

You don't miss your water until
your well runs dry.

- an old country proverb

1 kg rice = 3000 litres



1 kg beef = 16000 litres



1 kg wheat = 1350 litres



1 kg maize = 900 litres



1 litre milk = 1000 litres



1 cup of coffee = 140 litres



1 kg of sugar = 1500 litres



1 glass of beer = 75 litres



1 glass of wine = 120 litres



Energy = Water

Average Water Footprint

- Non-renewable Natural gas = 0.11 (m³/GJ)
- Coal = 0.16 (m³/GJ)
- Crude oil = 1.06 (m³/GJ)
- Uranium = 0.09 (m³/GJ)
- Wind energy = 0.00 (m³/GJ)
- Solar thermal energy = 0.27 (m³/GJ)
- Renewable Hydropower = 22 (m³/GJ)
- Biomass energy = 70 (range: 10-250) (m³/GJ)

Rivers are roads which move,
and which carry us
whither we desire to go.
- Blaise Pascal

Village of Bagamandala, Coorg

- Amidst world's second largest rain forest
- Six months of rain
- Coffee estate
- Family owned land being sold rapidly
 - From land owners to farming labor
- Regular power cuts – about 8 to 12 hours of power every day on an average
- Source of Cauvery river
- Three to four months hardly any water available
- Cost of drinking water = 1 Rs. per 5 litre pot.

City of Bangalore

- 1470 million litres of water for 6 million people
- From Cauvery 100 km away, 500 meters below
- 80 MWh used for pumping yearly
- Actual cost of water = 19 Rs. / kilo litre
 - 60% of this cost is energy
- People pay at an average of 6 Rs. / kilo litre
- Another 100 MWh used for local storage, distribution and recycling.
- 80% of water coming to anyone's house is let out as grey or black water.

Nexus

- Village produces, City consumes – about 50% to 60% of our village produce is meant for cities with only 28% population.
- Energy consumes water
- Water needs energy
- Every product that we consume has
 - Embodied energy
 - Virtual water

Problems of villages...
Solve the root cause in cities

Sustainable Urban Living

- Integrated campus
- Carbon neutral buildings
- Zero food miles
- Zero milk miles
- Towards zero energy living
- Recover 'Anergy'
- Negawatt
- Energy modesty programs
- Prosumption

Simultaneously Enable Villages

Tamper-proof Rural Living

- Sustainable energy
- Communitize water – don't communalize
- Rural Ebay (for Barter)
- Gandhian engineering
 - Sarvodhya and sustainability

"A small body of determined spirits fired by an unquenchable faith in their mission can alter the course of history. Gandhiji."