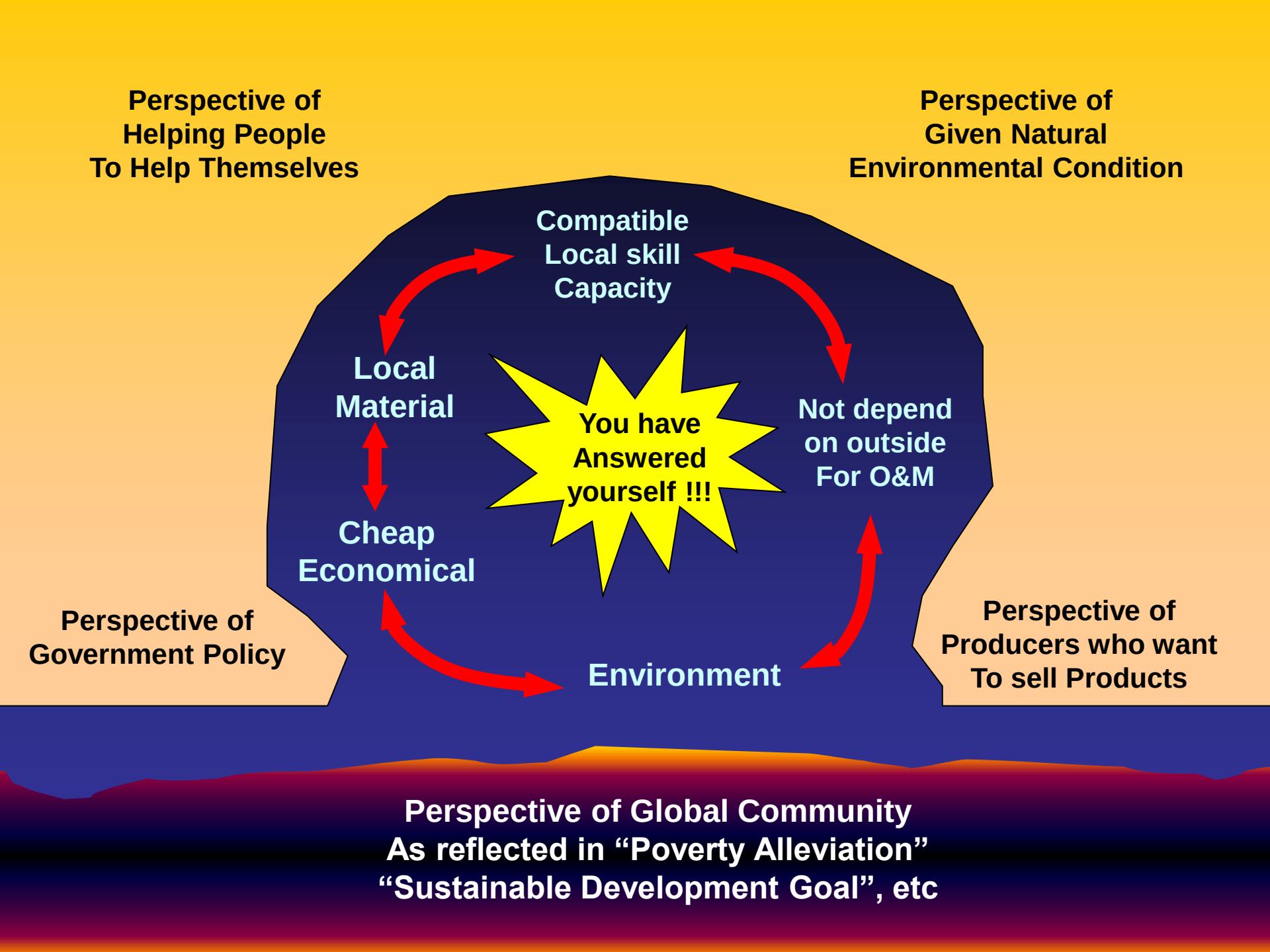
# Significance of Appropriate Technology

## The Case of Water Supply

# Terminology

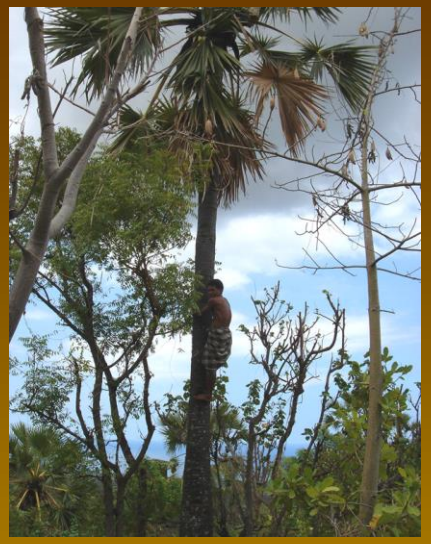
- In the period of 1970s, the “Intermediate Technology” was popular; especially with Dr. Schumacher’s book – Small is Beautiful
- Although this terminology lead into controversy and debates; slowly it transformed into “Appropriate Technology” .. And later Dr Schumacher himself oftenly used terminology of Appropriate Technology
  - Intermediate technology – old, obsolete or second hand technology
  - Discouraging modern technology; Development Polarization, etc
  - Small is Beautiful … Small is Difficult …


Perspective of
Helping People
To Help Themselves
Perspective of
Given Natural
Environmental Condition
Compatible
Local skill
Capacity
Local
Material
You have
Answered
yourself !!!
Not depend
on outside
For O&M
Cheap
Economical
Environment
Perspective of
Government Policy
Perspective of
Producers who want
To sell Products
Perspective of Global Community
As reflected in “Poverty Alleviation”
“Sustainable Development Goal”, etc

# Case 1: Muntigunung

- Muntigunung is a dry area in Eastern part of Bali – in the slope of Batur Mountain
- This zone has elevation 300 – 900 mtr above sea level
- Total people is 8,100 (1,400 families) and spread in 35 settlement areas (hamlets)
- Water is very scarce; no spring; no river (only dry ravine); no ground water – available in this area.
- Rocky and Hard Soil with very thin top soil (many spots even no top soil)
- In dry season (7 – 8 months) people had to fetch water from lower area which is 6 kms away or buy from water vendor (usually only water for basic need) …

# General Condition



## Rain Water Harvesting – Appropriate Problem Solving Concept/Approach

- Other option such as piping and pumping water from 6 kms distance with > 400 mtrs head need very high operation cost
  - Price of 1 ltr of water will be double of the price of gasoline
  - This will need permanent subsidy – *no organisation or institution are in position to provide permanent subsidy*
- Compatibility with condition of respective community (condition of economy, condition of capacity/skill, etc)
- So … Although not fancy this approach is more sustainable.

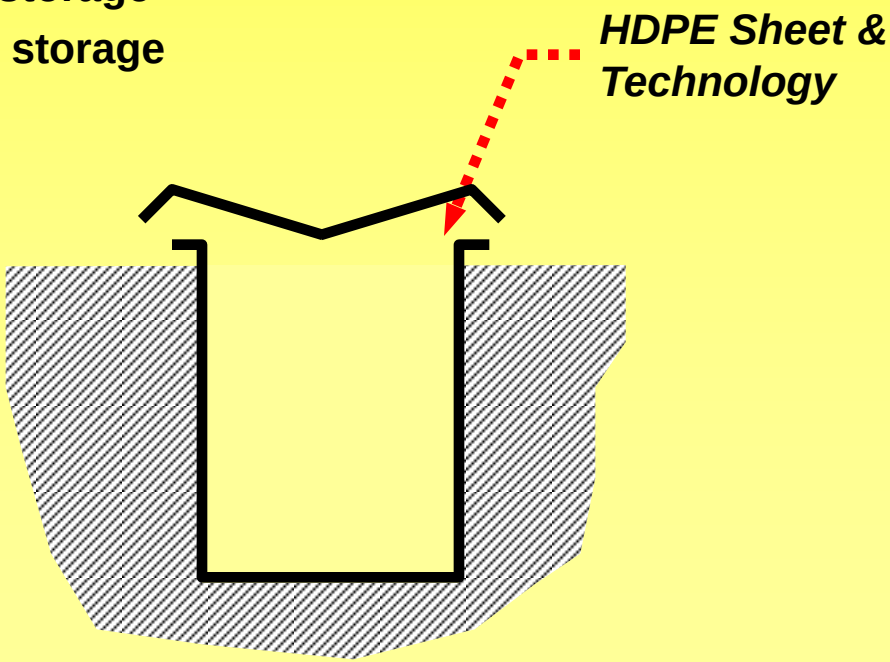
**Next issue is "what technology or what technology product to be applied/utilised"**

**Although concept/approach is appropriate, but if technology applied is not appropriate; the outcome may totally different**

# Components of Rain Water Harvesting

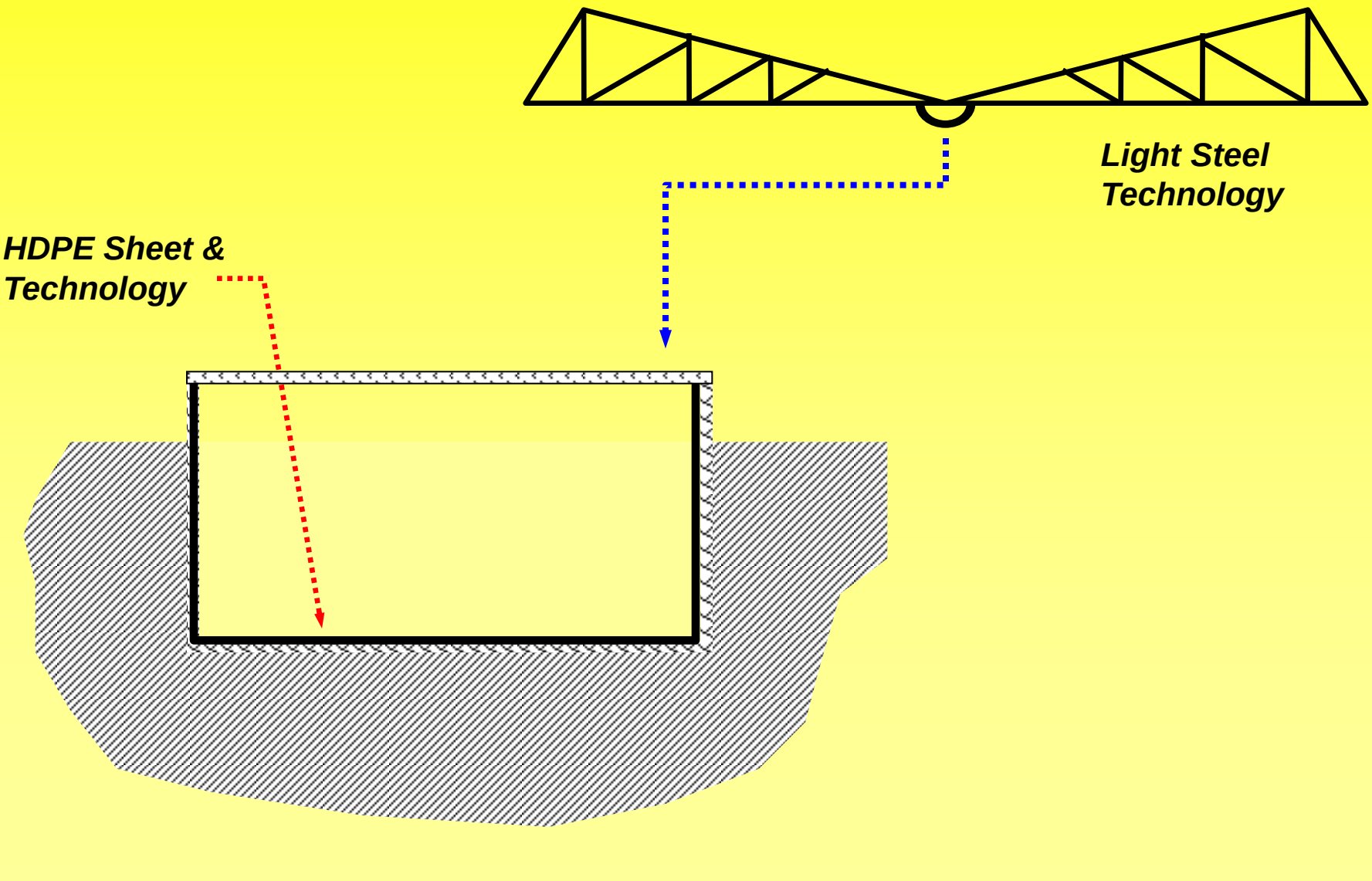
- **Define water need is +/- 25 ltrs/person/day**
- **Components :**
  - **Storage : To store rain water and use in dry season**
    - **Individual storage**
    - **Communal (hamlet) storage**
  - **Catchment**
    - **For individual storage**
    - **For communal storage**

**Individual Storage**



# Individual Storage

# Communal Storage and Water Catchment



# Communal Storage and Water Catchment

**Light Steel (ZincAlum)**
**Product & Technology**

# Communal Storage and Water Catchment

## Spin Off – leverage “appropriateness”Of Technology Selection


# Case 2: Pemana island

- Pemana is a small tiny island in Eastern part of Indonesia. The length is 2.1 km and average width is 0.9 km
- Total population = 1,900 and most of them are fishermen
- Water is the main problem for respective communities and they have to transport fresh water (just for human basic need – while bathing and washing use sea water) from Flores island (which is 5 hours by boat in good season)
  - Costly and problem of reliability
- No water source; ground water is saline (sea water intrusion), and; on top of that only limited rain fall on island .. Most goes directly to sea

Besides for Basic Need, Lack of Water also become main Handicap for future of children … such as education & health

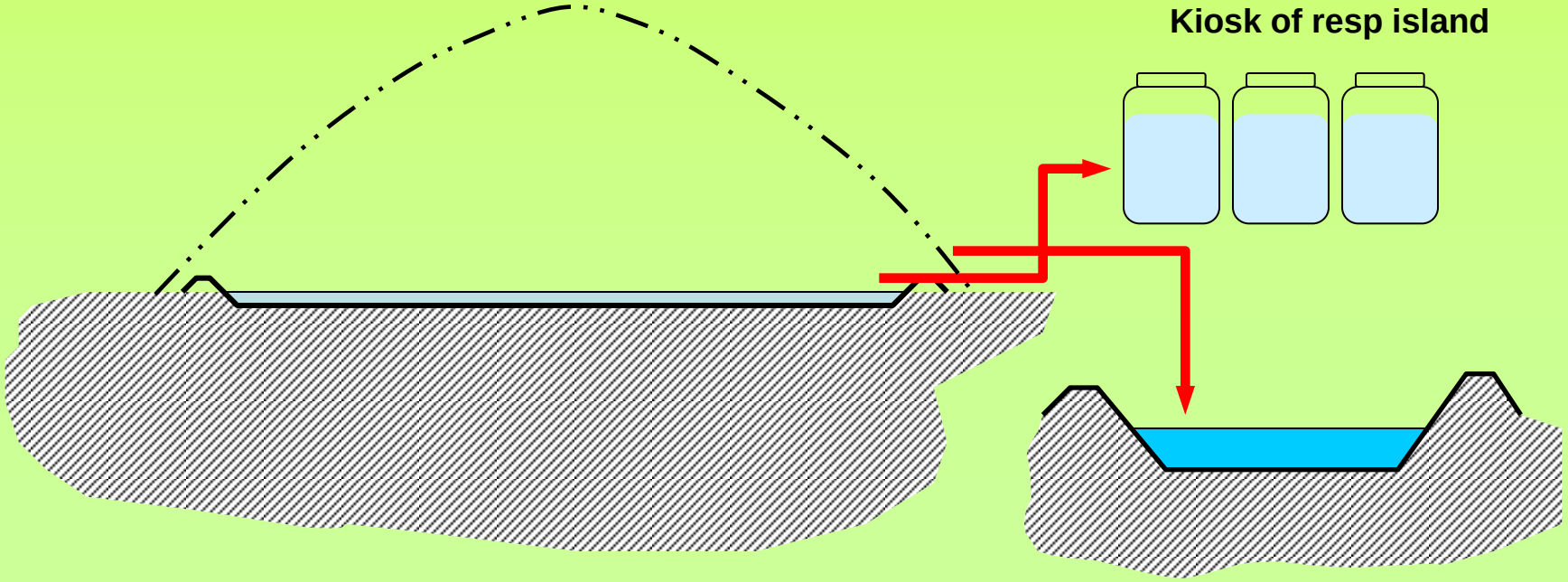
# General Condition

**De-Salination in combination with Rain Water Harvesting – Appropriate Problem Solving Concept/Approach**

**Sea Salt – become by product**

**Water Pyramid**
**Or locally people called it “Water Bra”**

**Potable Water**
**Kiosk of resp island**




AIR PYRAMID