

# **DISASTER RISK MANAGEMENT**

Universita di Roma Tor Vergata  
B.A. Global Governance

Spring 2022

Session 3 – Wednesday April 27, 2022

Instructor: Erdem Ergin

# Hazards

Definition of hazard

Types of hazard

Make your own hazard map

City

Activities

Personal

## GG 22 Priority Hazards

### CITY

Earthquake

Heatwave

Flood

Robbery

Rape/Assault

Catcalling/Gender discrimination

Racism

### ACTIVITY

Anxiety/Stress

Road accident

Harassment

### GENETICS

Depression

Allergies

Cancer/Heart

# **Resilience**

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

# Resilience

Type 1 = Go back to normal

**Type 1 resilience** models systems as close to a stable steady state.

Resilience is thus defined through **the speed of return** to the steady state after a perturbation. For the economy, this would mean a full recovery of activities and return to the pre-disturbance state. For a business, it means being back with same products and clients.

|               |                        |                     |
|---------------|------------------------|---------------------|
| <b>Type 1</b> | Efficiency of function | Single stable state |
|---------------|------------------------|---------------------|

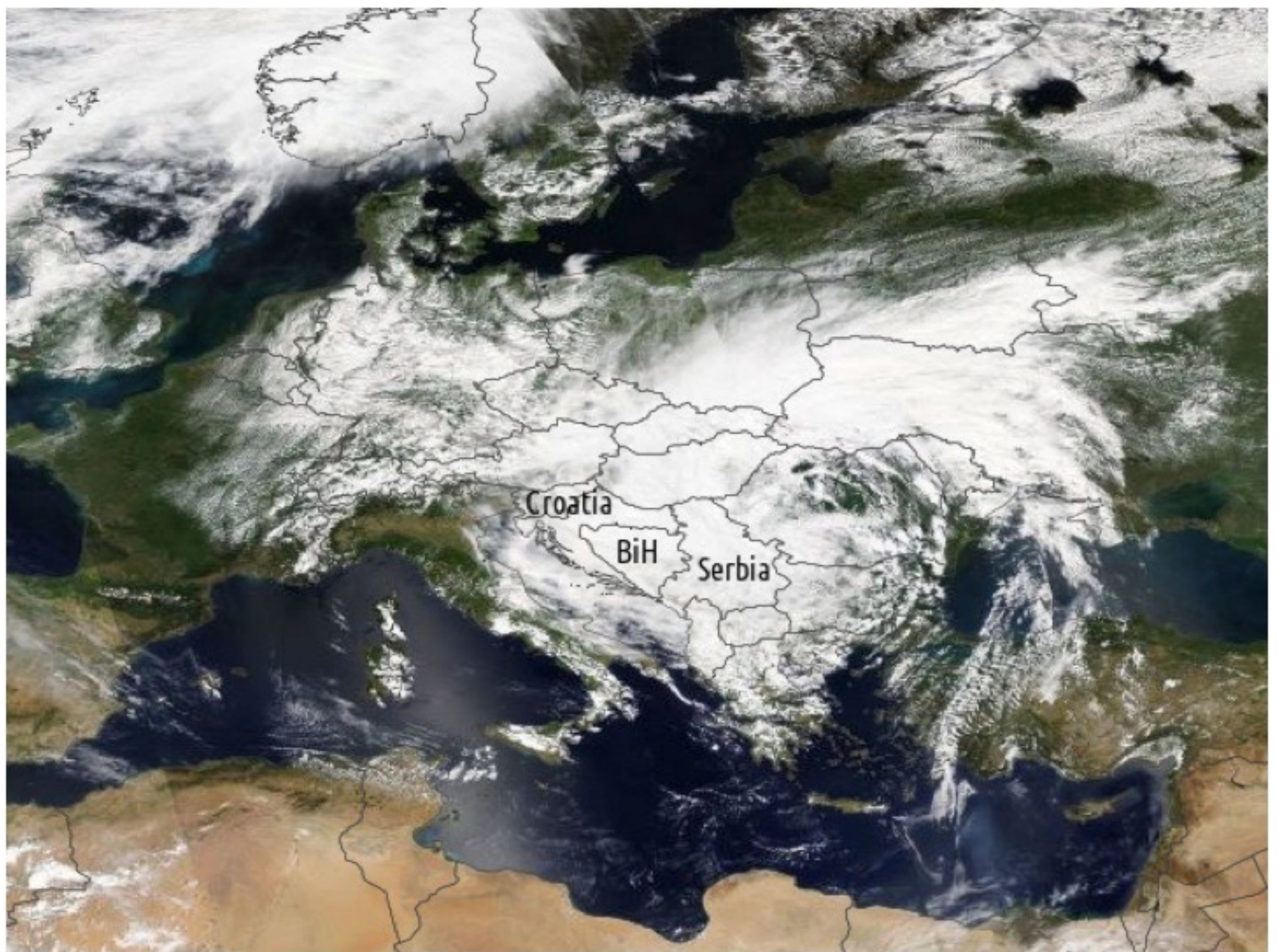
# Resilience

Type 2 = Adapt to new normal

**Type 2 resilience** focuses on conditions far away from steady states and look for how instability can alter the behavior regime of a system towards another stability domain.

Resilience is **the magnitude of disturbance** that the system can absorb while preserving the same controlling variables and process. For the economy, this would mean to explore alternative activities and modes of operations while achieving similar productivity, growth, employment, etc. goals.

|               |                       |                             |
|---------------|-----------------------|-----------------------------|
| <b>Type 2</b> | Existence of function | Range of states & emergence |
|---------------|-----------------------|-----------------------------|







2-3 times normal rainfall

Rivers went 4-7m high



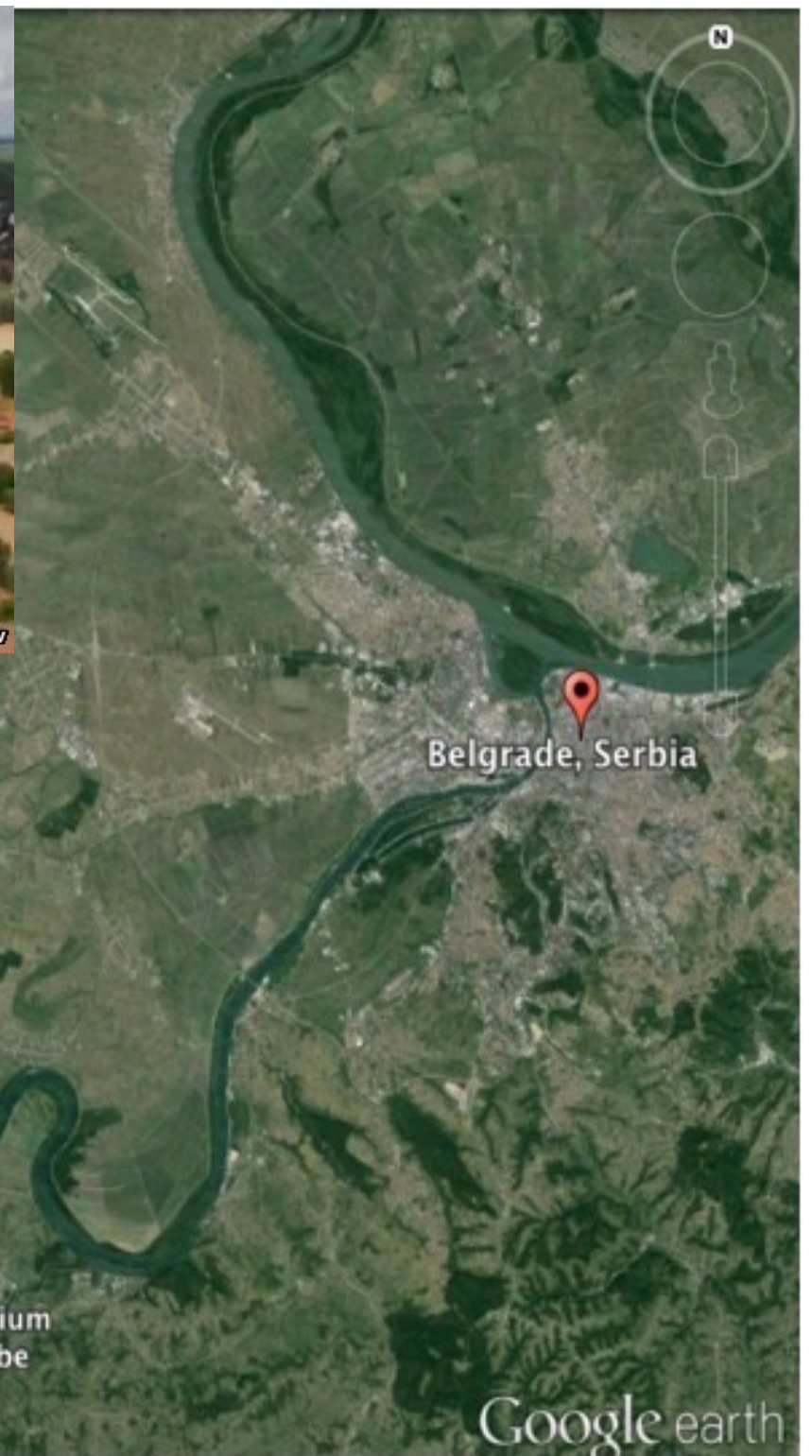


Image © 2014 CNES / Astrium  
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# **STRUCTURAL CHANGES**

# Fast Changing World

**Change is not new but the pace and the quality is. There are key trends to follow as they impact society as a whole, they are structural changes:**

Urbanization and Infrastructure

Demographic changes

Industrial to Creative economy

Technology

Climate Change













© Photo: Michel Matera, PNUD

**LES BIDONVILLES, HABITAT PRÉCAIRE ET HAUTE DENSITÉ DE POPULATION : DES FACTEURS DE VULNÉRABILITÉ CRITIQUES**













## Change 2 – Demographic change\*

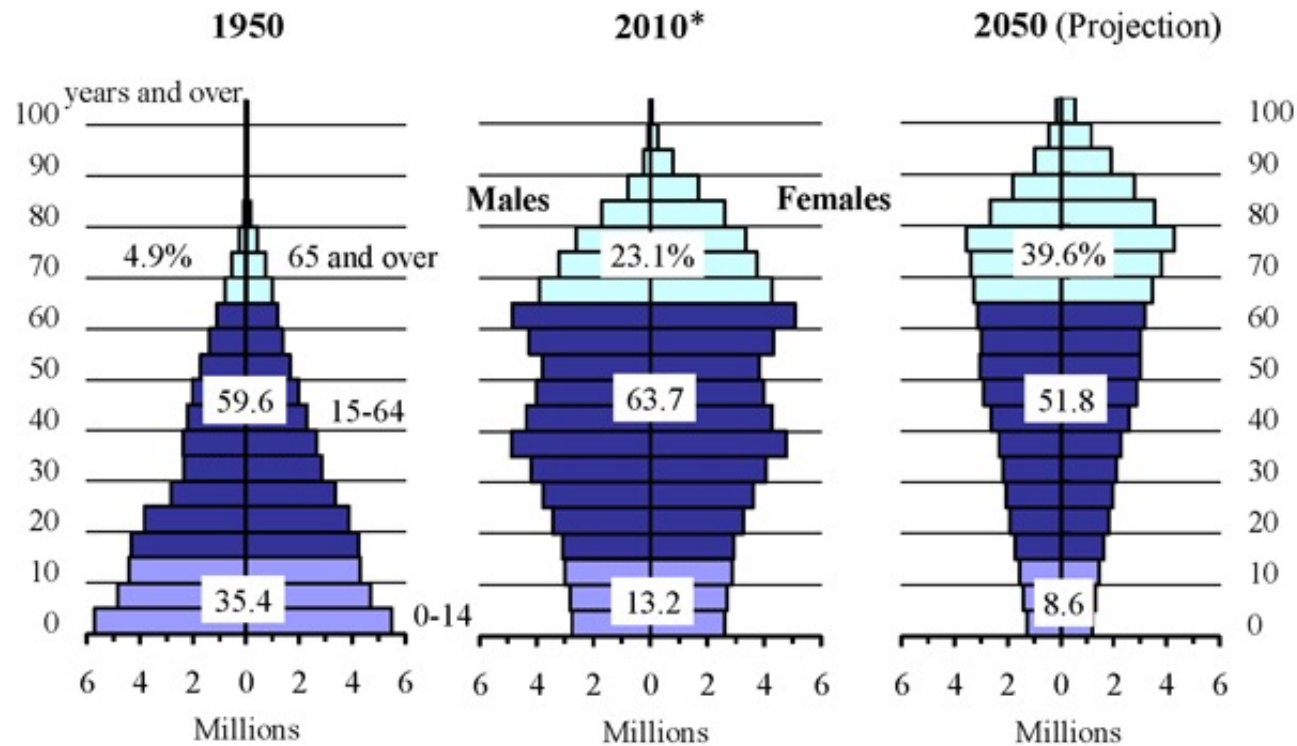
### Percentage of over-65s in selected countries/regions

| Country/region           | Percentage of population |
|--------------------------|--------------------------|
| Japan                    | 27                       |
| Italy                    | 23                       |
| European Union           | 19.7                     |
| US                       | 15.4                     |
| Russia                   | 14.1                     |
| China                    | 10.6                     |
| Brazil                   | 8.5                      |
| Turkey                   | 8.15                     |
| Latin America/Caribbean  | 8                        |
| India                    | 5.9                      |
| Iran                     | 5.4                      |
| Indonesia                | 5.3                      |
| Middle East/North Africa | 4.9                      |
| Sub-Saharan Africa       | 3                        |

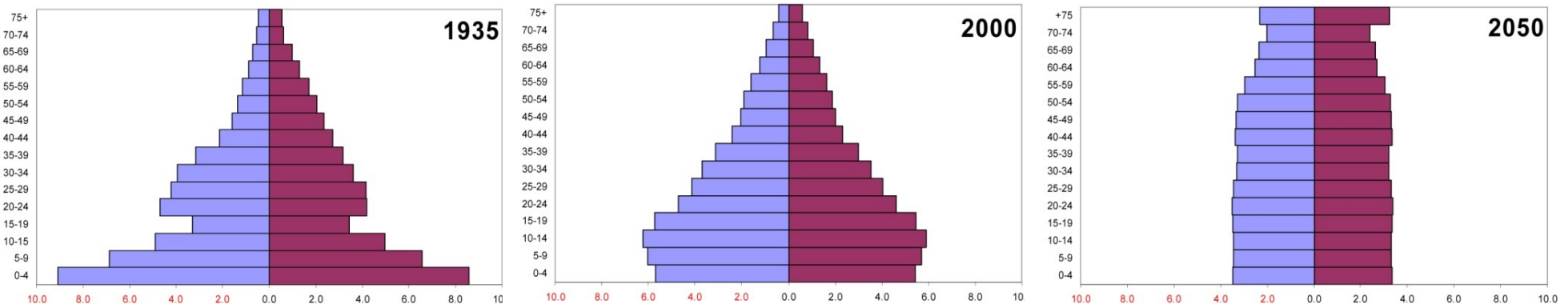
Source: UN Population Division/World Bank



## Change 2 – Demographic change\*



Japan vs Turkey, both will reach a population of 95M by 2050.  
Japan will decline from 120M and Turkey grow from 80M





## Change 2 – Demographic change\*

### World Bank Data

|      | Fertility rate | Life Expectancy |
|------|----------------|-----------------|
| 1960 | 5              | 52              |
| 2017 | 2.4            | 72              |

Demography impacts on every single aspect of our lives – just look out of your window at the people on the streets, the houses, the traffic, the consumption. It is all driven by demography,” George Leeson, director of the Oxford Institute of Population Ageing

## **Change 2 – Demographic change\***

Why less children?

Mostly linked to economic affluence – child mortality rates are lower, birth control is easily accessible and raising children can be relatively expensive.

Japan economy to contract by 25% in the next 40 years.

China reviewed its “one-child policy” in 2015 and in 2018 signalled an end to birth restrictions overall by next year. China recorded 15.2 million births in 2018, the lowest number in more than 60 years.

Chinese academics attributed the drop to a decline in the population of women of reproductive age, and to families putting off plans to have children for financial reasons, especially in families with more educated women reluctant to play the traditional role of main carer.

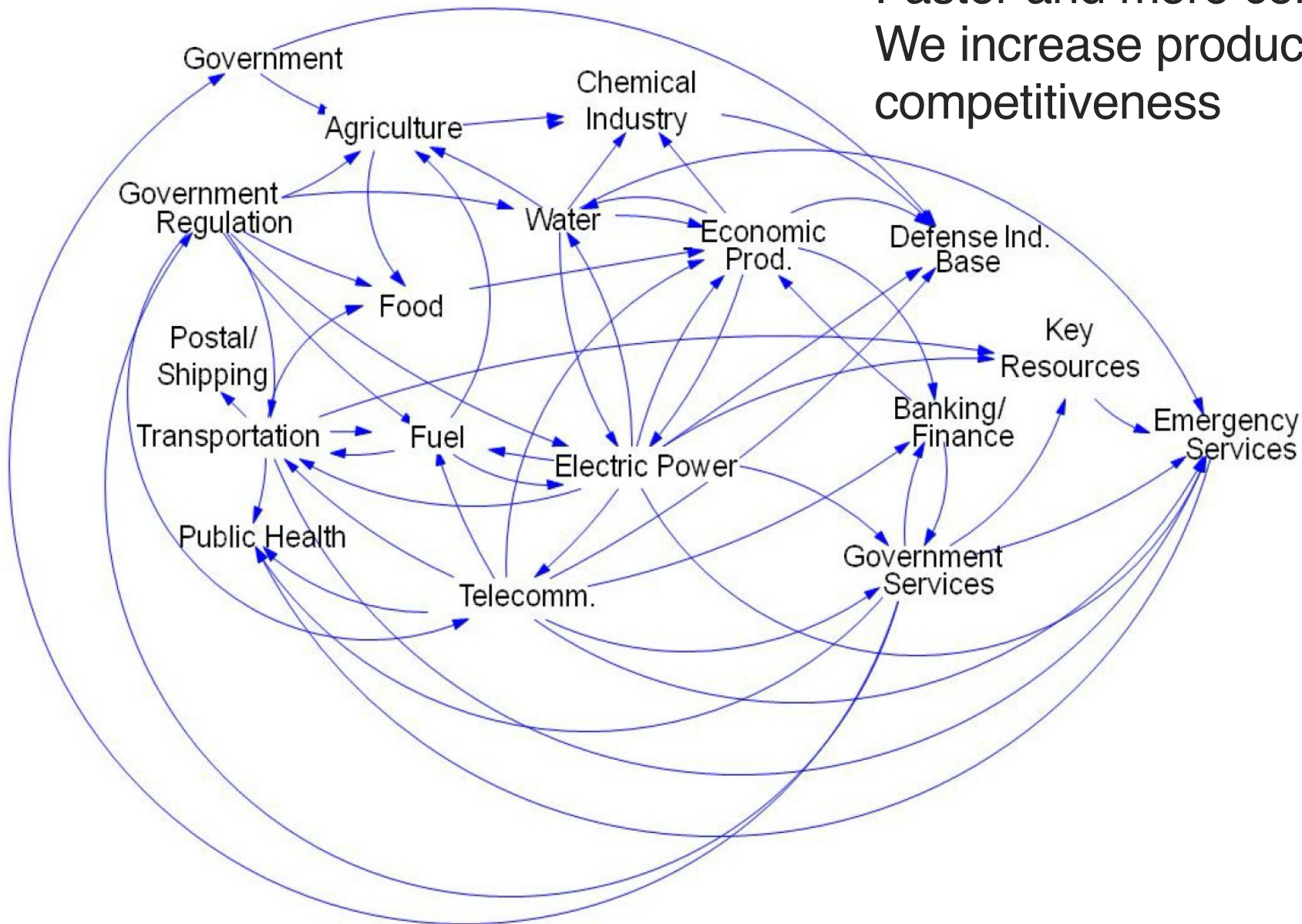
# **Change 3 – Industrial to Creative Economy\***

## **Suggested Watch**

Ted Talk – Sir Ken Robinson “Do Schools kill Creativity?”

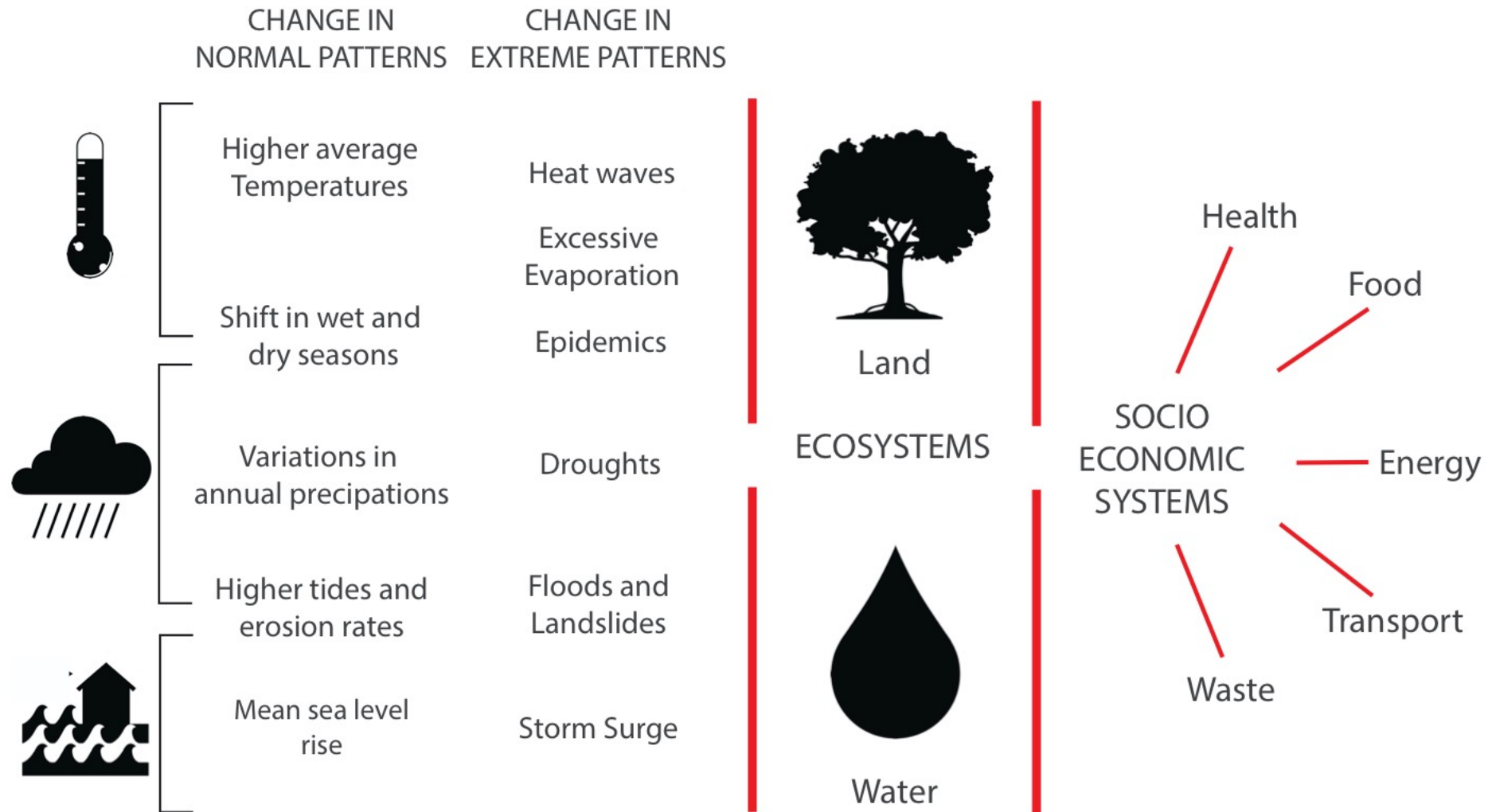
## Change 4 – Technology\*

Faster and more connected,  
We increase productivity and  
competitiveness





# Change 5 – Climate\*



# 5 Structural Changes

## Urbanization and Infrastructure

In 2008, 50% of world population started living in cities.

Infrastructure construction expected to boom between 2010-2030

## Demographic changes

Age group 65+ is the fastest increasing segment in many countries

General slowing down of child/woman and improvement of health

## Industrial to Creative economy

Shift of industrial economy towards emerging and developing countries

Higher profits in unique, customized, innovative products

## Technology

Increasing pace of change of technological novelties

May increase further the wealth/well being gap among groups/countries

## Climate Change

The pattern of the climate in terms of mean and extreme are changing.

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