

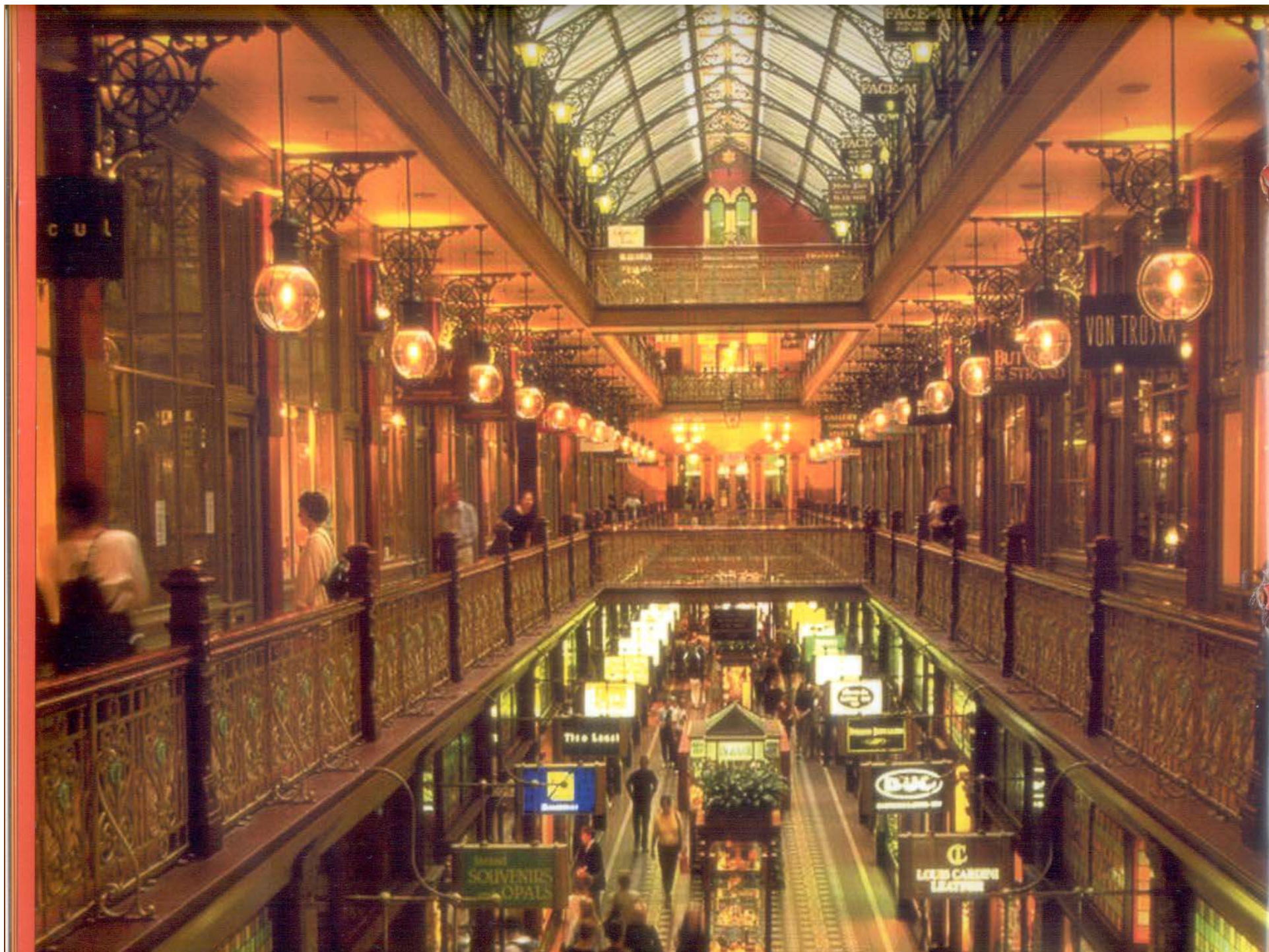
10 Simple Ideas That Can Change The World

**Club of Rome Annual Conference
New Delhi – 9 November 2011**

**Ashok Khosla
Development Alternatives
and Club of Rome**

The *Problematique*







Efficiency in Production



Development Alternatives











**Deserts Growing by
60,000 Sq Km per year**

Climate Change





Development Alternatives

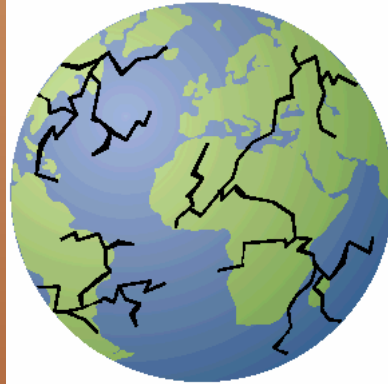
Extinction of Species

The daily toll



60 million tons
of carbon dioxide
(CO₂) *emitted*

Every day
(worldwide)



50 000 hectares
of forests *destroyed*



200 000 tons
of fish *caught*



up to 100
species *extinct*



20 000 hectares
arable land
converted/deteriorated

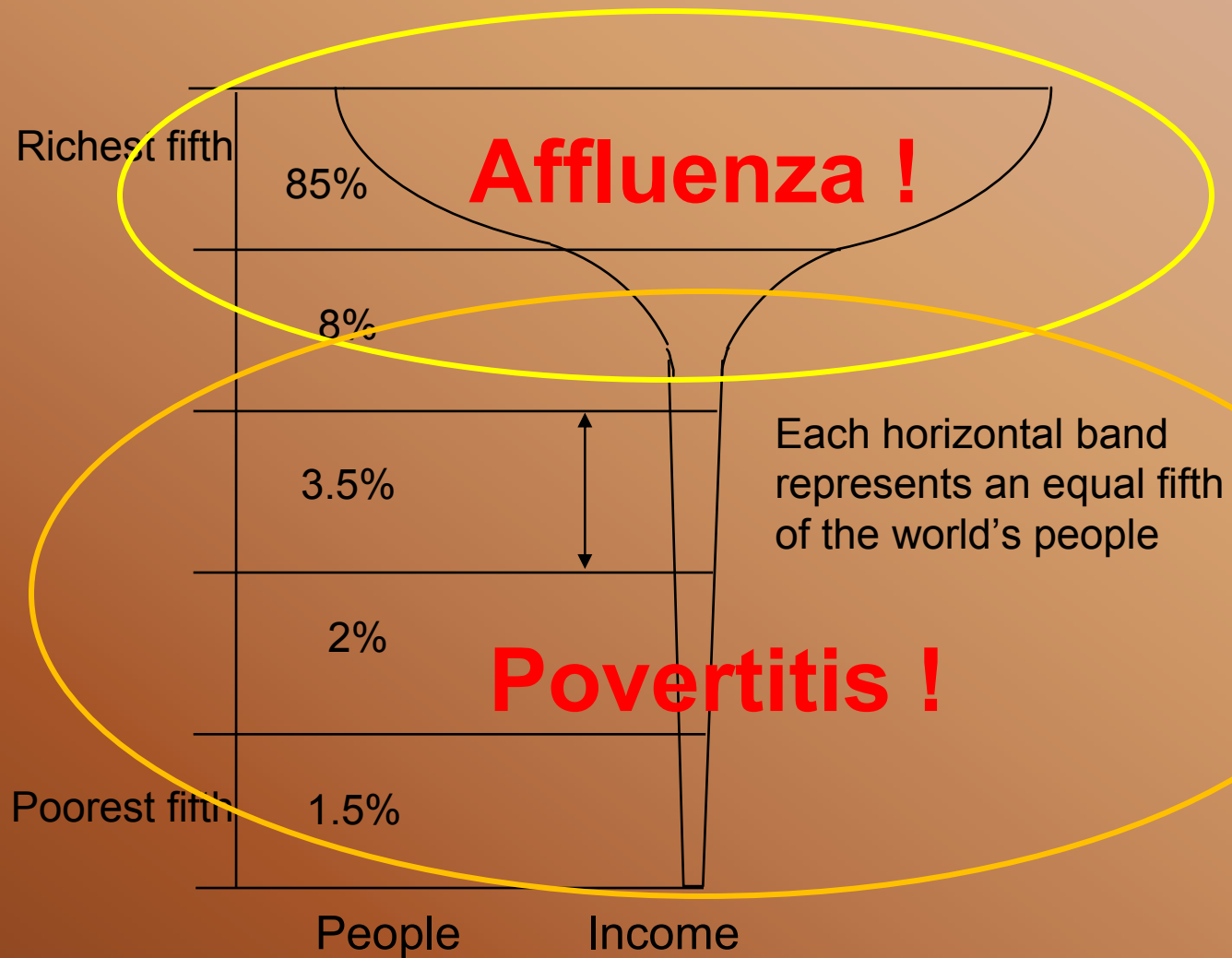


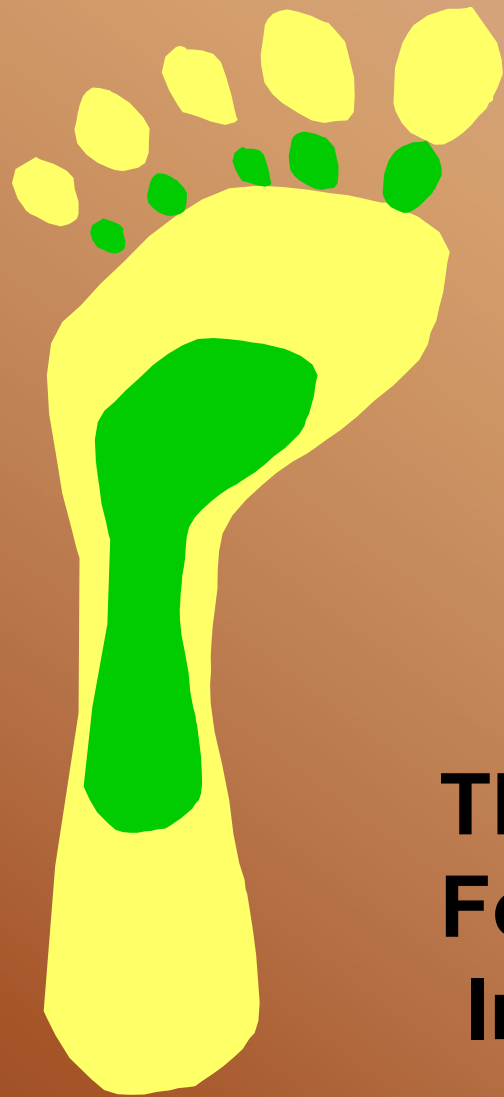
Development Alternatives

Earth in Crisis . . .Crises . .

- 
- **Poverty**
 - **Population**
 - **Pollution**
 - **Climate**
 - **Biodiversity**
 - **Society**
 - **Finance**
 - **Etc, etc**

Sharing of Today's Global Income





Footprint



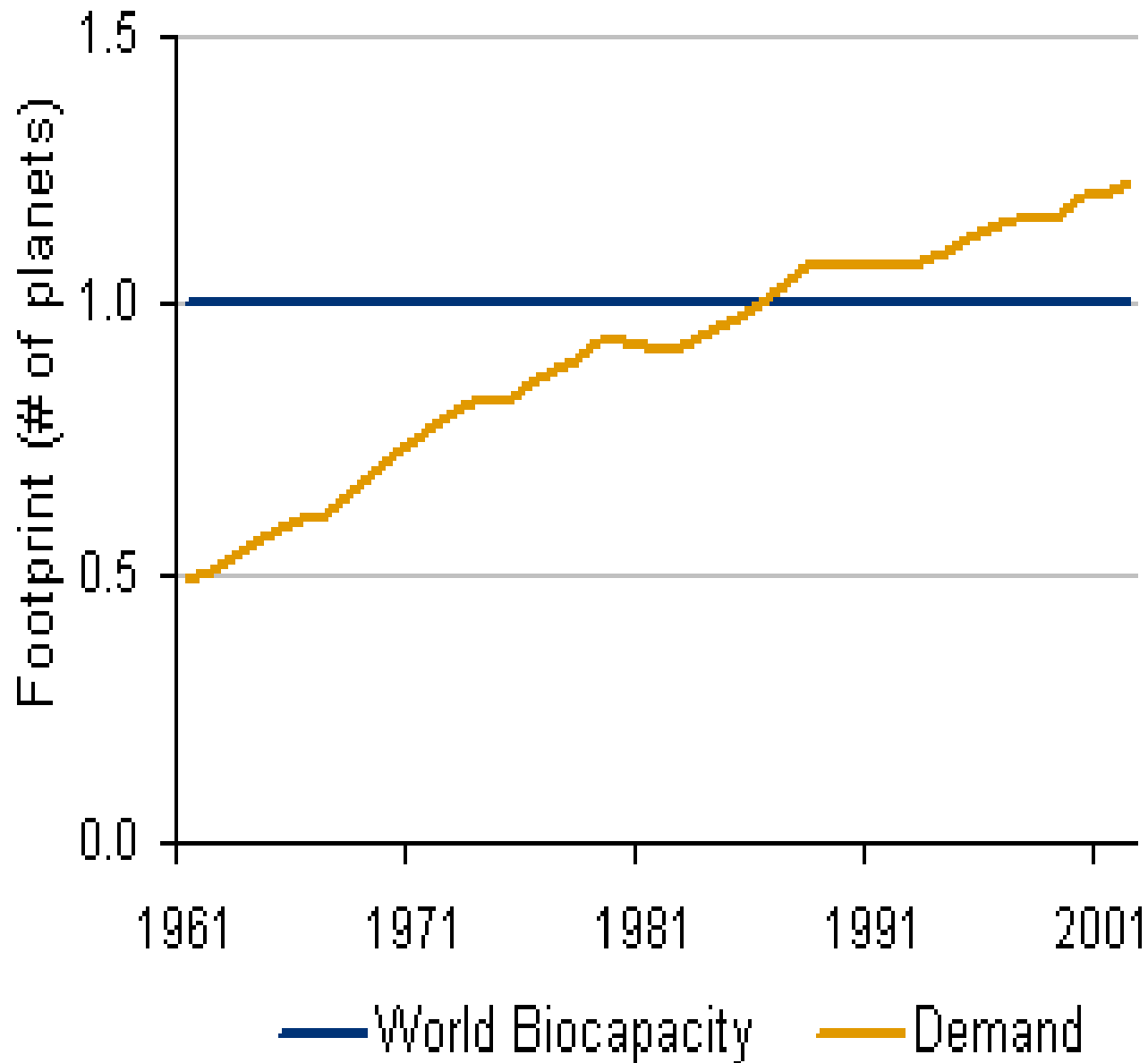
**Bio-
Capacity**

The Ecological Footprint of an Industrialized Country



Development Alternatives

Demand vs. Biocapacity

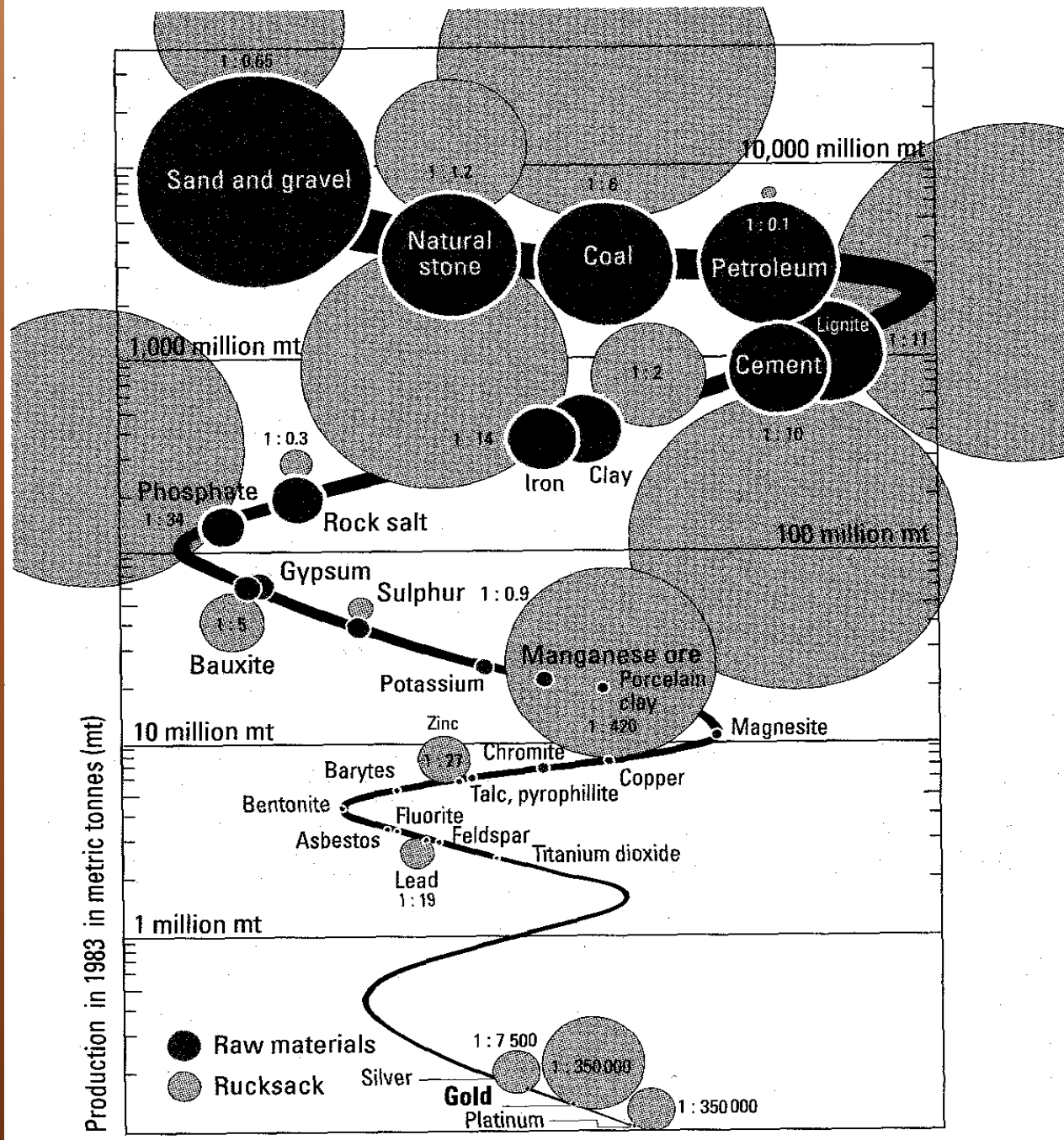


World

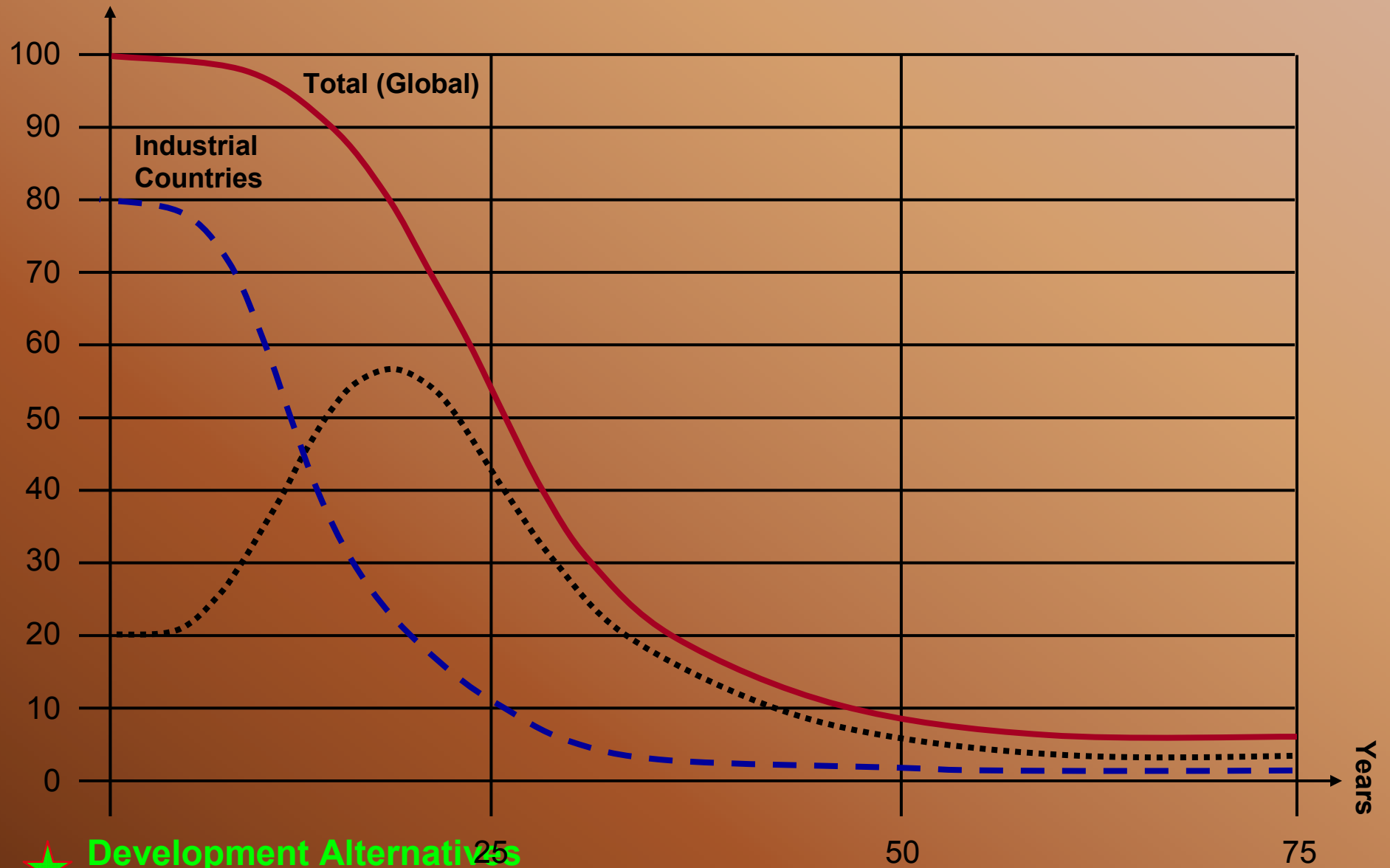


2010

Ecological Rucksack Diagram

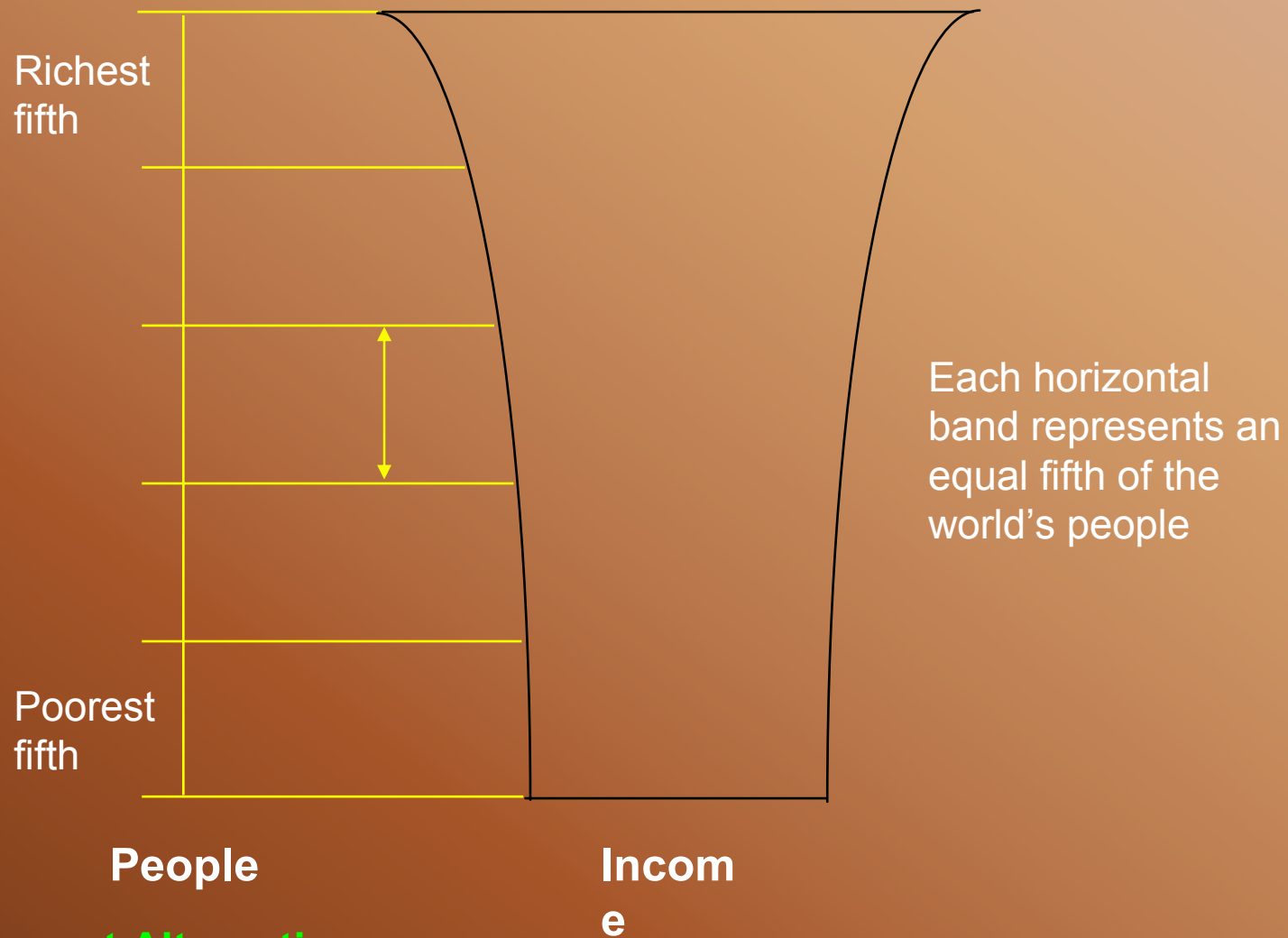


Consumption of Materials, Energy, Etc



Development Alternatives

Sustainable Distribution of Global Income



The *Resolutique*



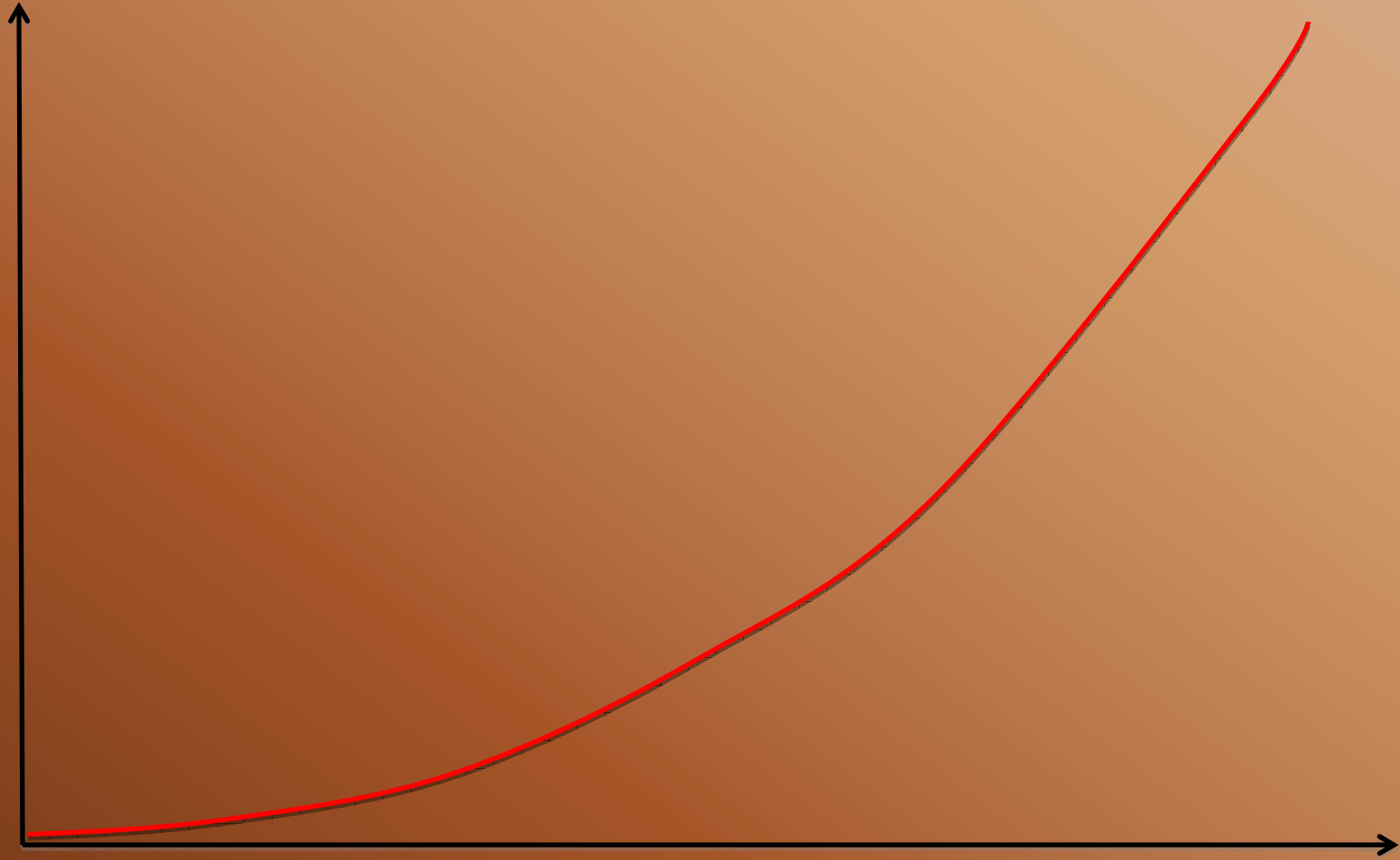
Development Alternatives

Idea 0:

**Quantum Tunneling
through to a
Better Life**



Cost

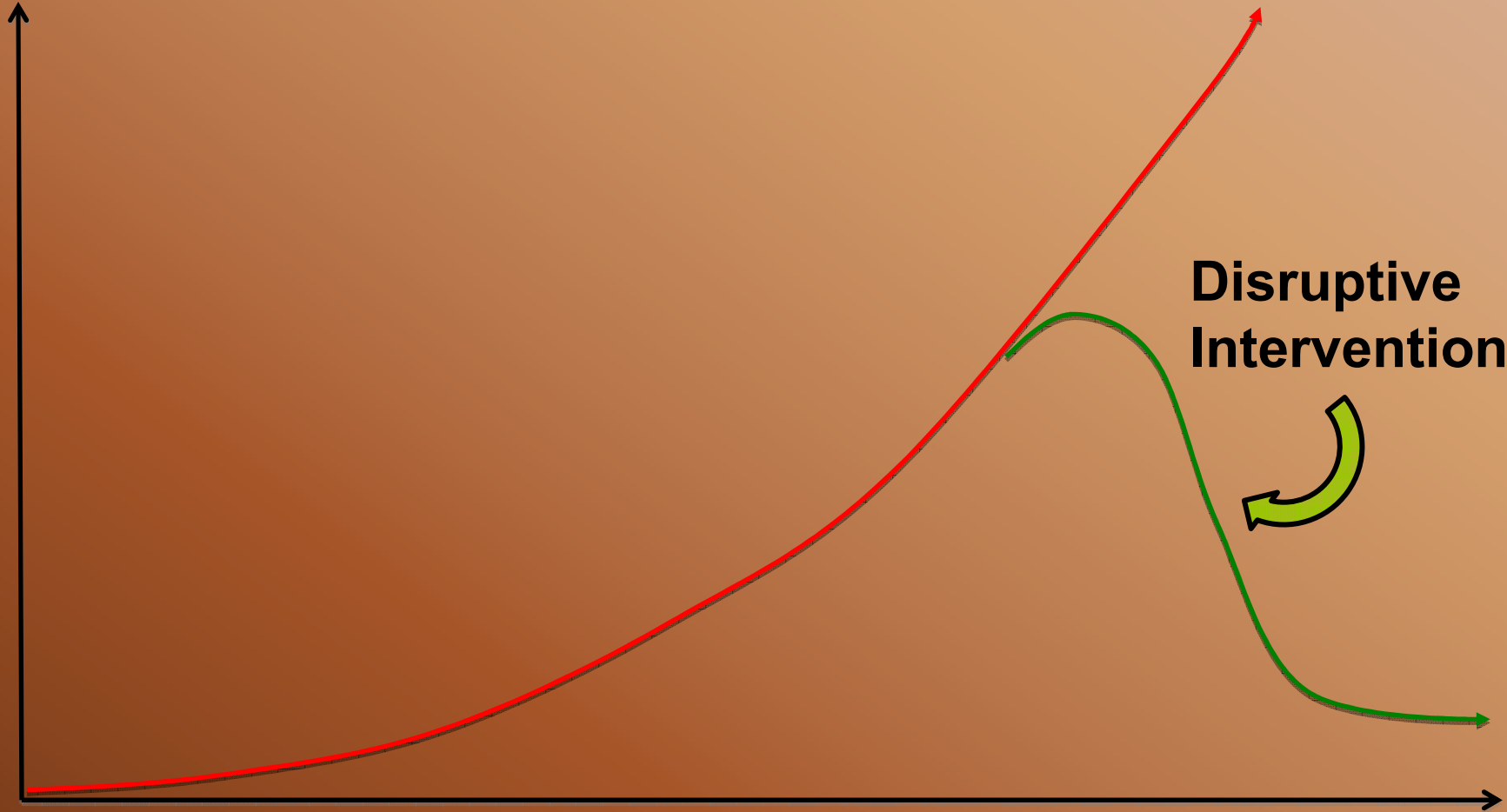


Efficiency



Development Alternatives

Cost



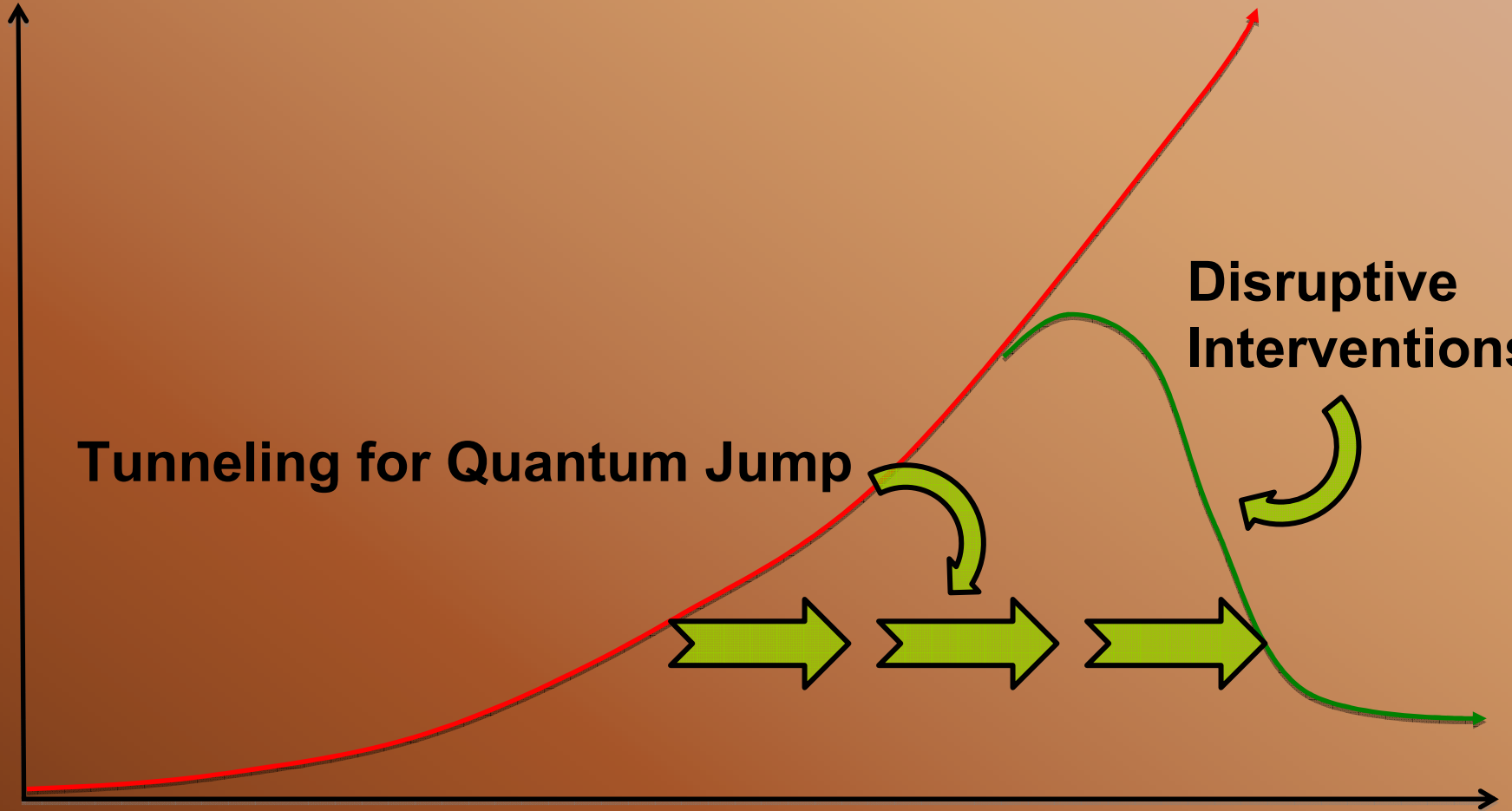
Disruptive Interventions

Efficiency



Development Alternatives

Cost



Tunneling for Quantum Jump

Disruptive Interventions



Development Alternatives

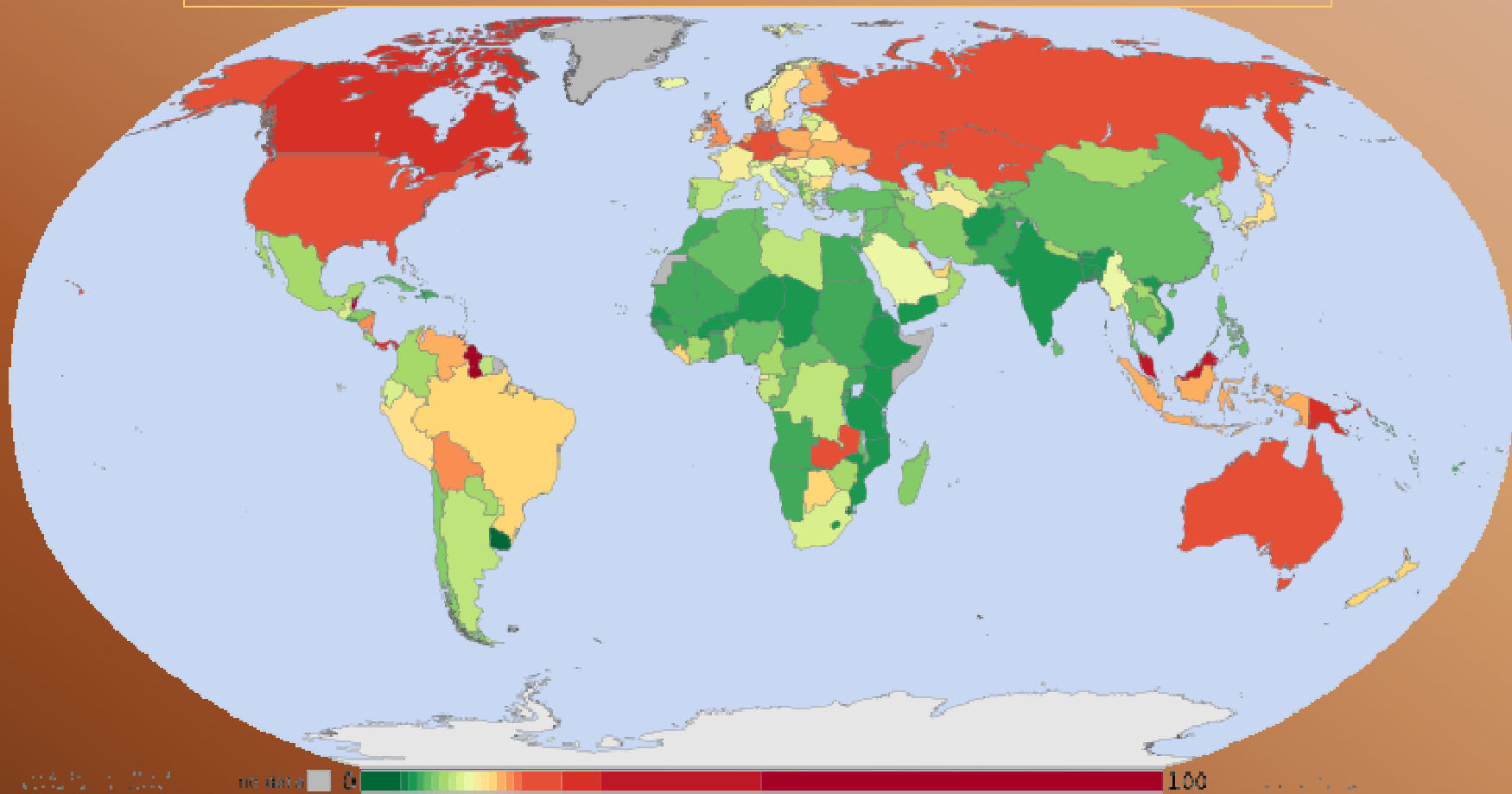
Efficiency

Idea 1:

**Investing in Girls,
Improving Human Wellbeing –
the Least Cost Path to
Reducing Carbon Emissions**

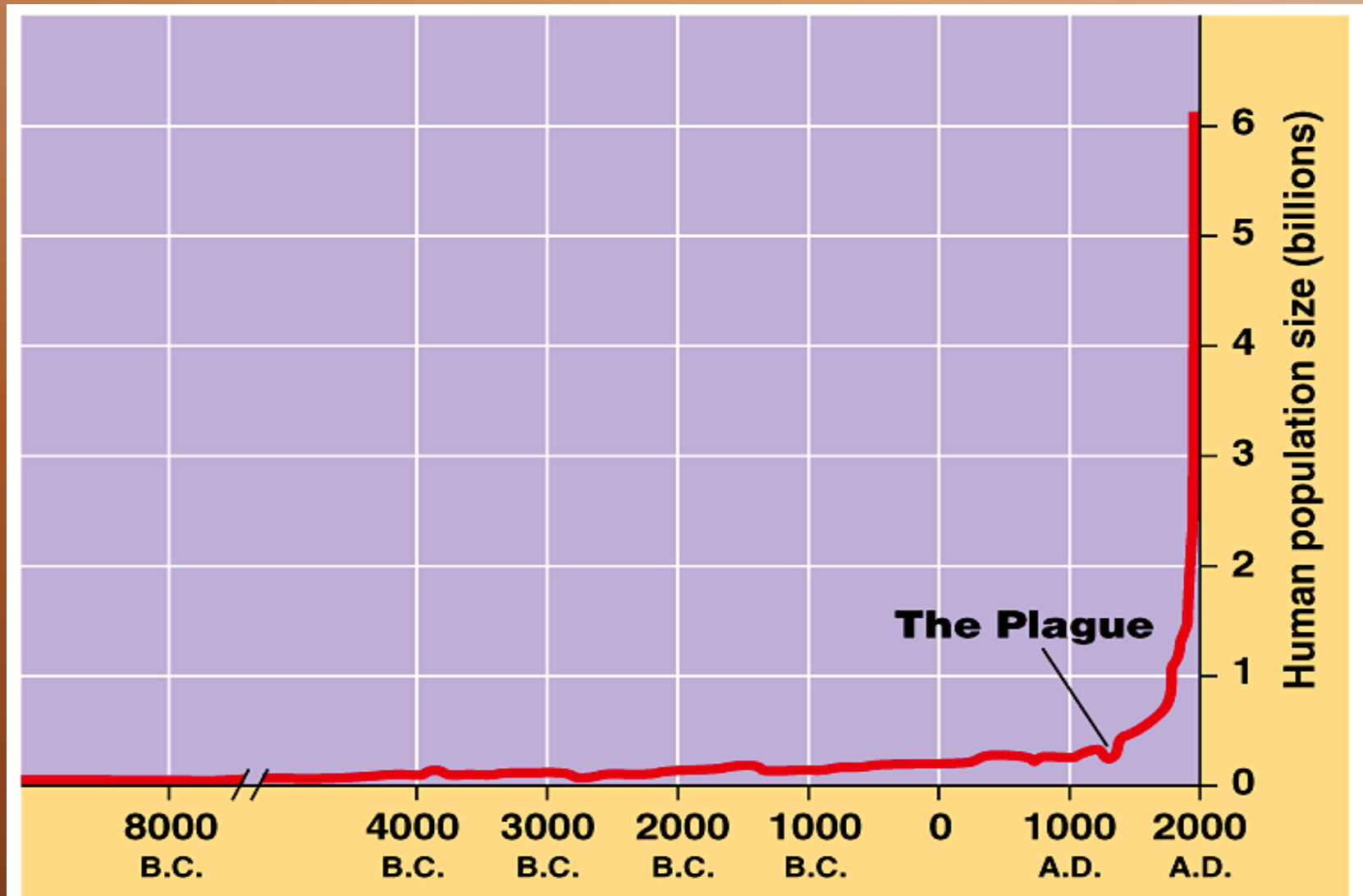


Per capita Historical Responsibility for Current Anthropogenic CO₂ in Atmosphere



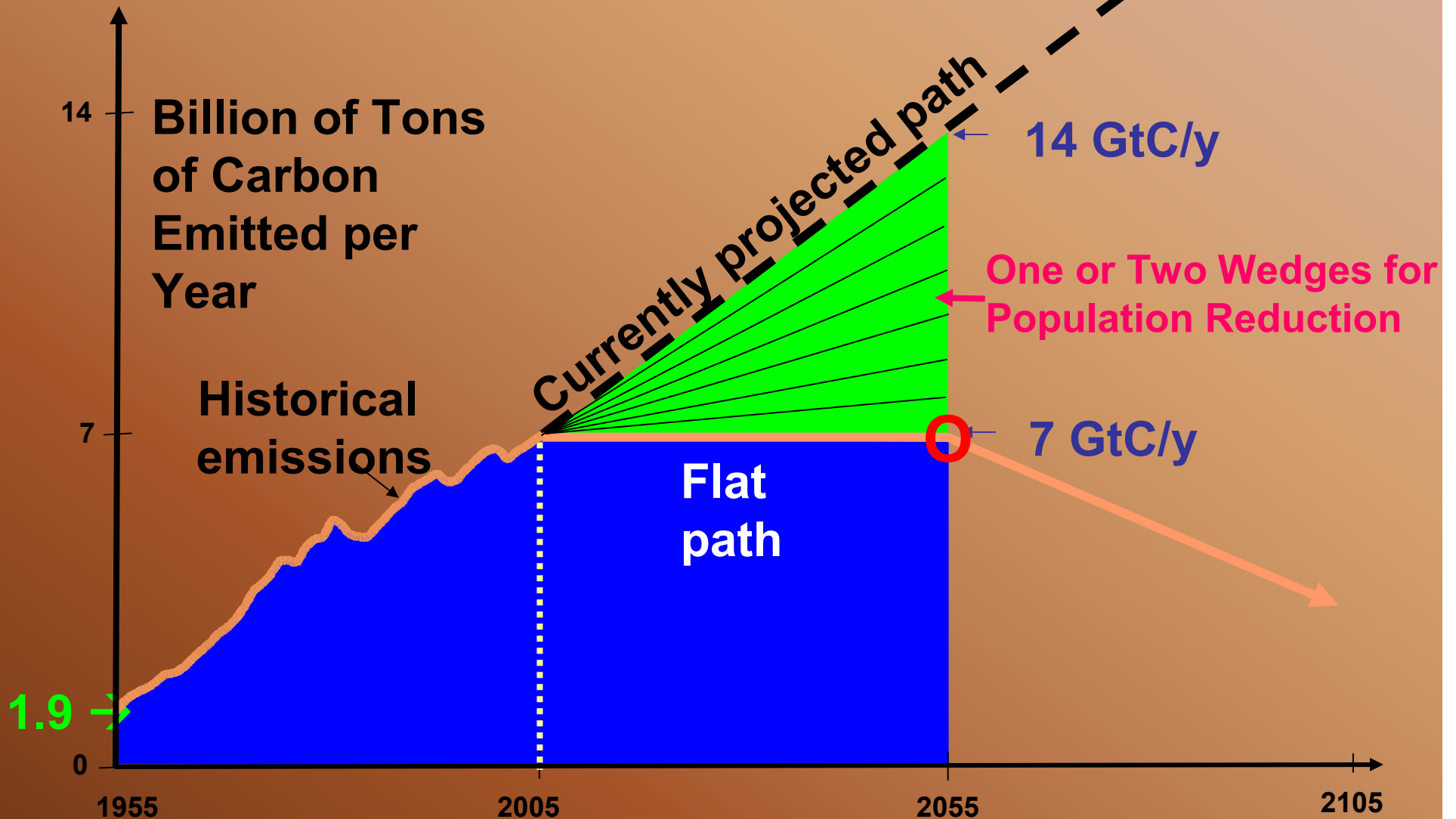
Development Alternatives

The history of human population growth



Development Alternatives

Wedges



★ Development Alternatives



☐ In a Permanent Trap



Family Size

☐ **No Income**



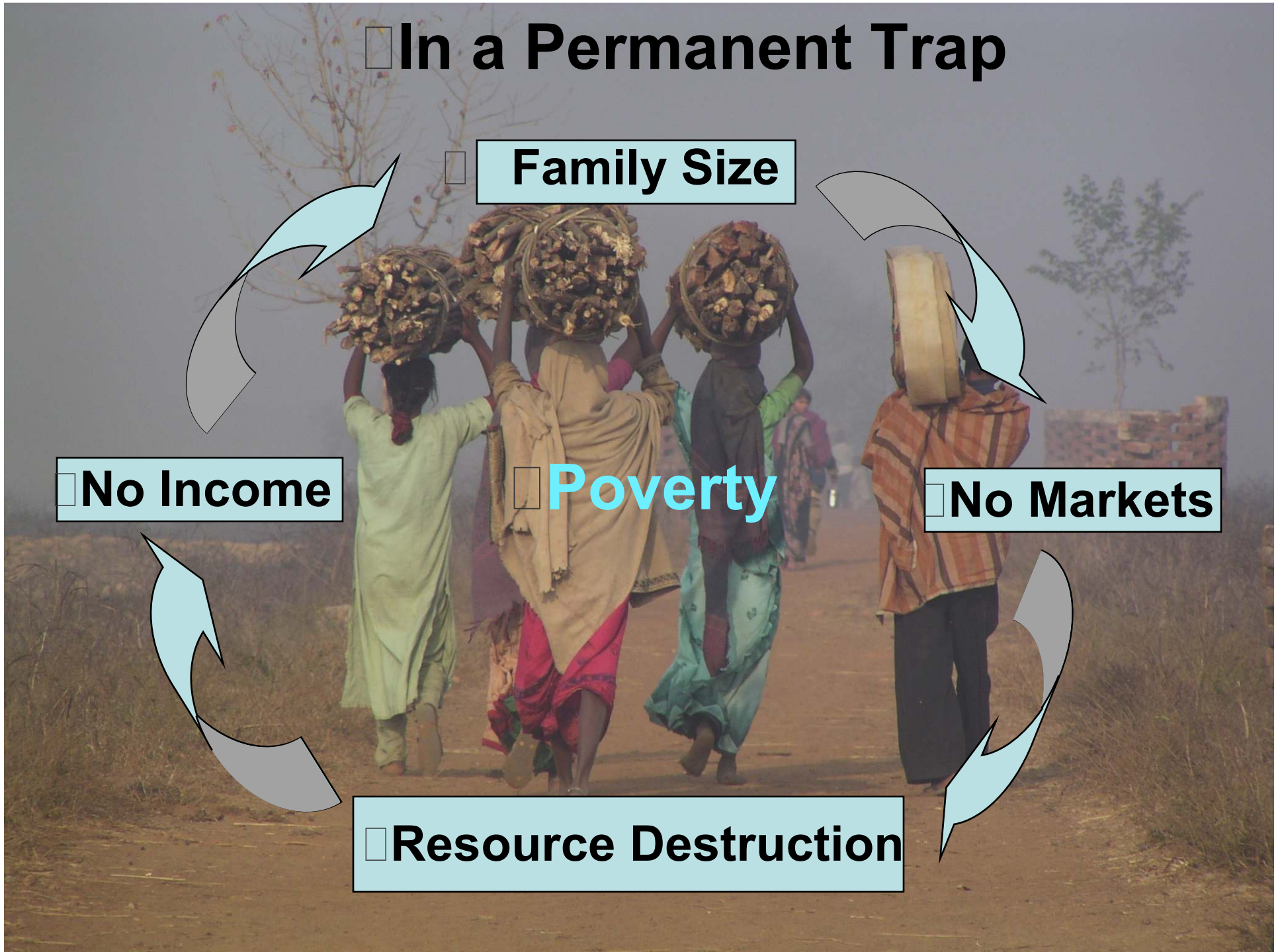
Poverty

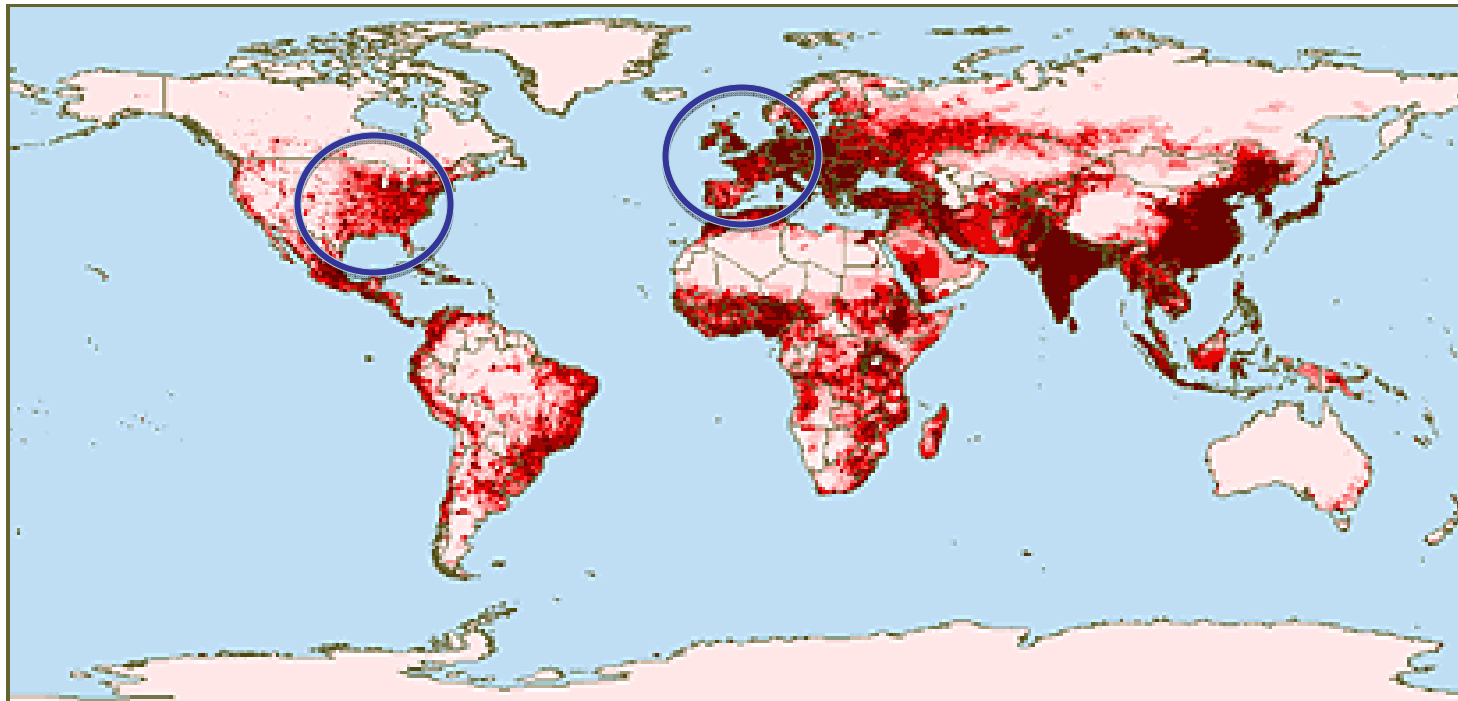


No Markets

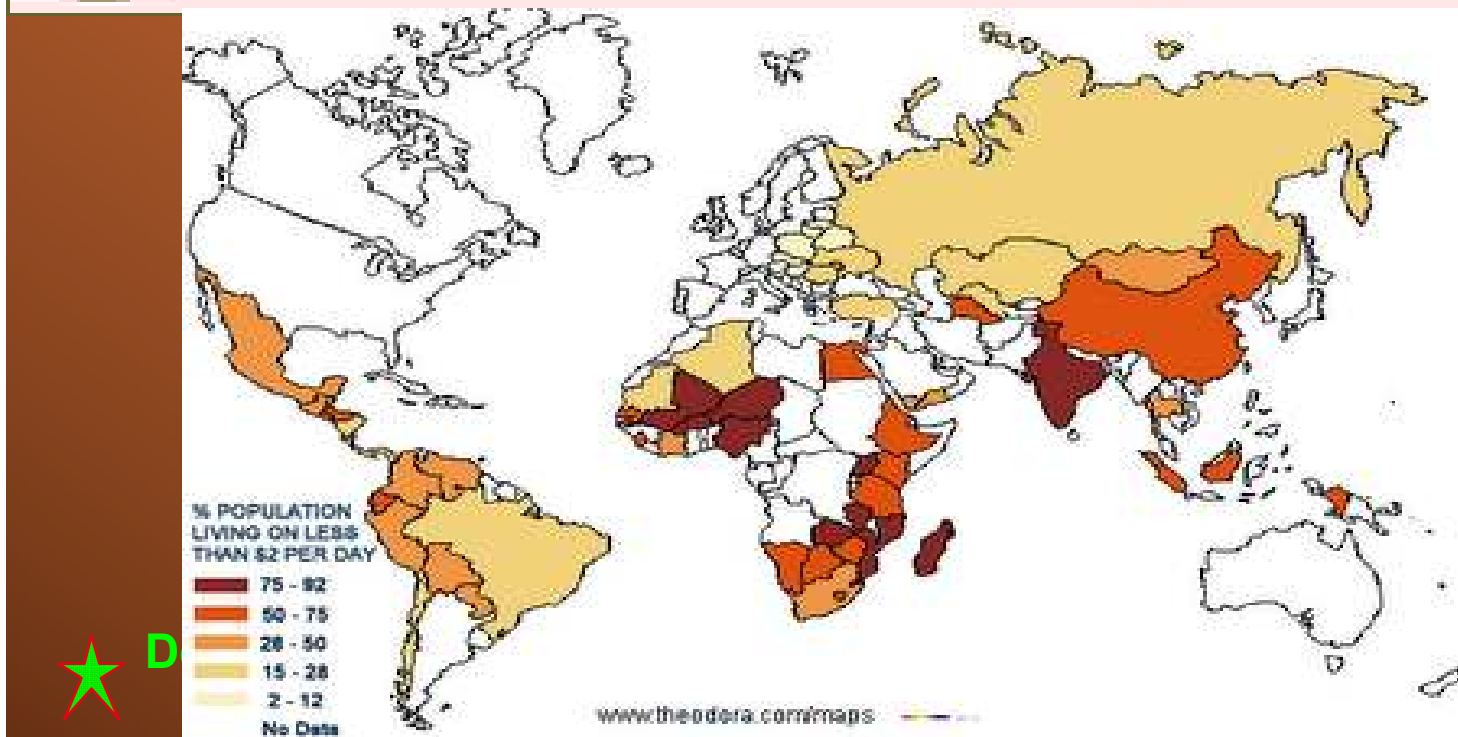


Resource Destruction





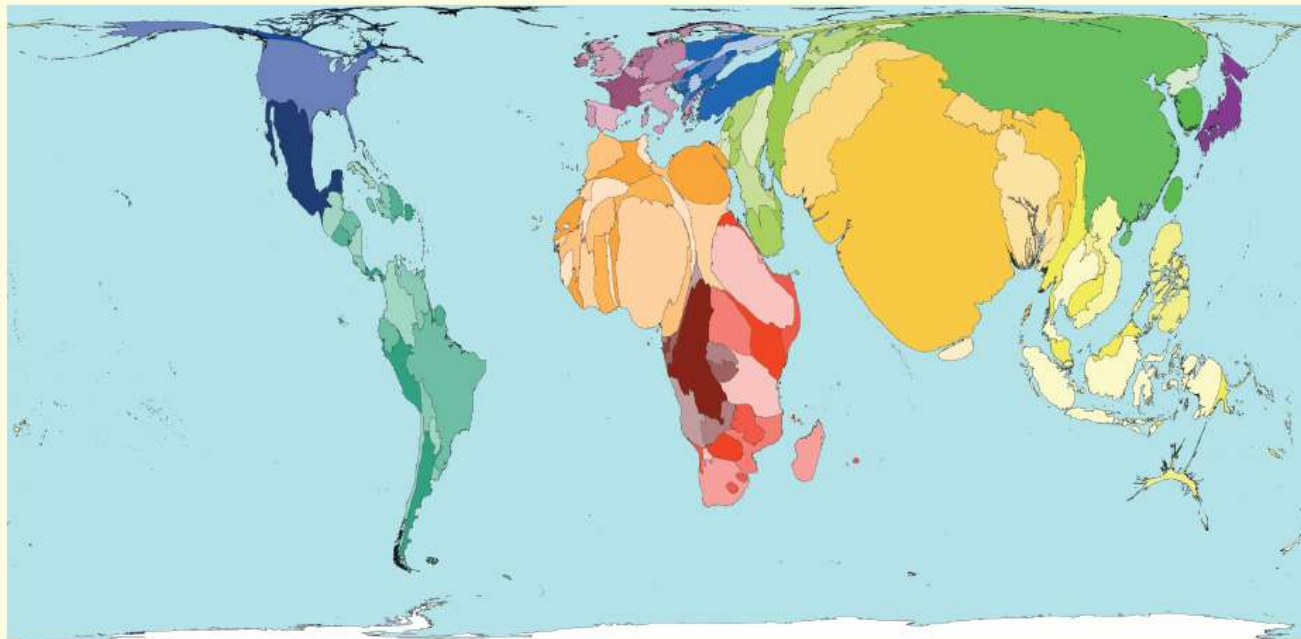
**Population
Density**



**Poverty
Density**



Total Births



133 million babies were born in the year 2000. In territories with the fewest births per person, more people are dying than are being born. As with all population statistics, even this vital one, figures are rough estimates.

More children are born each year in Africa than are born in the Americas, all of Europe and Japan put together. Worldwide, more than a third of a million new people will be born on your birthday this year.

This map shows the proportion of the world's total births for each territory.



Land area

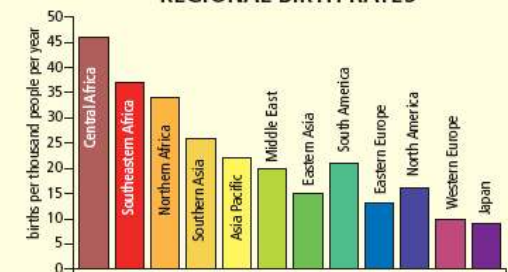
Technical notes
• Principal data source: World Health Organisation, 2005, World Health Report
• Birth data is from 2000.
• See website for further information.

HIGHEST AND LOWEST BIRTH RATES

Rank	Territory	Value	Rank	Territory	Value
1	Niger	52	191	Germany	9
2	Angola	50	192	Italy	9
3	Guinea-Bissau	49	193	Lithuania	9
4	Somalia	49	194	Belarus	9
5	Democratic Republic of Congo	48	195	Russian Federation	9
6	Uganda	48	196	Czech Republic	9
7	Mali	47	197	Ukraine	9
8	Sierra Leone	47	198	Slovenia	9
9	Burkina Faso	46	199	Latvia	9
10	Chad	46	200	Bulgaria	9

births per 1000 people per year

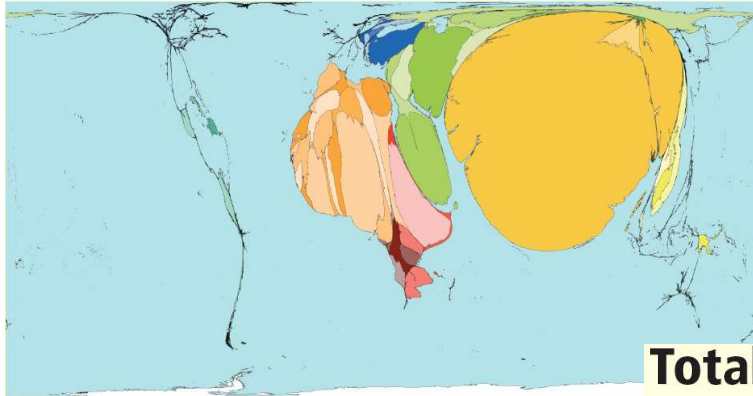
REGIONAL BIRTH RATES



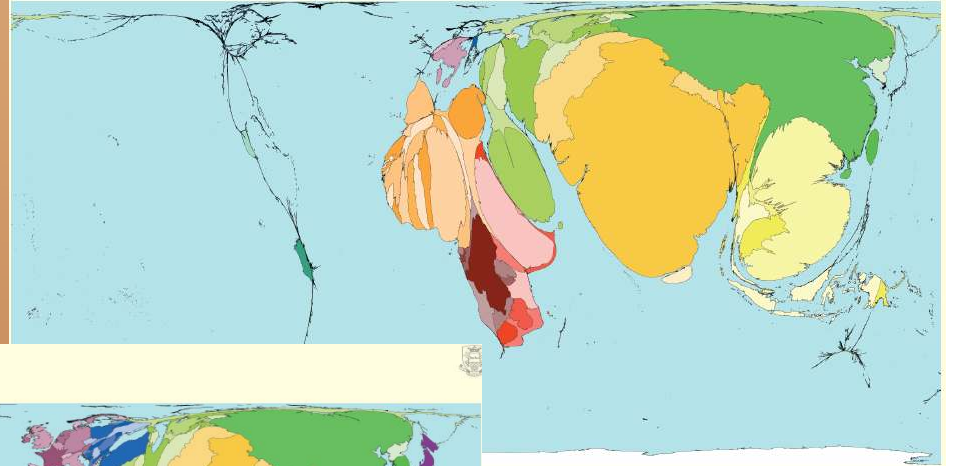
“The birth of a baby is an occasion for weaving hopeful dreams about the future.”

Aung San Suu Kyi, 1997

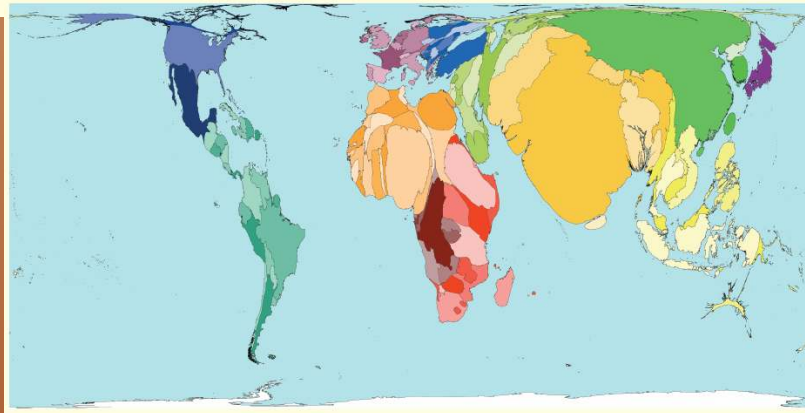
Girls not at Primary School



Girls not at Secondary School



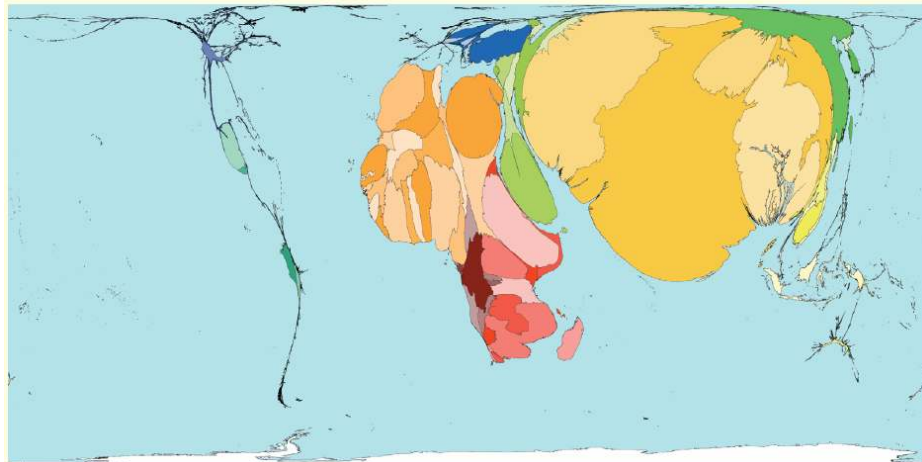
Total Births



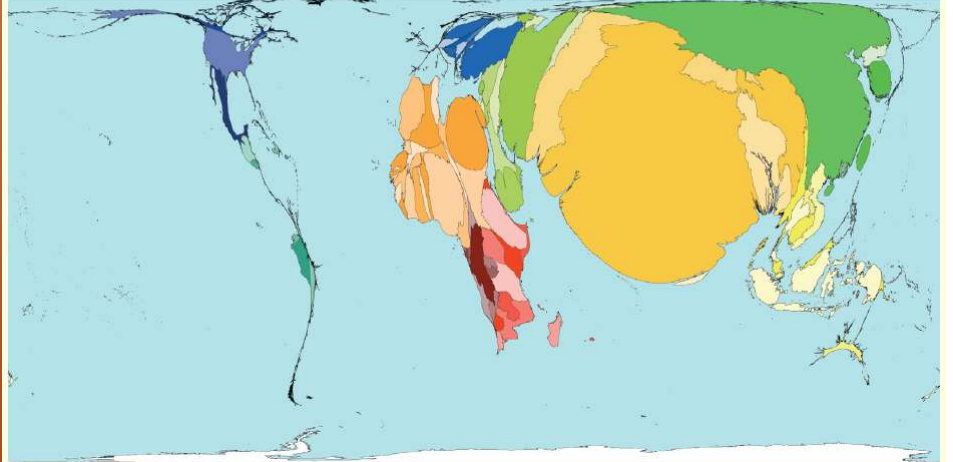
**Positive
Correlation**

+

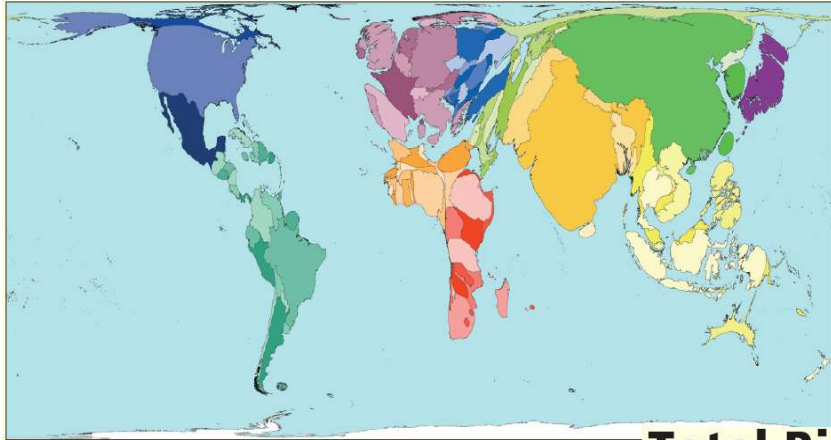
Illiterate Young Women



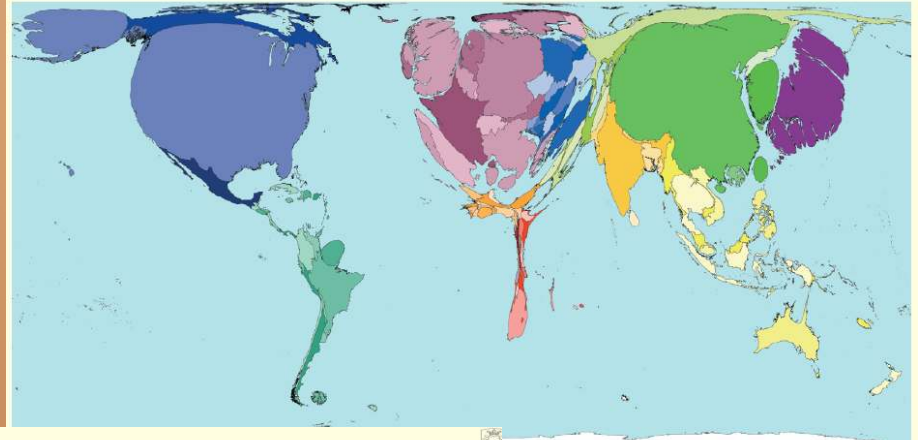
Illiterate Women



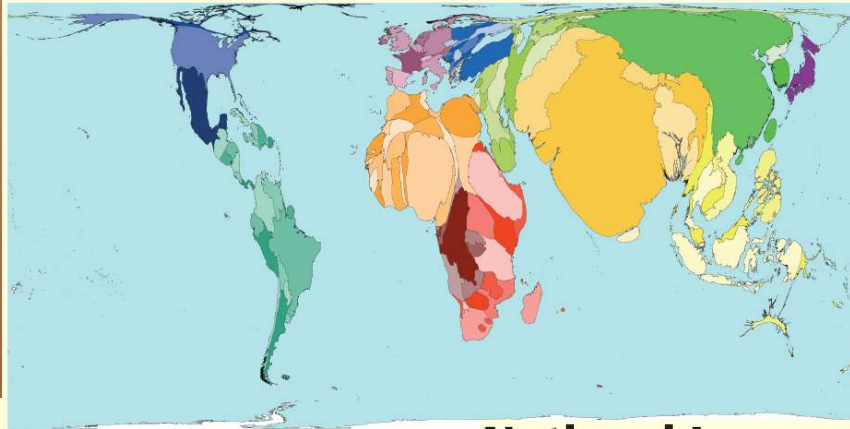
Gender Empowerment



Women's Income



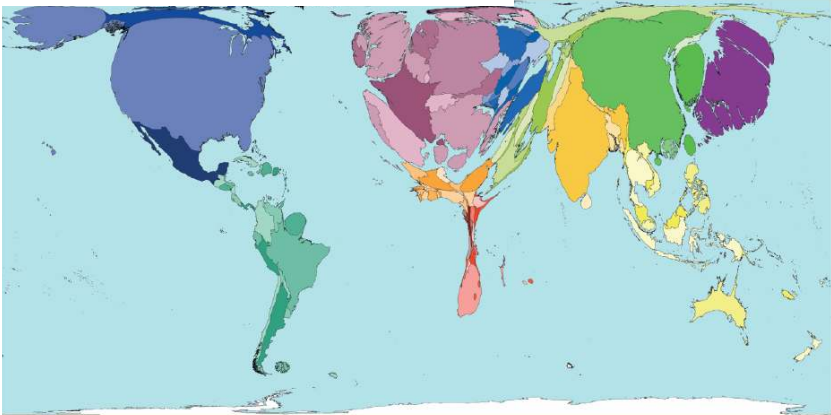
Total Births



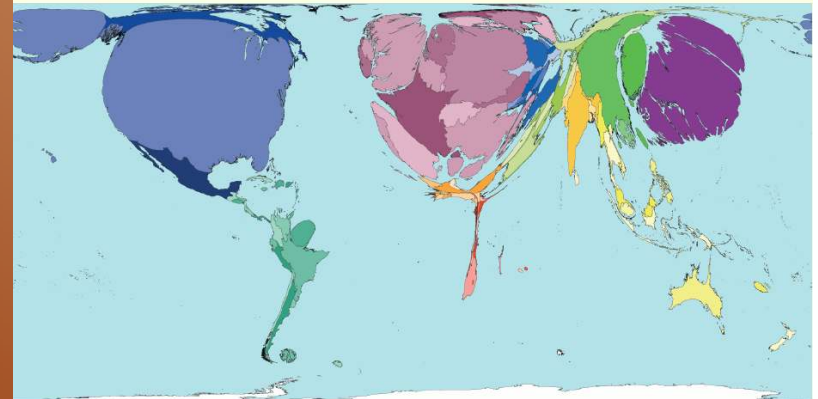
**Negative
Correlation**

—

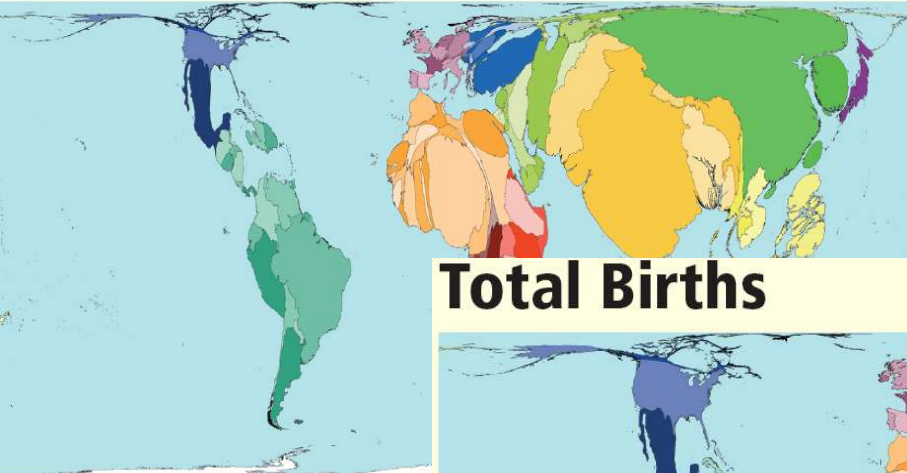
Old Age Security



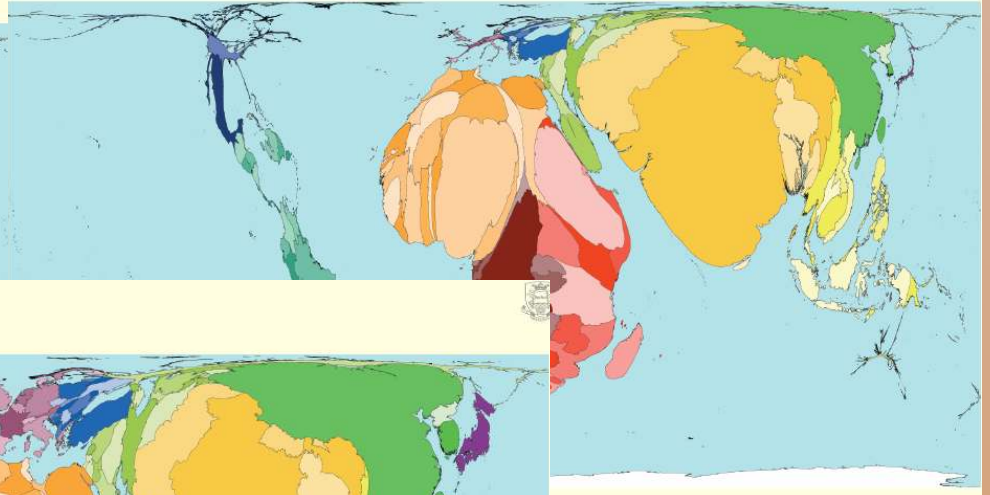
National Income



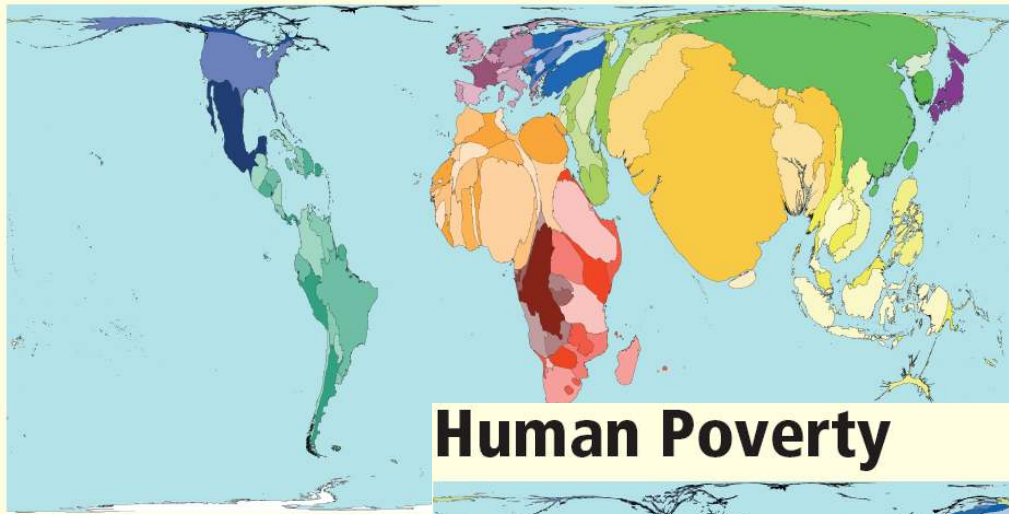
Urban Slums



Infant Mortality



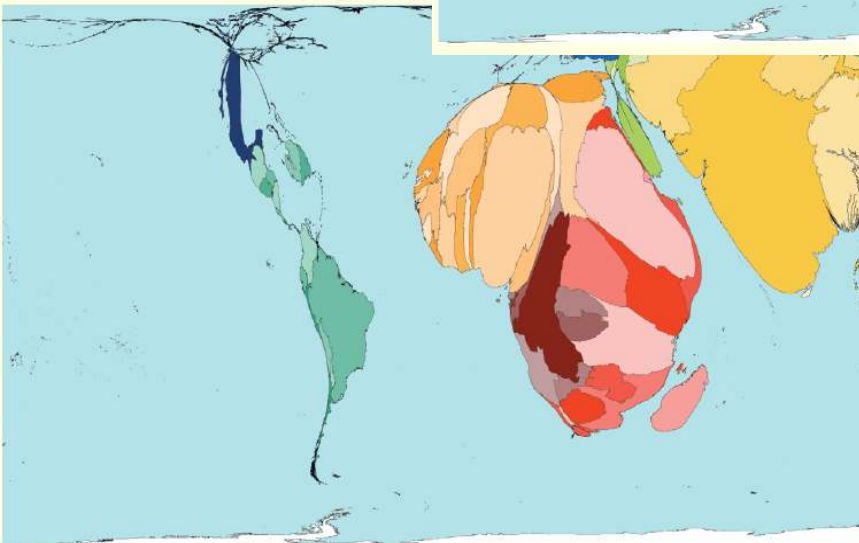
Total Births



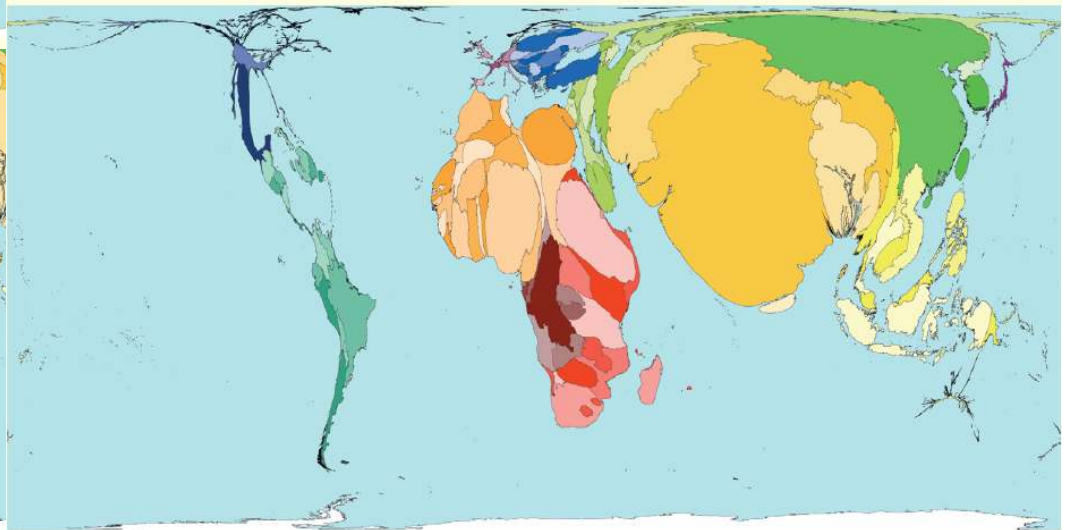
**Positive
Correlation**

+

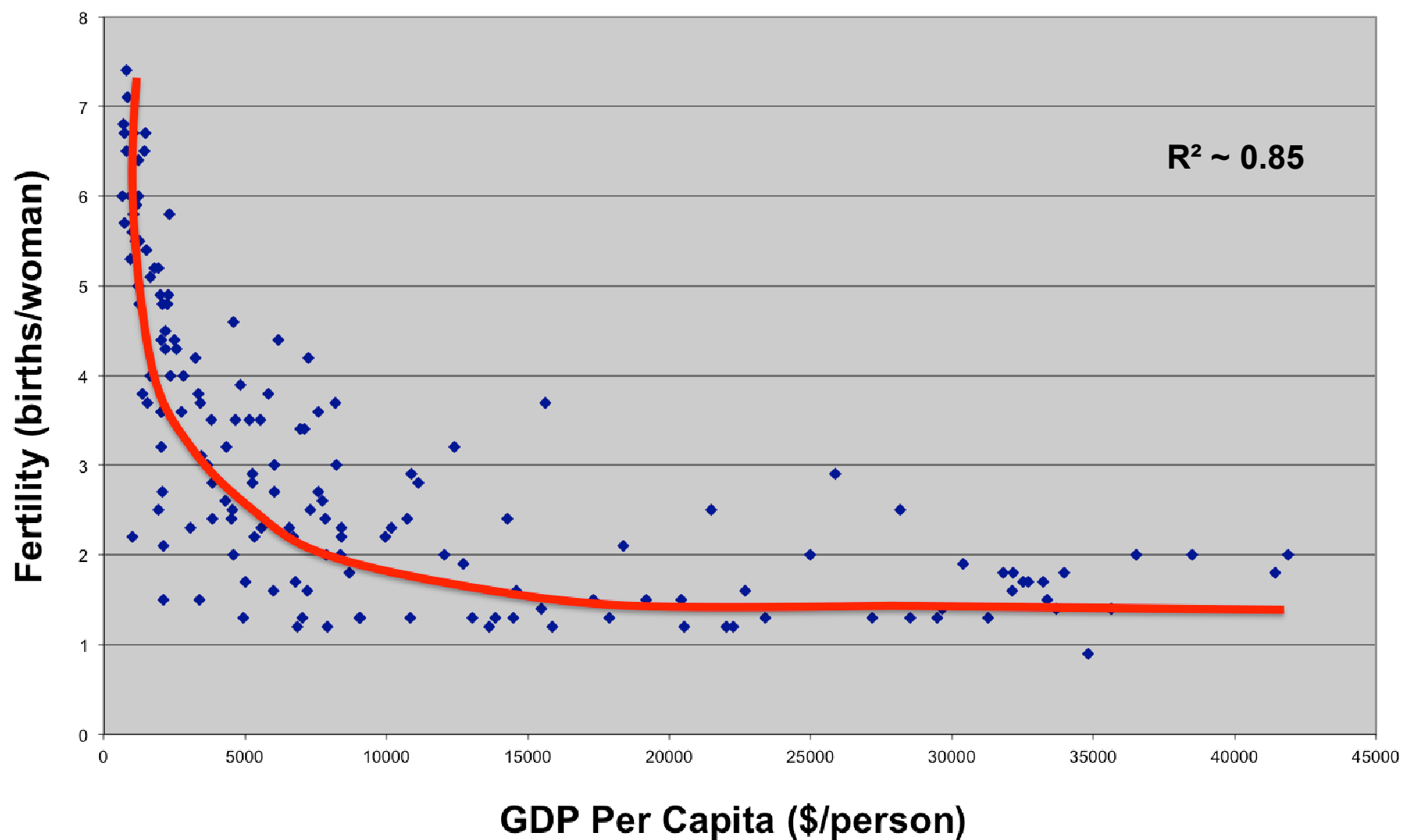
Child Labour



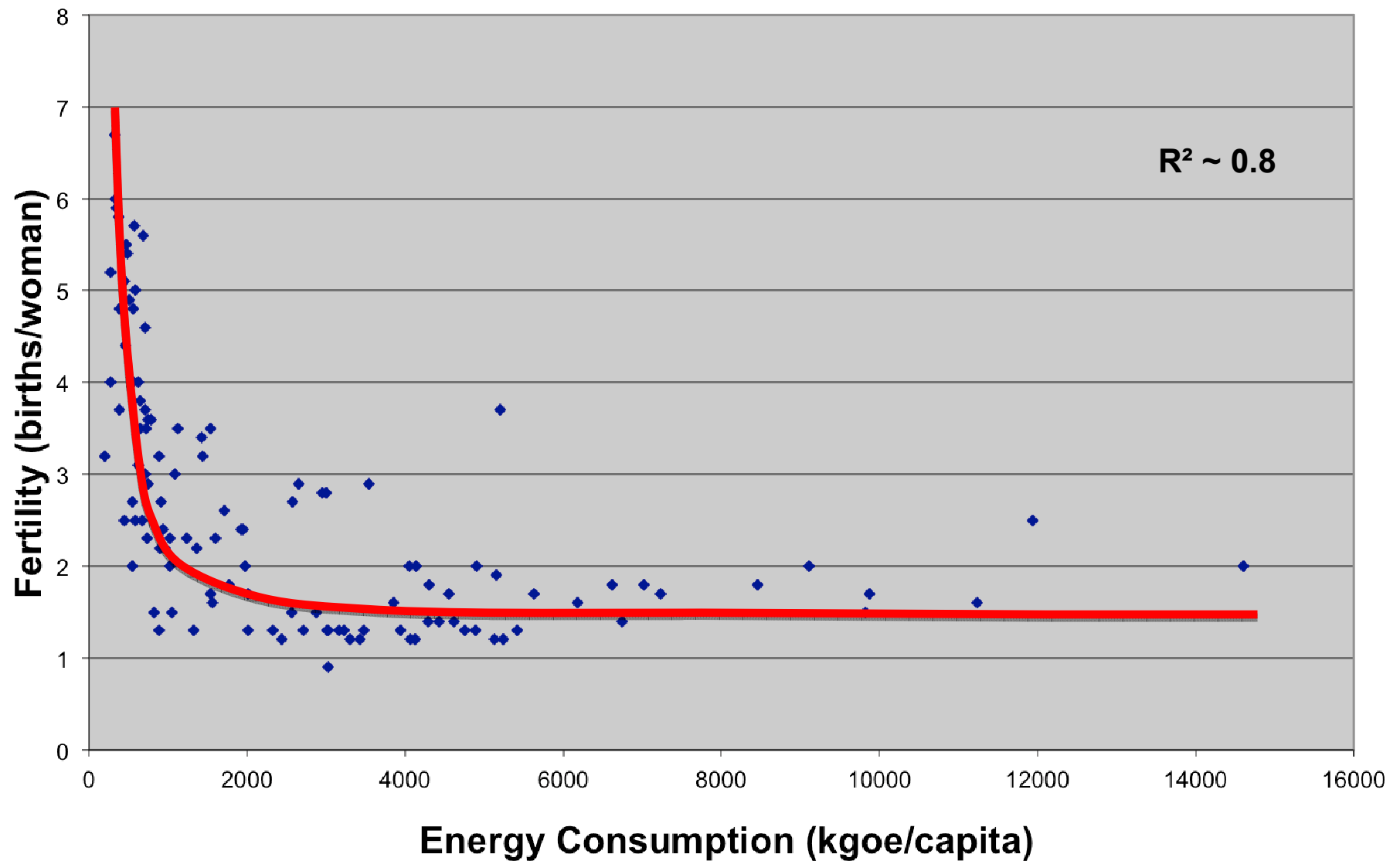
Human Poverty



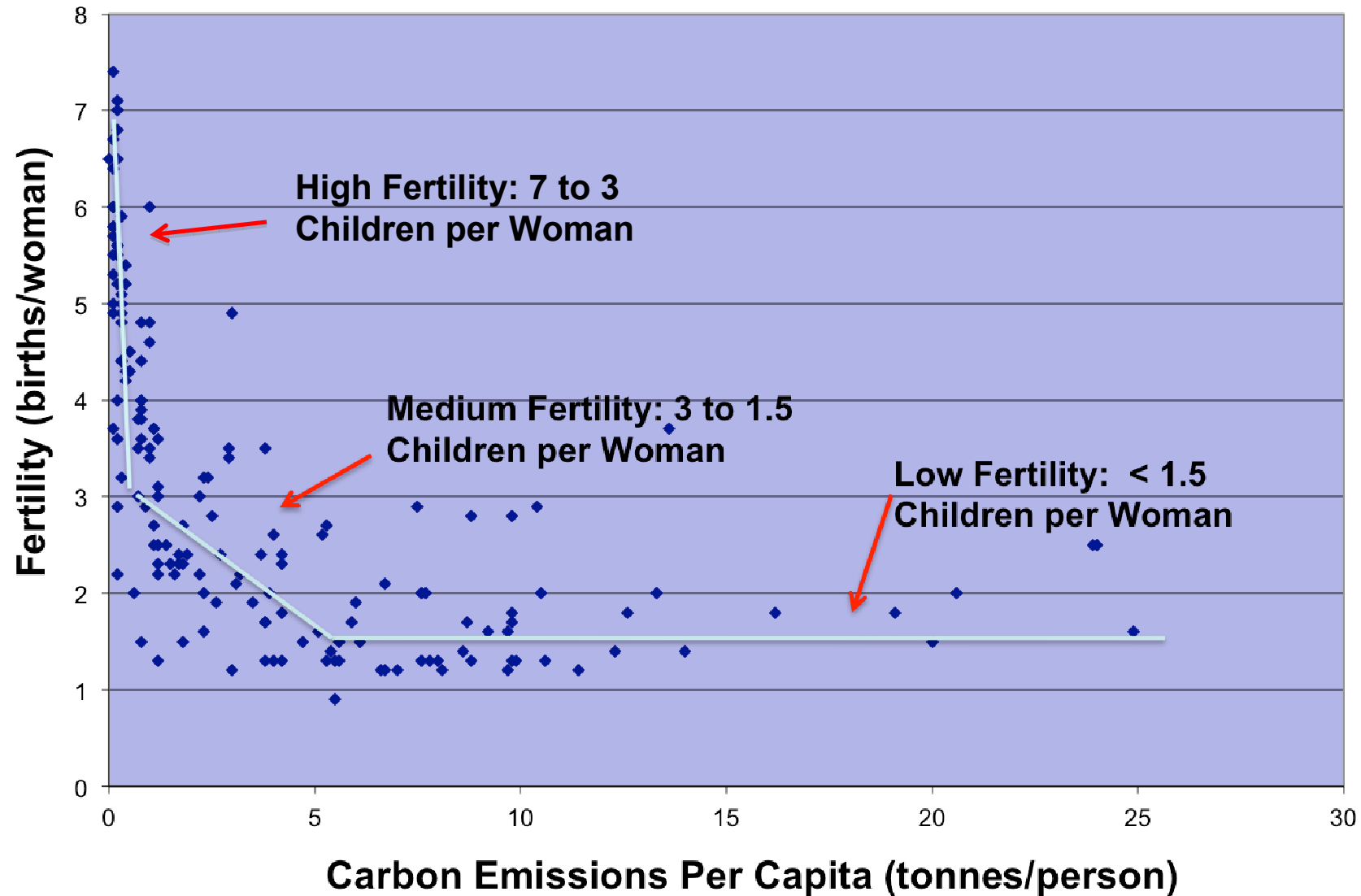
Fertility vs GDP Per Capita (2005)



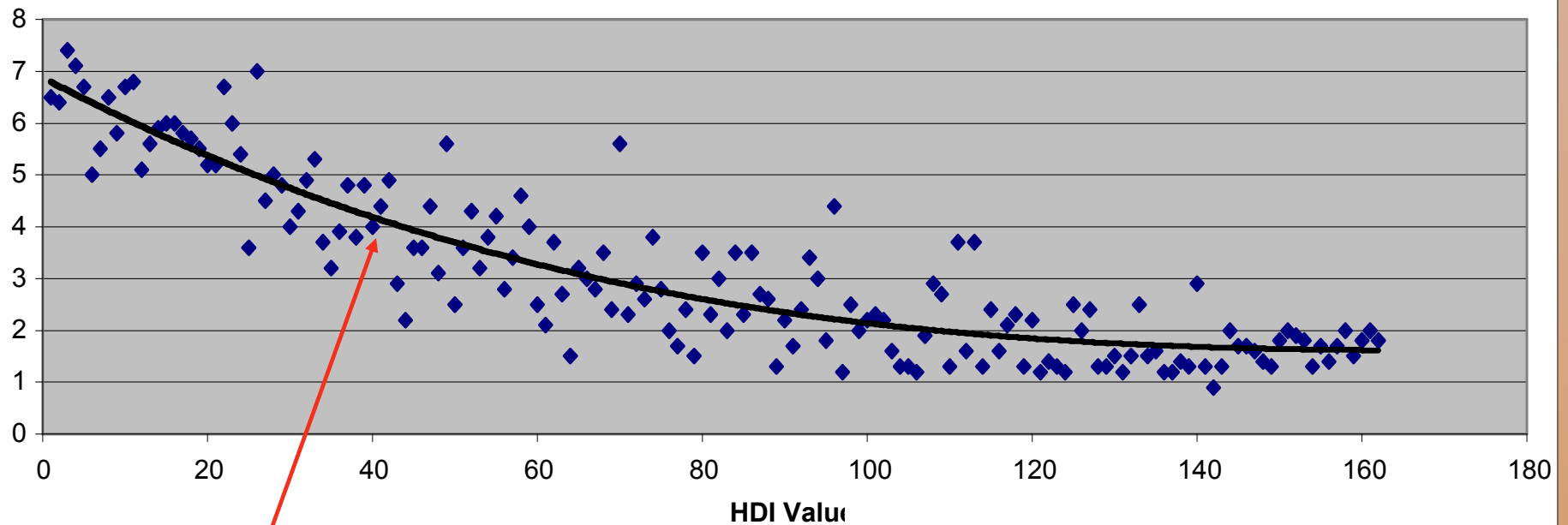
Fertility vs. Energy Consumption per Capita (2005)



Fertility vs Carbon Emissions Per Capita (2005)



Fertility Vs HDI Value (2006)



- $y = -7E-07x^3 + 0.0004x^2 - 0.0836x + 6.8774$
- Where “y” is Fertility (births per woman) and “x” is HDI
- $R^2 = 0.8124$
- No Direct Causal Relationship Necessary
- Statistically Significant Correlation





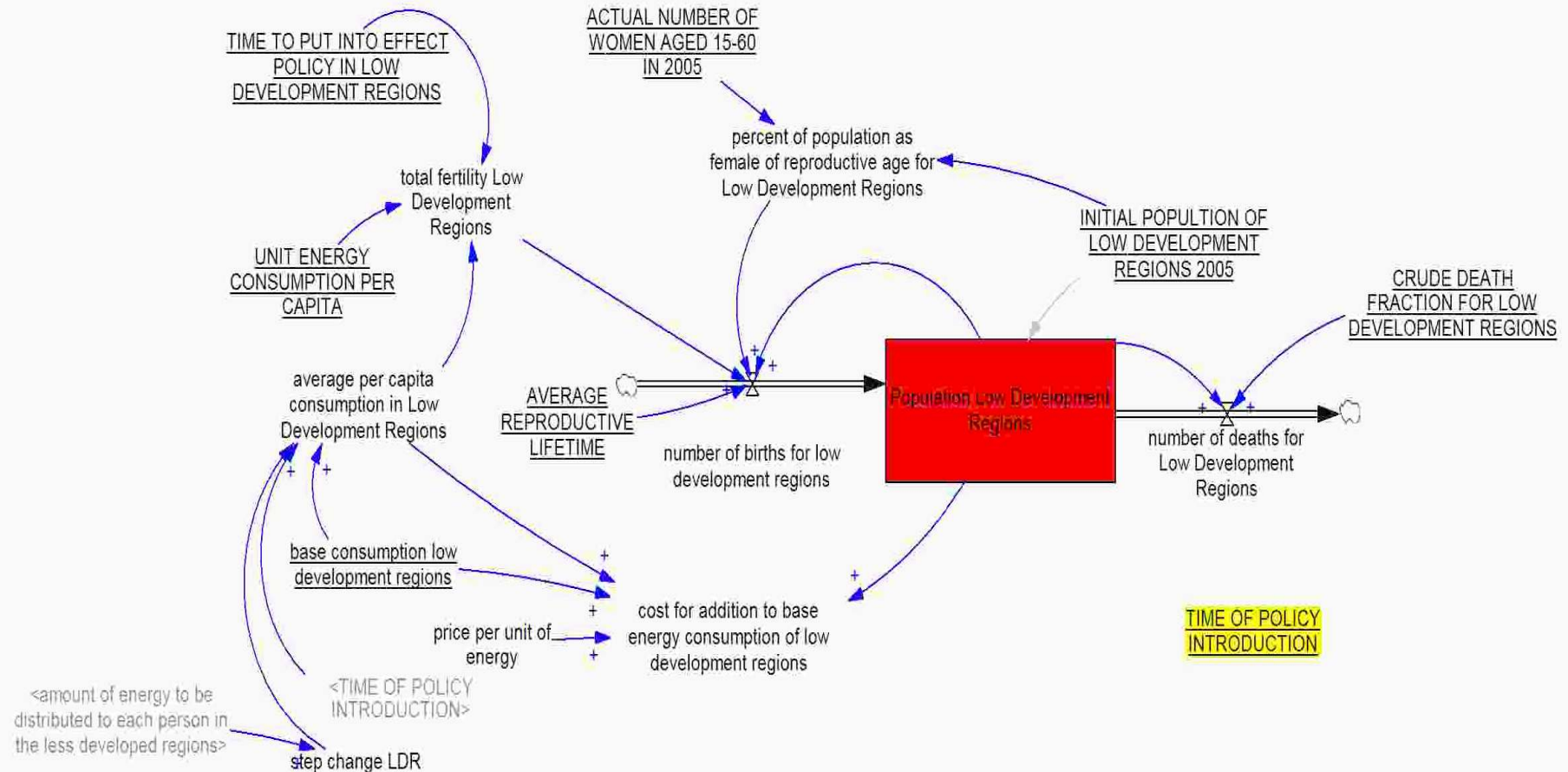
**1988: 25
Women
23 to 35
years old**

**2009: 23
(Same)
Women**

**TARA All-Women
Handmade Recycling
Paper Factory**

**In Factory: 21 Years, ~ 24 Women:
Total 2 Births
Same Cohort, Same Size Control Group
*Total 23 Births***

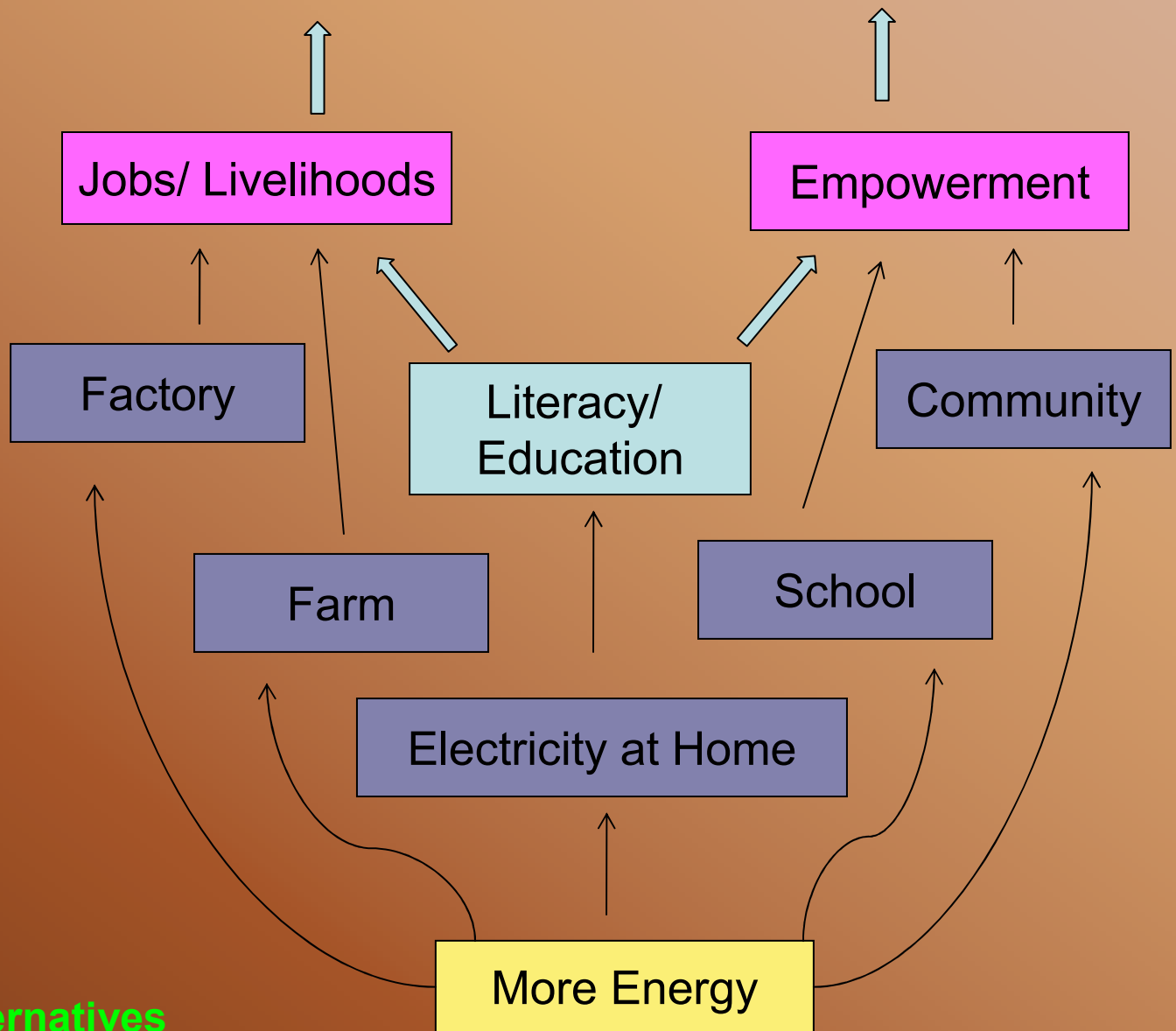
Sub-Model for Low Development Region





alternatives

Motivation for Family Planning





Assumptions and Calculations

1 Person Emits 1 Ton of Carbon/year

1 Ton of Carbon Saved > \$ 20 Saved
Average Lifetime ~ 60 Years

1 Less Birth Now  3 Fewer Births by 2050

So, 1 birth avoided > \$ 3,600 Savings



Calculations: Cost of 1 Ton CO2 Saved

- **CCS** \$ 120 to 150 [Harvard]
- **Energy Efficiency** \$ 25 to 50 [Industries]
- **Forests** \$ 20 to 40 [CANSA]
- **Girls' School** \$ 6 to 10 [SAF]
- **Jobs for Women** - \$ 10 to \$ 4 ! [TARA]



Idea 2:

Investing in People - Creating Green Jobs and Sustainable Livelihoods









Idea 3:

**Investing in Nature,
Regenerating the Resource Base
– Prerequisites for Food Security**



Wasteland Development



Development Alternatives

**< Datia, May
1992**



Datia, Aug 1993

>



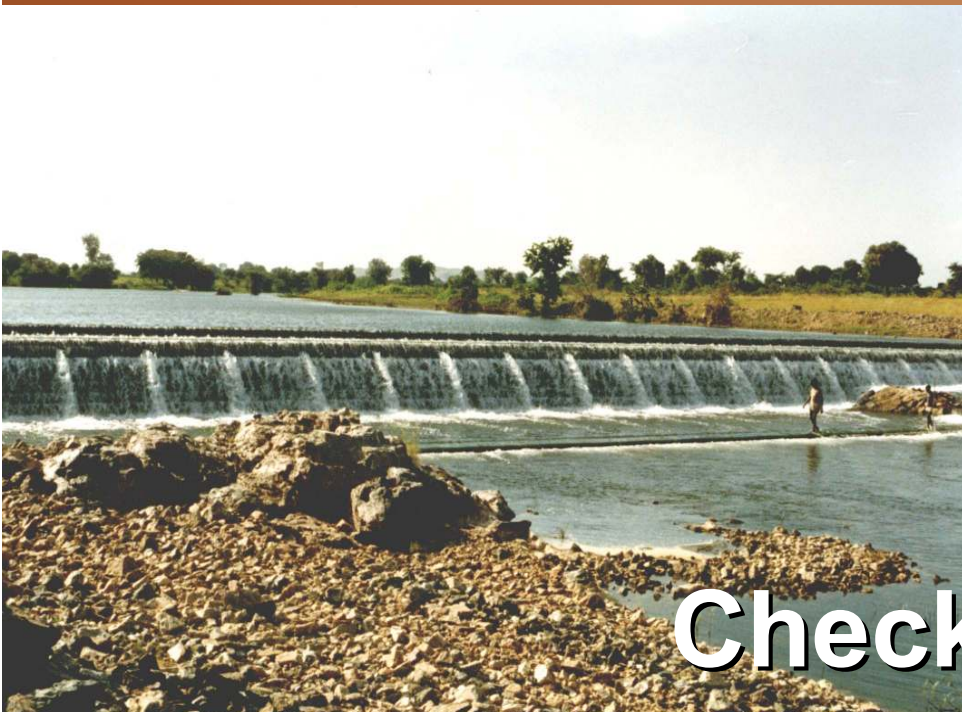
Development Alternatives







Vermicomposting



Check Dams



**Adopt Diets that are
Less Destructive to
the Environment**



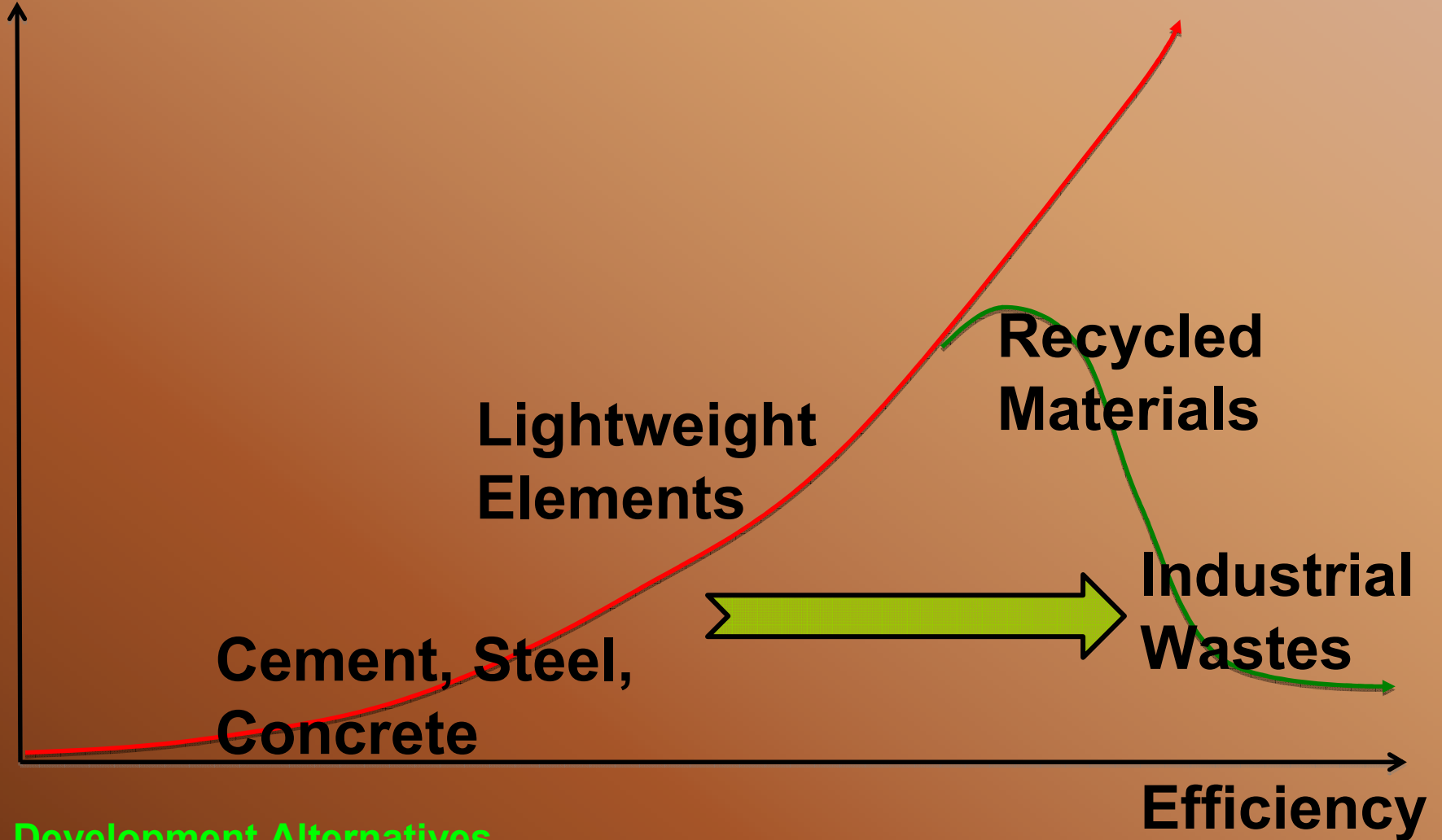
Idea 4:

**Shelter that is Affordable and
Kind to the Earth**



Example: Construction

Cost



Development Alternatives



Rs 300 per Sq Ft



IGNCA
Exhibition Gallery



Development Alternatives







Idea 5:

**Transport Systems
that
Respect Nature**



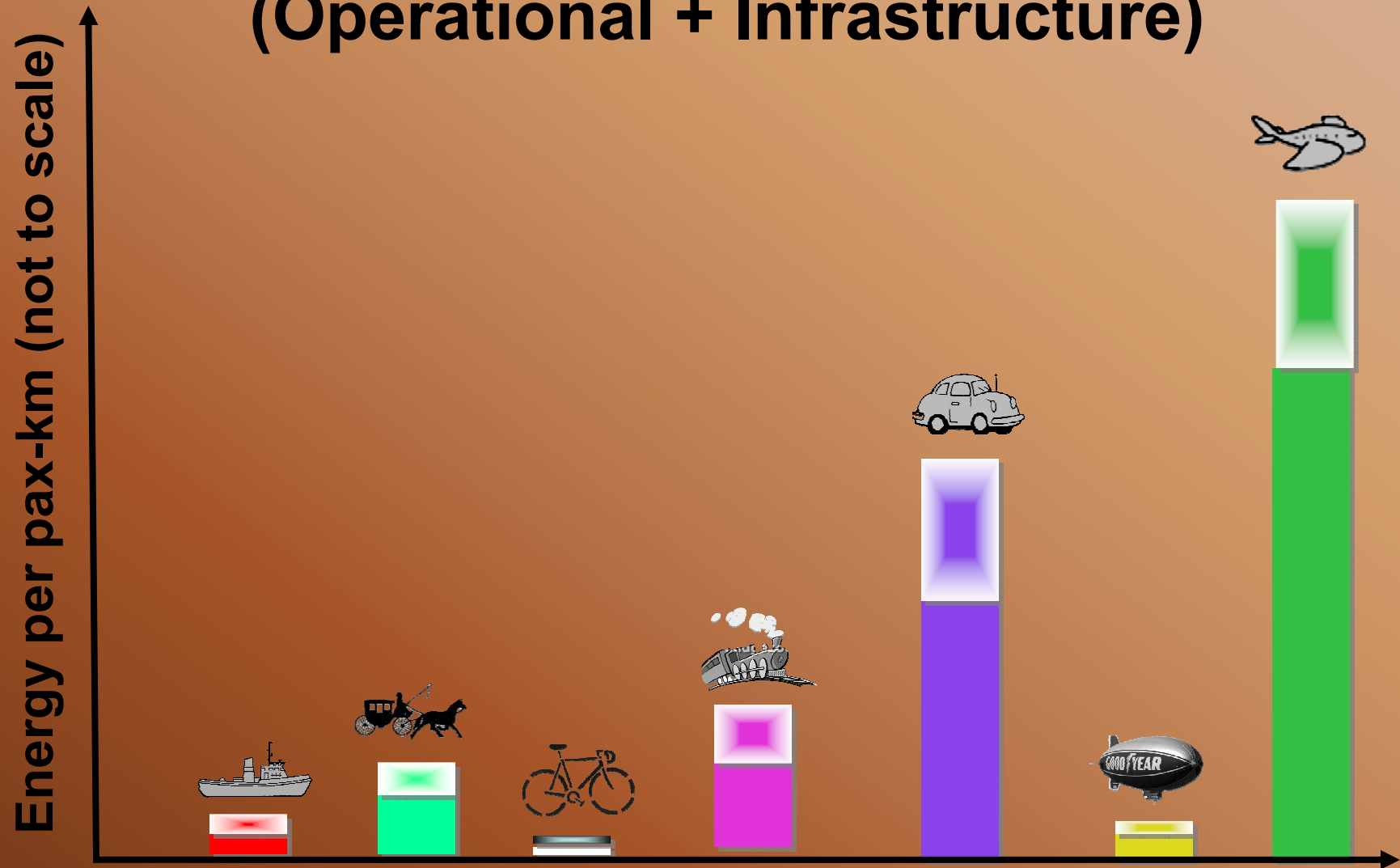


Energy Use in Transportation (Operational)



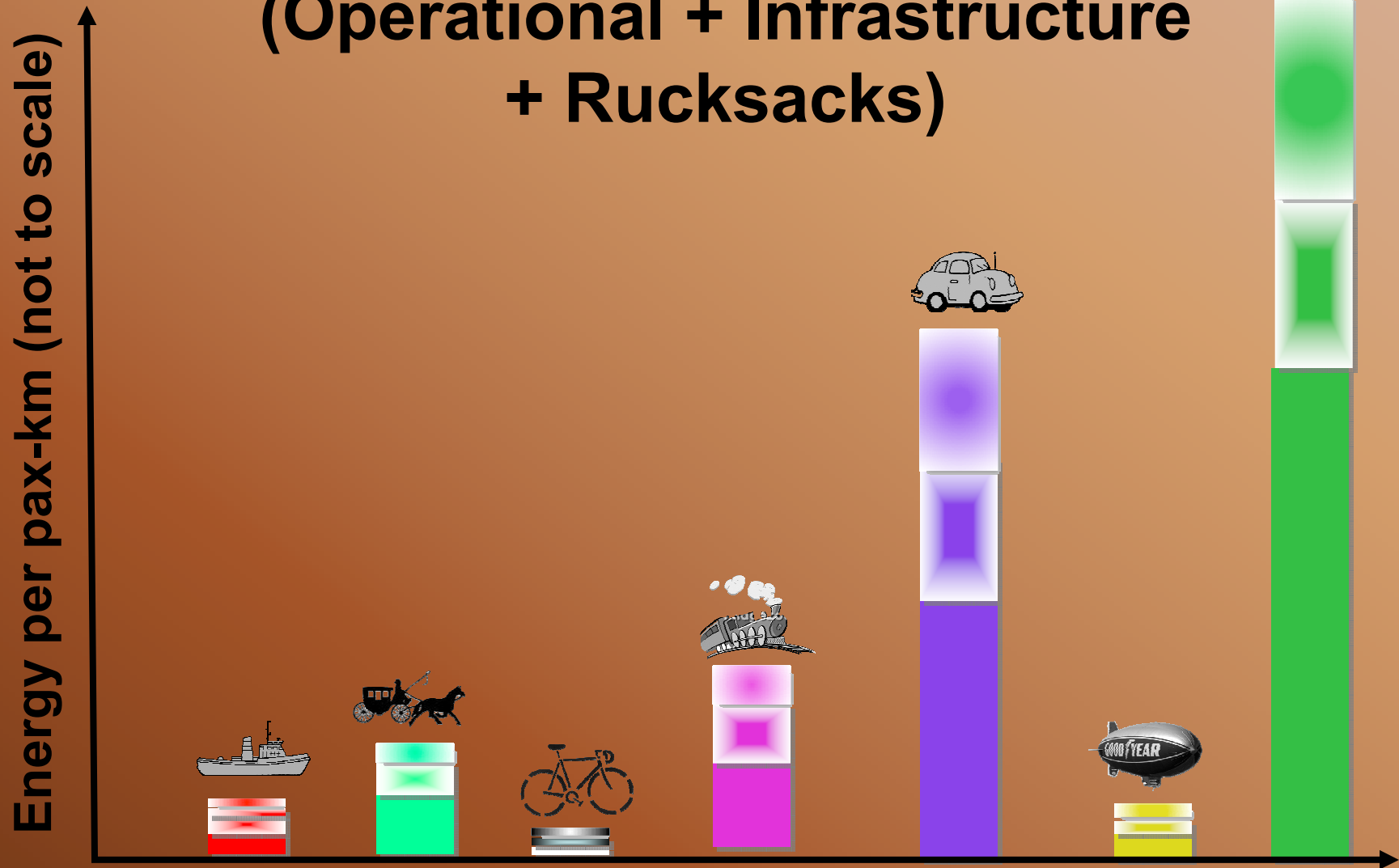
Development Alternatives

Energy Use in Transportation (Operational + Infrastructure)



Development Alternatives

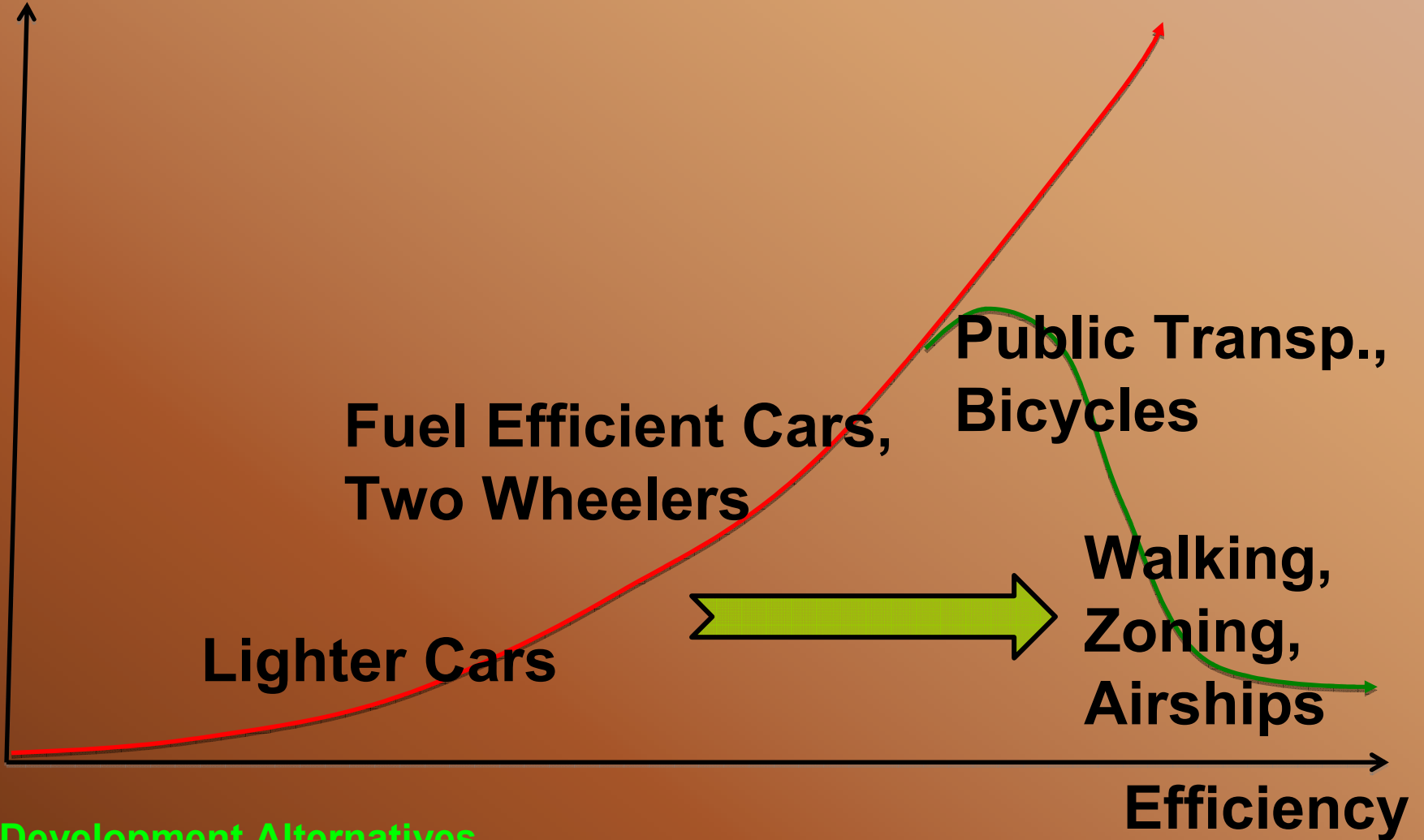
Energy Use in Transportation (Operational + Infrastructure + Rucksacks)





Example: Transport

Cost



Development Alternatives

Idea 6:

**Local Governance
for
Community Empowerment**









Idea 7:

Innovative Learning Systems

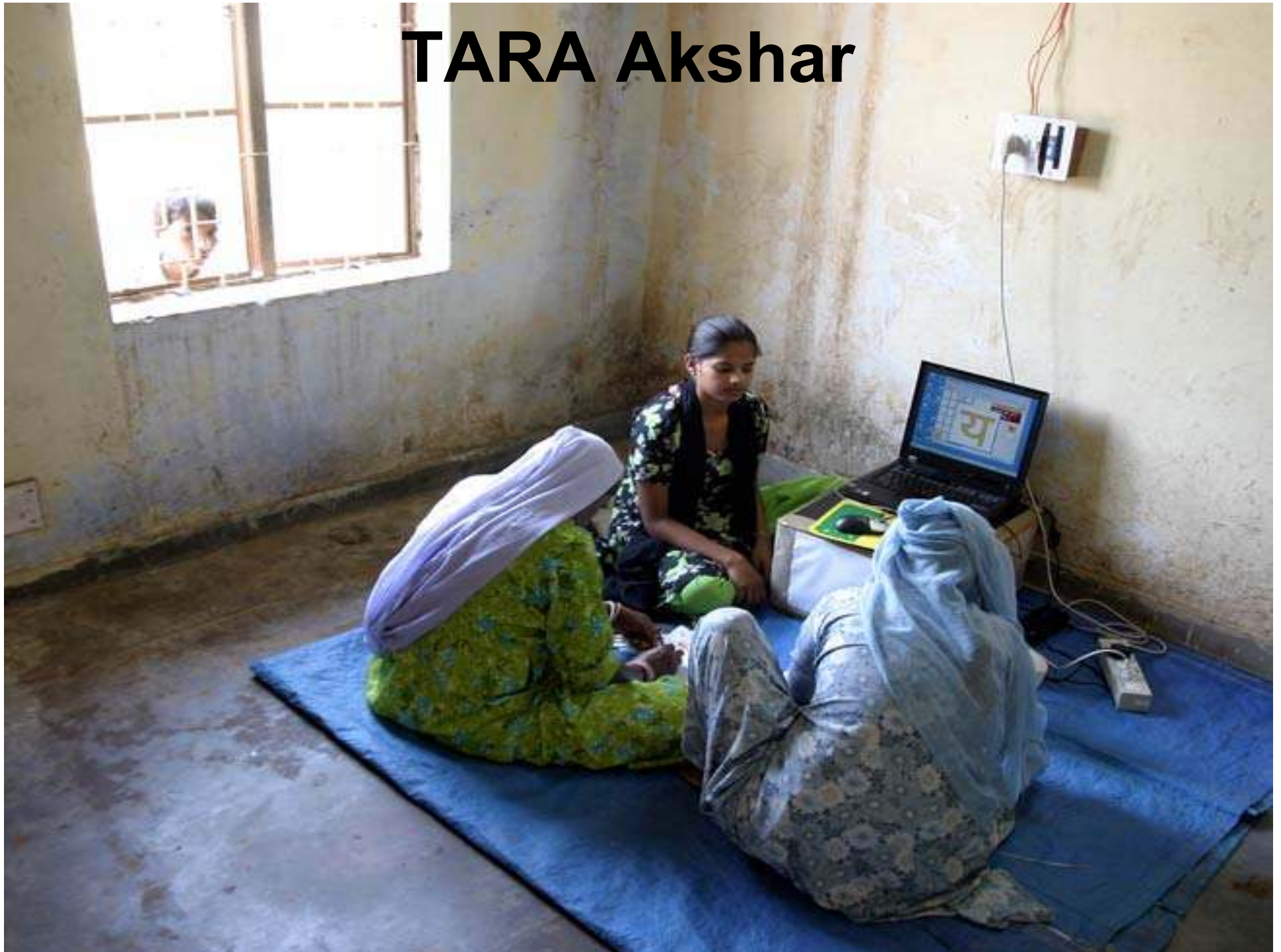
-

**Universal Literacy
for Individual Empowerment**



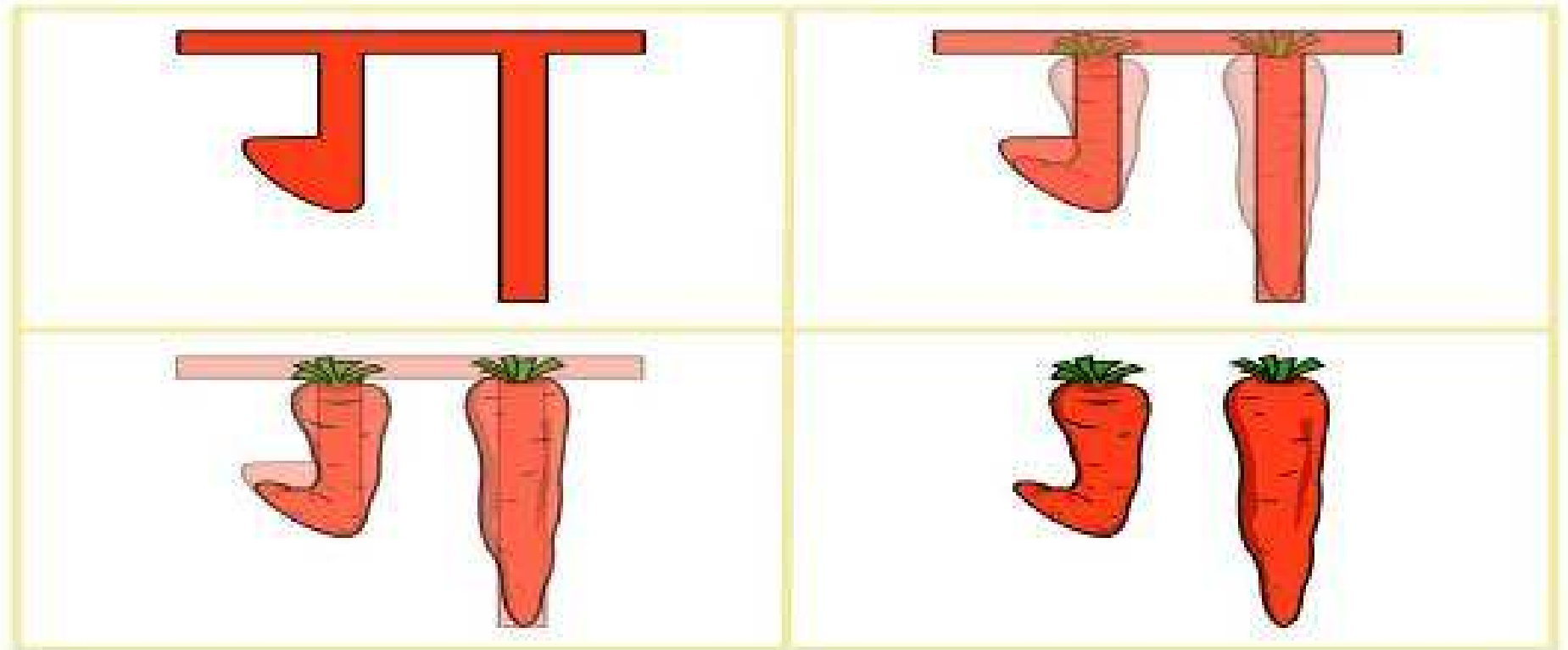
Development Alternatives

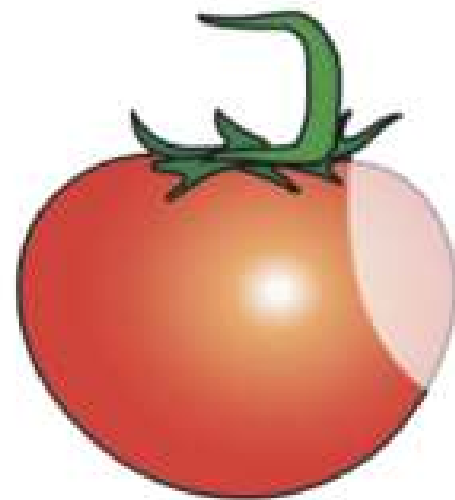
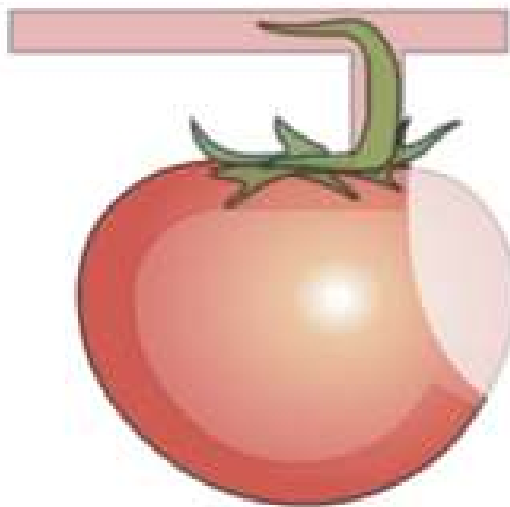
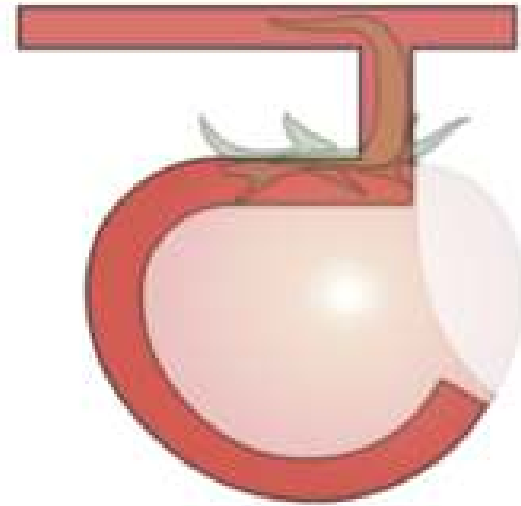
TARA Akshar



About Memory Techniques

The programme methodology works on the principle of creating memory hooks by relating letters to everyday objects and reinforcing the learning by interactive practice.





A Life Transformed

Case: Ms Seetho, of Village Bhatti Mines, near Delhi, India

Condition: Immobilized by polio, rarely left her little mud hut

Achievement: *She learnt to read AND write in less than FOUR weeks.*

How: Carried piggy-back by sister-in-law to 90 minute **Akshar Gyan** literacy classes daily for one month





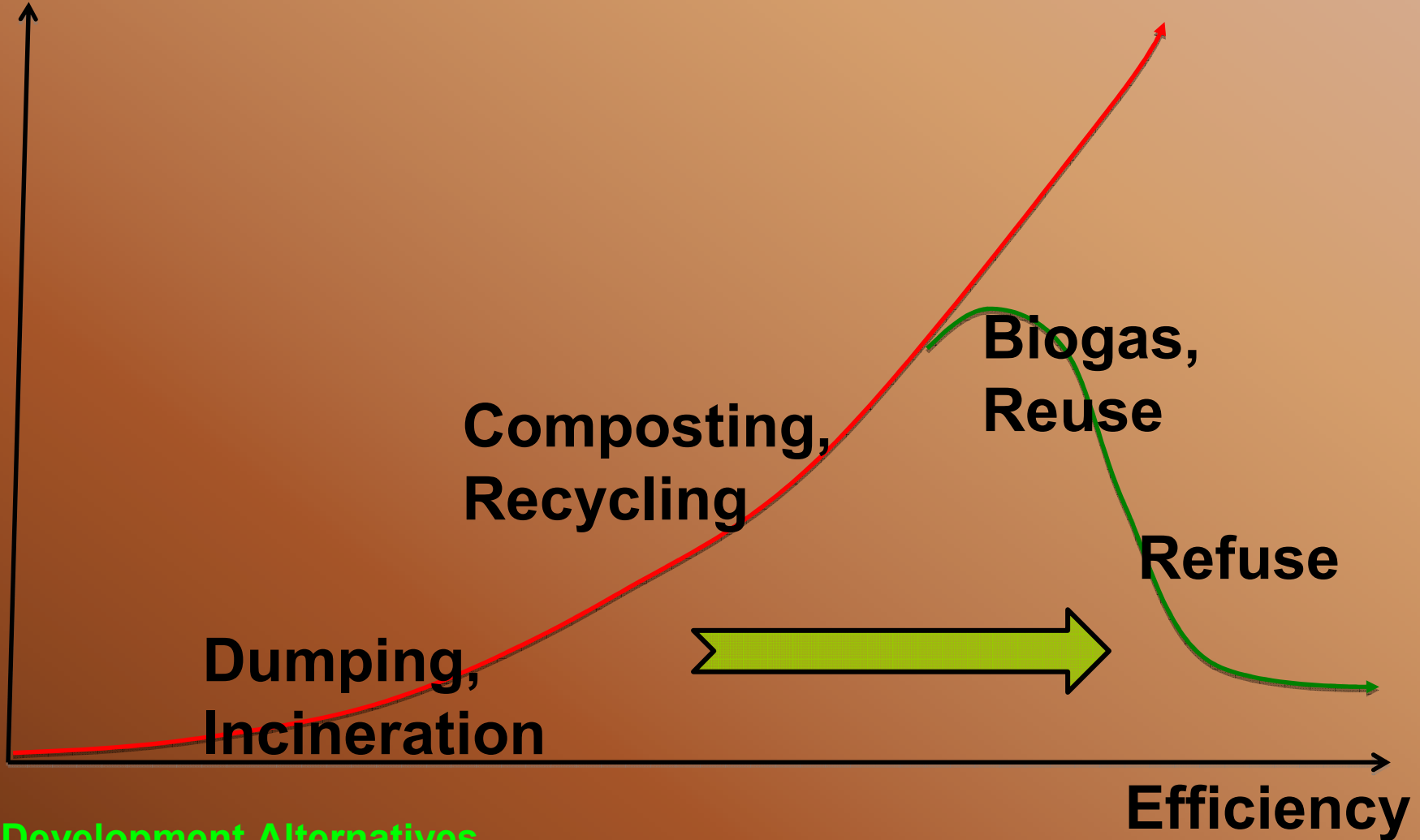
**50,000 Women in UP, Bihar,
MP, Chatisgarh and
Jharkhand - June 2007 to**



Development Alternatives

Example: Waste

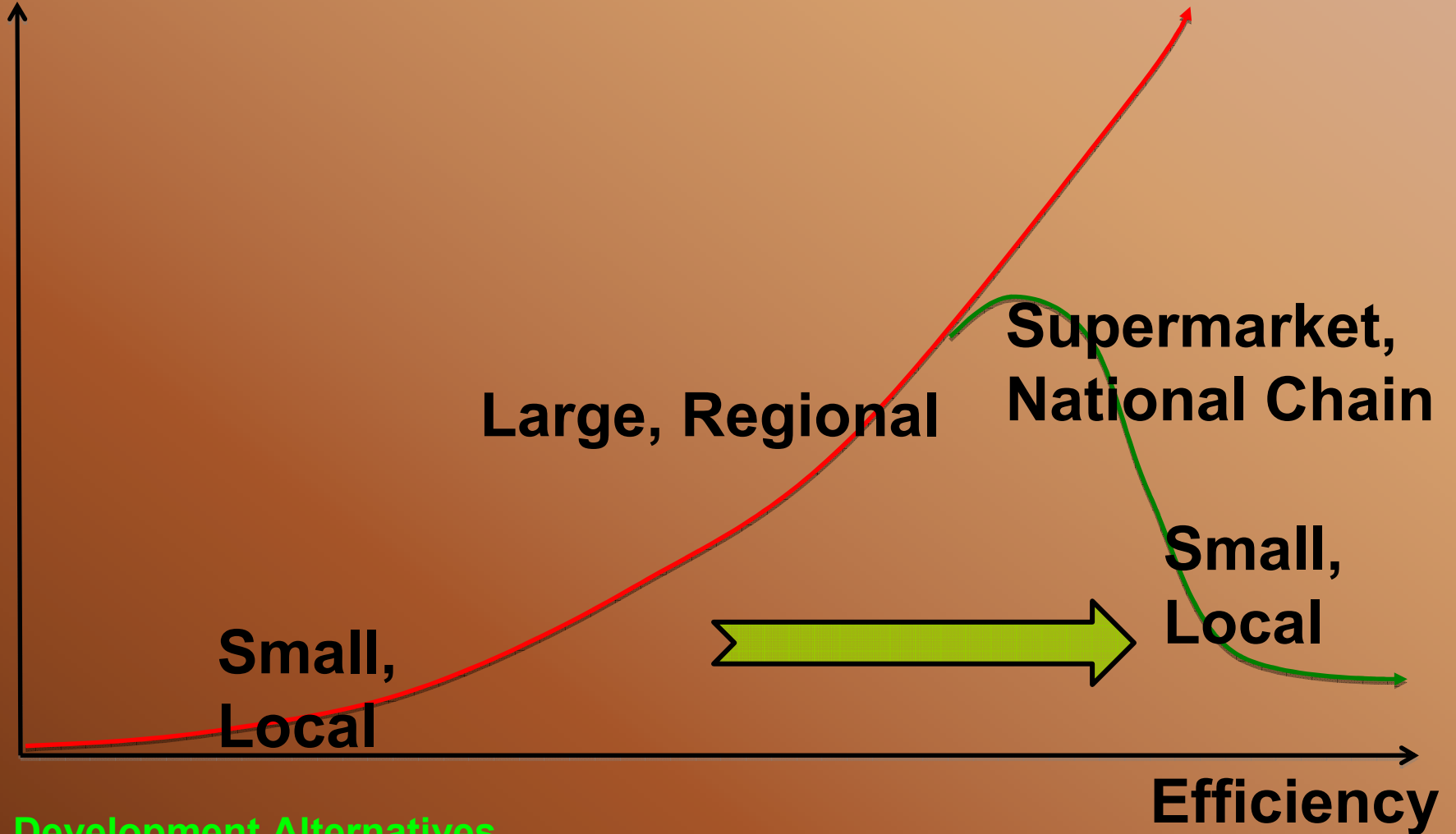
Cost



Development Alternatives

Example: Enterprise

Cost



Development Alternatives

Idea 8:

Using and Learning from Nature

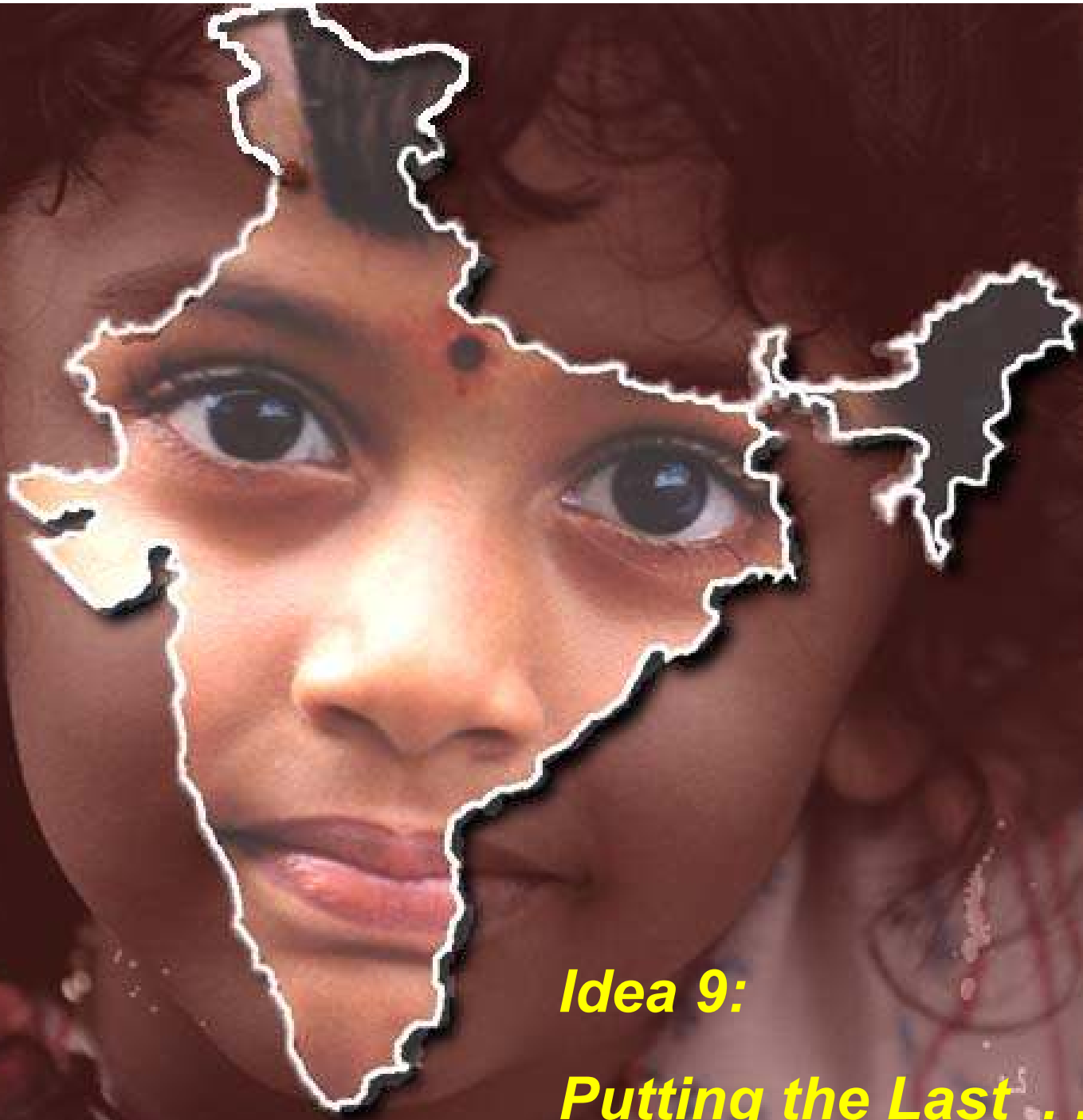




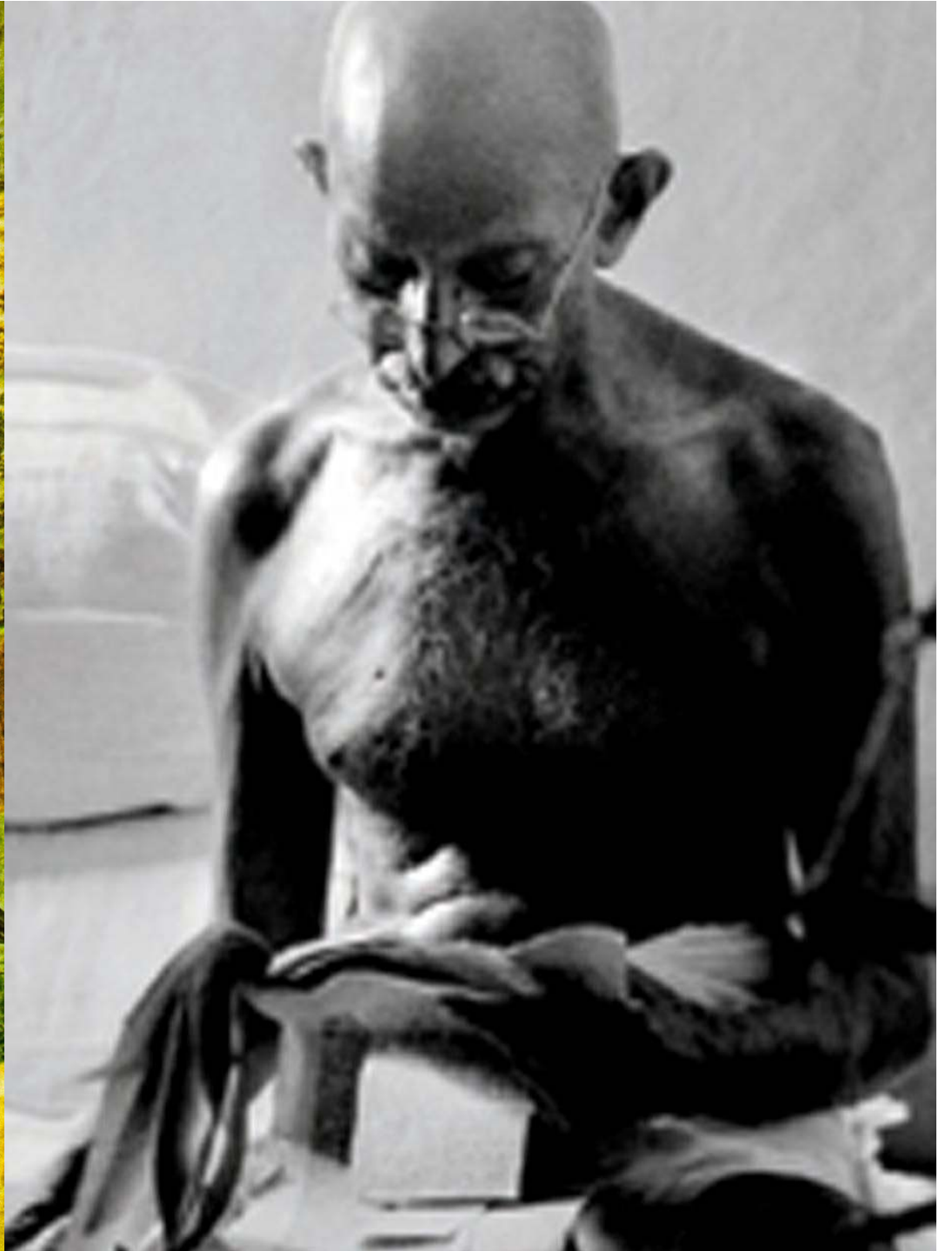
The Five Kingdoms of Nature

- **Animals**
- **Plants**
- **Fungi**
- **Algae**
- **Bacteria**





Idea 9:
Putting the Last . . . First



Be The Change . . .



Development Alternatives

**Otherwise, We Will
Need 2 Additional
Worlds by 2030**



Development Alternatives

... Our One Earth



It's OUR World !