

Ecological Sustainability

Our Shared Responsibility

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Overview

- **The Sustainability Challenge**
- **Global trends and trends in Mauritius**
- **Responding wisely to this challenge**
- **Reflections and discussion**

What is Sustainability?

The stage at which something can maintain itself over a prolonged period of time (resilience & adaptability)

Relevance to human beings:

‘Can current patterns of human activities on Earth be maintained indefinitely into the future?’

Most probably NO!

Why we need Sustainability?

Past (and current) patterns of economic development (or economic growth) have had (and continue to have) adverse impacts on equity in society and the natural environment

Mauritius follows global trends quite closely – examples follow

*Effects of development
on Equity*

Example – World Poverty

Gross World Product increased from US\$7.4 trillion in 1950 to US\$50.9 trillion in 2000 – i.e. a 7-fold increase

In 2000, 2.737 billion persons lived in poverty (<US\$ 2/day), of which 1.1 billion persons lived in absolute poverty (<US\$ 1/day)

<http://www.earth-policy.org/Indicators/Econ/2006-data.htm>

<http://gsociology.icaap.org/report/econ/econsum.html>

Example – Poverty in Mauritius

GDP per capita increased from US\$779 in 1976 to US\$5137 in 2004 – i.e. an increase by 6.6 times.

Nevertheless, 11.3% of the population lived in poverty in 2004

World Development Indicator (World Bank)

Human Development Report 2004 (UNDP)

Example – World (In)Equity

Distribution of Gross World Product

% world population	% appropriation GWP
Top 20% (richest)	86
Bottom 20% (poorest)	1
Remaining 60%	13

Ron Nielsen, The Little Green Book (2005)

Example – (In)Equity Mauritius

Income Distribution

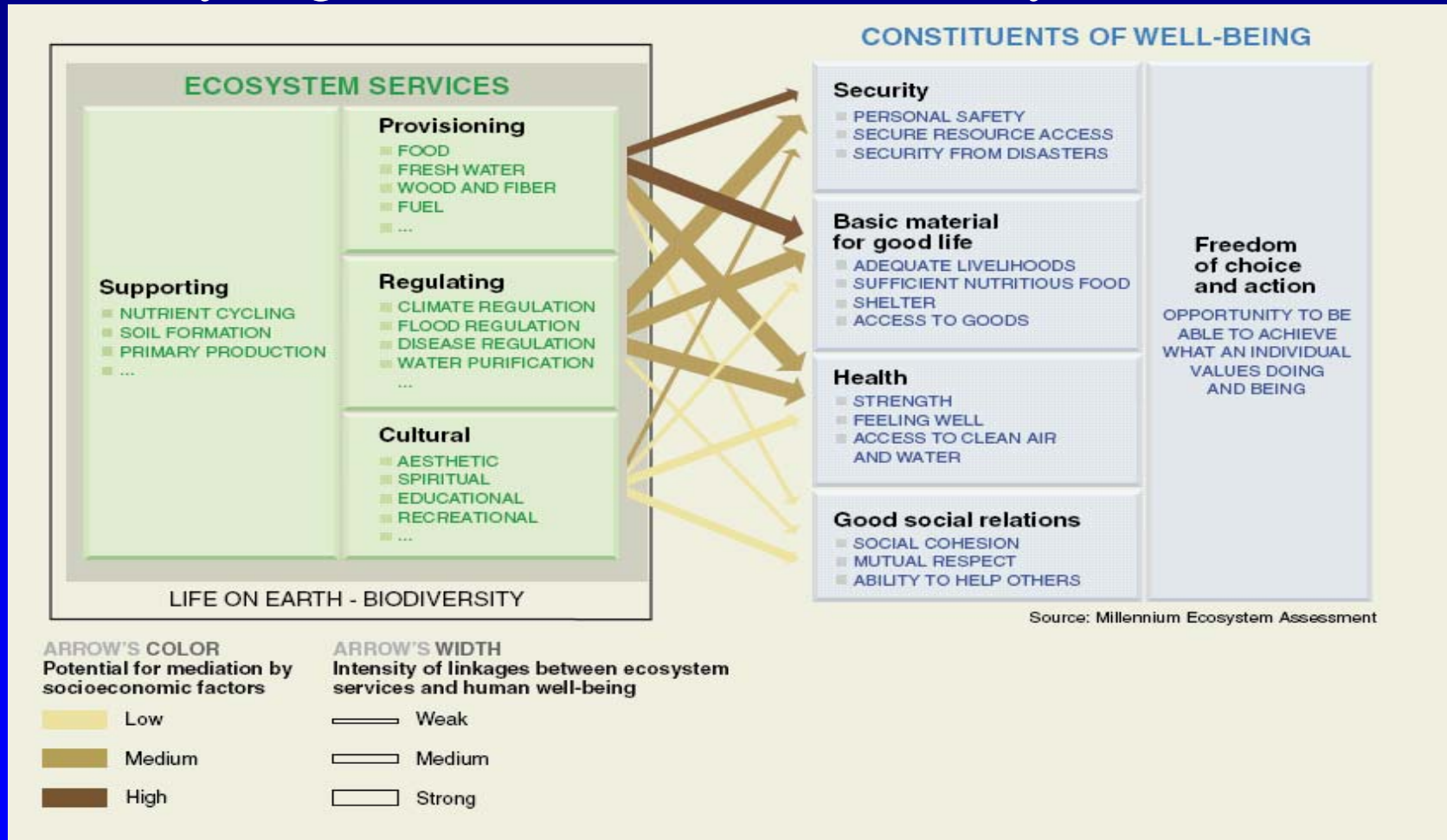
- Income Ratio of highest 20% of households to lowest 20% of households in 2001/02 was 6.9
- GDP per capita almost doubled between 1991 and 2002 while income redistribution did not change significantly [Gini Index = 0.379 (1991/02) & 0.371 (2001/02)]

For perfect equity, Gini = 0

*Effects of development
on Environment*

Consequences - Ecosystems

“15 of 24 ecosystem vital for life on Earth have been seriously degraded or used unsustainably”



Consequences - HANPP

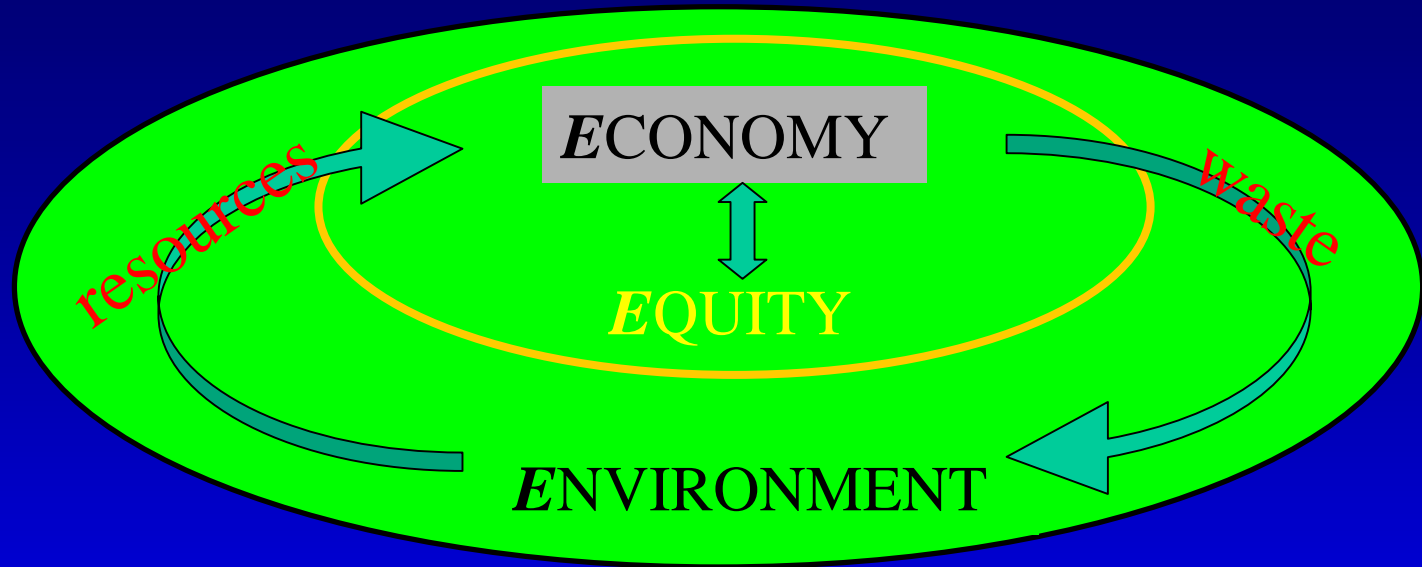
Human Appropriation of Net Primary Production (HANPP)

“human beings make up a mere 0.5% of Earth’s biomass, yet we appropriate up to 32% of NPP”

Nature, 2004

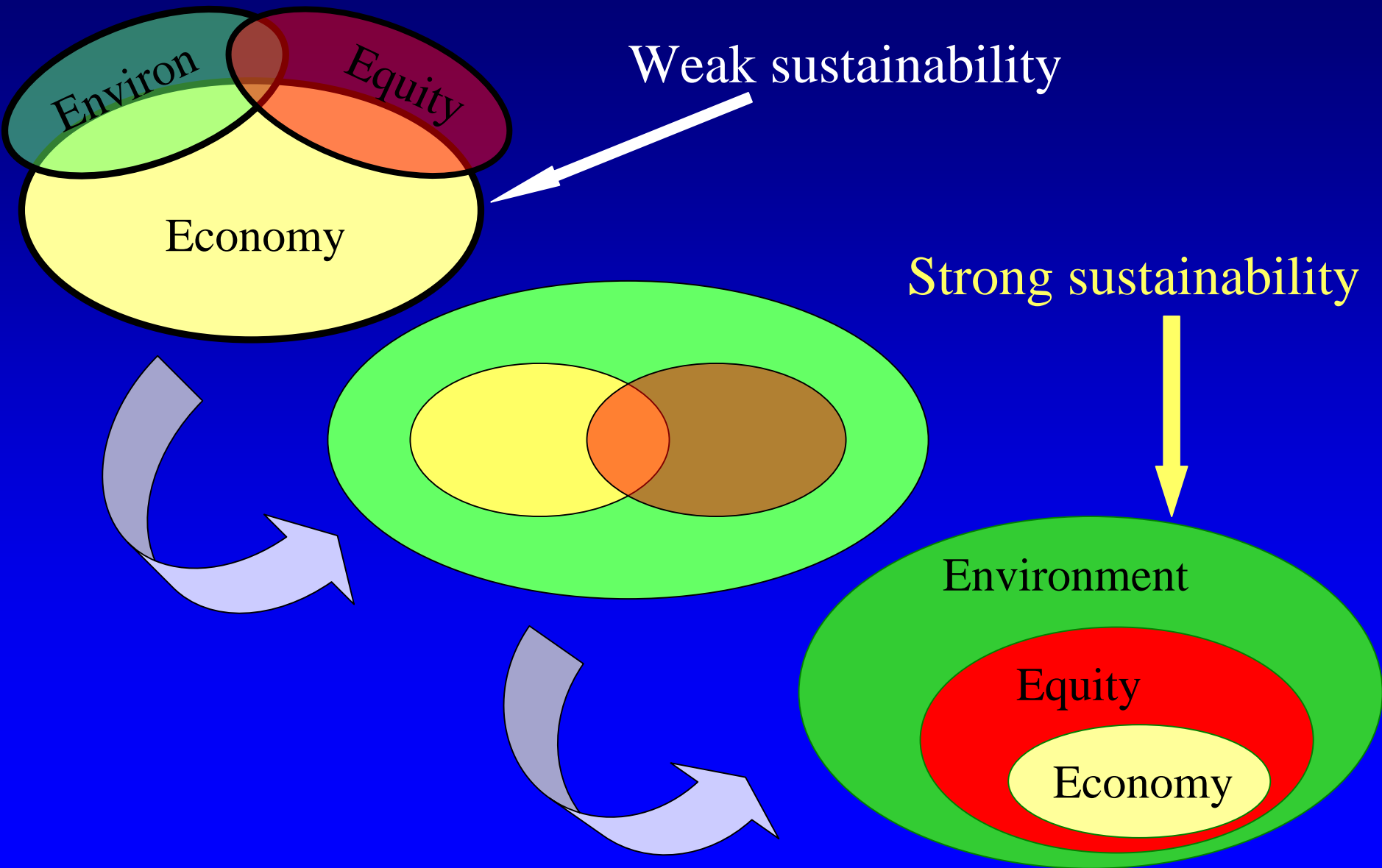
Sustainability Models

Interconnectedness



The 3Es are interconnected – i.e. small changes in one domain can have large effects on the other two domains (complex dynamical system!)

Interconnectedness of 3Es

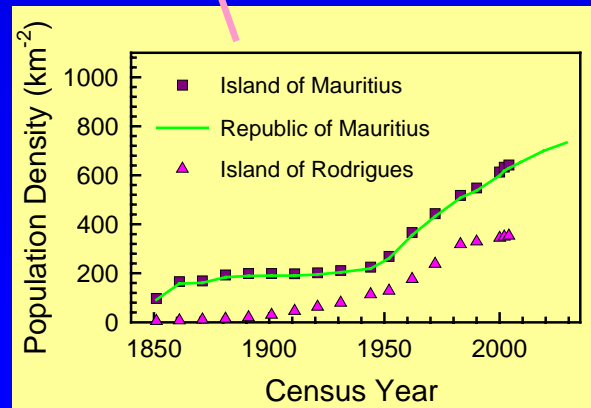
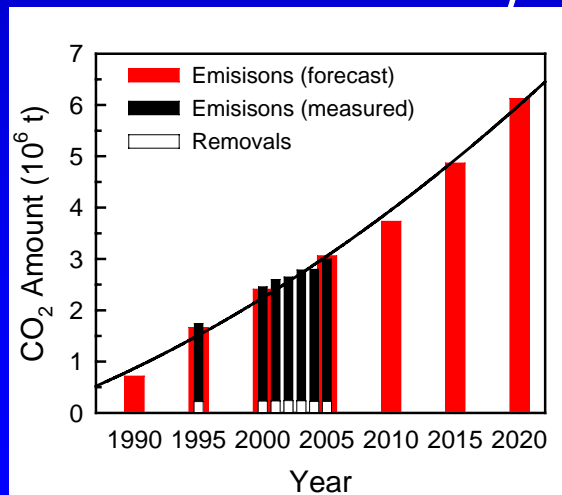
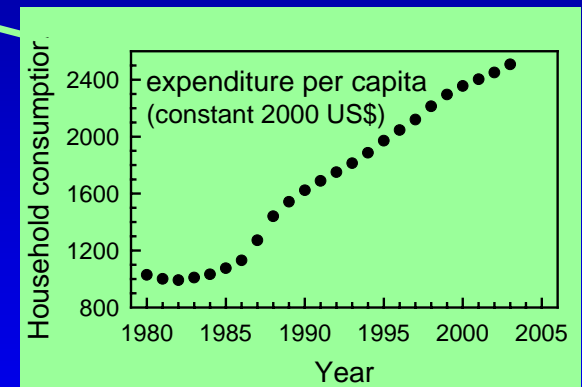
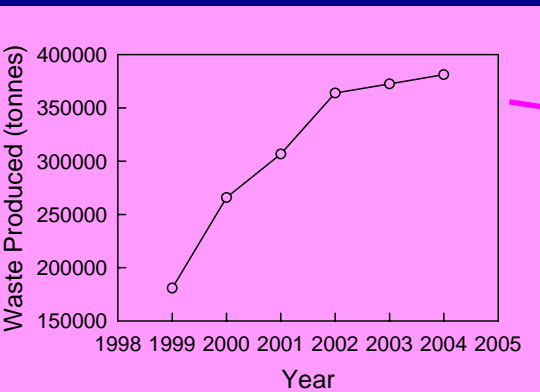


Human Impact

Impact = Population X per Capita Consumption X Technology

$$I = P \times A \times T$$

T1 (↑) /
T2 (↓)

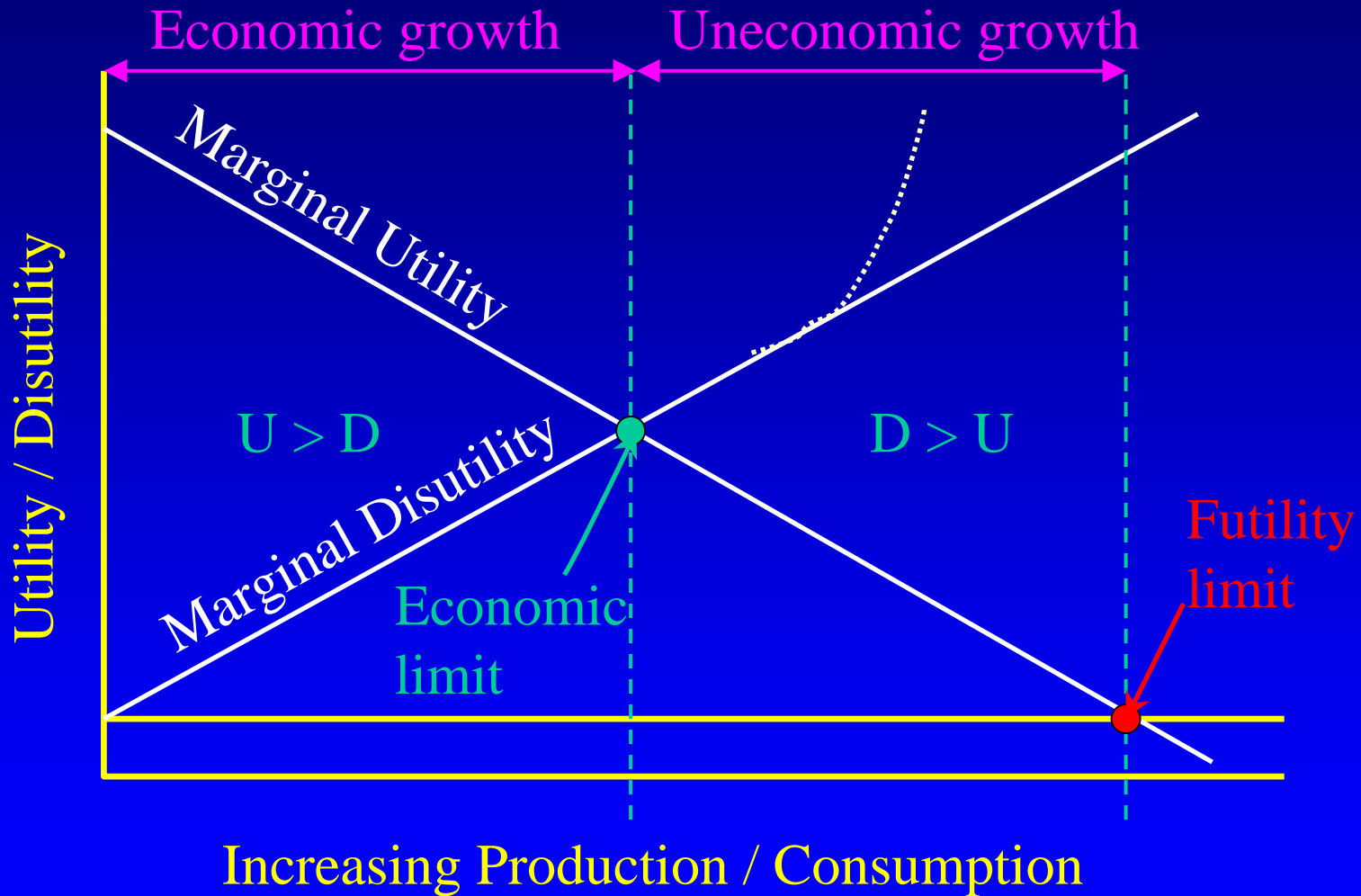


Ecological Footprint

Country	EF (G.ha)	Country	EF(G.ha)
USA	9.57	Malaysia	2.99
Australia	7.09	World	2.18
UK	4.72	China	1.36
Japan	3.91	Madagasc.	0.97
S. Africa	3.52	India	0.76
Mauritius	3.25	Banglad.	0.50

Bioproductive capacity of planet is 1.7 ha/person
Biocapacity of Mauritius is only 1.29 ha/person

Uneconomic Growth



*Alternative
Sustainability
Indicators*

Wellbeing of Nations

Human Wellbeing Index (HWI)

1. Health & population
2. Wealth
3. Knowledge & culture
4. Community
5. Equity

Ecosystem Wellbeing Index (EWI)

1. Land (diversity & quality)
2. Waster (inland & sea)
3. Air (global & local)
4. Species & genes
5. Resource use (energy & materials)

Wellbeing Index (WI)

Prescott-Allen, 2001

Wellbeing of Nations

Country	HWI	EWI	WI	Rank
Sweden	79	49	64.0	1
Finland	81	44	62.5	2
Norway	82	43	62.5	3
Australia	79	28	53.5	18
USA	73	31	52.0	27
Singapore	66	32	49.0	43
Mauritius	54	44	49.0	45
Madagas.	24	50	37.0	124
China	36	28	32.0	160
India	31	27	29.0	172

Moderate
double
deficit
country

Ecological Sustainability: $WI \geq 81$

GDP vs GPI

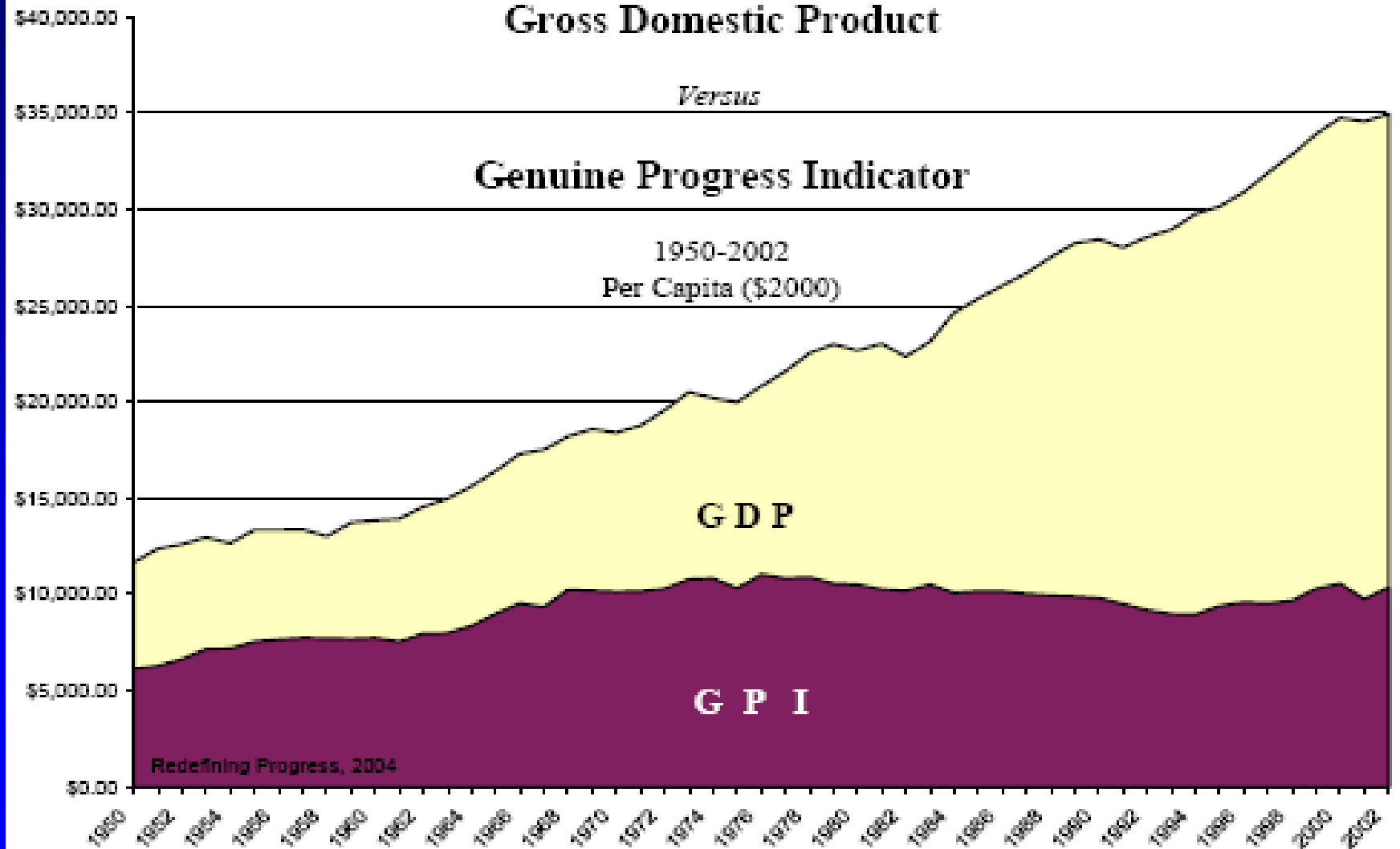
Gross Domestic Product

Versus

Genuine Progress Indicator

1950-2002

Per Capita (\$2000)



Redefining Progress, 2004

Interpretation

- No noticeable gain in life satisfaction from economic growth after around US\$15000 / year.
- Other benefits of growth (rule of law, life expectancy, literacy rate, reduced murder rate) also disappear around US\$20000.
- With growth beyond US\$20000, we see continued increases in energy consumption and pressure on nature. From about US\$10,000 we see below-replacement fertility rates.
- *Mauritius at the threshold Should we be thinking differently??*

Where are we heading?

(10 leading causes of death)

Rank	1990	2020 (projection)
1	Pneumonia & respiratory	Heart disease
2	Diarrheal disease	Depression
3	Disorders of childbirth	Vehicular accidents
4	Depression	Stroke
5	Heart disease	Emphysema & bronchitis
6	Stroke	Pneumonia & respiratory
7	Tuberculosis	Tuberculosis
8	Measles	War
9	Vehicular accidents	Diarrheal disease
10	Congenital defects	HIV/AIDS

Source: Bloom, 2005

Sustainable Development

“.... a change process, in which the societies improve their **quality of life**, reaching **dynamic equilibrium** between **economic** and **social aspects**, while protecting, caring for and improving the **natural environment**. This integration and equilibrium among these three aspects must be taught and transferred from this generation to the next and the next.”

Rodrigo Lazano, J. Cleaner Production (2006)

Just for the fun of it

Do you ...

Buy new gadgets as soon as they come out?

Believe that driving an expensive car is a sign of success?

Dream of being a millionaire?

Go shopping when you feel depressed?

Feel jealous when your friend gets a pay rise?

Then you may be suffering from **affluenza**. It makes you miserable; you can even die from it.

A wellbeing manifesto, The Australia Institute, 2005

Meeting our sustainability
challenge with wisdom, foresight
and creative insight

“Human beings, who are part of nature will never be able to control nature. Yet, tragically human beings now may have the power to destroy the web of interconnection that has made life, including human life, a possibility on planet Earth. What human beings do with our creative freedom in the twenty-first century will have enormous consequences for the future of life on earth not only for human beings but for all other species, and not only for the living but for the generations to come. This is an awesome challenge and responsibility.”

Source: Carol P Christ, “She who changes
– re-imagining the divine in the world.”

What is required for meeting this challenge?

- 1. A shift in consciousness** – reconnecting with the creative wisdom of Life within us and in our natural environment: envisioning your self as a living cell withing a larger body of consciousness.
- 2. A shift in attitude** - Self-responsibility for our actions and the consequences of our actions.
- 3. Ecological Literacy** – learning (experiential) how to care for our interconnectedness and the quality of Life on our planet Earth.

Our shared responsibility

“To realize these aspirations, we must decide to live with a sense of universal responsibility, identifying ourselves with the whole Earth community as well as our local communities. We are at once citizens of different nations and of one world in which the local and global are linked. Everyone shares responsibility for the present and future well-being of the human family and the larger living world. The spirit of human solidarity and kinship with all life is strengthened when we live with reverence for the mystery of being, gratitude for the gift of life, and humility regarding the human place in nature.”

Source: Earth Charter (p.1) <http://www.earthcharter.org/>

THANK YOU!!



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