

Smart **Floating Farms**

The Third Agricultural Revolution: Toward a connected, inclusive and sustainable agriculture

Arras, June 2016



Where are we heading to...

2050 = 9.1 Billion people



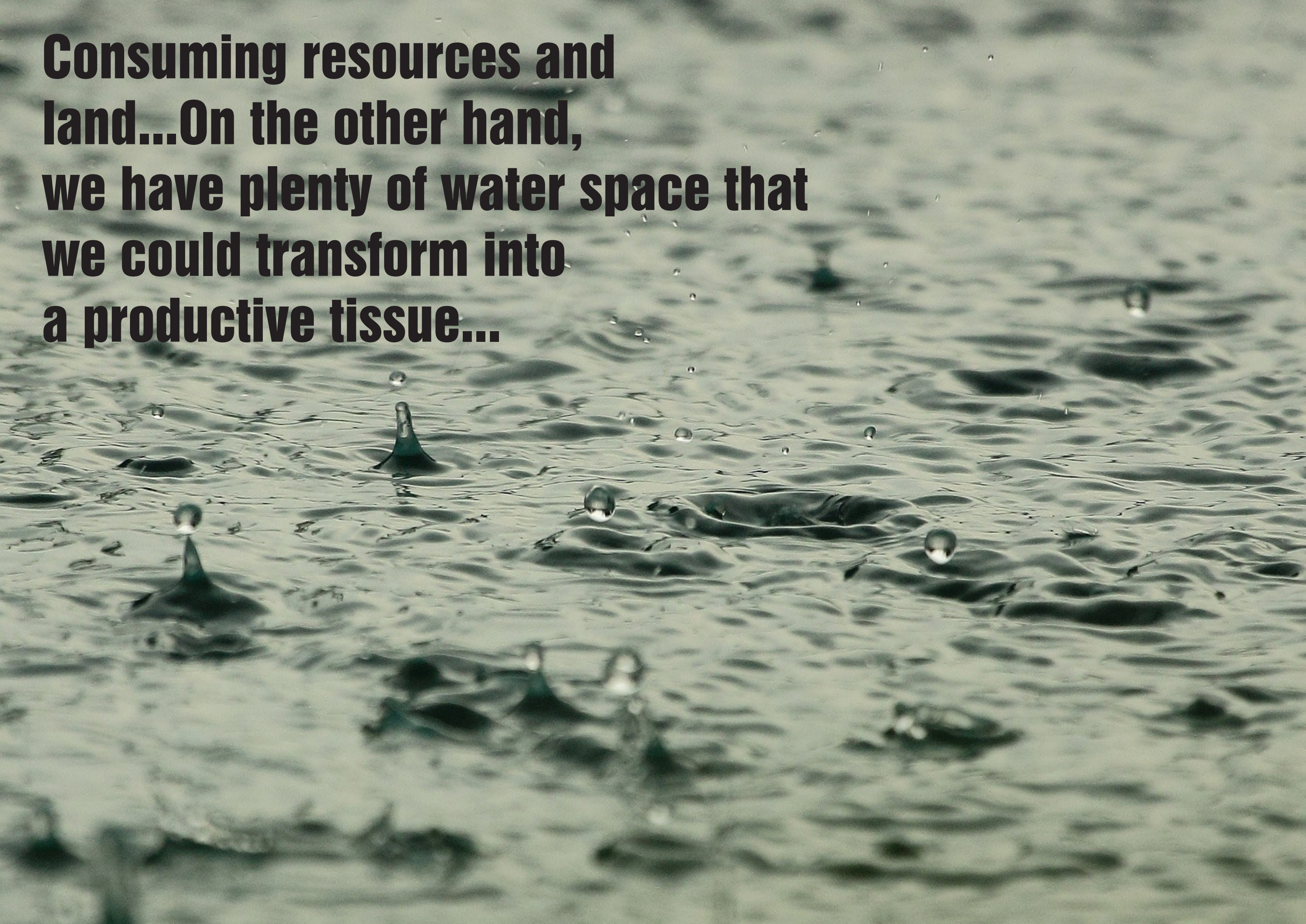


**We have destroyed land and produced
Climate change**

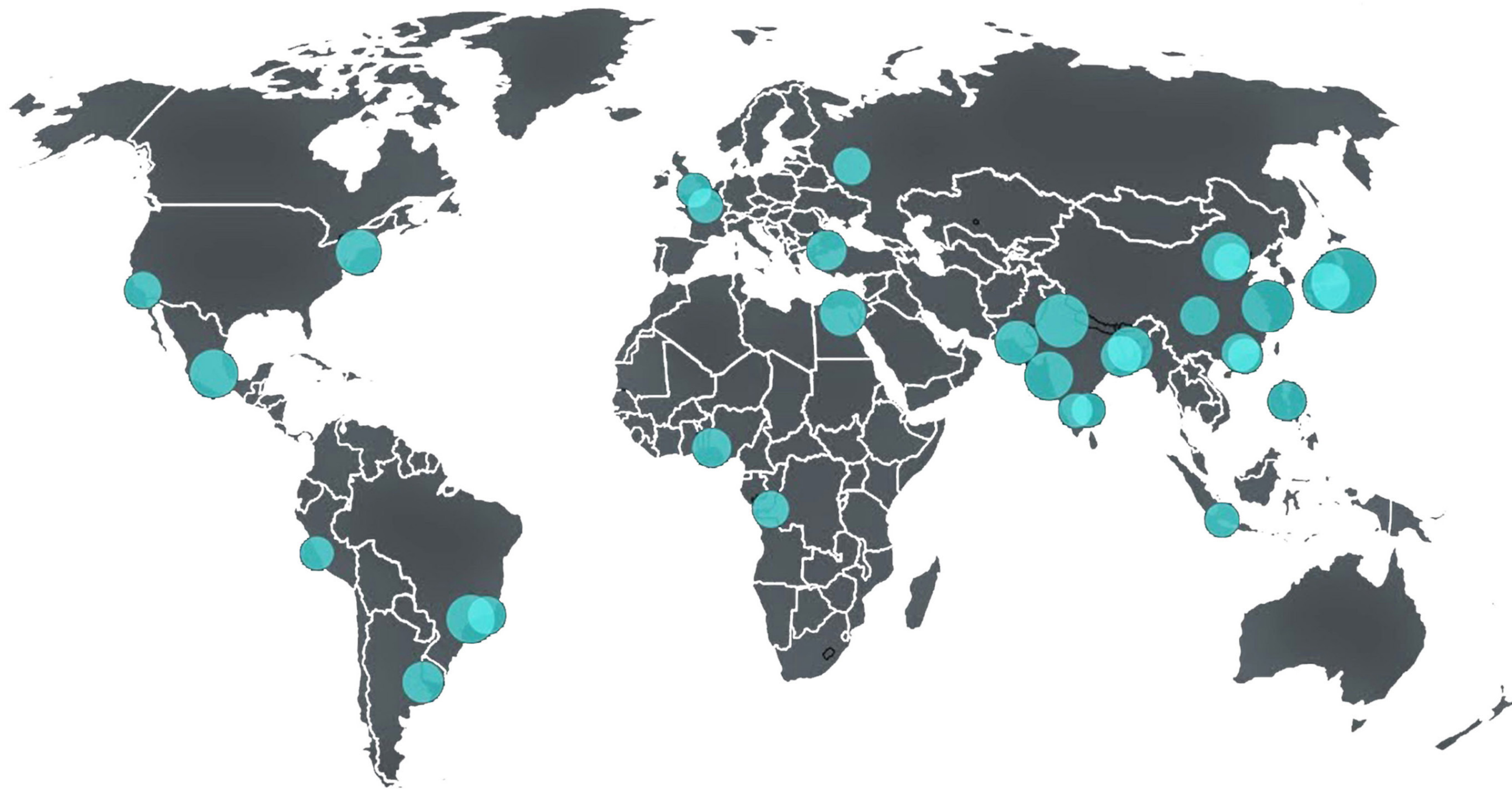
**Over 80% of our arable
land is in use**



**Consuming resources and
land...On the other hand,
we have plenty of water space that
we could transform into
a productive tissue...**



since **25** out of 35 world Megacities have a physical access to water (seas, lakes or rivers)



Shenzen
Tokyo
Singapore
Mumbai
Jakarta
Cairo
HK
Shangai
EU
Los Angeles
Chicago
NY
Seattle
Tokyo
Singapore
Mumbai
Jakarta
Cairo
HK
Shangai
Sao Paulo
México
Doha
Osaka
Bangkok
Abu Dhabi
Dubai
Istanbul
Montreal
Jeddah
Kuwait city
Seoul
Karachi
Sydney
and a long etc..

“We want to bring Agricultural production closer to where it is actually consumed, reducing food mileage and making it more fresh and accessible to the people”

Why?

- Megacities fast growing pace & population
- By 2030, food demand is predicted to increase by 50%(70% by 2050) - United Nations
- Increased wealth and shifting diets
- Avoid huge amount of food imports + reducing food mileage
- Limited land availability(land scarce) and land premium prices
- A more controlled, cleaner and sustainable farming aquaculture high volume production and aquaponics
- Year-round high yield production, not depending on external/weather conditions
- Guarantee local food quality control

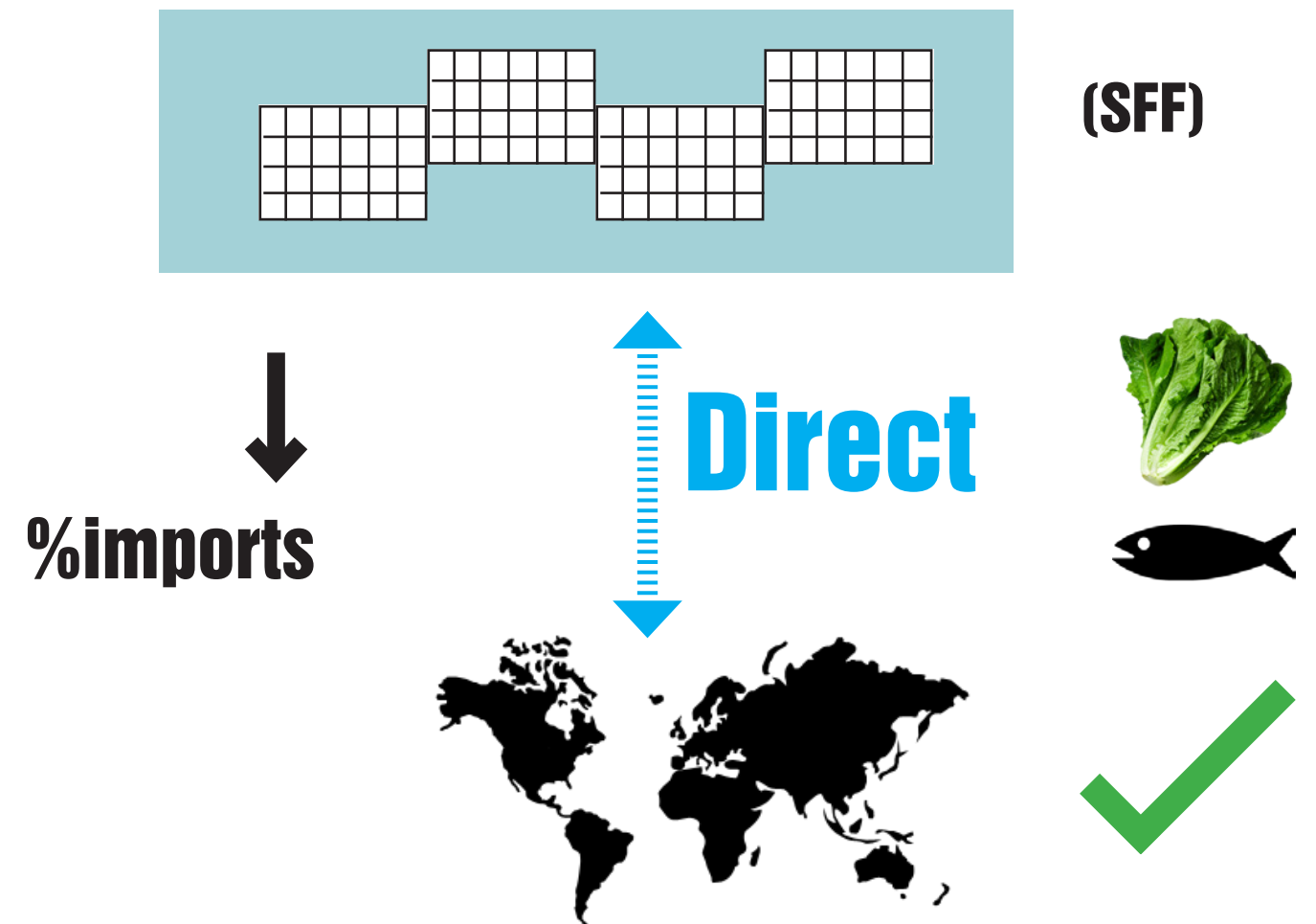
We aim for a complementary alternative

from importer-consumer

Producers-quality controllers



-Singapore, Gulf, US(fish), HK, etc
Climate: Bangladesh(floodings),
Droughts (California)
Overpopulation: China, India

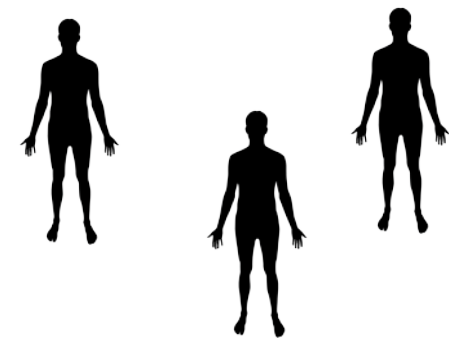


-Annual production, policulture
-Self-sufficiency
-Modularity/flexibility
-Materials life cycle

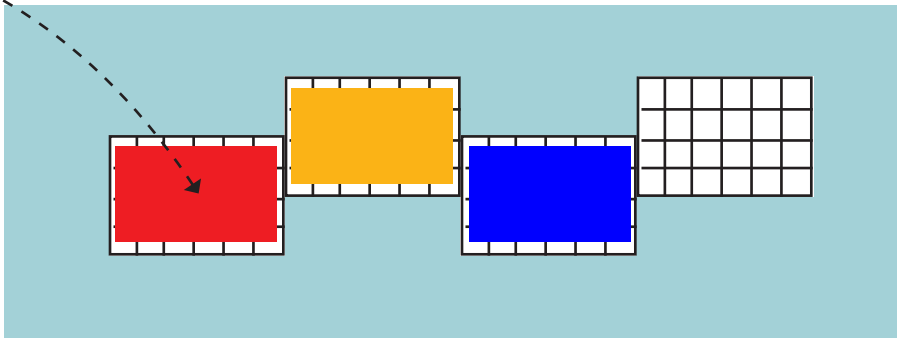
21st century opportunities



Collaborative

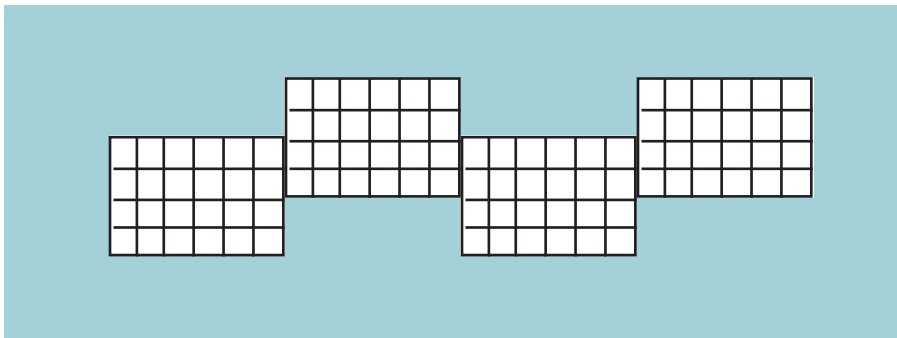


Districts-neighborhoods



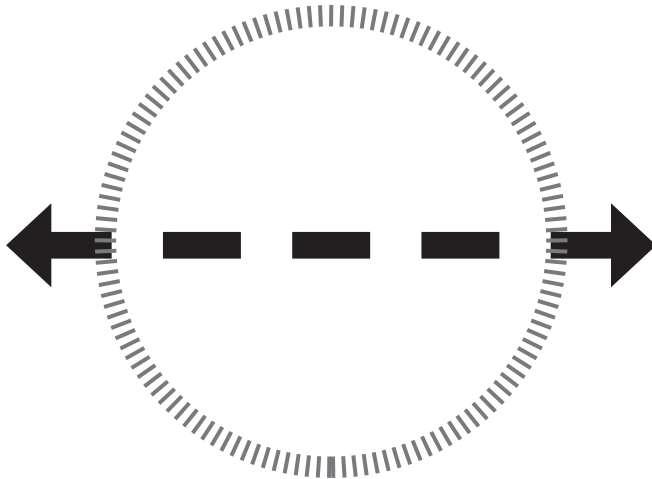
(SFF)

Farmers -new Jobs

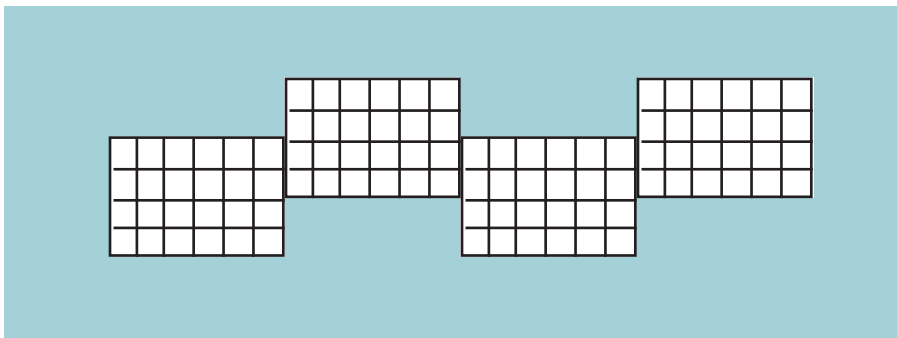


(SFF)

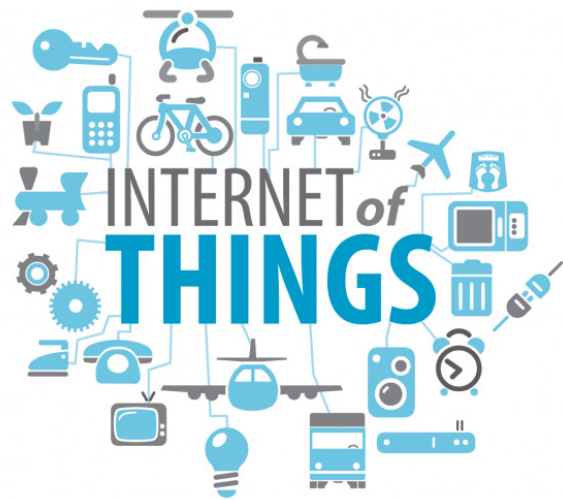
BIG DATA



Autonomous platforms

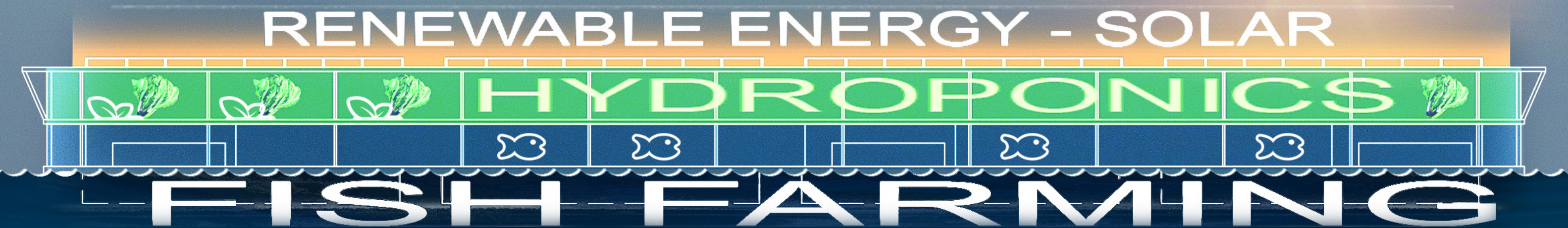


(SFF)



But HOW?.....

Via a combination of different existing technologies available in the market into a single Floating Farm module

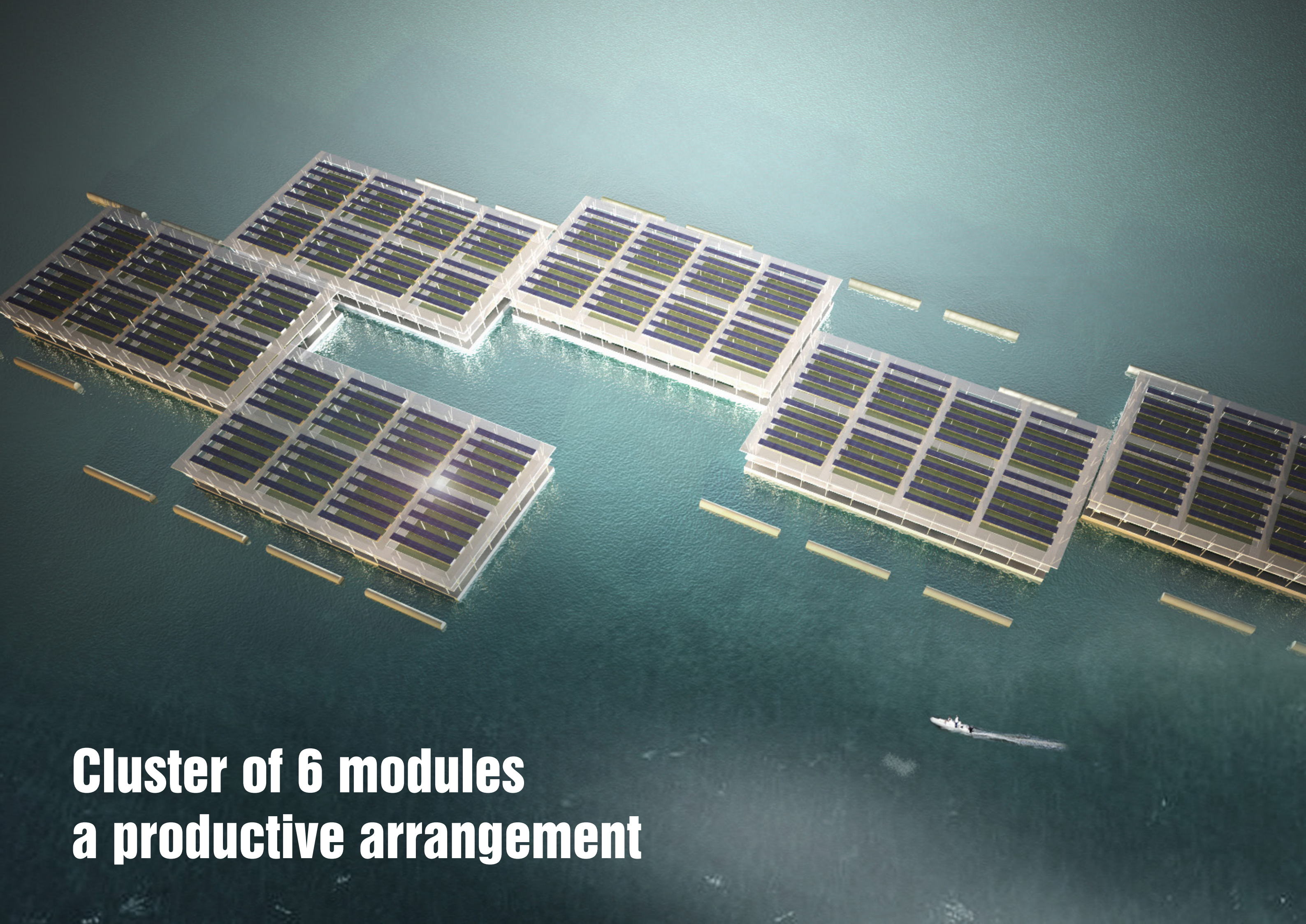


equation





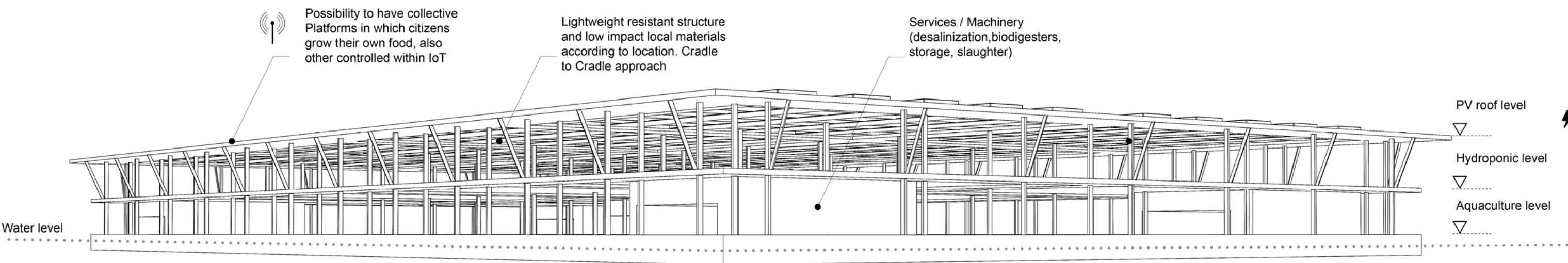
**Inspired by the traditional
Fish Farms grid configuration**



**Cluster of 6 modules
a productive arrangement**

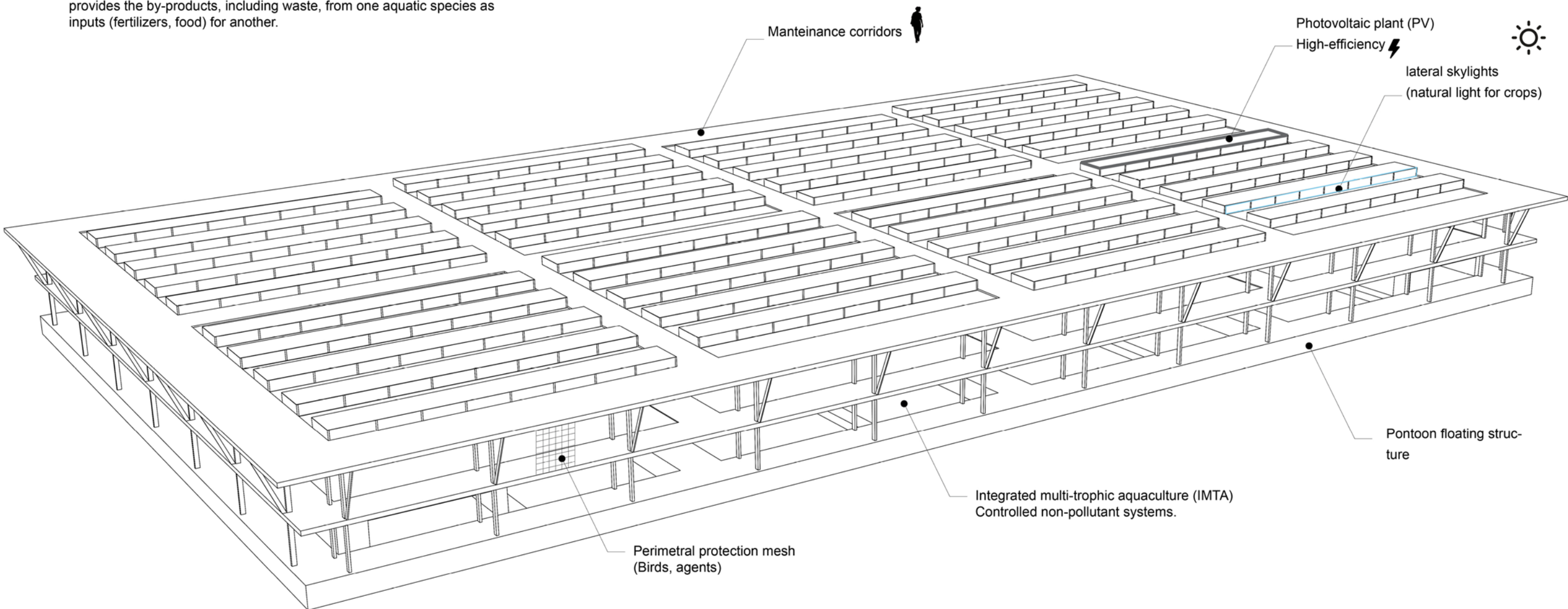
Project main structure / Components

Materials cycles within a cradle to cradle approach / Biosphere-technosphere



Integrated multi-trophic aquaculture (IMTA)

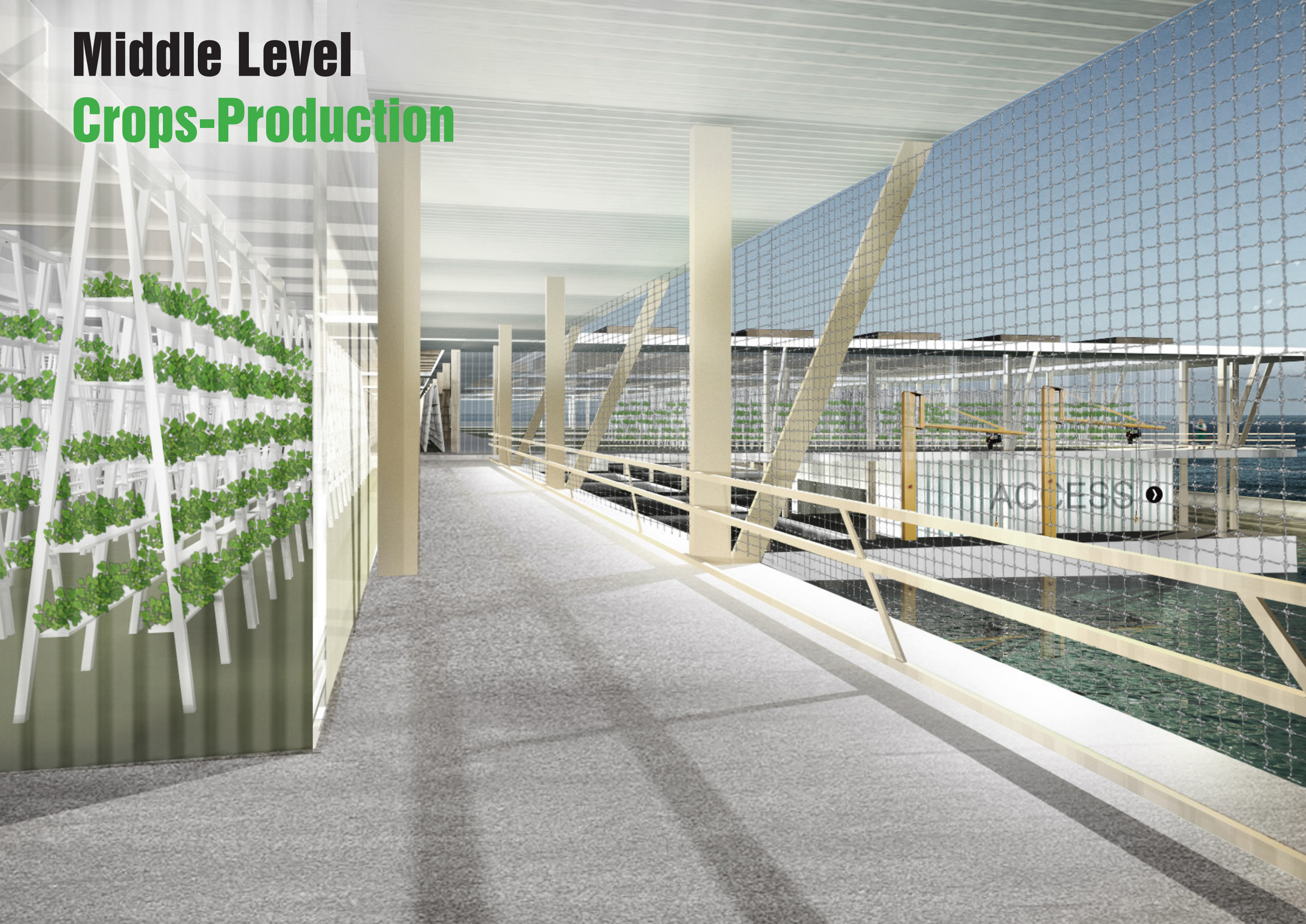
provides the by-products, including waste, from one aquatic species as inputs (fertilizers, food) for another.



Roof level Photovoltaic / CSP solar power plant. towards self-sufficiency



Middle Level Crops-Production



Some Products examples for a potential Market

(Crops type could vary according to the project geographical location)

Leafy Greens



Lettuce



Chinese



Xiao Bai Cai



Bayam



Kang Kong (Water spinach)



Cai Xin



Gai Lan



Nai Bai



Cabbage

Vegetables



Artichokes



Asparagus



Beans



Beets



Broccoli



Brussels sprouts



Cucumbers



Eggplant



Leeks



Onions



Peas



Radishes



Rhubarb



Tomatoes



Bell peppers

Fruits



Rasperberries



Watermelon



Strawberries



Blueberries



Blackberries

Herbs



Balis



Arugula



Chervil



Chives



Coriander



Dill



Lemon grass



Mache



Majoram



Peppermint

Fish



Groupers



Seabass



Snappers



Milkfish



Tuskfish

Lower level Fish Farms

Aim of an Integrated Multi-Trophic Aquaculture (IMTA)



THE FIRST STEPS:

Towards a smaller scale prototype

35m x 60m footprint (2100 m²)

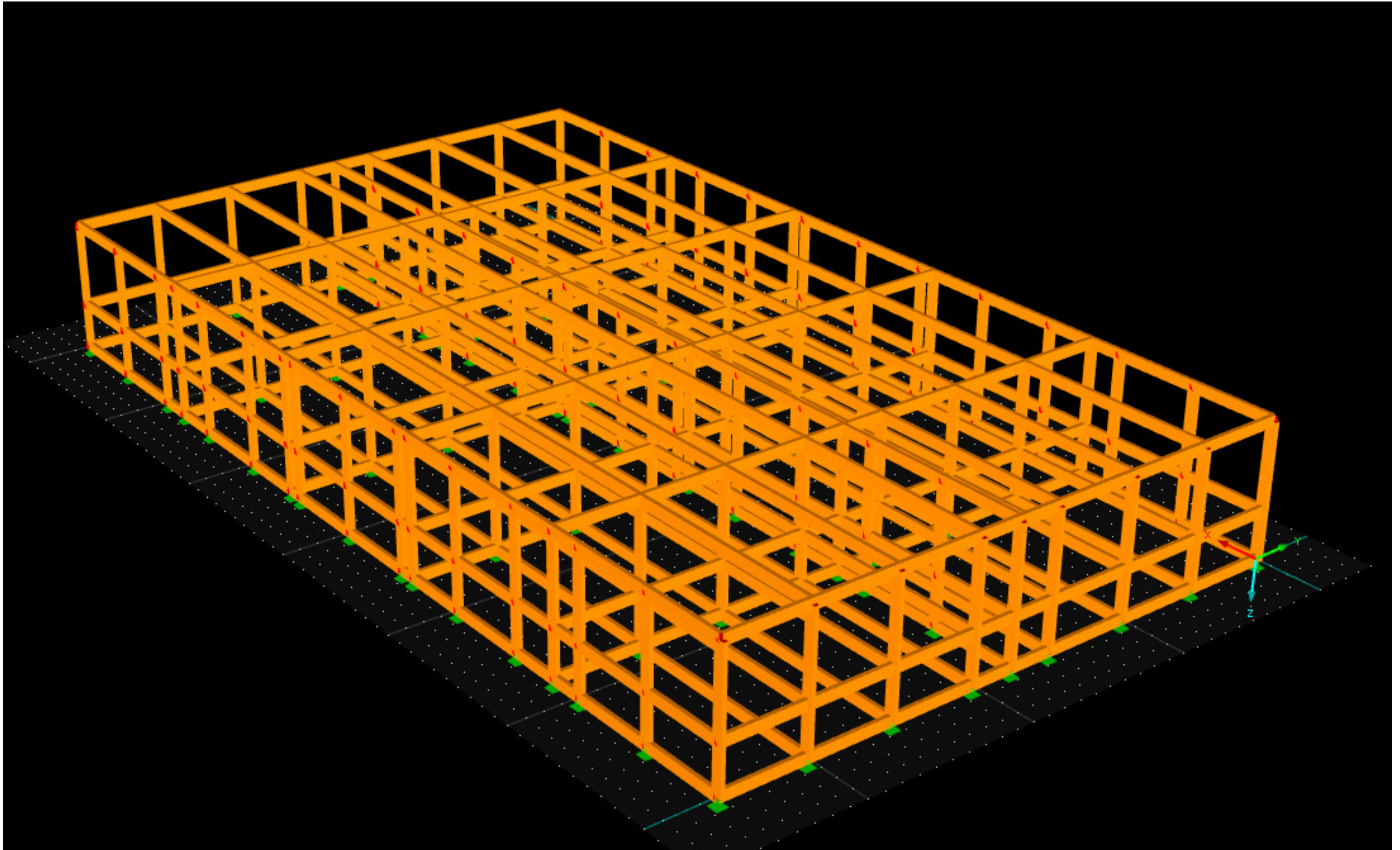
Preliminar studies (output, costs, etc)



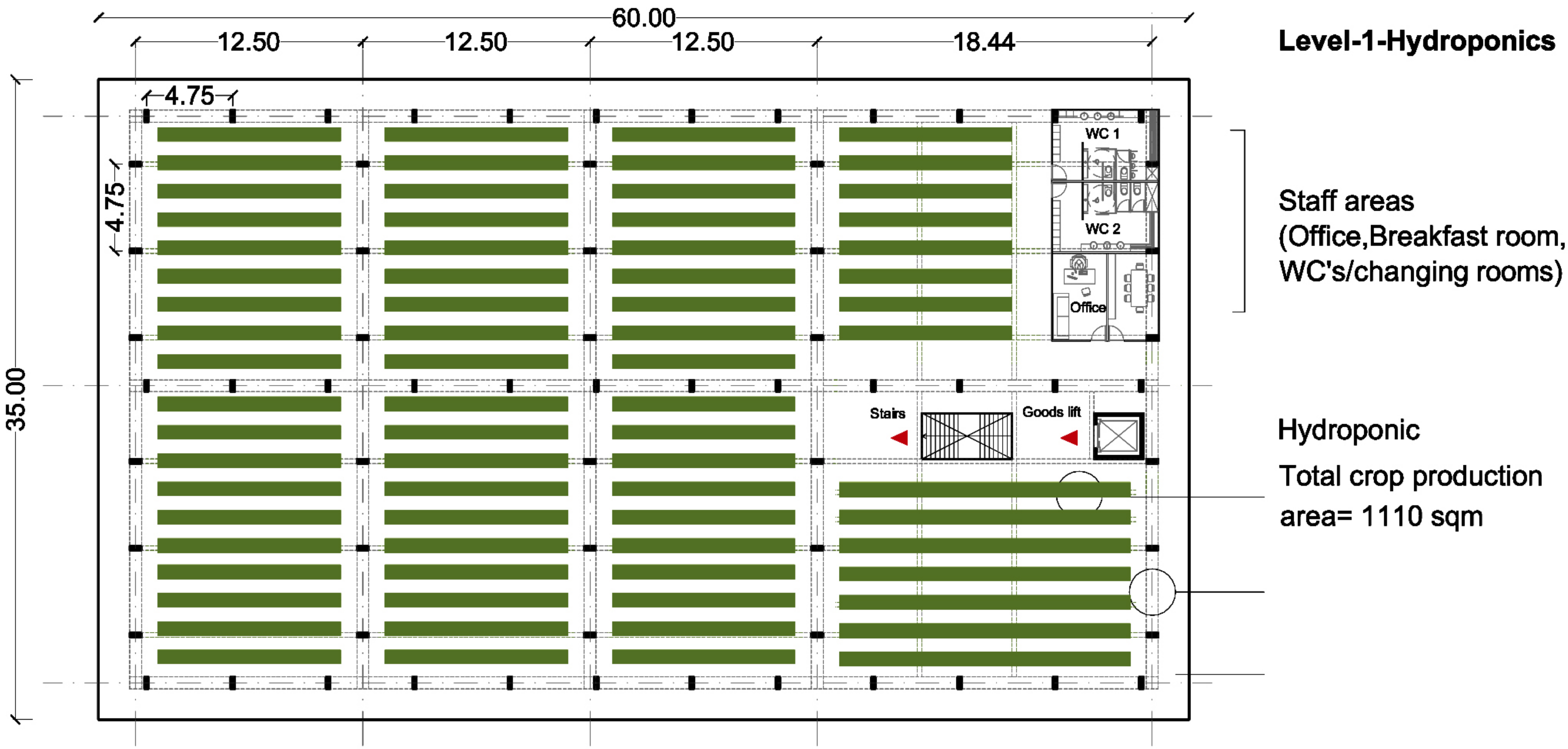
Pontoons: CLT floating structures

image: Paolo timber pontoons

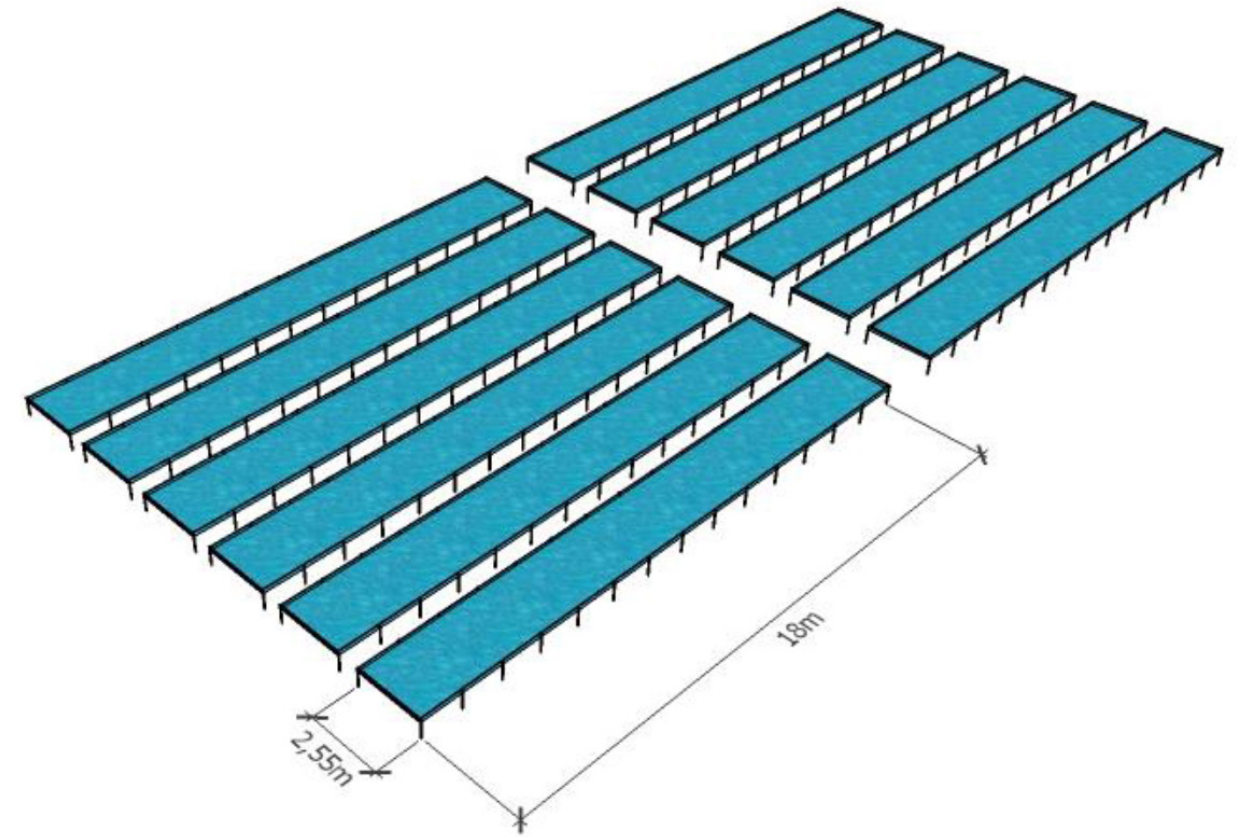
Structure studies



Prototype studies: Middle level: Crops

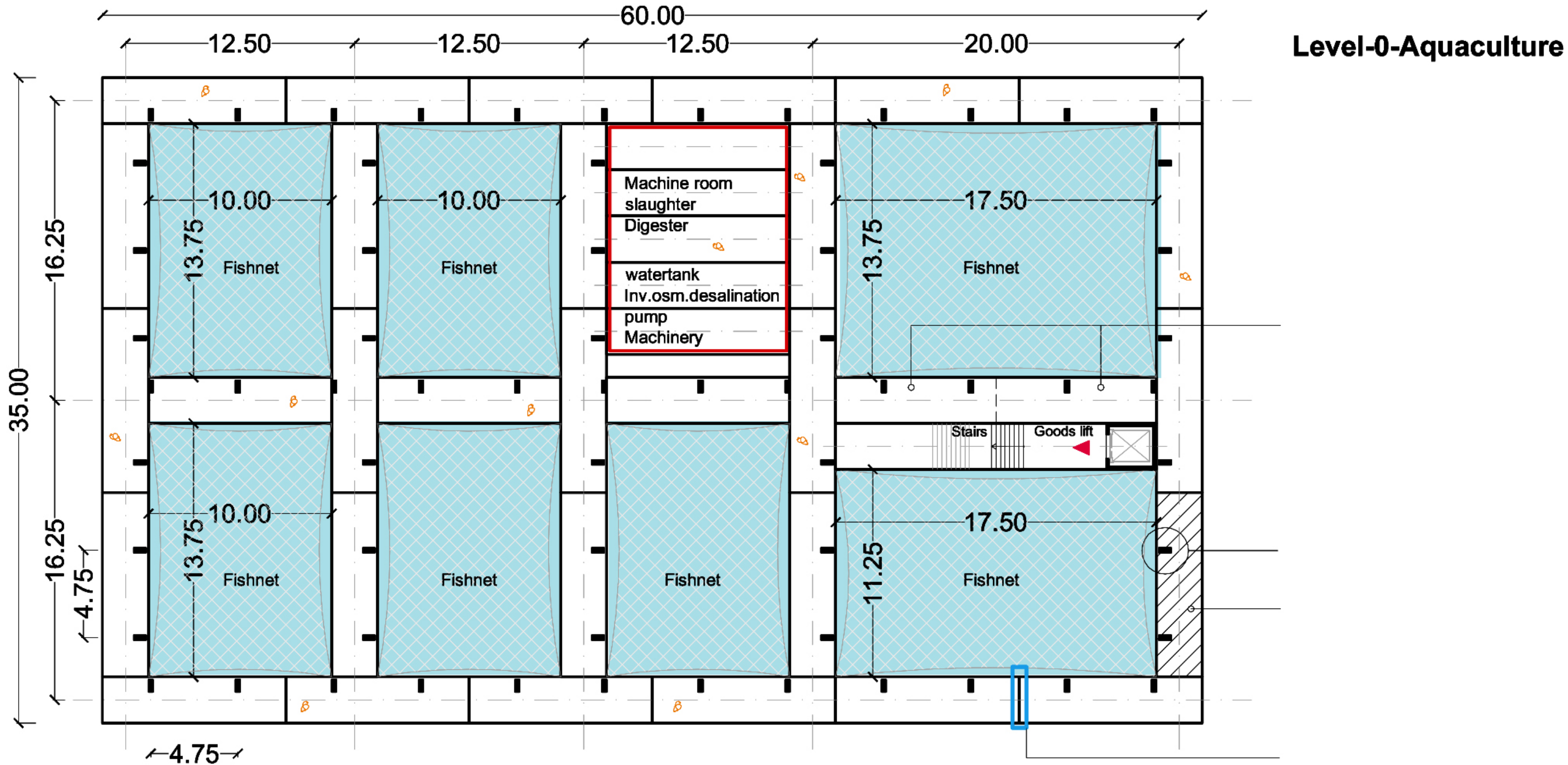


Prototype studies: Hydroponics system



Prototype studies:

Lower level: Fish



**“Learn from yesterday, live for today,
hope for tomorrow. The important
thing is not to stop questioning”**

Albert Einstein



www.smartfloatingfarms.com