

# The Observatory of Sustainability in San Marino: First results

Fare i conti  
con l'ambiente  
Rifiuti acqua energia  
Ravenna  
25/26/27  
settembre 2013

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# REPUBLIC OF SAN MARINO



**Territory extension: 61 km<sup>2</sup>**

<b>Build area</b>	<b>14%</b>
<b>Agricultural area</b>	<b>47%</b>
<b>Woods</b>	<b>15%</b>
<b>Badlands</b>	<b>18%</b>

**Number of residents: 32400**

**Unesco World Heritage Centre from  
2008**



# THE OBSERVATORY ON SUSTAINABILITY

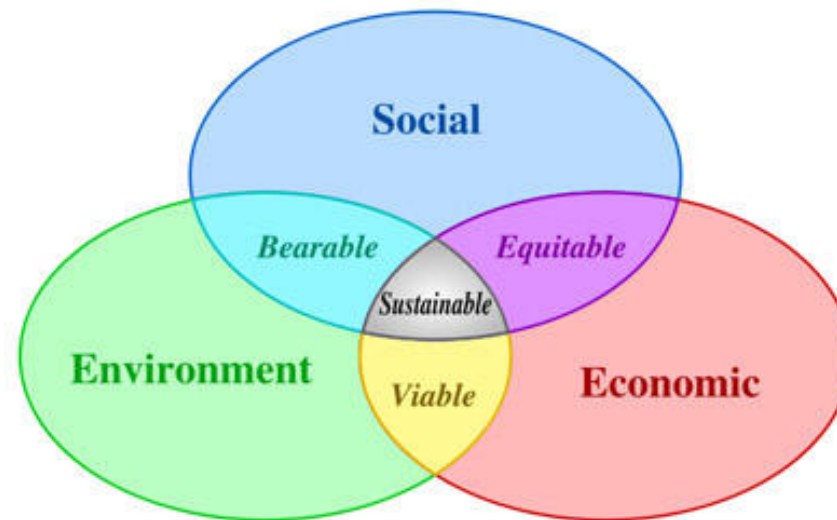
- Identify indicators
- Create a database of indicators
- Characterize “the state of the art” of sustainability in the territory
- Study the evolution of the indicators over time
- Develop data for a policy of sustainability
- Carry out planning studies



# ECONOMIC, SOCIAL AND ENVIRONMENTAL INDICATORS

**Indicators of social sustainability:** HDI Human Development Index, Index of poverty, happiness and health, employment rate

**Environmental sustainability index:** CO<sub>2</sub> emissions, air pollution, water quality, waste production, radiation exposure, electromagnetic field exposure, energy consumption.



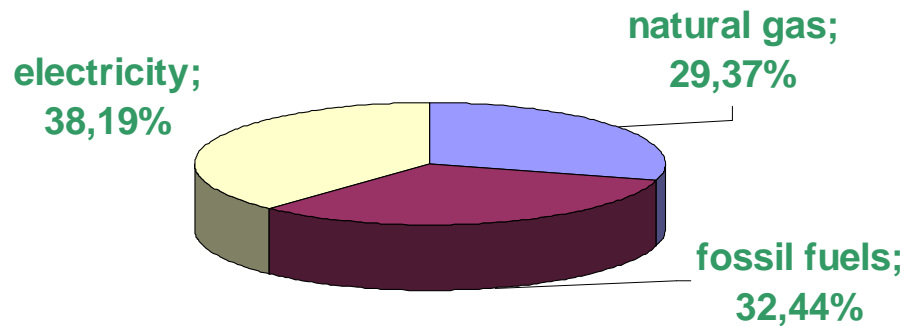
**Indicators of economic sustainability:**

GDP  
GDP per capita  
Income

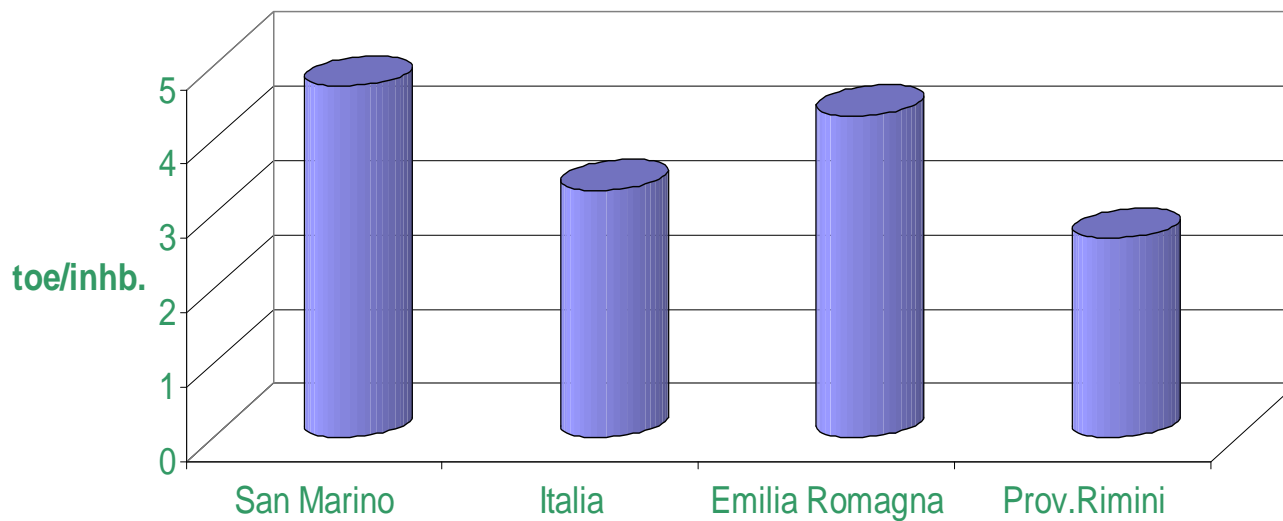
# ENERGY CONSUMPTION INDICATORS

Primary energy  
consumption: 155 ktep

Primary energy consumption (toe). Year 2008

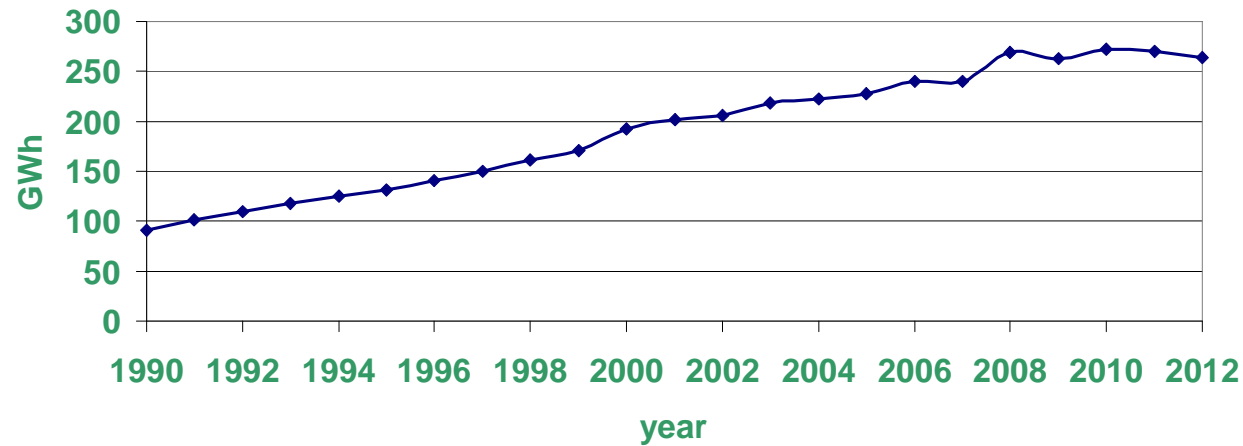


Primary energy consumption per capita (toe/inhb.). Year 2006

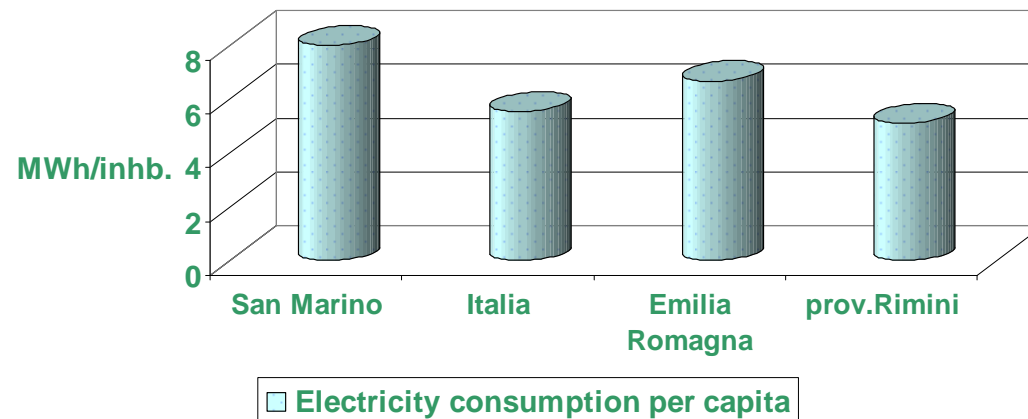


# ELECTRICITY CONSUMPTION INDICATORS

### Electricity consumption (GWh)

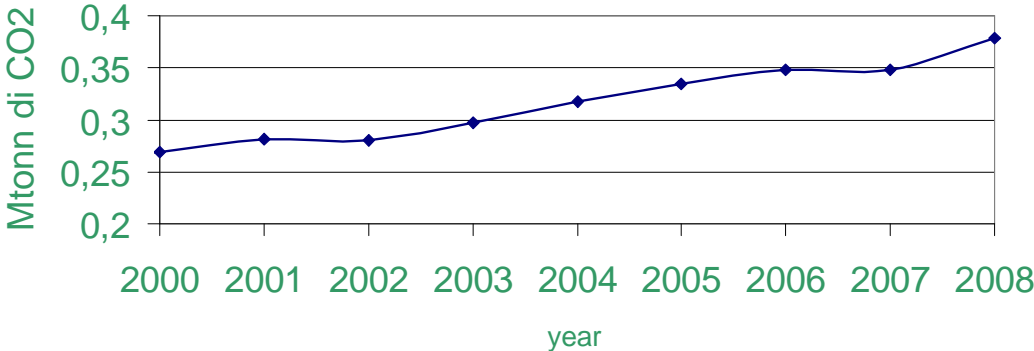


### Electricity consumption per capita (MWh/inhb.)

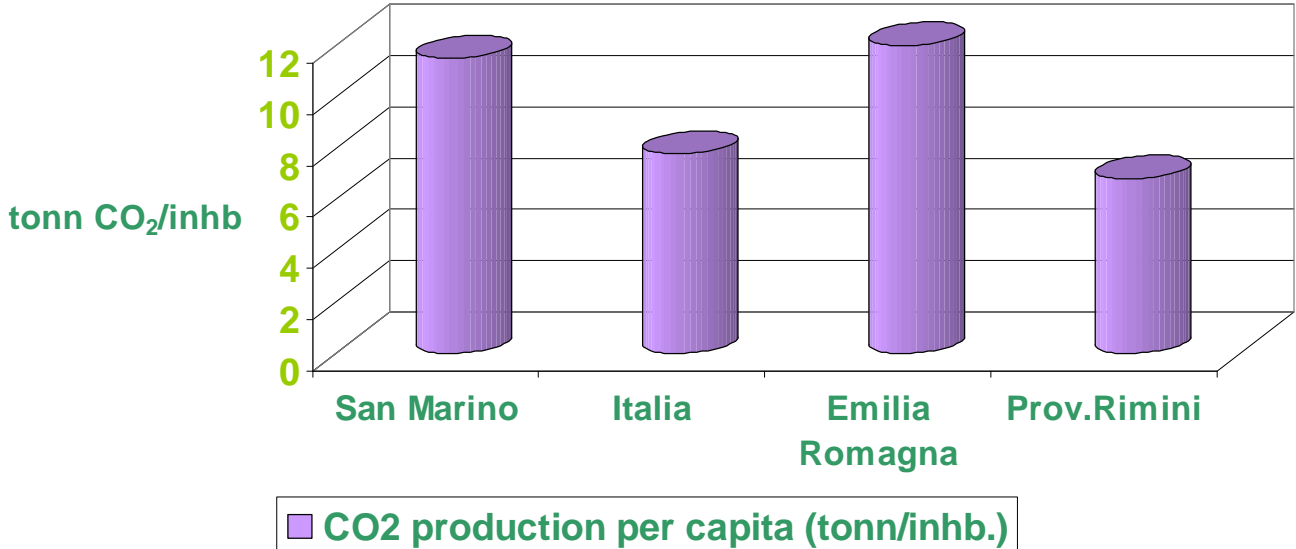


# CO<sub>2</sub> EMISSION INDICATORS

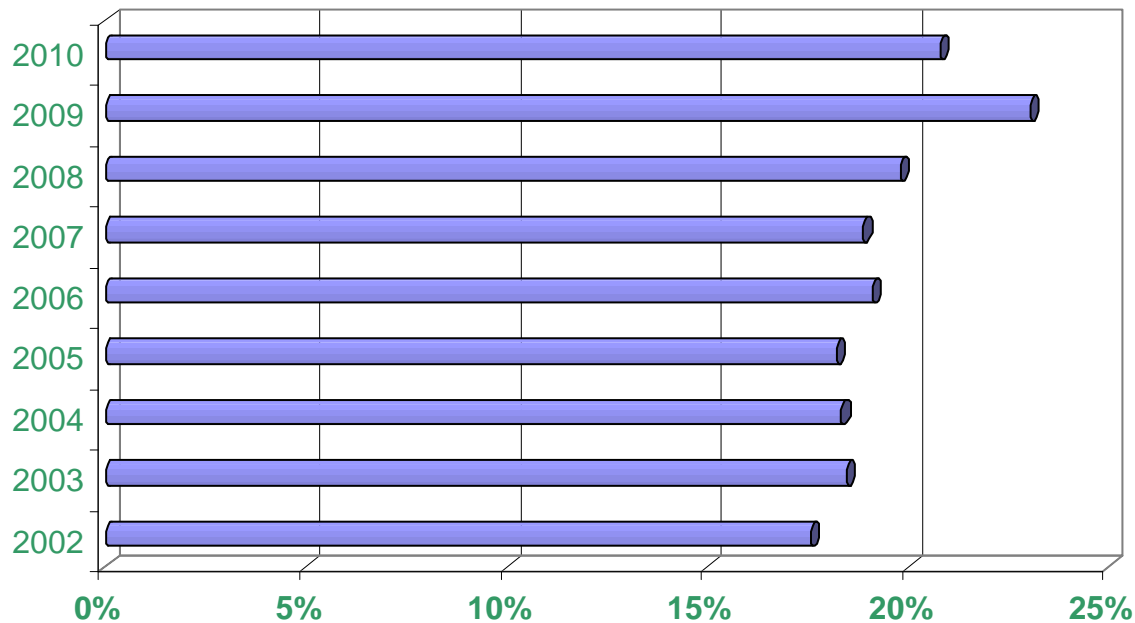
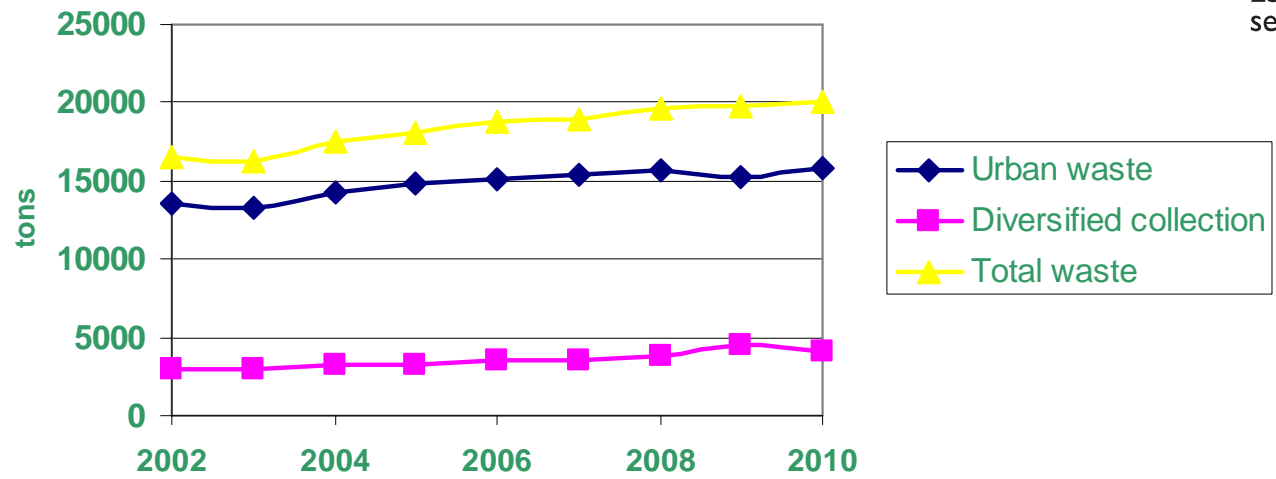
CO<sub>2</sub> Emission trend



CO<sub>2</sub> production per capita (tonn/inhb.). Year 2006.



# WASTE SORTING



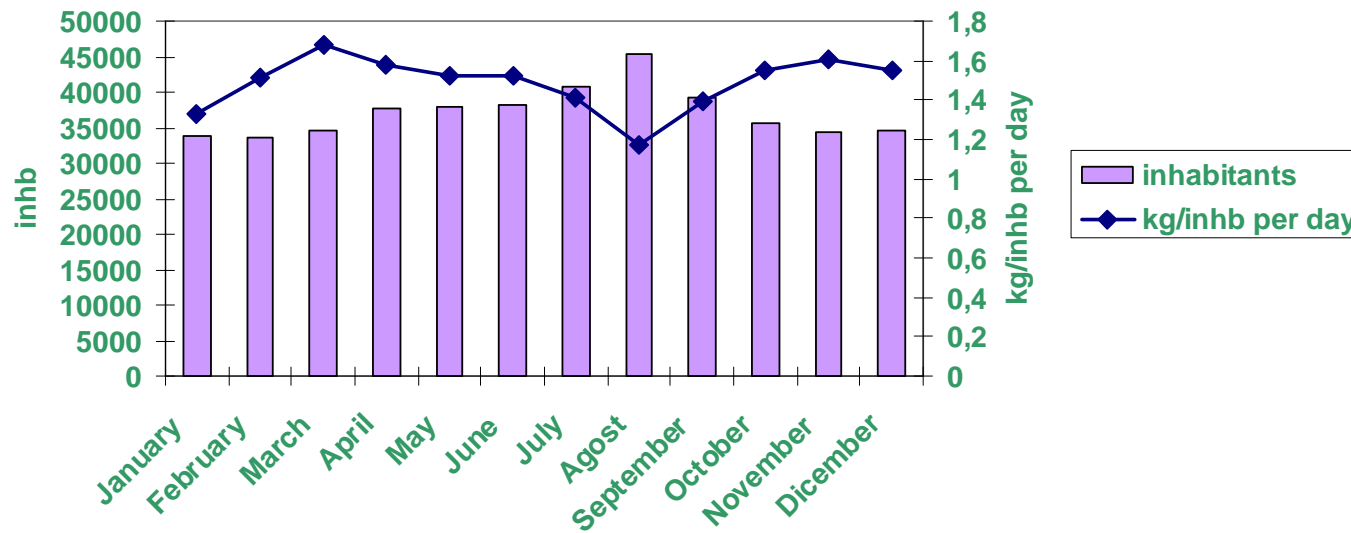
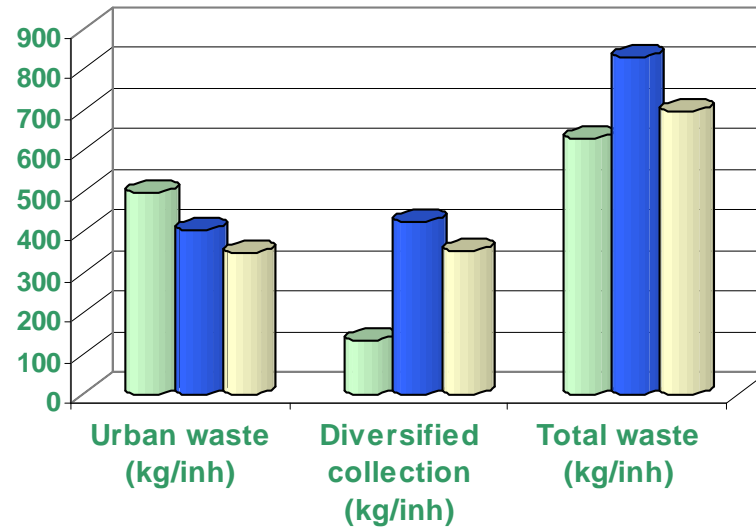
## Waste sorting



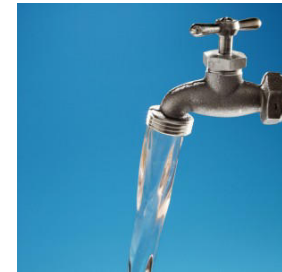
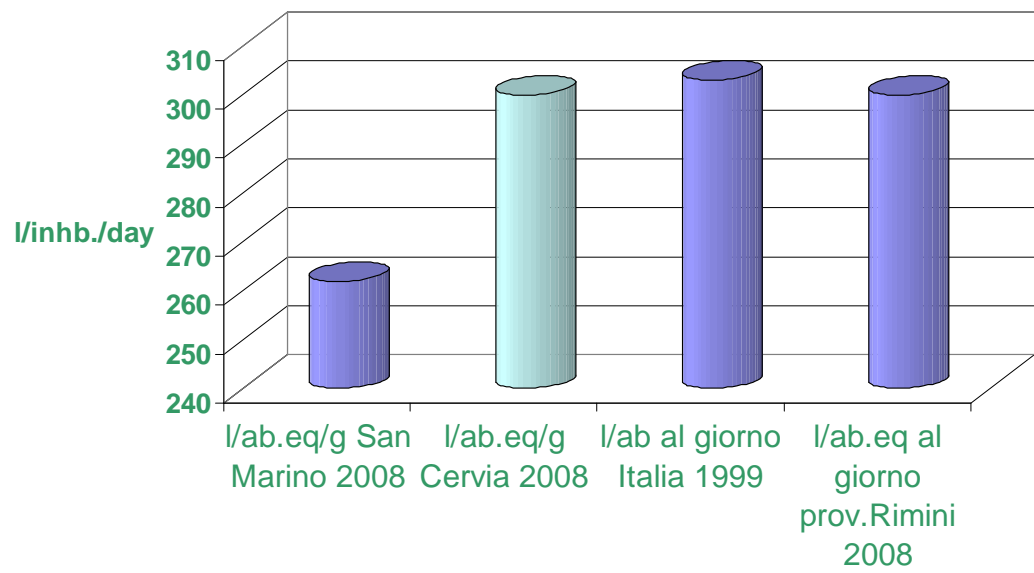
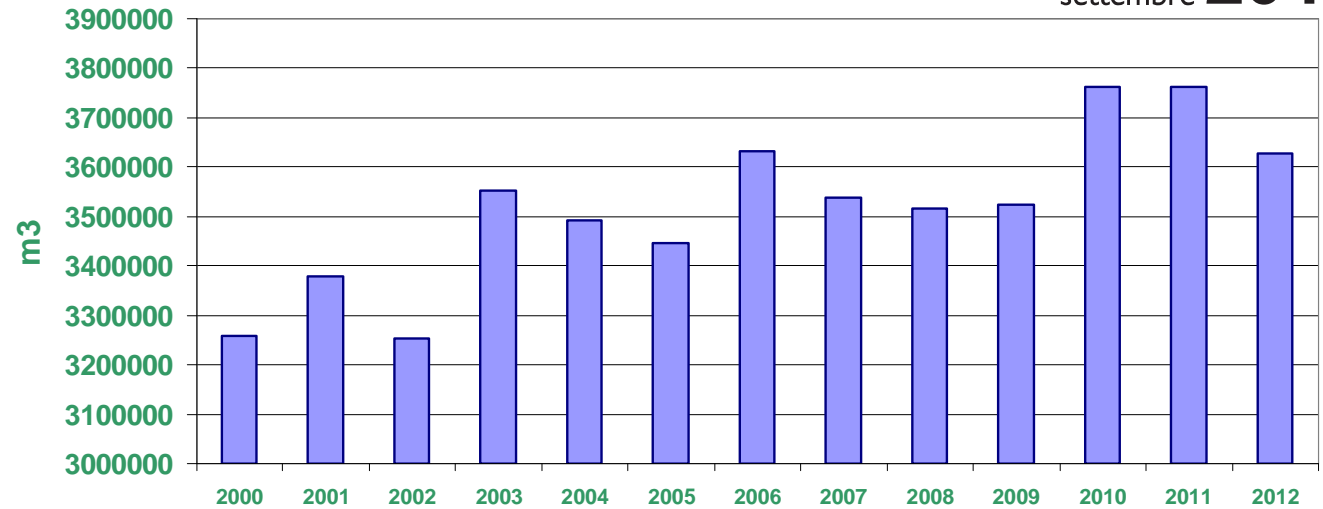


# SOLID WASTE PRODUCTION

Year 2012



# WATER CONSUMPTION



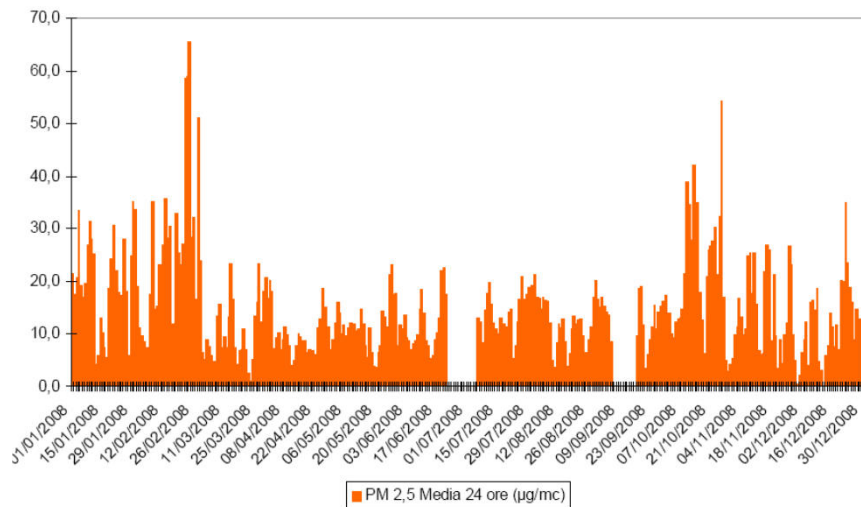
# AIR QUALITY



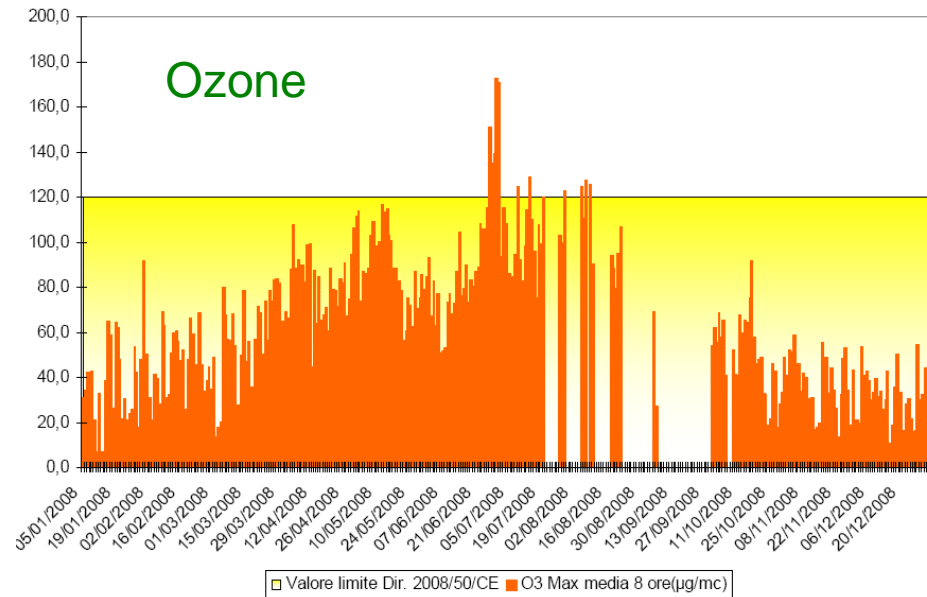
## Air pollutants monitored:

PM <sub>2,5</sub>	O <sub>3</sub>	CO	NO <sub>2</sub>
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PM 2,5 Media 24 ore (µg/mc)



## Ozone

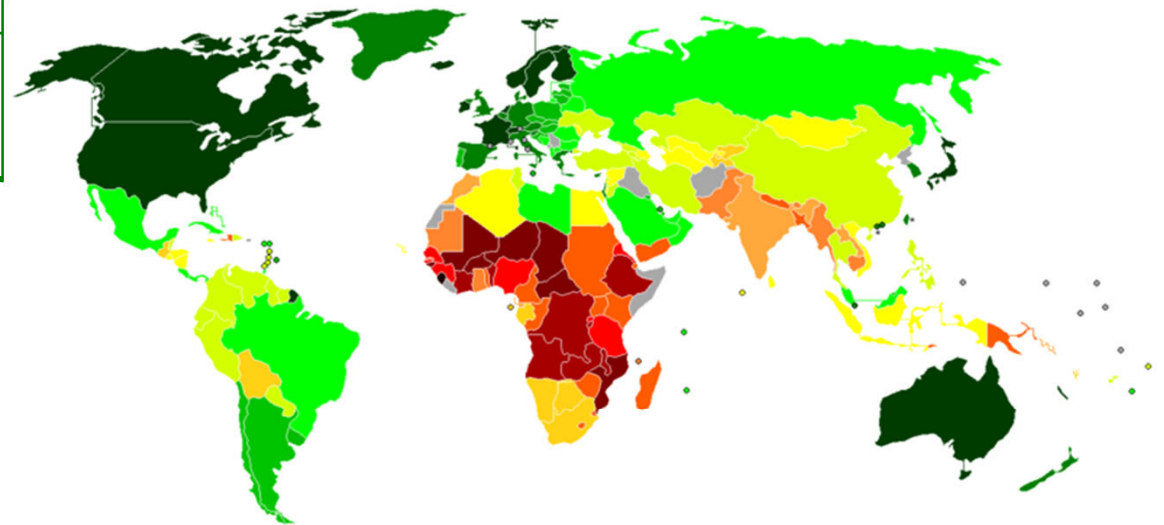


# SOCIAL SUSTAINABILITY: HDI HUMAN DEVELOPMENT INDEX

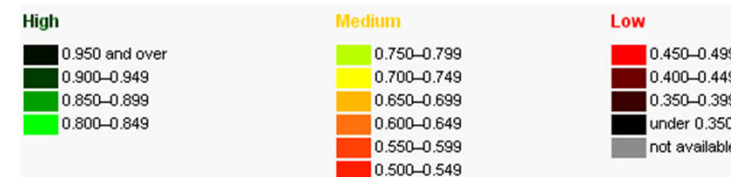
Life expectancy index	I1 = 0,981
Education index	I2 = 0,960
GDP Index	I3 = 1

$$HDI = (I1 + I2 + I3) / 3$$

**San Marino value: HDI= 0,977**

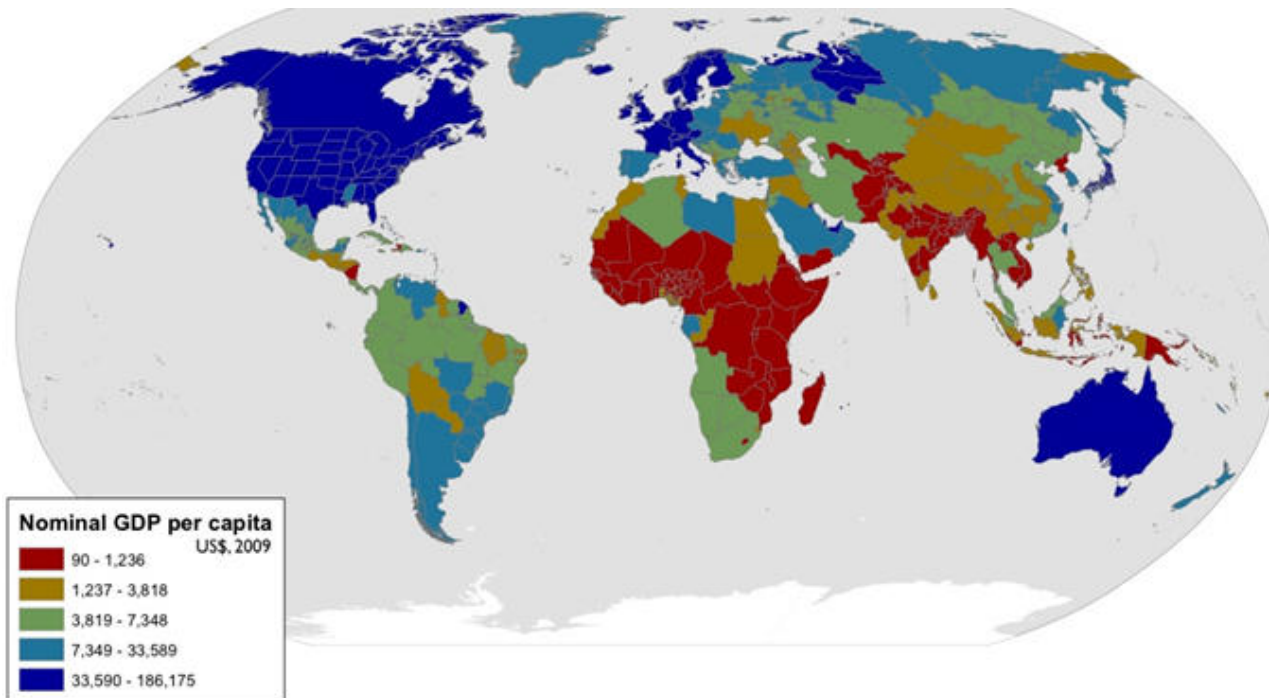


	HDI
San Marino	0,977
Norvegia	0,955
Irlanda	0,916
Olanda	0,921
Svezia	0,916
Francia	0,893
Svizzera	0,913
Giappone	0,912
Stati Uniti	0,937
Austria	0,895

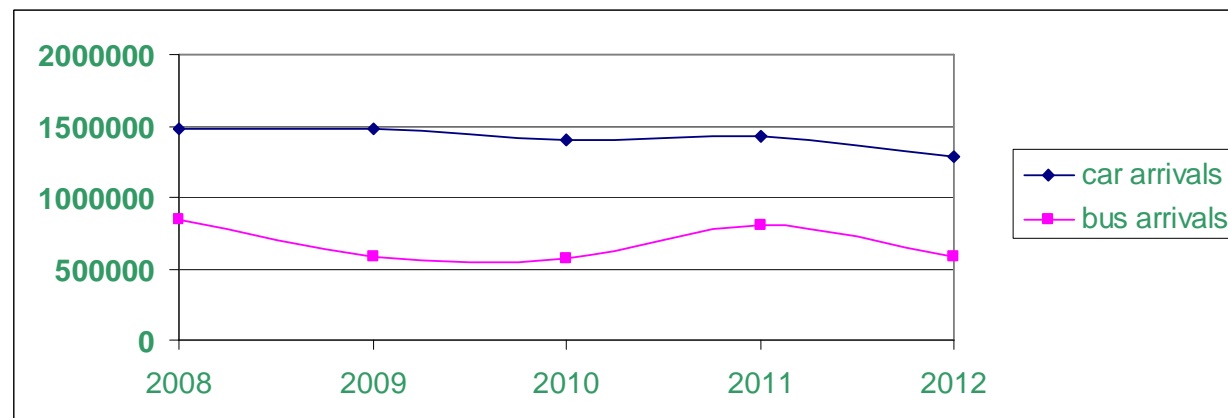
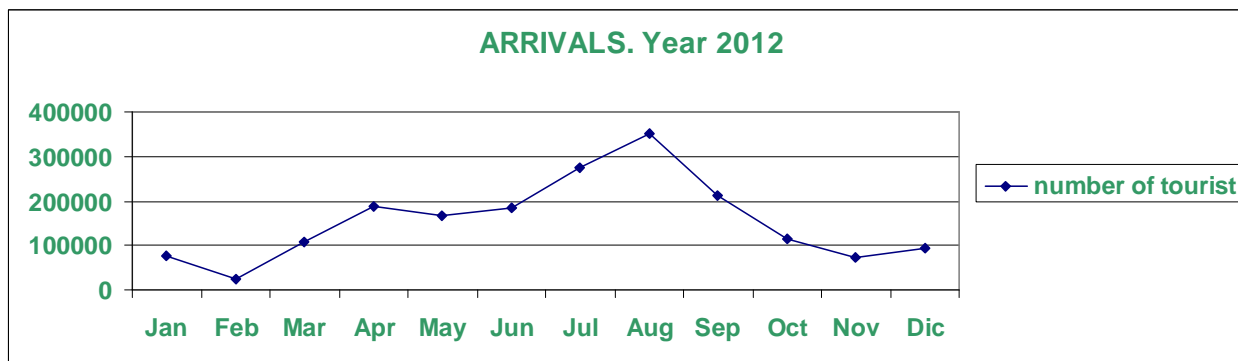


# ECONOMIC SUSTAINABILITY: GDP

<b>SAN MARINO</b>	2004	2005	2006	2007	2008	2009	2010
GDP (M€)	1061	1106	1171	1756*	1732*	1575*	1492*
GDP per capita (€)				54.798	53.169	47.769	44.998
*new methology of calculation							



# TOURISM INDICATORS



## CONCLUSIONS

- The preliminary analysis on San Marino territory has demonstrated the possibility to identify some important indicators, such as energy consumption, the level of education and the life expectancy.
- The first data calculated for San Marino show that the small State is in a good position if compared with other neighboring territories (Rimini, Emilia Romagna Region, Italy).
- These kind of analysis, especially if it is conducted for large communities, present a high degree of difficulty due to the limited access to reliable statistical data.
- The results obtained so far let foresee that the analysis on San Marino will be able in a short future to calculate the wellbeing indicators, such those proposed by the the study CNEL – ISTAT.