ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

OECD Messages on the Economics of Climate Change

OECD Side-event at COP14
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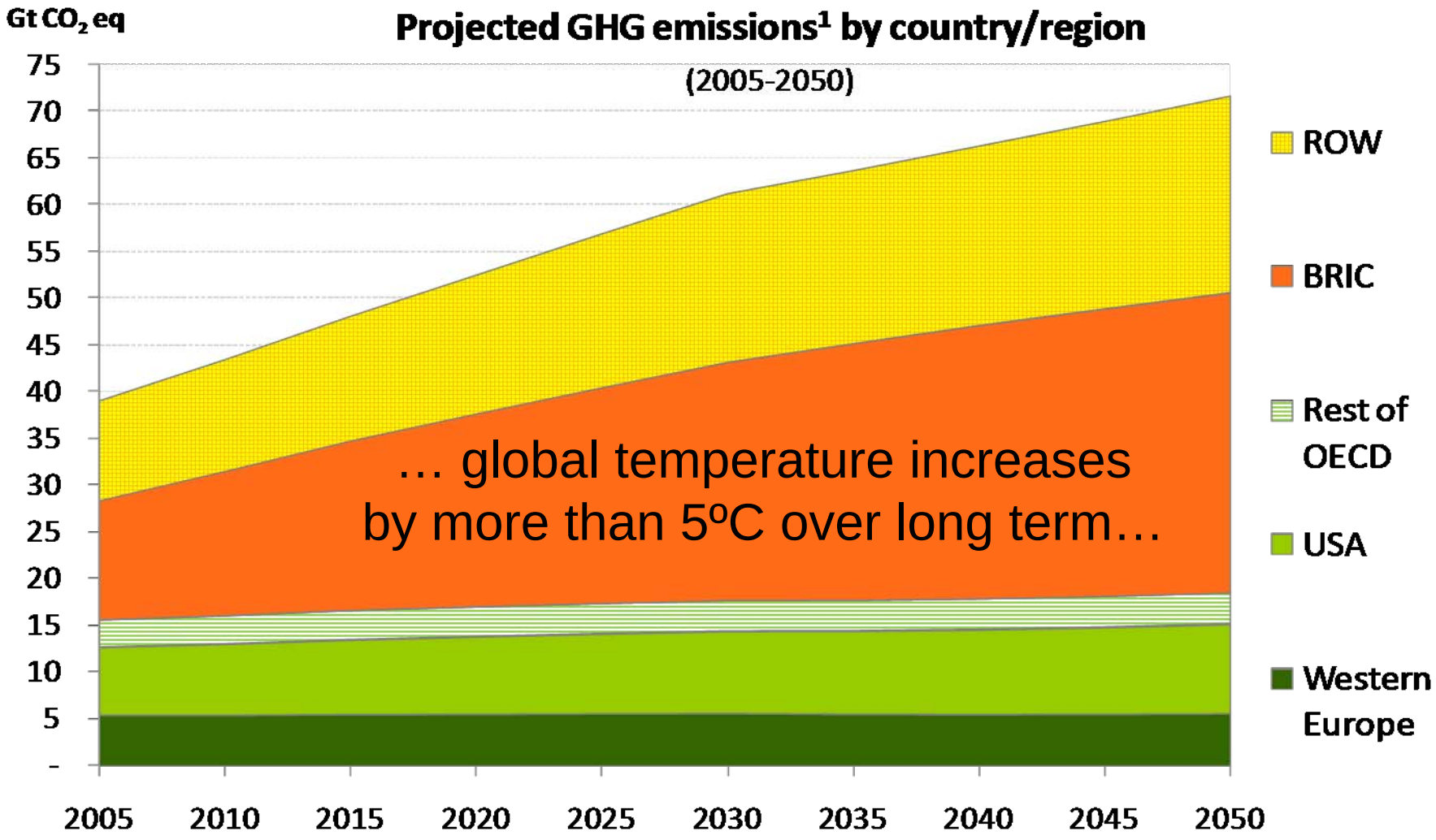
Lorents G. Lorentsen, Director
OECD Environment Directorate

What if we don't introduce more ambitious policies?



1. Excluding emissions from Land Use, Land-Use Change and Forestry.

Source: *OECD, ENV-Linkages model.*

The impacts & costs of inaction…

top five exposed port cities

Exposed population (million inhab.)

Rank	City	Country	Today
1	**Mumbai (Bombay)**	India	2.8
2	**Guangzhou**	China	2.7
3	**Shanghai**	China	2.4
4	**Miami**	USA	2.0
5	**Ho Chi Minh City**	Vietnam	1.9

Rank	City	Country	in 2070
1	**Kolkata (Calcutta)**	India	14.0
2	**Mumbai (Bombay)**	India	11.4
3	**Dhaka**	Bangladesh	11.1
4	**Guangzhou**	China	10.3
5	**Ho Chi Minh City**	Vietnam	9.2

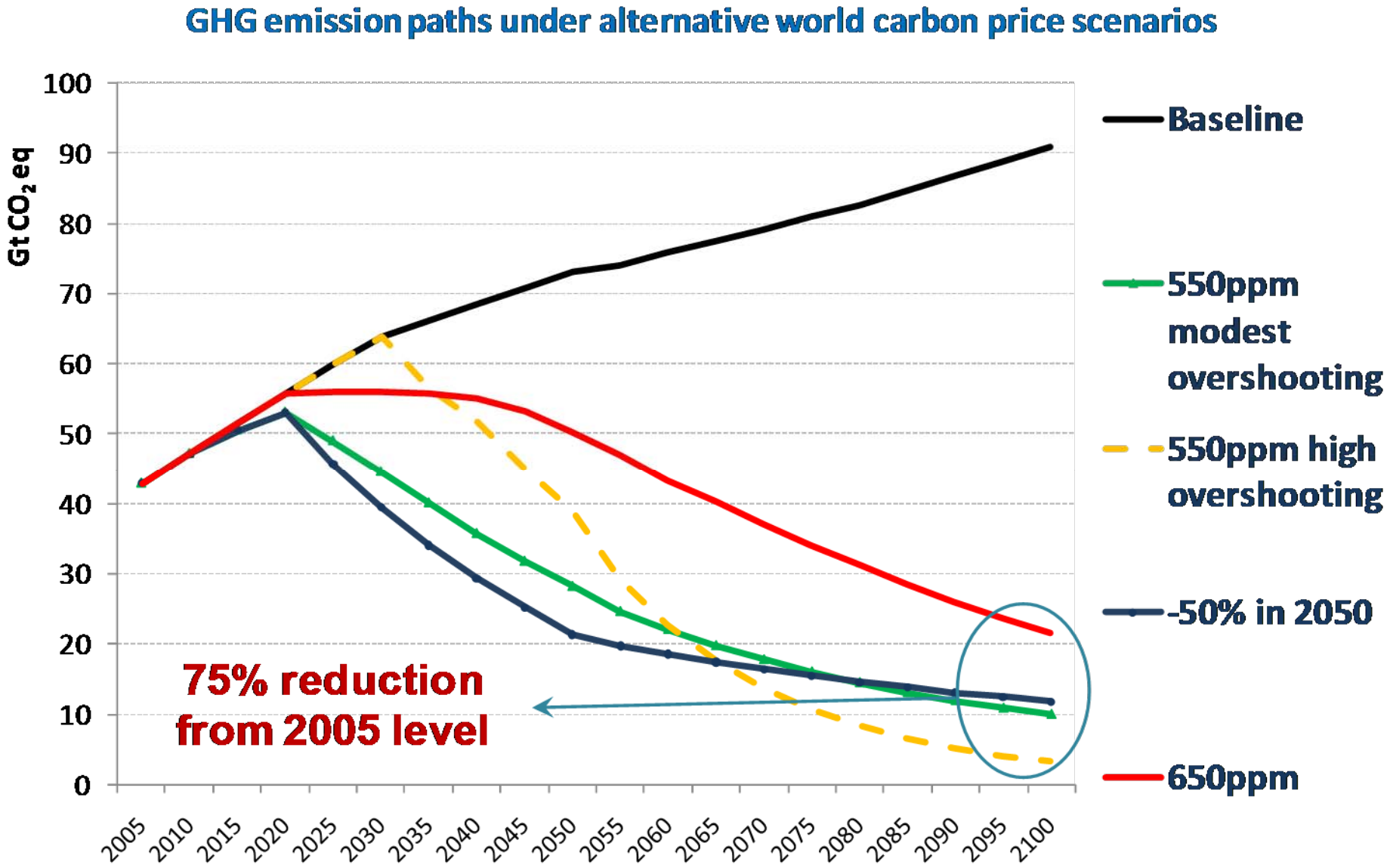
Exposed assets ($ billion)

Rank	City	Country	Today
1	**Miami**	USA	416
2	**New York-Newark**	USA	320
3	**New Orleans**	USA	234
4	**Osaka-Kobe**	Japan	216
5	**Tokyo**	Japan	174

Rank	City	Country	in 2070
1	**Miami**	USA	3,513
2	**Guangzhou**	China	3,358
3	**New York-Newark**	USA	2,147
4	**Kolkata (Calcutta)**	India	1,961
5	**Shanghai**	China	1,771

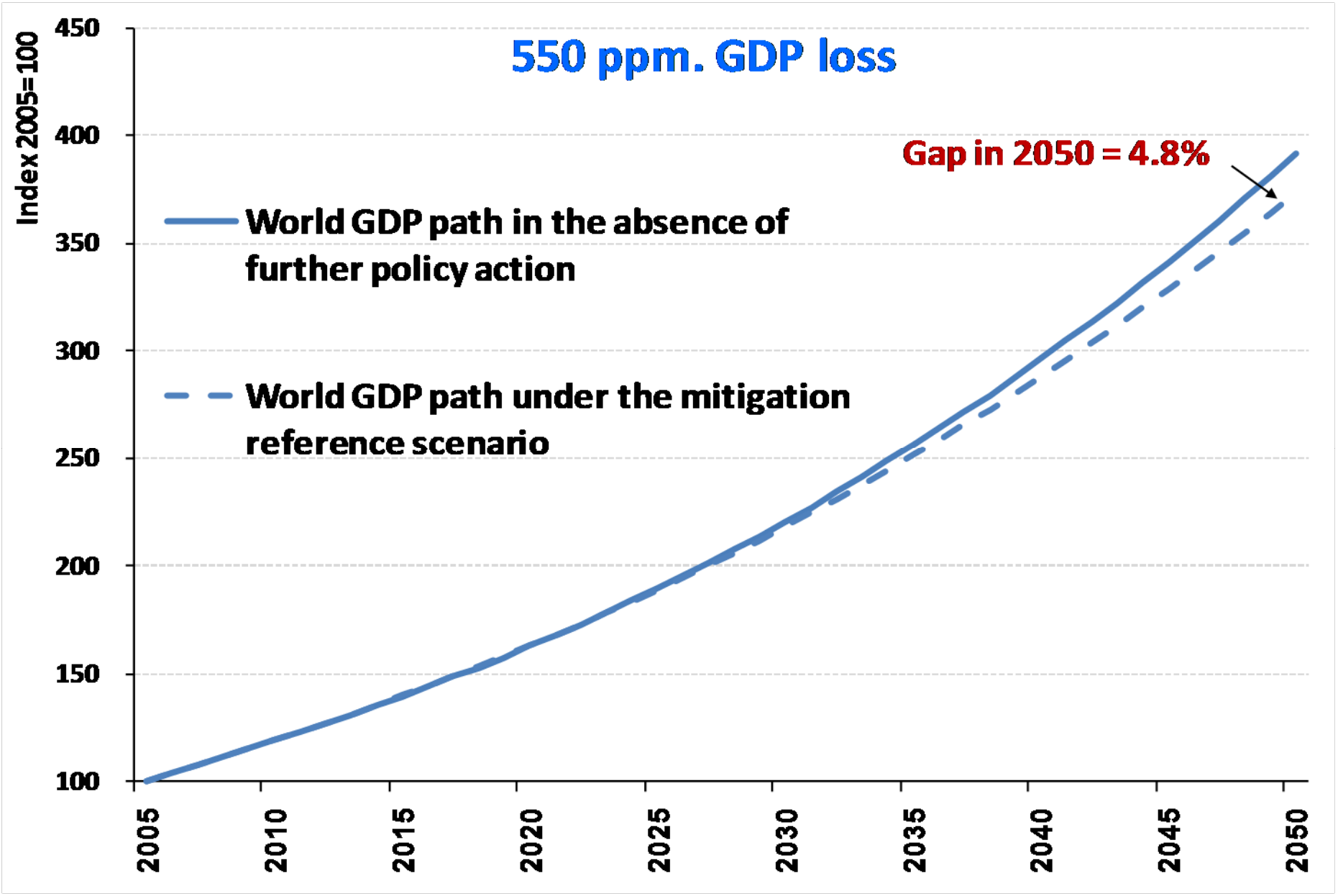
Nicholls et al (2007), "Ranking Port Cities with High Exposure and Vulnerability to Climate Extremes", OECD

Some policy simulations



Source: OECD, ENV-Linkages model.

The cost of mitigation action



Ambitious action to reduce emissions is economically rational…

- When compared to the costs of inaction and the expected economic growth over the coming decades.
- 550ppm CO_2-eq with some overshooting = -0.13 loss in annual GDP growth.
- 50% reduction by 2050 = -0.26 loss in annual GDP growth.

→ *but it will not be cheap or easy.*

…need:

- participation by all major emitters (countries, sectors, gases)
- to start now
- to use an efficient policy mix
- to support action in developing countries (finance, technology, capacity building)

Technology improvements are essential to reduce future costs

- Getting prices right will reduce emissions and give incentives for technology development & deployment (*550ppm scenario leads to 4-fold increase in R&D spending*)

- But uncertainty and market failures may discourage investors, so need specific R&D policies

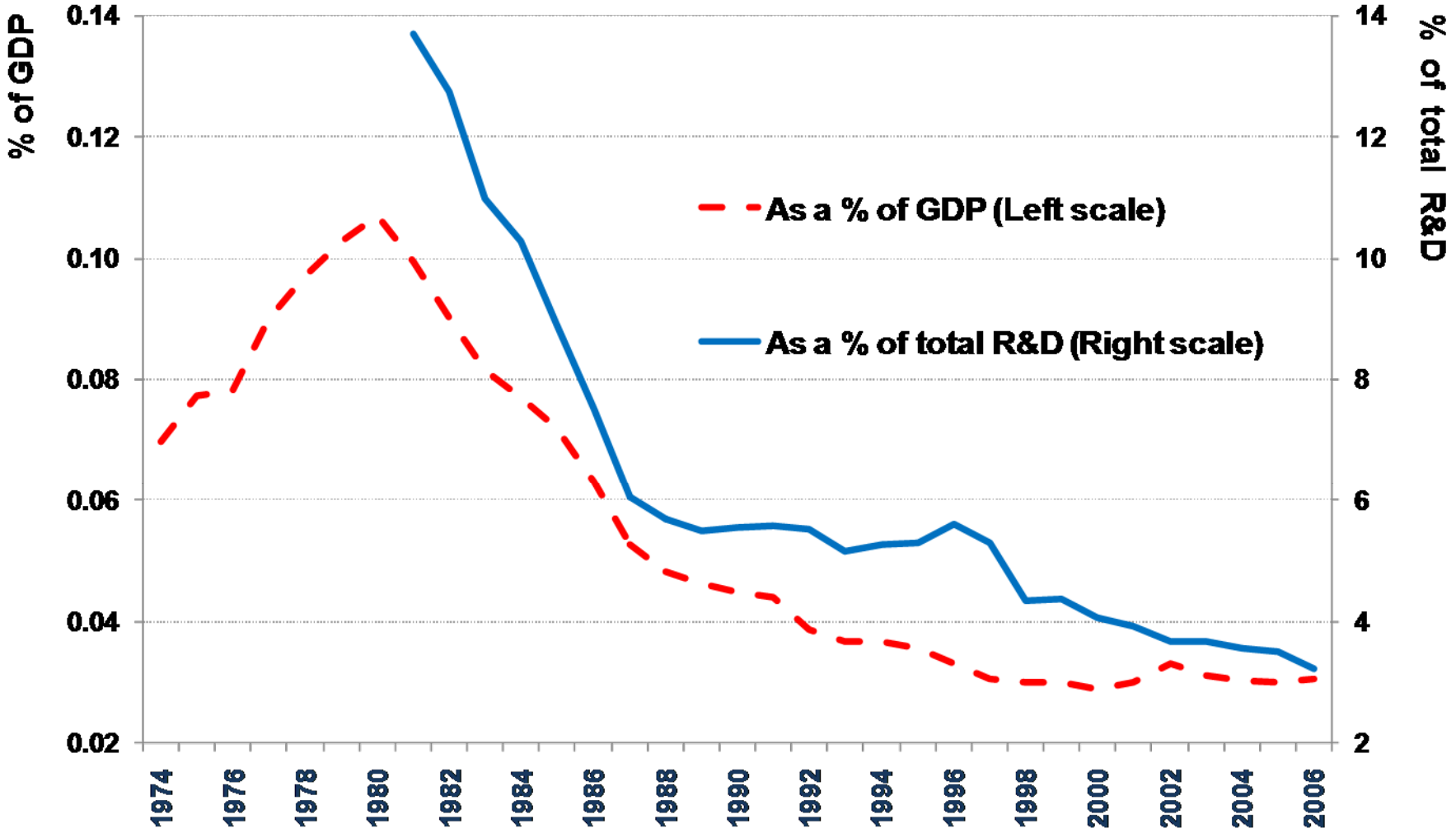
- R&D policy alone may give new breakthrough technologies, but would not in itself lead to deployment of existing and new technologies or efficient practices

➢ ***Carbon pricing and R&D support are both needed***

Source: WITCH model

Public energy related R & D expenditures in OECD countries

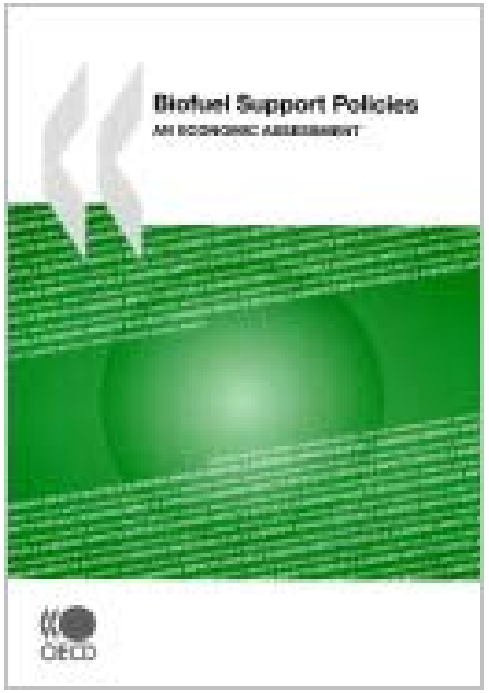
(percent of GDP)



Note: Unweighted average of OECD countries less non-IEA member countries (Iceland, Mexico, Poland and Slovak Republic). Due to lack of data Belgium and Luxembourg are also excluded.

Source: IEA database.

What policy approaches to avoid?



- Be careful: not all support is well justified…

  - biofuels policies in EU, Canada, US cost about an estimated USD 1000 per tonne of CO_2 emissions avoided.

- Reduced participation (fewer countries or sectors) increases the costs of action & reduces emission reduction potential.

  - if leave out energy-intensive industries, 550 ppm costs over 50% more.

  - even if Annex I countries reduce all their current emissions by 2050, would be replaced just by new growth in emissions in China & India

Carbon leakage and competitiveness — an obstacle?

- Two elements: market shares/relocation and spill-over effects in energy markets
- As the coalition of acting countries increases, the leakage rate falls rapidly
  - *e.g. leakage rates for EU-only acting to reduce emissions by 50% to 2050 = 20%; if all Annex I participate = 9%*
- Policy responses to carbon leakage:
  - Border Tax Adjustments
    - *Costly! can reduce leakage, but at a cost to both the country applying BTA and trade partners*
  - International sectoral agreements

International sectoral approach

	- 50% in EU only in 2050	-50% in EU + -50% in EEIs (no permit fungibility)	-50% in EU + -50% in EEIs (permit fungibility)
GHG emissions	-3%	-15%	-14%
MAC - EU countries	US$ 293	US$ 328	US$ 454
MAC – energy intensive industries (worldwide)	US$ 0	US$ 682	US$ 454
GDP loss in 2050 - EU	-3.0%	-3.5%	-3.9%
GDP loss in 2050 - non-EU	0.0%	-1.8%	-1.4%
GSP loss in 2050 - World	-0.5%	- 2.1%	-1.8%

Source: *OECD ENV-Linkages model*

Next phase of ECO-ENV work

Building a politically viable global approach

- How to gradually build a world carbon market from existing schemes
  - e.g. ETS, CDM, taxes, subsidy removal, sectoral agreements…
- Incentives for key emitters to join in
  - e.g. global financial transfers under 550ppm scenario could be 0.8%-1.5% of global GDP.
- Competitiveness and carbon leakage
- How to incorporate the forestry sector

Reducing Emissions from Deforestation and Forest Degradation (REDD)

- **Forestry accounts for up to 17% of global GHG emissions**
  = *more than transport*
- **Potential source of low-cost mitigation potential**
- **Need effective REDD financing mechanisms**
  - *establish clear goals and objectives*
  - *ensure sufficient and long-term sources of funding*
  - *develop eligibility and prioritisation criteria*
  - *ensure accurate & consistent monitoring & performance evaluation*
- **Links with biodiversity and co-benefits**

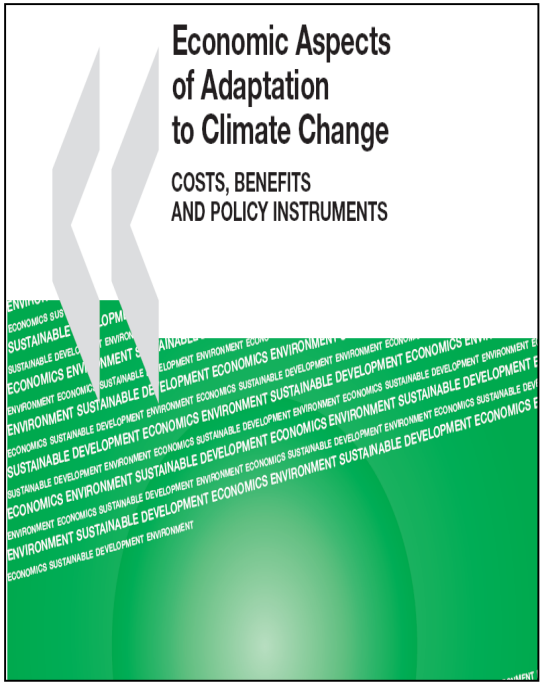
Source: Karousakis and Corfee-Morlot (2007): www.oecd.org/env/cc/aixg/

Adaptation costs and benefits

- "Optimal" coastal adaptation costs generally a small percent of GDP (less than 0.01%). But regional differences ⇒ can be as high as 10% of GDP for some small island economies.

- In agriculture, many adaptations can offset yield declines (even some net benefits) at relatively low cost. But vary across regions & crops, and decline with rising temperature.

- For water, investments in storage and/or water treatment dominate adaptation costs.



Need to incentivise adaptation actions…

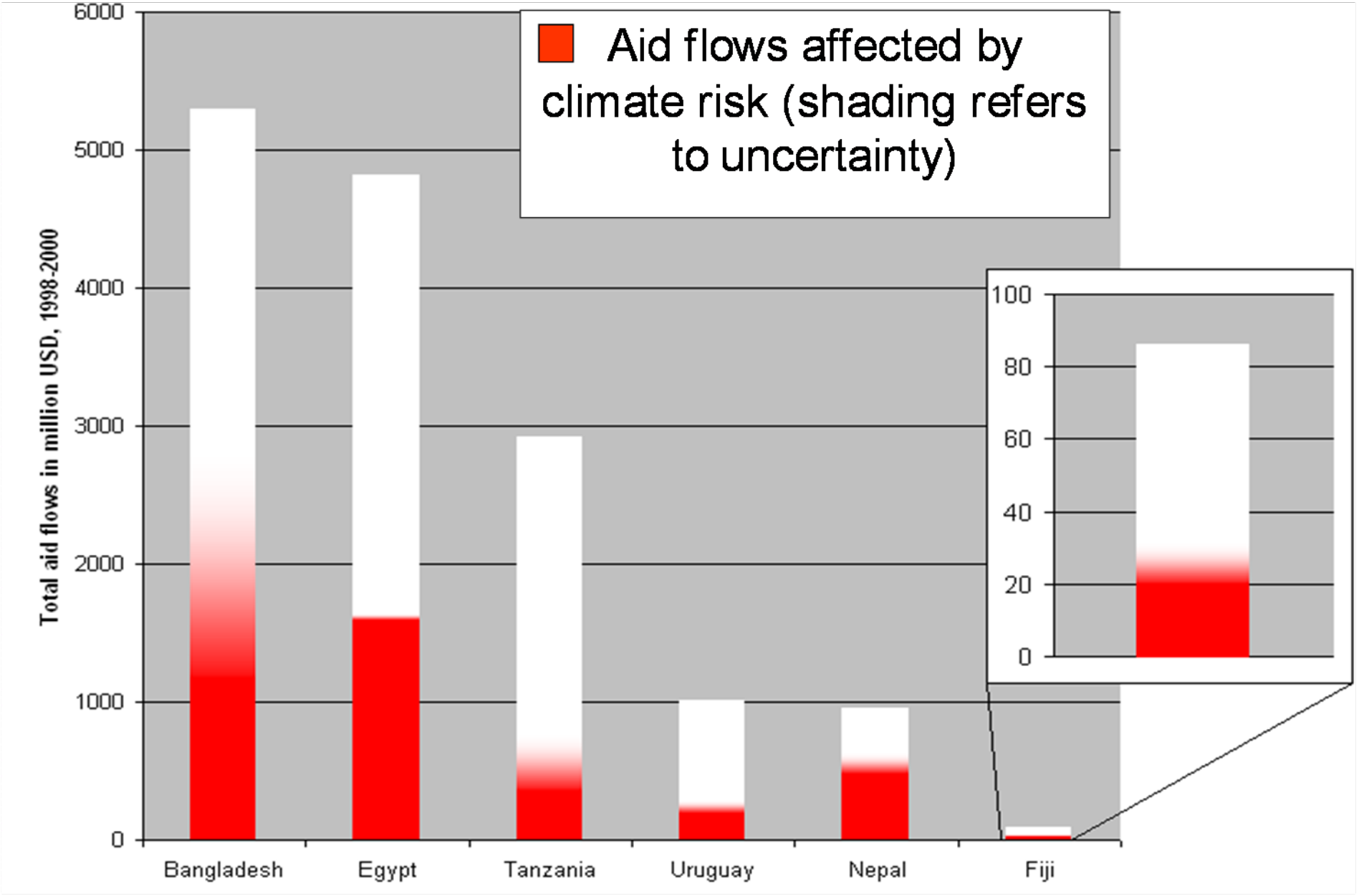
- Majority of adaptation actions will be undertaken by private actors in a decentralised manner.
- Public policy has important role in ensuring that decisions are made in a timely, well-informed, and efficient manner, and to provide financing (e.g. for public goods aspects).

Policy instruments:

- insurance or other risk management policies
- environmental markets and pricing
- R&D incentives

⇨ ***avoid mal-adaptation!***

Climate-proof development investments



SOURCE: *OECD (2005), Bridge over Troubled Waters*

Thank you!

www.oecd.org/env/cc