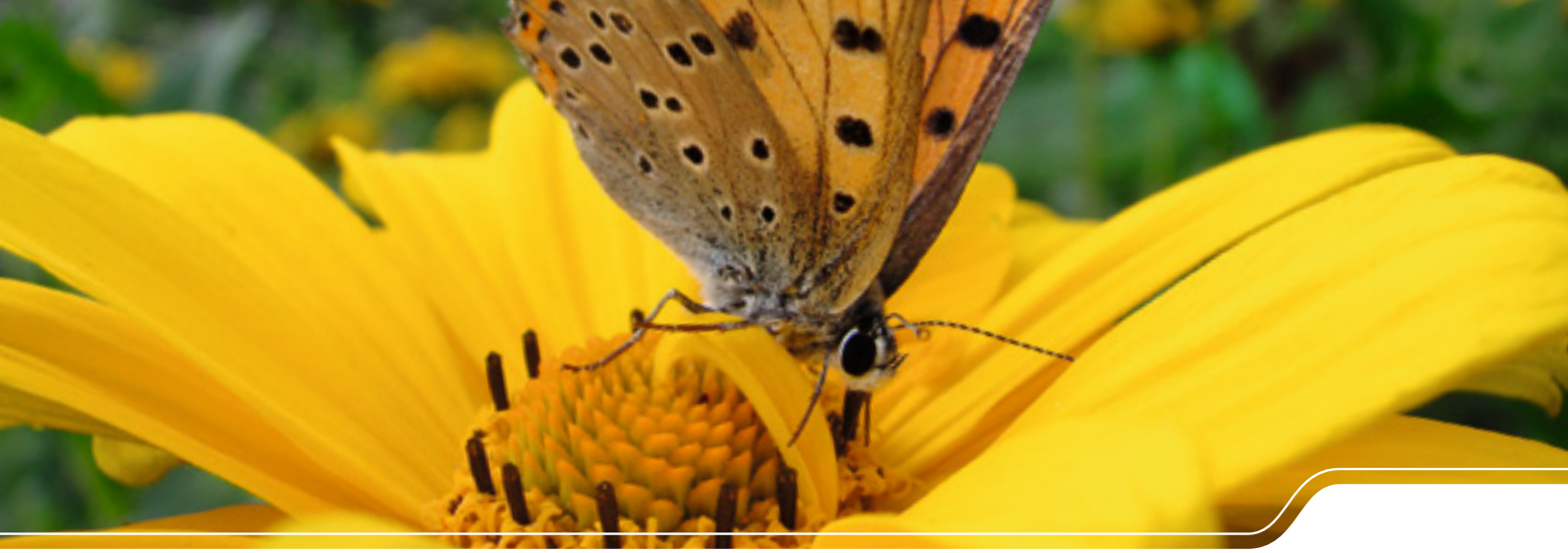


Environmental Data

2014

STAATSMINISTERIUM
FÜR UMWELT UND
LANDWIRTSCHAFT

Freistaat
SACHSEN

Introduction

The current 2014 environmental data brochure provides brief insight into the foresighted and sustainable environmental policies in the Free State of Saxony. The charts and related descriptions give first-hand information on major environmental topics in Saxony such as resource productivity, regenerative energies, climate change mitigation, soil, water, air, nature, green economy and how they developed over time. The current year continues the upward trend, showing that the Free State of Saxony has made obvious progress in its environmental policy. In Saxony, comments and annotations on the environmental data are made in the Environmental Report, which is published once every parliamentary term. The latest issue of the Environmental Report came out in 2012.

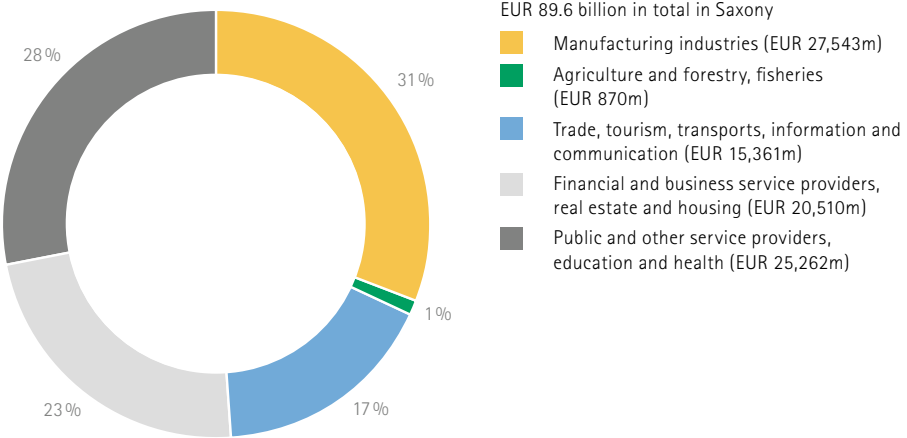
Contents

Economic structure

The economy in the Free State of Saxony has shown a generally increasing trend for years. The breakdown by economic sectors has remained the same for some time: The primary sector of agriculture and forestry, fisheries accounts for 1 per cent of the total gross value added. However, the chart does not include general interest services or upstream and downstream importance. Like in all West European countries, the biggest part of the gross value added is generated in the services sector. But the manufacturing sector here is comparably strong.

Source: Working Group „Regional Accounts", VGRdL, as of August 2013 / February 2014

Gross value added in Saxony by economic sectors

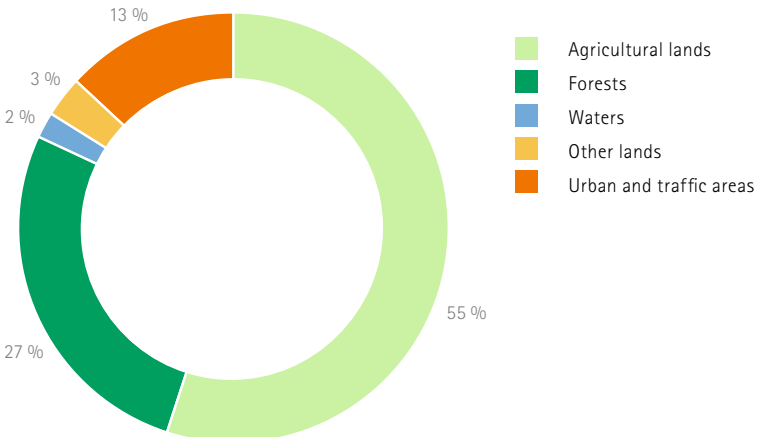


Land use

Agriculture is the dominating land use type in Saxony, making up some 55 % of the entire surface area. The second largest type is forests with 27 %.
The past few years have seen an increase in urban and traffic areas, to the detriment of the other land uses and partly associated with surface sealing activities. The Free State of Saxony has the objective to significantly reduce the use of new lands.

Source: Statistical Office of the Free State of Saxony

Land use in Saxony in 2013

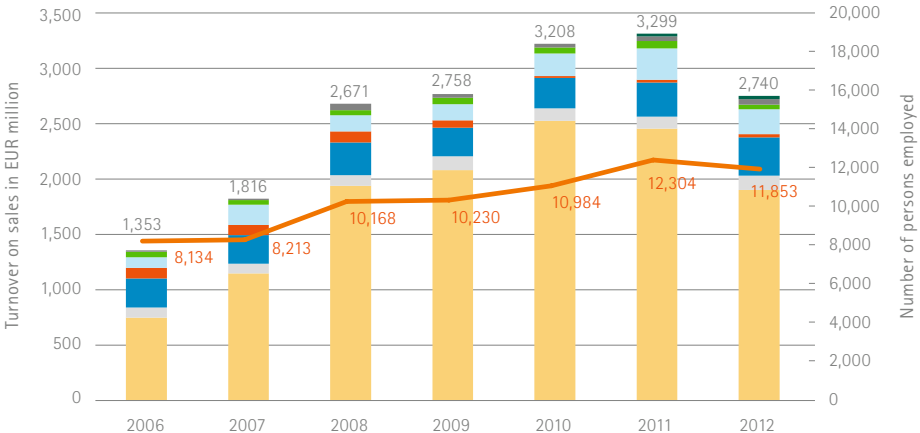


Green economy

The environmental sector in Saxony has grown enormously over the past few years to become a solid pillar of the Saxon economy as a whole. In 2012, the total sales figure fell for the first time, but most of the specific environmental areas show continued growth. This general upward trend, however, is overlapped by the sales decrease in climate protection, which is the largest segment of the environmental sector.

Source: Statistical Office of the Free State of Saxony

Persons employed and sales volume in the environmental sector

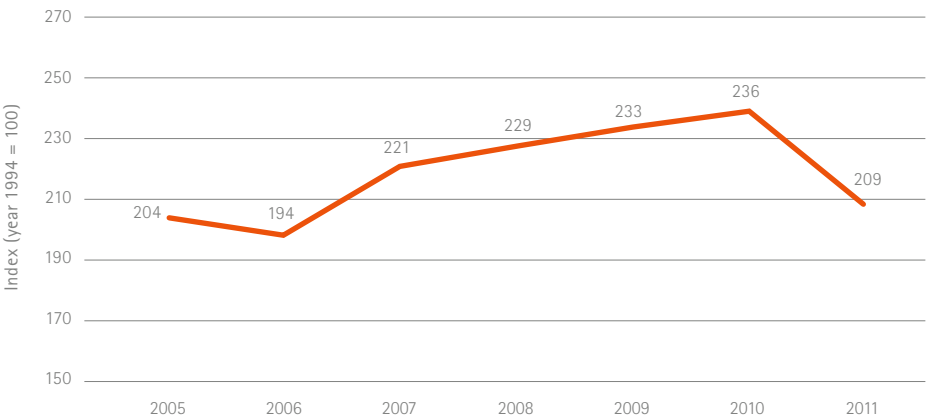


Resource productivity

Resource productivity is the ratio of the volume of gross domestic product (GDP) over domestic consumption of non renewable resources and was introduced in 2002 as a benchmark for efficiency in environmental use within the German strategy of sustainability. This strategy defined a number of quantitative targets. The quantity target for resource productivity is to double productivity between 1994 and 2020. Despite the decrease recorded in 2011, Saxony is at present the only state within Germany to have met this target.

Source: Green Economy Regional Accounts, latest update: Spring 2014

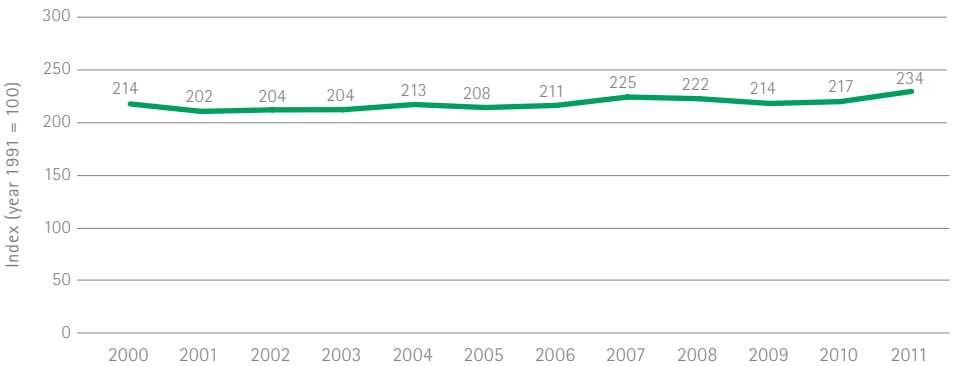
Resource productivity



Energy productivity

Energy productivity is considered a benchmark for the efficient handling of energetic resources in the production of goods and services. It is calculated as the ratio of the volume of gross value added over directly related energy consumption, or, from the perspective of the economy as a whole, as the ratio of the gross domestic product (GDP) over primary energy consumption. Energy productivity has improved continuously for years. Saxony reaches the highest values among all German states.

Energy productivity



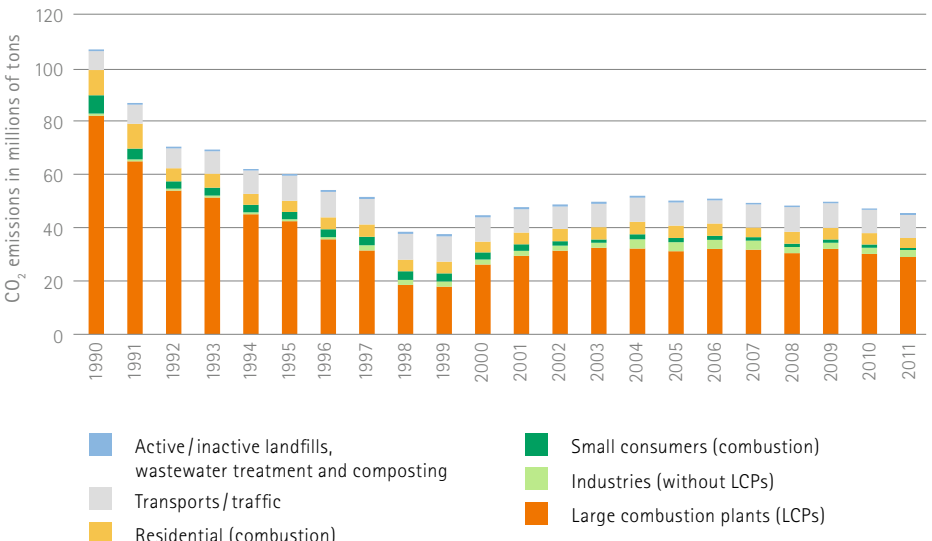
Source: Statistical Office of the Free State of Saxony

Greenhouse gases

Carbon dioxide emissions contribute to more than 90 % of total greenhouse gases, which in turn accumulate in the atmosphere and thus accelerate the climate change process. Large combustion plants (large-sized industrial facilities for electricity and heat generation) are the main emitters of CO_2. The shutdown of many plants contributed to the downward trend recorded in the 1990s. The increase in the beginning of the last decade is due to the commissioning of new power plant blocks.

Source: Saxon State Office for the Environment, Agriculture and Geology (LfULG); Emissions Registry

CO_2 emissions in Saxony between 1990 and 2011

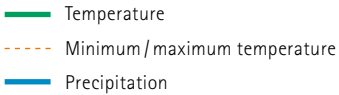


Climate trends

The charts of the weather station of Dresden trace the history of the 30-year mean air temperature from 1900 to 2013 in representation of all of Saxony. Between 1900 and 1990, the 30-year mean temperature shows a variation of about 0.25 degrees. After 1990, the curve rises above this variation range and has since been increasing extraordinarily. The 1983-2012 mean value ranges already about 0.6 degrees above the variation range observed until 1990.

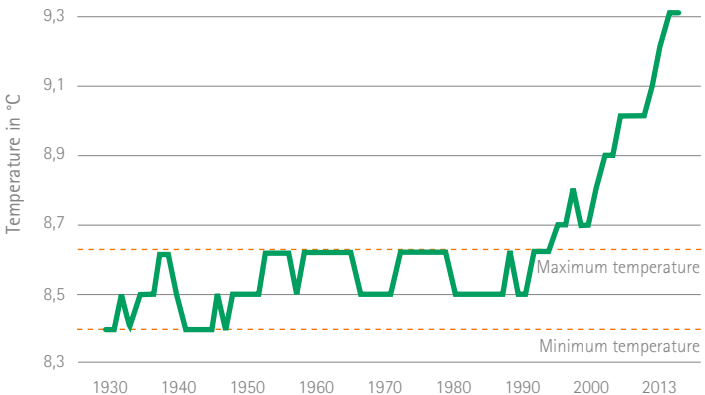
The precipitation and temperature data of the Saxon weather stations shows that climate change is reality in Saxony. The Saxon state government has launched the Climate and Energy action plan in response to this challenge. The emission goals laid down in this action plan go far beyond the European and German climate protection targets.

The current rainfall trend for vegetation period 1 (April-June) in Saxony is visualised at the example of the Climate Reference Station of Görlitz. Already today, regions with high temperatures and light soils are faced with a noticeable change in boundary conditions.

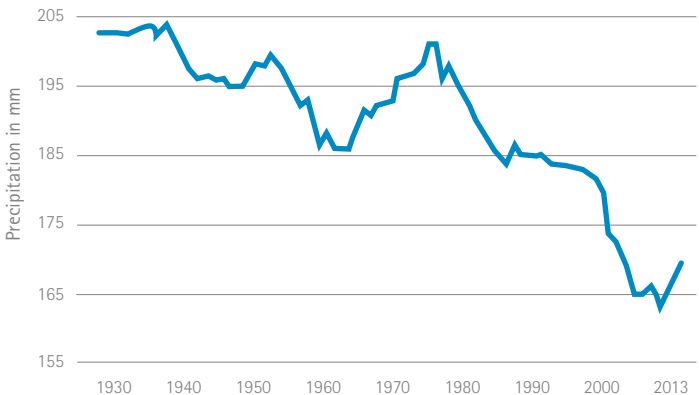


Source: Saxon State Office for the Environment, Agriculture and Geology (LfULG); German Weather Service (DWD)

Air temperature history in the region of Dresden
(30-year running average for the periods 1901–1930 till 1984 – 2013)



Precipitation curve in vegetation period 1 (April to June) Climate Reference Station of Görlitz
(30-year running average for the periods 1901–1930 till 1984 – 2013)

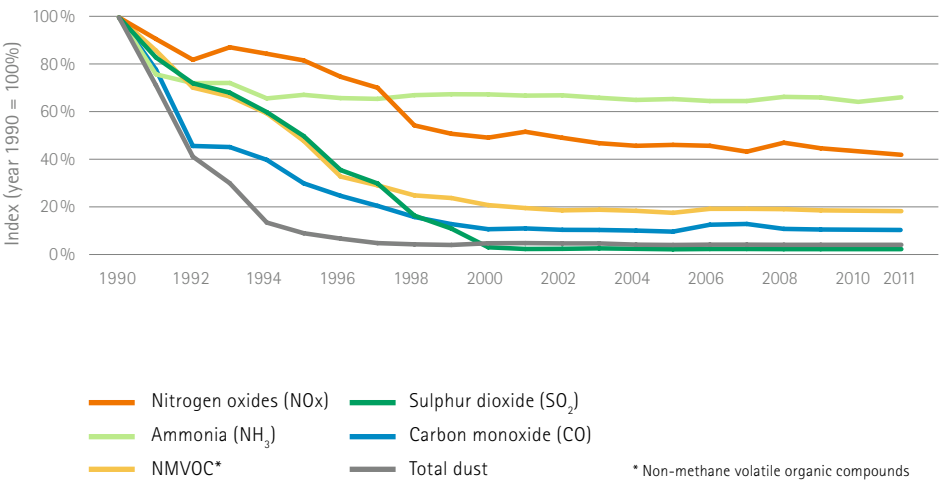


Air pollutants

Air pollutants can cause a variety of negative impacts on human health and environment and should therefore be avoided. Saxony has been very successful in air quality management during the past 20 years. Today, pollutants like sulphur dioxide or carbon monoxide are virtually no longer an issue. The main concerns are ozone, nitrogen oxide and particulate matter, especially in urban agglomerations.

Source: Saxon State Office for the Environment, Agriculture and Geology (LfULG)

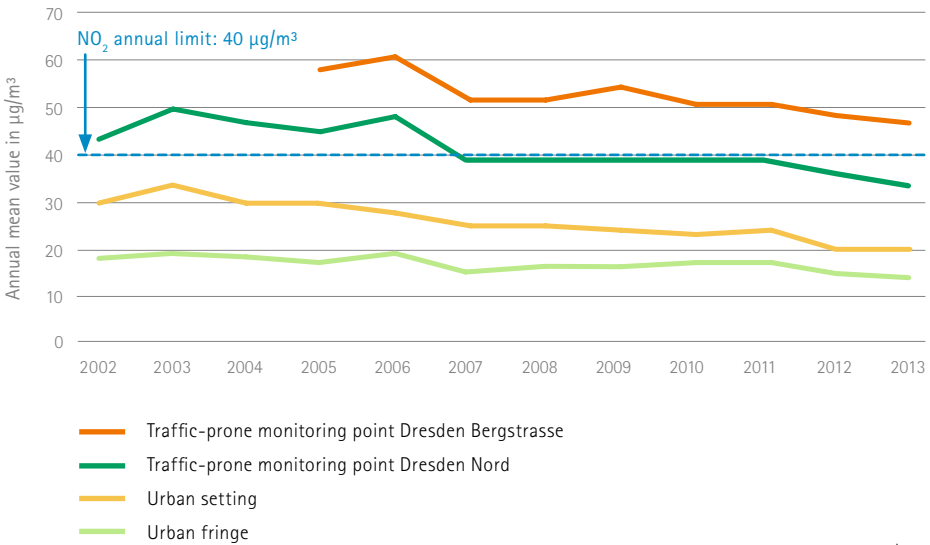
Emissions of air pollutants



The impact of air pollutants is shown at the example of nitrogen dioxide in the Dresden city region. Road traffic is the major NO2 emitter. Therefore, the limit values are frequently exceeded at monitoring points in traffic-prone locations, but there is a noticeable trend for the better. The EU limit value must be met no later than 2015. Compliance with the limit value is not a problem in urban and regional settings.

Source: Saxon State Office for the Environment, Agriculture and Geology (LfULG)

Impacts of air pollutants

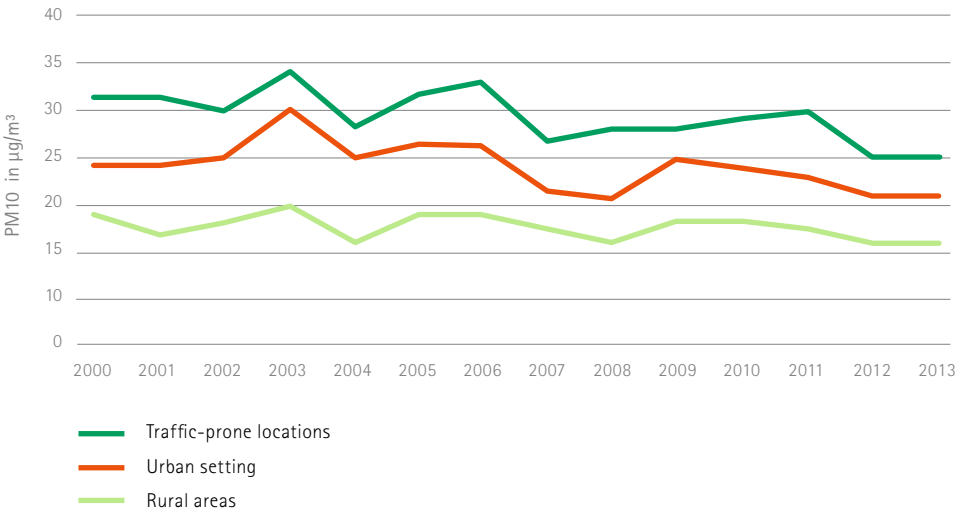


Particulate matter (PM)

Combustion processes and road traffic are the major emission sources for atmospheric particulate matter (PM). As PM can travel long distances in the atmosphere, the measured concentrations are not limited to Saxon sources. In spite of meteorological fluctuations, the area-related annual mean values show a slight downward trend.

Source: Saxon State Office for the Environment, Agriculture and Geology

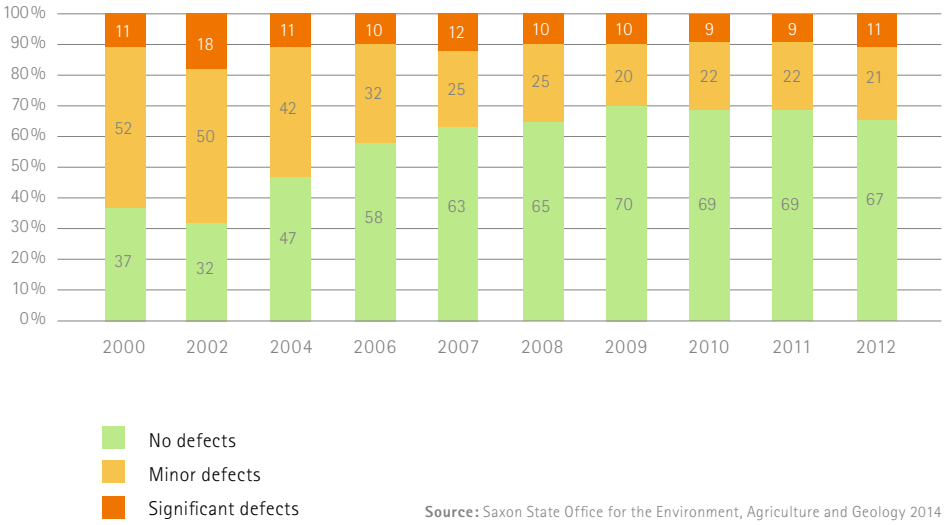
Area-related annual mean PM10 levels in Saxony



Water – plant inspections in facilities handling water hazardous substances

Approximately 3,400 inspections were carried out in installations handling water hazardous substances in Saxony in 2012. During the past few years, the proportion of initial inspections has gone down in favour of re-inspections. The number of compliant installations increased during previous years and has reached a high level. The percentage of plants with significant defects has remained relatively constant (11 %). Dangerous deficiencies across all inspections were found to exist in the per-thousand range only. On a Germany-wide scale, initial inspections in Saxony give a higher number of flawless installations and a considerably lower number of significant defects than in other German states.

Plant inspections in Saxony



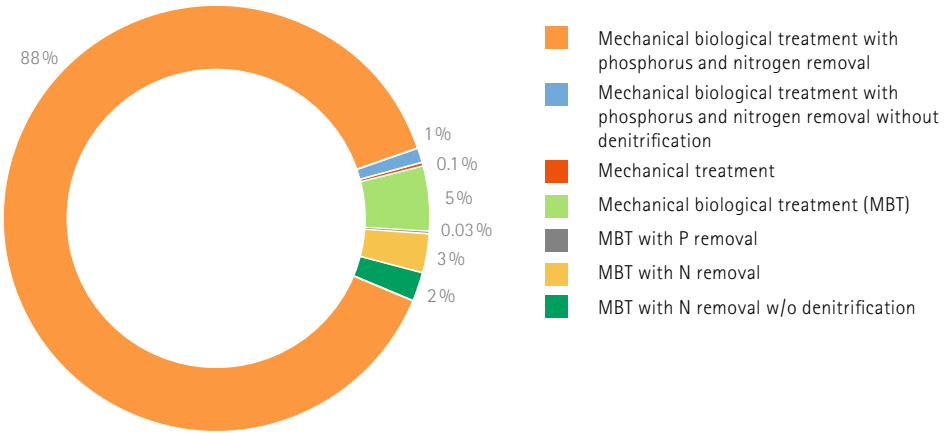
Source: Saxon State Office for the Environment, Agriculture and Geology 2014

Water – current status of sewage treatment plants

Saxony has invested a lot in sewage treatment facilities during previous years. About nine in ten plants have been built, restored or extended since 1991. Meanwhile, approximately 90 % of the Saxon population can rely on state-of-the-art sewage treatment plants. The overall phosphorus and nitrogen removal rates in the public sewage treatment plants are 89 % and 80 %, respectively.

Source: Saxon State Office for the Environment, Agriculture and Geology

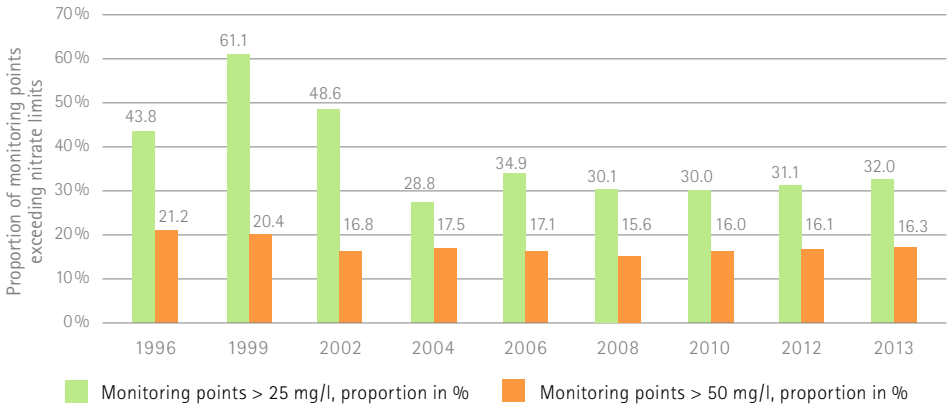
Current status of the sewage treatment plants in 2012 (as referred to treatment capacity)



Nitrates in groundwater

In 2013, 32.0 % of the monitoring points within the surveillance monitoring network recorded nitrate levels in excess of 25 mg/l (precautionary limit value specified in the European Nitrate Directive). The proportion of measuring points recording nitrate concentrations higher than 50 g/l (threshold value in the Groundwater Directive and action value in the European Nitrate Directive) is 16.3%. The percentage of monitoring sites exceeding the specified limits has slightly increased since 2008. The evaluations until 2005 were based on the monitoring points of the previous „basic monitoring network". Starting in 2006, the monitoring network was adjusted to the requirements of the EC Water Framework Directive (WFD). As a result, the number of measuring points has almost doubled and can be considered representative for the entire territory. The density of monitoring points is about 1 monitoring point per 100 square kilometres. Therefore, a direct comparison between the periods before 2006 and after 2006 is not possible.

Proportion of monitoring sites exceeding the nitrate limit in selected years between 1996 and 2013

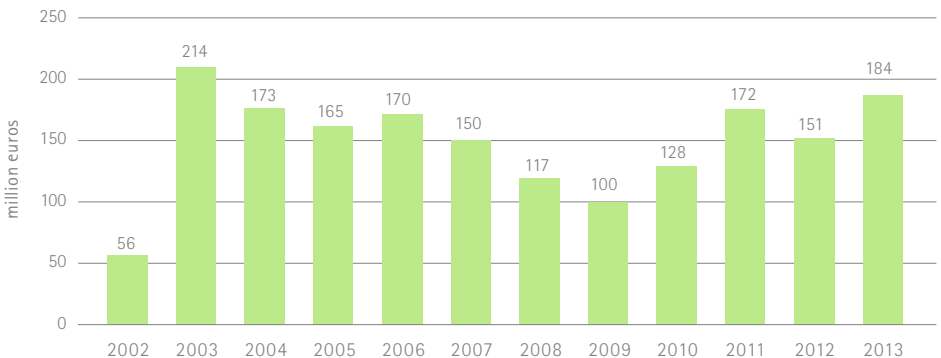


Source: Saxon State Office for the Environment, Agriculture and Geology

Flood control

In the recent past, Saxony was repeatedly hit by severe flood events. After the flood in 2002, which caused great damage all over the territory, flood prevention was entirely re-organised. In a first step, the general need for action was analysed on the basis of various flood control concepts, which were then the starting point for comprehensive structural measures such as the construction of dikes, flood walls and detention basins, as well as the widening of first-order water bodies. The result is better flood protection as proven by the reduced damage during the flood in 2013.

Flood control expenses by the Saxon State Reservoir Administration (LTV)

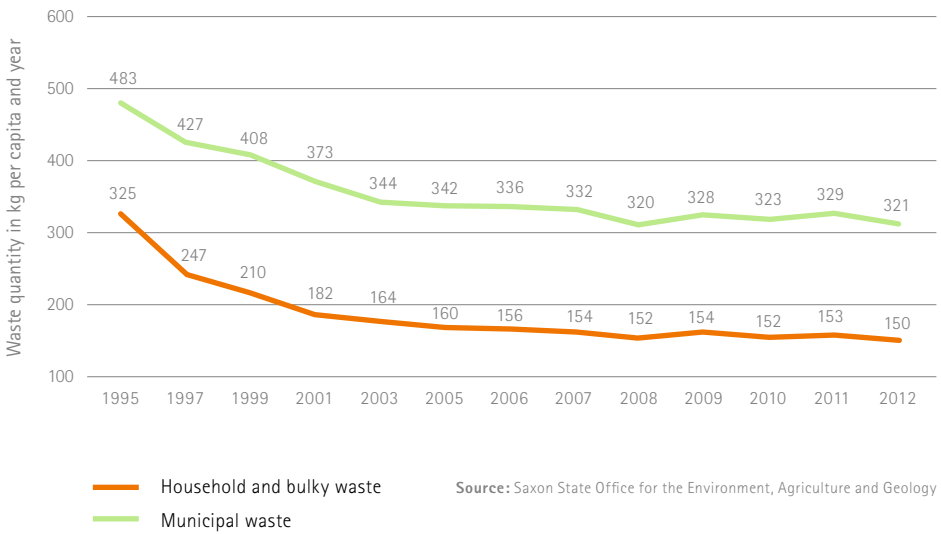


Source: State Reservoir Administration of the Free State of Saxony

Municipal waste

Household goods for private consumption are produced by the use of energy and resources and discarded at the end of their product life cycles. The municipal waste stream from private households, and especially the quantities of household waste and bulky items, are intrinsically linked to a variety of individual measures of waste avoidance. The quantities of municipal waste and household & bulky waste show a continuous downward trend during the period under review, but this decrease has become significantly less pronounced during the past five years. A variety of waste avoidance efforts, e.g. low-waste consumption or further use of second-hand goods, constantly contribute to reducing the waste stream.

Municipal per-capita waste stream from private housholds

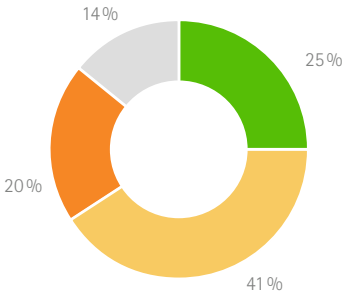


Source: Saxon State Office for the Environment, Agriculture and Geology

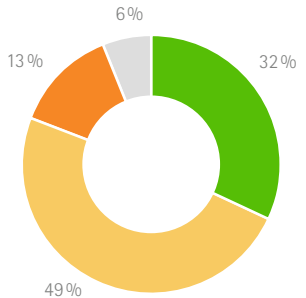
Nature conservation / biodiversity

The FFH report 2007-2012 provides a comprehensive description of the status of FFH species and habitats in Saxony. A direct comparison with the figures of the previous report (2001-2006) is not possible, because the new report for the first time includes data from a systematic and unified Germany-wide monitoring approach. In Saxony, the percentages for each of the status categories (favourable, inadequate, poor, unknown) across all FFH species are within the federal average range. The results for the FFH habitat types are comparatively better. However, the conservation status of two thirds of the species and two thirds of the habitats is inadequate or poor and needs to be improved. For this purpose, Saxony has started a series of improvement measures under its „Biodiversity 2020" scheme with associated financial support.

Conservation status of the 95 FFH species/species groups in Saxony
(Reporting period 2007 – 2012)



Conservation status of the 47 FFH habitat types in Saxony
(Reporting period 2007 – 2012)



favourable
inadequate
poor
unknown

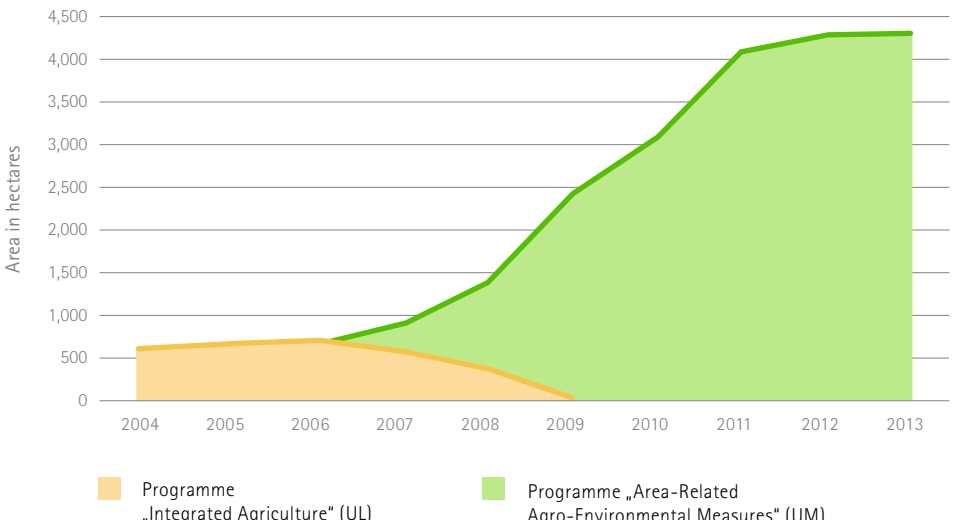
Source: Saxon State Office for the Environment, Agriculture and Geology

Conservative agriculture

The Free State of Saxony supports manifold measures and specific management methods on agricultural lands to meet nature conservation and landscape preservation requirements. One of many examples is the introduction of nature conservation measures on arable lands (e. g. areas or strips of set-aside land), which are highly important for habitat linkage and wildlife corridors and often form buffer zone elements with adjacent biotopes. Saxony's agriculture thus is an indispensable partner for nature conservation and the preservation of landscapes.

Source: Saxon State Ministry for the Environment and Agriculture, Public Enterprise for Saxon IT Services

Nature conservation on arable lands

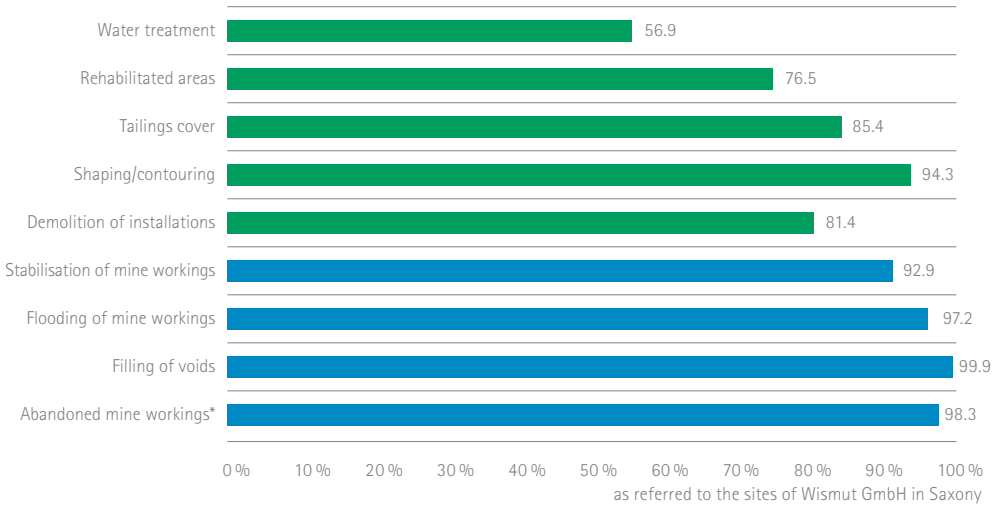


Uranium mine rehabilitation

The uranium mining-site rehabilitation programme is a huge task. Uranium ore was extracted in various regions in Saxony until the early 1990s, causing increased radiation exposures in certain regions. Rehabilitation has made good progress. Underground, more than 90 % of all rehabilitation operations have already been completed. On the surface, water treatment still remains the major task and will take a long time until final completion.

Source: Saxon State Office for the Environment, Agriculture and Geology on the basis of information provided by Wismut GmbH

Status of uranium mine rehabilitation at the Wismut GmbH sites in Saxony



* this includes the newly driven Wismut connection tunnel and South bypass

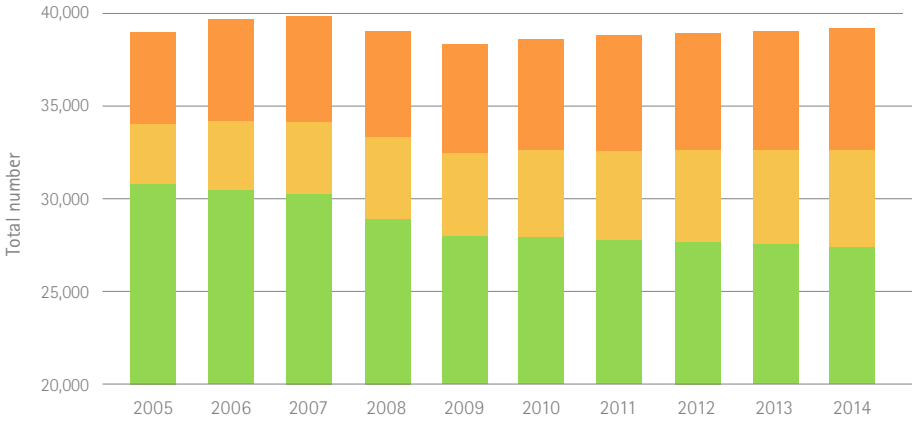
Number and percentage of decontaminated lands

The total number of lands recorded in the Registry of Contaminated Sites has remained unchanged over the past few years. But there is an upward trend in sites which were investigated and found not to be contaminated. The continuous progress of rehabilitation can also be seen from the positive trend in the number of decontaminated lands.

- Found to be not contaminated*
- Decontaminated lands
- Further lands (with suspected contamination in need, or at present without need, of action, sites being treated)

* 2009: calculated mean value

Lands recorded in the Saxon Registry of Contaminated Sites



Source: Saxon State Office for the Environment, Agriculture and Geology

Issued by:
Saxon State Ministry
for the Environment and Agriculture (SMUL)
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Edited by:
SMUL, Saxon State Office for the Environment,
Agriculture and Geology (LfULG)
Layout:
Heimrich & Hannot GmbH
Printed by:
Union Druckerei Dresden GmbH
Photographs by:
Dr. H.-U. Bangert
Press date:
10. September 2014
Circulation:
1,000 copies, 1st edition
Paper:
printed on 100% recycled paper

Available from:
This material can be ordered free of charge at the following address:
Zentraler Broschürenversand der Sächsischen Staatsregierung
Hammerweg 30, 01127 Dresden
Telephone: +49 351 210-3671 | Facsimile: +49 351 210-3681
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