

## State of ICT development in Asia-Pacific and its Implications for Sustainable Development

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# Introduction



# Introduction

- Asia-Pacific is a vast area, holding half the world's population and increasingly the driver of the global economy
- 30% of the global land mass
- 900 million of the world's poor
- 25% of global GDP
- 45% of the world's disasters
- An emerging middle class of 1.9 billion people



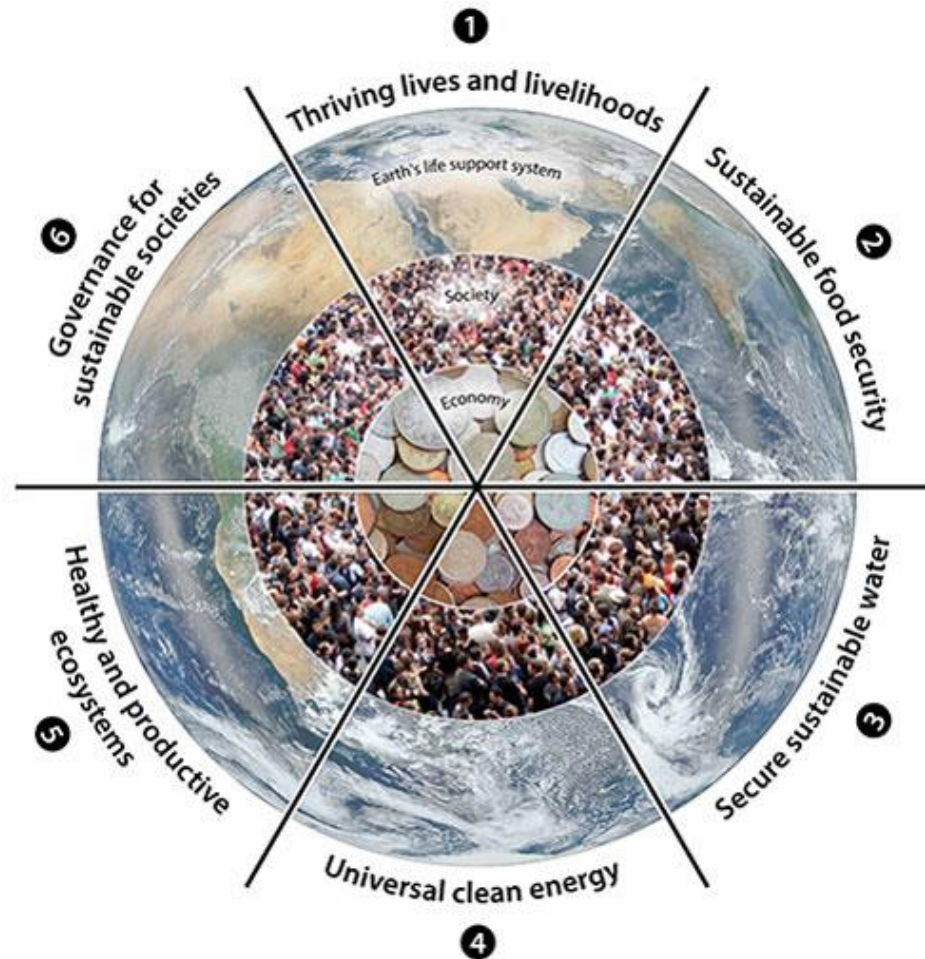


# Introduction (cont.)



- A youthful population and continuing population growth (with some exceptions)
- Half of the population works in agriculture, fishery, or forestry
- Most of the region's poor are in rural areas, so migration to cities is rapidly urbanizing the region
- Half of the world's mega-cities are in Asia, with over 500 million slum dwellers

# Sustainable Development and SCP

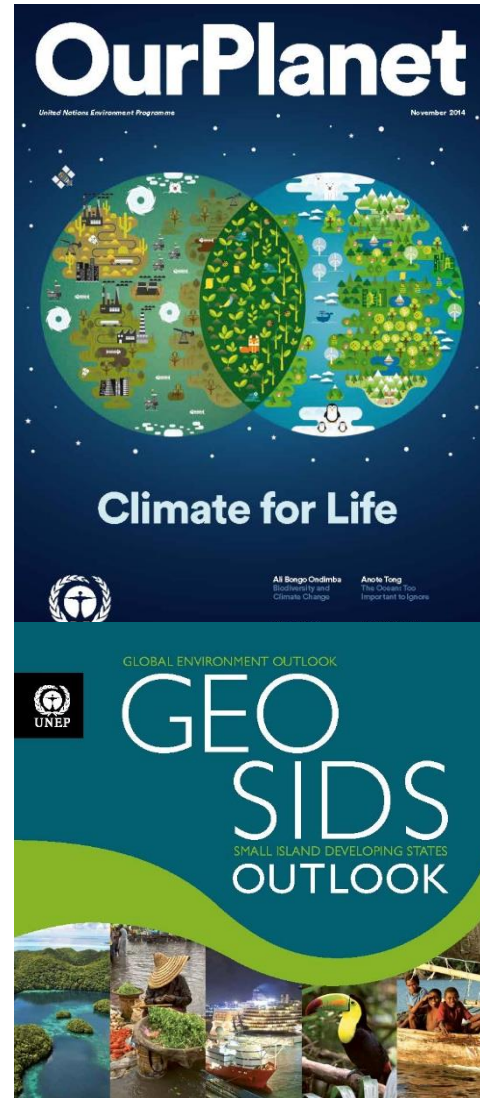
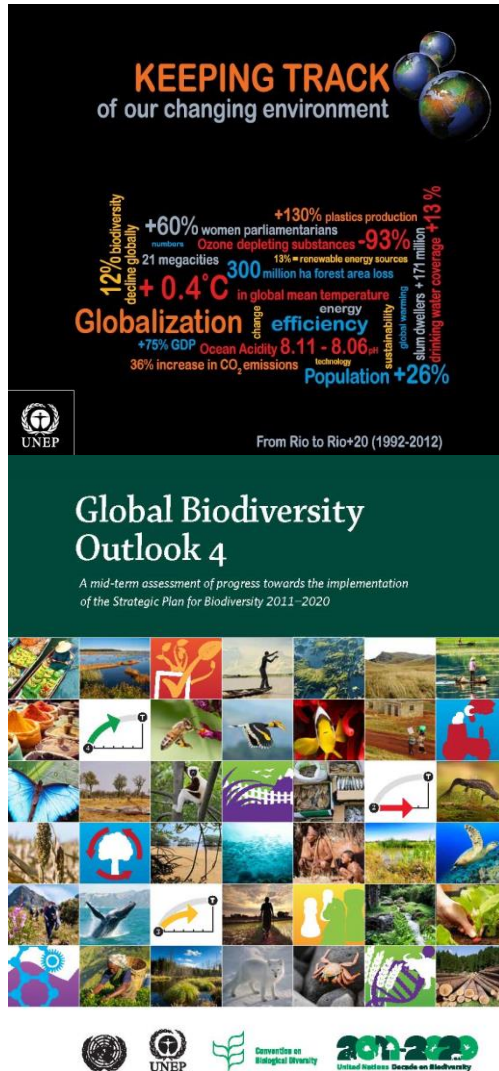


# Unsustainable State of the Environment

- The various UNEP, ESCAP, and ADB documents adequately outline the parlous state of the environment in Asia and the Pacific but there is insufficient room here to provide all the detailed information available
- Regional representatives in 2010 decided that the 5 key environmental issues in the Asia-Pacific region were:
  - Climate Change
  - Biodiversity Loss
  - Freshwater Quality and Quantity
  - Chemicals and Waste
  - Environmental Governance
- Each of these priority problems stem from unsustainable consumption and production

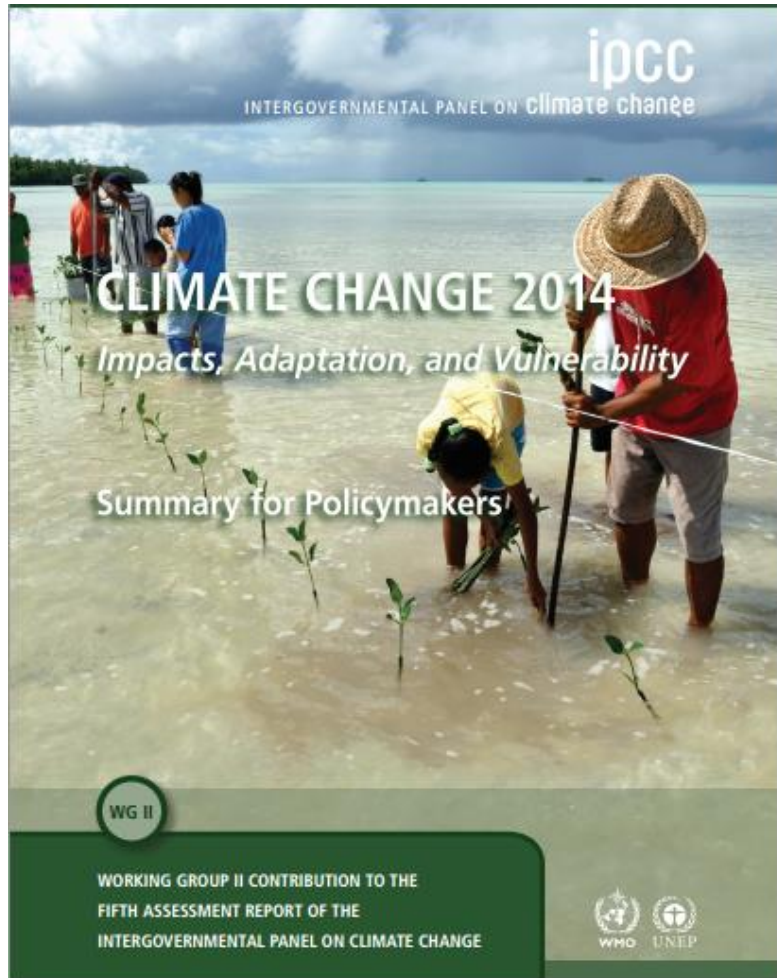


# Global Environment Outlook Series Findings





# IPCC Fifth Assessment Report (2014)

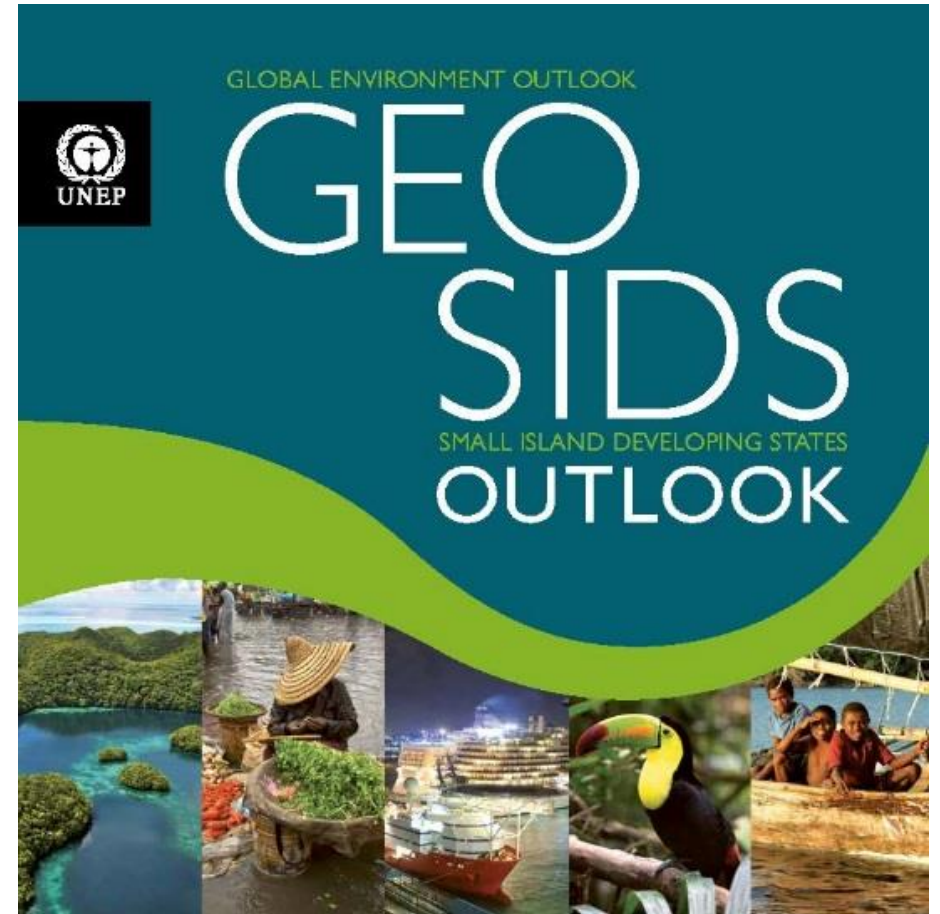


- Some key findings applicable to Asia-Pacific
- Changing precipitation or melting snow and ice are altering hydrological systems, affecting water resources in terms of quantity and quality
- Many terrestrial, freshwater, and marine species have shifted geographic ranges, seasonal activities, migration patterns, abundances, and species interactions due to climate change
- Negative impacts of climate change on crop yields are more common than positive impacts
- Recent climate-related extremes, such as heat waves, droughts, floods, cyclones, and wildfires, reveal significant vulnerability and exposure of some ecosystems and many human systems
- Climate-related hazards exacerbate other stressors, often with negative outcomes for livelihoods, especially for people living in poverty

# Small Island Developing States Outlook (2015)

UNEP contribution to the SIDS Summit held in Apia, Samoa in 2015

- SIDS policy framework for sustainability covers:
- Sustainable energy, tourism, transport, and waste management
- Food security
- Disaster risk reduction
- Information and Communications Technology
- Sustainable resource management
- Traditional knowledge
- Invasive species
- Etc.



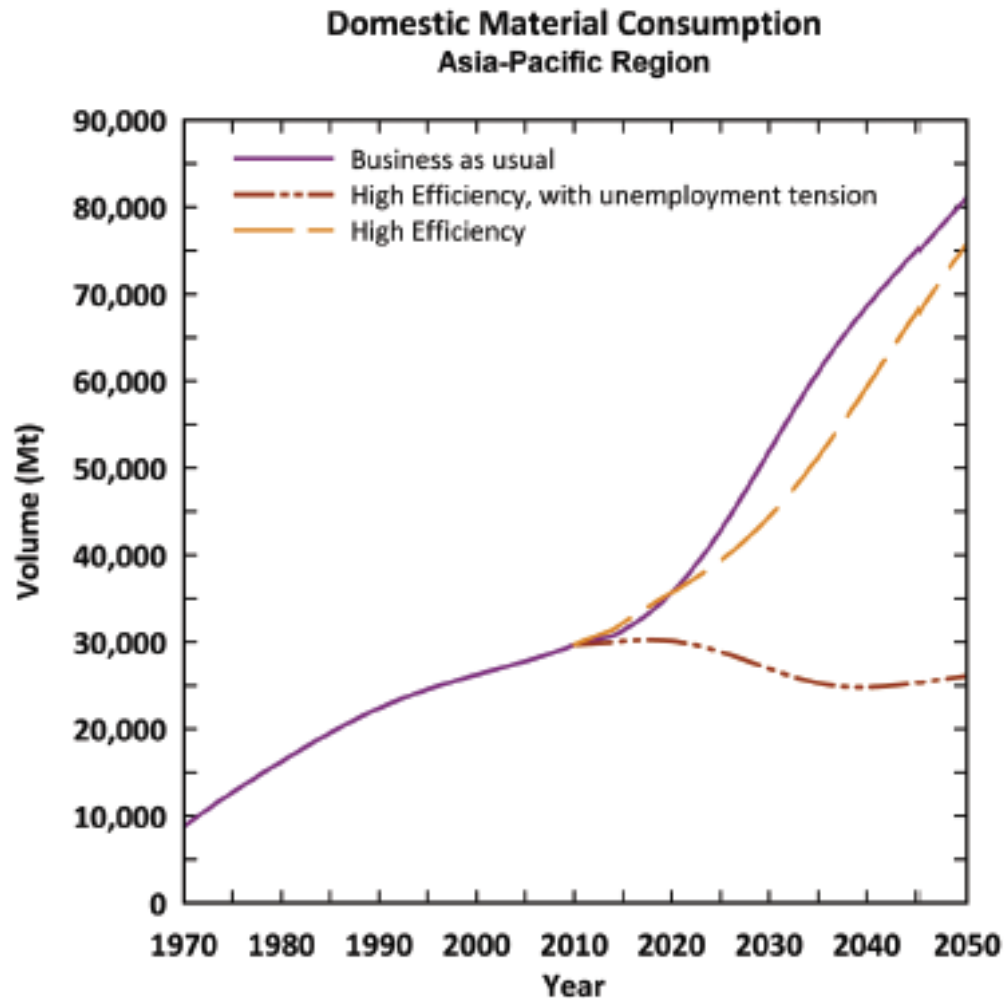
# Drivers of Unsustainable Development

- The principal driver of unsustainable development is runaway consumption and production, based on a capitalist system that values economic growth against all other alternative measures of progress.
- The aspirations of the emerging middle class will require 2-3 earths to satisfy, unless something changes, and changes drastically.





# Material Resource Demands



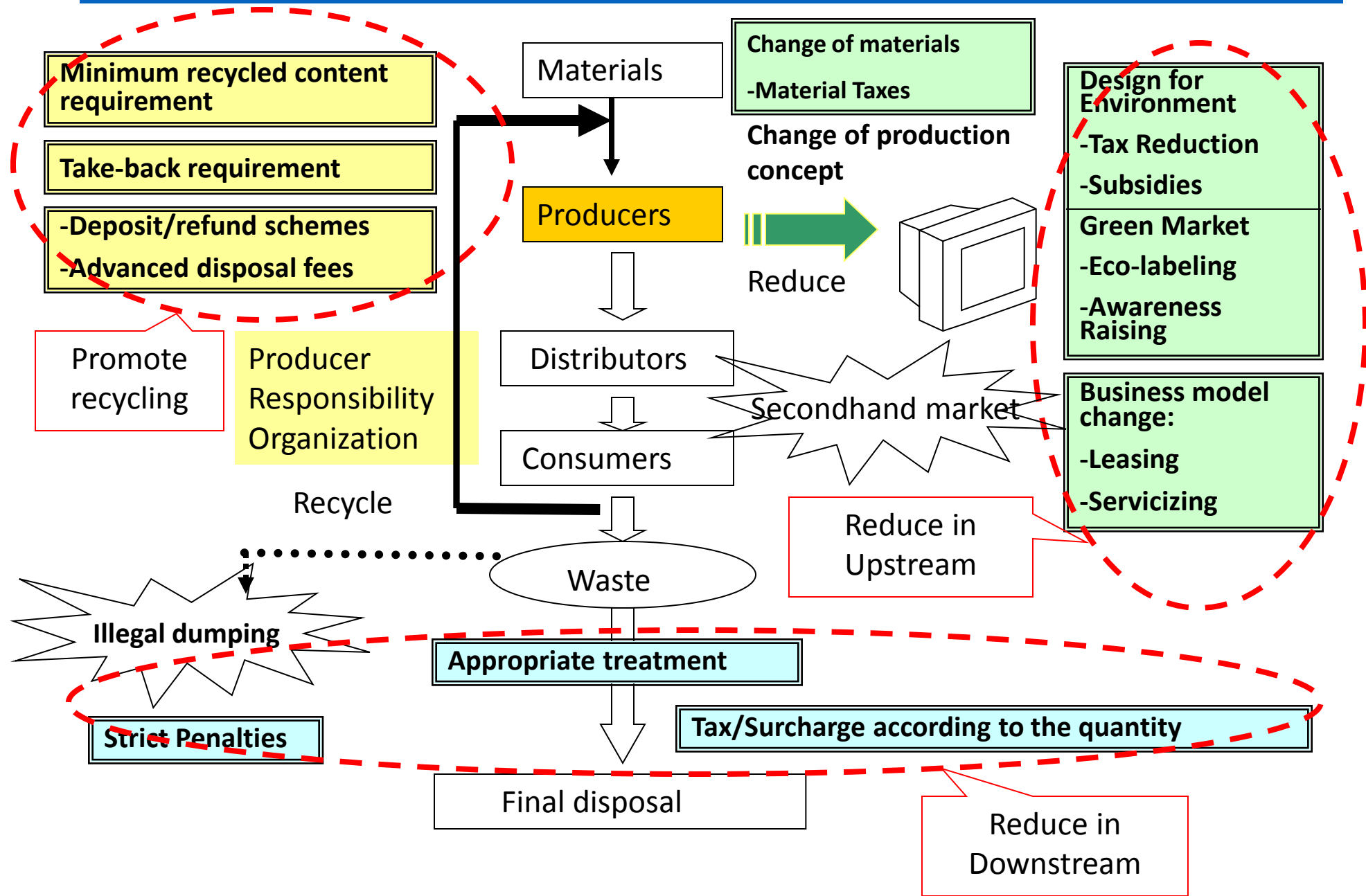
- Business as usual will see material consumption in Asia-Pacific grow from 10 billion tons (1970) to 80 billion tons by 2050.
- Efficiency gains merely mean that money is freed up to consume more (e.g. fuel efficiency allows people to drive more kilometers).

# Reduce, Reuse, Recycle (3Rs)

- One way to reduce material consumption is to ensure that there is a circular (3R) economy
- Waste becomes raw material, industrial symbiosis, second hand markets, design for environment, eco-labelling, material taxes, green factories etc.
- But eventually these efficiencies will be overtaken by increased consumption.



# Model of the 3R system based on Extended Producer Responsibility





# Sustainable Development Goals



# Sustainable Development Goals

- GOAL 1 End poverty in all its forms everywhere
- GOAL 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- GOAL 3 Ensure healthy lives and promote well-being for all at all ages
- GOAL 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- GOAL 5 Achieve gender equality and empower all women and girls
- GOAL 6 Ensure availability and sustainable management of water and sanitation for all
- GOAL 7 Ensure access to affordable, reliable, sustainable and modern energy for all
- GOAL 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- GOAL 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



# SDG's cont.

- GOAL 10 Reduce inequality within and among countries
- GOAL 11 Make cities and human settlements inclusive, safe, resilient and sustainable
- **GOAL 12 Ensure sustainable consumption and production patterns**
- GOAL 13 Take urgent action to combat climate change and its impacts
- GOAL 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- GOAL 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- GOAL 16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- GOAL 17 Strengthen the means of implementation and revitalize the global partnership for sustainable development



Investment Area	Incremental annual investment needs in developing countries through to 2030				Corresponding pooled finance mechanisms
	Total needs	Private, commercial financing	Public, non-commercial financing	Of which ODA/public climate finance	
Health	51-80	~ 0	51-80	TBD	GAVI, GFATM, GFF, UNFPA, UNICEF
Education	[38]	~ 0	[38]	[19]	Proposed Global Fund for Education
Food security	46	2	44	TBD	IFAD, GAFSP, proposed Smallholder Fund
Access to modern energy (SE4All)	34	10.5	23.5	12.8	GCF
Access to water and sanitation	27	3-5	22-24	TBD	Global Water and Sanitation Fund or regional facilities
Data for the SDGs	TBD	TBD	TBD	TBD	TBD
Ecosystems including biodiversity	[18-48]	[3-7]	[15-41]	TBD	GEF
Other agriculture	210	195	15	0	N/A
Large infrastructure (power, transport, telco, watsan)	689-1599	291-755	398-844	TBD	N/A
Climate change mitigation	[380-680]	[300-564]	[80-115]	TBD	GCF
Climate change adaptation	60-100	0	60-100	TBD	GCF
Total	[1559 - 2873]	[805 - 1539]	[752 - 1335]	TBD	

- Preliminary and incomplete incremental investment needs for the SDGs in developing countries (in constant 2010 \$ billion)
- Will the developed world pay?

# Paradigm Shift to Sharing Economy and Role of ICT



# Need to Rethink Basic Economic Thinking

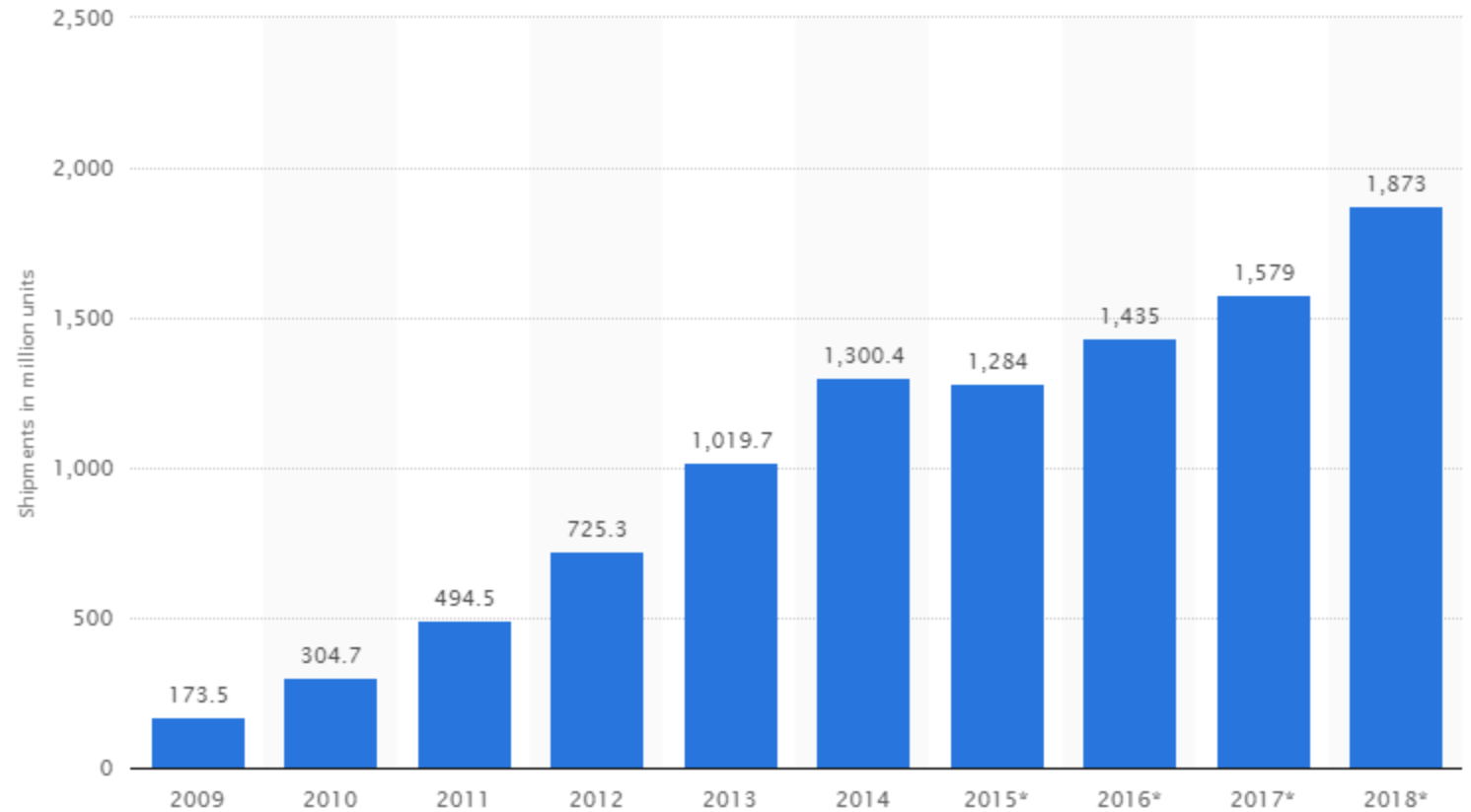
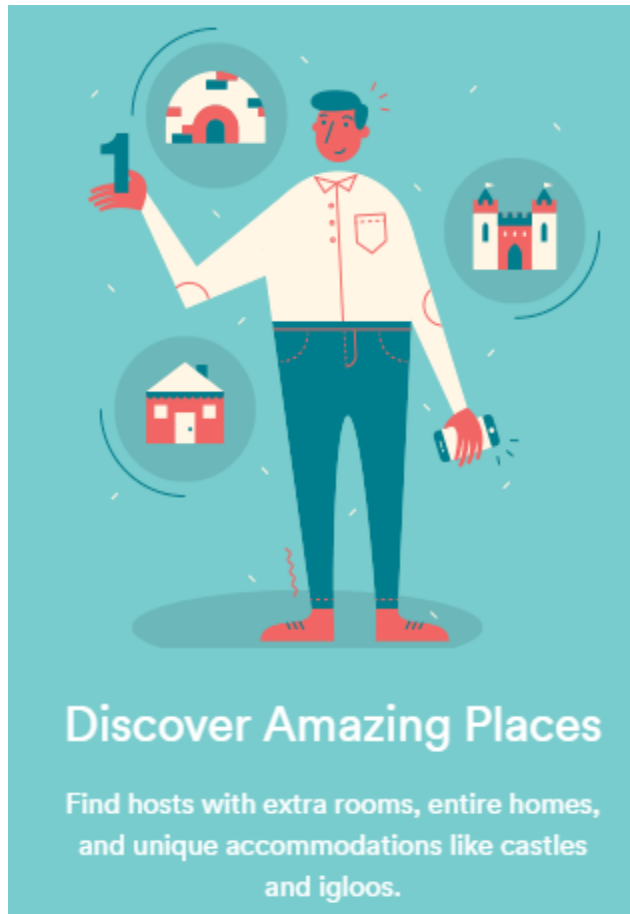
- Need to shift from conspicuous consumption to sustainable consumption, but what does that really mean?
- In a word, it means “a sharing economy”
- People will learn to share “products” and value the “services” that shared products provide.



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# Sharing Economy and ITC



2 billion smart phones by 2020, means that nearly every household will be connected to a myriad of online services and applications

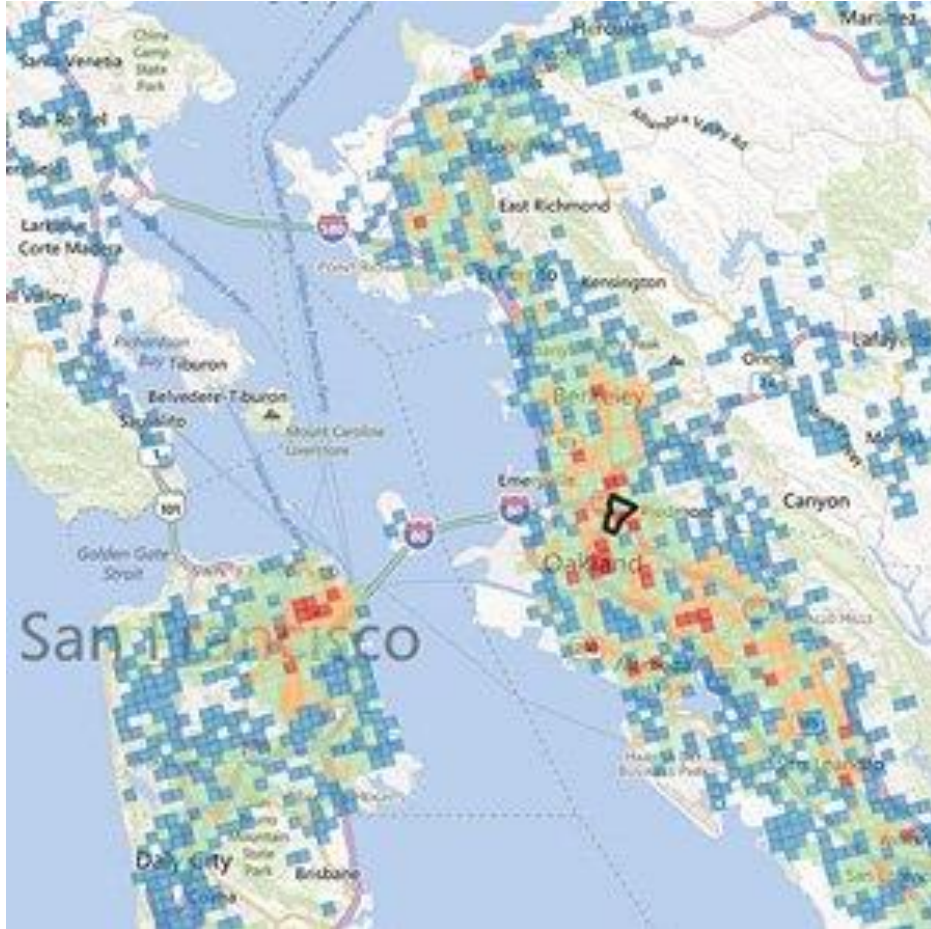


# Nascent Signs of the Sharing Economy

- Bike rental schemes
- Car sharing/pooling
- Airbnb
- Couchsurfing
- Uber taxi/Grab Taxi
- Rental of luxury goods
- Driverless cars
- Secondhand/flea markets
- Garage sales/yard sales
- Netflix
- Cloud computing



# Cellphone Data Armed with GPS Fuels Planning



- Cellphone data provides evidence of where the 2 billion phones (and people) are at any time of the day or night
- Such real-time “big” data allows savvy operators to help locate businesses, plan residential developments, locate advertising, or optimize traffic flows
- For example, AirSage has been processing 15 billion locations a day and can account for movement of about one third of the U.S. population to within less than 100 m
- California is licensing GPS data from navigation providers rather than repairing its crumbling network of sensors and detectors in the state’s roadways.

# ITC to Reduce People Movement to a Minimum

<b>Table 3: Total vs Work at Home Population Growth 2011 to 2012</b>	<b>2011</b>	<b>2012</b>	<b>% Change Total Population</b>	<b>% Change Work at Home</b>
For Profit Employer	90,030,650	92,295,515	2.5%	4.8%
Non Profit Employer	10,720,239	11,028,067	2.9%	1.4%
Local Government	10,228,668	9,466,711	-7.4%	-2.7%
State Government	6,333,778	6,552,310	3.5%	3.8%
Federal Government	4,847,062	4,678,430	-3.5%	-0.6%
<b>Total</b>	<b>122,160,397</b>	<b>124,021,033</b>	<b>1.5%</b>	<b>3.8%</b>

Source: <http://globalworkplaceanalytics.com/telecommuting-statistics>

- Work at home
- Telecommuting/ holographic meetings
- Motorcycle delivery systems (being replaced by drones)
- Rubbish bins that register barcodes of packaging and place delivery order
- Movie rental/ Online games





# Technological Progress vs. Social Innovation

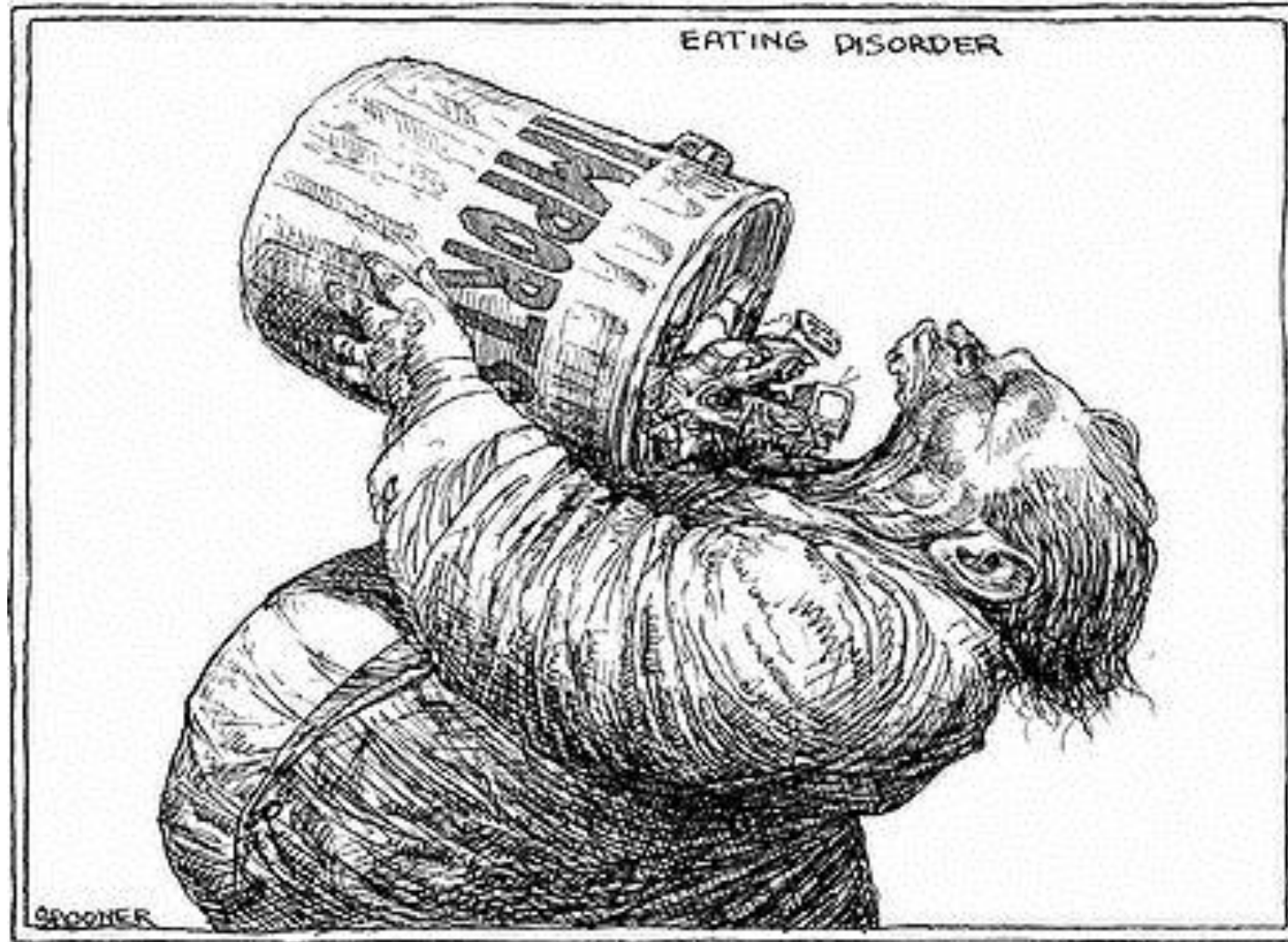


NEWS OF THE FUTURE : A TERRORIST GROUP CALLED "THE ENDANGERED SPECIES MARTYR'S BRIGADE" CLAIMS RESPONSIBILITY FOR THE KIDNAPPING OF CITES SECRETARY-GENERAL JOHN E. SCANLON ...

- Technology must be matched by social innovation and creativity
- Children need to be taught the principles of a sharing economy
- The slow living movement must be supported by government policy – no need for speed
- Well-being (of all species) and happiness must be valued above Gross Domestic Product.



# Conclusions



# Conclusions

- Sustainable development is possible if we move towards a highly efficient sharing economy
- ICT, if used in the right way, can help to drive a sharing economy in the near future
- Therefore, sustainable development will depend, in part, on optimal development of purposive ICT
- Technological development, however, will only work if it is matched by equally transformative social and cultural innovation
- I remain mildly optimistic, recognizing the many barriers ahead that will stall this transformation.