

Dr. Mathieu JAHNICH
jahnich@club-internet.fr



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Dominique Voynet (former French Minister of Environment): *I can't bear this odor of pollution anymore!* José Bové (French farmer): *It's not pollution, it's Roquefort! [French cheese].*

Odor & Air pollution: Perceptions & communication.

The purpose of this presentation is to highlight how odors, such as those in smoke, are used by citizens to characterize air quality and by automobile manufacturers and fuel producers to promote new technologies. One question that comes up is about drivers and their responsibility in pollution.

This paper is extracted from my Doctorate, prepared in the "École Normale Supérieure de Cachan"¹ in the STEF research laboratory ("Sciences, Techniques, Education, Training")². This work was financed by the French Ministry of Research and was presented the September 22, 2003.

¹ From the website of the school : "ENS de Cachan is a prestigious public institution of research and higher education, founded in 1912. It is one of the French "Grandes Ecoles" which are considered to be the pinnacle of French higher education."

² <http://www.stef.ens-cachan.fr/index.htm>

1. Air pollution, behaviors & communication

Since the 1980s, road transports are the main source of atmospheric pollutants in French urban areas³. Recent epidemiological studies⁴ are proving that public health guides (cardiovascular and respiratory mortality, number of consultations and hospitalizations, etc.) are linked to air pollutant concentrations (nitrogen oxide, particles).

In parallel, as many opinion polls show⁵, French citizens are preoccupied with air pollution and its local and worldwide consequences. Even if this anxiety leads to willingness to improve air quality, behaviors are still the same: the greater part of daily travel is still made by car!⁶

Improving air quality requires everyone's involvement in the modification of daily behaviors and travel habits: the gap between anxiety and behaviors is problematic. It's necessary then to better understand Parisians' perceptions of air pollution. Another point is the role played by communication in making the population aware of air pollution and decided to fight it.

2. Collected datas: documents & interviews

In order to analyse media discourses and public perceptions and behaviors about air pollution, two types of data have been collected: documents and interviews.

More than 1.500 documents have been collected: papers from national and regional press, television and radio programs, and documents published by institutions, associations and industrialists. All these documents have been published in the year 2000. All of them deal with at least one topic related to air pollution (sources, health or environmental effects, solutions...). In this paper, mostly the documents published by the industrialists will be exploited. From the 53 documents that have been collected, here are some examples:

- booklets produced by Renault "Range 2000"⁷, Volvo "V70", Ford "Think City"...
- magazine Elf "Evolution: the road in a better way - n°4", leaflet BP "BP Diesel Ecology. An ecological diesel fuel at last", etc.
- booklet Michelin "Present values. Special edition Clermont-Paris", leaflet Purflux "Filtering guidebook", etc.
- booklet published by the Committee of French Car Manufacturers [Comité des Constructeurs Français d'Automobiles] "Automobile and air quality. Responsable automobile", leaflet published by the French Road Union [Union Routière de France] "Numbers about road transports in Paris region."...

50 interviews were also conducted during summer 2002 in the streets of several suburbs of Paris. 25 men and 25 women were interviewed: between 18 and 84 years of age, living alone or in a family, with or without a car, with jobs and housing close or not, more or less accessible with public transport, with various socio-economic groups. Each interview was segmented in three parts:

- One initial instruction: *According to you, which are the risks that are threatening Parisians' health in general and yours in particular?*
- The semi-directive interview itself, structured with the following topics: sources and signs of pollution, means of fighting against pollution, health effects, information and media. As far as

³ Académie des Sciences – Conseil pour les Applications de l'Académie des Sciences, *Pollution atmosphérique due aux transports et santé publique*, Paris : Éditions Tec & Doc, 1999, 196 p.

⁴ e.g. Medina S., et al. *APHEIS Health Impact Assessment of Air Pollution in 26 European Cities. Second year report, 2000-2001*. Institut de Veille Sanitaire, Saint-Maurice, Septembre 2002, 225 p.

⁵ In March 2002 for example : « Urban violence and air pollution are the leading anxieties for Parisians (59 %) » (survey Ifop-Préfecture de Police de Paris).

⁶ In the Paris region for example, around 37 million movements of people take place every day: 45 % by private car, 34 % on foot and 19 % by public transport. (INSEE - Direction Régionale de l'Équipement Île-de-France, *Enquête Globale de Transport*, 1997).

⁷ All translations are literal and provided by the author.

possible, the order of appearance of these topics was left to the person interviewed.

- Lastly, supplementary enquiries: name, first name, sex and age, living and working places, occupation, number of cars, etc.

3. Sensitive experience of air pollution

When the question of health risks is raised at the beginning of each interview, pollution is the most quoted risk, far beyond tobacco and diet (*cf.* table next page). Among our interviewees, pollution is undeniably in the lead of public health anxieties of our time.

Most of the persons interviewed (49 out of 50) think that air pollution causes harmful effects on health: asthma and allergies are often mentioned. However, very few of them admit that they're personally feeling the effects of pollution: the "other ones" are those who are suffering. Moreover, people who are the most sensitive to air pollution are well identified: *Youngers and elders* (VA⁸), *Children and old men and women* (MI), *People having respiratory diseases* (JM), etc.

On the other hand, all the Parisians met are coping with air pollution in their everyday life, and are using physical signs, like odors and smoke, to judge air quality.

Health risks	Number
pollution	38
tabacco, cigarette, fag	12
diet, food	9
road, traffic	7
AIDS	7
alcohol	6
insecurity, attack, violence	6
stress	5
noise	4
cancer	4
drugs	4

Health risks	Number
illness	3
household accidents	2
allergy	2
hepatitis	2
hygiene, cleanness	2
diabetes	1
hospital illness	1
GMO	1
pressure	1
tuberculosis	1

List of the risks quoted by the 50 persons interviewed in answer to the question:
 "Which are the risks that are threatening Parisians' health in general and yours in particular?"

The authors of another study underline that "All the people living in the Paris region are mentioning visual perception of air pollution"⁹. In fact, in the interviews conducted in July 2002, terms like "smoke" or "fumes" often occur in the Parisians' discourse about the sources of air pollution:

- **Fumes from factories:** *There are all those factories around Paris, sometimes you can see smokes (CL); There are fumes from factories, sure, a lot of things are inside (DA); Pollution by chimneys, by factories (HE).*
- **Exhaust fumes:** *When you see what goes outside the pipe, it's black, it's disgusting (CA); I sometimes see old disgusting cars with black fumes... it's shameful! (DO); But there's black*

⁸ Every person interviewed is identified by a two-letter code to respect anonymity while permitting the source's identification.

⁹ LORNE CONSEIL – DRIRE IDF, *Plan Régional pour la Qualité de l'Air. Audit qualitatif avec 3 réunions de groupes*. Document interne à la DRIRE IDF, décembre 1999, p.9

smoke ! a well-adjusted engine doesn't vomit black smoke ! (JC).

And inevitably there's no smoke without pollution: *But it's yellow then [...] It can't be clean (HE); You can see cars or trucks, obviously they're non-standard, they're not properly adjusted. You don't need all of those detectors to understand [...] that they're polluting more than the others (DM).*

Fumes are easy to notice but the sky draws the Parisians' attention too. The *pollution layer (CH), the film (VI)* is above our heads. It becomes obvious with distance: *when you're 100 km from Paris, you can see this yellowish layer above the city (JR); I often travel by plane and you can see the pollution when you arrive in Paris, it's amazing (DV); I live in a place where I overhang Paris and I clearly can see every morning [...] a kind of purple fog (GR).*

Just like exhaust fumes, bad smells are used by citizens to characterize air pollution. Indeed, **bad odors** is a topic that frequently occurs in the Parisians' discourses: *When you walk behind a bus, you can smell it, it goes straight to the nose (CL); Everytime I'm going underground, I can smell it, bad odors in the air, very unpleasant! (YO); When I'm waiting here, beside a busy road, I can smell an unpleasant odor and I'll have difficulty breathing (MC); Sometimes, it's impossible to breathe, sure, you can smell something odd (MI).*

Bad odors are frequently noticed after several days spent in the country: *When I leave Paris to my grand-parents' place in the country, then it's a little bit hard when I come back to Paris because there are all these odors, these exhaust fumes (AD); I've got a friend who lives in the outskirts of Paris, there are no odors there, well, there are special odors in Paris (JE); When I leave Paris for my sister's place in the country, air quality is not the same [...] You can smell it [...] this road for example: there are odors (DA); Oh yes, air in Paris is not as pure as in the country; it's windy in Normandy so the air is pure, here it stinks! (JR).*

Thus, "in the public opinion, odors emerge as one of the first sources of harm and air pollution"¹⁰.

Moreover, some persons get information about air quality from their bodies, at the level of the respiratory tract of course: *I can feel there's something wrong in my lungs (YO); It's difficult for me to breathe (EM); Sometimes I cough (JE); I can feel at once difficulties in breathing (CT).*

Others can feel the effects of air pollution at the level of their eyes, their skin, even their hair: *I've got problems in my eyes when I take the beltway on my motorbike (MG); It stings in my eyes, it's a lot of things like that (JU); When I wipe my nose, I can see it... (CE); You just have to run a motorbike to have, at the end of the day, a black, filthy face and even your clothes! (JY); When you come back home in the evening, you're black (JO); It's just that my hair is dirty at the end of the day (JE)...*

In the end, the interviews' analyse points out that air pollution is perceived in a concrete manner by the Parisians met: smoke, odors, feeling of suffocation, etc.

¹⁰ MANEUX Éric, 2001, *Quelles sont les techniques pour surveiller la qualité de l'air ? – PRIMEQUAL PREDIT 1995-2000*, Paris : La Documentation Française, p.51

4. Technical solutions to reduce odors and fumes

Following the citizens' feeling, industrialists are fighting against odors and exhaust fumes. The technical solutions developed with this end in view are presented and promoted in the booklets and the leaflets published by automobile manufacturers and fuel producers.

To fight against black smoke and its consequences in term of corporate image, industrialists are promoting in their booklets a bunch of technical improvements which are reducing this visible pollution:

- Improvements at the level of the **engine** and **exhaust processing technologies**: *The first particle filter in the world is on the 607 [...] a decisive ecological advantage which allows, for the first time, the elimination of all particles and smoke* (booklet "607" produced by Peugeot); *With recent technologies (e.g. common rail) and new post-emission technologies (catalytic converter, particle filter), Diesel motors are producing less and less pollutants, especially black smoke* (booklet produced by Elf: "Evolution: the road in a better way - n°4"); etc.
- Improvements of **fuels**: *In having an effect on the combustion's quality and the fuel injector's cleanliness, Diesel Evolution removes up to 30 percent of all particles and black smoke (in comparison with the use of an ordinary diesel fuel)* (leaflet "A cleaner car to go further - Optane Evolution" produced by Elf); *BP Diesel Ecology [...] removes up to 85 percent of sulfur emissions and up to 30 percent of black smoke* (leaflet "BP Diesel Ecology - A greener summer for a bluer sky" produced by BP); etc.

An advertisement, broadcast on the French national channel *TF1* (viewed on Sunday September 10, 2000), for a product which is supposed to scrub the motor and reduce noxious emissions, is explicitly centered on the association "smoke equals pollution". The advert lasts about 11 seconds and is segmented in three parts:

- 1st part (5 sec.): A man appears in a place filled with smoke, we can hear horns. The man says: *An engine that clogs up, what... what stress!!!*
- 2nd part (1 sec.): Arrival of the product (a dark blue can on which is written "Injexion 5") diagonally, from the right top of the screen to the opposite corner. The product is followed by a bright blue trail. The man cries out: *Injexion 5!*
- 3rd part (5 sec.): The clear blue color is everywhere now, the product is now placed in the left bottom of the screen. The man says: *It's good for my car, Injexion 5, it's good for the environment*. We can hear birds twittering. On the television appears "Injexion 5 - Cleaning fluid".

As we can see in the pictures below, this miraculous product dispels smoke, noise (horns) and stress. In exchange, it brings light, nature (birds) and happiness...



Pictures from the “Injexion 5” advertisement broadcast on *TF1* Sept. 10, 2000

Like their opinion of black smoke, the fact that Parisians are bothered by odors is a threat to automobile manufacturers and fuel producers. So, industry is struggling to see to it that it smells good, in particular in the passenger compartment, and odor becomes a selling point:

- At the level of fuels: *Diesel Evolution contains a cool, slight and floral perfume* (leaflet produced by Elf “A cleaner car to go further - Optane Evolution”); *The LPG presents high ecological qualities. It doesn’t contain any sulphur or lead, it doesn’t emit exhaust particles or odors* (booklet produced by Elf: “Evolution: the road in a better way - n°4”); *The NGV is the natural answer to environmental preoccupations. It doesn’t produce any odors, smokes or particles* (leaflet produced by the French Association of Natural Gas Vehicles, “The advantages of NGV”); etc.
- In the car’s interior: *Dust, pollen and odor filtre. For an absolutely pure atmosphere. [...] The filter is also efficient against most bad smells especially those from hydrocarbons* (booklet “607” produced by Peugeot); *In addition to filtering particles and gas, this activated carbon interior filter is stopping odors* (leaflet “Filtering guidebook” produced by Purflux); etc.

In the end, thanks to these technical improvements, motorists *got rid of most fumes produced by fuel combustion and odors of oil and liquid windshield-washer detergent* (booklet “V70” produced by Volvo).

5. For making motorists aware of their responsibilities

During a conference in the field of risks, a public health specialist made the following ironic comment: “Concerning Diesel fumes’ pollution, for example, **the problem is no longer that these fumes are toxic but that you can see them**”¹¹. And we can add that you can smell them.

Besides, the white cloth placed at the end of the exhaust pipe is a classic method, presented in the media, to “prove” this engine’s cleanliness or that filtration system’s efficiency: *We made the*

¹¹ TUBIANA Maurice, *et. al.* (dir.), 1999, *Risque et société – Actes du colloque « Risque et société », Cité des Sciences et de l’Industrie de Paris-La Villette, 18-19-20 novembre 1998*, Éditions Nucléon, p. 402

irreproachable white cloth test: even with a big acceleration, it remains clean (M6, « Turbo », 05/02/2000) or Particle filters are about to become widespread and it'll be possible to put a white handkerchief at the end of the exhaust pipe, turn over the engine and the handkerchief will remain white (France Inter, « Le téléphone sonne », 31/03/2000).



Pictures from Turbo and E=M6, two television programmes broadcast on the French channel M6 respectively Feb. 5 and April 16, 2000.

Many Parisians are freed from guilt because every day they can see cars with black exhaust fumes: to them, those motorists should change their behaviors, buy a recent car or adjust their engine. *When you see those cars... there!* [She's pointing a car parked close to us] *this old BMW: I'm sure it smokes a lot. All these cars should be eliminated (JU); Personally, I would prevent all polluting vehicles from running in town. Every smoking car should be banned from the urban area* (Parisian interviewed by a journalist from the newspaper *Le Parisien*, 05/05/2000). These persons are not questioning their own car (and their use of it) because it doesn't smoke.

Even so, almost all pollutants are colourless and odorless. It then appears necessary to insist on the fact that **pollution can also be invisible and odorless**: we must not rely only on our senses. A non-smoking car is not necessarily a non-polluting one: it surely pollutes, but differently. An information campaign on the subject would be useful.

Generally speaking, our documentary analysis underlines that industrialists are promoting technical improvements to fight against air pollution. This position rests on discourse centered on their ability to solve (nearly) alone the pollution problem. Technology's savior role is promoted with the use of positive and reassuring vocabulary: *Real technological revolutions occurred as well with petrol as Diesel engines* (booklet "Evolution: the road in a better way - n°4" produced by Elf) or *In the future, technical improvements will allow more reduction of pollutant emissions* (booklet "Automobile and air quality. Responsible Car." produced by the Committee of French Car Manufacturers).

Thus, fuel producers and automobile manufacturers predict that soon, thanks to technology, air pollution won't be a problem anymore: *Air quality has been monitored for 40 years, is better today than ever before and continues to steadily improve thanks to technical progress to such an extent that pollution will soon be classified among solved problems* (leaflet "Road transports in Paris region in numbers" published by the French Road Union).

In that case, why should the motorists leave their car at home? The very use of automobiles isn't questioned; there is no attempt to make the motorists aware of their responsibility. Besides, according to the title of a booklet produced by the Committee of French Car Manufacturers, cars are becoming more responsible even if motorists are not! Nevertheless, beyond air pollution, cars in urban areas are causing problems in term of noise, use of public space, time lost in the traffic jams, cut effects¹², urban landscape damage, etc. The question of the **proper use of automobile** is worth asking.

¹² Road cuts are « traffic barriers » that push away pedestrians and cyclists who are living and moving near those roads. (HÉRAN Frédéric, *Transports en milieu urbain : les effets externes négligés*, Paris : La Documentation Française, 2000, 118 p.)