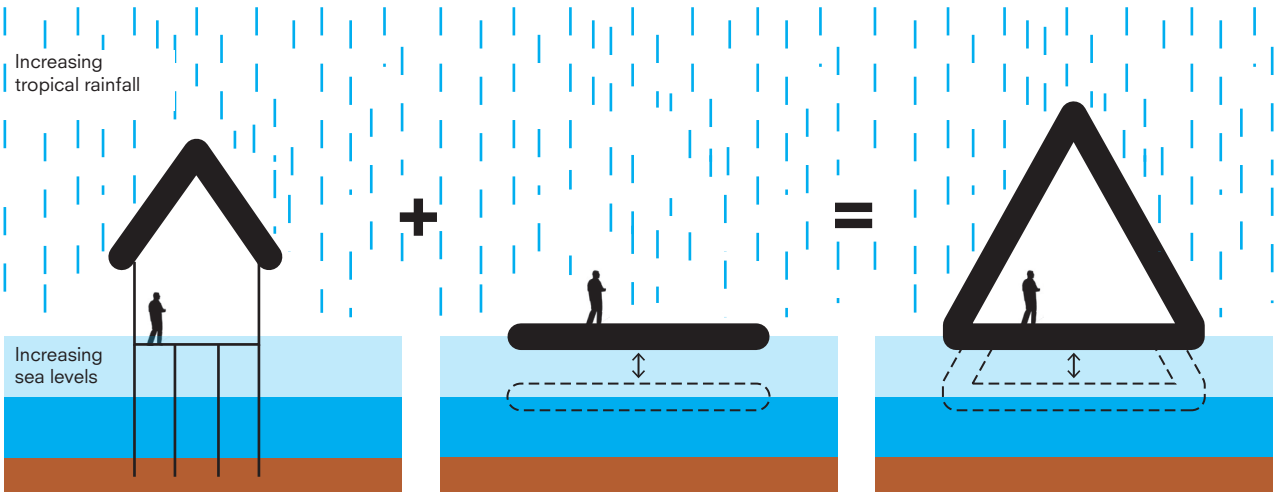
# 2D FLOTATION & ANCHORING TECHNOLOGY PRINCIPLES

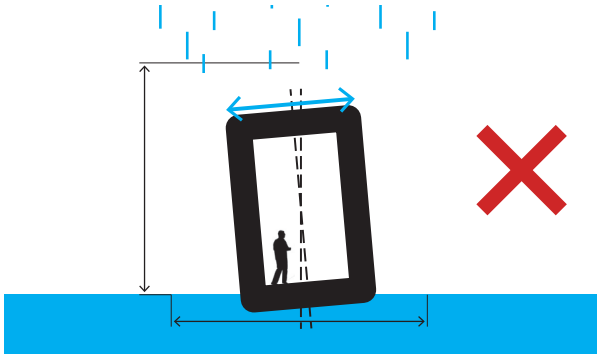
Photography:
NLÉ

# STRUCTURE CONCEPT

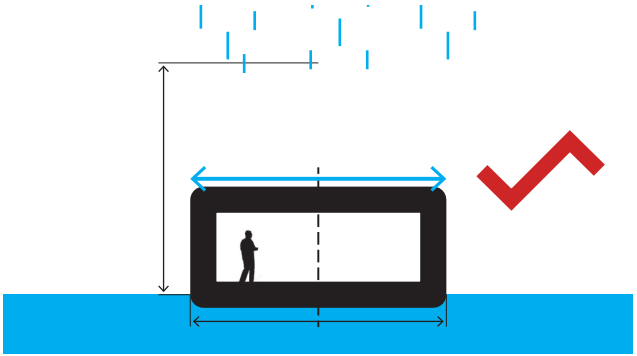



**LOCAL MAKOKO TECHNOLOGY** + **GLOBAL FLOTATION TECHNOLOGY** = **DERIVED SOLUTION**

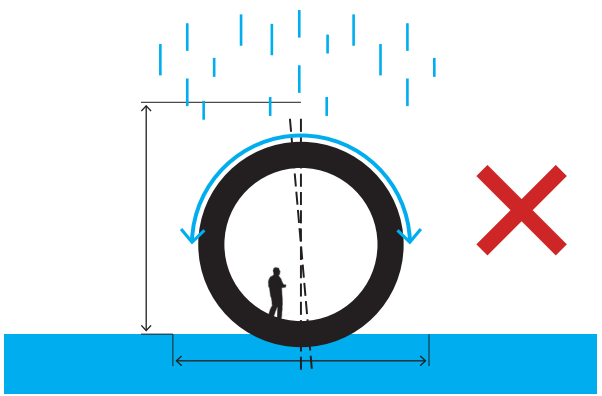
# FLOTATION CONCEPT



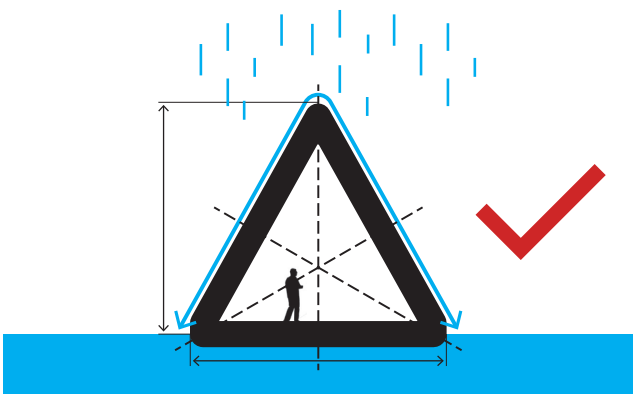
Poor stability and trim
Poor roof drainage



Good stability and trim
Poor roof drainage

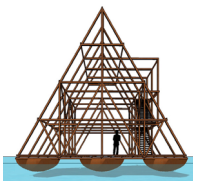
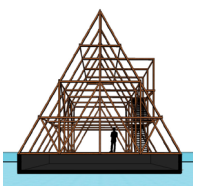
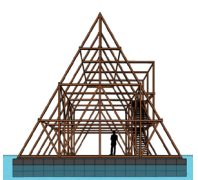


Poor stability and trim
Good roof drainage

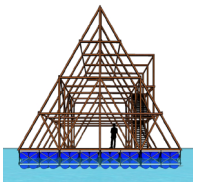
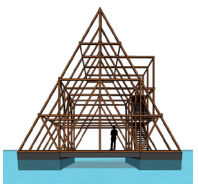
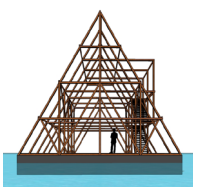


Very good stability and trim
Ideal roof drainage

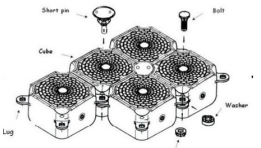
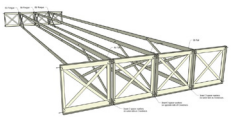
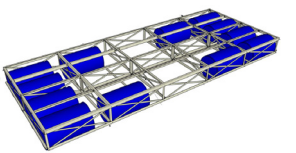
# FLOTATION OPTIONS

| | local availability | local technology | cost | construction time | durability | maintenance | weight |
|---|---|---|---|---|---|---|---|
|  LOCAL BOATS | ✓ | ✓ | ✓ | ✓ | ✗ | ✗ | ✓ |
|  CONCRETE ARK | ✓ | ✗ | ✗ | ✓ | ✓ | ✓ | ✗ |
|  PLASTIC CUBES | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ |

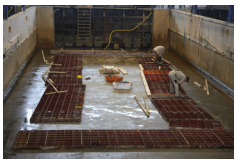
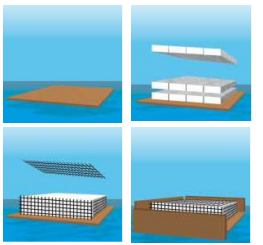
# FLOTATION OPTIONS

| | local availability | local technology | cost | construction time | durability | maintenance | weight |
|---|---|---|---|---|---|---|---|
|  **BARRELS** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
|  **STEEL BARGE** | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ |
|  **CONCRETE-EPS PLATFORM** | ✗ | ✗ | ✗ | ✓ | ✓ | ✓ | ✓ |

# PLASTIC SEGMENTS

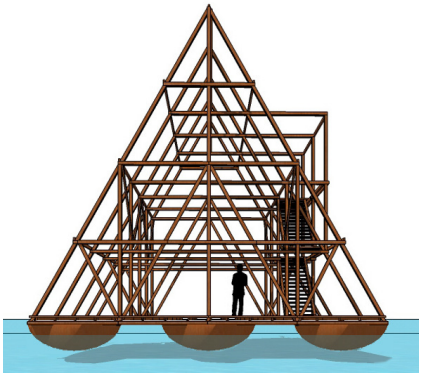
| | NEXTFLOAT<br>www.nextfloat.net | ROLLING BARGE<br>www.rollingbarge.com |
|---|---|---|
| Construction |    |  |
| Connections |  |  |
| Lift | Displacement of 74400 kg needed<br><br>Lift 93 kg per barrel<br>950 barrels (36'x36' double layer)<br>950 barrels deliver 88 tonnes of lift<br>double layer standard | Displacement of 74400 kg needed<br><br>Lift 208 kg per barrel<br>384 barrels (double layer barrels)<br>384 barrels deliver 80 tonnes of lift<br>double layer not standard |
| Info / Pros / Cons | Ships from Shenzhen, China<br><br>+ Easy durable connection<br>+ Denser stacked. Pre-fab anchoring<br><br>– No rigid frame | Ships from USA<br><br>+ Rigid frame<br>+ Easy to move after assembly<br><br>– Vulnerable construction |

# CONCRETE ALTERNATIVES

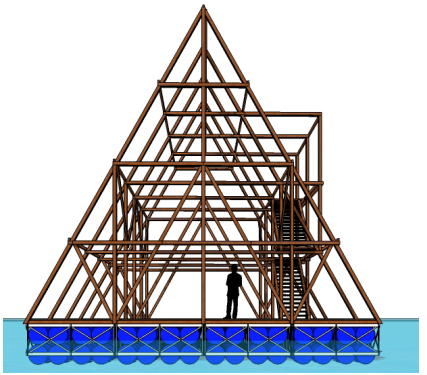
| | **ARK**<br>www.arkenbouw.nl | **CONCRETE–EPS** |
|---|---|---|
| Construction |   |  |
| Connections | Cast in-situ<br>Needs special concrete mix | Cast in-situ<br>Needs special concrete mix |
| Lift | Displacement of 74400 kg needed (Akun)<br><br>11 m x 11 m x 0.65<br>Depth 65 centimeters<br>Delivers 78650 kg lift | Displacement of 74400 kg needed (Akun)<br><br>11 m x 11 m x 0.65<br>Depth 65 centimeters<br>Delivers 74700 kg lift |
| Information /<br>Pros (+) / Cons (–) | + Extra space<br>+ High weight structure<br><br>– Needs drydock<br>– High-tech | + Low-tech<br>+ High weight structure<br><br>– Construction on water |

# TWO PREFERRED SOLUTIONS WITH READILY AVAILABLE LOCAL RESOURCES

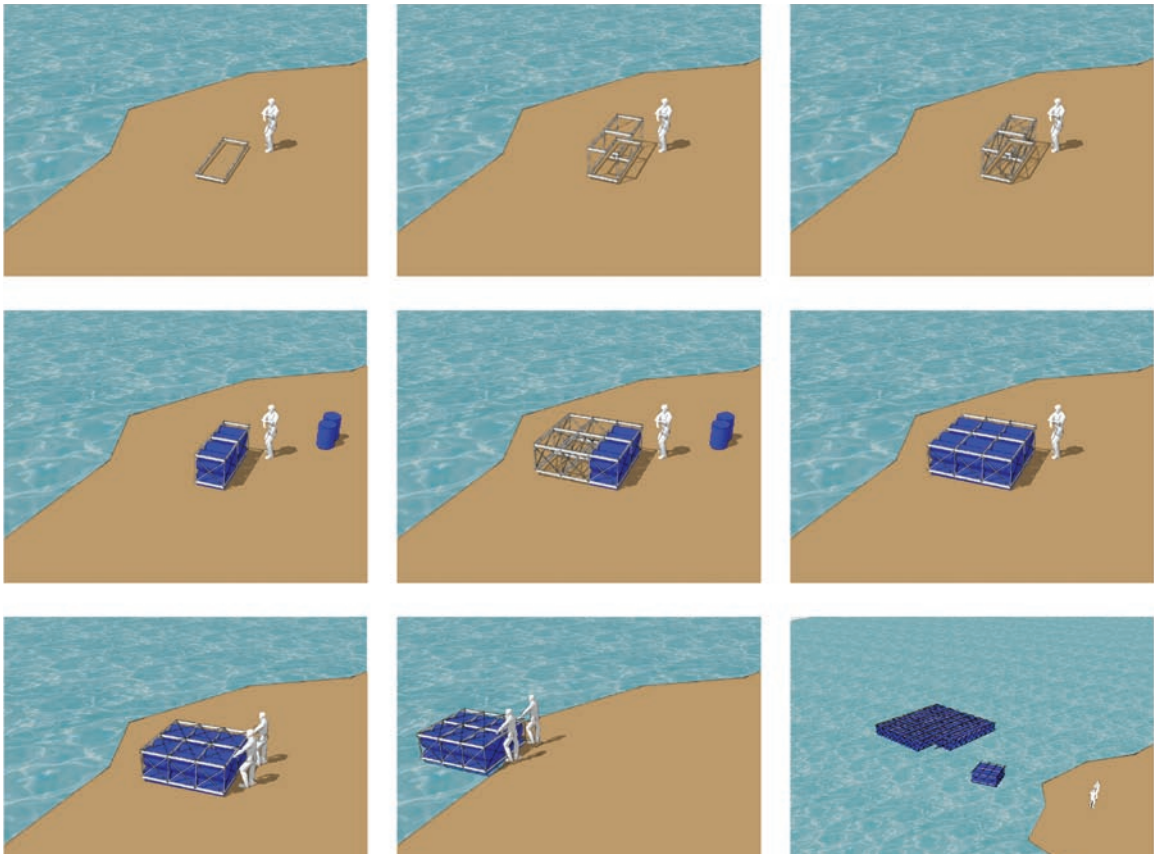
## LOCAL BOATS



## BARRELS

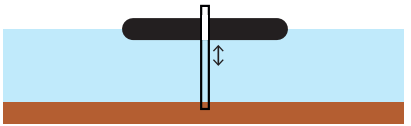


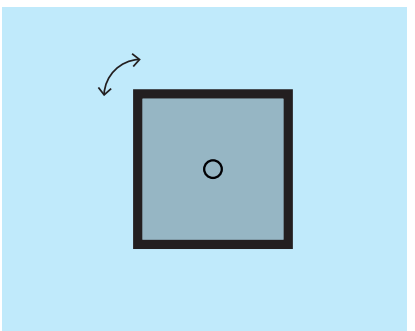
# MODULAR BARRELS CONSTRUCTION PROCESS



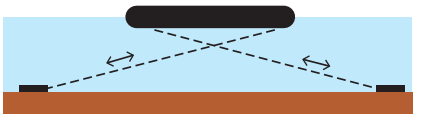
# ANCHORING OPTIONS

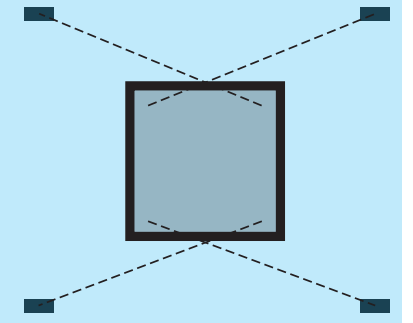
## CENTRED POLE





## CROSS-CHAINED TO ANCHORS





## POLES ON SIDES