
*Green
Industrialization for
Developing Nations*

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Overview

- Introduction and Justification
- Scope and Limitations
- Industrial Development
- Technology Examples
- Fitting it all Together

Fundamental Concept

Development of a scheme that an undeveloped nation can follow to enable economic development in an environmentally friendly and sustainable way.

Initial research generates a general structure with interchangeable options to achieve goals. Second stage of research produces tailor made solutions on a country by country basis.

Why is this an Issue?

- Standard of living in undeveloped nations
- Scarcity of resources
- International environmental legislation
- Traditional routes to economic development are unsuitable
- Little economic incentive for *developed* nations to uptake environmentally friendly technologies

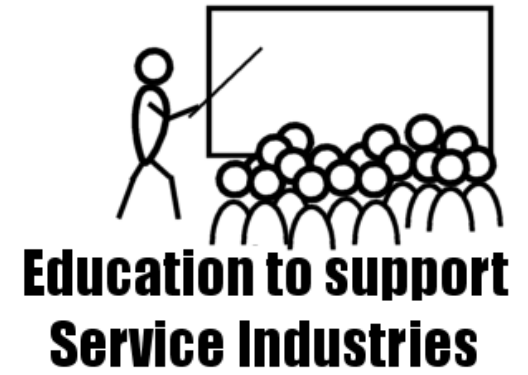
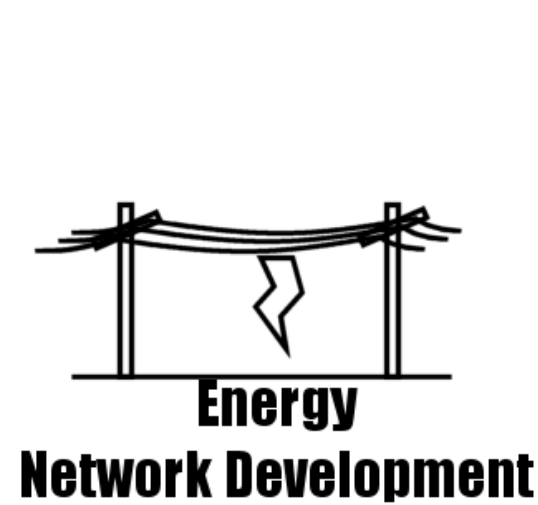
Scope and Limitations

- Development must be at a minimum stage
- Start from subsistence living (economy is effectively primary sector only)
- End once an eco-friendly resource production and processing base is established (economy is a mix of primary and secondary sectors with tertiary sector beginning to form)

How might it be done?

- Development of a dependency tree for technology and information
- Development of an overlay for technology tree that shows potential synergies
- Development of an economic model that allows external investment without exploitation

Development Stages

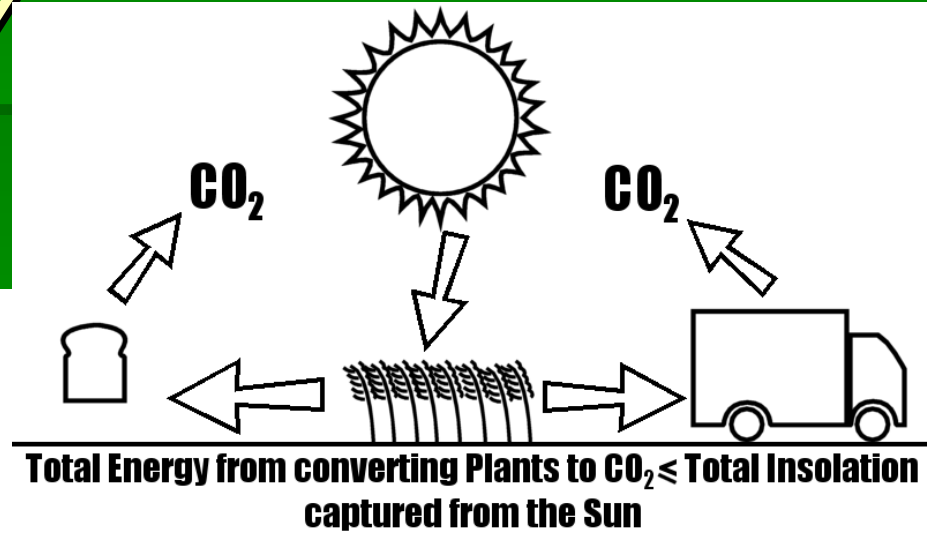
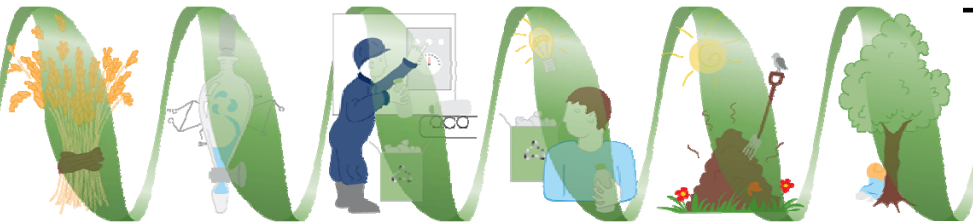


Driving Industrialization

- Traditionally occurs by Innovation
- Available population to provide labour
- Raw material available for use
- Capital investment
- Opportunity for trade and associated transport network

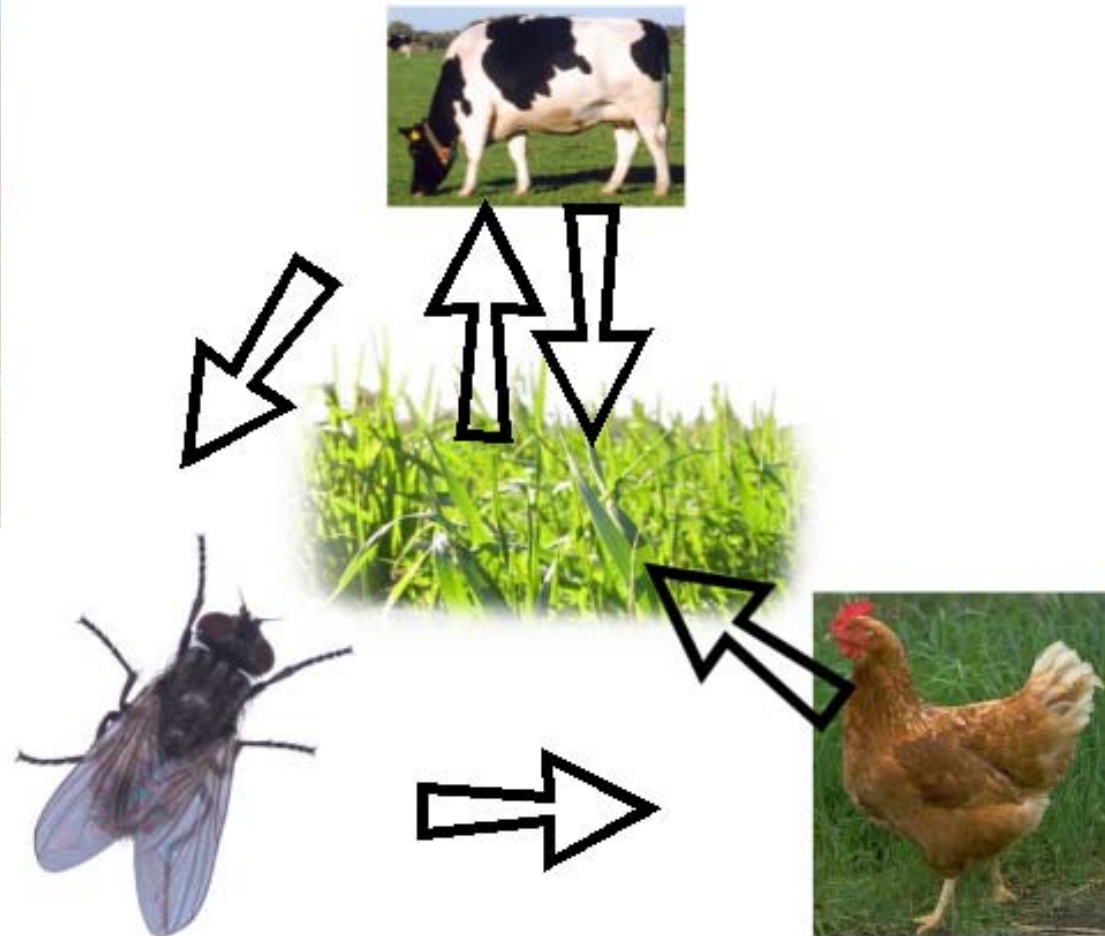
Achieving Continued Sustainability

The Helix of Sustainability



- Education about long term planning
- Helix of sustainability
- Energy Neutral
- Environmental legislation

Example: Organic Farming Techniques



Example: Corn or Maize



Starch

- Packing
- Insulation
- Disposable Goods



Green Waste

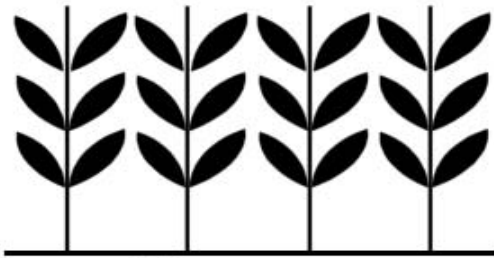
- Compost
- Domestic Solid Fuel
- 2nd Gen. Biofuels



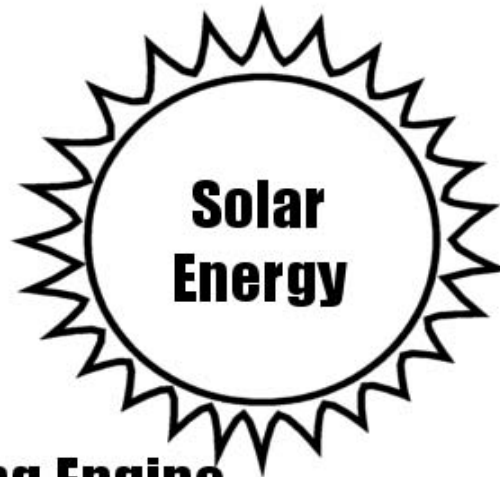
Protein

- Films
- Textiles
- Plastic
- Varnish/Resins

Example: Solar



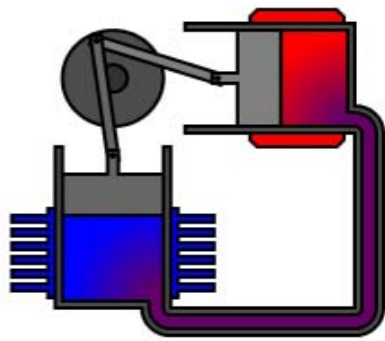
Biomass



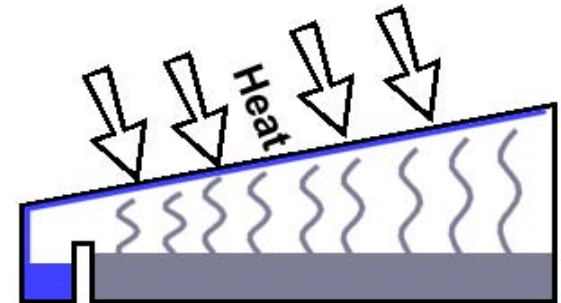
Solar Energy



Photovoltaics

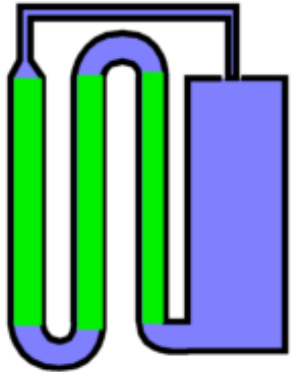


**Stirling Engine
(Captured Heat
for Mechanical or
Electrical Energy)**



**Heat Energy used
directly**

Example: Waste Stream Processing



Bioreactor



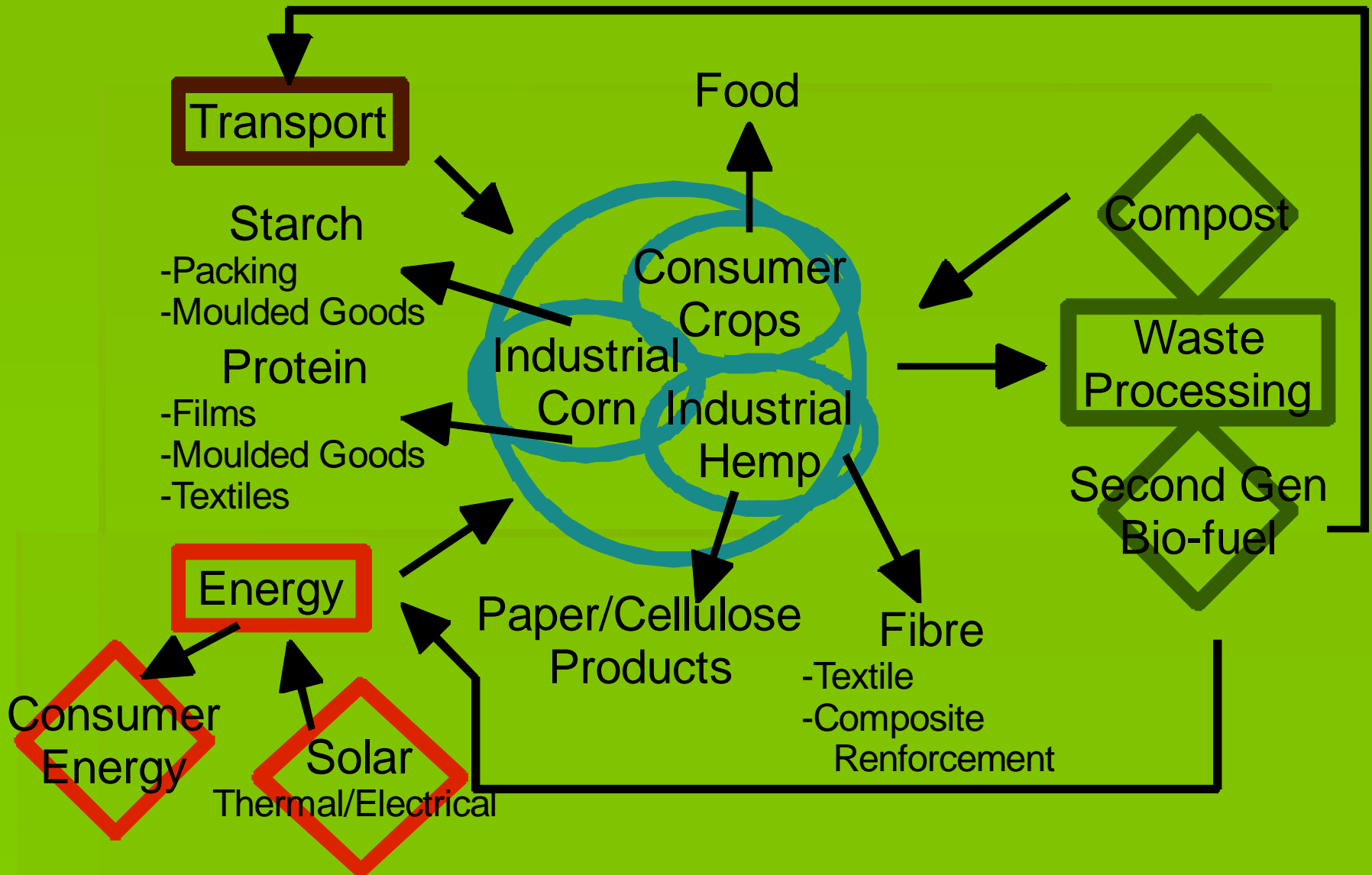
Compost



Combustion

Why So Simple???

Fitting it all together



Areas without solutions

- Stepwise establishment of transport, energy and trade networks
- Source of capital investment
- How to classify technologies so that a dependency tree can be easily established
- How can education be implemented so it is effective

Thankyou for your time

Suggestions?
