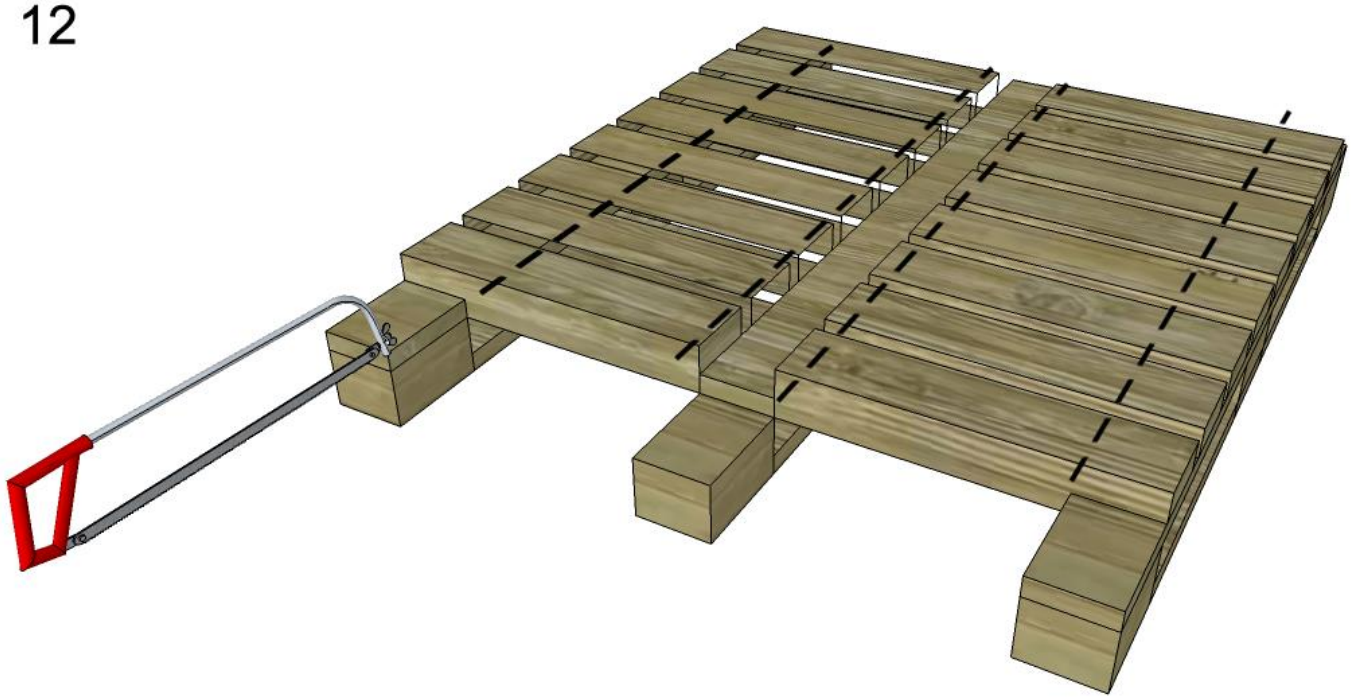

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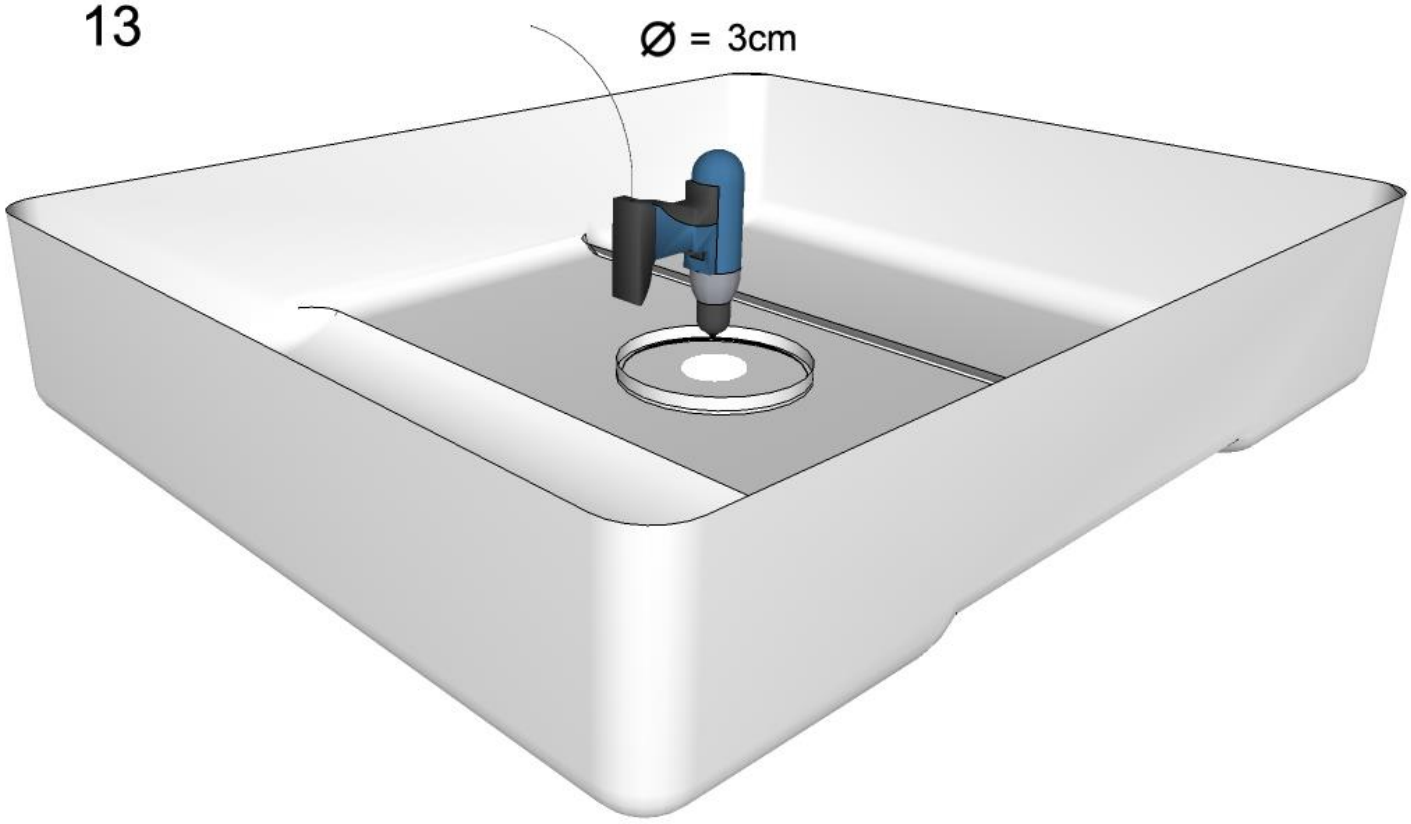

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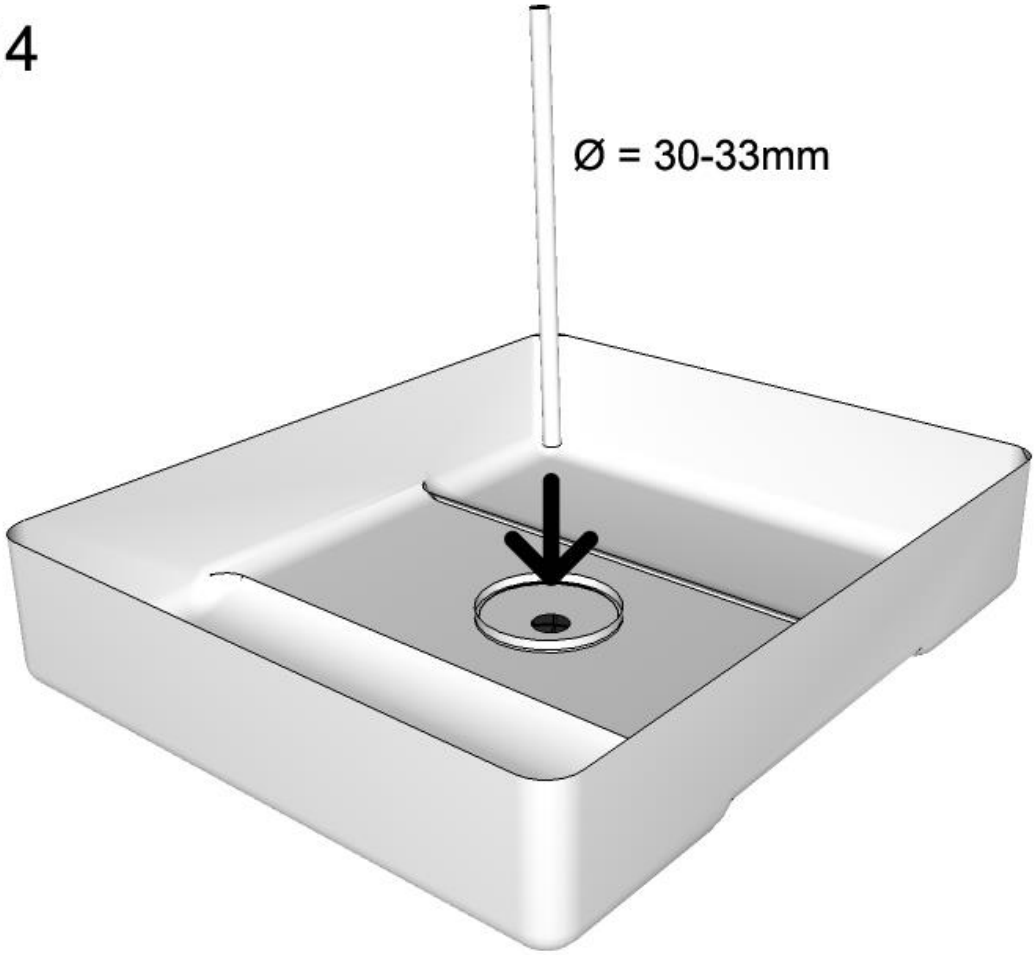

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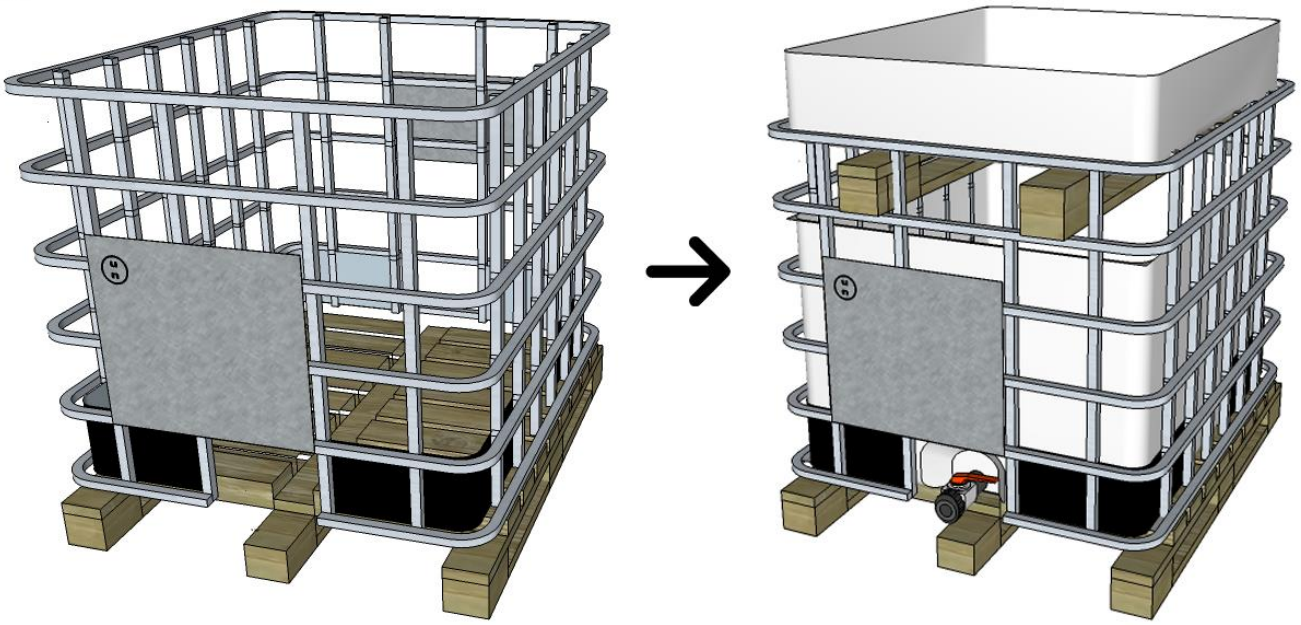

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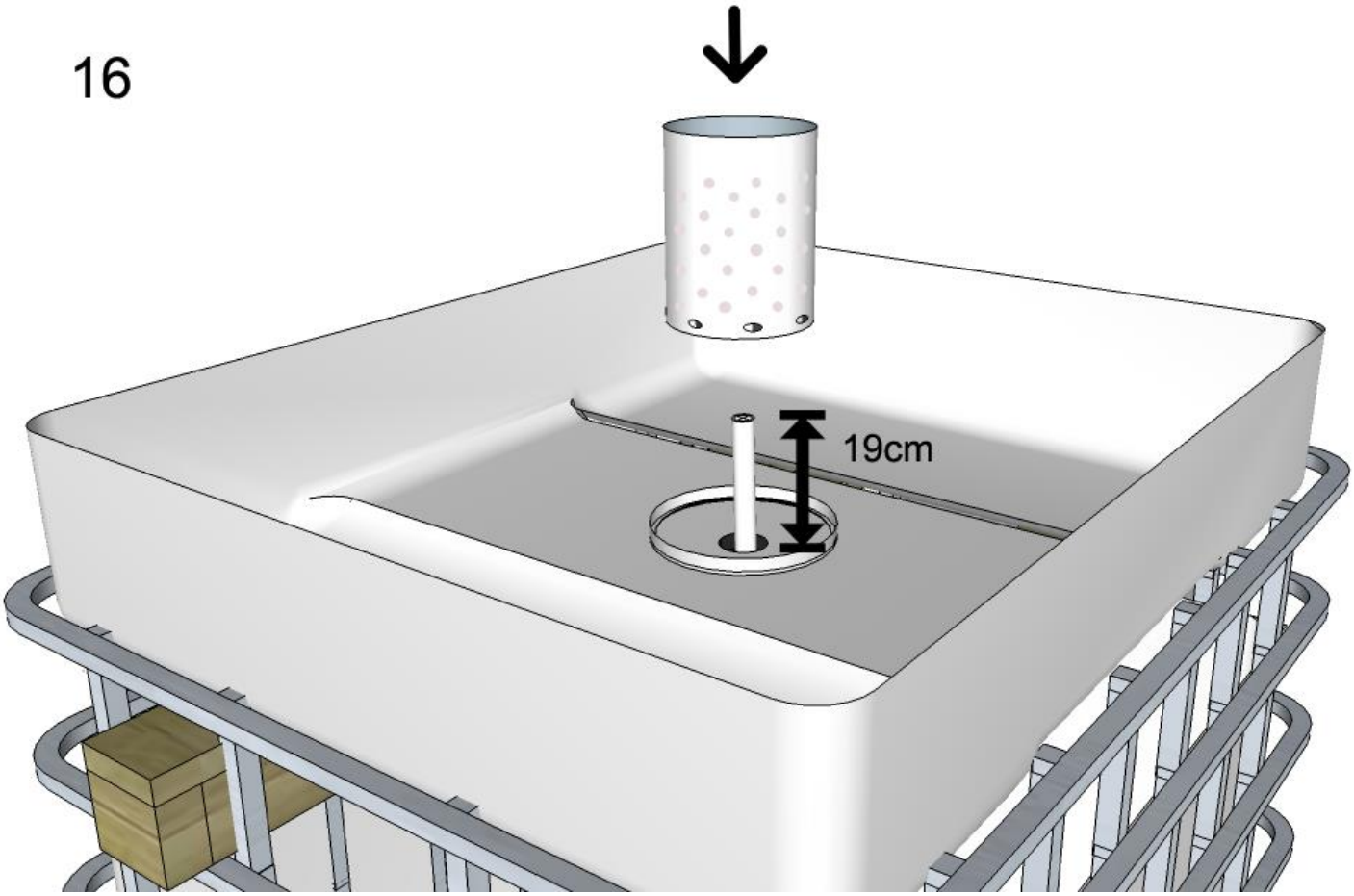

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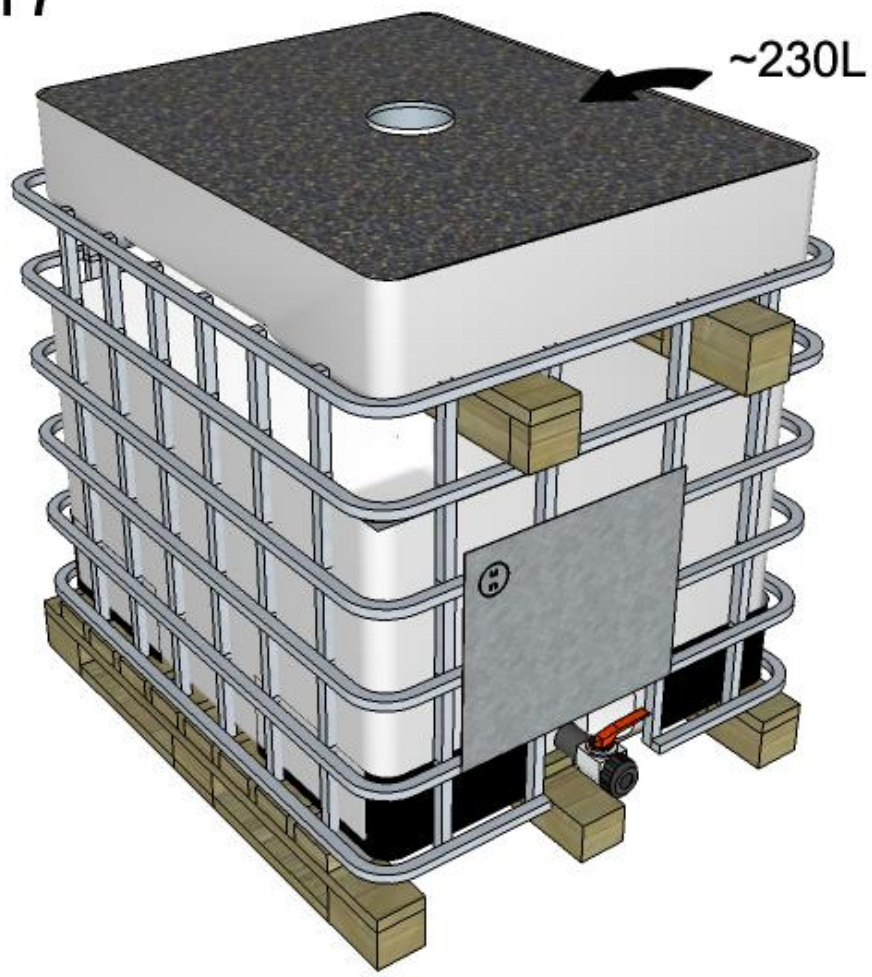

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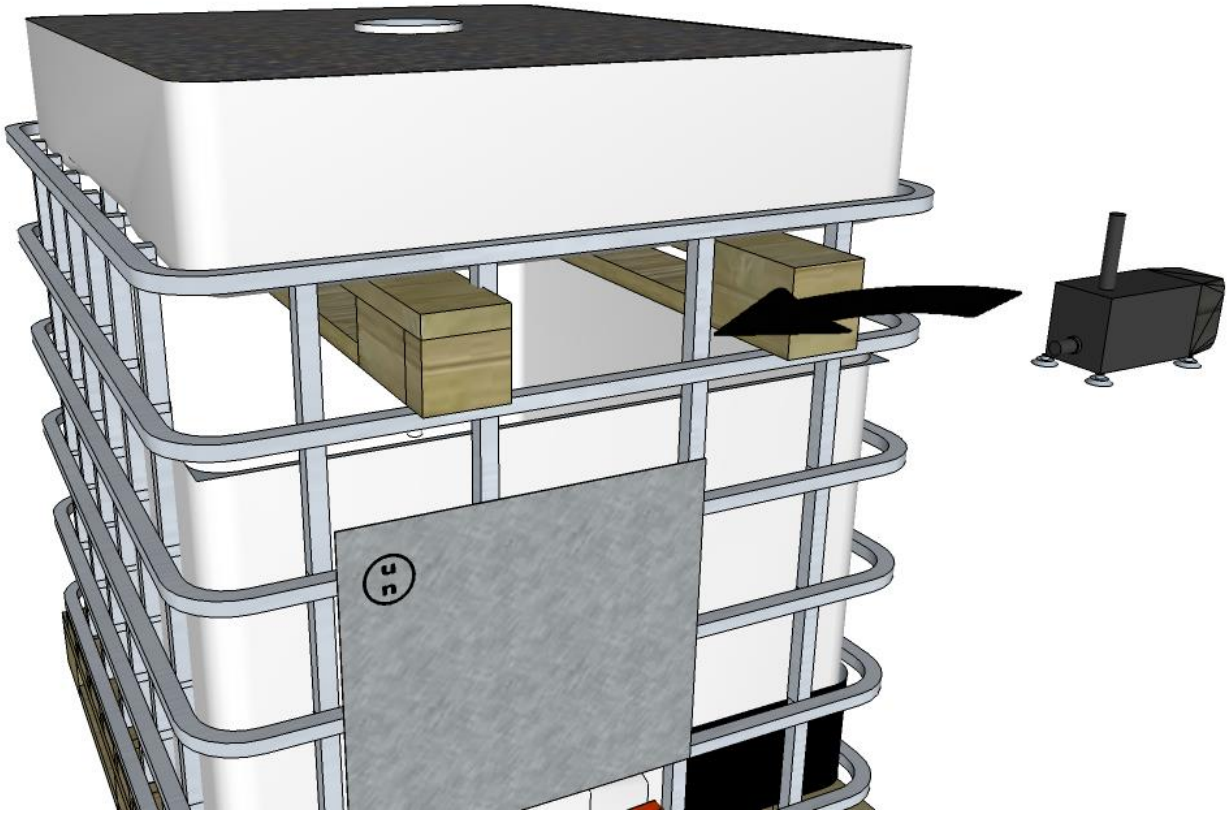

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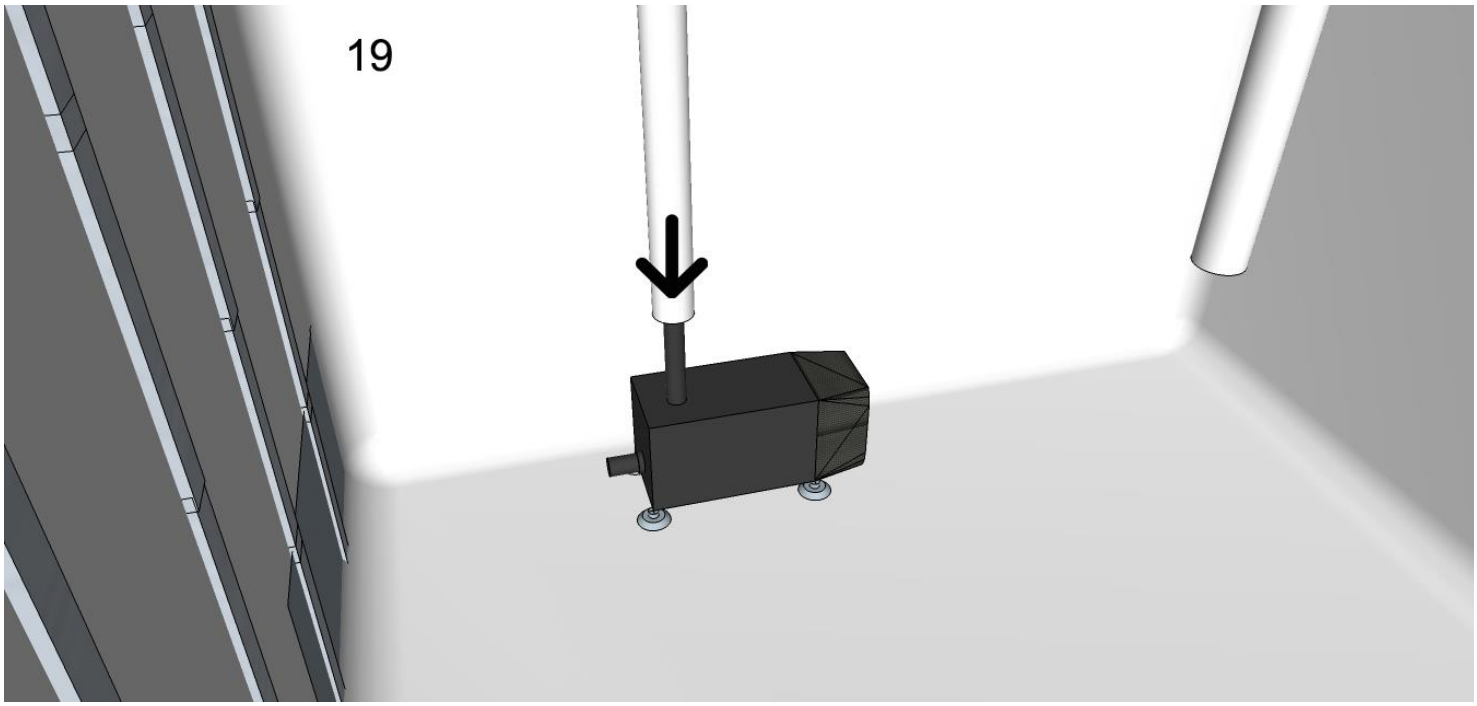

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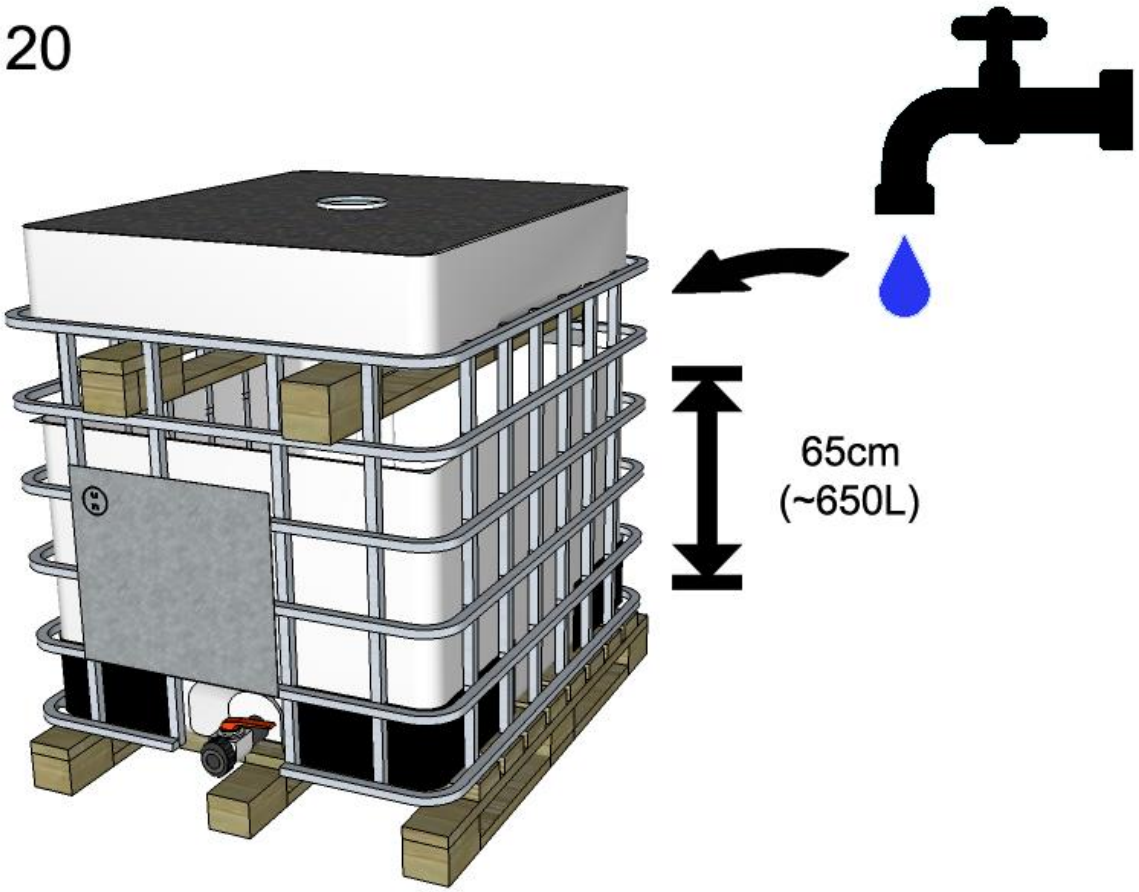

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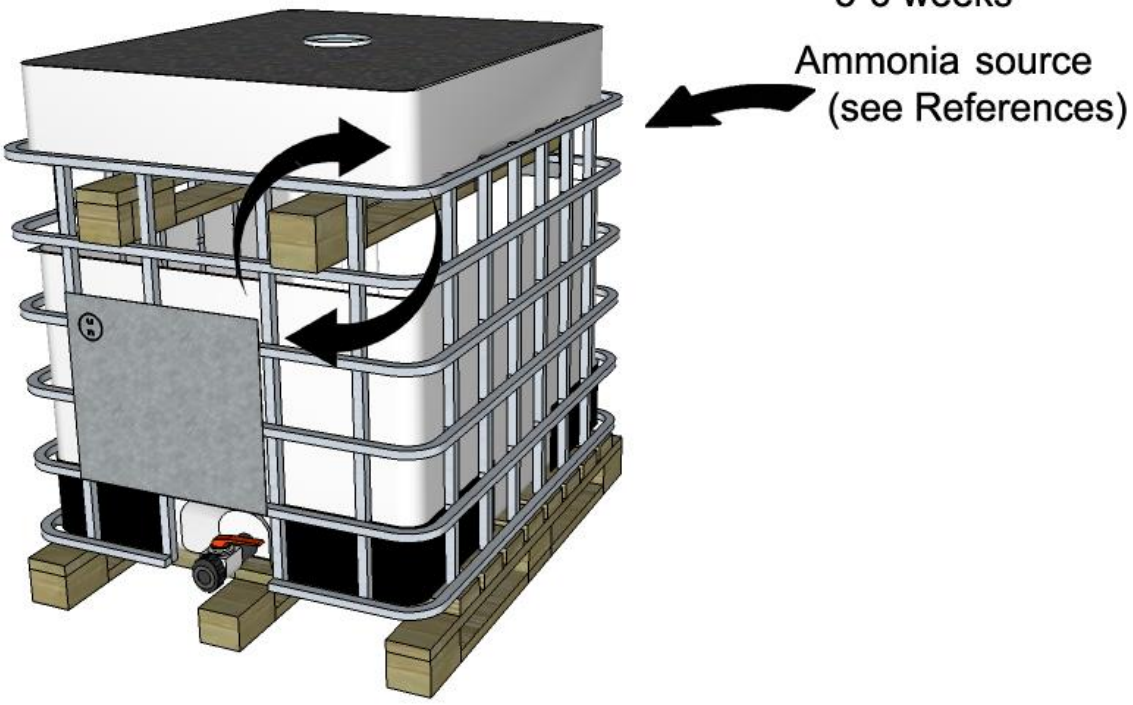

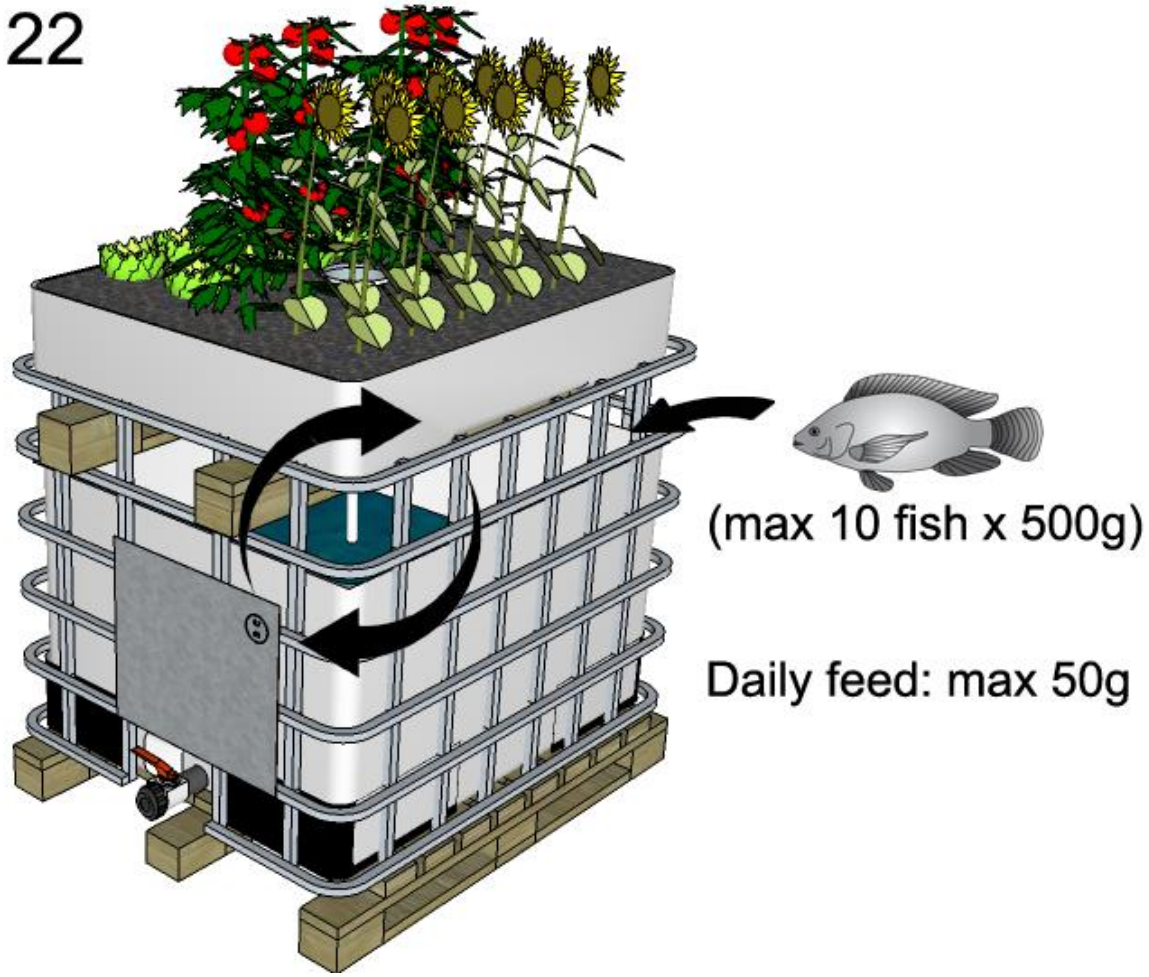

Known Issues/Suggestions:

- Intermediate Bulk Container might be a too expensive solution for many individuals;
- Lava gravel, while cheap, can be very heavy and hard on the hands;
- Grow area support using a wood palette might not be strong enough;
- Overall, most materials used are still hard to find in many parts of the world;
- The system requires a reliable source of electricity.

References:

- (**Required reading**) Small-scale aquaponic food production, 2014, http://www.fao.org/3/a-i4021e.pdf
- The IBC of Aquaponics, 2011, http://www.backyardaquaponics.com/Travis/IBCofAquaponics1.pdf
- Aquaponic Gardening, 2013, http://theaquaponicsource.com/shop/aquaponic-gardening-book/aquaponic-gardening-a-step-by-step-guide-to-growing-fish-and-vegetables-together/
- Understanding Biological Surface Area in Aquaponics, 2013, https://www.brightagrotech.com/biological-surface-area-in-aquaponics/