chap 06

QUALITY OF LOCAL AMBIENT AIR
Present Situation.

Thanks to its advantageous geographical location and its ocean climate, the metropolitan area of Nantes overall enjoys good air quality (good readings for air quality for over 85 % of the days of the year). Nantes witnesses only very rarely peaks in pollution and concentrations that exceed threshold values.

In addition, for all measuring stations in the monitoring network installed on the territory of the metropolitan area, average pollutant levels have fallen over the past few years.

**PM10**

<table>
<thead>
<tr>
<th>Year</th>
<th>Days in Breach</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>0 days in breach</td>
</tr>
<tr>
<td>2004</td>
<td>40 days in breach on the Victor Hugo traffic site and 0 days in background urban sites</td>
</tr>
<tr>
<td>2009</td>
<td>0 days in breach</td>
</tr>
</tbody>
</table>

**Ozone**

The target: 25 days per calendar year, as an average over three years, i.e. 75 days in 3 years.

The number of days a year within EC limit under Directive 2002/3/EC of 12/2/2002 for ozone (120 µg/m³ in 3 years).
Sulphur dioxide

| Number of days in breach of EC threshold values under Directive 1999/30/EC of 22/4/1999 on threshold values for: | 1999, 2004 and 2009: no days in breach of the daily threshold value of 125 |g/m³| (which must not be exceeded for more than three days per year) |

Nitrogen dioxide

| Number of days in breach of EC threshold values under Directive 1999/30/EC of 22/4/1999 on threshold values for: | 1999 and 2004: 0 days in breach of the hourly threshold value 2009: 1 day in breach on boulevard Orieux (hourly threshold value of 300 |g/m³| in 1999, 260 |g/m³| in 2004 and 210 |g/m³| in 2009). |

Average annual concentration of NO₂

- **1999**
  - Background urban site (garden, plants): 31 |g/m³|
  - Site close to traffic (Victor Hugo): 35 |g/m³|

- **2004**
  - Background urban site (garden, plants): 23 |g/m³|
  - Site close to traffic (Victor Hugo): 39 |g/m³|

- **2009**
  - Background urban site (bottling plant): 19 |g/m³|
  - Site close to traffic (Victor Hugo): 36 |g/m³|

Average annual concentration of PM₁₀

- **1999**
  - Background urban site (Chauvinière): 18 |g/m³|
  - Site close to traffic (porte de Carquefou): 25 |g/m³|

- **2004**
  - Background urban site (Chauvinière): 16 |g/m³|
  - Site close to traffic (Victor Hugo): 22 |g/m³|

- **2009**
  - Background urban site (bottling plant): 22 |g/m³|
  - Site close to traffic (Victor Hugo): 28 |g/m³|

![Graph showing average annual concentration of NO₂ in a background urban site (Jardin des Plantes), NO₂ close to traffic (Victor Hugo), PM₁₀ in a background urban site (Jardin des Plantes) and PM₁₀ close to traffic (Victor Hugo).]
Changes in air pollution in Victor Hugo station in Nantes (a heavy-traffic area)

Air pollution in stations in Nantes
Atmospheric pollution developments in Nantes since 1990 at the site installed on boulevard Victor Hugo showed two phases: a phase with a sharp reduction in peak levels between 1990 and 2000 (by a factor of 2 to 4) linked to technological improvements in engines, then a phase of stabilisation, or even of increased pollution in the 2000s (increase in motor traffic, higher proportion of diesel vehicles, etc.). In urban sites, far from sources of pollution, the trend is less noticeable, as sources other than road traffic, such as domestic and tertiary heating contribute to the deterioration of air quality. It is noticeable that the increase in particle concentrations in 2007 is mainly due to the change in the method of measurement, which from that date takes into account volatile dusts.

Pollen carried by the wind is responsible for rhinitis, conjunctivitis, asthma, etc. Environmental factors such as weather conditions and vegetation may cause pollen levels to rise. Pollen levels are monitored by installing sensors from the Réseau National de Surveillance AérobioLogique [National Aerobiological Surveillance Network] in the city, in sites chosen according to climatic and botanical criteria, as well as population density.

In 2003, the City of Nantes Jardin des Plantes designed a tool for monitoring pollen emissions from the main allergenic plants (grasses and trees) in partnership with the Ministry of Health (Regional Health and Social Services Office for the Pays de Loire). This ‘pollen watch garden’ enables the flowering period to be observed in order to alert the Réseau National de Surveillance AérobioLogique, which in turn relays the information to medical specialists via the internet. This method enables patients’ treatment to be adjusted and a network of pollen gardens is being created in other cities.

The allergic risk has also been identified in the Tree Charter; maps of tree species have been drawn up for the city, so as to enable changes to be made when renewing plantings and a list of plants to avoid has been distributed.
Actions taken in the last 5 to 10 years.

The measures taken over the past few years to preserve and improve air quality can be classified under several headings:

- knowledge, adapting to current issues in monitoring (changes in the measuring network, specific campaigns to measure certain pollutants in certain zones, developing forecasting models, involvement in studies and action research projects, etc.);

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Air Pays de la Loire analyses the quality of air at regional level and publishes its readings on a daily basis. [http://www.airpl.org/](http://www.airpl.org/)

- the existence of the "air management plan", Nantes Métropole was involved in the compilation in 2002 and the implementation of the Regional Air Quality Plan (PQRA) and the Atmosphere Protection Plan for Nantes-Saint Nazaire (PPA) in 2005;

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The regional air quality plan [http://www.pays-de-la-loire.drire.gouv.fr/Env/AI/Ale/index.html](http://www.pays-de-la-loire.drire.gouv.fr/Env/AI/Ale/index.html)
The regional atmospheric protection plan [http://www.pays-de-la-loire.drire.gouv.fr/Env/AI/All/index.html](http://www.pays-de-la-loire.drire.gouv.fr/Env/AI/All/index.html)

Over the past few years, several measures have been taken to improve the quality of air and mitigates the associated risks of allergies.
• emissions from mobile sources: transport has been integrated into urban thinking both via town planning documents (SCOT, PLU) and urban transport plans (UTP) in order to limit urban sprawl, develop public transport networks and green modes of transport, organise traffic, manage the parking available within the city, encourage mobility plans, adapt road infrastructures (converting A801 to urban boulevards, 30-kph zones, road-sharing, etc.), purchasing clean vehicles;

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The assessment of the urban travel and transport plan for 2000-2010

The PLU (local urban plan), environmental recommendations for neighbourhood improvement, construction, regeneration and building management

The website presenting the SCOT (comprehensive zoning and development plan) for the Nantes-Saint-Nazaire metropolis
http://www.scot-metropole-nantes-saint-nazaire.fr/web/acces.do

• emissions from fixed sources: reducing industrial emissions (bringing the two incinerator plants in the metropolitan area of Nantes into conformity), implementing a voluntary energy-saving policy in residential, service and industrial sectors (which forms part of the territorial climate action plan of Nantes Métropole), reducing agricultural emissions and non-agricultural pesticide emissions (charter for no fertilisers within the metropolitan area) as part of action No 6 on Agenda 21 for Nantes Métropole.

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http://www.cmaintenant.eu/theme/101

The air quality management plan for Nantes Métropole operates at several territorial levels.

Regional Air Quality Plan (PRQA) of 2002:
The result of a State Directive and managed at a Regional level, this plan provides a regional analysis of pollutant emissions and concentrations and their effects on health and the environment. It defines the avenues of approach that must be adopted in order to lower pollution levels to within quality targets.

Atmospheric protection plan (PPA) of 2005:
This defines at a local level the regulatory measures that will enable threshold values to be attained within metropolitan area of over 250,000 inhabitants.

Urban Travel Plan “A mobile city is a sustainable city” 2000/2010:
At a local level, this plan was intended to reduce the percentage of automobile traffic to 50%.

Heart of the metropolitan area is increasingly accessed using modes of transport other than cars, and a drop of 41,700 vehicles per day (12% of traffic) and an increase of 37,300 travellers per day on public transport (+26%) were observed between 2002 and 2008.

Additionally, by promoting green transport methods, walking (21% in 2002 and 24% in 2008) and bicycle use, the UTP contributes to better air quality, predominantly in the city centre.
Informing the public (both inhabitants and tourists) of air quality levels (e.g. via websites or information screens) in order to raise public awareness and bring about changes in behaviour is an essential aspect.

The results of this monitoring are broadcast electronically on the website www.airpl.org (information letters, alerts) or in writing (fax) sent to newspapers. This information is continually updated for pollutants such as sulphur dioxide, nitrogen dioxide, nitrogen oxides, ozone, particles and carbon monoxide. It is updated quarterly for pollutants such as benzene and lead.

Air Pays de la Loire releases information about the quality of air on its website every day.

Air Pays de la Loire, the organisation officially recognised by the Ministry of the Environment that monitors air quality in the region, compiles and publishes maps illustrating the levels of pollutants in each zone.
Air Pays de la Loire has four boards made up of representatives from government departments and the public sector, industrial enterprises, local and regional authorities and qualified persons and associations. Thus, Nantes Métropole plays an active role in the management board and makes an annual contribution of €120k to its finances.

In terms of publications, Air Pays de la Loire issues a bimonthly newsletter about air quality to a list of defined recipients. Every year, an annual report is published that summarises the activities of the association and the levels of pollution recorded in the region and by departments.

Air Pays de la Loire participates in European Mobility Week, at the request of the local authorities of Nantes, and can thus raise public awareness of monitoring and preserving air quality via its information stands and its mobile laboratory.

Balad’air are open-air walks organised by CPIE Ecopole (a network of associations subsidised by Nantes Métropole) to raise public awareness of air quality and pollution peaks in certain boroughs of Nantes by leading people along routes through the city.

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http://www.ecopole.com/le-cycle-de-lair.html

Nantes Métropole financed the Association for the Prevention of Atmospheric Pollution (APPA) in 2009 as part of organisation of the conference to restore the PRIMEQUAL/PREDIT programme, and “scientific coffee meetings” to support operational research into air quality.

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http://www.appa.asso.fr/national/Pages/article.php?art=55
http://www.primequal.fr/
Measures scheduled for the short and long term.

Nantes Métropole is continuing its programme of actions to improve air quality. The measures adopted will focus on three areas.

The Urban Travel Plan “A mobile city is a sustainable city” 2000/2010, which is currently being reviewed, will consolidate the voluntary policy for urban and interurban travel and will thus contribute towards preserving air quality, given that the principal source of pollution within the metropolitan area is associated with road traffic.

Moreover, the new Traffic Plan currently being devised will also mean that the thresholds for certain pollutants such as benzene will be able to be respected in “canyon” streets. Similarly, the current Territorial climate action plan is aimed at limiting greenhouse gases and will have a positive effect on air quality.

The future Regional Climate Air Energy Scheme (SRCAE), planned for 2011, will regroup existing and revised plans into a single framework document: the Regional Air Quality Plan (PRQA) and the Atmosphere Protection Plan for Nantes-Saint Nazaire (PPA). This scheme, the result of a State Directive, will unfold in 3 stages to tackle noise, energy and the quality of indoor air.

The issue of improving air quality remains a difficult one. Improvements in technology have enabled vehicles that produce ever lower levels of pollutants to be brought into circulation. At the same time, the number of vehicles in circulation is increasing. On certain routes, traffic has been calmed and vehicles slowed down, but where there are traffic problems or jams, has the quality of the air on those routes really been improved? Studies still need to be carried out to gain a better understanding of these factors and control the impact they have.
Evaluation UTP research.

As part of the Research Action programme into urban services, Nantes Métropole signed an agreement in 2007 with the National Research Centre (CNRS) for an evaluation of the Community Travel Plan with regard to air quality, noise, energy and Greenhouse Gases.

In 2008, Nantes Métropole submitted a tender for the “Sustainable Cities” project of the National research Agency (ANR) to carry out a research programme over 3 years (until 2011) on the environmental impacts of UTPs. This project will involve creating models to simulate physical environmental impacts, investigations and econometric models designed to estimate the socioeconomic and sanitary consequences of these physical impacts, and alternative methods of assessing the scale of certain impacts from investigations aimed at highlighting changes in behaviour or from composite indicators.

The solution would involve reducing the use of cars in the city, through alternative travel and transport options that pollute less.