

Sustainability and Environmental Health

Ian Lowe

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A fundamental point

- **The future is not somewhere we are going, it is something we are creating**
- **Many possible futures**
- **We should be trying to shape a sustainable future**

The basic premise

Healthy individuals and healthy communities require healthy ecological systems to provide clean air, potable water, food and other forms of sustenance.

Health effects of environment

- **Direct effects: air quality on respiratory problems and cardiovascular function, heavy metals, polluted water...**
- **Indirect effects: poor nutrition, deaths and injuries from transport, accidents, violence, mental health impacts**

How could we create *unsustainable* futures ?

- Rapid population growth
- Growing consumption per person
- Deplete mineral resources, e.g. Oil
- Over-use fisheries, forests, water
- Disrupt climate, lose biodiversity
- Economy based on growth
- Widen inequality
- Embrace materialism

**"Our present course
is unsustainable -
postponing action is
no longer an option"**

- GEO 2000 [UNEP 1999]

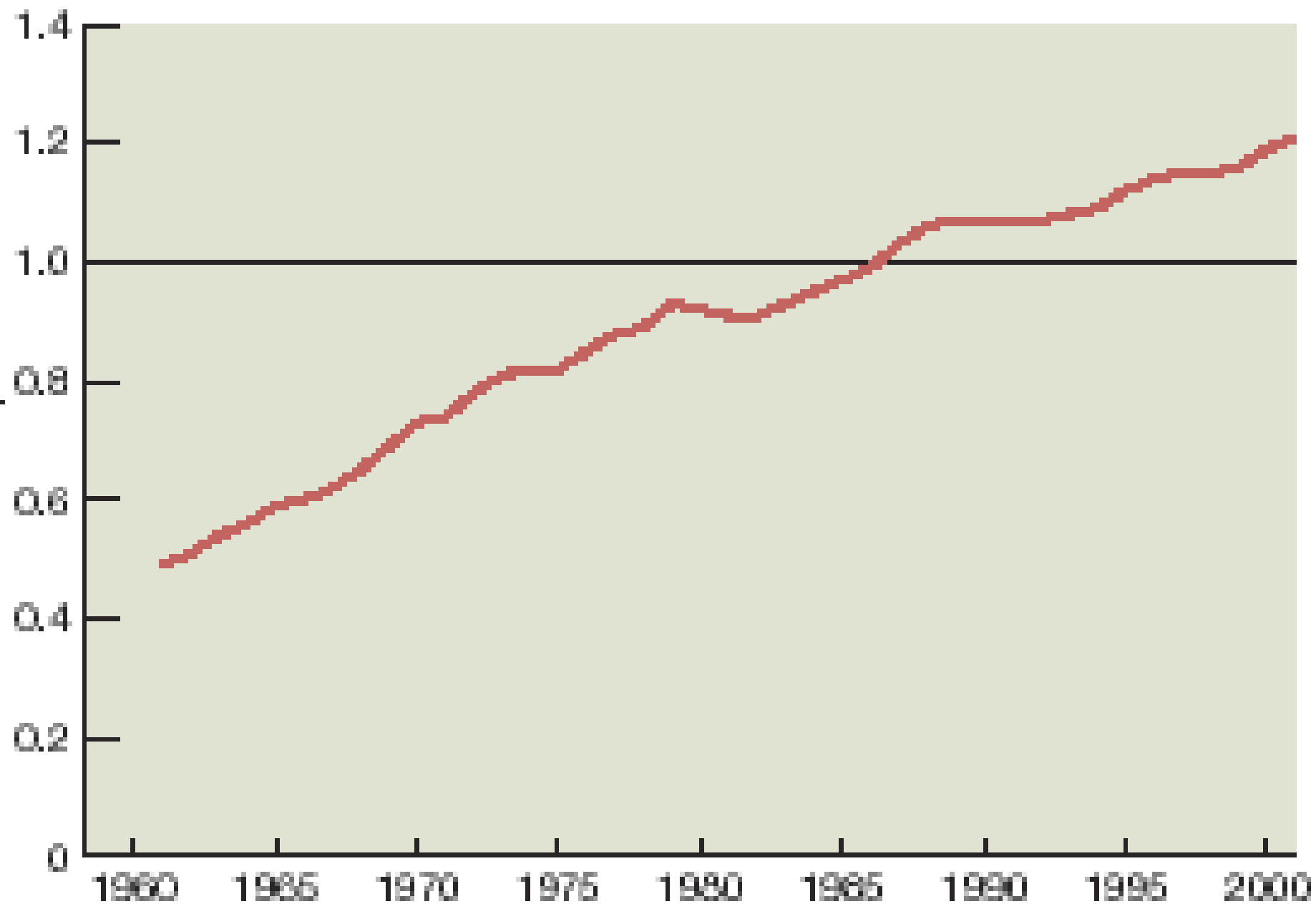


OBJECTS IN MIRROR ARE CLOSER
THAN THEY APPEAR

Outline of argument

1. Seriously perturbing natural systems
2. This affects human health
3. We must change !
4. HEALTHIER world IS possible
5. Our responsibility

Fig. 2: HUMANITY'S ECOLOGICAL FOOTPRINT, 1961-2001



GEO4: “Unprecedented environmental change at global and regional levels”

- **Warming is evident from observations of increasing global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.**
- **Over 2 million people die prematurely every year globally due to air pollution**
- **Unsustainable land use and climate change are driving land degradation.**

- **Per capita availability of fresh water is declining globally; contaminated water is still the greatest single environmental cause of human sickness and death**
- **Aquatic ecosystems are heavily exploited; sustainability of food supplies and biodiversity is at risk**
- **Great majority of well-studied species are declining in distribution, abundance or both**

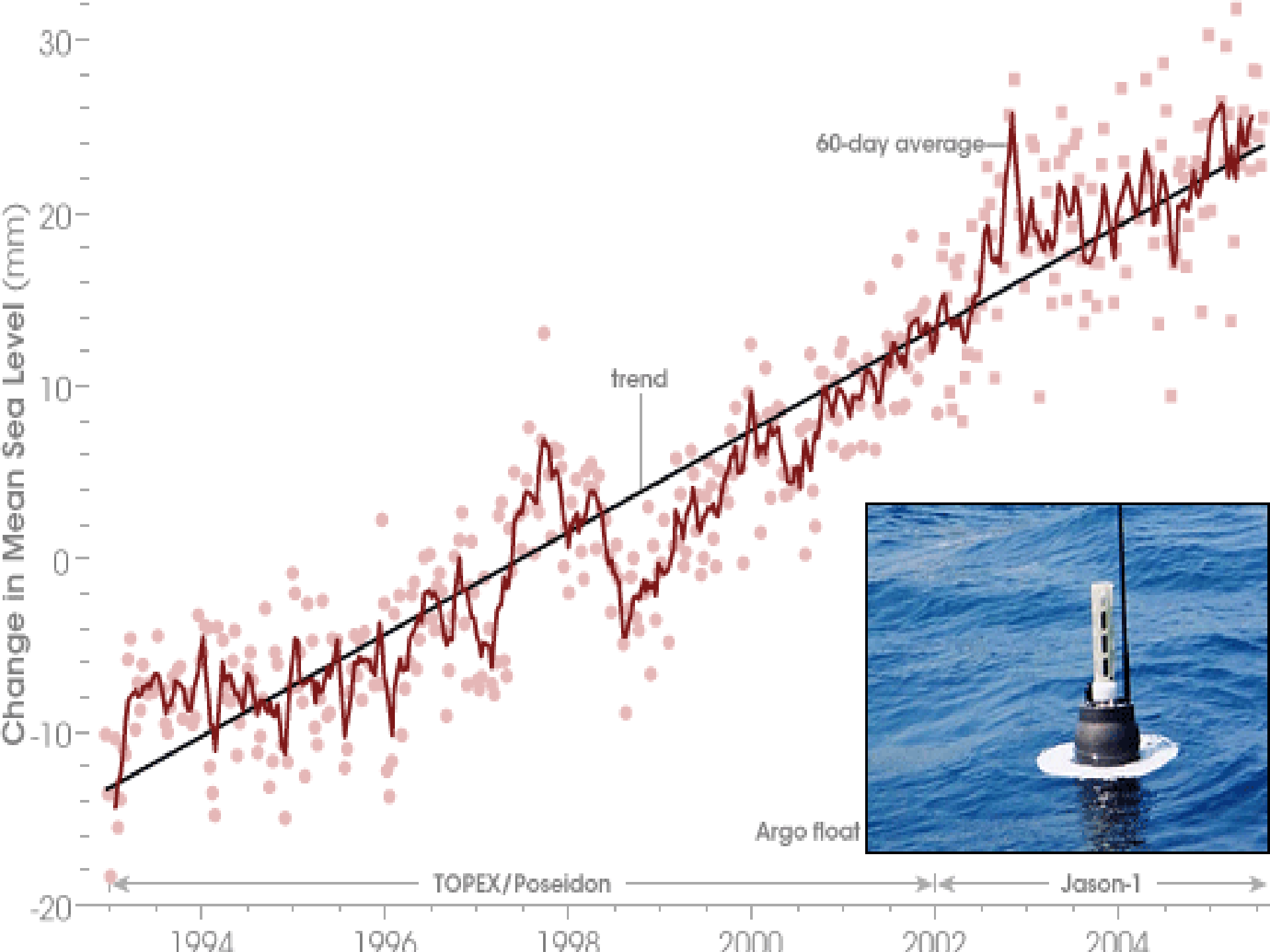
Possible global priorities:

- **Stabilise climate**
- **Clean water supplies**
- **Sustainable food production, use**
- **Clean urban air**



Extra Cream ICE CREAM

CAUTION



Change in Mean Sea Level (mm)

60-day average

trend

Argo float

TOPEX/Poseidon

Jason-1

1994

1996

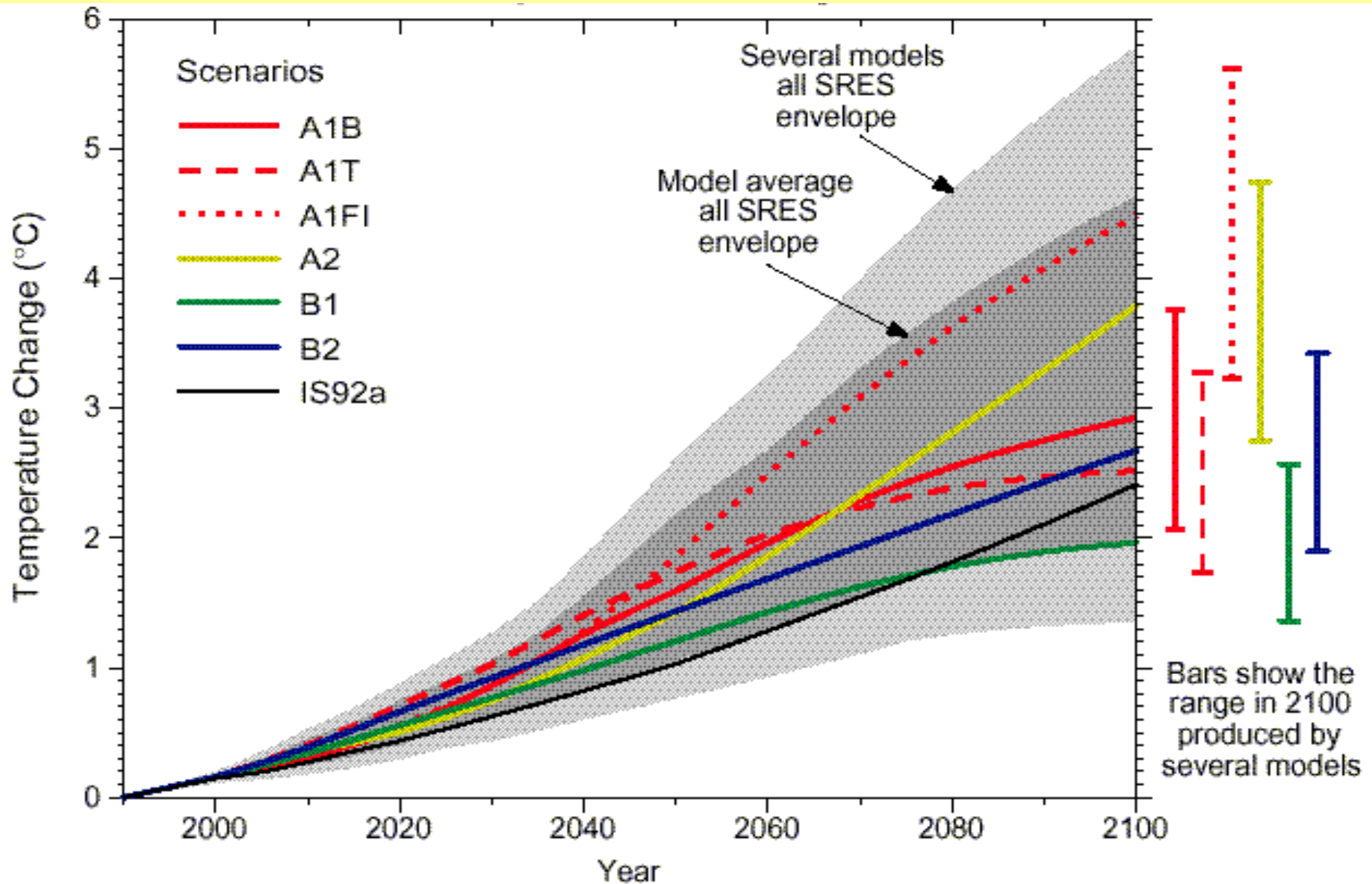
1998

2000

2002

2004

Projected global warming



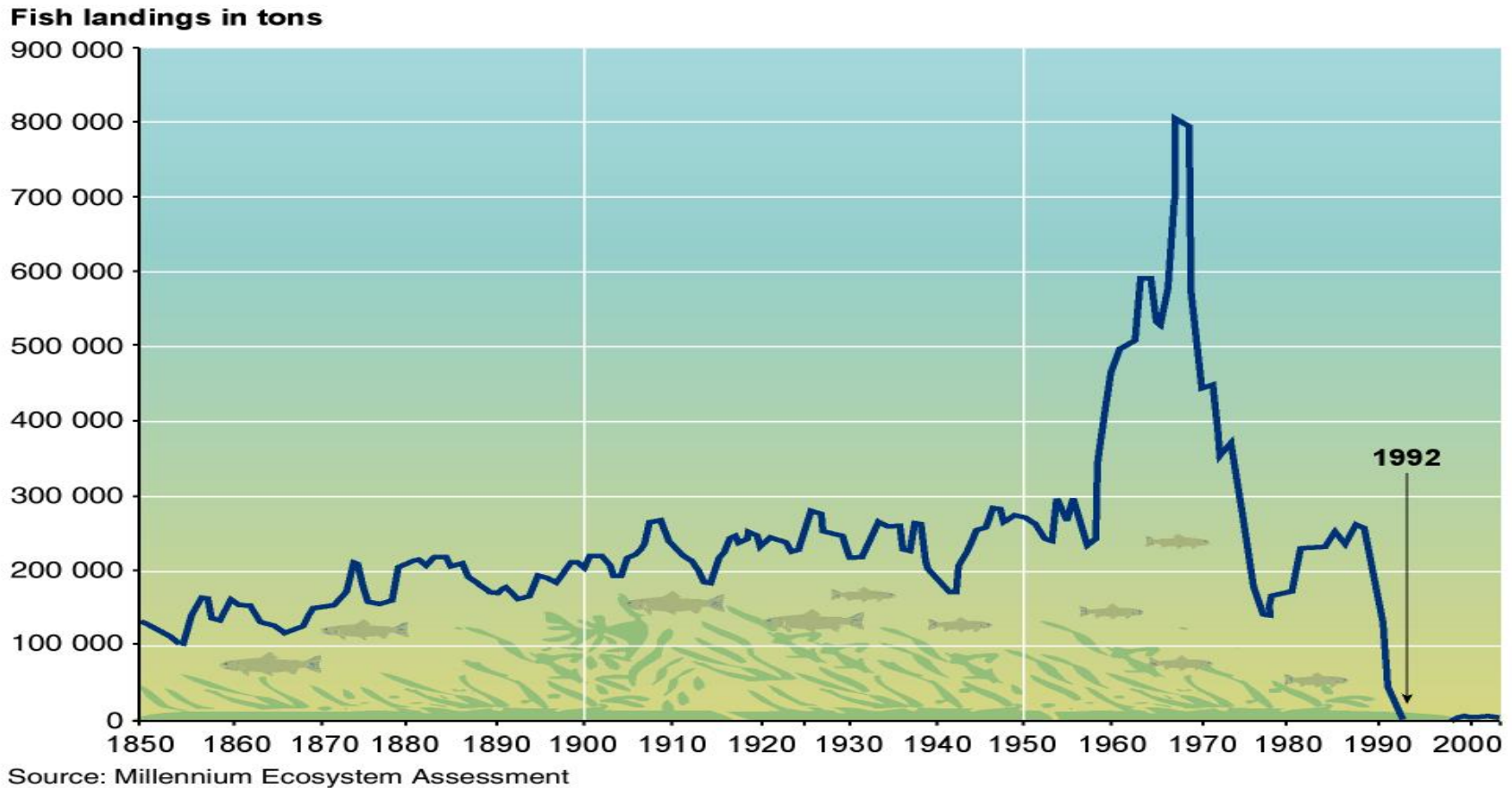
Impacts on human health

- Direct impacts, e.g. heat stress
- Effects of vector-borne disease
- Severe events: storms, floods
- Indirect effects: food supply, balance of ecological systems
- WHO report, local studies

Increased likelihood of non-linear changes

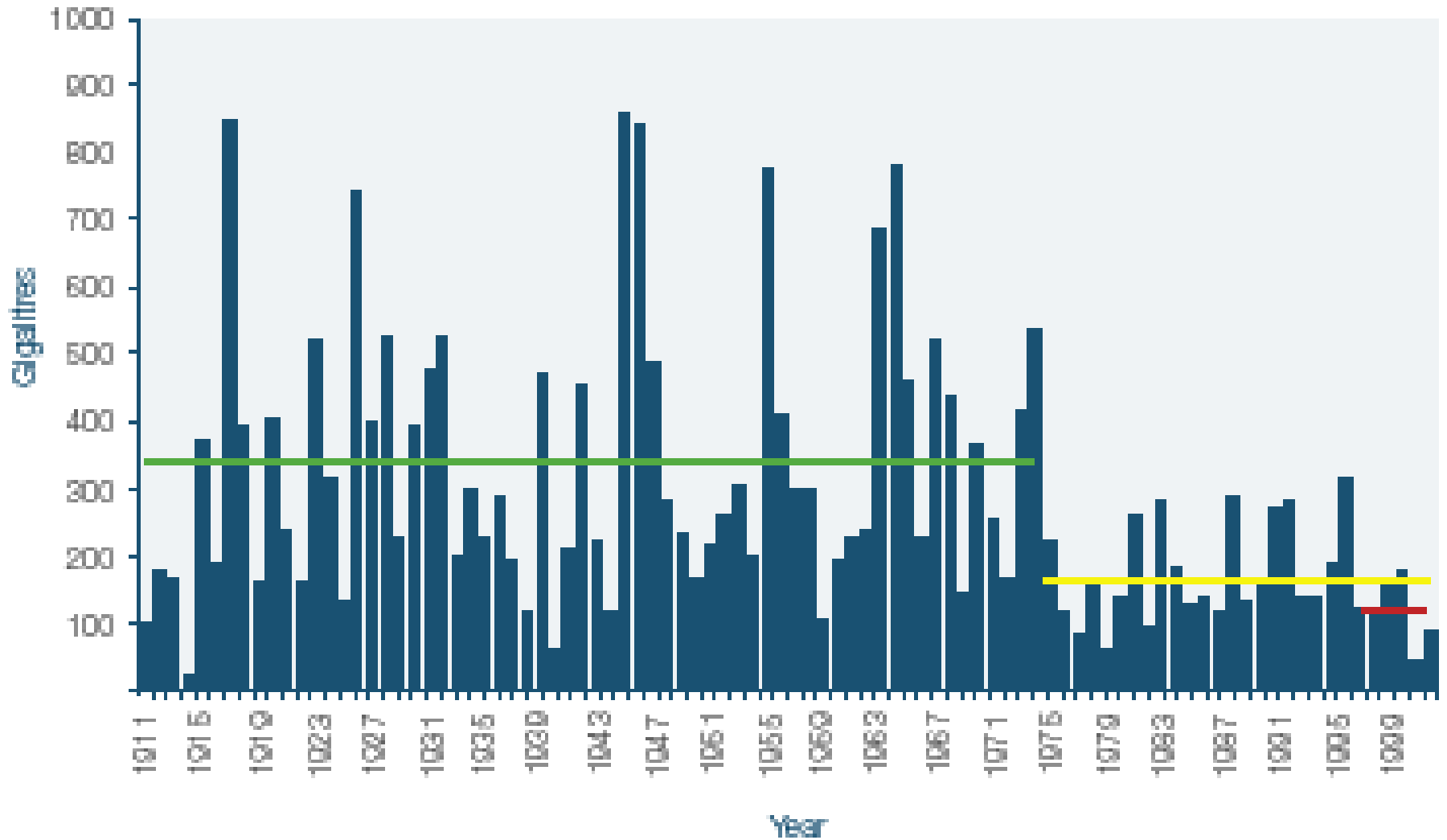
There is *established but incomplete* evidence that our impacts on ecosystems are increasing the likelihood of non-linear changes (including accelerating, abrupt, and potentially irreversible changes), with important consequences for human well-being

An example of non-linear change



Total annual inflow to Perth dams

Source: WA Water Corporation 2004



1911 to 1974 (338 GL)

1975 to 2002 (164 GL)

1997 to 2002 (115 GL)

Possible non-linear changes

- **North Atlantic circulation**
- **Methane from Arctic tundra**
- **Melting of [polar] ice**
- **Oceans becoming source**
- **Drying of rainforests**
- **Clearing, burning peatlands**

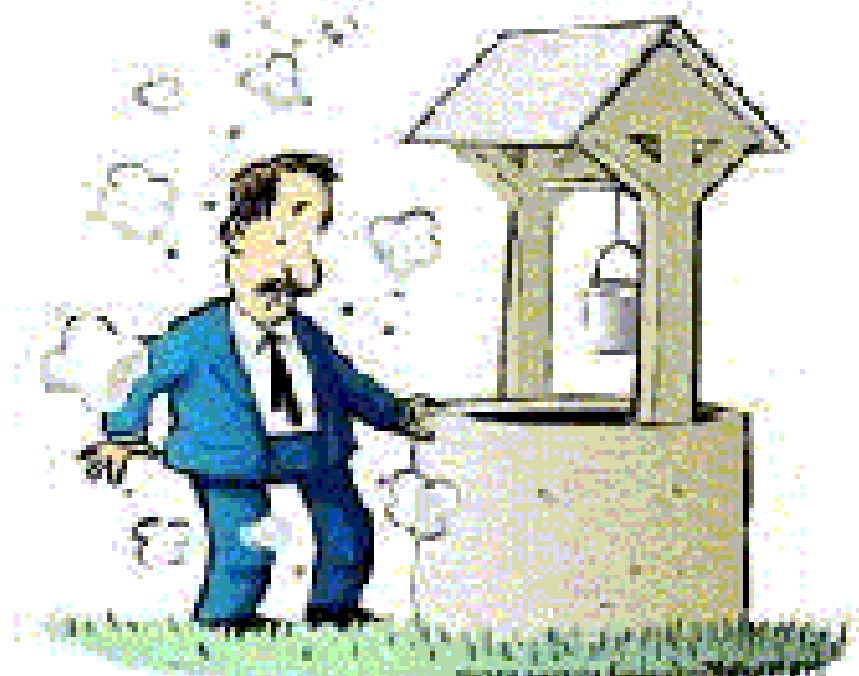
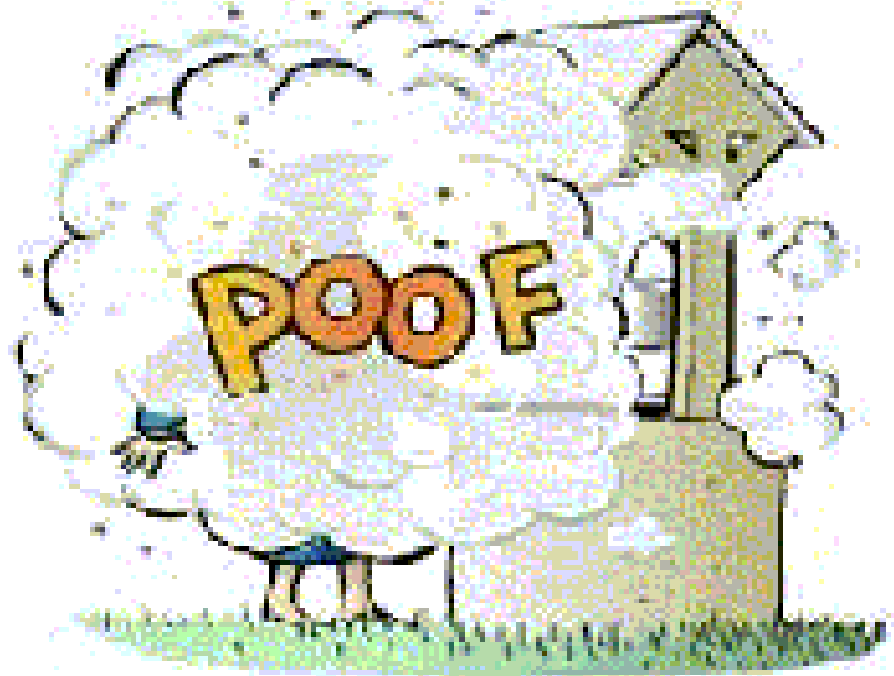
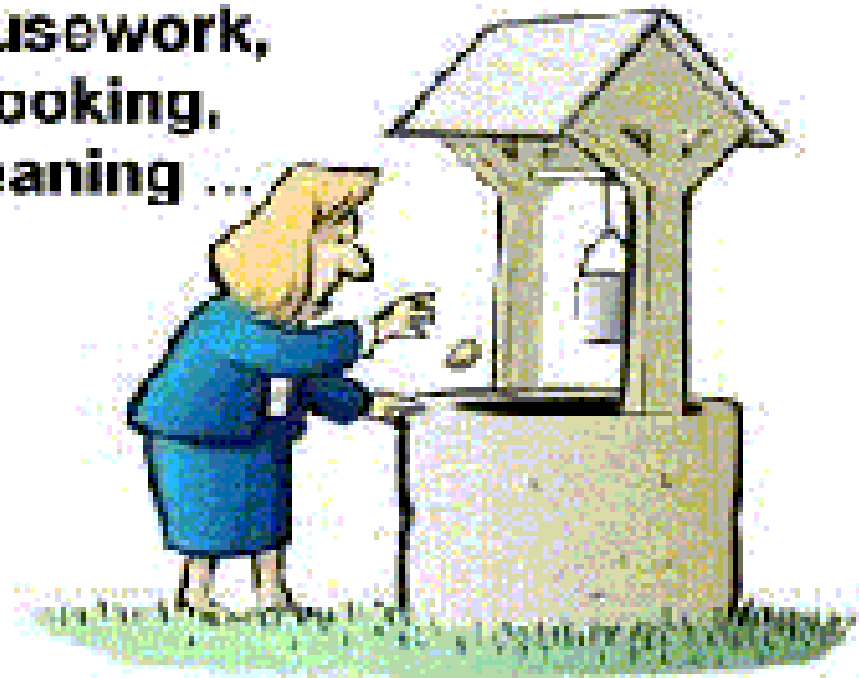
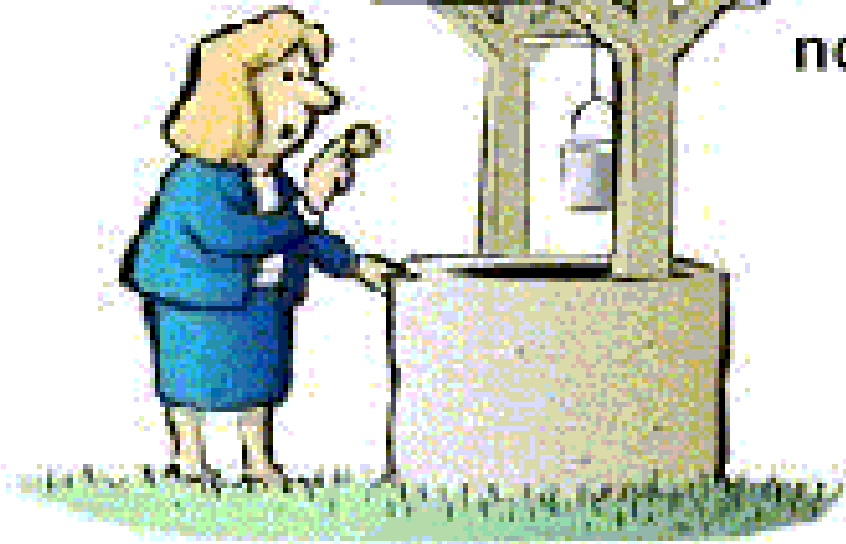
IPCC chair Rajendra Pachauri

- **“We need a new ethic by which every human being realises the importance of the challenge and starts to take action through changes in lifestyle and attitude”**
- **“Every country in the world has to be committed to a shared vision and a set of common goals and actions ... help us move toward a much lower level of emissions”**

EQUITY

I wish for...

no housework,
no cooking,
no cleaning ...





Poverty, inequality growing

- 1.1 billion < \$1 per day, 70% in rural areas
- Inequality increased in past decade
- Estimated 850 million undernourished in 2000–02, up 37 million from 1997–99
- Food p.c. down in sub-Saharan Africa
- 1 billion lack clean water, 2.6 billion sanitation
- Water scarcity affects 1–2 billion people

Direct health impacts

- **Estimated 3 million deaths/year from water-related disease, ~1/3 deaths of children under 5 in majority world**
- **Indoor air pollution kills nearly 2 million women and children a year**
- **~1 million die each year in majority world from outdoor air pollution**
- **Malnutrition still major cause of lost life-years**

Not just a
new century

But a *just*
new century !

Health and inequality

- Up to average per capita incomes ~US\$4000 pa, strong correlation between income and life expectancy
- Above that level, *no* correlation
- But *very* strong correlation [- 0.86] between inequality and life expectancy

So healthier world means:

- **Greater equality *between* communities**
- **Greater equality *within* communities**

GEO4:

**“Unprecedented
environmental
change at global
and regional
levels”**

Three alternative responses

[Richard Eckersley]

- **Denial:** Don't change, instead try to prove that change is not necessary

[John Kenneth Galbraith]

- **Avoidance:** “Don't underestimate the power of distraction” [Woody Allen]

- **Take responsibility for change:** a small group can change the world

[Margaret Mead]

Sustainable community will:

- Have stabilised its population & footprint
- Use resources sustainably to produce a dynamic, flexible economy
- Be approaching a zero waste society
- Have drastically cut carbon emissions
- Require developments biodiversity +ve
- Be committed to improving equality
- Therefore serious TBL assessments
- Process for difficult decisions

Environmental health benefits

- **Lower birth rates, fewer children at risk**
- **Less waste, less polluted air, water**
- **Less risk of heat stress**
- **Slower spread of disease vectors**
- **Fewer effects of biodiversity loss**
- **Greater social cohesion, more community involvement**

The underlying drivers of unsustainable development

- Population growth
- Consumption per person
- Societal values

New suite of values

- Domination of nature becomes *ecological sensitivity*
- Consumerism replaced by *quality of life*
- Individualism -> *human solidarity*

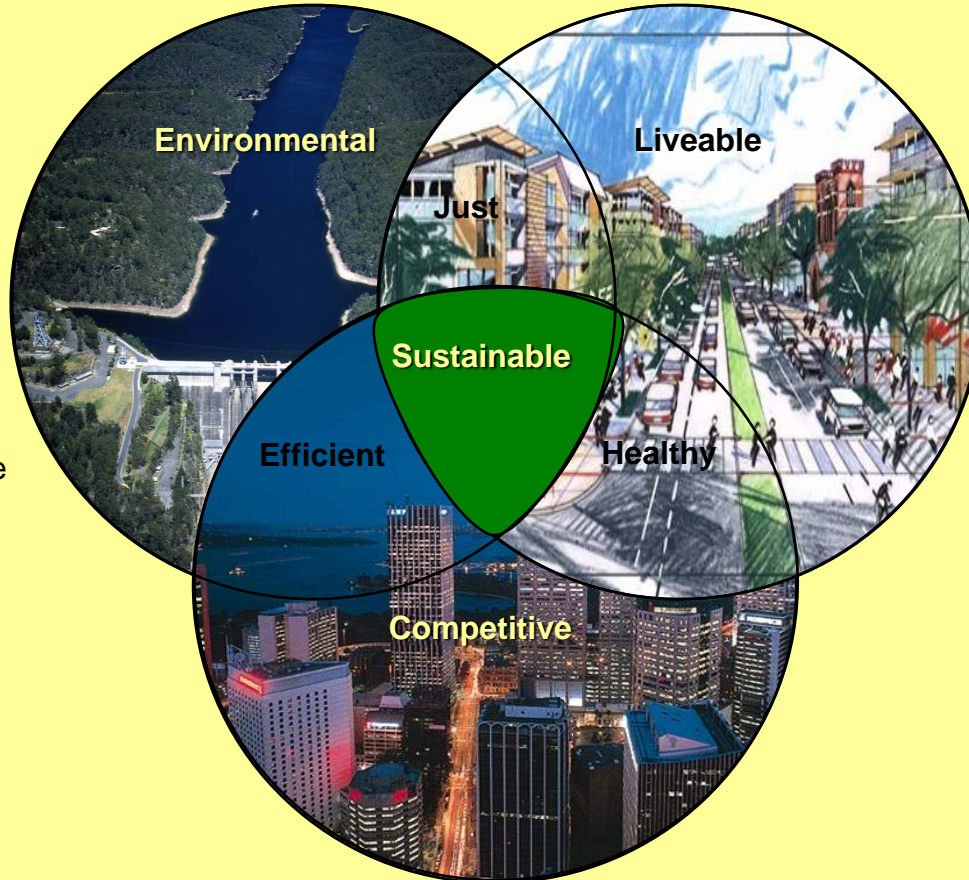
Vision for a Sustainable City

Sustainability

Sustainability is about living within our means. It is about managing our consumption of resources and balancing environmental, economic and social outcomes. It means improving our quality of life, but making that improvement without leaving a burden on the future generations.

Looking after our Environment

Environmental Sustainability is about reducing our impact on the environment by protecting our air, water and land, our native flora and fauna. It means reducing the load on our natural resources, such as water and fuels for energy, and decreasing our production of waste.



A Better Place to Live

Liveability is about making Sydney a better place to live. It means being able to walk to your corner shop, local school, park or bus stop, as well as providing us with a choice of housing that meets our needs.

Supporting our Economy

Competitiveness is about supporting Sydney's role as a Global city, and ensuring our city's long term economic prosperity. It means providing quality infrastructure and services to service our jobs and the economy, and supporting urban centres

SOCIETY

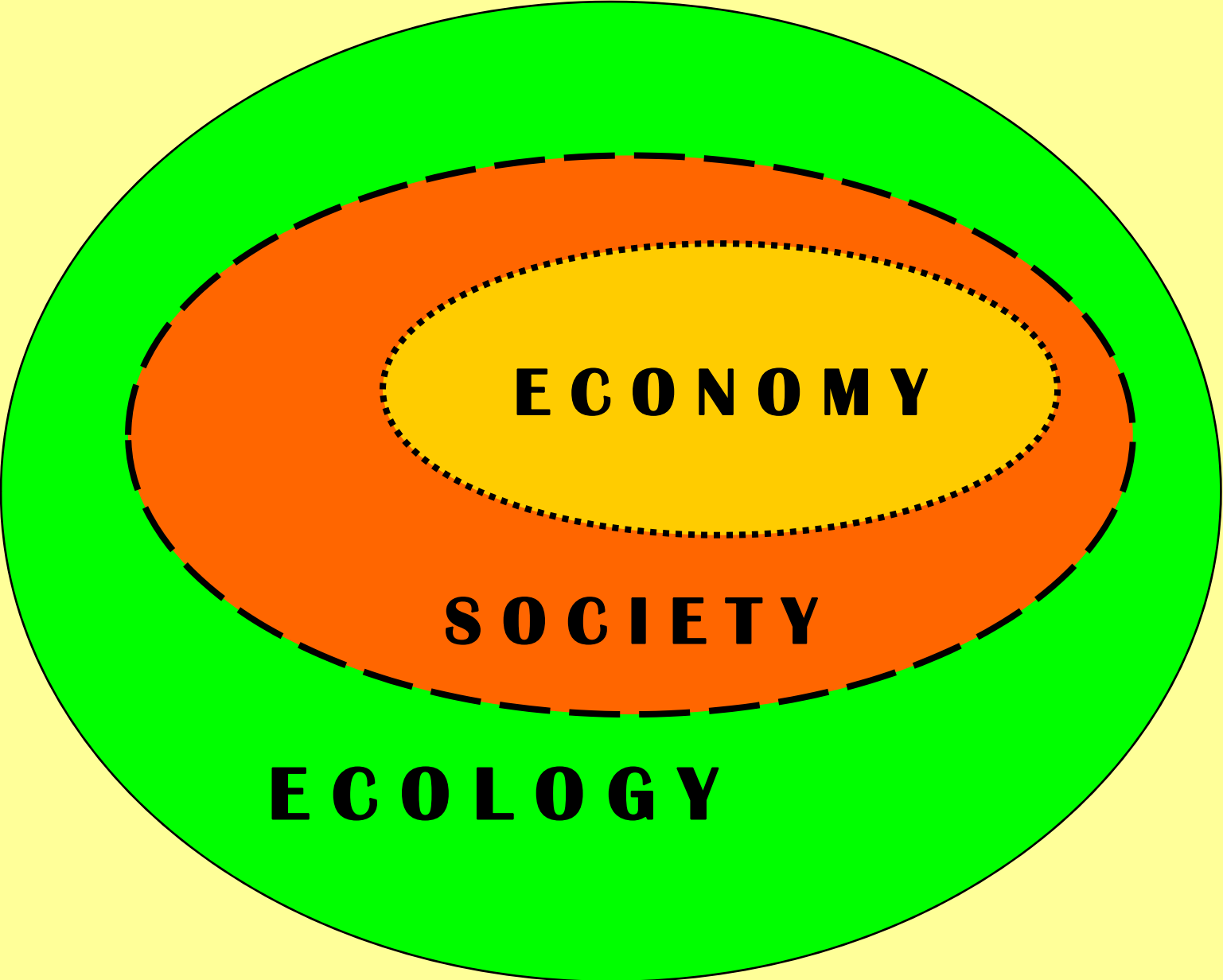
ENVIRT

ECONOMY

Markets give us things
many of us want

Natural systems give us
things we all really need





ECONOMY

SOCIETY

ECOLOGY

HEALTHIER *future*s

- Humane
- Ecocentric Approach
- Long Time Horizon
- Informed
- Efficient
- Resourced

Utopian?

- 1800: end slavery
- 1900: votes for women
- 1988: Berlin Wall
South Africa without apartheid
lap-tops, mobile phones
good coffee, civilised licensing laws
in Australia !
- Practically all features of modern life

Conclusion

- Our decisions shape the future
- Aim: a sustainable future
- Many dimensions: resources, economic, social, **environmental**, **health**, cultural, spiritual...

A better party !

- Our moral responsibility to other species and to future generations



Photo: NASA