



**Trinity College Dublin**

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

## Green and Sustainable Coasts

Managing 'life on the edge' at a time of extreme environmental change

**Iris Möller**

Professor of Geography

moelleri@tcd.ie @imcoasts



Illustration by @tonixllobet



# Global Mean Sea Level

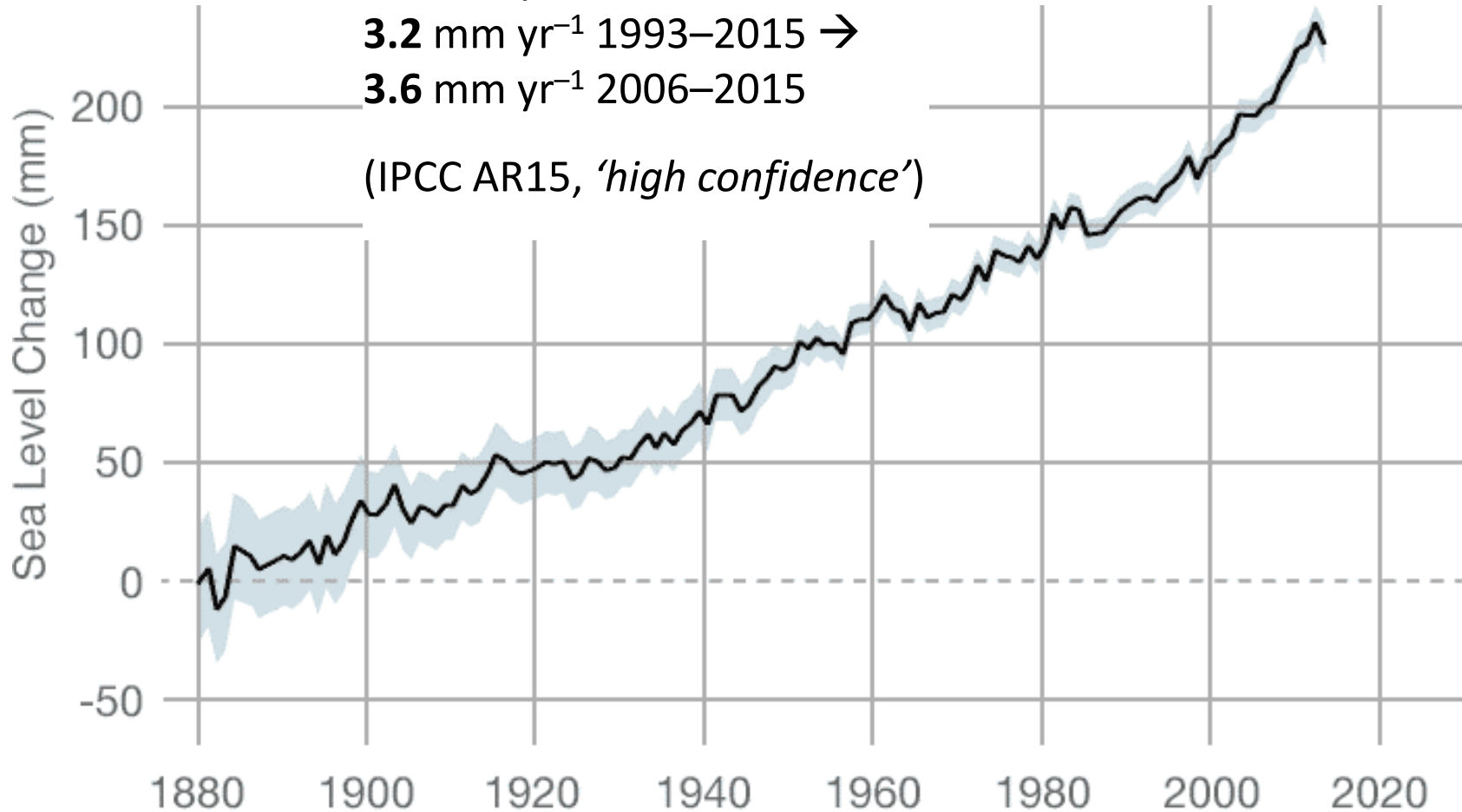
**1.4 mm yr<sup>-1</sup> 1901–1990 →**

**2.1 mm yr<sup>-1</sup> 1970–2015 →**

**3.2 mm yr<sup>-1</sup> 1993–2015 →**

**3.6 mm yr<sup>-1</sup> 2006–2015**

(IPCC AR15, 'high confidence')



# Human Drivers of Change

Economic priorities, short planning horizons, and a ‘control’ mindset?

“...more intense and frequent Extreme Sea Level events, together with trends in coastal development will increase expected annual flood damages by 2–3 orders of magnitude by 2100 (*high confidence*).”\*

→ Increased exposure and vulnerability to Sea Level Rise and Extreme Events (*very high confidence*\*)

\*Oppenheimer et al. 2019: Sea Level Rise and Implications for Low-Lying Islands, Coasts and Communities. In: IPCC SROCC.

by pellethe poet is licensed under CC BY 2.0



MARINE DRIVE, SCARBOROUGH.

Marine Drive,  
Scarborough (c.1928)

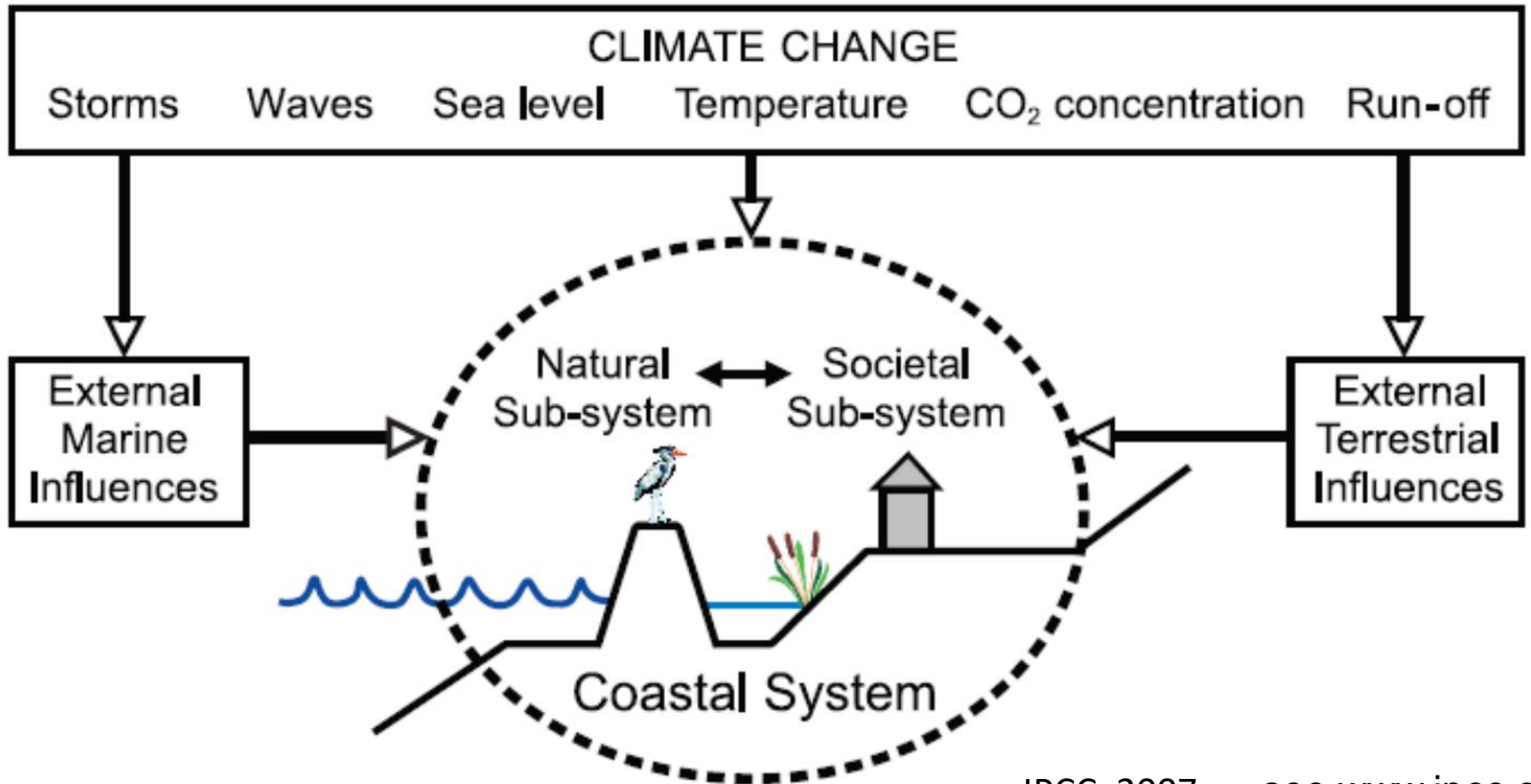
Edificio Costa del Sol,  
Pingueral, 2020  
(by [alvaroarriagada.com](http://alvaroarriagada.com),  
licensed under [CC](https://creativecommons.org/licenses/by/2.0/))





# Climate Change and the Coastal Sub-System

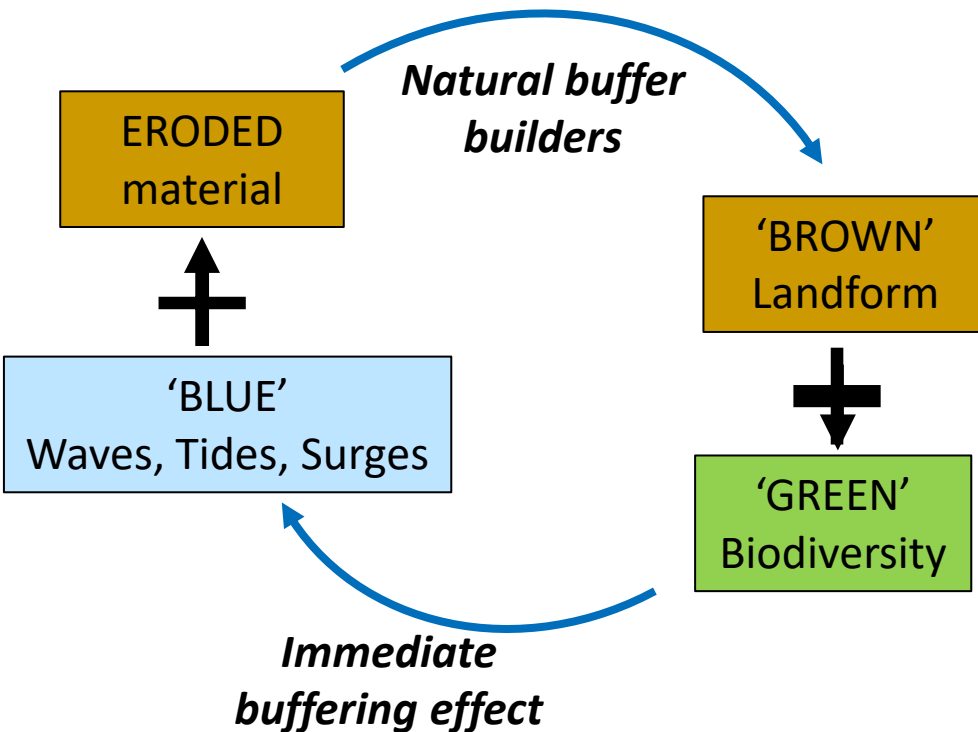
Dynamism and Complexity



IPCC, 2007 - – see [www.ipcc.ch](http://www.ipcc.ch)

# Turning Threat into Opportunity

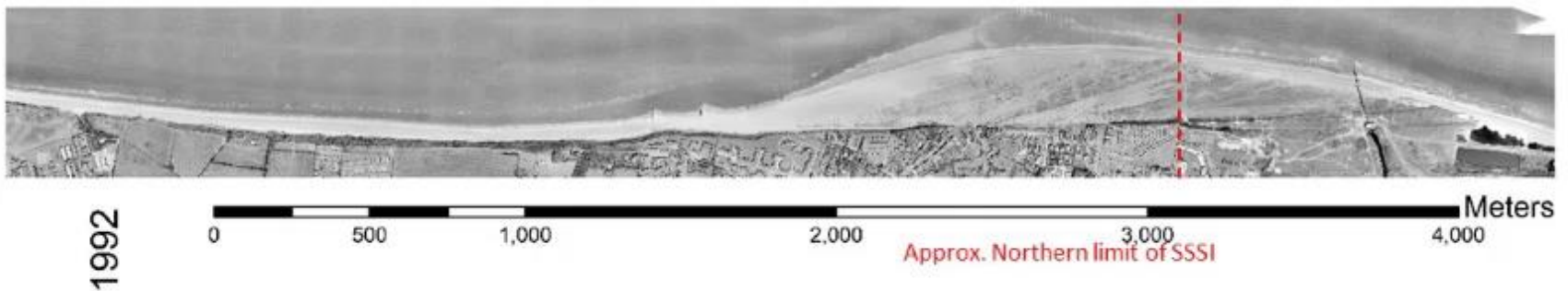
Biodiversity and Landforms: Interconnected and **Dependent on Dynamism**



## Coastal Change in Action:

**Benacre Ness migrating out of conservation site boundaries**

**1992-2016**







1945

# Green Coasts

Society / Economy

Natural Processes

Opportunities

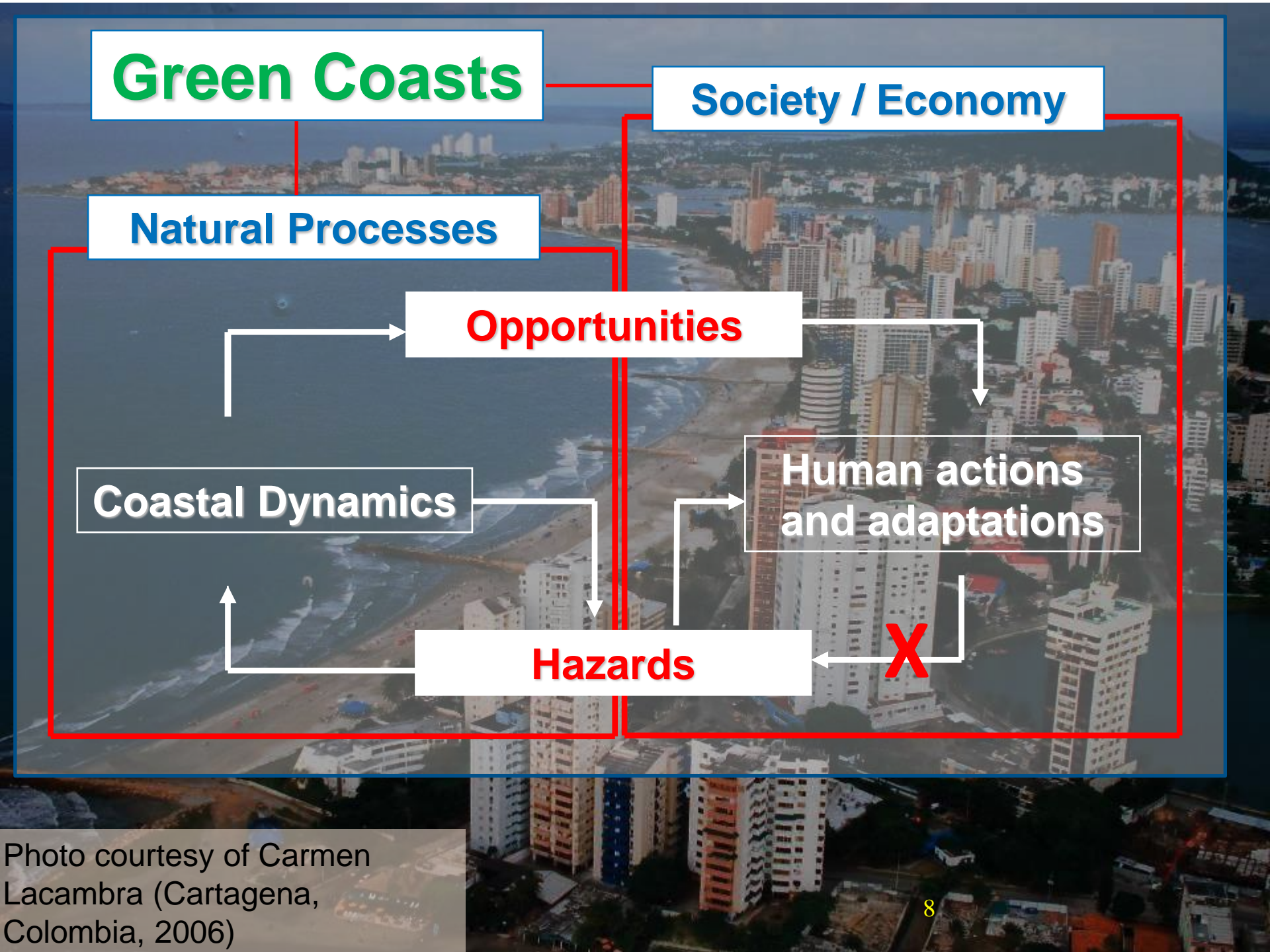
Coastal Dynamics

Human actions and adaptations

Hazards

X

Photo courtesy of Carmen Lacambra (Cartagena, Colombia, 2006)







**Trinity College Dublin**  
Coláiste na Tríonóide, Baile Átha Cliath  
The University of Dublin



# Thank You

Illustration by @tonixllobet

