

Floating Houses: Rejuvenating “Home” For The Flood Affected Communities In Bangladesh

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Background

► The scene

- Flood in a changing climate: global context
 - Frequency, loss and damage
- Flood in Bangladesh
 - Types of flooding and major loss and damage
- Conventional flood management approaches and a comparative evaluation
 - Hard
 - Flood/cyclone shelter,
 - Embankment/drainage infrastructure
 - Soft
 - Early warning, evacuation
 - Relief and rehabilitation
- Status quo of the global and regional water and climate change policy

Background

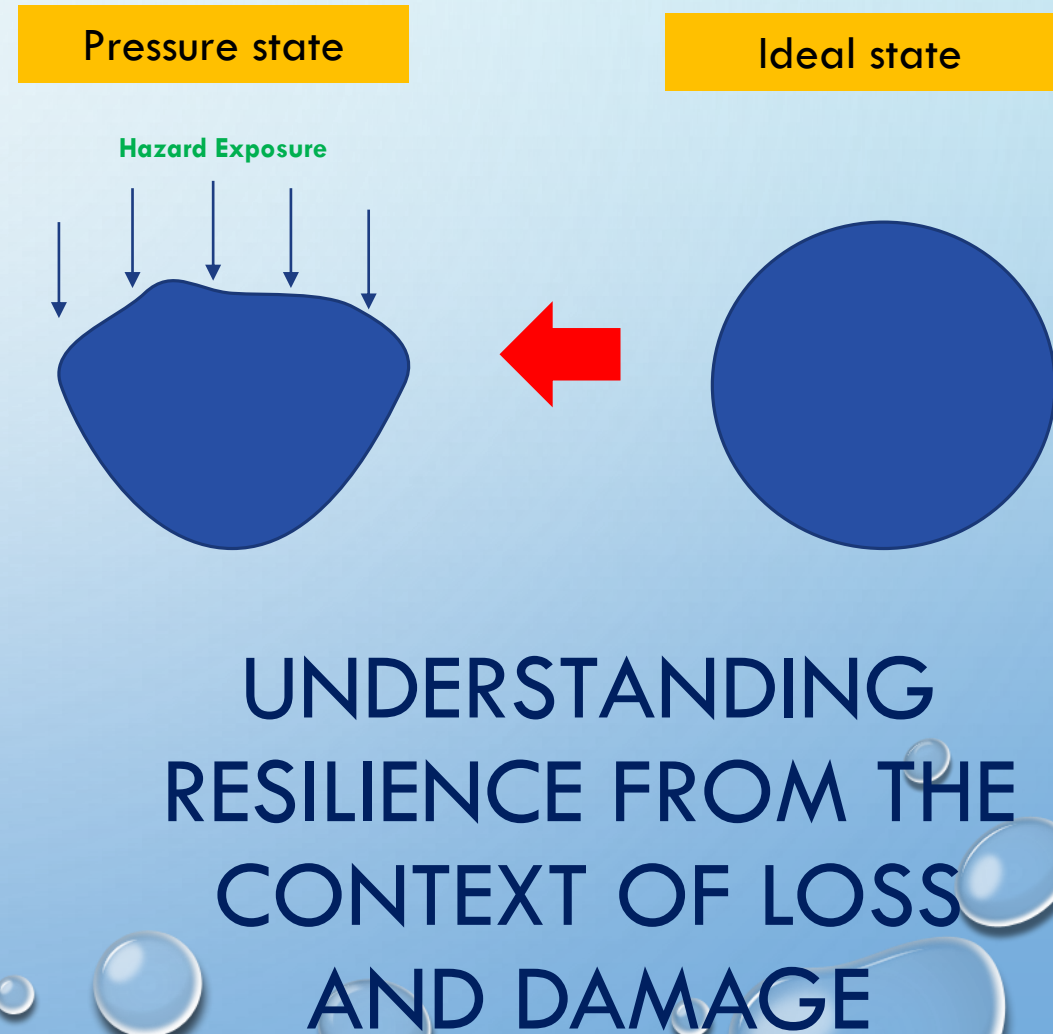
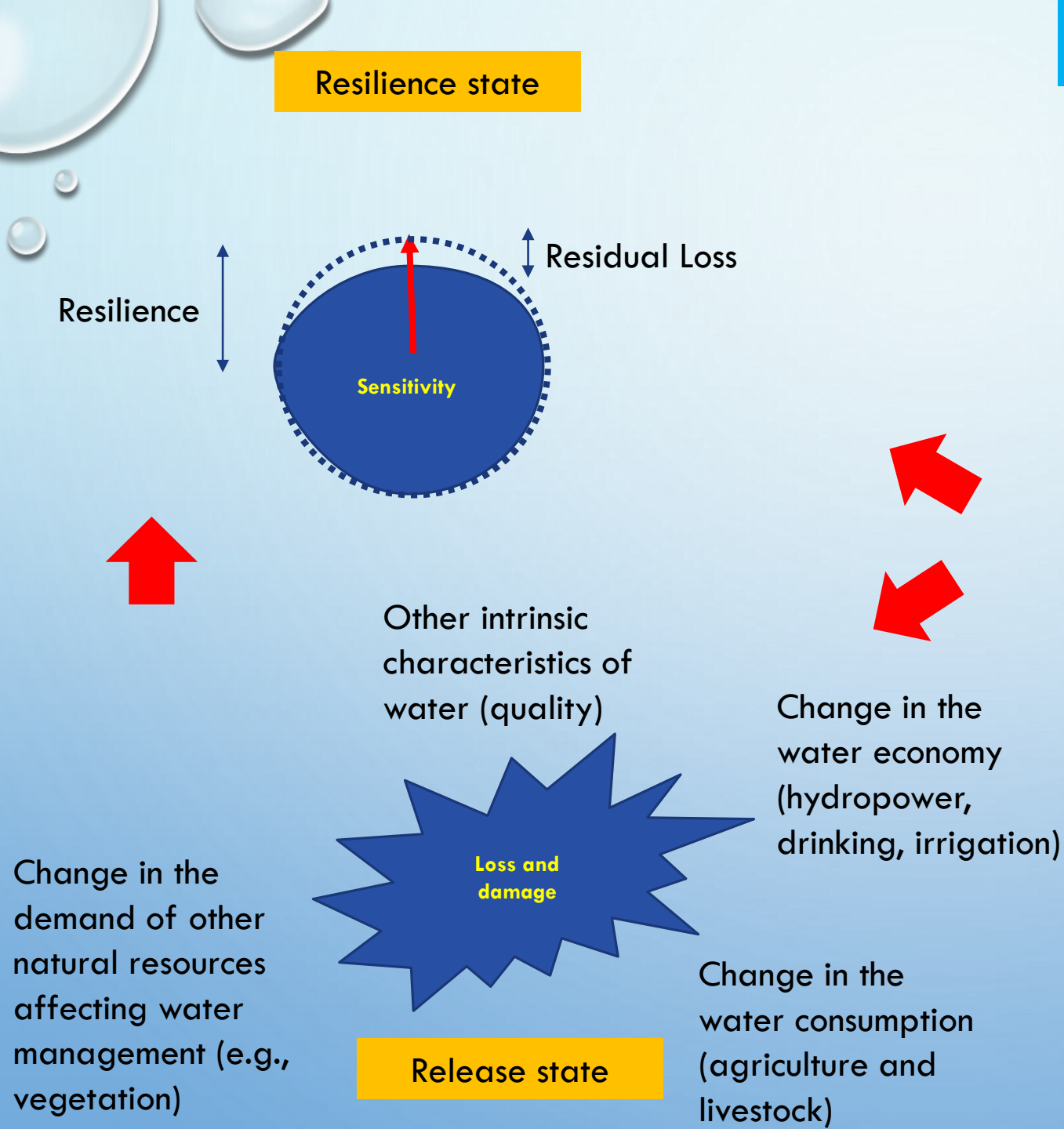
► Peoples perception

- **Displacement** from house is the last resort
- Risk **perception** grossly differs from science-based enumeration
- People don't want to live the life of '**nomad**', establishment entitles security
- **Uncertainty** remains, no matter how robust the adaptation or mitigation based plan is, loss and damage residue exists
- **Intangible**, and indirect loss and damage is much more creeping than the tangible and direct ones
- Risk not only perpetuates from the hazard itself, flood loss and damage prevails due to deep rooted **social vulnerability**, e.g., poverty, structural inequality, gender disparity, governance, etc.
- Floods are **beneficial** as well

Adaptation

“Living with flood” could be one out of many options to combat flood loss and damage and uncertainty

Pressure-Release-Resilience model



Four principles of sustainable living

Peoples perception

1. **A decent standard of life** with adequate food, water and unrestricted access to all the basic necessities without exerting additional pressure on non-renewable resources
2. **Safeguarding life and livelihood** from unprecedented disasters
3. **Individual's voice heard and given importance** in the society despite of their political affiliation and wealth, marginality in the land tenure is minimized
4. **Protected safety, security and dignity** of the household members

The Bruntland Report (1983)

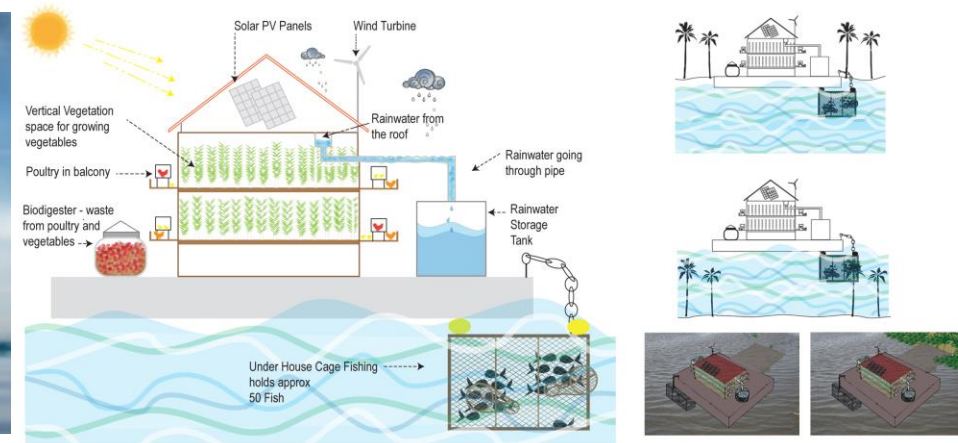
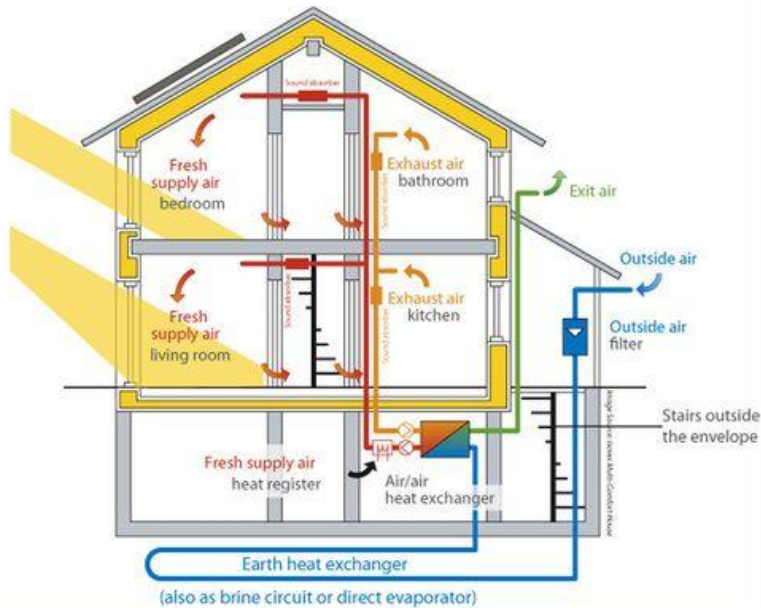
"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Four principles of sustainable development (UK, 2004)

1. Living within Environmental limits
2. Ensuring a strong, healthy, and just society
3. Achieving a sustainable economy
4. Promoting good Governance

Passive house vs floating house vs flood resilient house

PASSIVE HOUSE BASICS



Focus on net energy consumption and supply

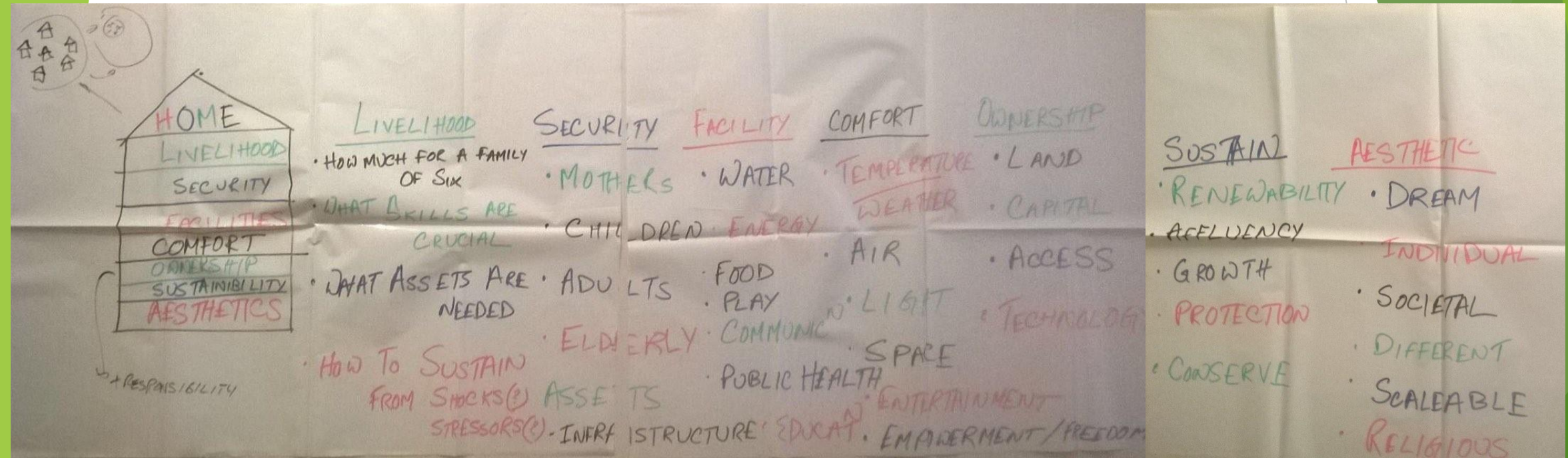
Focus on the buoyancy of the house

Consider “home” as a unified concept to address vulnerability

Passive house: <https://s-media-cache-ak0.pinimg.com/736x/b7/84/10/b784101e00913b766f2eafc1ba9bba2a.jpg>

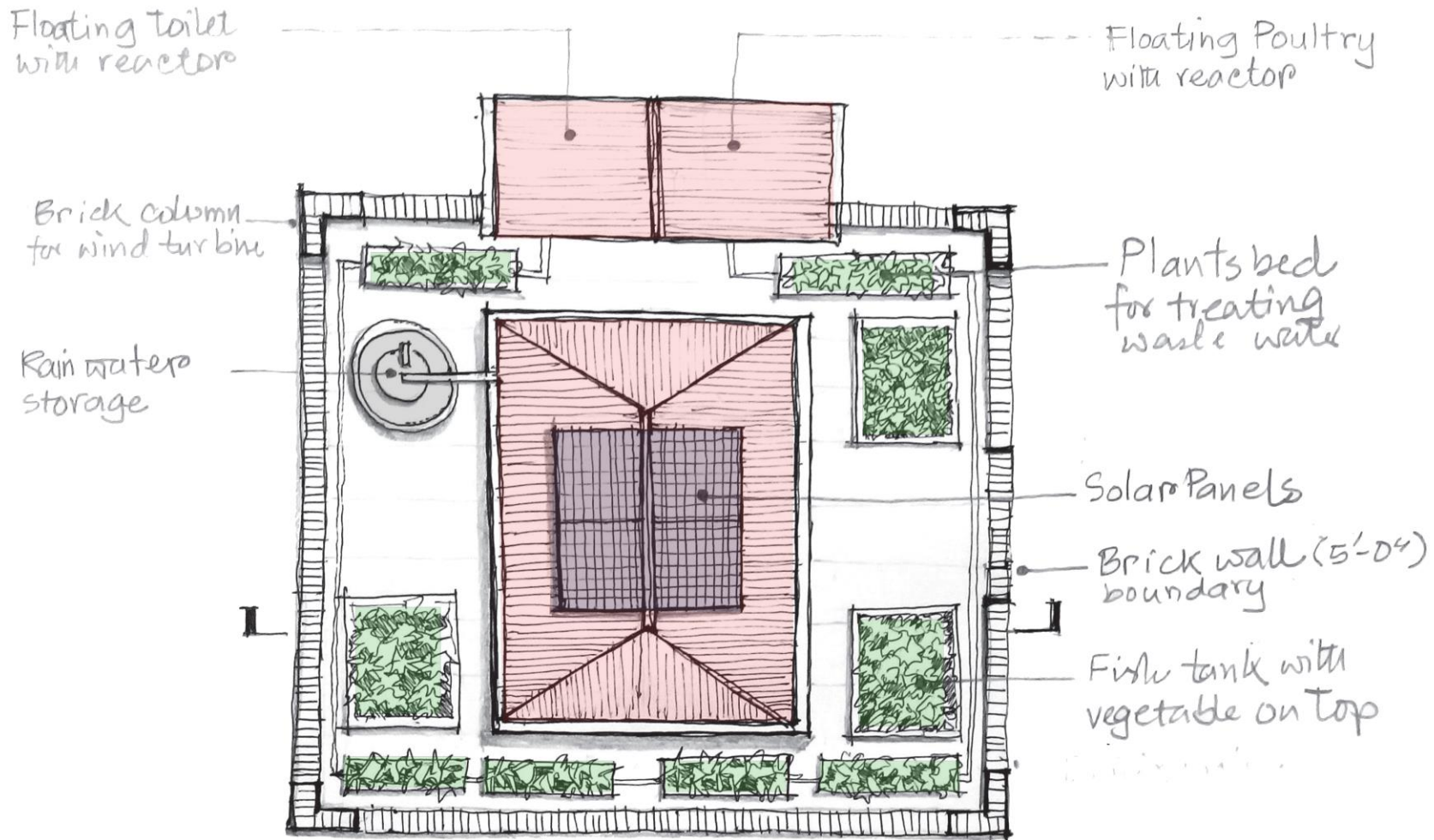
Floating house: <http://cdn.trendir.com/wp-content/uploads/old/house-design/floating-water-home.jpg>

“Home”-as a unified conceptual proposition to achieve flood resilience (not the solution)



What constitutes a “home”

Conceptual design



Design Considerations

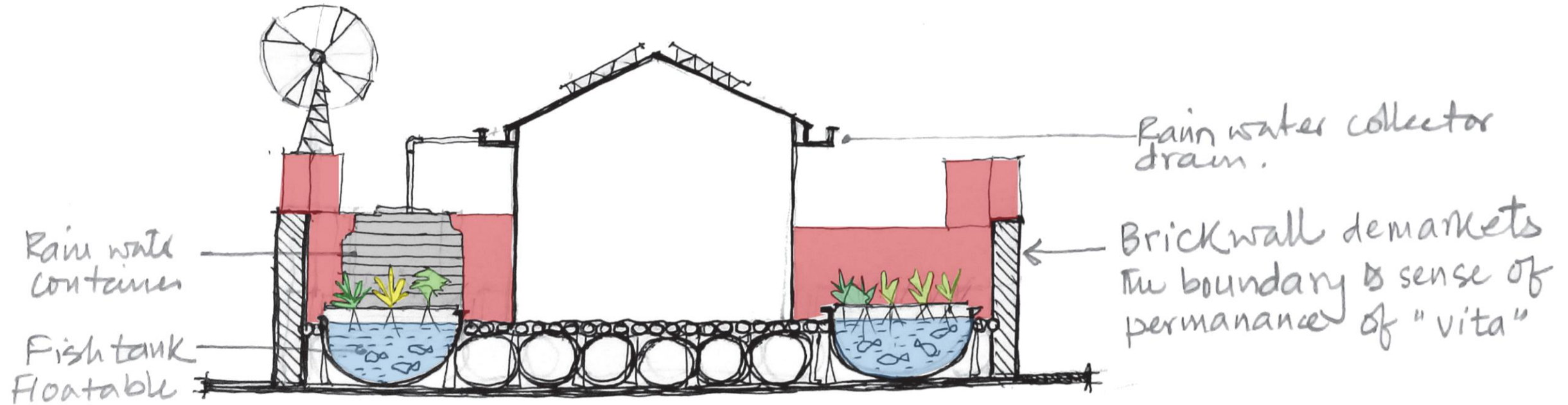
A 10" wide and 5' 0" height wall around the 'vita' the 'plinth', to make more 'ness' of permanency of the users. vita is a symbol of 'permanency' and 'attachment' on earth/soil. this attachment creates the sense of home. the wall will act as 'reference of vertical movement' while there is flood. additionally, four corners will act as post for 'wind turbines'.

One toilet and poultry (see in plan) which will float with the attached 'reactor' to produce gas, fertilizer.

Rain water harvesting tank has been added on floor.

Three source of energy options: solar panel, solar concentrator, wind turbine and bio-digester

Conceptual design



Architect: A K M Sirajuddin, Associate Professor, BRAC University

Limitations

- ▶ Social acceptance, resistance to change
- ▶ Economic viability
- ▶ Financing modalities
- ▶ Operation and maintenance
- ▶ Upscaling and policy support

Thank you

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