



AIRPORT ENVIRONMENTAL MANAGEMENT

04-08 October 2015

Abu Dhabi, UAE

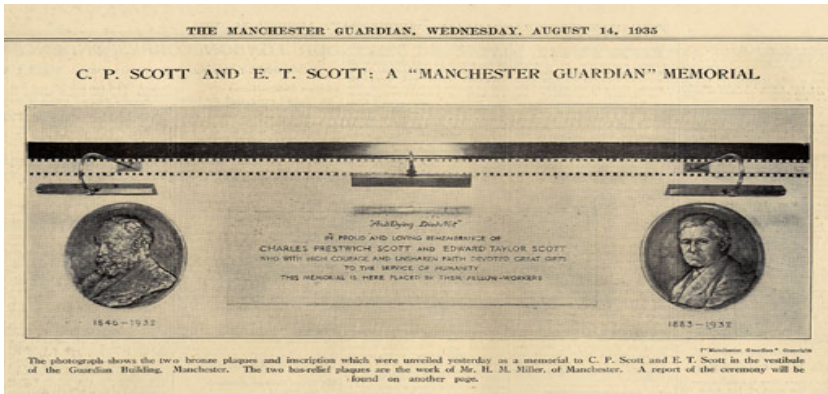
**Module 2: Sustainable Development, the World
Economy and Aviation**

Module Objectives

- To explain the factors driving growth in air transport and its implications
- To link aviation performance to that of the wider economy
- To highlight the implications of United Nations' commitments to sustainable development
- To describe the significance of eco-efficiency in achieving 'compensation for growth'



Air Transport 1903 - 1950





Air Transport 1950 - 2000



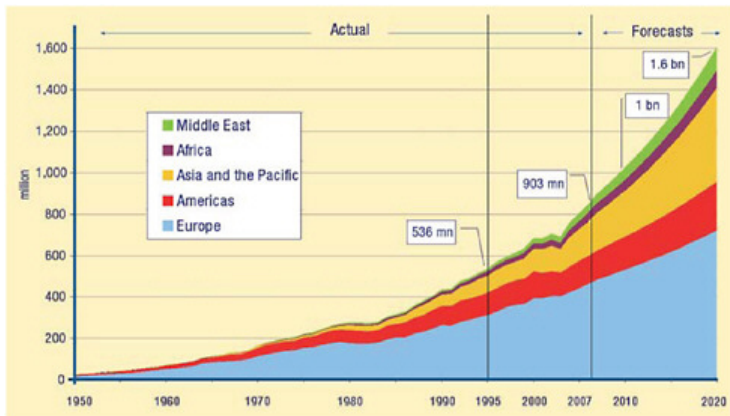
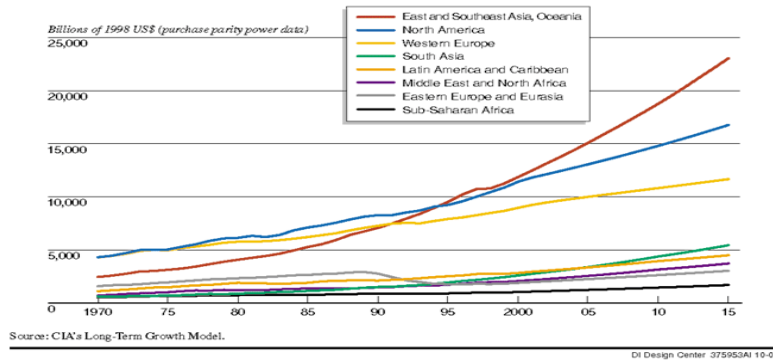
Air Transport 2000 - 2050



- Environmental constraints at airports
- CO₂ emissions rising
- Peak oil
- Carbon constrained or carbon free flight?
- Role of eco-efficiency?
- Aviation for the masses or the privileged few?

Drivers for Growth

Regional GDP: 1970-2015



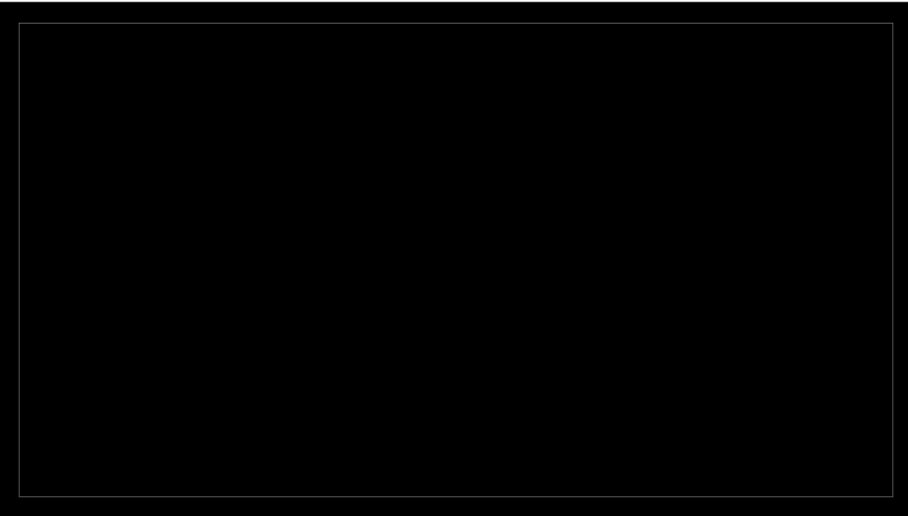
Aviation industry – an agent for growth

- Global 9% annual growth since 1960
- >2 times the average annual global increase in Gross Domestic Product
- Global future growth 5% per year for the next 10-15 years

Drivers for Growth Benefits of Aviation: IATA videos

1. Connecting ideas, developing together

2. Connecting markets, moving technology



For more videos visit:

<http://www.iata.org/policy/Pages/aviation-benefits-videos.aspx>

Benefits of growth in aviation





Personal
Fulfilment



Multicultural
Society



The Global
Society

Aviation, City and Regional Development

- Regional competitiveness
- Knowledge economies
- Tourism economies
- Access to Global economy

- **In current socio-economic model: many regional economies highly reliant on air transport.**

- **The Gulf a Global aviation hub**



Aviation's Contribution to Humankind

- Patterns of trade / migration
- Global socio-economy
- Intergovernmental alliances
EC, SADC, MERCOSUR, AL
- Russia, India, China, Brazil.
- Next Africa?



Sustainable Development

Development that meets the **needs** of the present generation without compromising the ability of **future generations** to meet their own needs.

THE BRUNDTLAND REPORT, 1987

What does sustainable development mean for the air transport industry?

The Sustainable Development Challenge

- Social and economic benefits of air transport growth significant
- Associated environmental and social impacts significant also and these are rising.
- These impacts now threaten aviation growth and its ability to contribute to socio-economic development.

The sustainable development challenge cont...

It is not just about environmental protection

Sustainable Development recognises the independent and mutually reinforcing goals of economic, environmental and social progress.

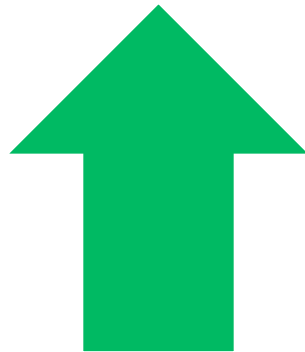
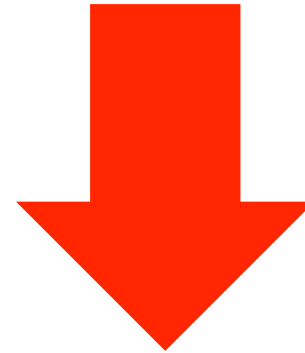
- Commitment to economic growth
- Poverty alleviation
- Environmental conservation

Green Growth!



The Sustainable Development Challenge

Socio-economic benefits of aviation growth are significant



But: the adverse environmental and social impacts are also significant and adverse impacts threaten future growth both locally and globally

Primary Role of Eco-efficiency (EE)

Uncoupling growth from environment =

Making more efficient use of energy and materials in the delivery of goods and services – with resulting reductions in waste.

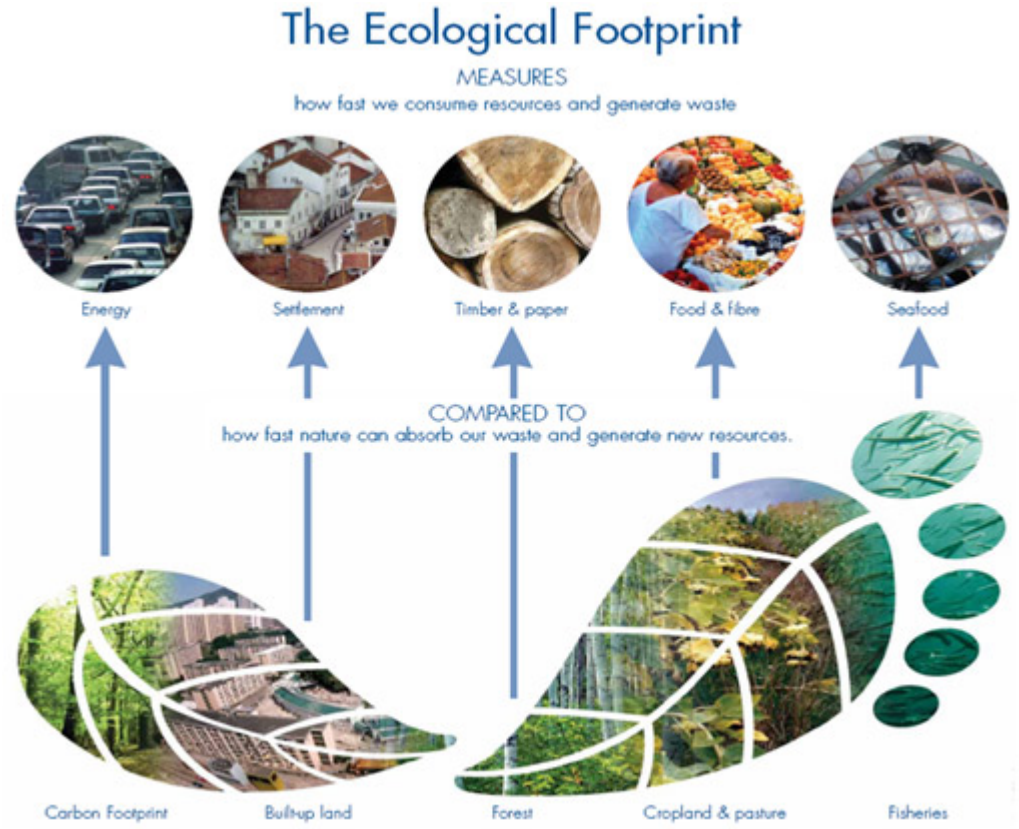
Compensating for growth by doing more with less!

Widespread Support for Eco-efficiency

- Agreement as to the importance of eco-efficiency among business, regulators and NGOs
- Recognises business-environment win-win opportunities.
- We have no choice

Eco-Footprint Analysis

- EFA measures the contribution to global consumption of a target audience (e.g. for countries, regions and cities) by converting activities into a demand for the services of nature provided by land

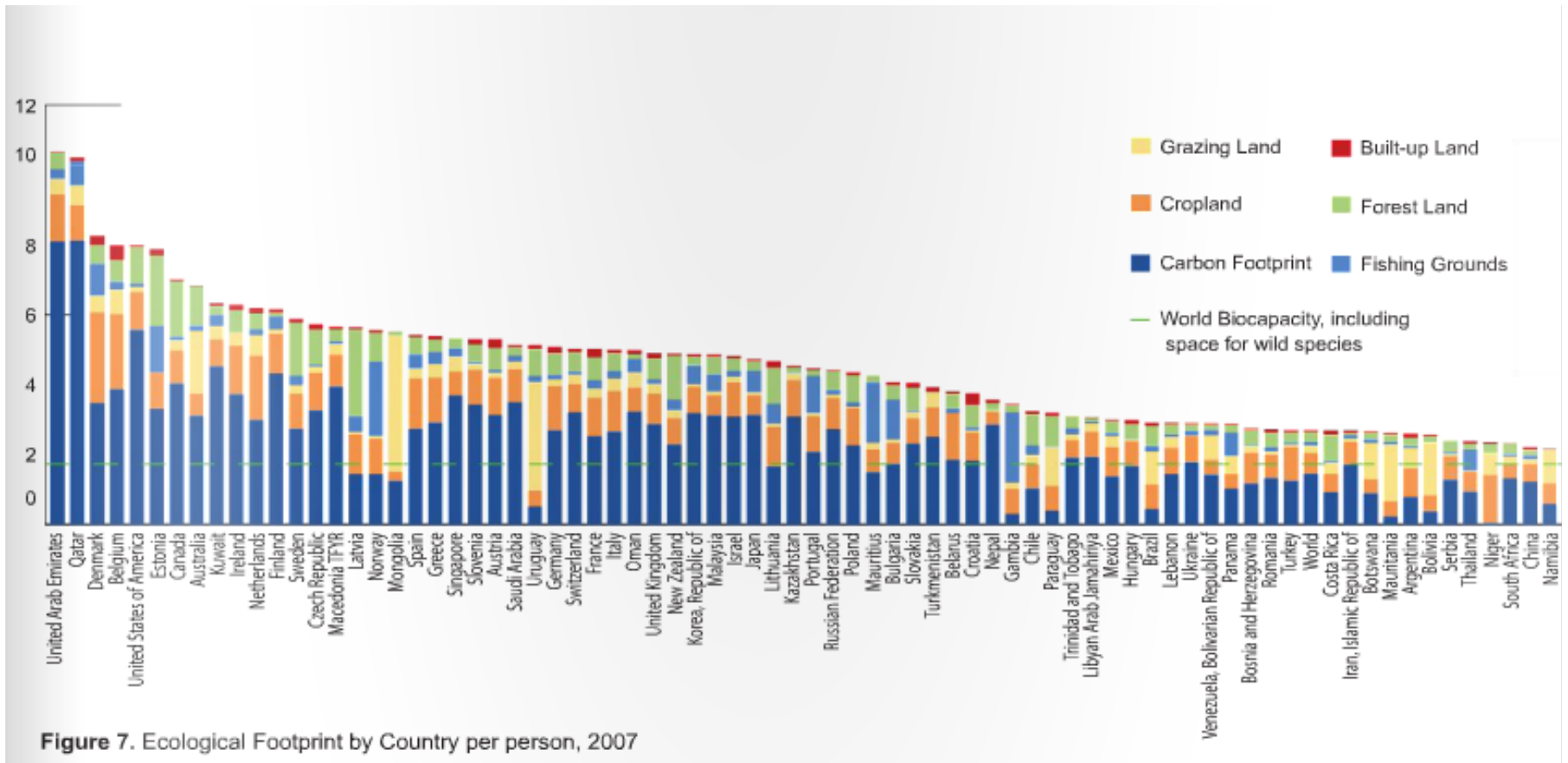


Ecological Footprint

- The land area required to provide all materials and energy, and to absorb all waste.
- Total land requirement expressed in global hectares
- 2000 population gives an Earthshare of ~2gha per capita (global total area or bioproductive space 11.3 billion ha).
- We will need 3-4 planets to meet human needs

- But we only have 1 planet

Per Capita Ecological Footprint for 2007



The Economy and Material Throughput

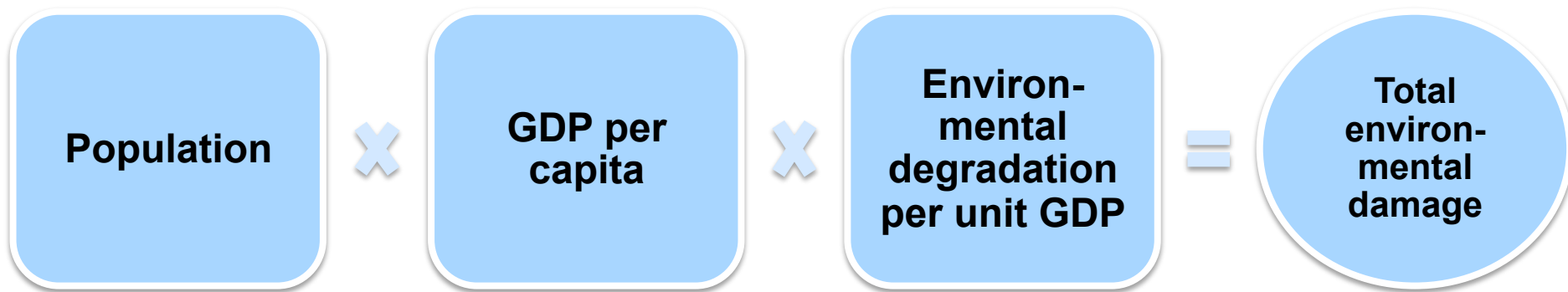


Environmental Damage

Is a consequence of:

- The utilisation of scarce resources (peak oil)
- The exhaustion of pollution 'sinks' (climate change)

The Implications of Growth

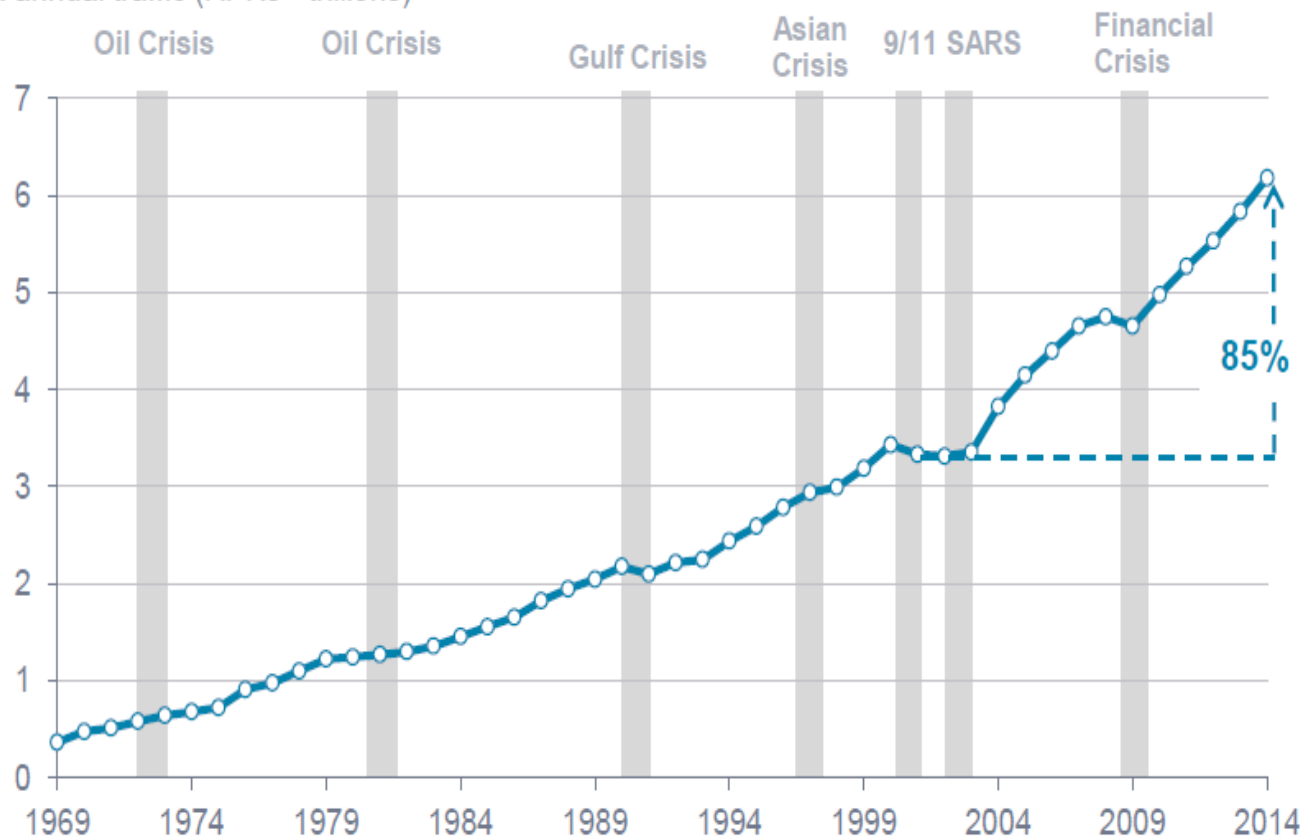


The challenge over the next 50 years

- Just to maintain environmental degradation at 1990 levels would require dramatic increases in eco-efficiency:
 - Population growth x 2.0
 - Average per capita income x 2.5 – 5.0
- A 5-10 fold increase in eco-efficiency.
- A 10-20 fold increase is needed for a sustainable society.

The problem is the rate of growth: Past, actual

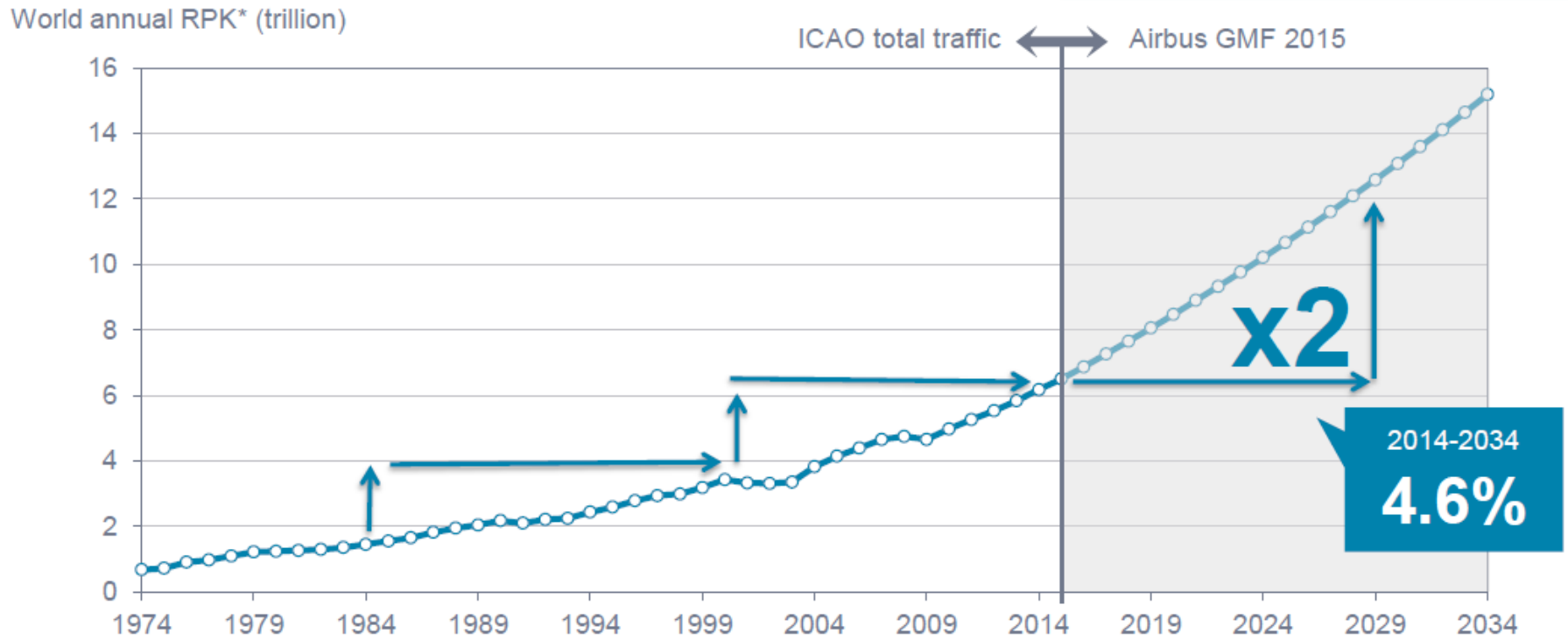
World annual traffic (RPKs - trillions)



World traffic
—
85%
growth since 9/11

Source: ICAO, Airbus

The problem is the rate of growth: Future, predicted



Source: ICAO, Airbus GMF2015

Air traffic will double in the next 15 years

We are failing to fully compensate for growth!

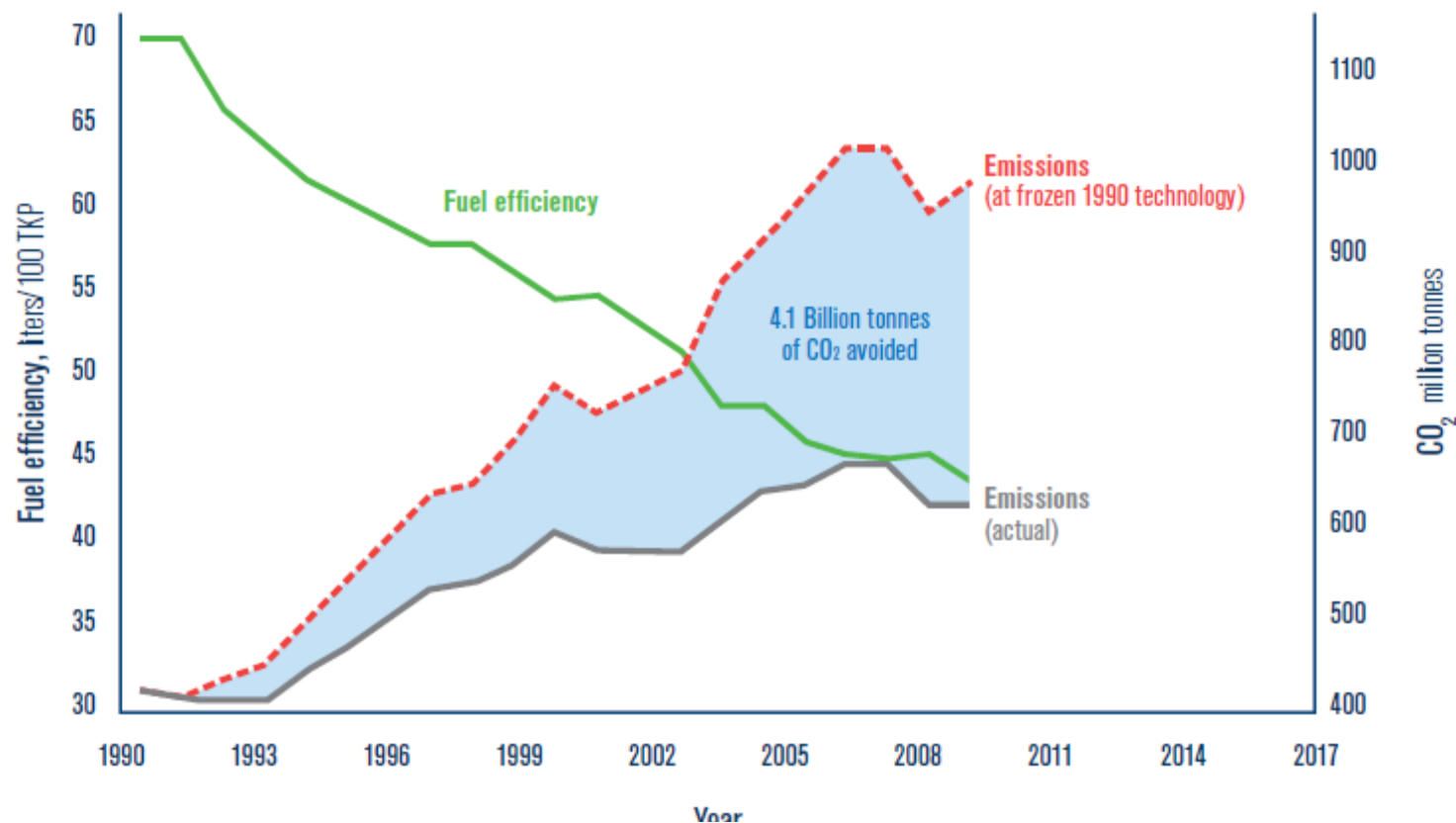


Figure 3: Fuel efficiency improvement of commercial airlines since 1990

Hypothetical CO₂ emission increase assuming no technology improvement (dotted red line), actual CO₂ emissions (solid grey line) and fuel burn in liters per 100 ton-km performed (TKP)(solid green line) [Source IATA]

The result for airports

- Environmental Capacity Constraints
- Cannot make full use of infrastructure
- Reduced operational capacity
- Failure to gain approval for growth
- Increased operating costs
- Increased insurance costs
- Reduced value of asset
- Reduced customer service levels

Summary

- We want economic growth for the benefits it brings to human populations
- However, economic growth has caused significant and unsustainable levels of damage to environment
- Need to balance development aspirations with environmental protection

Any questions?