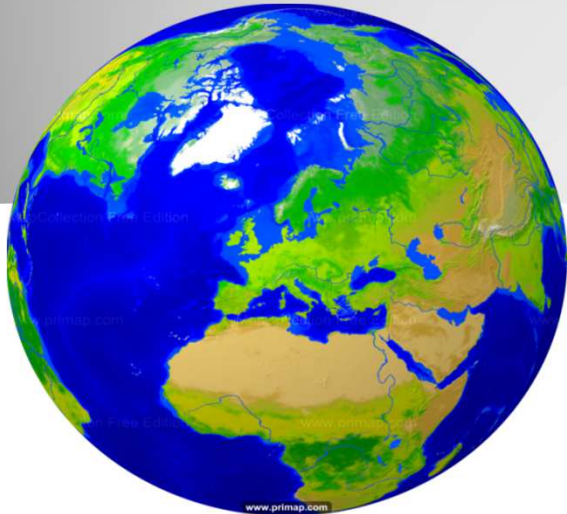


# RECONCEPTUALISATION AND STRATEGIC ADOPTION OF SUSTAINABLE DEVELOPMENT: SERBIAN CASE – YESTERDAY, TODAY AND TOMORROW



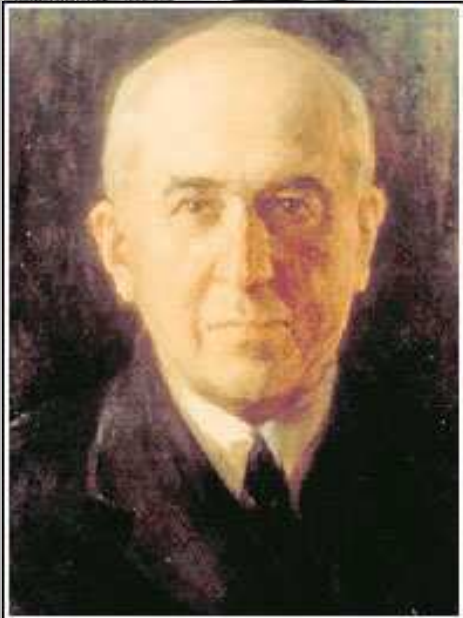
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Energy technologies and economic development  
N. Tesla – our energy scientist progress  
metaphor – picture up

But:

- No slowdown of energy demand and no lower material intensity in general  
Sustainable development is more oriented to CO2 reduction in energy sector, and climate changes prevention than to any other action or process... Is it enough?
- Milutin Milankovic, down – theory of long-term climate change: „The Canon of the Earth’s Insolation” which characterizes all the planets of the Solar system  
- theoretical explanation of the changes caused by the astronomical changes in the position of the Earth in relation to the Sun; today known as Milankovic cycles



**CLIMATE CHANGE: BIG CONTROVERSY**

- **Theoretical controversy and criticism:**
  - from the position of market freedom – the imposed concept blocks the development (Vaclav Klaus)
  - from the position of “excessive development” (A. Guidens)
- For the implementation of SD policy it is necessary to overcome misunderstandings
- **Face the key challenges:** climate change, terrorism, saber threats, escalations of regional conflicts which can eventually trigger world war, the risks of globalization, the growth of inequality, demographic changes, information pollution and manipulation, technological risks (next slide)

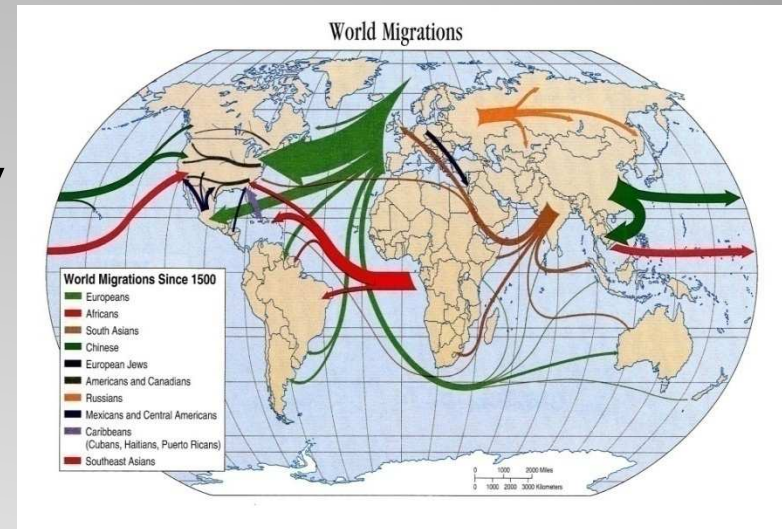
## Theory and practice of Sustainable Development: new challenges

- *Banqiao dam disaster (China, 1975 - 231.000 dead)*
- *despite the "100% safety"/ like Titanic*



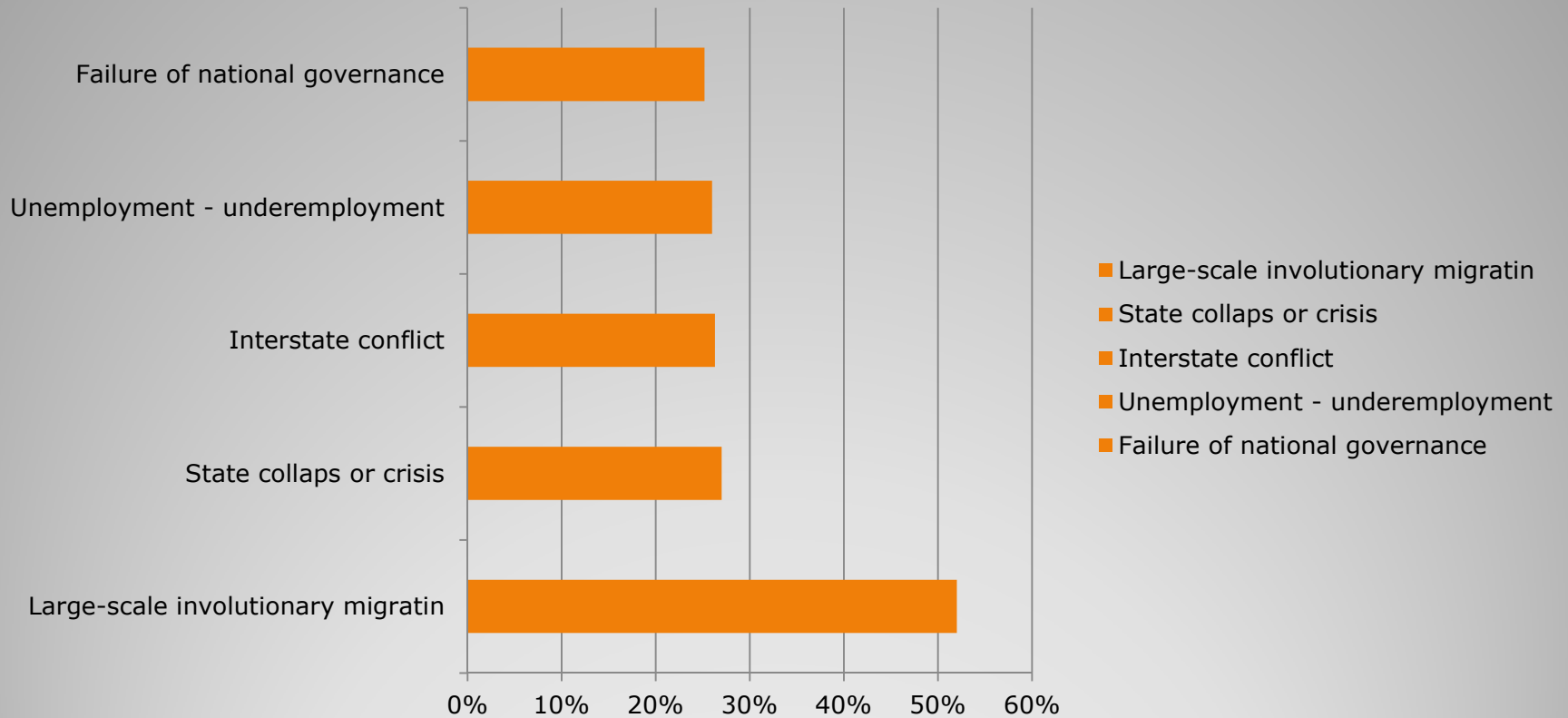
***Technological risks - from Titanic to Banqiao. The connection between disasters and climate – all the risks rising***

- **A hazard** is a pattern of behavior or an appearance
- **A risk** – a chance or probability of a bad outcome
- **Types of risk:** natural, technological, social...
- Evaluation of risk in today's world, according to polls:
- Economic risks are dominate in the short-term estimations; and ecological and development risks are dominant in the long-term: water supply, bad climate policy, etc.
- The Picture up: uncontrolled global migration risks



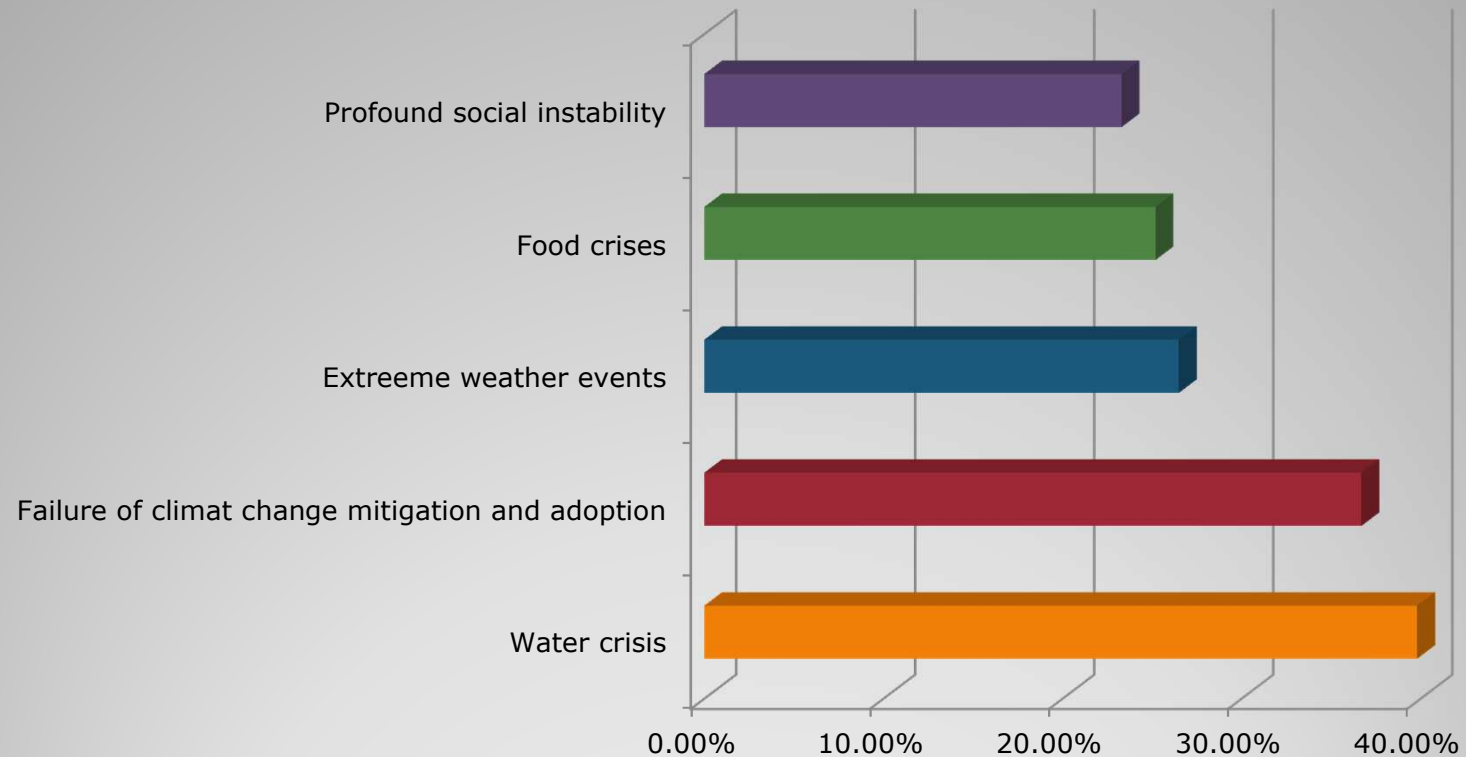
## The terms of risk and hazard

## RISKS for the next 18 months



**The Top 5 Global Risks of Highest Concern for the next 18 months WEF**

## RISK for the next 10 years



**WEF - The Top Five Global Risks of Highest Concern for the Next 10 Years**



action of natural forces,  
volcanoes, fires, floods,  
earthquakes, rockfalls, landslides,

...  
(e.g. volcanoes), which  
are in an active phase and affect

disasters led to **the loss of**  
lives, the leading in this respect

- Examples:

***Yellow River flood (1931)  
4.000.000 dead***

***Yellow River flood (1955)  
900.000 - 2.000.000 dead***

***Cyclone Bhola (1970)  
1.000.000 dead***



**The greatest disasters in the world**



# Some pictures:



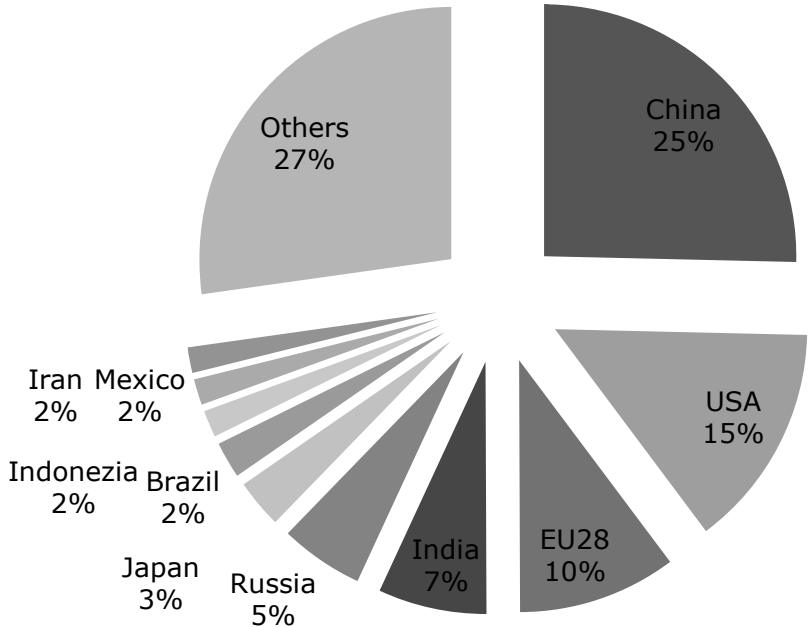
They can be listed in 6 areas:

- **Economic (6 goals)**: termination of poverty, inclusive and sustainable growth, promotion of welfare, , sustainable industrialisation, decent work, sustainable forms of consumption and production
- **Social (4 goals)**: diminishing of hunger, inclusive and quality education, possibility of lifelong education, to make cities and settlements more inclusive, safe and sustainable
- **Area of public health and humanitarian needs (4 goals)**: healthy life, food safety and improved nutrition, sanitary conditions and drinking water access, gender equality and empowerment of women and girls
- **Environmental** (5 goals) Urgent action regarding climate changes, ocean and sea protection, proper forest management, biodiversity preservation, prevention of desertification
- **Energy and technological area: (2 goals)**: To build adaptable infrastructure, access to available, reliable and modern energy
- **Institutional (5 goals)**: access to justice for all, to build efficient, reliable and inclusive institutions, to diminish inequality between and within countries, too build peaceful and inclusive societies for sustainable development, to revitalise global partnership for sustainable development

**Back to 17 goals of SD– how to specify them in three pillars? Maybe in alternative way - new pillar(s)**

# 10 biggest polluters are emitting 3/4 of global CO2 emissions

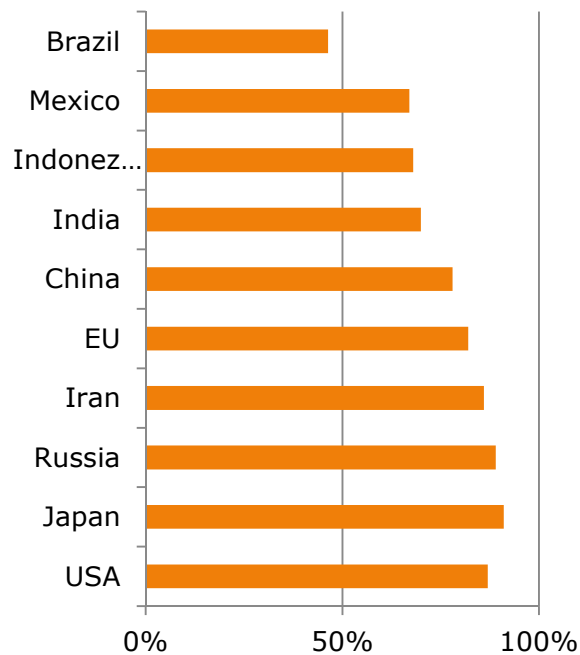
**% global CO2 emission 2013  
CO2ekv**



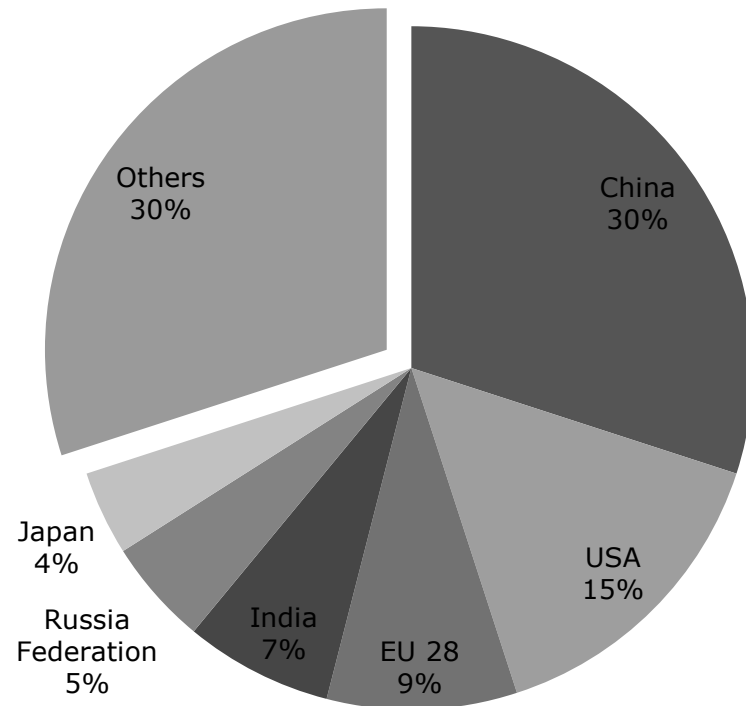
# Sectored emission CO2

**\*world 2014 (top 6 – 70%)**

**% emission GHG from energy**



■ % emission GHG from energy



# Energy and Economy of Climate Changes - European and Serbian level

Current **EU energy policy** already functions with “elevated” goals, since 2013. Those goals are determined to be achieved until 2030:

- greenhouse reduction (GHG) for 40% (comparing to 1990)
- increase of renewable energy sources in EU for 27%,
- increase of energy efficiency for 27 – 30%,
- 15 % electricity interconnection (transfer of electric power between EU countries)

## **Serbia**

During the last three decades: average temperature increases 0,3 degese per decade = and 2,5 degree increasse – actual trend growth, and to the end of 21. century the temperature could increase 3,2 – 4 C

All three the warmest years after temperature begeening, were in 21. century (2000., 2003., 2007. и 2012.).

Goal to 2030. CO2 reduction for 9,7%. Is it enouh?

More than 50% of final energy from coal

But participation of renewable energy resources increases, now = 23%. Energy efficiency is the greate opotrunity for Serbia

	Rank of polutors	Emission (metr. t CO <sub>2</sub> ) per cap.
Russia	25	3.24
Japan	32	2.61
China	48	2.05
Slovenia	59	1.69
BiH	68	1.59
<b><u>Serbia</u></b>	<b><u>94</u></b>	<b><u>1.16</u></b>
Croatia	96	1.08
Macedonia	102	0.96
Montenegro	106	0.97

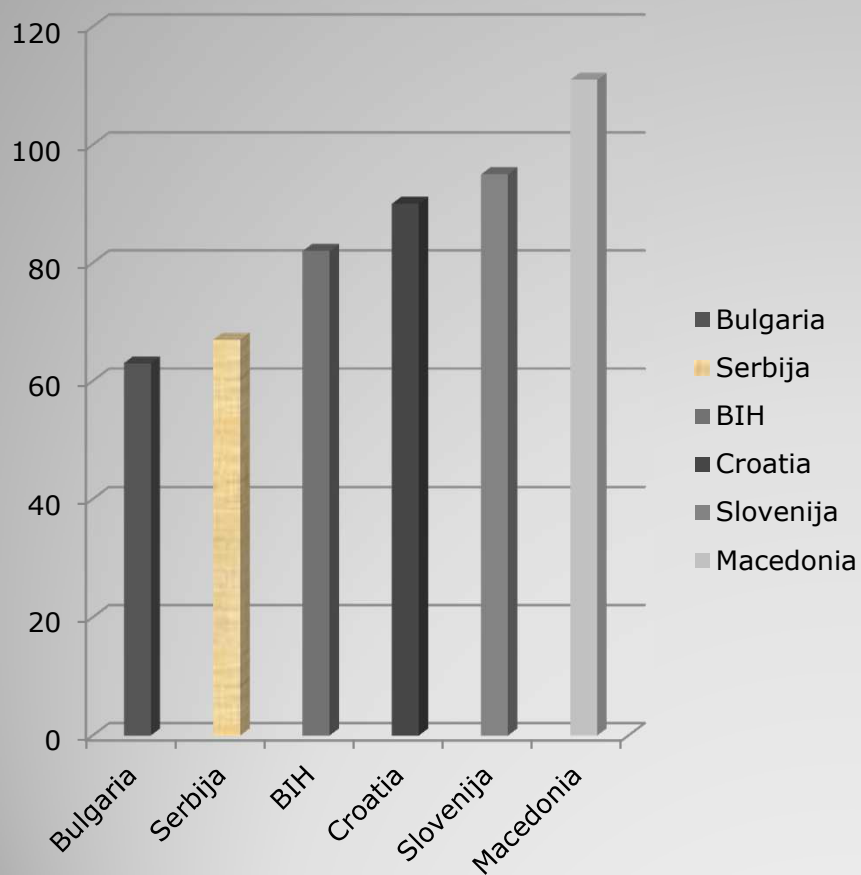
Emission CO<sub>2</sub> eq. per capita, world 2014

Serbian emission per. cap. 94, but Serbian participation in the world economic activity is behind 130 leading economies

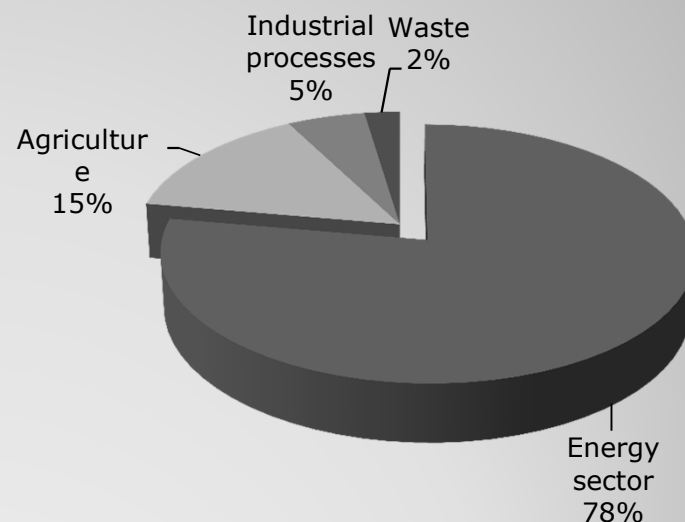
## ***Rank of selected countries in the region for 2014 / lessons for SD strategy***

	Countries rank according to total pollution	CO <sub>2</sub> metr. t/ 2014
Bulgaria	63	11.567
<b>Serbia</b>	<b>67</b>	<b>10.272</b>
BIH	82	6063
Croatia	90	4593
Slovenia	95	3491
FJRM	111	2042

# Rank of global polluters in region : Serbian structure of cectoral polluters



## Serbia 1990. GHG emission sectoral / CO2 eq.





# The energy sustainability comparison \*source WRI

	GDP per cap	En. intensity kg eq.oil/\$	Electricity price for households	Electricity losses in distribution and transfer	CO2 emission per cap	Growth of CO2 emission
USA	55837	0.09	0.22	6.2	0.35	-1
China	14239	0.13	0.08	6.2	<b>0.6</b>	<b>8.4</b>
India	6089	0.09	0.08	<b>19.7</b>	0.32	6.1
Slovenia	31122	0.09	0.22	6.3	0.24	0.3
Croatia	21880	0.08	0.18	11.2	0.22	-0.2
Montenegro	15485	0.1	0.08	15.1	0.32	1.5
Albania	11305	0.08	0.12	<b>21</b>	0.16	<b>2.2</b>
Serbia	13482	0.1	0.08	<b>15.9</b>	<b>0.5</b>	0.6

# ***Serbia and "17 Goals for Transformation of Our World" OUN***

Since 2000 until 2015, Serbian climate damage is estimated to 5 billion euros. 70% of this are consequence of drot and high temperature

What could Serbia change in tne future with new strategies?

- Better estimation of positive and negative efects (externalities) of climate changes; questions:
- how much normal climate costs?
- *flexibility of particular goals: protection of compleete biodiversity?*
- *Water capture and storage - and river quality?*
- *Emphasise on sustainable infrastructure!*
- *Poluter pays principle!*
- Sustainable production and consumpton – quallity of products and services, especially food

# Flooding in the region of Southeast Europe in 2014 / lessons for SD strategy

- Serbia, BIH and Croatia; a flood wave in May 2014, The European Bank has estimated the economic damage at over 1.6 billion euros for Serbia, Bosnia even more
- In all times most expensive disaster was in Japan. GDP before 2011 amounted to 5.497,813 bill US dollars. Losses amounted to 4.2%.
- Serbian GDP in 2014 was \$30 billions, economic losses amounted to 5.3%, therefore higher than those in Japan. In BIH it rose up to nearly 8% BDP.
- The lesson: disasters as well as climate change affect small and underdeveloped economies to **a greater extent and more drastically.**

# Redefining SD goals - regional action

**Balkan countries:** insolvency, high public debt, imbalance of public finances, foreign trade deficit...

All that requires common measures and coordination of climate actions:

- establishment of preventive funds
- a concentration of the technical and human potential for the emergency interventions
- research and scientific cooperation in the fields of nature protection and climate action
- development of the local and regional institutions and projects considering climate action, as a top priority.
- water infrastructure investments (water capturing and purification, regulation of rivers, channels and lakes)
- transport and "smart traffic", "green" infrastructure, better cities and rural cooperation
- common projects in energy efficiency, electricity stability connections
- food safety

# What will be the future key resources? Is it uncertain? But we can and must do something!

- Water, energy, food, biodiversity
- Forests, oceans, space...
- We do not know enough about the future except that it comes quickly and with new uncertainties
- If on the 22<sup>nd</sup> of April 1970, tens of millions of people around the world could go out into the streets and seek the salvation of the planet Earth, their children and grandchildren could definitely concretize these demands.

**Thank you for your  
attention!**