

# Climate Change Mitigation and Impact on Economy

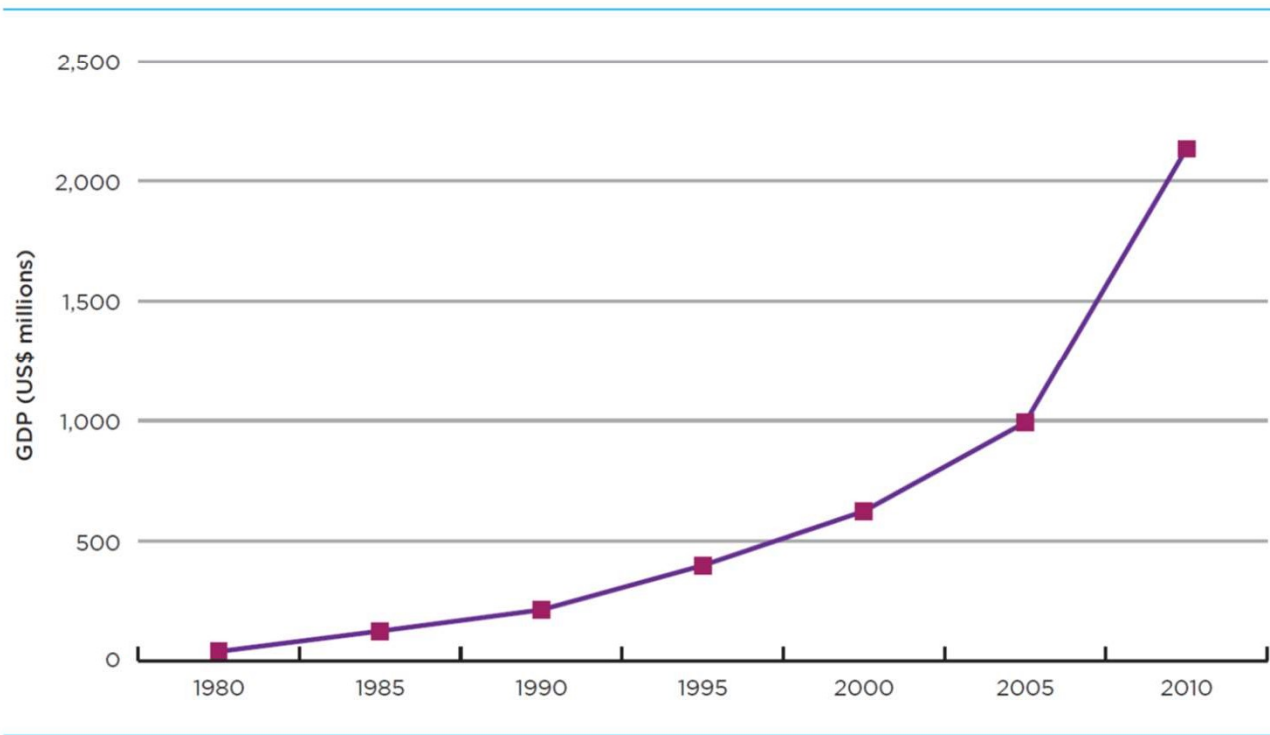


Asia-Pacific region awareness creation workshop to maximize the positive and minimize the negative impacts of implementation of Climate Change response measures ,  
27-29 August, Paradise Island Resort, Maldives

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Ministry of Environment  
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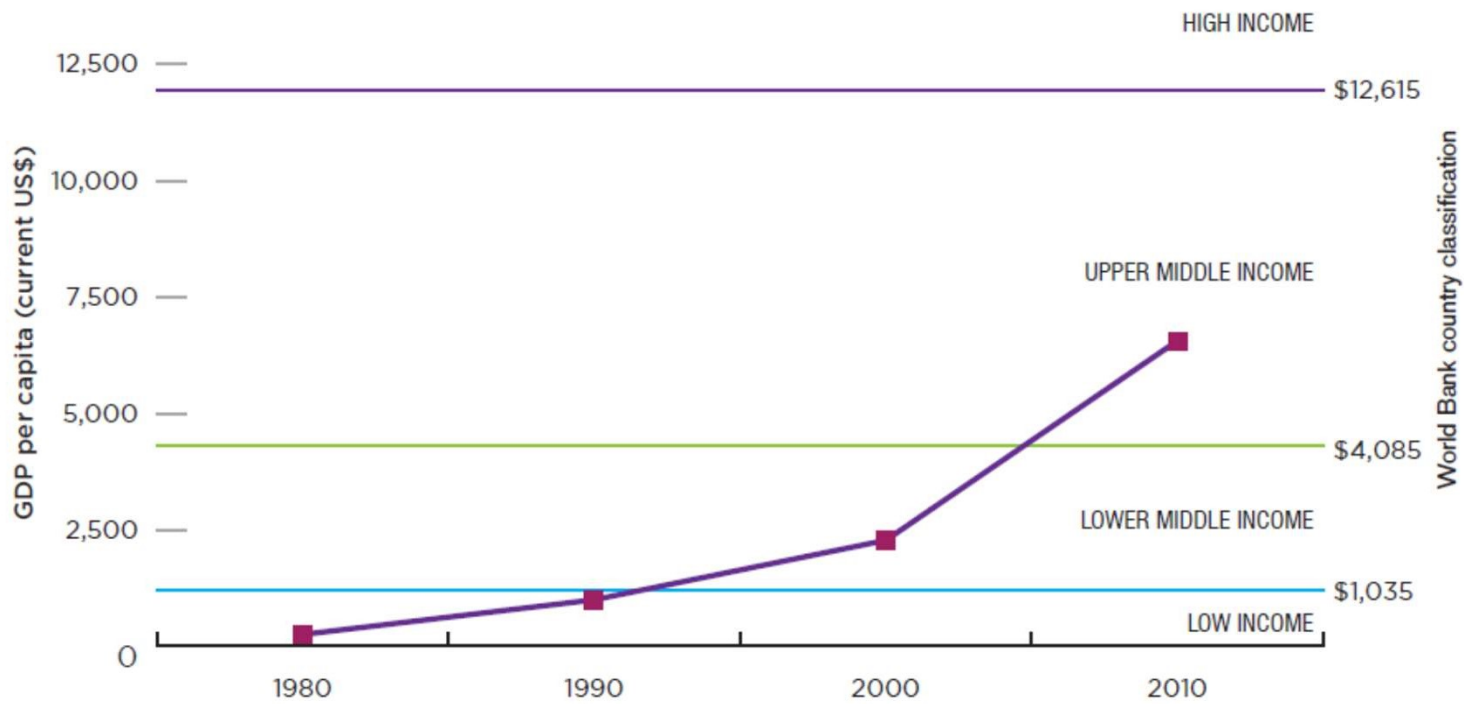


Where do we stand ?



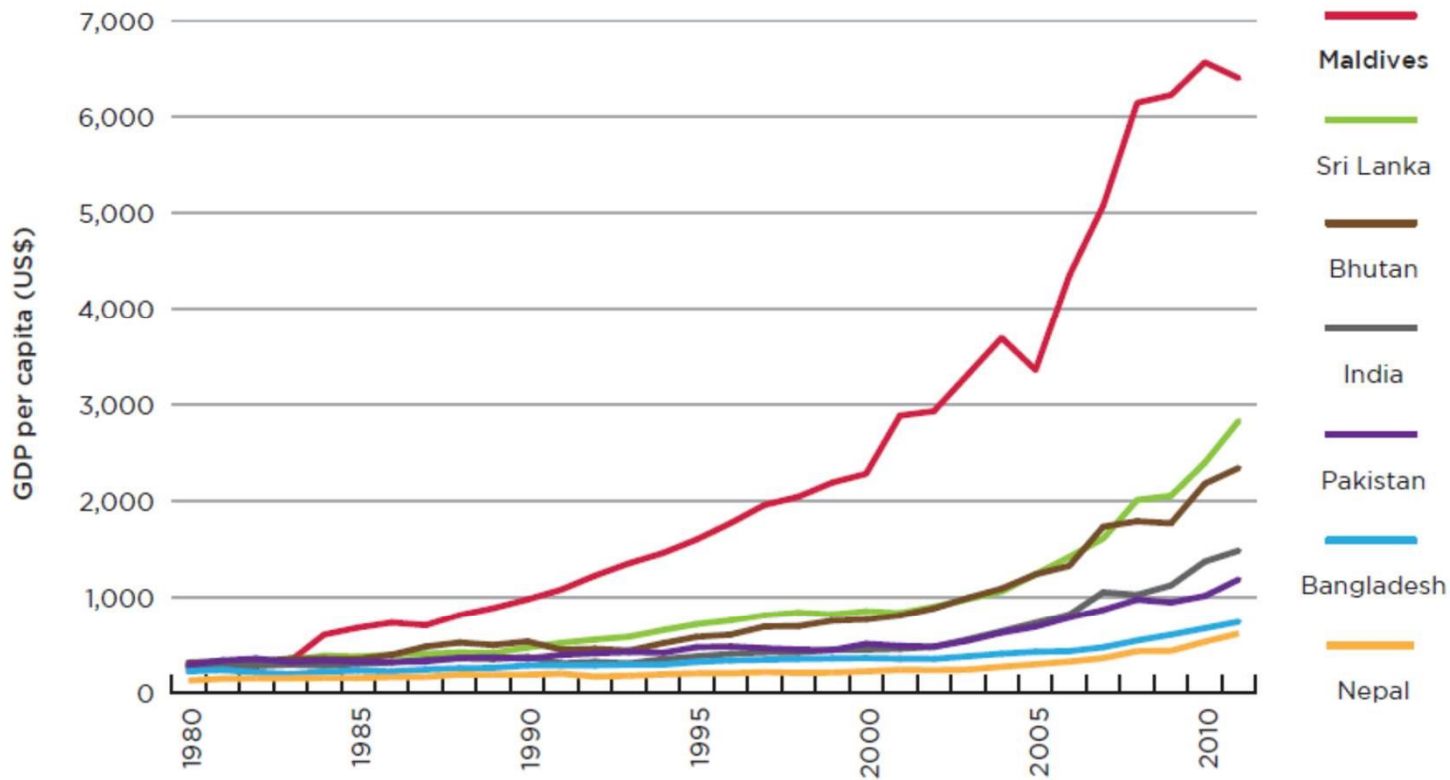
Source: Adapted from World Bank 2013\*

- GDP U\$ 42 mill., 1980- population 155,100
- 3 decades
- Now a U\$ 2.2 bill. economy with 350,759 population



- GDP per capita, now > USD 6,000
- Upper middle income country

The Maldives per capita GDP growth compared to South Asian countries 1980 - 2010

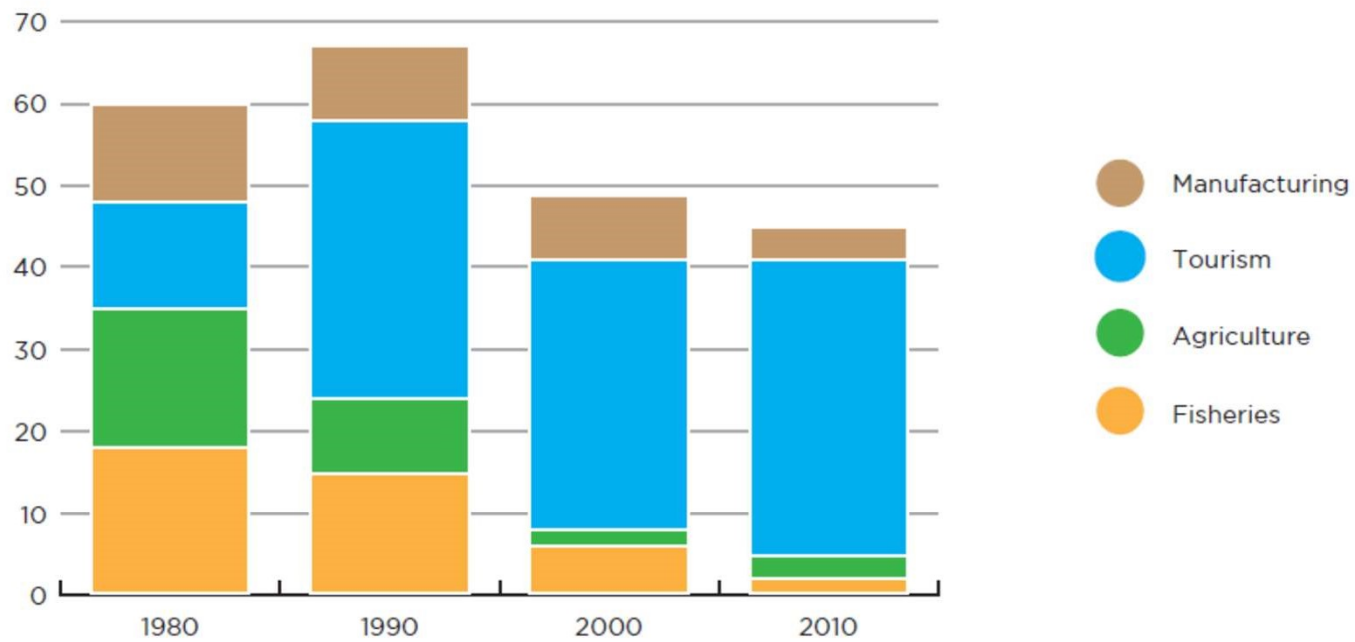


- High compared to the regional
- High disparity



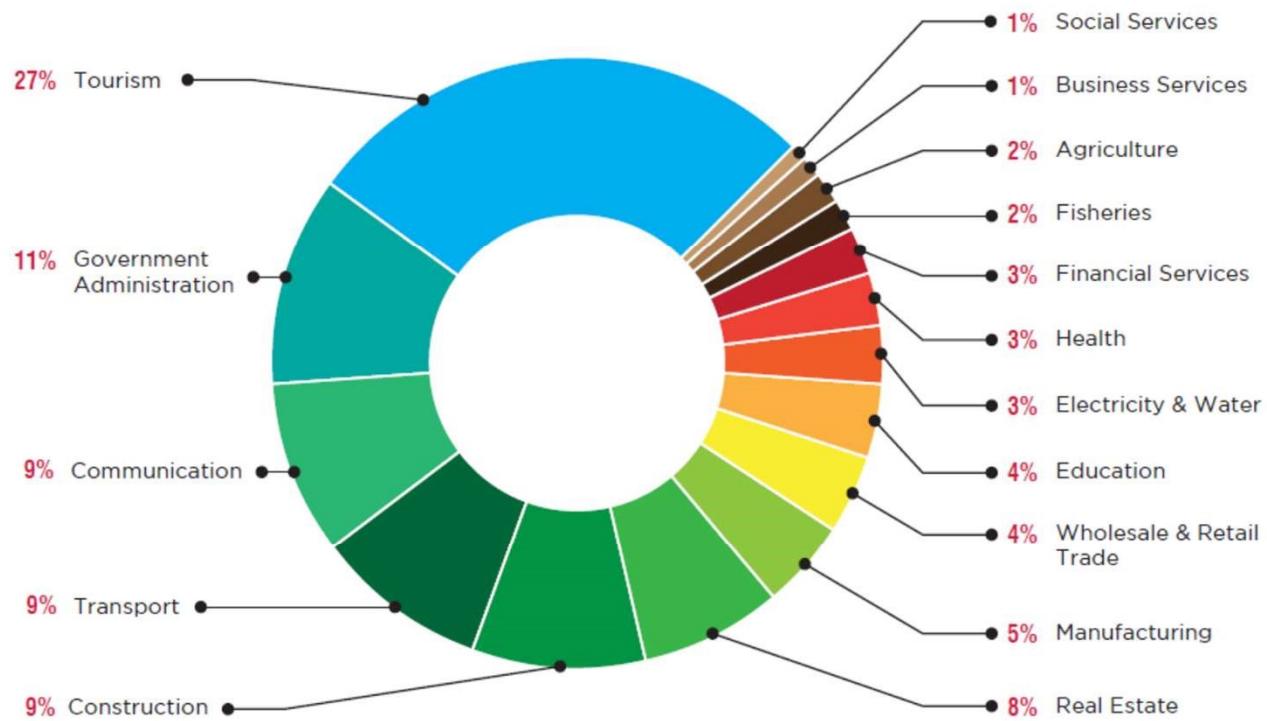
What is driving this?

Change in percentage share of GDP by key sectors 1980-2010



- Narrow economic base
- Tourism dominating
- Over dependent now

Percentage shares of GDP by sectors 2012 (at 2003 constant prices)



- Now 27% of the GDP share





What are the commodities ?



# Beach Bungulows



Water villas



Under water restaurants



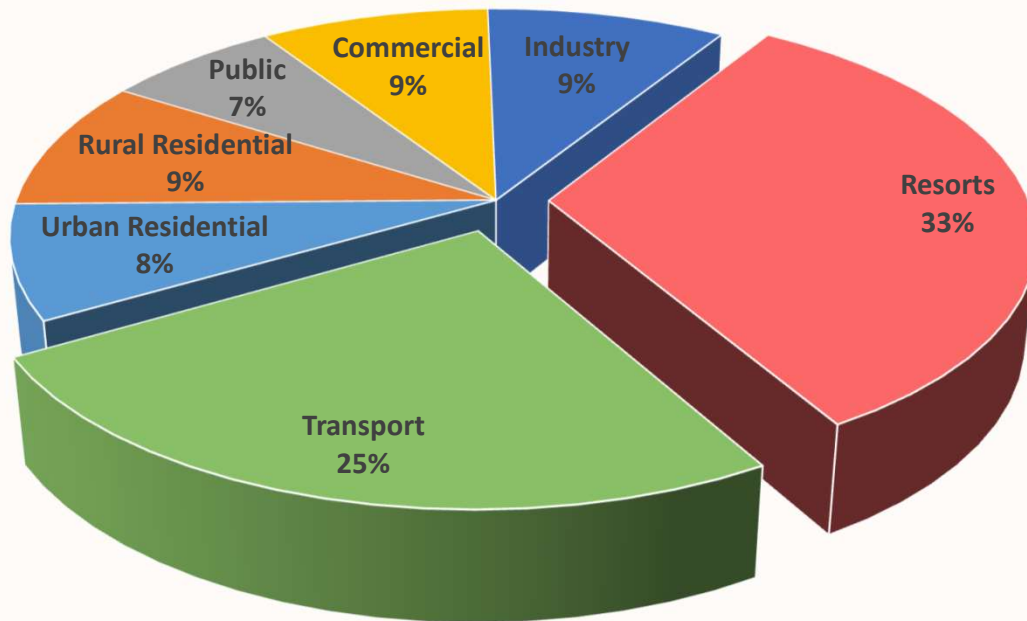
Beaches and crystal  
clear waters



A different world

What are the implications

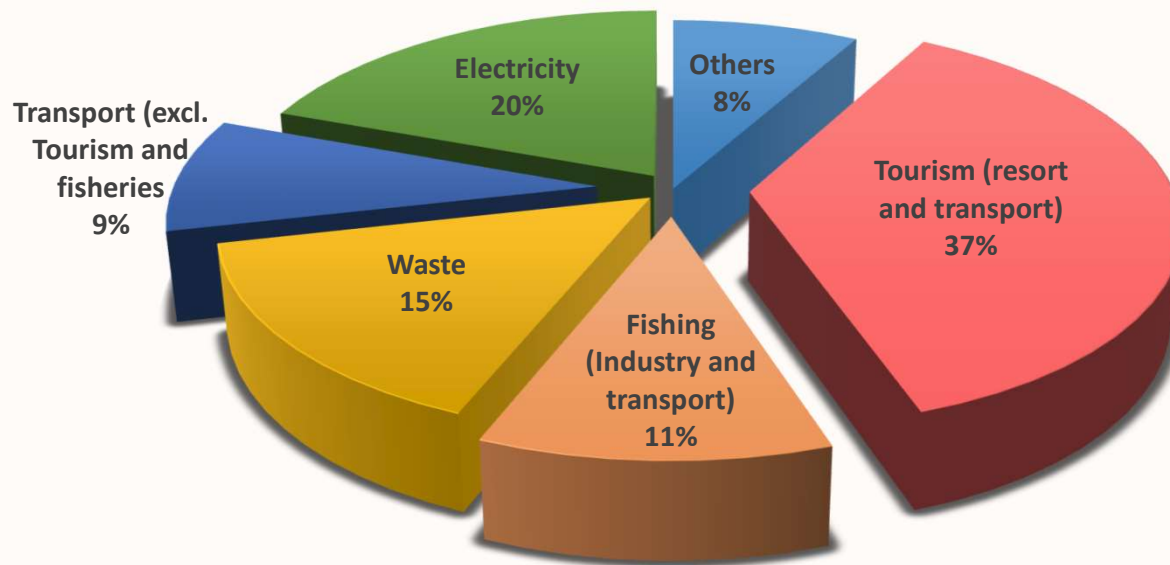
# Energy consumption by sectors



- Energy consumption by tourism sector is high
- Power use, transportation, leisure activities
- Increase in number of airports
- Worlds largest sea plane fleet



# GHG contributions



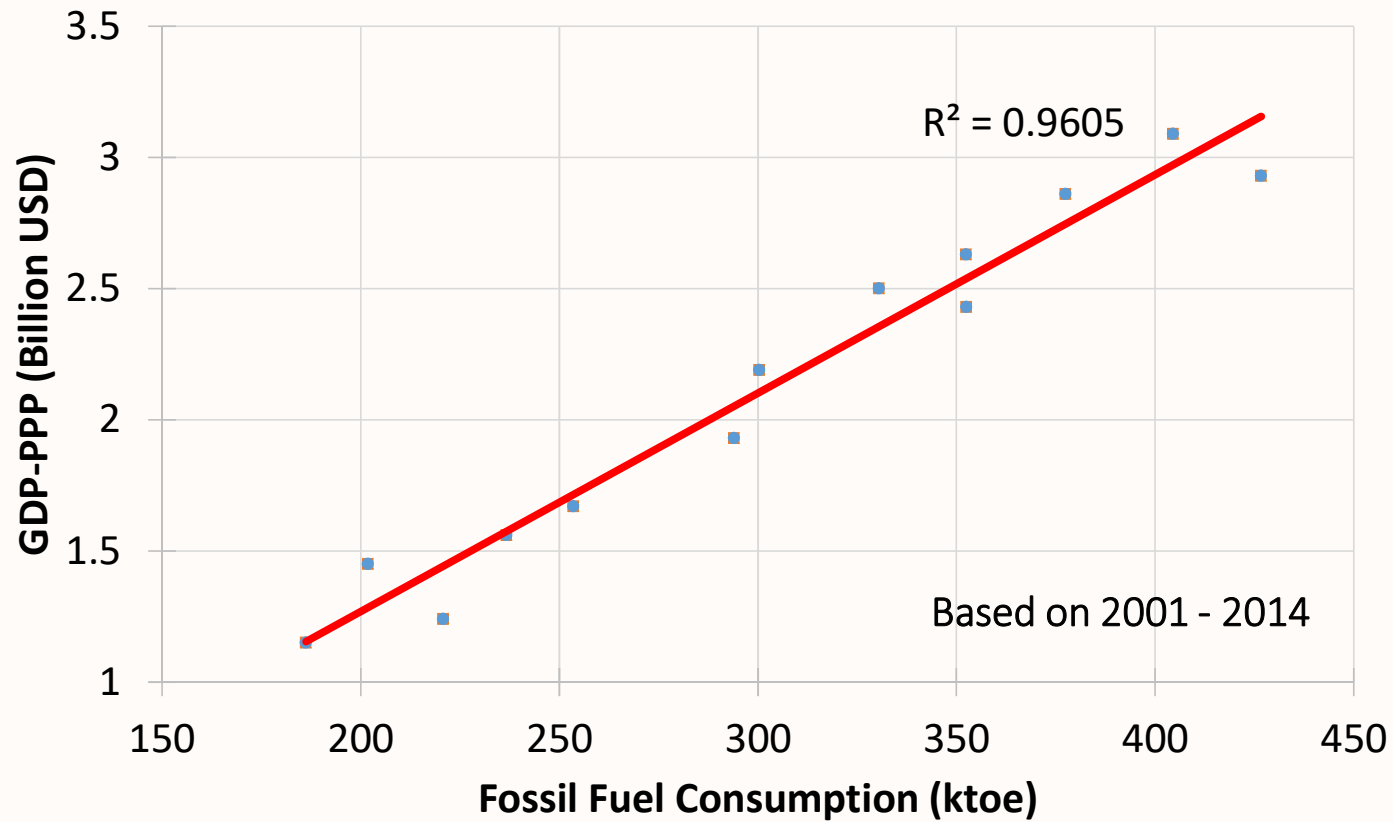
- Others
- Tourism (resort and transport)
- Fishing (Industry and transport)
- Waste
- Transport (excl. Tourism and fisheries)
- Electricity

- 1.1 million tonnes of CO<sub>2</sub> – 2009
- 2 million tonnes by 2020
- Tourism and transport – Main
- Solely fossil fuel based
- 0.003% of the global share

Petroleum product imports 2000-2012



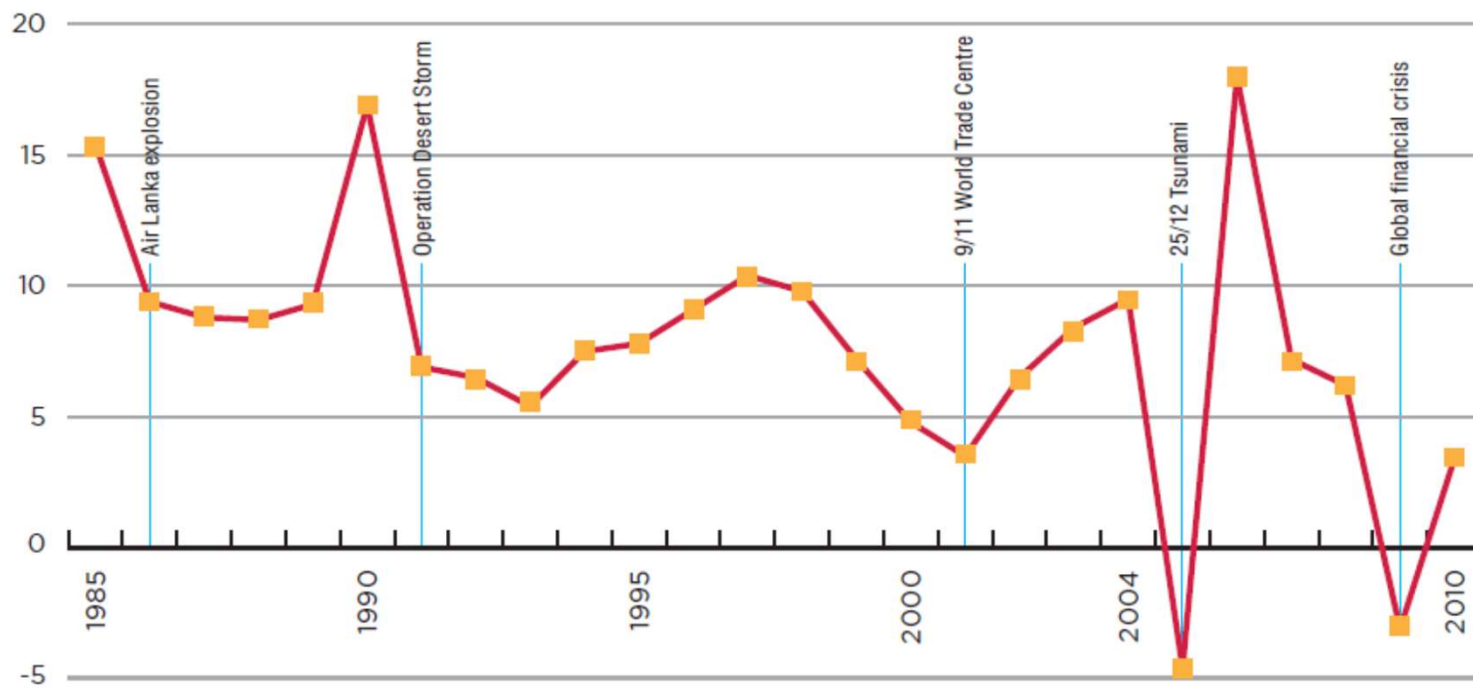
# Strong bond !!!





How vulnerable ?

Real GDP growth at 1995 constant prices 1985-2010

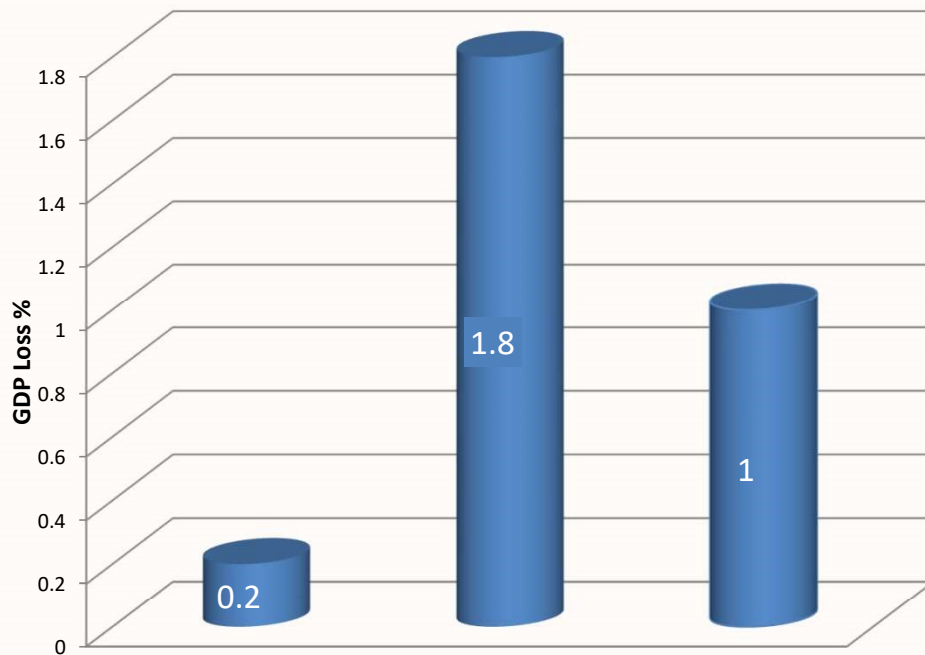


- Vulnerable to external shocks and natural disasters

# What are the drawbacks

- The main contribution to the economy is still tourism
- Heavy dependence on fossil fuel
  - Energy consumption
  - Transportation – sea and aviation
- Sensitive to international aviation taxes or carbon taxes
  - Will impact the travelers
  - All the services are dependent on fuel
- Need to maintain the world class quality of standard
  - Some RE technology compromise the aesthetics
  - Small islands with limited space
- No proven and feasible technology on the bench yet
  - Technology still in R&D
  - Some available technologies not applicable to the environment
  - Aviation – still no proven solution

# GDP Losses



- The International center for Trade and Sustainable Development (ICTSD) 2010
- Study on trade implications of regulating emissions from international transport
- A levy of US\$ 15-30 per ton of CO<sub>2</sub> on international maritime causes GDP losses in the range 0.2-1.8 percent for Small Islands Developing states (SIDs) due to reduction of maritime trade between these countries and EU alone.
- Response measures by non-EU, GDP losses will be tremendous
- What if similar levy is put on aviation and impact on tourism dependent economies?

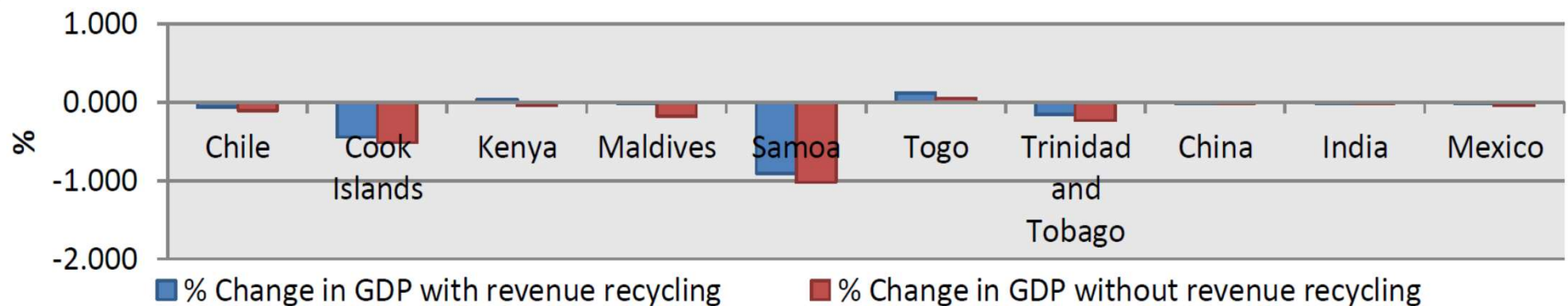
# Modelling Assessments

- Assess impacts on developing countries of measures to address emissions in the international aviation and shipping sectors - by Climate Strategies, 2013
- Aimed: assesses the impacts of the proposed MBMs (Market Based Measures) on the international transport sectors, (ICAO & IMO) on the global economy and economies of selected developing countries. Impacts of five market-based measures – two for shipping, two for the aviation sectors and one unilateral policy
  - The International Fund for Greenhouse Gas emissions from ships (GHG Fund)
  - The Global Emission Trading System for International Shipping (GETS)
  - Global Mandatory Offsetting complemented by a Revenue Generation Mechanism (GMO)
  - Global Emissions Trading System for International Aviation (GETS)
  - European Union Emissions Trading System (EU ETS)
- Besides the European Union Emissions Trading System (EU ETS) for aviation, the proposals mentioned above have not been implemented and are still being developed. Therefore assumptions on MBM are used
- ICAO and IMO policies are based on equal treatment of all ships and aircraft, regardless of their nationality and despite nationally and regionally differentiated policies (e.g. on emissions or noise). In contrast, one of overarching principles of the UNFCCC, is that countries should act in accordance with their Common but Differentiated Responsibilities and respective capabilities,



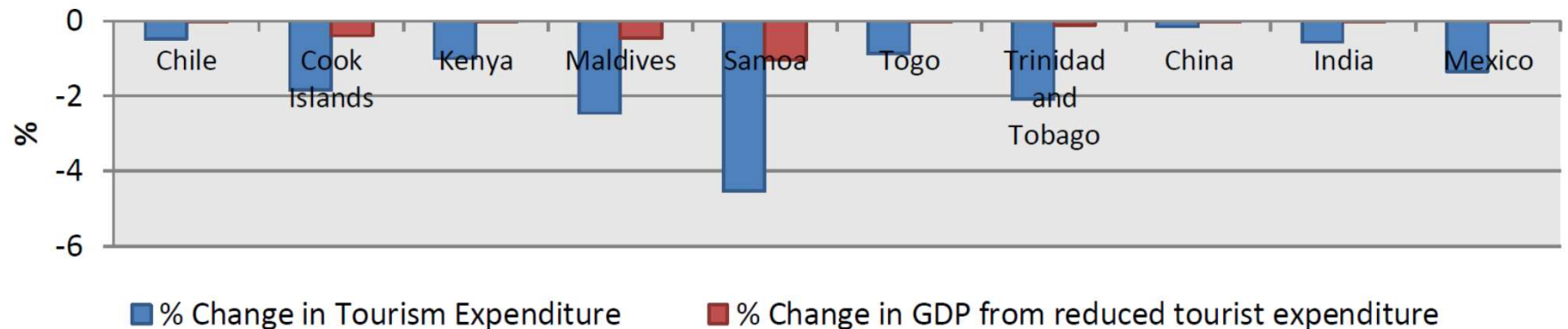
- MBMs will limit or reduce greenhouse gas emissions and consequently lower the costs of adapting to climate change
- MBMs will increase transport costs, which may cause an increase in import values and export costs, and a decrease in foreign tourism and associated receipts

***“Countries with a higher dependency on tourism and trade are likely to experience greater economic impacts. Some of these countries are small island developing states that are also vulnerable to climate change impacts”.***

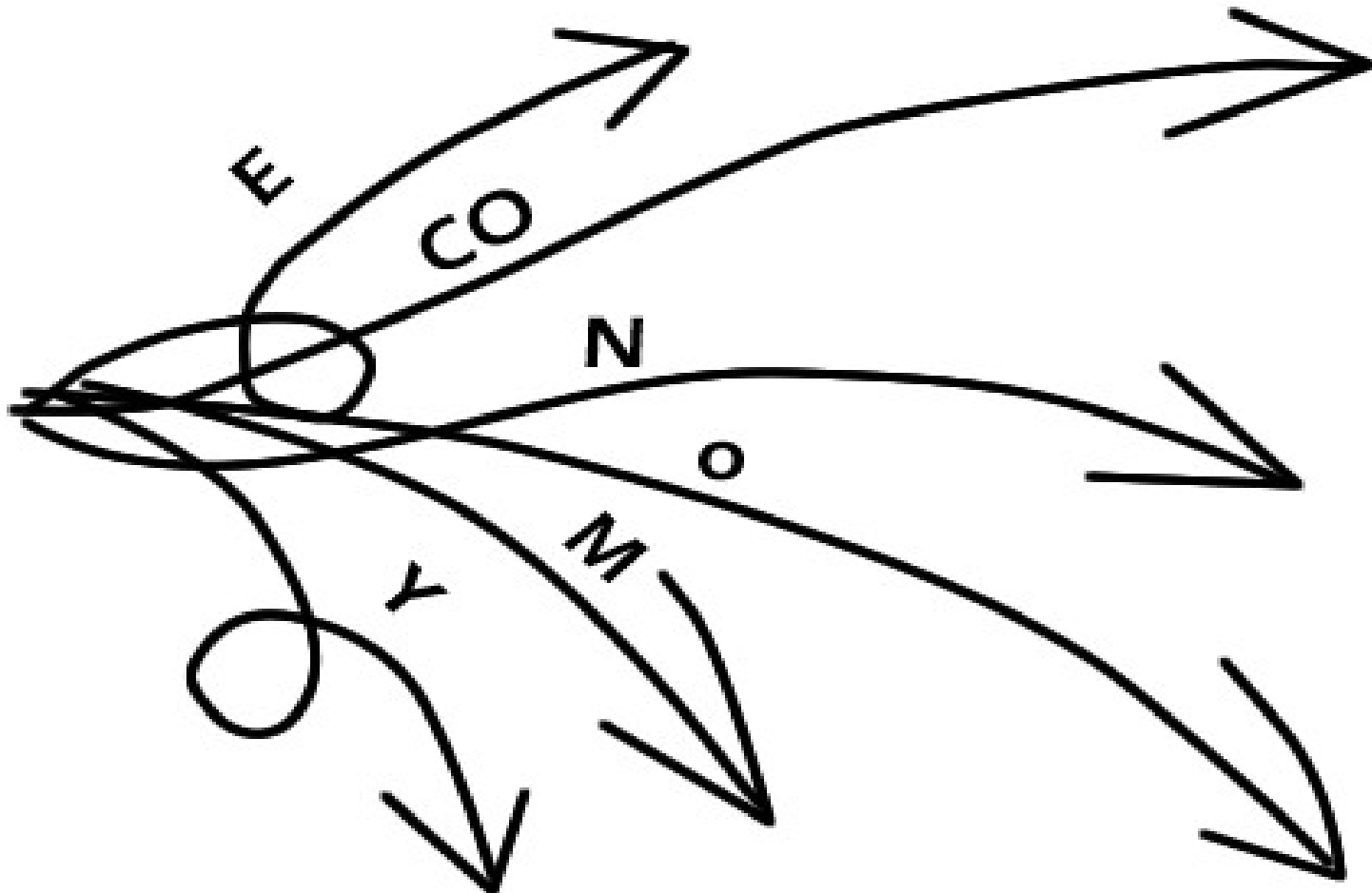


*Changes in GDP in 2025 due to a Global ETS for international shipping and aviation (100% auctioning, 100% cost pass through, \$30 (USD 2010) per tonne of CO<sub>2</sub>, revenues used to reduce social security taxes, impacts of CDM receipts are not considered)*

- By increasing the cost of emitting greenhouse gases, MBMs raise transport costs and are thus likely to impact on economies. The magnitude and direction of these impacts will depend on the trade and tourism intensity of an economy as well as on changes in relative prices due to carbon reduction policies
- The main factor influencing GDP reductions in small island states is the reduction in international tourist expenditure across these countries, driven by reduced numbers of tourists arriving by air in response to increases in flight costs and thus ticket prices



Changes in tourist expenditure and subsequent reductions in GDP due to the global emissions trading scheme for international aviation in 2025 (100% auctioning, 100% cost pass through and \$30 (2010\$) per tonne of CO2)



A possible remedy!!!

# Economic diversification



- Maximize export value from sustainable fisheries
  - Ensure ecological sustainability of tuna fishery
  - Invest in targeted mariculture



# Economic diversification



- Increase value added tuna exports
- Incentivize fisheries business
- Greater utilization of the EEZ



# Economic diversification



- Extended port facilities
  - Unique location in the Indian Ocean
  - Transshipment port
- Cruise liners
  - Develop yacht and cruise tourism infrastructure



# Many essential gaps to be filled

- Assessment of the impacts on the Maldives
- Proper use of economic modelling for further tune the policies and strategies
- Transfer of knowledge and capacity building



**Thank you !!!**