The Environment In Your Pocket

1 - 2014

CROATIAN
ENVIRONMENT AGENCY

THE ENVIRONMENT IN YOUR POCKET

THE ENVIRONMENT IN YOUR POCKET I - 2014

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Croatian Environment Agency

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Layout, print and cover page design:
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Print run:
150 copies

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ISSN 1846-8454

THE ENVIRONMENT IN YOUR POCKET

Basic Data on the Republic of Croatia

Mainland surface area	56 594 km^2
Territorial sea surface area	31 479 km^2
Coastline length	6 278 km
Inslands, rocks, reefs	1 185
Highest mountain summit	Mt. Dinara, 1 831 m
Counties	21
Cities and municipalities	556 (127 i 429)
Population	4 284 889
Population density per km^2	75.4
Populated islands	47
Language	Croatian
Alphabet	Latin
Political system	Parliamentary democracy
GDP per capita in 2013	10 155 EUR

THE ENVIRONMENT IN YOUR POCKET

Introduction

Dear Readers,

This is the tenth anniversary edition of "The Environment in Your Pocket", a publication with which the Croatian Environment Agency traditionally marks World Environment Day. Independent environmental information and data available to the Agency are the main source of information for all those involved in the development, creation, implementation and assessment of the environmental policy but also for professional and scientific community and the general public.

According to the most recent data air pollutant emissions have decreased due to the measures that have been taken, and unfortunately also due to the effects of the economic crisis, Croatia is meeting the Kyoto Protocol target for greenhouse gas emissions. Despite the fact that Croatia has significant amounts of water, the pressures on water resources is persistent due to the increasing average annual amount of water abstracted for public water supply. The flood events in 2010 particularly threatened the wider Zagreb area, and in 2012 a record number (954) of wildfires was registered with a fire-affected area of 24 804 hectares. The highest tourism intensity is still in the counties of Istria and Dubrovnik-Neretva, though the sea bathing water quality is high (above European average). Mariculture, which shows a growing trend, has been harmonized with environmental protection requirements. Grass and forest land covering as much as 63% of the country and forests (which, altogether covers 48% of the national territory), has been managed in a sustainable way. Agricultural land, which covers the area of 2.7 million hectares, is partly used in accordance with the principles of sustainable agricultural production (in 2012 organic agriculture accounted for 1.1% of total agricultural area and integrated agriculture for 2.6%). By the end of 2010, all counties declared their territories GMO-free. The ecological network area was determined in accordance with the European ecological network Natura 2000. Primary energy production from renewable sources increased (by almost 11% in 2012 compared to the year before), and their share in total energy generation in 2012 (including large hydro power plants) was 45% (EU average is about 20%[1]). Total

[1] Data for 2010 available

waste quantity decreased by 7% in the period from 2008-2012 as well as the amount of landfilled waste (from 97% to 83%), and the municipal waste recovery rate increased by 15%. Although investments into environmental protection showed unascending trend until 2011, the year 2012 was marked by a significant decrease in financial resources (from 2.8 to 1.1 billion kuna).

This anniversary edition is dedicated to the promotion of sustainable development in Croatia and to the raising of awareness of the need to reduce greenhouse gas emissions being generated by human activities in energy, transport, industry, agriculture and waste management sectors. In addition to indicators relevant to the topics which enable such development (e.g. organic agriculture, renewable energy sources, waste recovery), the publication for the first time includes a topic titled Sustainable Production and Consumption. This title implies using energy and resources efficiently while at the same time reducing environmental emissions and materials used in production and consumption without compromising economic growth. There is enough evidence that economic growth and use of resources can be decoupled. Companies specializing in waste treatment and recycling, waste water treatment and water supply and renewable energy sources are among the most successful ones, with fastest growth over the past years. The European Union goal is to establish a sustainable European economy by 2050 and the rules to be applied should enable growth to be achieved without exceeding Earth's resources and without disturbing ecosystem balance and environmental quality in general.

It is possible to achieve sustainable development not only at the level of the environmental and other sector policies but also at the level of day-to-day personal habits. Realising that as much as 80% of products are discarded after a single use, every individual becomes aware that buying durable goods, selling or donating unnecessary products, reducing and separately collecting waste and using renewable energy sources can contribute to the development of a stable economy and society while preserving the environment as the fundamental resource for all human activities and well-being.

Croatian Environment Agency

THE ENVIRONMENT IN YOUR POCKET

Table of Contents

THE ENVIRONMENT IN YOUR POCKET

Table of Contents

AIR

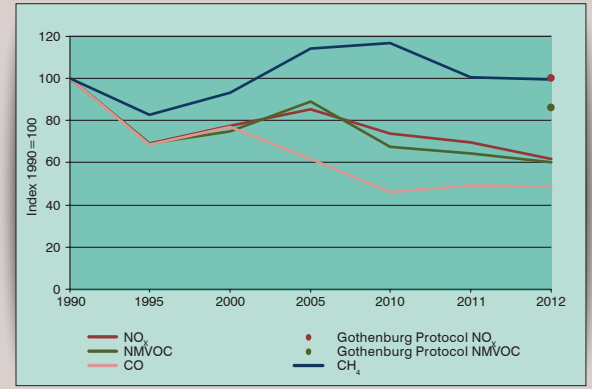
Ozone Precursor Emission Trend for NO_x, NMVOC, CO and CH_4

Ground-level ozone is a key constituent of summer smog, a major pollution issue in numerous cities worldwide. Ground-level ozone is proven as harmful for human health, forest growth and crop yield because it reacts with oxides. Its concentrations depends considerably on weather conditions, background concentrations and long-range transport of its precursors: NO_x, NMVOC, CO and CH_4.

Trend and current state

The ozone precursor emissions, with exception of CH_4, have been on decrease, particularly compared to the 1990 base year level. Emissions of NO_x have been on decrease because of lower levels of fuel consumption in energy sector (particularly in transport). Reduction of non-methane volatile organic compounds (NMVOC) emission resulted from implementation of the best available techniques in solvent use and, lover levels of emission from road transport is due to the implementation of technical requirements on exhaust gases. Source of CH_4 are fugitive emissions generated by fuel combustion, waste disposal and agricultural activities. CH_4 emission in 2012 was 2.6% higher compared to 1990 because of increase in emission from the waste management sector. Ground-level ozone is above all a regional problem, caused by long-range transboundary transport of ground-level ozone and its precursors. Therefore, obligations under the Gothenburg Protocol are implemented aiming at common resolution of these issues on the European level[2].

Ozone precursor emission trend for NO_x, NMVOC, CO and CH_4



Source: CEA

[2] Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (OG-IT 4/08) is based on Multi-pollutant Multi-effect (MPME) approach, and it defines limit values for SO_2, NO_x, NMVOC and NH_3 emissions.

AIR

Annual Mean PM_{10} Concentration Trend in Urban Areas

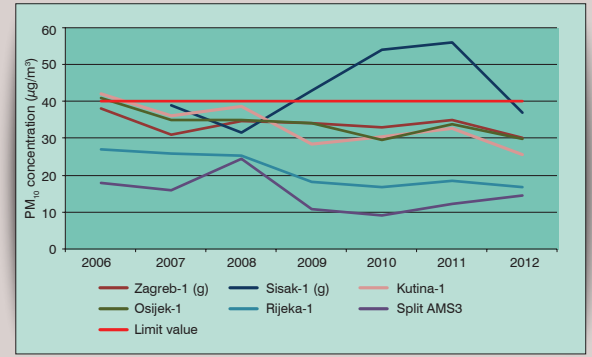
Particulate matter PM_{10} is a mixture of organic and inorganic substances in form of fine dust suspended in the air. Particulate matter emissions result from fuel combustion (in power generation and transport), manufacturing industry and manure management. They significantly impact human health because they penetrate the respiratory tract and reduce human resistance to allergies and infections. Air pollution by particulate matter is most widespread in populated areas in mainland Croatia, i.e. in agglomerations of Zagreb, Osijek, Kutina and Sisak.

Trend and current state

Annual average PM_{10} concentrations[3] are generally lower than the set limit values, and they show a trend of moderate decrease, except in Sisak where the limit values were exceeded in 2010 and 2011.

Daily PM_{10} concentrations continuously exceed allowed daily limit values in the entire territory of the City of Zagreb. Majority of emissions comes from transport and fuel combustion. Allowed daily limit values of PM_{10} concentrations have been exceeded in town of Osijek for the same reason. Apart from transport and furnaces, large combustion plants in Kutina and Sisak (petrochemical industry) are major emission sources of PM_{10}. Number of exceeded daily limit values in Rijeka and Split is negligible.

Annual Mean PM_{10} concentration trend in Urban areas



Source: CEA

[3] Annual average concentrations are calculated from daily PM_{10} concentrations.

CLIMATE CHANGE

Greenhouse Gas Emissions and Sinks

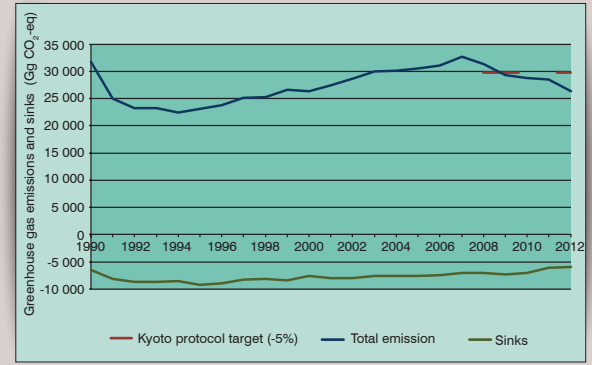
Climate change is a dominant global problem of the 21st century. Its effects are reflected in increase in average air temperature, change in precipitation, ocean temperatures, and extreme weather (e.g. droughts, heat waves and floods). Croatia participates in international activities for mitigation of climate changes by meeting its commitments under the international treaties[4].

Trend and current state

By ratification of the Kyoto Protocol Croatia accepted the obligation to reduce greenhouse gas emissions in the period 2008-2012 to 95% of the base year (1990) level, namely to about 29 760 Gg CO_2-eq a year (1 570 Gg CO_2-eq in each year during this period). Assigned amount of emission units for Croatia for the period 2008-2012 was 148 780 Gg CO_2-eq. According to the currently available data total emission for the current period is 144 350 Gg CO_2-eq, which means that Croatia will achieve the emission reduction target under the Kyoto Protocol. Trend of CO_2 removal by sinks in the forestry sector has been reduced due to considerable wood mass damage caused by complex decay of forest, primarily due to extreme weather (particularly in the Mediterranean) and wildfires that affected an area of as much as 24 804 ha in 2012.

[4] United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol

Greenhouse gas emissions and sinks trend in Croatia



Source: CEA

INLAND WATER

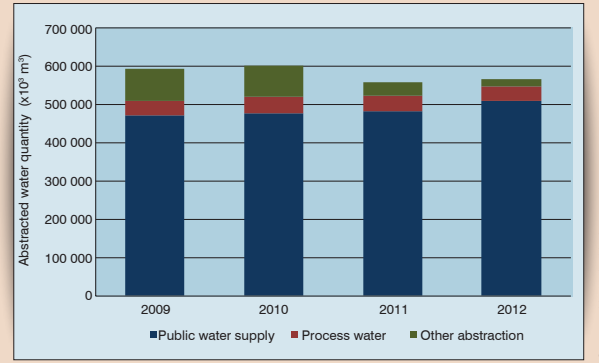
Use of Freshwater Resources

Water supply is a matter of public interest and has priority over all other ways of water usage. Public water includes not only the supply to households but also to various activities (business, institutions, etc.). Water abstraction for public water supply is a major pressure on water resources, since it accounts for more than half of abstracted water. In addition to public water supply, water is abstracted for industrial (process water) and other purposes (irrigation, freshwater fish breeding, use of mineral and thermal waters, use of water from private intakes for living space heating and cooling, etc.).

Trend and current state

According to data available from Hrvatske Vode, average annual water abstraction in the period 2009-2012 for public water supply (population and business sector, without abstraction for energy production hydropower generation) was about 485 million m^3, with slight increase in quantities. Water abstracted from private sources for industry (process waters) amounted to 39.2 million m^3/year. Water is also used for commercial fish breeding, but water abstraction for this purpose has dropped considerably, from 73 million m^3 in 2009 to 1.6 million m^3 in 2012. According to the Central Bureau of Statistics 2009-2011 data, average water use for cooling in energy production was 546 m^3/year.

Use of freshwater resources in Croatia



Source: Hrvatske Vode

INLAND WATER

Floods

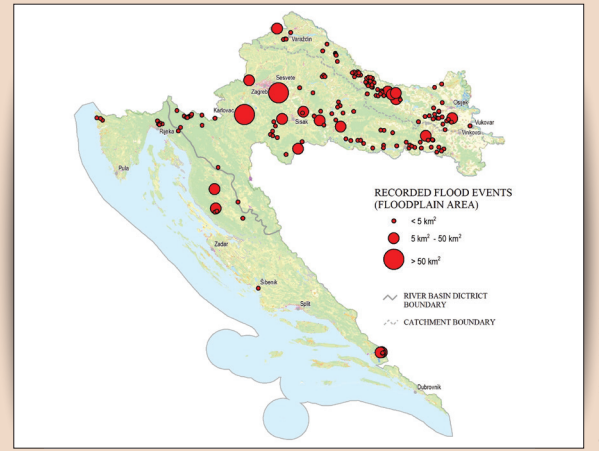
Floods are natural disasters and they pose a risk for human health and life, frequently causing major economic damage. The flood risks could be reduced to an acceptable level by taking various measures.

Trend and current state

From 2009 to 2012, 195 major floods were recorded with total floodplain area of over 780 km^2. Most significant floods happened in 2010, and on 20 September a historical maximum flow rate of 3 360 m^3/s was recorded on the Sava - Podsused Žičara / water monitoring station. This flow rate is 13% higher than maximum flow rate recorded during the catastrophic Zagreb flood in 1964. Pursuant to Water Act[5], flood protection and prevention management is under authority of Hrvatske Vode. Main Flood Protection Centre was established as a central unit of Hrvatske Vode for management of regular and emergency floods protection, in line with the National Flood Protection Plan[6]. The Main Flood Protection Centre is in charge of coordination and dissemination of information about the situation in flood control, and it permanently collaborates on the issue with the National Protection and Rescue Directorate and the Croatian Hydrological and Meteorological Service.

[5] OG153/09, 130/11, 53/13 and 14/14
[6] OG 84/10

Spatial distribution of flood events, 2009-2012



Source: Hrvatske Vode

SEA AND COASTAL AREA

Ballast Water Quantity

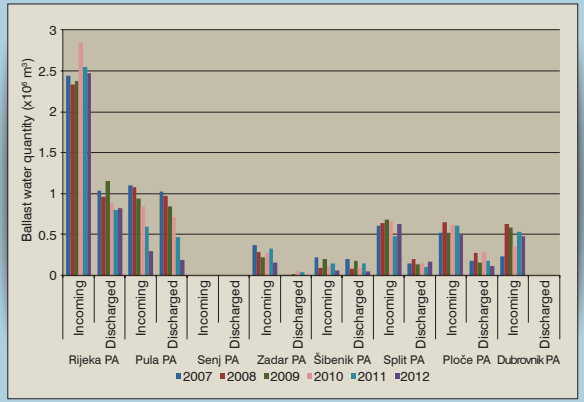
After unloading the cargo vessels take on ballast water for navigational stability, and discharge it into the sea after new cargo is loaded. Since a cubic meter of ballast water could contain from 3 000 to 10 000 marine organisms, and such harmful organisms and pathogens are frequently transported from remote locations, they pose a threat to biodiversity of marine and coastal ecosystems receiving ballast water.

Trend and current state

Setting up a legal framework for ballast water control and reporting started in 2007 with adoption of the related Ordinance[7]. Reporting on ballast water was voluntary during the period between 2005 and promulgation of the Ordinance. A new Ordinance[8] was released in 2012. According to the data available from the Ministry of Maritime Affairs, Transport and Infrastructure, quantity of imported ballast water in the period 2007-2012 fluctuates in all Croatian ports, with exception of the Pula Port Authority showing a decrease. Total quantity of discharged ballast water decreased during this period, particularly in 2012, as a result of decrease in the number of vessels entering the ports. No ballast water was discharged in the Senj Port Authority and Dubrovnik Port Authority areas. However, it should be noted that origin of a large share of ballast water discharged in the Croatian ports is originally from the Adriatic Sea.

[7] Ordinance on Ballast Water Management and Control (OG 55/07)
[8] Ordinance on Ballast Water Management and Control (OG 128/12)

Total incoming and discharged ballast water by port authorities



Source: MMATI

SEA AND COASTAL AREA

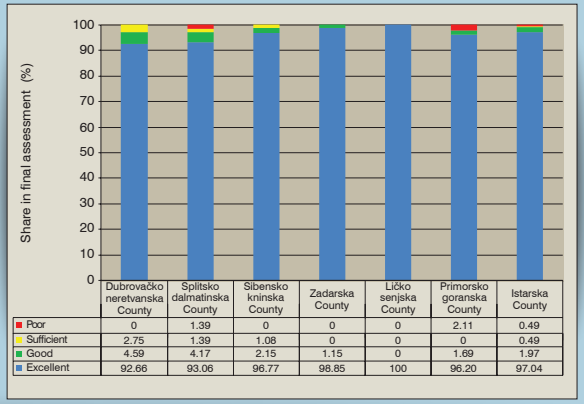
Sea Bathing Water Quality at the Beaches of the Croatian Adriatic

The quality of sea bathing water at the Croatian beaches has been monitored systematically and consistently since 1989. Since 2009, monitoring has been carried out at more than 900 sampling points pursuant to the Regulation on Sea Bathing Water Quality[9]. Individual assessment is based on concentration of microbiological parameters (*E. coli* and intestinal enterococci), and water classifies as excellent, good, sufficient or poor. The final assessment[10] is made on the basis of results for the last and three preceding bathing seasons.

Trend and current state

According to the final assessment of the sea bathing water quality for the period 2010-2013, water quality in 95.9% sampling points was excellent, in 2.4% good, in 0.8% sufficient and in 0.9% poor. The results indicated that sea bathing water quality in Croatia is high, even higher than the European average. Sea bathing water quality is monitored in order to recognize, prevent and remove risks that could cause bathing water contamination and threaten human health. To recognize and prevent possible pollution risks, the so called sea bathing water profiles are prepared as a set of basic characteristics of sea beaches and sea bathing water, including pollution risk levels.

Final assessment of the sea bathing water quality by counties



	Dubrovačko neretvanska County	Splitsko dalmatinska County	Sibensko kninska County	Zadarska County	Ličko senjska County	Primorsko goranska County	Istarska County
Poor	0	1.39	0	0	0	2.11	0.49
Sufficient	2.75	1.39	1.08	0	0	0	0.49
Good	4.59	4.17	2.15	1.15	0	1.69	1.97
Excellent	92.66	93.06	96.77	98.85	100	96.20	97.04

Source: MENP

[9] OG 73/08

[10] Final assessment is made after the last bathing season and three preceding bathing seasons, based on limit values of microbiological parameters from Annex I, Table 2 of the Regulation, and set of data comprising minimum 28 samples for each sampling point

SOIL AND LAND

Area of Land Use Categories in LULUCF Land Matrix

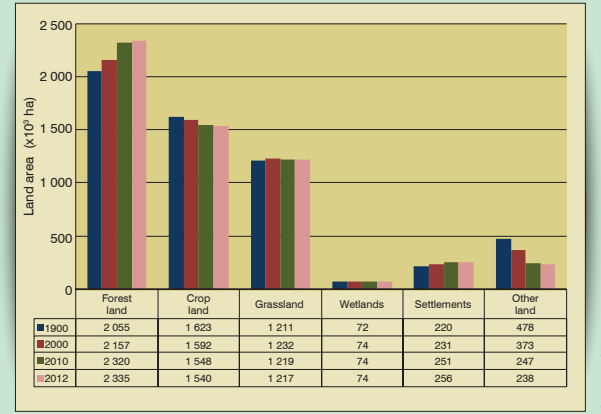
Land is a limited resource which supports most of the human activities. The land use and land use change are major drivers of environmental changes which considerably affect quality of human life, ecosystems and economic activities.

Trend and current state

Based on commitments under UNFCCC[11] and Kyoto Protocol[12] regarding National Inventory Report (NIR), a land use matrix in the LULUCF [13] sector is produced for the Republic of Croatia. According to the IPCC methodology, land is divided into six categories of land use in order to monitor changes since the base year (1990). The land use matrix is the basis for calculation of numerous data on atmospheric emission, and the data on greenhouse gas removals from atmosphere. Grassland and forest land are most important land use categories regarding mitigation of climate change, since, they produce carbon capturing effect by storing carbon in soil and vegetation. In 2012, these land categories occupied 62.8% of the Croatian territory. Between 1990 and 2012, grassland area increased slightly (by 0.1%), and forest land increased by 4.9%. The cropland area decreased by 1.5%, and settlements (including infrastructure) increased by only 0.6%.

[11] Act on Ratification of United Nations Framework Convention on Climate Change (UNFCCC) (OG-IT 2/96)
[12] Act on Ratification of Kyoto Protocol to United Nations Framework Convention on Climate Change (OG-IT 5/07)
[13] Land Use, Land Use Change and Forestry sector

Area of land use categories in LULUCF land matrix



	Forest land	Crop land	Grassland	Wetlands	Settlements	Other land
1900	2 055	1 623	1 211	72	220	478
2000	2 157	1 592	1 232	74	231	373
2010	2 320	1 548	1 219	74	251	247
2012	2 335	1 540	1 217	74	256	238

Source: CEA

SOIL AND LAND

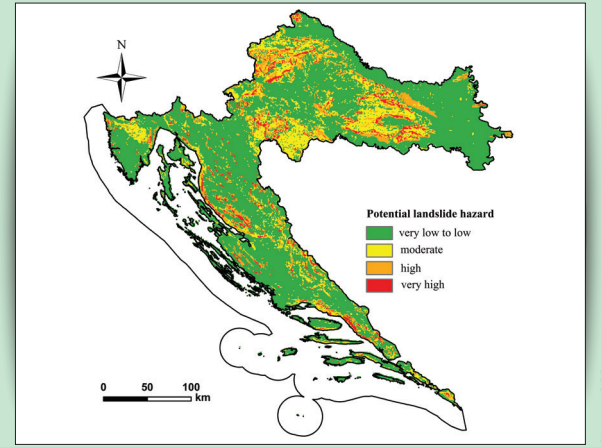
Potential Landslide Hazard in Croatia

Generally, landslides are areas affected by movement of geological material on slopes, mostly under the impact of gravity. Landslides and rockslides are frequent in Croatia, and they are caused by abundant precipitations, seismic activity and improper building practices. Several thousand landslide sites posing a hazard for people and property have been recorded.

Trend and current state

The map of Croatia displays areas with different level of vulnerability to landslides depending on the ground slope, lithology and land cover. A very high vulnerability to landslide occurrence is determined for 4% of the national territory, high for 8%, moderate for 15%, and very low to low for 73% of the national territory. Landslides mostly occur on poor bedrock, dominantly clays and rocks (NW Croatia, Slavonia Mountains and area of Mt. Petrova Gora). Another type of sliding occurs on rocks with highly pronounced and “sliding” shale and marl surfaces (Gorski Kotar, vicinity of the City of Rijeka and flysch zones). Rockslides are typical for very steep slopes of hard carbonate rocks, particularly those over flysch deposits (greater area of the cities of Omiš and Makarska, southern slopes of Mt. Velebit).

Potential landslide hazard map for Croatia



Source: CGS

BIODIVERSITY

Habitat Fragmentation by Transport Infrastructure

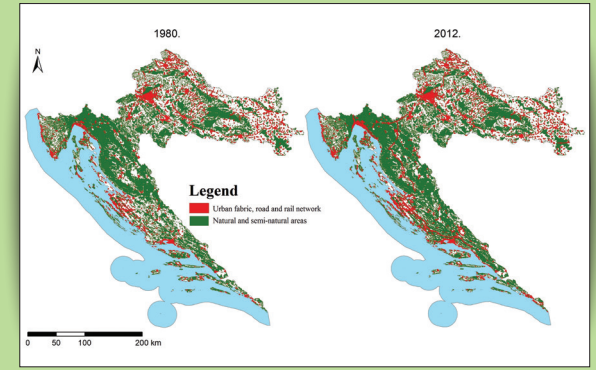
Activities directly causing destruction and loss of habitats, such as construction of roads, are the highest threat to biodiversity. Large carnivores that need vast movement territory are most vulnerable to fragmentation and intersecting of habitats.

Trend and current state

Surface under highways in Croatia has increased by 100% during the last decade. New highways connect inland Croatia with the northern and southern coastal zones. Their routes through the regions of Gorski Kotar, Lika and Dalmatia intersect habitats of large carnivores (bear, wolf and lynx). Traffic also affects other animal species, such as amphibians and birds. Comparison of data for 1980 and 2012 reveals an increase in fragmentation of the Croatian territory. This is particularly pronounced in the Lika region, where construction of A1 highway cut Lika into eastern and western part. In eastern part of Croatia, construction of A3 highway cut a significant landscape of Spačva, the largest common oak complex, into two parts. This negative impact is mitigated by construction of green bridges (11), tunnels, viaducts, and smaller wildlife passages. Protective measures and maintenance of public road crossings is regulated by the Ordinance on Wildlife Crossings[14].

[14] OG 5/07

Habitat fragmentation by transport infrastructure, 1980-2012



Source: CEA

BIODIVERSITY

Ecological Network Natura 2000 Sites in Croatia

Natura 2000 is an ecological network of sites important for conservation of species and habitat types that are threatened in the territory of the European Union[15]. Natura 2000 aims at conservation and restoration of favourable conditions for thousands of threatened and rare species and about 230 natural and semi-natural habitat types.

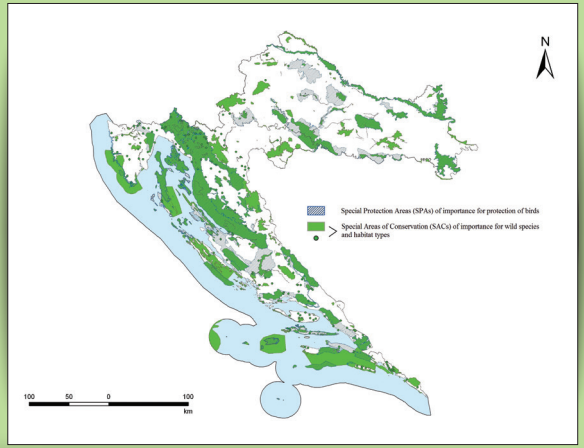
Trend and current state

The most important and most demanding requirement in nature protection for EU member states is to designate sites of ecological network as a part of Natura 2000. The sites are determined using scientific criteria, while their management tends to respect interests and wellbeing of local population. The sites are divided into Special Areas of Conservation (SACs) due to importance for species and habitat types, and Special Protection Areas (SPAs) of importance for protection of birds. In October 2013, the Regulation on Ecological Network[16] was adopted according to which ecological network Natura 2000 replaces earlier national ecological network from 2007. The Natura 2000 area encompasses 36.67% of the mainland territory and 16.39% of sea, i.e. 29.38% of total Croatian territory. This regulation specifies a reference list of species and habitat types, criteria, target species and habitat types for which individual sites of the ecological network are being designated as well as the map with boundaries of all designated sites.

[15] Based on Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Directive 2009/147/EC on the conservation of wild birds (Birds Directive)

[16] OG 124/13

Ecological Network Natura 2000
Sites in Croatia



Source: SINP

FORESTRY

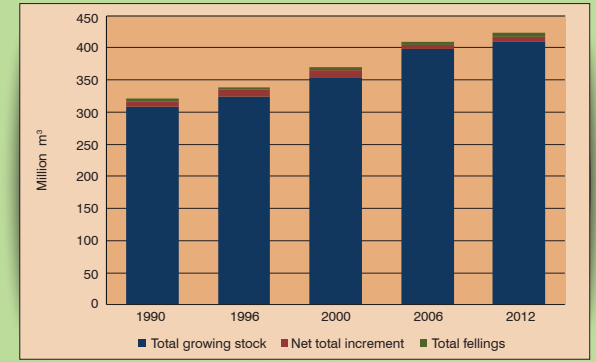
Intensity of Forestry

Forests are a key element of biodiversity conservation, regulation of catchments and climate conditions, they protect soil from erosion and have considerable impact on quality of air and waters. Croatia manages its forests as a valuable economic and natural resource respecting the principles of sustainable management (75% of forests have FSC certificate[17]), which ensures healthy and sustainable ecosystem and raw material for wood industry and energy sector. Intensity of forestry, which is based on the growing stock monitoring, is one of forestry management indicators.

Trend and current state

The growing stock is assessed by tree volume per area unit (m^3/ha), and is presented in a ten-year Forest Management Area Plan (FMAP) for a specific area. According to the latest FMAP (2006-2015), the growing stock is 398 million m^3, with future growth trend for the major commercial species. In the period 1990-2012, annual value of net increment was about 9 million m^3 on average, while fellings varied between 60% and 70% of the increment. Since every year increment is higher than fellings, increase in growing stock is continuous. It should be highlighted that felling also includes damage caused by natural disasters (droughts, fires, icefalls, windfalls) and natural pests (insects, fungi, nematodes) and infrastructure works.

Intensity of forestry in Croatia



Source: Hrvatske šume

[17] FSC is an accredited certification which confirms that forest is managed according to strict ecological, social and economic standards. Forests managed by Hrvatske Šume d.o.o. have been certified since 2002.

FORESTRY

Number of Wildfires and Fire-affected Areas in Croatia

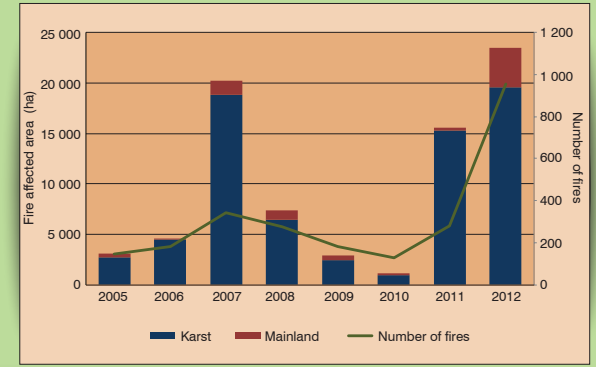
Besides jeopardizing human life and health and causing considerable economic damage, forest fires cause degradation of forest ecosystems and environmental pressures: loss of habitat, groundwater contamination and increase in CO_2 emission.

Trend and current state

As much as 89% of total fire-affected areas in the period 2005-2012 occured in the Dalmatian karst on the coast and islands, due to long periods of droughts and vegetation cover easily catching fire. Most fires (953) and fire-affected areas (24 804 ha) were recorded in 2012. According to the Fire Weather Index[18] method high increase in fire danger and potential vegetation fire danger, as well as longer fire seasons have been recorded during the last 30 years period. According to the same method, a statistcaly significant trend has also been recorded for risk danger in the mainland Croatia (Lika region and eastern Croatia) during the last sixty-year period. Fire regime in the Croatian territory fits into a greater picture of forest fire danger in the Mediterranean and eastern Europe during the summer months[19]. In 2012, Hrvatske Šume d.o.o. invested 46.31% (HRK 47 840 000) of money collected from non-market forest function tax into fire prevention and combat.

[18] Meteorological index of fire danger
[19] Croatian Hydrological and Meteorological Service

Number of wildfires and fire-affected areas in Croatia



Source: MA

AGRICULTURE

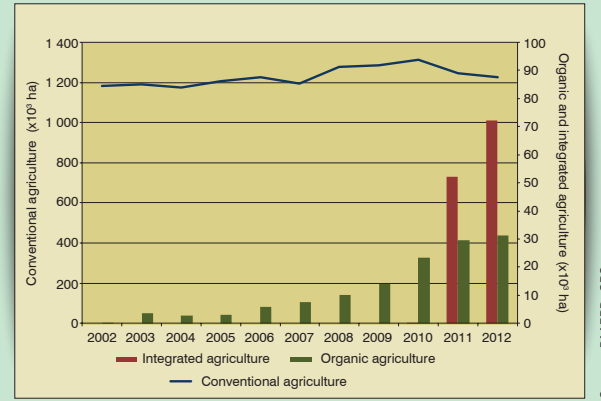
Agricultural Production in Croatia

Agricultural production, and agricultural land alike, is divided according to the management practices into conventional, integrated and organic. While conventional agriculture used different kinds of agrichemicals and, consequently, considerable quantities of non-renewable natural resources and energy, causing environmental problems (soil contamination and degradation, pollution of water and air, decrease in biodiversity), integrated and organic production is based on principles of sustainable agricultural production.

Trend and current state

Agricultural land has been increasingly used pursuant to the principles of sustainable agricultural production. In the period 2002-2010, agricultural land under conventional production increased by 10%, but it decreased by 6.4% between 2010 and 2012. The reason, in addition to reduction in total agricultural production volume, was an increasing conversion of farms into the integrated and organic agricultural production systems. In 2002, only 52 ha of land was under organic production, and it grew to 31 226 ha in 2012. Integrated agricultural production practices have been implemented since 2010, when first 171 ha of land was entered into the Register of Producers in Integrated Agricultural Production. Late in 2012, 72 259 ha was registered.

Agricultural land in conventional, integrated and organic agricultural production system



Source: PAAFRD, CBS

AGRICULTURE

Agricultural Land Area in Croatia

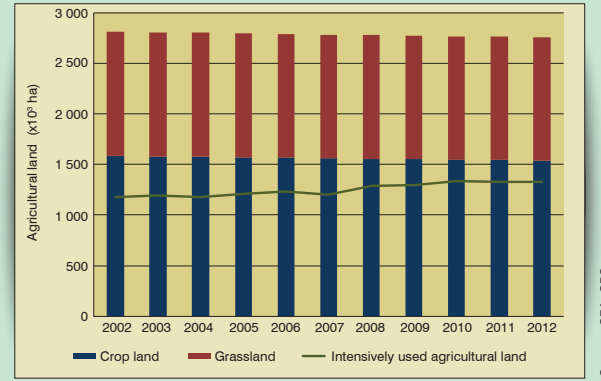
Agricultural land includes arable land, gardens, meadows, pastures, orchards, olive groves, vineyards, fishponds, reed-patches and wetland, and other land which could be used for agricultural production at economically viable cost. Bare forest land and forest land overgrown with initial or degradation phases of forest stand development (maquis, garrique, shrub osier willows and other), suitable for agricultural production, are also considered agricultural land.

Trend and current state

Land use matrix, used as basis for calculation of numerous data on atmospheric emission and removals (sinks) of greenhouse gases is prepared according to the IPPC methodology[20] for reporting under the UNFCCC[21]. According to this methodology, total agricultural land area in 2012 was 2.7 million ha, which corresponds to the data available from the Ministry of Agriculture (2.69 million ha of total agricultural land). A slight decrease in total agricultural land of 3.6% has been recorded during the last eleven-year period. During the same period, cropland area (annual crops and perennial crops) has also decreased by 2.7%, and in 2012 it covered 1.5 million ha, while the area under grassland (meadows and pastures) has not changed significantly and it covers about 1.2 million ha of land.

[20] Intergovernmental Panel on Climate Change
[21] United Nations Framework Convention on Climate Change

Agricultural land area in Croatia acording to the land use matrix (UNFCCC/LULUCF)



Source: CEA, CBS

WASTE MANAGEMENT

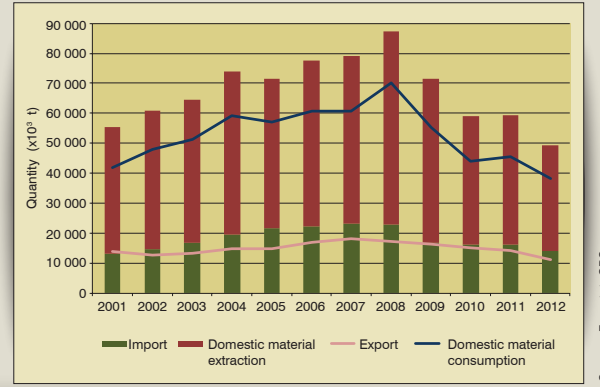
Domestic Material Consumption

Domestic material consumption (DMC) is an indicator related to material resources (biomass, fossil fuels, metal ores and other mineral resources), and it indicates efficiency of their use in national economy. Domestic material consumption shows which potential environmental pressures are caused, for example, by waste generated in raw material extraction or processing.

Trend and current state

Due to general economic growth, increase in extraction of resources and slight growth in share of material from import in consumption, DMC had been increasing continuously by 68% between 2001 and 2008, which corresponds with general trends at the EU-27 level. As result of economic crisis, from 2008 to 2012 a decrease in DMC from 70.2 to 38.3 million tonnes (by 45%) with simultaneous decrease in domestic extraction of material, import and export was recorded. The highest decrease in DMC was recorded in consumption of minerals in construction and industrial sector.
In 2012, the highest share in DMC was that of non-metallic minerals, such as raw materials for cement, glass, ceramic and lime industry (total 59.6% or 22.8 million tonnes). Share of fossil fuel was 19.6% or 7.5 million tonnes, and share of biomass was 18.7% or 7.2 million tonnes. Metal ores and other mineral resources account for the remaining 2.1% or 0.8 million tonnes. DMC in Croatia was 38.3 million tonnes or 9 tonnes per capita in 2012, which is considerably lower than EU-27 average of 15 tonnes.

Import, export, extraction and domestic material consumption



Source: Eurostat, CBS

WASTE MANAGEMENT

Total Waste Generation

Monitoring of total amount of generated waste enables evaluation of progress made towards achieving a goal of minimisation and reduction in waste generation, which ultimately contributes to increase in resource use efficiency.

Trend and current state

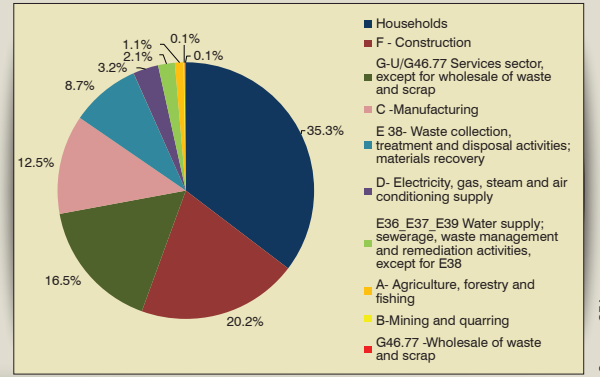
Total quantity of waste generated in 2012 was about 3.37 million tonnes, which 7% less than in 2008. According to the Statistical classification of economic activities[22], Households sector accounts for highest share among activities generating waste (35%), followed by Construction (20%), Services (17%) and Manufacturing (13%). Nine per cent of waste is generated in Waste collection, treatment and disposal sector, and the remaining 6% originates from other sectors. Waste data for some sectors (Agriculture and forestry/ Mining and quarrying) are not adequate because they are not covered by legislation or quantities are not reported. Approximately 123 000 tonnes of hazardous waste (4% of total waste generated), mostly from manufacturing, was recorded in 2012.

Highest share in manufacturing waste comes from construction waste[23] (22%), waste metal (11%), and waste paper and cardboard (5%). Between 2008 and 2012, municipal waste quantities were reduced by 7%. In 2012, 1 670 005 tonnes of municipal waste was generated, namely each person living in Croatia generated 390 kg of municipal waste, which is below the EU average (492 kg p.c.).

[22] Decision on National Classification of Economic Activities 2007 (OG 58/07)

[23] Mostly earth, rocks and mineral waste

Share of individual sectors in total waste generated in 2012



Source: CEA

WASTE MANAGEMENT

Waste Management R/D Procedures

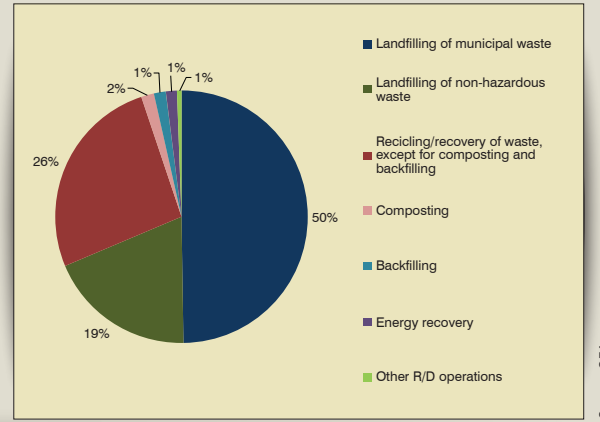
A step towards sustainable waste management is made by respecting waste hierarchy, which means improvement in reuse, recycling and other forms of waste recovery, including energy recovery. A goal is to reduce the amount of waste that goes to landfills.

Trend and current state

In 2012, 2 778 839 tonnes of waste generated in Croatia was recovered/disposed[24]. Implementation of waste recovery operations R[25] (recycling, composting, energy recovery, backfilling, etc.) resulted in recovery of 30% of waste, while disposal operations D (incineration without energy recovery, landfilling, etc) were applied to 70% of waste. The majority of waste (69%), a total of 1 906 931 tonnes of municipal and non-hazardous production waste, were landfilled. Disposed amount of waste was reduced from 97% in 2008 to 83% (1 382 .283 tonnes) in 2012. Recycling encompassed 728 454 tonnes or 26% of total waste amount. Only 3% of waste was composted (45 819 tonnes) and energy recovered (39 409 tonnes). Backfilling operations (e.g. rubble used on landfills) resulted in 42 231 tonnes of recovered waste. Municipal waste recovery rate increased to 15%, and the greatest share in municipal waste recovery was recorded in Međimurje County (33%) and Primorje-Gorski Kotar County (14.4%).

[24] Data source: applications to the Environmental Pollution Registry (Form ROO/PLOPKO) and additional evaluations. Share of waste import/export not considered.
[25] Annex I and II to the Sustainable Waste Management Act (OG 94/13)

Shares of recovery (R) / disposal (D) procedures in 2012



Source: CEA

ENERGY

Renewable Energy Sources Production and Consumption

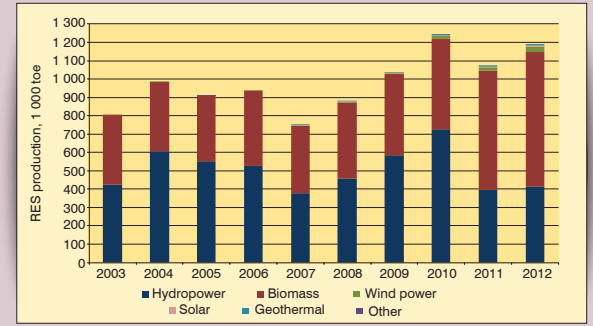
When talking about renewable energy sources (RES) we commonly make a distinction between conventional renewable energy sources (biomass and hydro power) and the so called new renewable energy sources (solar, wind, geothermal energy, landfill gas and biogas, liquid biofuels). The renewable energy sources most commonly used in primary energy production are hydro power and biomass, while new renewable energy sources are still less commonly harnessed.

Trend and current state

New RESs participated in total 2012 primarily energy production with 3.2%. If share of all RESs in 2012 were considered, it was much higher and accounted for 45.4% (EU-27 average was 20% in 2010). The peak value of primary energy production by RESs was 1 245 300 toe in 2010. However, in 2011 it decreased by 13.3%, which was due to unfavourable hydrological conditions. In 2012, the primary energy production by RESs increased by 10.65% compared to the previous year, mostly because of increase in biomass-based energy production which participated with 61.7% in total energy production by RESs. Hydropower participated with 34.7% and the so called new renewable energy sources with only 3.6%. In 2012, wind power recorded the highest increase (63.5%) compared to the year before. In 2012, share of all RESs in total energy consumption was 12.5%[26], of which 1.56% was share of new RESs. Although their share in total energy consumption is very small, it has increased significantly (from 0.24 PJ in 2006 to 5.72 PJ in 2012).

[26] Eurostat method

Primary energy production by renewable sources



Source: HPEI

ENERGY

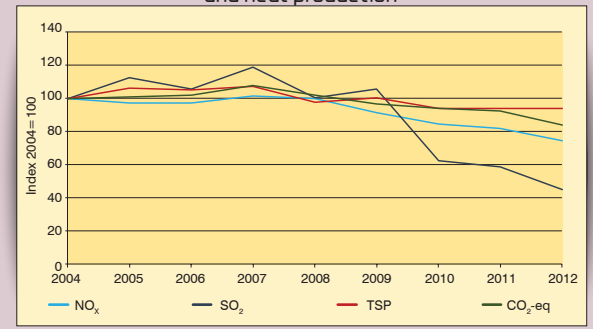
NO_x, SO_2, TSP and CO_2-eq Emission from Energy Sector

SO_2 and NO_x gases are not only harmful to health but also known as acid gases which precipitate from the atmosphere in wet (acid rain) or dry form. Additionally, NO_x participates in eutrophication and production of tropospheric ozone, and CO_2 is the most important anthropogenic cause of global warming. Total suspended particulates (TSP) have harmful impact on respiratory system.

Trend and current state

Fuel combustion in Energy sector is a dominant source of CO_2, SO_2, NO_x and total suspended particulate (TSP). According to data from the LRTAP[27] Report, emission of these gases was decreasing continuously from 2008 to 2012. The reasons for emission reduction are in decreasing use of high-sulphur fuels, use of emission abatement techniques, improvement in energy efficiency, as well as economic crisis that caused decrease in fuel consumption and industrial production. The most important decrease in SO_2 emission was recorded in Industry and construction subsectors, and Road traffic subsector, as well. This is explained by use of low-sulphur fuels and increased in natural gas consumption. Road traffic is a dominant NO_x emission source, and emissions have been reduced because of an obligation to install catalytic converters into cars, and partly because of drop in fuel consumption. The largest source of TSP emission is Non-industrial combustion plants[28] subsector which participated with almost 49% in 2012.

NO_x, SO_2, TSP, CO_2-eq emission and total electricity and heat production



Source: CEA

[27] LRTAP - Convention on Long-range Transboundary Air Pollution

[28] Non-industrial combustion plants include households (residential premises) and services (commercial premises)

INDUSTRY

Preventing Major Industrial Accidents Involving Dangerous Substances and Accidents in Industry

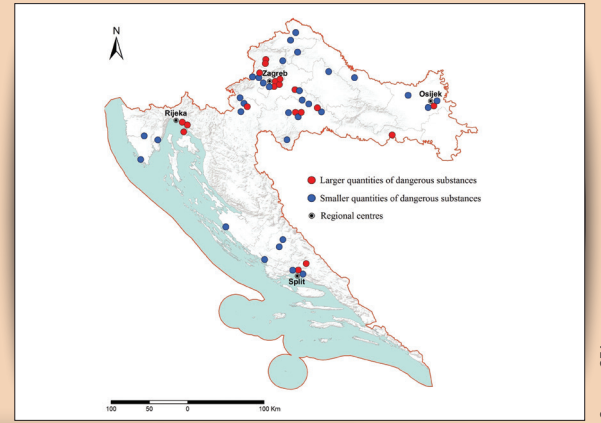
The two relevant pieces of regulation[29] are brought to stipulate the types and quantities of dangerous substances presence that could be the cause of a major accidents, or which could be generated during the major accidents. They also stipulate the obligations of operators in such cases.

Trend and current state

Establishments where dangerous substances are present report to the RIDS, and in case of major accident outbreaking, they are obliged to report to the RRMA. According to the data from March 2014, RIDS received reports from 51 installations, 19 with larger quantities of dangerous substances, and 32 with smaller quantities. Majority of establishments are located in Sisak-Moslavina County (10), the City of Zagreb (6), and Zagreb County (5). RRMA received reports on four accidents, one of them has been categorized as major accident, and two others as accidents. The last one has been categorised as near-miss. The major accident happened in 2011 in the territory of Sisak-Moslavina County. It happened in a pipeline conduit in which petroleum vapours caught fire. Area affected by the fire included approximately 6 000 m^2, 3 000 m^2 of which in the conduit. No impacts were reported outside the accident area. Setting up of these registers as databases enables informing of public, better control of dangerous substances and monitoring of major accidents, accidents and near-misses, implementation of preventive policy and preparation of documents on protection and rescue.

[29] Regulation on the Prevention of Major Accidents Involving Dangerous Substances (OG 114/08, NN 44/14) and Ordinance on the Registry of Installations in which Dangerous Substances are present (RIDS) and the Register of Reported Major Accidents (RRMA) (OG 113/08)

Georeferenced map of establishments involving dangerous substances in the Republic of Croatia



Source: CEA

CHEMICALS

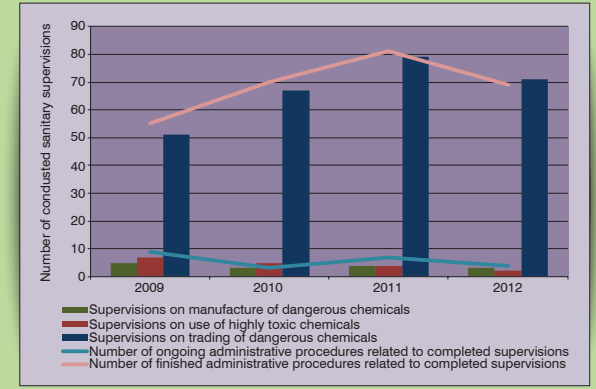
Implementation of Sanitary Inspection in the field of Safe Chemical Management

Chemicals are essential for everyday life, technological development and progress of a society as a whole. However, their manufacture, processing and use are connected with global environmental pollution.

Trend i trenutno stanje

According to the data available from the Ministry of Health, the number of sanitary inspections related to trading of dangerous chemicals increased between 2009 and 2011. The number of inspections was lower in 2012, resulting from insufficient personnel capacities. Sanitary inspection mostly covers trading of dangerous chemicals and, in a very small degree, their production and use. This means that production in Croatian chemical industry and use of dangerous chemicals is negligible compared to their trade, mostly import, repackaging and placing of dangerous chemicals in the local market. In the period 2009-2011, a number of finished administrative procedures on this issue increased, than decreased, but it was still much higher than a number of ongoing administrative procedures. A number of entries into the Register of Biocide Preparations has considerably increased (from 48 in 2009 to 89 in 2012), which indicates that inspection supervision improved and measures and procedures in the field of Safe Chemicals Management intensified.

Implementation of Sanitary supervision in the field of Safe Chemical Management



Source: MH

TOURISM

Tourism intensity

Since tourism in Croatia is mostly concentrated in coastal counties (96%) during a limited period of time (June – September), pressures on the infrastructure system[30] in tourist destinations and components of the environment are expected. The relevant pressure indicator is tourism intensity per capita[31].

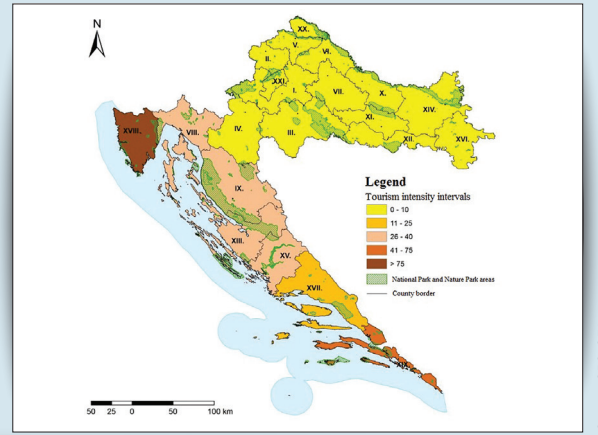
Trend and current state

The number of overnight stays of tourists per capita in coastal counties shows a permanent upward trend, the highest in Istria County and Dubrovnik-Neretva County. Thus, in 2012 number of tourists per capita in Istria County was 95.5 (19.6 million overnight stays), and in Istria County 42.3 tourists per capita (5.18 million overnight stays). The lowest number of overnight stays per capita was recorded in the Split-Dalmatia County, i.e. 23.1 (10.5 million overnight stays). This indicator makes a good baseline for planning of development and improvement of infrastructure systems and organisation of life of local population and tourists in tourist destinations during the tourist season.

[30] Infrastructure system includes municipal utilities (water supply and sewerage system, waste management system, etc.) and traffic infrastructure.

[31] Tourism intensity expressed per capita is a ratio of overnight stays and county population.

Tourism intensity in Croatia expressed per capita (county) in 2012



Source: CBS, CEA

FISHERIES

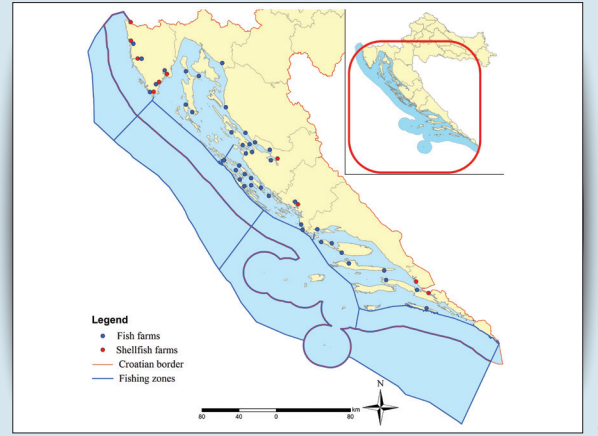
Mariculture

Properly planned and supervised production in mariculture has significant social and economic effects, but its environmental impact has to be taken into consideration (quantity and composition of generated waste, sensitivity of ecosystem in the selected area, etc.).

Trend and current state

Average annual production in Croatia is 4 600 tonnes of white fish, about 3 000 tonnes of shellfish, and about 2 400 tonnes of tuna fish. Mariculture production is constantly on increase, except for tuna because its production quantities depend on allowable catch quotas. About 30 licences are issued for white fish farming in altogether 60 locations (47% in Zadar County). Tuna fish breeding is situated in two counties, in 14 fish farms, of which 13 in Zadar County. In 2012, 257 shellfish farms were recorded, mainly in the Malostonski Zaljev bay, Dubrovnik-Neretva County (70.7%). In 2012, fish farms in seven coastal counties occupied about 4.8 km^2. Spatial planning for development of mariculture is under responsibility of regional/local self-government units. Although mariculture is based on exploitation of highly-degradable matter with minimum environmental emission, fish farms have strong impact on increasing the degree of eutrophication, therefore spatial planning for marine fish farms needs to be in line with provisions of applicable regulations on the environmental and nature protection.

Spatial distribution of fish farms in Croatia



Source: MA

TRANSPORT

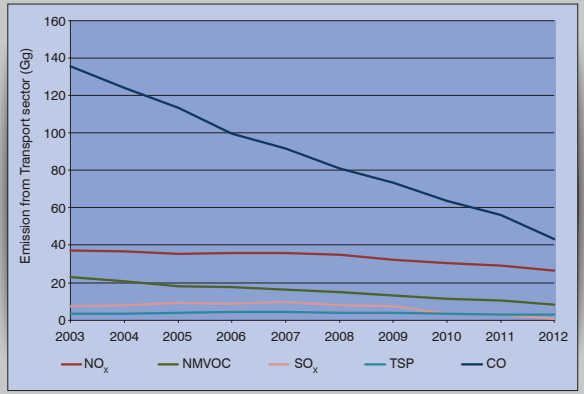
Atmospheric Pollution from Transport

Transport significantly contributes to pollutant emissions into air, including NO_x with 45%, NMVOC with 11.85%, particulate matter with 10.9%, CO with 15.5% and Pb with 91.4%. The reason lies in transport sector dependence on fossil fuels, namely market-oriented economy in which goods are transported to ever longer distances, and increase in mobility of people. There are, regretfully, no expectations of decrease of environmental impact from this sector in the near future.

Trend and current state

In the period 2003-2012, CO and NMVOC emission from Transport sector decreased significantly. CO emission reduction by 68.1% is attributable to increase in share of vehicles fitted with catalytic converters and higher share of new cars. NMVOC emission is also on decrease (64.4%) because of lower share of petroleum in consumption, reduction of fugitive emission from vehicles, and increase in vehicles fitted with catalytic converters. During the same period, SO_x emission decreased by 89.1% due to the use of low-sulphur fuels (to 10 mg/kg). To reduce emissions from transport, it is particularly important to make progress in technical characteristics of vehicles and increase energy efficiency of personal cars. Transport sector also needs to be organized in order to reduce transportation lines, i.e. to shorten travelling time and switch to infrastructure systems with lower contribution to air pollution and greenhouse gas emission (railway and inland waterways).

Atmospheric pollution from transport sector



Source: CEA

HEALTH AND SAFETY

Genetically modified organisms in Food

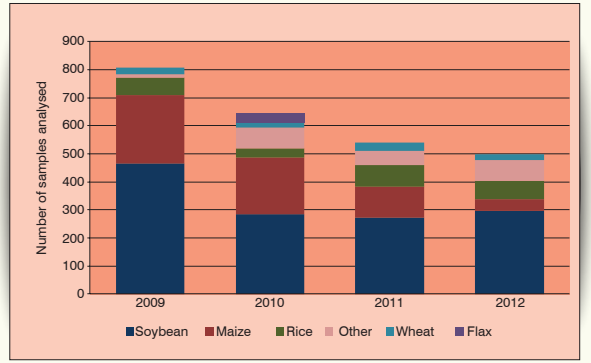
In addition to their use in biological and medical studies and manufacturing of medicinal products, genetically modified organisms (GMOs) are also used in agriculture. Placing GMOs on the market, labelling, traceability control and detection of GM foods is regulated by a series of regulations[32] and measures. However, it is necessary to continue researching on the direct and indirect impacts of GMOs on human health and the environment, along with continuous risk assessment, since they have an impact on plants, and thus on biodiversity.

Trend and current state

In the period 2009- 2012, Croatian Public Health Institute analysed 2 493 samples of plant and animal origin, the most numerous of soybean, maize and rice. Presence of GMO was detected in 2.6% samples, and in 1.3% samples GMO content exceeded a threshold level of 0.9%. When GMO in sample exceeds the stipulated 0.9%, goods from import are either returned or destroyed by the Sanitary Inspection. A sampling decrease trend is due to smaller funds allocated in the national budget for implementation of official controls in general, and focusing on other priority analyses determined by risk assessment. In the period 2009-2012, not a single request has been received by the Ministry of Environmental and Nature Protection for intentional introduction of GMO into the environment nor has any case of uncontrolled dissemination been reported. By the end of 2010, all the counties declared their territories GMO-free.

[32] Act on Genetically Modified Organisms (OG 70/05, 137/09, 28/13, 47/14), Food Act (OG 46/07, 155/08, 55/11)

Number and kind of samples analysed for GMO



Source: CPHI

GENERAL ENVIRONMENTAL ISSUES

Investments in Environmental Protection

Financial investments into environmental protection, which include end-of-pipe investments and investments into integrated technologies, are provided by the national budget, budgets of local and regional self-government units, the Environmental Protection and Energy Efficiency Fund and from other sources[33].

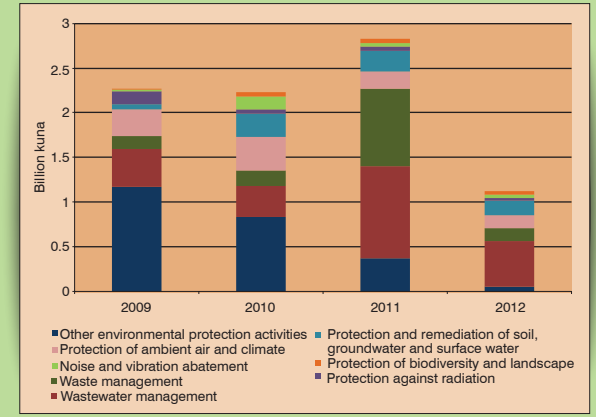
Trend and current state

Investments into methods, practices, technologies, processes or equipment for pollutant collection and removal belong to end-of pipe investments. Investments into integrated technologies are the investments into methods, practices, technologies, processes or equipment for pollution prevention or reduction (e.g. modifying or choosing new improved technology, product redesign, and replacing existing raw material with cleaner). In 2009 and 2010, total environmental investments were about 2.2 billion kuna, mostly into other environmental protection activities[34]. In 2011, total investment increased by 26.7% compared to the year before, amounting to 2.83 billion kuna. Most investments were made into Wastewater management (1.03 billion kuna). A sudden decrease in investments was registered in 2012 (1.12 billion kuna), when 507.5 million kuna (45.3%) was allocated to Wastewater management.

[33] Money from private-public partnerships, loans, grants, funds and programs of European Union, United Nations and international organisations

[34] Other environmental protection activities include administration and management, education, training, indivisible costs and cost not classified elsewhere.

Environmental investments by environmental domains



Source: CBS

GENERAL ENVIRONMENTAL ISSUES

Environmental Impact Assessment

Environmental Impact Assessment (EIA) is a procedure used to assess the acceptability of the intended project for the environment and determine the mitigation measures necessary to minimize the impacts of the project and preserve the environment. The assessment determines any direct or indirect impact of the project on environmental components (soil, water, sea, air, etc.) and on natural and cultural heritage.

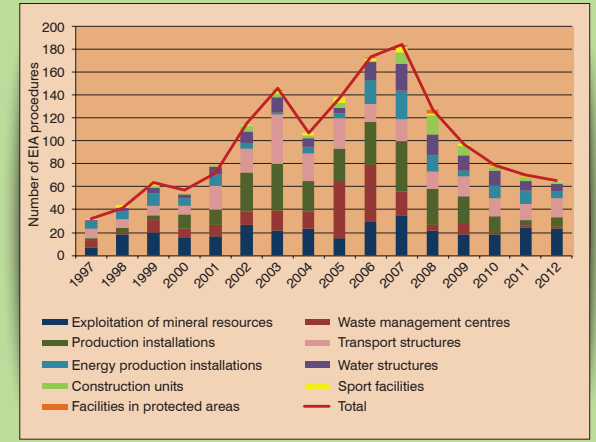
Trend and current state

Regulation on Environmental Impact Assessment[35] specifies the projects for which the EIA is obligatory and those projects that require screening to determine if EIA is necessary. The Ministry of Environmental and Nature Protection or a competent administrative authority in a county or in the City of Zagreb makes decisions regarding applications for EIA in accordance with the Regulation. From 1997 to 2012, a total of 1 567 applications were submitted, of which 1 348 were assessed as acceptable. In the same period, of the total number of EIA procedures most were related to exploitation of mineral resources (334) and production installations (329). In case the planned project could produce trans-boundary environmental impact, a trans-boundary EIA is conducted, as required by Espoo Convention[36]. From 2001 to 2012, there were 12 applications for trans-boundary EIA, of which eight projects were assessed as acceptable.

[35] OG 64/08, 67/09

[36] Convention on Environmental Impact Assessment in a Transboundary Context (Espoo), OG-IT 6/96

Number of applications for EIA by project type



Source: MENP

SUSTAINABLE PRODUCTION AND CONSUMPTION

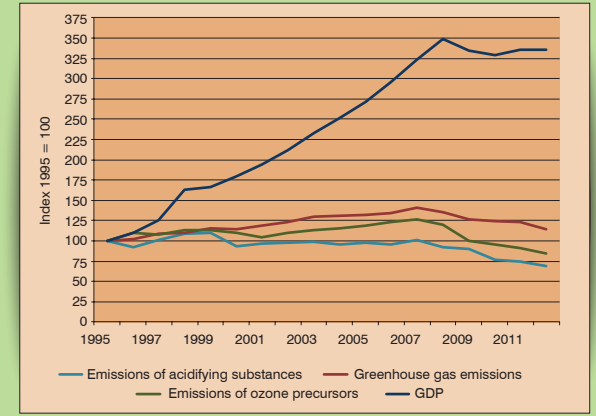
Decoupling Economic Growth from Environmental Pressure

The sustainable production and consumption implies efficient use of energy and resources and an economic growth (production) while at the same time reducing environmental emissions and materials used in production and consumption. The main objective is to achieve a balanced and stable economic growth with the least impact on further degradation of the environment.

Trend and current state

Decoupling economic growth from environmental pressures is one of the indicators of sustainable production and consumption, intended to achieve reduction in environmental emissions without compromising economic growth. From 1995 to 2007, a changing trend was registered regarding the decoupling of economic growth expressed in gross domestic product (GDP) from environmental pressures of greenhouse gases (CO_2-eq), acidifying substances (SO_2-eq) and ozone precursors (NMVOC-eq). Since 2008, emissions of greenhouse gases, acidifying substances and ozone precursors have been decreasing continuous. Despite the fact that the environmental policy is to be credited for this positive trend, it cannot be ignored the impact of the economic crisis which, beginning in 2008, caused reduction in industrial production in the country and consequently lower emission pressures on the environment.

Decoupling Croatia's economic growth from the environmental pressures



Source: CBS, CEA

PUBLIC RELATIONS

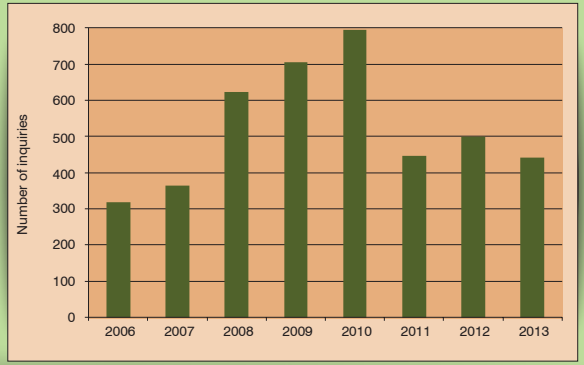
Number and Breakdown of Public Inquiries Addressed to the Croatian Environment Agency

The Croatian Environment Agency (CEA) provides public access to environmental information by publication of its reports and other publications, through its Environmental Information System (EIS) on its website (www.azo.hr). The website was redesigned in 2010 to improve and facilitate its use. The Agency has direct communication with the public by promptly responding to requests for information and inquiries from the public.

Trend and current state

During the eight-year period the Agency received 4 191 inquiries. The majority of inquiries (48.5%) was related to waste issues, because of interest in the subject shown by the business sector and citizens. Requests for data from the EIS database accounted for 23.1%. General environmental protection issues were the subject matter of 8.2% inquiries, similar to air/climate changes (5.4%) and water/sea (3.7%). Inquiries about the sectoral pressures account for 1.7%, soil for 1.4%, and biodiversity for 0.8% of all inquiries. The share of inquiries regarding authorities of other institutions was 7.2%. Of the total of 3 363 applicants, more than half (50.6%) were private businesses. Interest of citizens is constantly growing (17.4%), same as the interest of the local self-government units (7.5%). Foreign citizens and institutions submitted 7.2% requests, and ministries 4.1%. The scientific community and state-owned companies account for 4% each, and NGOs submitted 1.5% inquiries. Schools and health care institutions had 1.3% inquiries, public institutions 1.2%, and inquiries related to projects were 0.7%. In addition to response to the inquiries on the environmental issues, the Agency communicates with the persons obliged to submit their data. A separate statistics on the user support (*help desk*) has been kept since 2009 and it indicates that about 5 000 inquiries are submitted annually.

Total number of inquiries submitted to the CEA



Source: CEA

THE ENVIRONMENT IN YOUR POCKET

Acronyms and abbreviations

AMS – automatic measuring station
CBS – Central Bureau of Statistics
CEA – Croatian Environment Agency
CGS –Croatian Geological Survey
CH_4 – methane
DHMZ –Croatian Hydrological and Meteorological Service
CO – carbon monoxide
CO_2 – carbon dioxide
CO_2 - eq – equivalent CO_2 emission
CPHI – Croatian Public Health Institute
DMC – domestic material consumption
EPR –Environmental Pollution Registry
EU 27 – European Union with 27 member states
FSC – FSC™ 1996 Forest Stewardship Council A.C.
GDP – gross domestic product
Gg – giga-gram (10^9 g)
GMO –genetically modified organism
ha – hectare
HPEI – Hrvoje Požar Energy Institute
IPCC - Intergovernmental Panel on Climate Change
kg – kilogram
LULUCF – Land Use, Land-Use Change and Forestry
MA – Ministry of Agriculture
MENP – Ministry of Environmental and Nature Protection
mg – milligram
MH – Ministry of Health
MMATI – Ministry of Maritime Affairs, Transport and Infrastructure
Mt – megatonne (10^6 t)
NKD – National Classification of Economic Activities
NMFFT - non-market forest function tax
NMVOC – non-methane volatile organic compounds
NO_x – nitrogen oxyde
NP – National Park

THE ENVIRONMENT IN YOUR POCKET

Acronyms and abbreviations

NP – Nature Park

NPRD – National Protection and Rescue Directorate

NW - North West

OG – Official Gazette

OG - IT – Official Gazette –International Treaties

PA – Port Authority

PAAFRD - Paying Agency in Agriculture, Fisheries and Rural Development

Pb – lead

PJ – petajoule (10^{15} J)

PM_{10} – particulate matter less than 10 μm in diameter

R/D – recovery/disposal

RES – renewable energy sources

RH – Republic of Croatia

ROO/PL-OPKO – Environmental Pollution Registry/Registration form for recovery/disposal operator of municipal and/or industrial waste

SACs – Special Areas of Conservation of importance for of wild taxa and habitat types

SINP –State Institute for Nature Protection

SO_2 – sulphur dioxide

SO_x – sulphur oxides

SPAs – Special Protection Areas of importance for protection of birds.

t - tonne

toe - tonne of oil equivalent

TPM – total particulate matter

UNFCCC - United Nations Framework Convention on Climate Change

THE ENVIRONMENT IN YOUR POCKET

Glossary

Biocides – Agents or preparations that contain one or more active substances and are intended to destroy, deter, render non-hazardous, prevent from affecting or control any harmful organism in a chemical or biological manner.

Construction waste – Rubble and other waste arising from the construction, demolition, renovation or reconstruction of buildings, and excavated soil which cannot be used in building construction before its prior recovery.

Ecosystem – A dynamic complex of plant, fungi, animal, algae, and microorganism communities and non-living environment interacting as a functional unit.

Accident – An event caused by uncontrolled incidents or impacts that pose an immediate risk to human life and health and have a negative effect on the natural environment.

Emission – A discharge of liquid, gaseous or solid substances into the environment from a polluting source.

Eutrophication – A process by which water is enriched by nutrients and nitrogen and/or phosphate compounds which favour the growth of algae and higher forms of plant species, causing imbalance in aquatic ecosystems and changes in the status of waters.

Georeferencing – Associating geographic coordinates or rectangular coordinates in a physical map with individual points of a structure.

Habitat fragmentation – Emergence of discontinuities in habitats, most frequently caused by construction of road infrastructure.

Hazardous waste – Waste determined to have one or more hazardous characteristics as set out in Annex III to the Sustainable Waste Management Act (OG 94/13).

Major accident – An event caused by a large emission, fire or explosion and similar, resulting from uncontrolled development of events during activities in an installation regulated by the Regulation on the Prevention of Major Accidents Involving Dangerous Substances (OG 44/14), which cause serious immediate or delayed – subsequent threat to human health and life and/or the environment, inside and/or outside the installation, and which involve one or more dangerous substances from Annex I.A and list from Annex I.B of the Regulation.

Mariculture – Cultivation of marine organisms for commercial purposes.

Municipal waste – Waste from households, as well as other waste which is similar by its nature or composition to waste from households, except process waste and waste from agriculture and forestry.

Natura 2000 – European Union network of sites comprising protected areas of importance for conservation of endangered species and habitat types in the European Union.

Primary energy – Energy embodied in natural resources that has not undergone any anthropogenic conversion or transformation, no matter whether it is a chemical potential of fossil fuels, wood or biomass, nuclear energy, kinetic energy of wind, potential energy of watercourses or thermal energy of geothermal springs.

Production waste – Waste generated during production processes in industry, crafts and other processes, excluding those production process residues which are used in the production processes of the same producer.

Recycling - Any recovery operation, including the reprocessing of organic material, by which waste materials are processed into products, materials or substances whether for the original or other purposes, but not including energy recovery, the processing of waste derived fuels or backfilling.

Sanitary supervision – Inspection supervision carried out by competent inspection of the Ministry of Health.

Sink – A process, activity or mechanism that removes greenhouse gases, aerosols or greenhouse gas precursors from the atmosphere, e.g. absorption by plants by photosynthesis.

Waste – Any substance or object which the holder discards or intends or is required to discard. Any other object or substance whose collection, transport and treatment are necessary for the purpose of protecting public interests is also considered as waste.

Waste disposal - Any operation not involving waste recovery, even when the operation has as its side-effect recovery of substances or energy.

Waste recovery – Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise be used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or economic sector in a larger sense. Annex II to the Sustainable Waste Management Act (OG 94/13) sets out a non-exhaustive list of recovery operations.

Waste treatment – Waste recovery or disposal procedures and pretreatment procedures applied prior to recovery and disposal.

The Environment In Your Pocket 1 - 2014

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