


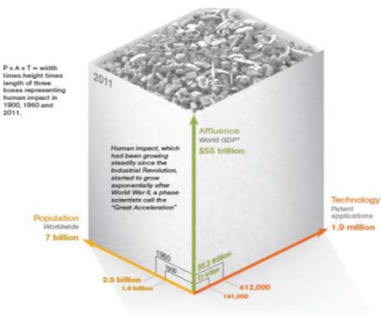
Up in the air... Up underground

Exploring absolute REDUCTIONS in material throughput and energy use



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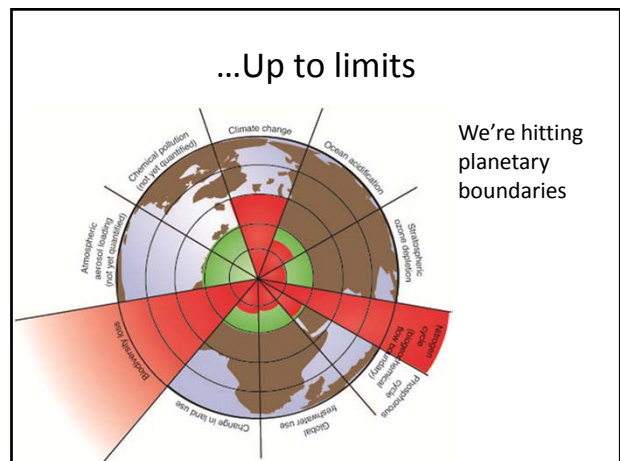
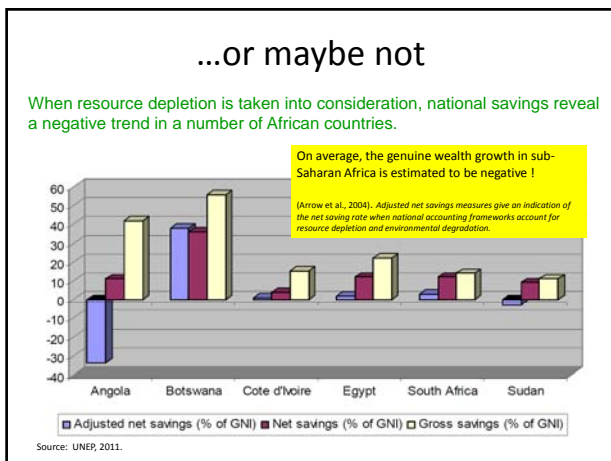
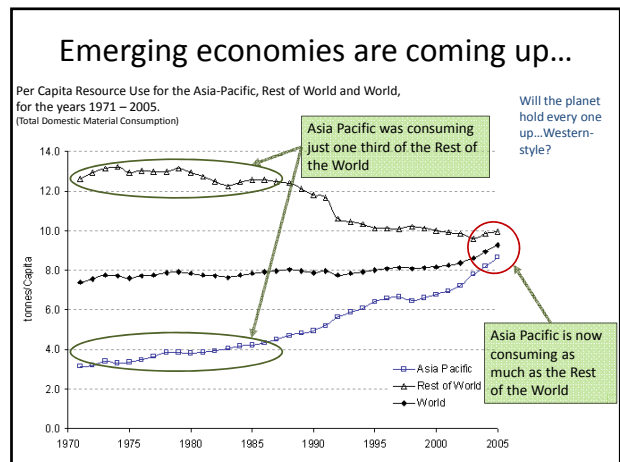
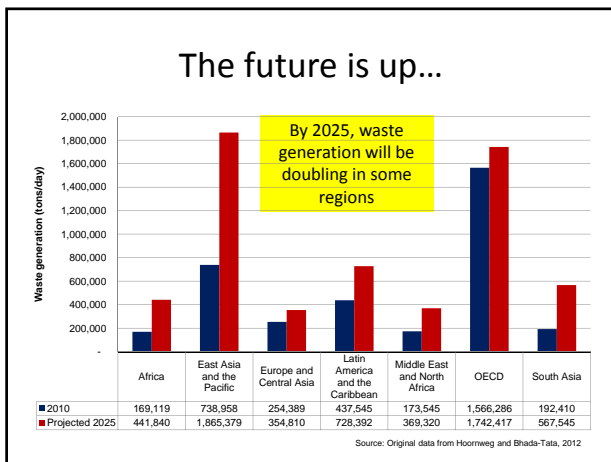
Everything is up...



20th Century

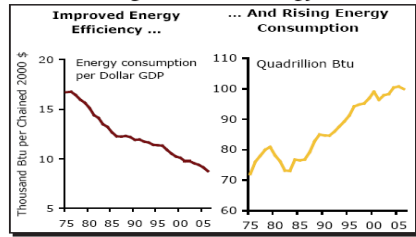
- Population: 4X
- Global freshwater withdrawals: 3X
- Economic Output: 22X
- Fossil fuel consumption: 14X (OECD)

Today's worldwide resource consumption is about 50% higher than 30 years ago, at about 60 billions tons raw materials per year. (SERI 2009)



Decoupling? Up but...

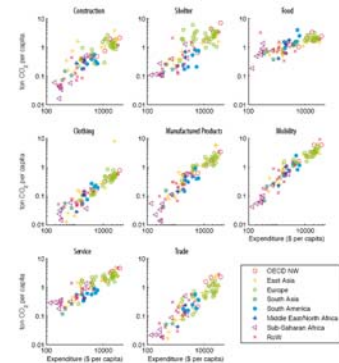
Chart 1
Americans Efficiently Consume
Ever-Increasing Amounts of Energy



The Jevons Paradox, or „rebound effect“.

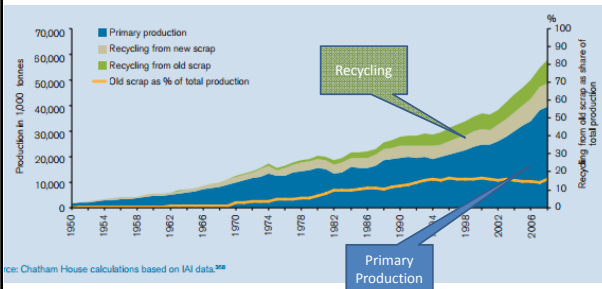
Source: EIA

consumption in all sectors goes with carbon intensity:
almost no decoupling



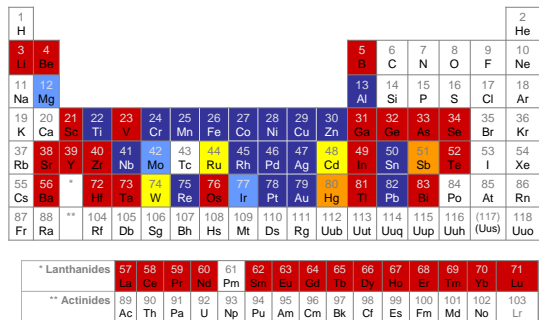
Recycling? Up but...

Global Production of Aluminium



- Recycling plays a role but has not grown much in the last decade
- Primary production continues to grow exponentially

End-of-life recycling rates for sixty-two metals

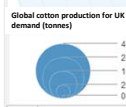


T. Graedel et al., Recycling Rates of Metals, UNEP IRP, 2011

Trade? Up but...

Burden shifting? Up...

where is the production for UK demand happening? Drivers of Impacts?

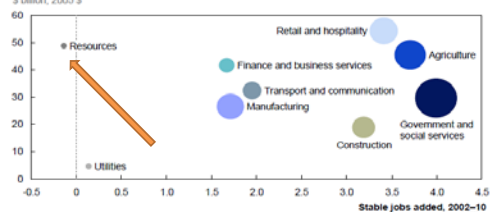


Country of production of cotton	Land required for UK demand	IUCN Red List Species, Listed under threat	Key Biodiversity Areas	Areas of Zero Extinction present	International Bird Area, Classification A1
India	266,247	121	479	18	0
China	175,010	91	526	22	0
Pakistan	114,671	17	55	0	0
Tanzania	29,269	120	112	9	15
USA	28,496	56	244	15	2
Uzbekistan	13,060	11	51	0	33

www.chartsbin.com

Trading away the future?

GDP and stable job growth¹ in ten African countries,² 2002-10



Sectors that drive GDP growth do not always create the most jobs

1 Stable employment includes wage and salary employees and business owners; vulnerable employment includes subsistence farming, informal self-employment, and work for a family member.
2 Countries included are Algeria, Angola, Egypt, Ethiopia, Kenya, Morocco, Nigeria, Senegal, South Africa, and Uganda. These countries accounted for 70 percent of Africa's GDP in 2010.
SOURCE: Global Insight, McKinsey Global Institute analysis

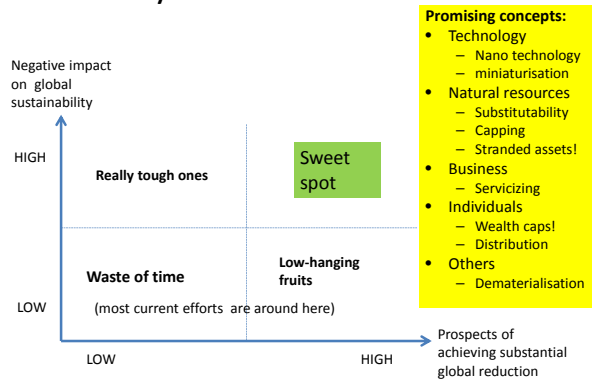
REDUCTIONS

Reducing Environmental Degradation & Unsustainable Consumption Trends & Impacts On Nature & Society:
Research, Policy and Practice

The REDUCTIONS project

- Exploratory project to frame reductions
 - Analyse science-based concepts, case studies and frameworks;
 - Intervention nodes
 - Reduction in resource use
 - Reduction in (quantity of material) consumption
 - Reduction of waste generation and pollution
 - bring together knowledge from a number of disciplines and communities
 - Int. expert panel
 - (Limited) funding from the Japanese government
- An activity of IGES, the Global Research Forum on SCP (GRF), the World Resources Forum...

Priority matrix for solutions



Next steps I – planned publications

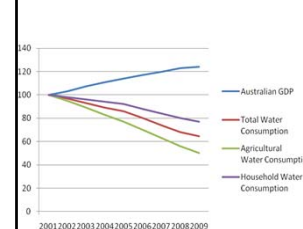
- Special Volume J. Cleaner Prodn**
 - Analysis and case studies
 - Defining boundaries
 - Measurement/accounting approaches
 - Substitutability of resources
 - Political and economic implications of absolute reductions
 - Anticipating unintended consequences/rebounds
 - implications for developing economies
- Policy/Technical briefs/pubs**
 - Assessment of current scientific knowledge
 - Synthesis of messages for policy makers
 - Policy frameworks for reductions
 - Questions for research...

Next steps II - Project consortium

- Members...**
 - Global Research Forum for SCP
 - Institute for Global Environmental strategies Japan
 - World Resources Forum
 - Tellus Institute
 - SERI
 - Clark University
 - Work packages**
 - Indicators
 - Case studies
 - Policy and governance
 - Economic system, culture
 - Modelling
- You're warmly invited!**

Some "good" news

By design: water consumption in Australia



By force: Unexpected Events

