

Environmental Statistics
2014

Environmental status in Portugal broadly positive

Economic conditions in 2014, characterized by a modest increase in GDP of 0.9% in a context of a strong demographic ageing, still do not exercise significant pressure on the environment.

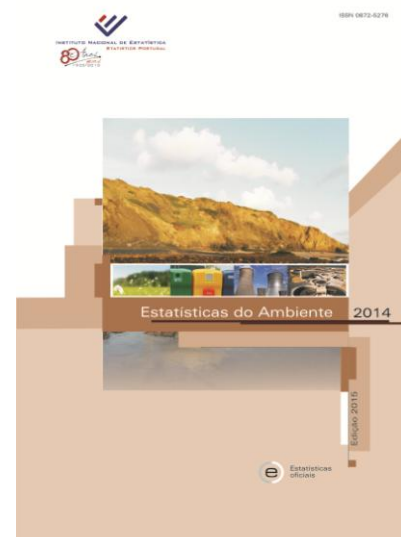
The status of natural resources like water and air has proven to be of good quality: in air quality index, 70.1% of the days monitored in 2014 showed very good or good values; in 2014 the number of days with tropospheric ozone concentrations never exceeded the target value¹ and the Azores have reached the long-term target² (2020). The percentage of public drinking water consumption controlled of good quality reached 98.4% and 73.4% of the observations made in inland waters and 95.1% for coastal bathing waters / transition classify the bodies of water between "good" and "excellent".

In the field of municipal waste there were no significant improvements, remained relatively high the landfill rate (49.0% in 2014), while the relative importance of selective waste reached only 13.6% of the total. In the energy sector, the contribution of renewable sources reached 25.1% and 61.4% of primary energy consumption and electricity production, respectively.

In Public Administration expenditure on environmental protection activities increased by 1.3% in 2014, but has kept its weight in GDP (0.6% of GDP) that is below the average of the UE28.

Statistics Portugal reports in digital support the publication the "Statistics of Environment", in which the period of reference is essentially the year of 2014. This publication is organized into 9 chapters, where each one incorporates the analysis of results and respective statistical tables of information. For the first time, Portugal presents statistical information regarding the use of pesticides in agricultural activity based on surveys related to agricultural holdings concerning the period 2011-2013.

In this document it is presented a synthesis of the main indicators is presented, resorting to DPSIR model (Driving Forces, Pressure, State, Impact, Response), developed by the European Environmental Agency (EEA) to describe the interaction between society and the Environment in a cause-effect basis. Besides this information, it is provided a set of additional data is provided on the Statistics Portugal web site (www.ine.pt).



¹ Value of daily maximum concentration of an eight hour average of 120 µg/m³, which should not be surpassed more than 25 days in the considered year.

² Accomplishment of 120 µg/m³ in every day of the year.

1 - Driving Forces: the increase in the GDP of 2014 (+0.9% in volume) interrupts a three year cycle of negative variations, increasing the available income and creating more pressure on the Environment. However, the continuous demographic aging alleviates these pressures.

In 2014³, the Gross Domestic Product (GDP) increased 0.9% in volume. This positive evolution, which succeeds to a 1, 1% decrease in 2013, determined an increase of the available income which usually represents an increase on the pressures over the Environment.

Chart 1 >> Economic and social context 2006-2014

	measuring units	2006		2007		2008		2009		2010		2011		2012		2013		2014	
		PT	EU	PT	EU	PT	EU	PT	EU	PT	EU	PT	EU	PT	EU	PT	EU	PT	EU
GDP (volume)	% (variation rate)	1,6	3,3	2,5	3,1	0,2	0,5	-3,0	-4,4	1,9	2,1	-1,8	1,8	-4,0	-0,5	-1,1	0,2	0,9	1,4
Private consumption	"	1,5	2,2	2,4	2,2	1,5	0,9	-2,3	-0,5	2,5	0,7	-3,7	0,1	-5,7	-0,4	-1,3	0,0	2,3	1,2
Public consumption	"	-0,2	2,1	0,7	1,8	0,4	2,4	2,6	2,2	-1,3	0,7	-3,7	-0,1	-3,3	0,1	-1,9	0,3	-0,5	1,1
FBCF	"	-0,8	5,8	3,1	5,8	0,4	-0,8	-7,6	-11,9	-0,9	0,1	-12,5	1,9	-16,6	-2,5	-5,1	-1,7	2,8	2,6
Exports (FOB)	"	12,3	9,5	7,3	6,2	-0,3	1,4	-10,2	-11,9	9,5	10,7	7,0	6,6	3,4	2,3	6,9	2,2	3,9	4,1
Imports (FOB)	"	7,5	9,4	5,4	6,2	2,4	1,0	-9,9	-11,4	7,8	9,8	-5,8	4,2	-6,3	-0,3	4,7	1,6	7,2	4,7
Funding needs of Public Administration	% of GDP	-4,3	-1,6	-3,0	-0,9	-3,8	-2,5	-9,8	-6,7	-11,2	-6,4	-7,4	-4,5	-5,7	-4,3	-4,8	-3,3	-7,2	-3,0
Public dept ⁽¹⁾	% of GDP	69,2	60,4	68,4	57,8	71,7	61,0	83,6	73,0	96,2	78,4	111,4	81,0	126,2	83,8	129,0	85,5	130,2	86,8
Prices index rate (IPC)	% (variation rate)	3,1	2,3	2,5	2,4	2,6	3,7	-0,8	1,0	1,4	2,1	3,7	3,1	2,8	2,6	0,3	1,5	-0,3	0,6
Labour force costs by produced unit (nominal)	"	0,7	X	1,0	X	2,8	X	2,7	X	-1,2	X	-2,0	X	-3,2	X	1,8	X	-0,9	X
Unemployment rate	%	7,6	8,2	8,0	7,2	7,6	7,0	9,4	9,0	10,8	9,6	12,7	9,7	15,5	10,5	16,2	10,9	13,9	10,2

Source: INE, Contas Nacionais (Base 2011), IPC (Base 2012) e Average unemployment rate (Séries 1998 e 2011), BP, Eurostat

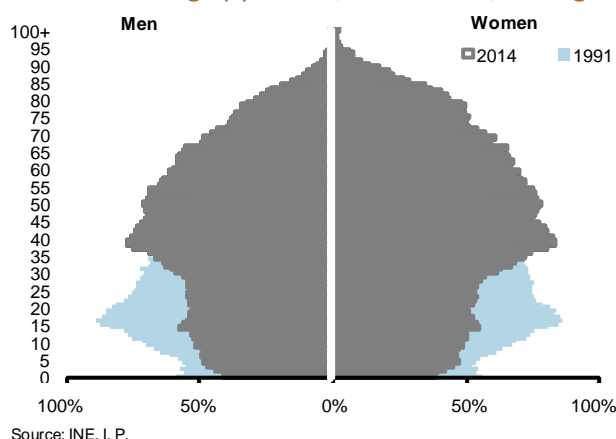
⁽¹⁾ - For 2012 and later years, the compilation of lending / net borrowing is done by INE and the gross debt is compiled by Banco de Portugal .

In 2014, the resident population in Portugal was composed by 14.4% of young people, 65.3% in active age and 20.3% of elderly. In result of a fall in birth rate, a negative migration rate and an increase in longevity over the last years, it was verified in Portugal a decrease of young population (from 0 to 14 years of age) and of population in active age (from 15 to 64 years), simultaneously with the increase of elder population (65 and more years of age). This structure ends up diminishing the environmental pressure in the country of origin since it's the younger layers of population the responsible with the intensification of urbanization and by the population growth.

³ Analysis made based on information available until 23 of September of 2015.

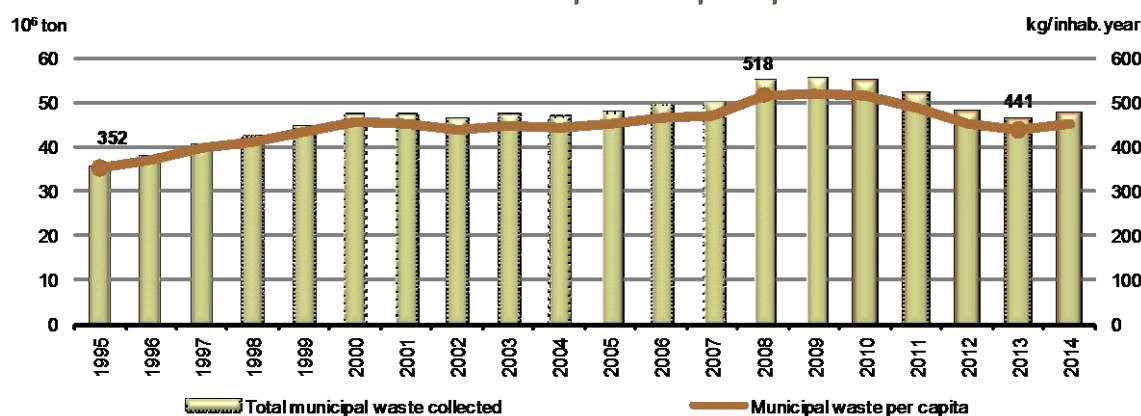
2 - Main pressures on the Environment in 2014: Increase of waste generated by families and industry, increase in the number of vehicles most likely in circulation and increase of final consumption of energy. The decrease of resident population and the weak growth of economy continue to be the main factors contributing to the diminishing of the pressure generated over the Environment.

Chart 2 >> Age pyramids, 1991 e 2014, Portugal



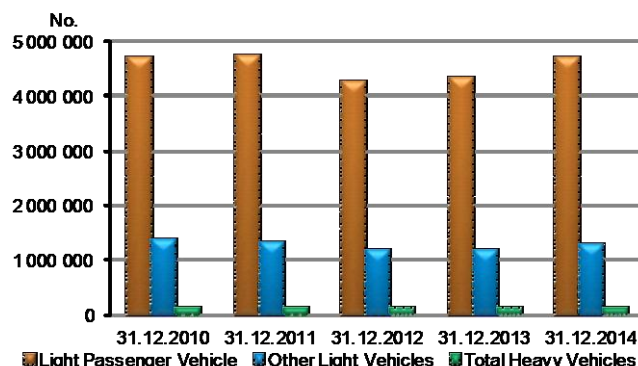
A favorable macroeconomic scenario in 2014 was the result of the internal demand in response to the recovery of private consumption and, in a reduced scale, of Investment. The private consumption of resident families increased 2.3% in general terms which might have contributed to the increase of 2.4% of municipal waste. In 2014, the resident families generated more 13kg per capita of municipal waste summing up to a capitacion of 453 kg per capita per year. As a result, there was an increase in 1.6% of the Industrial Production Index, reinforcing the slight increase verified in 2012 (+0.4%) and reversing the decrease trajectory observed from 2010 to 2012 (-6.9%).

Chart 3 >> Municipal waste per capita



The number of vehicles in circulation increased in 2014, especially the light passenger vehicles (+372 units, corresponding to 77% of the total of entries of light and heavy vehicles in circulation).

**Chart 4 >> Road vehicles presumably in circulation
(a) by type of vehicle**

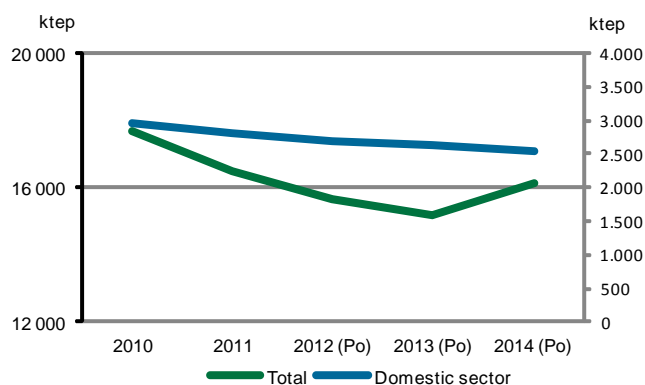


Note: (a) Vehicles attended at least one of the last two mandatory inspections. Motorcycles and farm tractors are excluded.

Source: Instituto da Mobilidade e dos Transportes Terrestres (IMTT)

Even so, whether by alteration of consumption patterns, or by the reduction of resident population, the final consumption of energy of families decreased for the fifth consecutive year (-2.5%, compared with 2013), yet, overall, the final energy consumption of economic activities sector increased 6.5%, promoted essentially by the consumption increase of 19.4% for transports.

Chart 5 >> Primary energy consumption



Source: DGEG

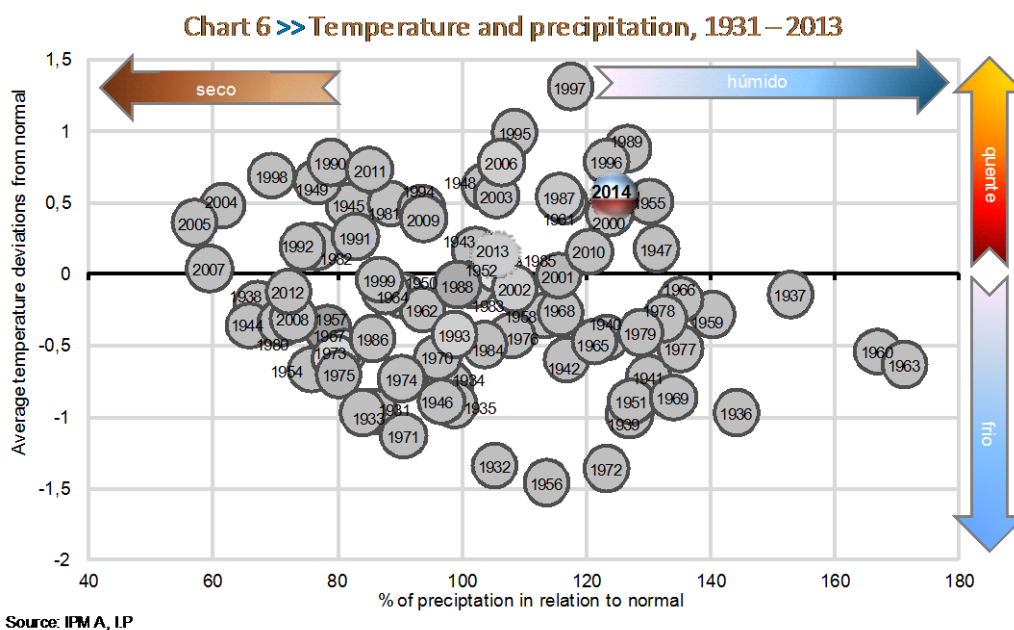
In fact, in 2014, the estimation of resident population was of 10 374 822 persons, 52 479 less than 2013, representing an effective growth rate of -0.5%. Both natural and migration balances were kept negative (-22 423 e -19 516, respectively).

Regarding the business sector, the industry generated in 2014, 137 000 thousand tons more waste, summing 11, 3 million tons of waste (+1.2% compared with 2013).

3 - In the “State” component of DPSIR model it is intended to measure the changes in the state of Environment caused by pressures.

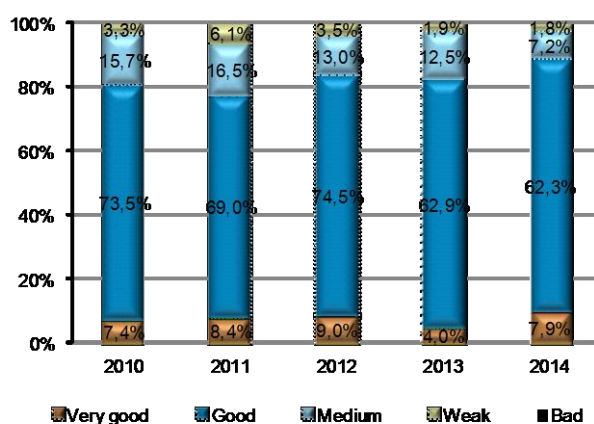
In 2014 the state of Environment of some natural resources such as air or water was globally positive. On the other side, the reduction of credited environmental auditors, of environmental Non Governmental Organizations (NGO), of forest fire fighters, amongst other promoting agents of environmental sustainability seem to suggest some lack of interest of civil society in these questions.

The year of 2014 in Continental Portugal was characterized by average values of precipitation and average air temperature above the average value of the period between 1971 and 2000. The average value of average air temperature was of 15,8°C above the normal in +0,5°C. The average value of precipitation quantity, 1 098,2 mm, corresponds to an anomaly of +216 mm. The results for these climatic variables position the year of 2014 in the quadrant of moist and hot years.



The air quality index in 2014 attributed to 70.1% of the monitored days the quality of very good or good (7.9% e 62.3%, respectively) having been classified as “weak” only 1.8% of the observed days.

Chart 7 >> Air quality

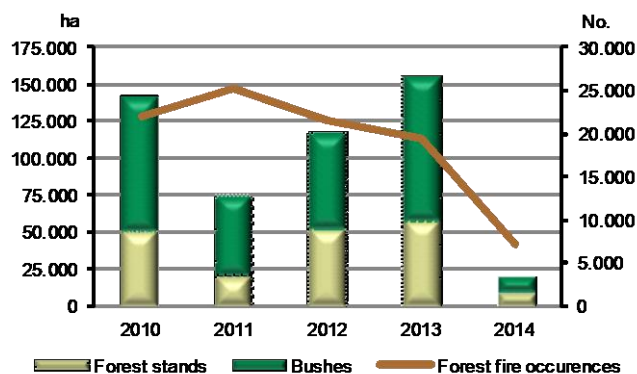


Source: INE, IP

In 2014 the number of days with tropospheric ozone concentrations above $120 \mu\text{g}/\text{m}^3$ never surpassed the target (value of daily maximum concentration of an eight hour average of $120 \mu\text{g}/\text{m}^3$, which should not be surpassed more than 25 days in the considered year), it was possible to verify a reduction of the concentration of this gas when compared with 2013. Considering the long term objective which has as a goal the accomplishment of $120 \mu\text{g}/\text{m}^3$ in every day of the year in 2014, Azores already reached this target. The concentration of inhalable particles with potential to cause harmful effects in health (PM10 - inhalable particles with diameter below $10 \mu\text{m}^3$), was of $17 \mu\text{g}/\text{m}^3$, a value below the limit ($40 \mu\text{g}/\text{m}^3$) reflecting a 15% decrease compared with 2013. The quality of tap water continues to be a reference, with the indicator of safe water (percentage of controlled water with good quality) reaching in 2014, 98, 42%. The result of the evaluation of the quality of interior waters in 2014 states the predominance of station classified with "Excellent" (52.8% - 56 stations) and "Good" (22.6% - 24 stations). In coastal/transition bathing water's, the cumulated percentage of these two classes accounted for 95.1%.

The climatic conditions of 2014 reduced the danger of forest fires. With 37.5% of the continental area submitted to an high to very high level of danger (which compares with the value of 43.7% of area in 2013), the number of fires and burned area were the lowest of the last five years. This fact justifies the reduction of expense of Public Administration (PA) in the domain "Protection of Air Quality and Climate" in 10%, in an year where the total expense in environment of PA increased 1.3%, rising to 1 005 million euros. Also in line with this evolution it's the participation of Firefighter Corps in the combat to fires in forest stand which diminished more than half (58.5%), with 3 414 occurrences (8 229 in 2013).

Chart 8 >> Forest fires by type of burnt area - Portugal



Source: ICNF, I.P.

NOTE: In Autonomous Region of Azores no fires occurred.

Perhaps since the "State" indicators are globally positive, there are occurrences which suggest lack of interest by the civil society regarding environmental issues. For example, in 2014 were registered in Portugal 57 organizations and 6 EMAS verifiers, certified environmental auditors for the certification of these environmental instruments. Comparing with 2013, the number of registered organizations decreased, a trend developing since 2010, it is possible to verify that this trend spread to all the agents of the economical activity. An identical decreasing trend in 2014 is verified on the number of developed activities by the NGO set on 12 075 actions (22 098 actions in 2013). This decrease, in part, was due to the non renovation of the status of NGO and similar to one of the associations which in 2013 assured 56.0% of the total of activities. The number of persons in service on NGO also decreased (-0.4%).

Analyzing the actions of preventive forest carried out by the Institute of Conservation of Nature and Forest (ICNF) and by the Regional Direction of Forests of Madeira (DRFM), a reduction of 10% in 2014 was verified. It was also possible to verify a reduction on the effective number of forest fire fighters (seventy five elements) and the number of elements (military and civilian) at service for the Service of Protection of Nature and Environment (SEPNA).

On the sector of environmental goods and services it was possible to verify an increase of service personnel in 3.3%, comparing with 2010 this sector presents less 2 000 employees.

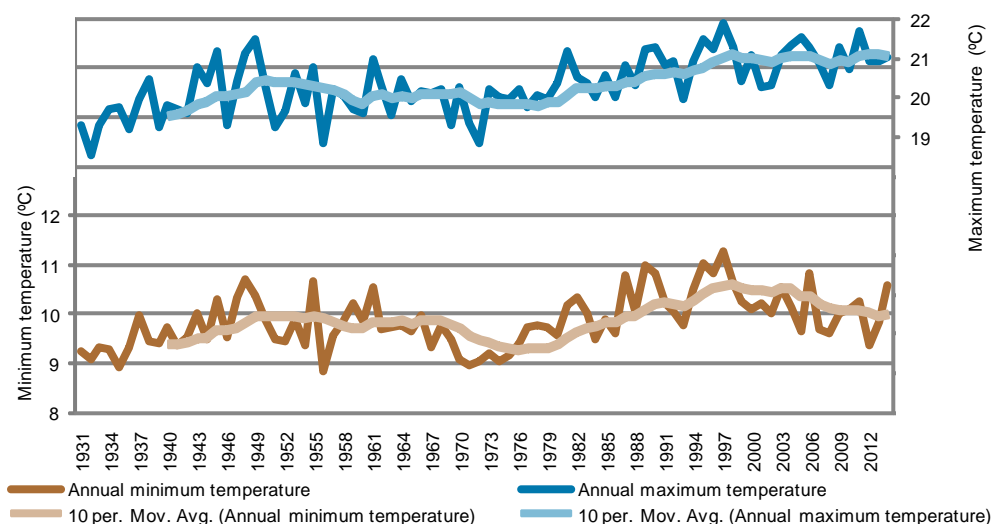
As direct impacts it were considered weather phenomena and climatic extreme events (heat and cold waves, intense precipitation ($\geq 10\text{mm}$)/ very intense ($\geq 30\text{mm}$) and a situation of dryness occurred in 2014.

4 - As direct impacts are considered some extreme weather and climate events (heat waves, intense precipitation ($\geq 10\text{mm}$) / very intense ($\geq 30\text{mm}$)) occurred in 2014 and the trend analysis from ten years moving averages for maximum and minimum temperatures.

In 2014 heat wave occurred in the second half of October it was the most significant in this month since 1941. The meteorological observations indicate an increase in maximum and minimum temperatures (trend $+1.53^\circ\text{C}$ for maximum temperature and $+0.63^\circ\text{C}$ for minimum temperature) together with an increase in temperature ranges.

The evolution of minimum and maximum temperatures of Portugal between 1931 and 2014, including an analysis of trends (10 years moving average) is represented in the chart.

Chart 9 >> Interannual variability and ten-year moving average of the annual maximum and minimum temperature in Portugal (Mainland)



Source: IPMA, I.P

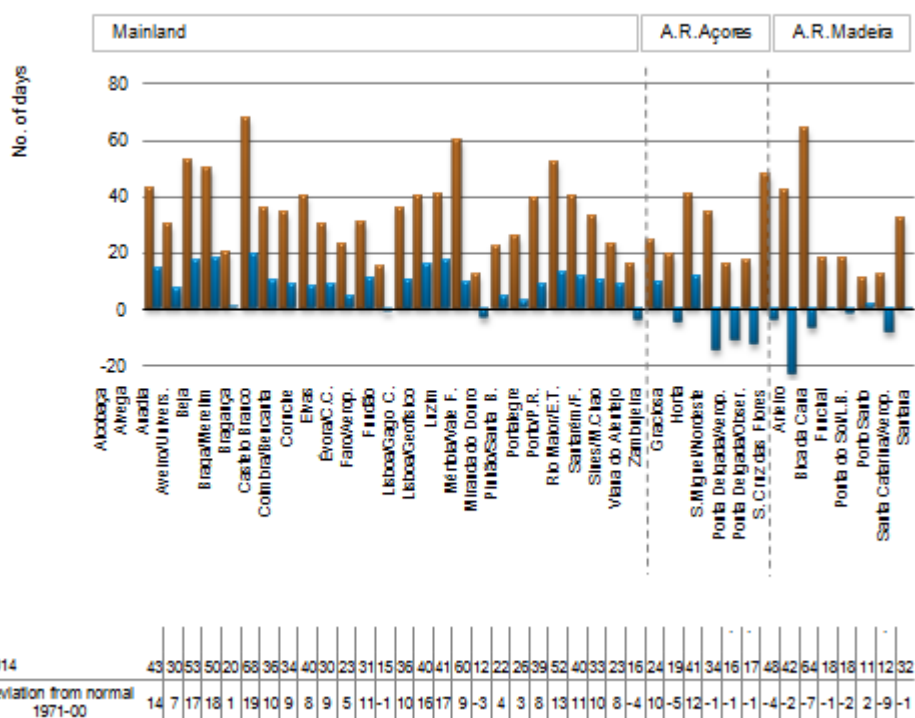
The meteorological observations indicate an increase in maximum and minimum temperatures. The 10 years moving average, the maximum temperature presents an upward trend, increasing 1.53°C between 1940 and 2014. The minimum temperature also developed positively ($+0.63^\circ\text{C}$) in this period. In the most recent period the growth of maximum temperature tends to be higher than the minimum temperature, which increased temperature range. It is observed for 10 years with higher maximum temperatures, 5 occurred already in the century XXI (2011, 2005, 2004, 2006 and 2009).

With respect to extreme events, analysis was conducted by reference to normal climatologic values (1971–2000)⁴.

⁴ As convention by the World Weather convencionado pela Organização Meteorológica Mundial (OMM), climate is characterized by the average values of the several climatic elements in a 30 year period, designating as normal value of climatic element the medium value corresponding to a number of years long enough to admit that its representative of the prevalent value of the element in the considered place.

In 2014, in all analyzed mainland meteorological stations, heat waves⁵ were observed, with 30% of the stations recorded a number of days in heat waves more than 20, having reached the highest value in the Alvalade station, Alentejo (30 days in heat waves). Heat waves occurred in the spring, in April and May, summer in June and in the fall in October. The latter, either by their spatial and temporal extent or by the time that occurred (2nd half of October), can be considered the most significant observed in October since 1941.

Chart 10 >> Number of days with precipitation ≥ 10 mm (2014) and deviation from the normal 1971-2000



Source: IPMA, I.P

Comparing with the normal of years 1971 to 2000, the most significant positive deviations of the number of days with intense precipitation occurred in the Mainland, in Braga (+19 days) and Aveiro (+18 days). In the Autonomous Regions of Madeira and Azores, only one station registered positive deviations of the number of days with intense precipitation, namely, the station of Horta (+12 days) and the station of Porto Santo (+2 days). The most significant negative deviation was registered in the Autonomous Region of Madeira, in the station of Arieiro (-23 days).

⁵ It is considered that there is a heat wave (from the climatological point of view) when the maximum temperature is higher by 5 ° C than the respective daily maximum temperature average for the reference period, in a range of at least 6 consecutive days.

The most significant positive anomaly (+5 days) occurred in the station of Braga, while the most significant negative deviations (two days) were registered in Bragança and Sines. The stations of the Autonomous Regions of Azores, with the exception of Ponta Delgada/Aeroporto (+2 days) presented negative deviations which varied between - 2 days (Horta) and - 5 days (S.Cruz das Flores). On the Autonomous Region of Madeira, 67% of the stations registered negative anomalies, with the station of Arieiro reaching the highest value (-9 days).

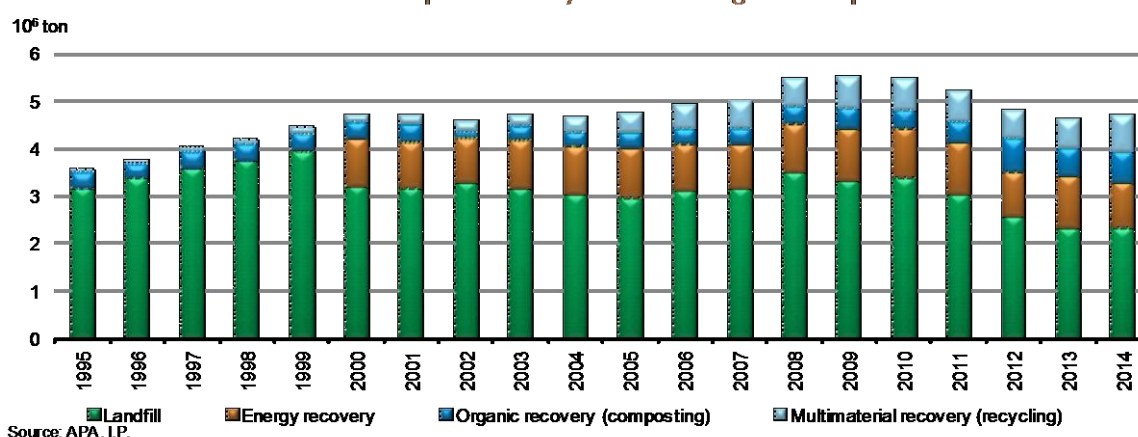
5 - The response to the exerted pressures over the environment forces actions which should lead to mitigation and adaptation to climate changes. In DPSIR model are included in the field of "Responses".

The commitment of the energy sector with the environment throughout the contribution of the renewable sources in the consumption of the primary energy (25.1% in 2014) and the production of energy from renewable sources (61.4% in 2014) is quite positive.

In the energy sector it should be highlighted the contribution of renewable energy sources in the consumption of primary energy (25.1% in 2014 comparing with the 24.7% in 2013) and for the production of electricity from renewable sources, 2 787 kteo in 2014, 61.4% of the total electricity produced in Portugal (59.2% in 2013).

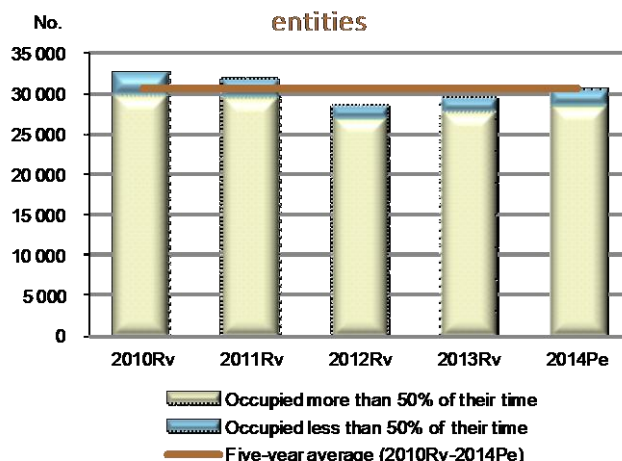
In the waste sector, the evaluation of the evolution of the destination given to the generated municipal waste, demonstrate a predominance of landfill deposition (49.0% of the urban waste generated in 2014). The other destinations were energetic valuation (20.7%), organic valuation (14.1%) and selective collection (13.6%). Together with the overall reduction of waste generation which influences the quantities of selective collection it is visible that the population participation in the separation of waste for selective collection grew with regularity until 2009, keeping relatively stable between 2010 and 2012. In 2014 it was observed an inflexion (13.6% of selective collection) but should be considered that 2013 was a year which registered minimums of the last five years (12.8% of the total).

Chart 12 >> Municipal waste by waste management operation



In the sector of environmental goods and services, were employed 47 220 persons in 2014. From which, 30 536 had specific functions in the environmental area, where 93.2% occupied the majority of their working hours in this field of activity. Comparably with last year, the number of persons who had functions in the environmental area increased 3.3%, with more incidence in part time collaborators.

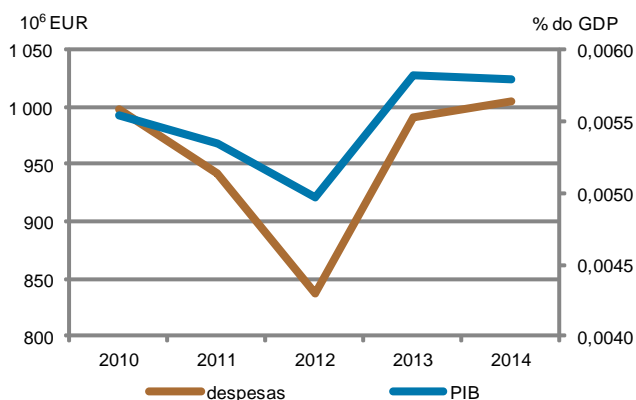
Chart 13 >> Persons employed with environmental functions in the environmental goods and services entities



Source: INE, I. P.

In Public Administration the expense in environmental protection activities increased 1.3% in 2014, rising to 1 005 million euros (992 million in 2013). However, it should be considered that around 3/5 of the expense was applied in "staff expenses" and "acquisition of goods and services". The investment represented 13.1% of total expenses, around 132 million euros. The importance regarding GDP was kept comparing with 2013 (0.58% of GDP).

Chart 14 >> Environmental expenditure in Public Administration (a)



(a) Wastewater direct management data by Municipal Services is not available.

Source: INE, I. P.

Explanatory Notes:

Modelo DPSIR (Driving forces - Pressures - State - Impact - This model was developed by the European Environment Agency and is based on a systematic analysis of the relations between the environmental system and the human and economic system (EEA, 1999).