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 …
Compatible Local skill Capacity
Not depend on outside For O&M
You have Answered yourself !!!

Perspective of Helping People To Help Themselves
Perspective of Given Natural Environmental Condition
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
• 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

HDPE Sheet & Technology
Individual Storage
Communal Storage and Water Catchment

Light Steel Technology

HDPE Sheet & Technology
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