

HOW TO EAT AN ELEPHANT: A Bottom-Up Approach to Climate Change

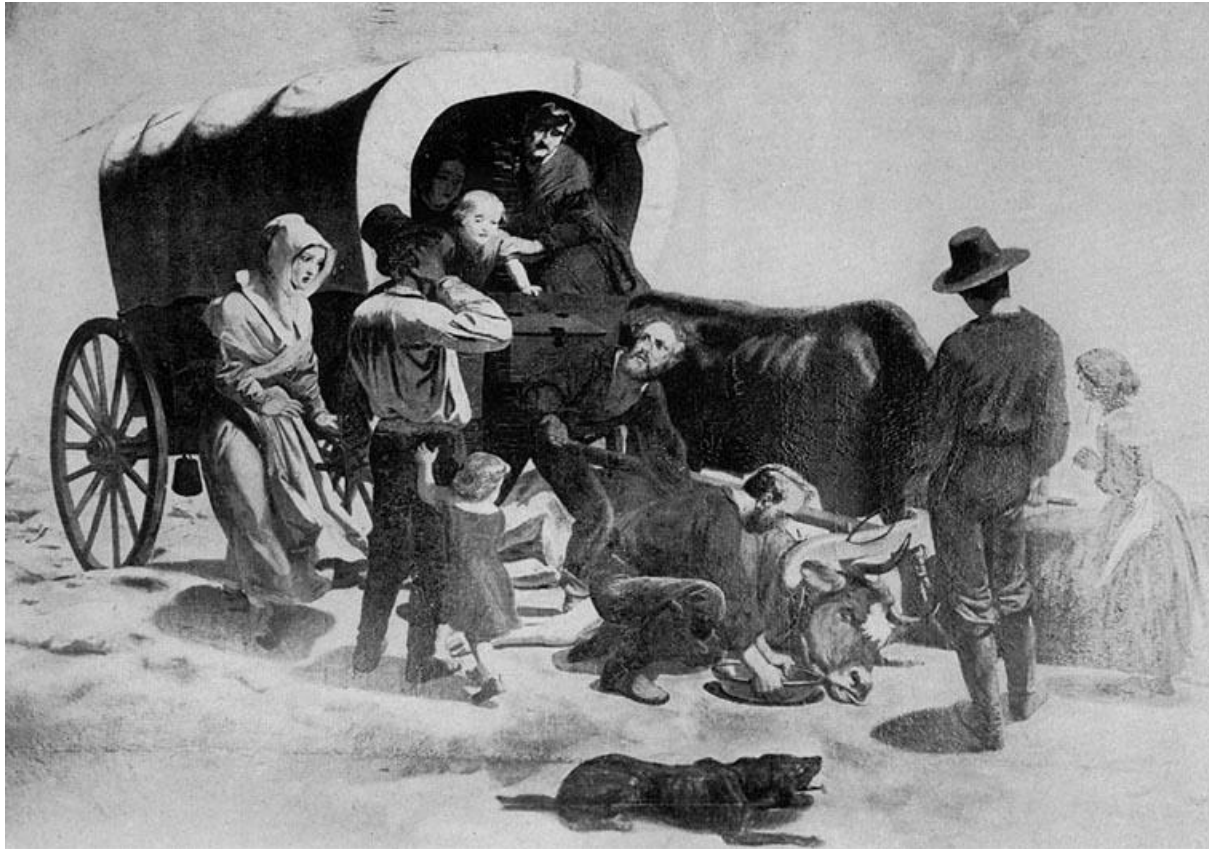
Steve Rayner

James Martin Professor of Science & Civilization
University of Oxford,
Honorary Professor of Climate Change & Society
University of Copenhagen

WHY IS CLIMATE CHANGE LIKE A CHRISTMAS TREE?



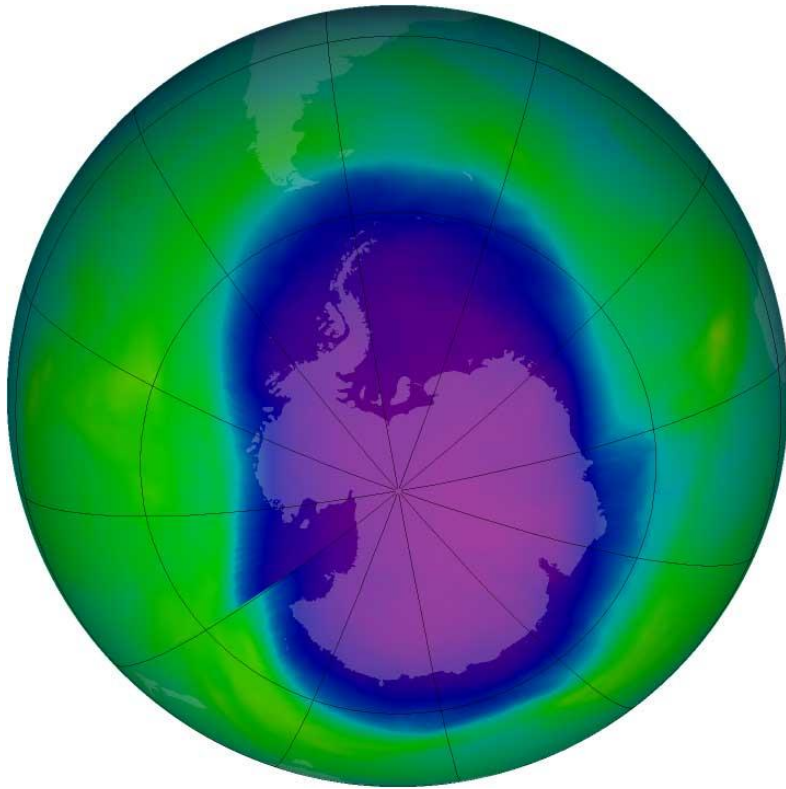
THE KYOTO BANDWAGON COLLAPSED AT COPENHAGEN



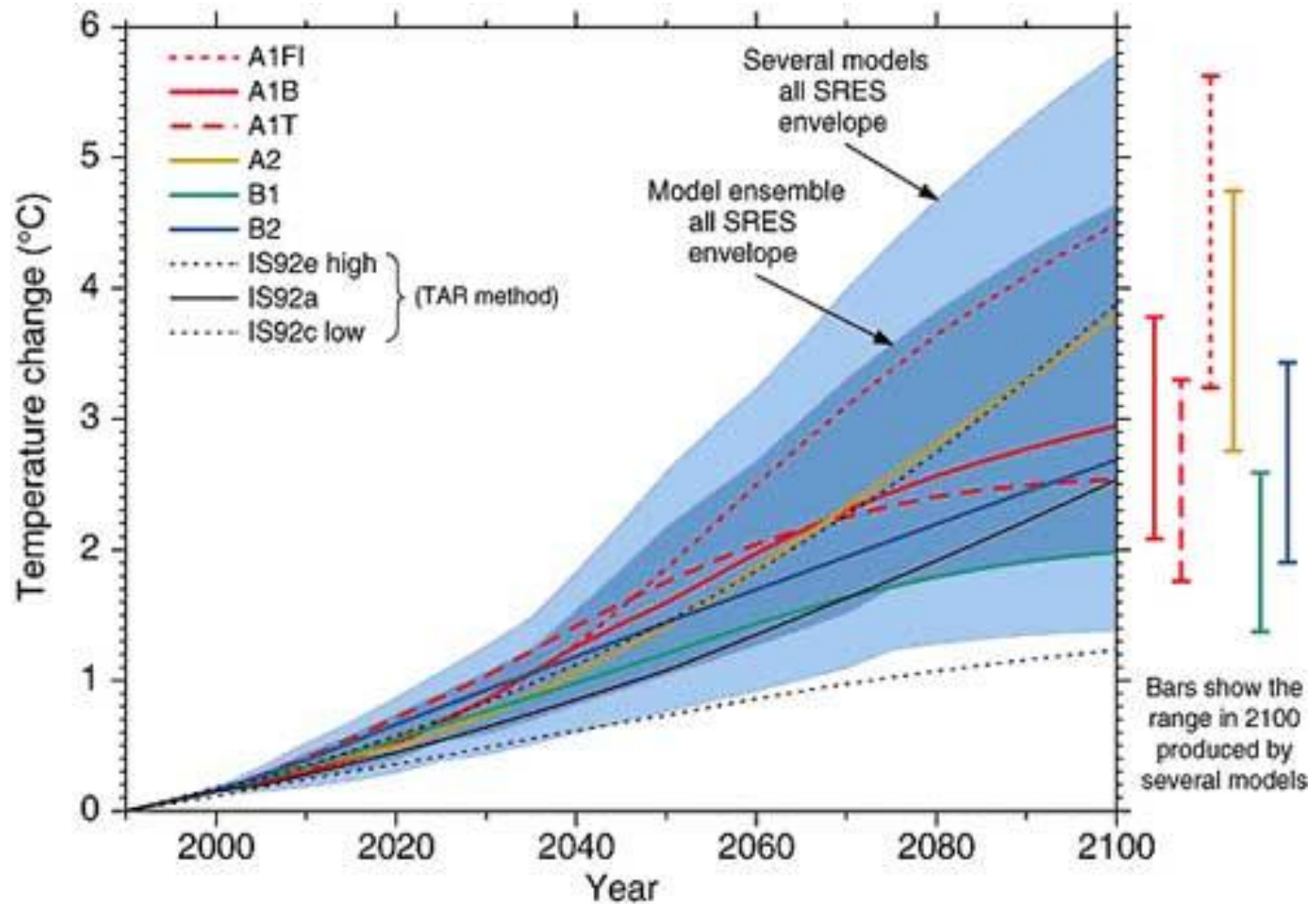
THE KYOTO ARCHITECTURE - A CASE OF THE WRONG TROUSERS



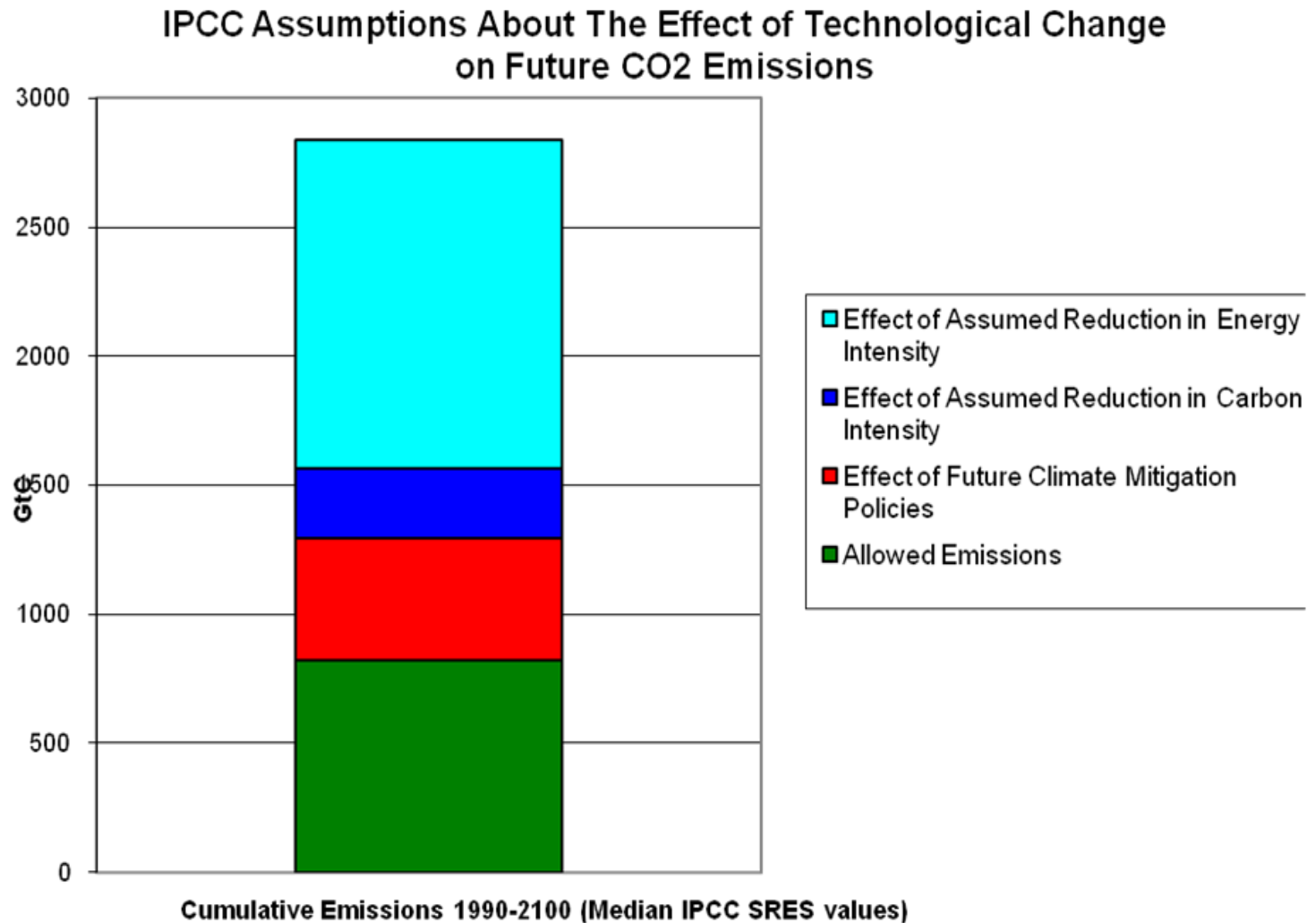
THREE MISLEADING ANALOGIES



THE CHALLENGE IS STAGGERING (IPCC)



IPCC PROJECTIONS OVER-OPTIMISTIC (Pielke Jr)



UK CLIMATE ACT IS UNREALISTIC



THE RIGHT TROUSERS HAVE THREE LEGS!

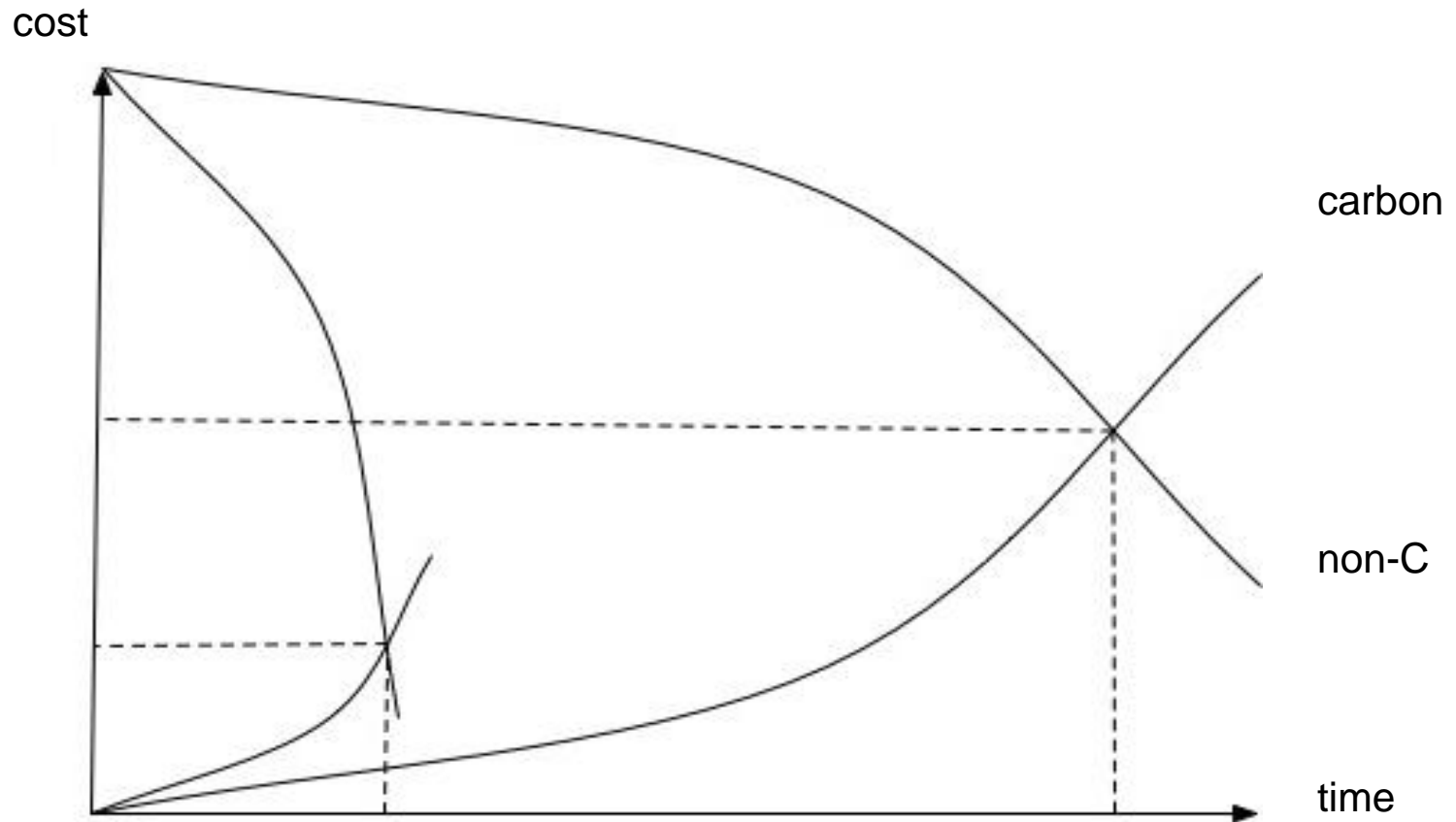


- Strategically induced technological change
- Adaptation to climate – not just climate change
- Remediation – (geoengineering)

OBSTACLES TO ENERGY MODERNIZATION

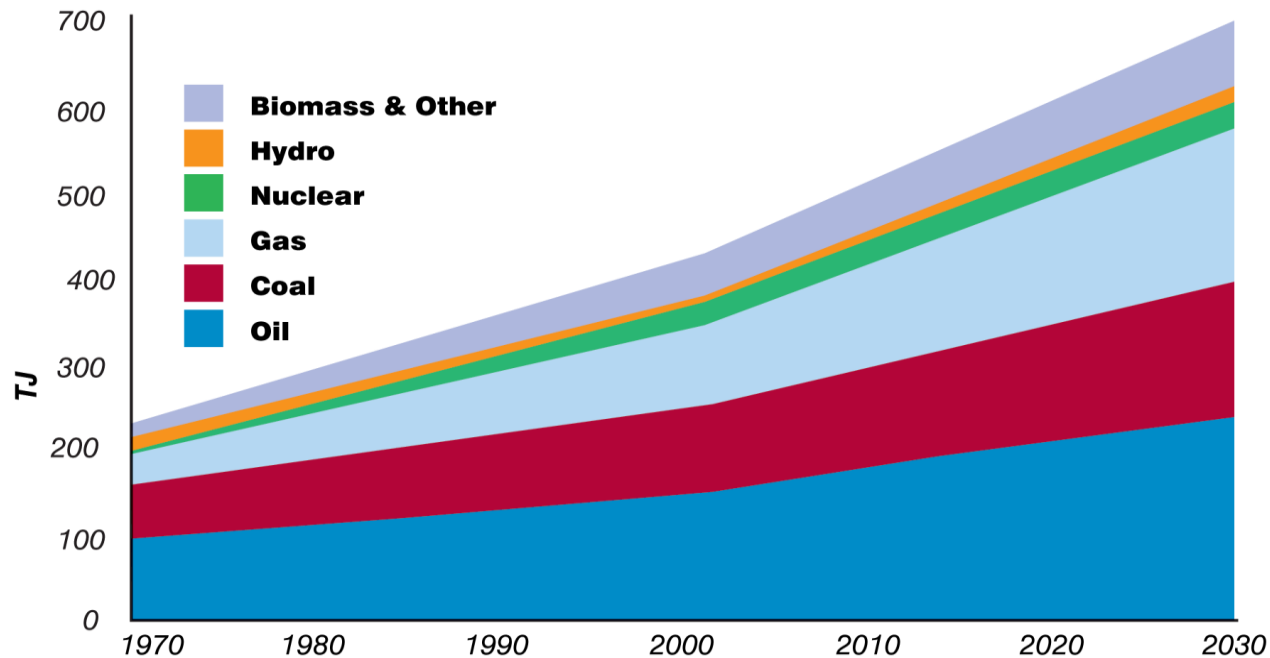


CAP & TRADE CANNOT WORK IN TIME: \$80-100 BILLION NEEDED FOR RDD&D



NEED TO GET DIRTY TECHNOLOGIES OUT OF THE BOTTOM

World energy mix 2004



ADAPTATION TO CLIMATE VARIABILITY AND CHANGE



ARE EXTREME EVENTS INCREASING?



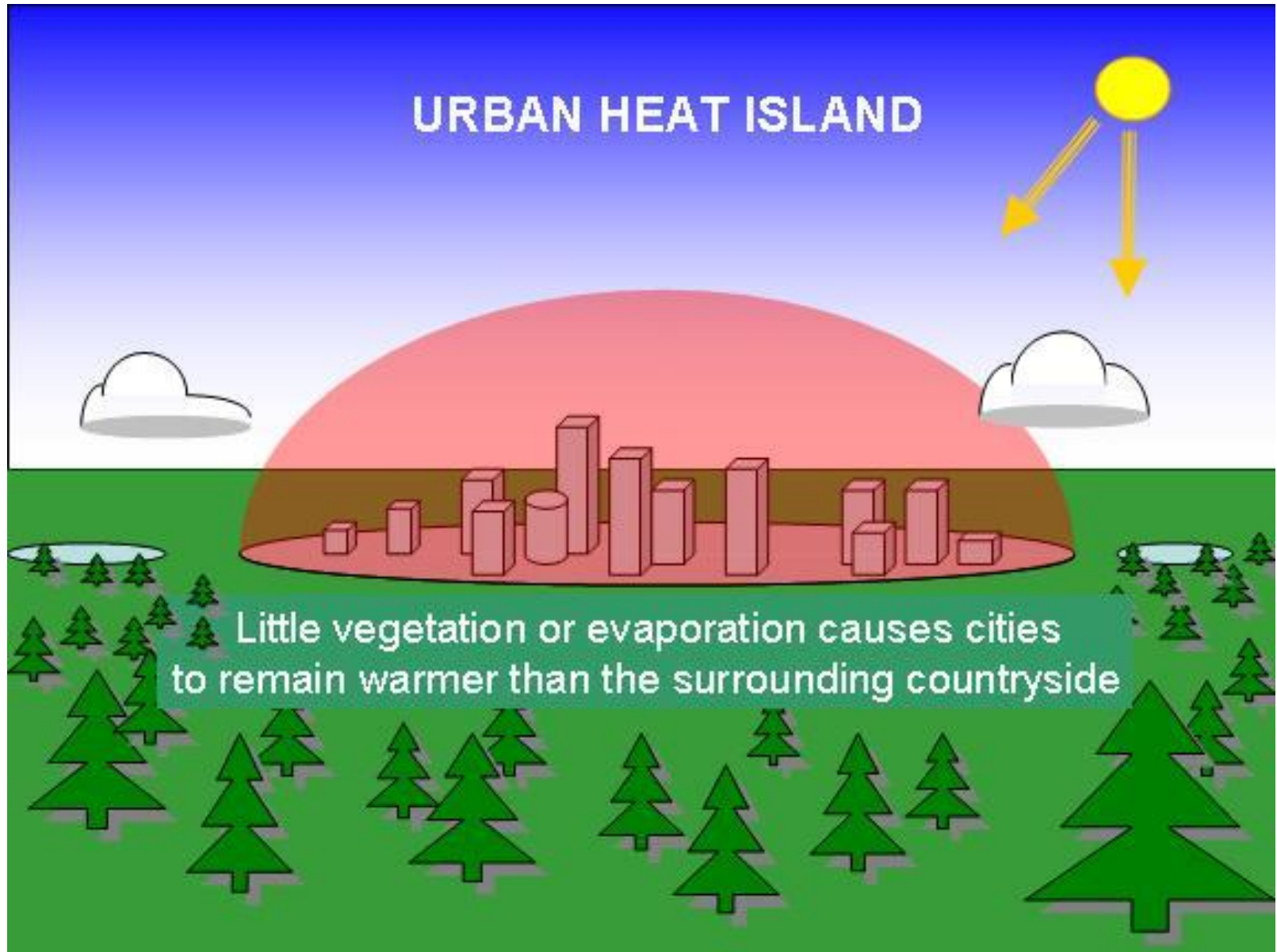
CLIMATE CHANGE OR ASSET LOCATION?



1925



MALADAPTATION TO CLIMATE



TRADITIONAL DESIGN FOR CLIMATE



A RESILIENT QUEENSLANDER



ADAPTIVE FEATURES ARE BEING LOST



THE CULPRIT



WHICH INCREASES DEMAND FOR THESE



UNLIKELY – RICHER IS SAFER



ALREADY HAPPENING



NEED FOR FLEXIBLE INFRASTRUCTURE



POOR ARE HIGHLY VULNERABLE



AGAIN WE CAN LEARN FROM BELOW



NOT JUST ON THE WATER'S EDGE...



BUT ON THE WATER

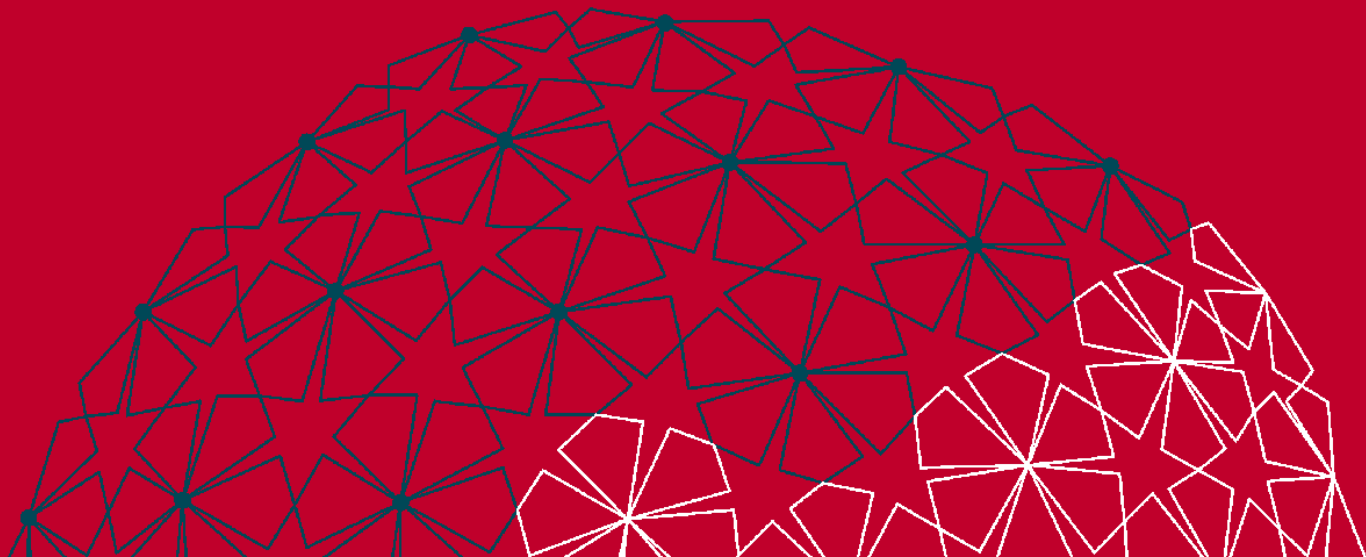


Geoengineering the climate

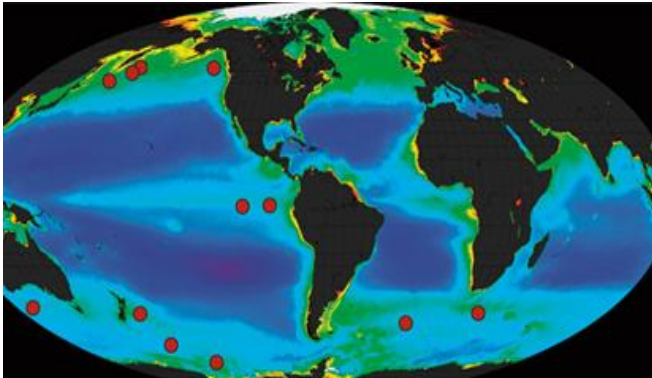


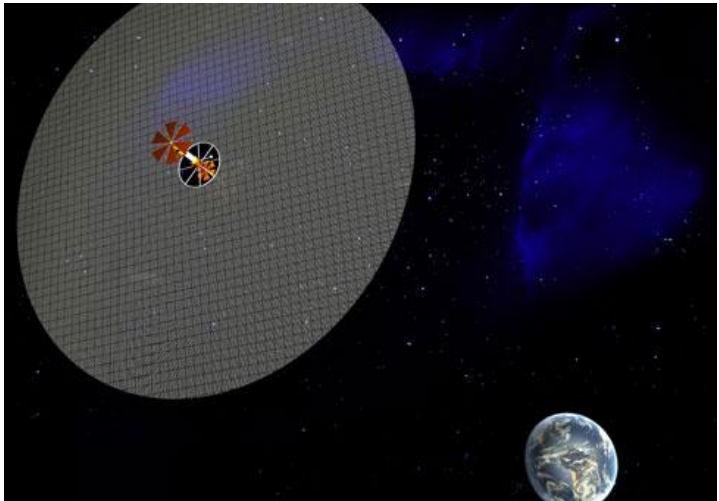
Science, governance and uncertainty

September 2009

THE ROYAL SOCIETY



HOW MIGHT WE DO IT?

	CARBON DIOXIDE REMOVAL EXTREME MITIGATION	SOLAR RADIATION MANAGEMENT EXTREME ADAPTATION
EARTH SYSTEMS ENHANCE- MENT	OCEAN FERTILIZATION 	STRATOSPHERIC AEROSOLS 
	AIR CAPTURE 	SPACE MIRRORS 
BLACK- BOX ENGINEER- ING		

WHAT ARE THE RISKS?



CAN WE GOVERN IT?





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