Budikdamber: A Simple Aquaponic for Household Purpose

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Intro

FAO, 2014

- Budikdamber (in Indonesia):

  Budidaya **ik**an **da**lam e**mber**

  Budidaya ikan : Fish culture

  Dalam ember : in bucket

- Budikdamber adopted aquaponic technique in a simple practices

  Aquaponic is an integrated aquaculture (raising aquatic animals in tanks) with hydroponics (cultivating plants in water) in a recirculation system and symbiotic environment

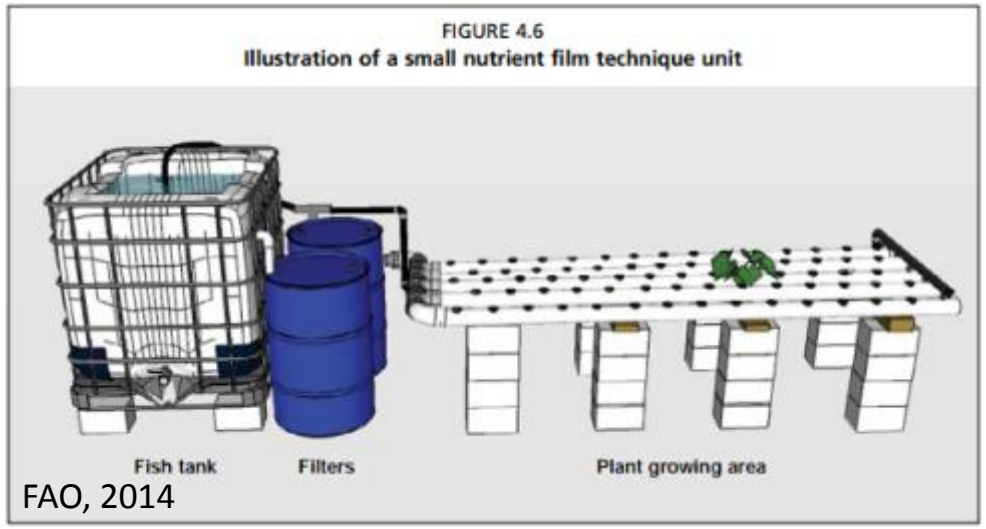
- Budikdamber is designed to suffice the requirements of both animal and vegetable protein on a household scale
  - For business purpose, aquaponic can be designed in a large scale with more complex system
- Budikdamber is integrated fish (African catfish) and vegetable (water spinach, pak choi, tomato, chilli)

Intro: African catfish

- African catfish (Indonesian name: Dumbo catfish, *Clarias gariepinus*) introduced to Indonesia in 1985, increased aquaculture productivity on fish farmer level; Production reached 870.000 tonnes in 2016
- Since 2000, genetic improvement of African Catfish has been done and has resulted authorized variety of catfish called SANGKURIANG and MUTIARA catfish
- Advantage of catfish culture: naturally spawning, limited use of land and water, high stocking density, low capital (investment of pond), cultivated technique on different pond type, product diversification, local market

Intro: African catfish

Intro: Aquaponic



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Aquaponic

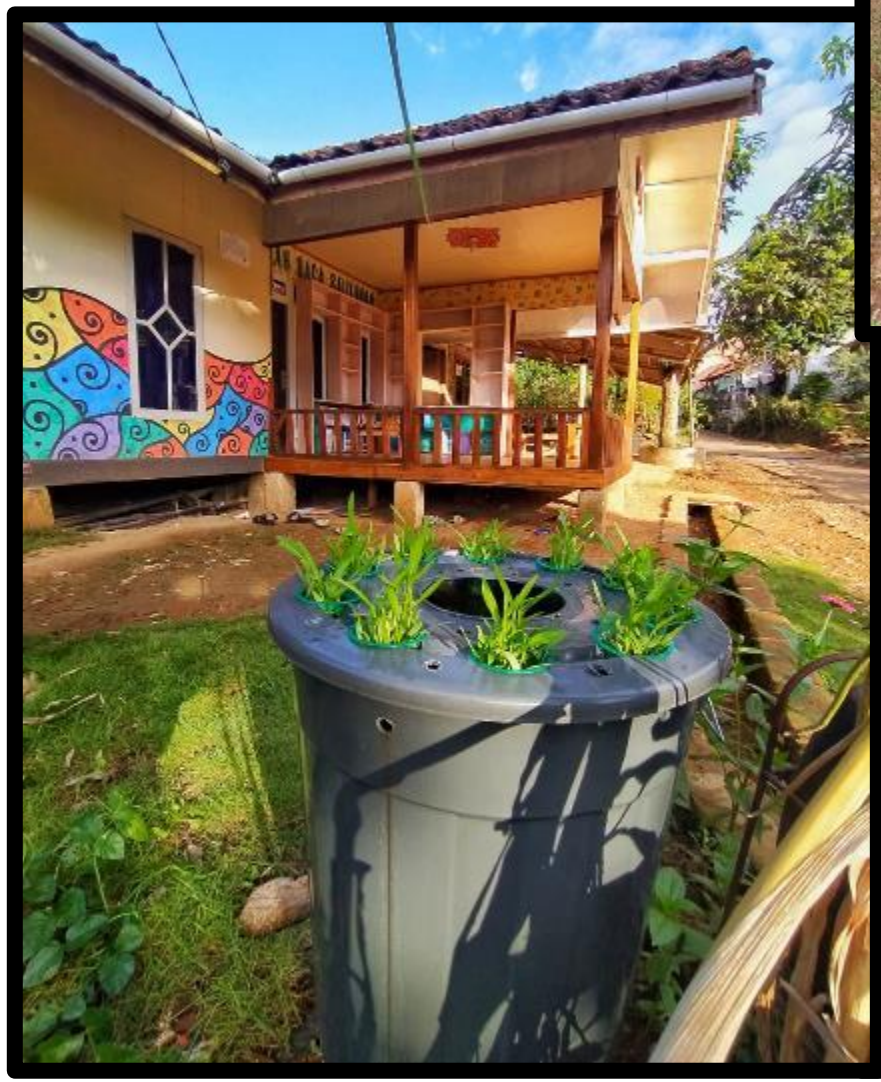
Major weaknesses of aquaponic food production:

- Expensive initial start-up costs compared with soil vegetable production or hydroponics.
- Knowledge of fish, bacteria and plant production is needed for each farmer to be successful.
- Mistakes or accidents can cause catastrophic collapse of system.
- Daily management is mandatory.
- Electricity demanding.

Budikdamber: Comparative advantages

- Cheap initial start-up costs
  - (~$15 per unit)
- Easier to adopted by fish farmer
  - The technology used is low/simple so that knowledge about fish farming and hydroponics is not really necessary
- Provide both animal and vegetable protein sources for household needs
- Fish rearing can be conducted by women or children
- No need electricity
- No need fertilizer

Budikdamber



Budikdamber: Productivity

- Fish production :

  ~ 5 kg fish per bucket per crop (3 months)

- Vegetable production :

  Water spinach 2.4 - 3.2 kg per bucket per harvest (every 2-3 weeks)

Budikdamber: Material

- Bucket 100 L
- African catfish,
  seed 7-9 cm, 50 fish
- Feed
- Vegetable seed
- Charcoal
- Cable
- Plastic cup

Budikdamber: Preparation

Hole the plastic cup

Without cover: Tie the plastic cup using cable

Put the charcoal in the plastic cup

Plant the seeds

With cover: Hole the bucket cover

Place the cup on the bucket

Stock the fish seed

Budikdamber: Fish rearing

- Fish feeding:
  - 2-3 time per day
  - 3% biomass per days
- If there is a bad smell
  - Replace water about 10-15%
  - Water from the budikdamber can be used to watering other plants

Budikdamber: Harvesting

- Fish: After 2.5 – 3 month rearing
- Water spinach: every 2-3 weeks

Tilapia: fry production

- Pond 300 – 400 m2
- Brooder 100 male 300 female
- Fry production
  - 50.000 – 100.000 fry per 2 weeks

Thank you

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