



PEDESTRIAN QUALITY NEEDS
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Country Report

COST 358 Pedestrians' Quality Needs

FRANCE

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1. Facts and figures

1.1 Demography

Statistics about demography are available from the National Institute of Statistics and Economic Studies (*Institut National de la Statistique et des Études Économiques : INSEE*) which is a Directorate-General of the Ministry of the Economy, Finance, and Employment.

For that purpose, INSEE organizes the population census and tracks demographic changes. More generally INSEE collects, produces, analyzes, and disseminates information on the French economy and society.

Since 2004, the population census is annually made. A new method replaces the traditional counting organized every eight or nine years (The general census of the population of 1999 will have been the last census concerning all the population at the same time). Since 2004, the inhabitants are not counted all the same year. The municipalities of less than 10 000 inhabitants realize henceforth an exhaustive census every five years, at the rate of the fifth of the municipalities each year. The municipalities of 10 000 inhabitants or more realize every year a sample survey with a 8 % sample approximately of their population. The collection is made in January and in February. An official agent deposits questionnaires and takes back them when filled.

INSEE guarantees the quality of the methodology of the data collection and of the analysis.

On the Web site of INSEE: www.insee.fr, are available:

- statistical tables on French population, society, and economy, classified by topic;
- detailed data;
- studies and analyses

1.2 Transport and travel data

- **Which statistics available? which years?**

Trends as regards mobility in France may be investigated by using:

- the nation-wide « INSEE Transports » surveys. Two surveys have been carried out until now : in 1981-82, in 1993-94. The next one 2007-2008 will start in september 2007 for one year. (NB: previous quasi-similar inquiries had been made in 1959 and in 1967)
- the « Household surveys ». They are carried out in some large towns at the initiative of local organisations which share the expenses with central government. Every year, some large towns are inquired. Since 1976, more than 30 towns have achieved such surveys. Among them, several have done it twice, some repeated it three ou four times (for examples, Paris in 1976-83-91 and 2002, Lyon in 1976-85-95 and 2006, Grenoble in 1978-85-92 and 2002), so having a follow-up.

- **Collection method?**

As regards national surveys « INSEE Transports » methodology :

These surveys are carried-out by INSEE (Institut National des Statistiques et des Etudes Economiques) in association with INRETS (Insitutit National de Recherche sur les Transports et leur Sécurité) and cover the whole country.

They enable to acquire a knowledge about the residents' transportation in the agglomerated urban zones as well as in the non-urban zones (periurban and rural). They concern as well the daily short distance journeys as those of week-end long distance.

As regards « Household surveys » methodology :

These surveys are done by interviews among households, carried out on agglomeration's level and according to a well defined methodology (CERTU specifications).

These interviews give data about the individuals, their transport practices, the use of the different modes of transport, their opinions and attitudes in regards to transport. It enables to characterise the transportation on the level of the agglomeration (the heavy tendencies which appear), to judge the efficiency of the applied transportation policy, to follow it's evolution in the long time. They also offer comparisons between agglomerations.

The essential specifications are the following :

- The surveys deal with one representative sample.
- The surveys are carried out by specialists, who interview people at home.
- Every person in the household who is over 5 years old is personally interviewed. (The surveys are therefore generally made in the evening, between about 18h and 20 h. They last on average 1h30 : which means on average one survey per interviewer per day)
- Each trip (made on the day before the survey) of each interviewed person is counted, with their characteristics, whatever their duration or their purpose. Only working day trips are studied.
- Every transport mode which was used : walking, two wheels, public transport, private car ... is studied.

• **Which definitions?**

One « trip » is defined the following way : A return [travel] constitutes two trips. Any new activity, generating one trip on a public road, implies one new trip. If, for example, somebody leaves home to go to work and stops for shopping, there are two trips : one home-to-shopping trip, and a second trip counted as shopping-to-work. One trip may use several modes.

One walking trip is registered as such only if it is totally made on foot (no matter how small it can be in terms of distance or time). The walking + bus/tram/train combination is counted under the heading « Public transport ».

The « mobility per person » is the average number of trips made by one person on a working day. This average number is computed by dividing the total number of trips made by the total population.

• **Quality of the data?**

The methodology specifications of the household surveys guarantee the quality of the resulting data file (reliability, durability, comparability).

• **Pedestrian mobility : tendencies ?**

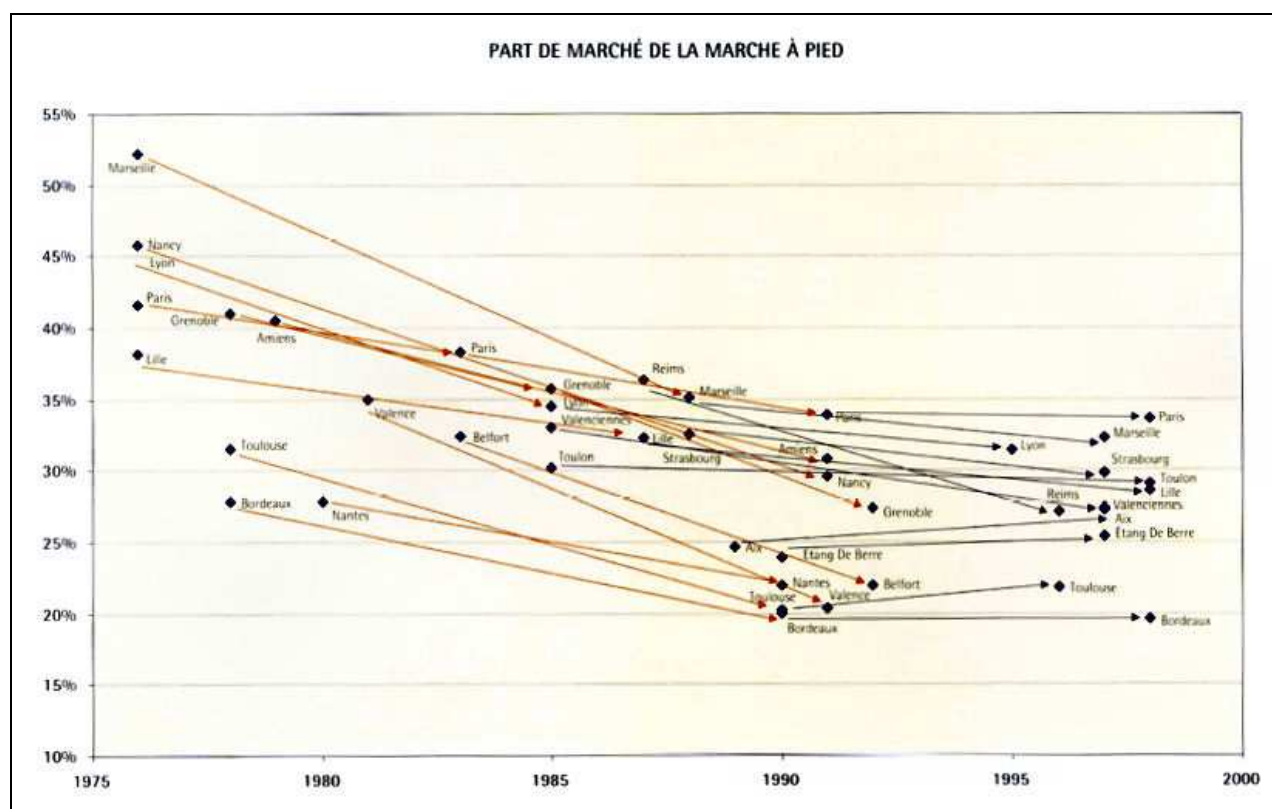
Mobility data, collected at both national and local levels, shows there were significantly less people walking during the 1980s, in favour of the ever-increasing use of the private car.

National data

Year	Car	Walking	Public transport	Bicycle	Moped	Motorcycle
1981-82	48.6%	34.1%	8.57%	4.53%	3.63%	0.55%
1993-94	63.5%	23.2%	9.00%	2.85%	0.92%	0.46%

*Evolution in the share of various trip modes on weekdays
(less than 80 km, people over 5 years old, living in metropolitan France)
I.N.S.E.E. Transportation surveys (F. Papon, I.N.R.E.T.S. 1997)*

On the other hand, during the 1990s, the figures as concern walking became stabilised, and even increased slightly in some cities in the last years (for example in Lille and Lyon).



Household surveys

LYON	% of trips by walking (Household surveys)
1976	46 %
1985	35 %
1995	31 %
2006	32 %

LILLE	% of trips by walking (Household surveys)
1976	38 %
1987	32 %
1998	29 %
2006	31%

At present, walking represents between 20 % to 35 % of trips in built-up areas. Walking is and remains the second means of travelling in town, after the car. It can even be the first mode, in town centres.

1.3 (Urban) Land Use

1.4 Health & competences

As concern disabilities:

We can globally distinguish 3 types of data:

- those collected by the Ministry of Health and the Ministry of "Employment, social relationships and solidarity",
- those collected by the systems of social welfare,
- those made on samples of population from specific inquiries by some bodies (national or local)

It is advisable to quote particularly **the inquiry HID (Handicap – Incapacités - Dépendances)** realized by INSEE (*National Institute for Statistics and Economic Studies*) between 1998 and 2001. It is the first inquiry exclusively dedicated to the phenomenon of the handicap with a representative sample of the French population.

Statistics are notably available from the national administrative departments like the DREES (*Direction de la recherche des études de l'évaluation et des statistiques*) or the DARES (*Direction de l'animation, de la recherche et des études statistiques*) of the Ministry of Health and of the Ministry of "Employment, social relationships and solidarity".

Report " The handicap in figures - February, 2004 " is downloadable from : <http://www.sante.gouv.fr/drees/handicap/handicap.pdf>

The statistical system of data on handicap is complex:

- because of the plurality of possible definitions of the handicap.
- because the various data are not always comparable: the various sources supply information concerning populations which can be different; certain information concerns the number of served services, the others concern the individuals.
- because these data are collected in variable periodicities.

As concern obesity:

Inquiries "ObEpi" led in 1997, 2000, 2003 and 2006, to nearly 20 000 households, give a lot of data. They are national epidemiological inquiries on the overweight and the obesity.

They are led by the Institute Roche (*Medical laboratory*), in association with INSERM (*French National Institute of Health and Medical Research*), the hospital "Hotel Dieu of Paris" and SOFRES (*poll institute*).

Report of 2006 inquiry is downloadable from :

<http://www.roche-pharma.ch/portal/eipf/france/roche/fr/institutionnel/lesurpoidsenfrance>

As concern Health more generally:

More general statistics about health are available from the National Institute of Statistics and Economic Studies (*Institut National de la Statistique et des Études Économiques : INSEE*).
www.insee.fr

1.5 Time spending

No specific data base is available on that topic.

Some figures can be extracted from the transport and travel inquiries, like for example the average time of a waking trip.

(But perhaps specific studies are existing on that field).

1.6 Safety

• Which statistics available? Collection methods?

French road traffic accident statistics refer to « injury accidents » : road accident in which one or more people are killed or injured. Damage only accidents are therefore excluded.

There are three main sources of information:

1. the national statistical data file, drawn from the *BAACs (Bulletins d'Analyse des Accidents Corporels)*. In France, one BAAC form is filled for each injury accident by the police (*police nationale* or *gendarmerie*). This form enable information on the accident characteristics (location, users and vehicles involved, ...) to be coded. A national computer file is then compiled from the *BAACs*, enabling general information on the whole of injury accidents in the country to be available. The national statistics are drawn from this file. They are published by the Observatoire National Interministériel de la Sécurité Routière (ONISR).
2. the police records of injury accidents. One record (*procès verbal: PV*), which is the base for legal action, is systematically established for each injury accident by the police or the *gendarmerie* (the BAAC is later coded from this document). The various elements constituting the record group very precisely all the information describing the circumstances, the place (a plan is provided), the people and vehicles involved in the accident. They also include the declarations of the involved people, and witnesses as the case may be. The records are kept by the police or the *gendarmerie*, where they can be inspected only by authorised people.
3. the accidents surveys « Comprendre pour agir » (Before called « REAGIR » surveys). These surveys are carried out by multidisciplinary teams of specialists recruited in various domains: the infrastructure, the vehicle, the users behavior, the assistance and the care. They concern only fatal or severe accidents. They are launched by the Prefect, to whom is handed back the report of inquiry. The conclusions are spread to the local actors concerned.

L'INRETS disposes of three complementary data sources :

One data file of police records representative of the accidents occurred in France. One sample collection of 1 in 50 records is made continuously. The information from these records are then coded in a specific way.

The detailed accident analysis. These are carried out by multidisciplinary teams which intervene as quickly as possible on the accident scene. The objectives are to analyse types of accidents, to reconstruct what happened before and after the collision, to identify processes generating injuries and feeling of insecurity, and finally to identify specific counter measures and to assess the actions for road safety.

The medical register of the road accident victims of the department of the Rhône (register set up in 1996). It consists in collecting with all the medical establishments of the Rhône the medical data on the road accident victims (description of wounds and care).

- **Which definitions?**

French road traffic accident statistics refer to « injury accidents » : road accident in which one or more people are killed or injured. Damage only accidents are therefore excluded. A road accident must happen on a public road. It must imply at least one vehicle.

Until December 31st, 2004, the definitions of the victims were the following ones:

killed	= victim who died on the site or within 6 days in hospital
severely injured	= victim whose injuries necessitate more than 6 days in hospital
slightly injured	= victim whose injuries necessitate 6 or less days in hospital.

On January 1st, 2005, France adopted the international definition of the "person killed" and of the " hospitalized injured person ". The new definitions are as a consequence the following ones:

killed	= victim who died on the site or within 30 days in hospital
hospitalized injured	= victim whose injuries necessitate more than 24 hours in hospital
slightly injured	= victim whose injuries necessitate 24 hours or less in hospital.

A multiplicatif coefficient of 1,069 is then necessary to extrapolate the number of " persons killed in 6 days " to the number of "persons killed in 30 days ".

- **Quality of the data ?**

In France as in all other countries, all road accidents are not really reported. Underestimated accidents mainly concern a cyclist or a vehicle only accidents and in general, slight accidents. Accidents involving pedestrians are often of a severe nature and so are fairly well recorded in the database.

- **Main figures ?**

For over 35 years, the number of pedestrians killed is regularly decreasing in France, from 3422 (*new definition of killed in 30 days*) in 1970 to 635 in 2005. In 2005, pedestrians killed represent 12 % of all people killed in french road traffic accidents (*France – Métropole*).

The enormous majority (**~95%**) of **pedestrian accidents occur on urban roads**, which obviously corresponds to the fact that walking is an essentially urban practice. As well, **73% of the pedestrian deaths occur in urban areas** (*figures 2005*).

In towns, pedestrians are involved in **nearly ¼ of accidents** and they represent **nearly ¼ of people killed**. These figures show the significance of pedestrian issues with regard to safety in urban areas.

2005 <i>(France Métropole)</i>	Total in urban aeras	Concerning pedestrians	
		Number	%
Accidents	58680	12961	22
Killed <i>(in 30 days)</i>	1664	461	28
Hospitalized injured	22901	5353	23

Urban accidents and victims concerning pedestrians in 2005

The severity of pedestrian accidents increases contrary to the size of the built-up area, attaining major severity on rural roads.

Pedestrian accidents in urban areas usually occur on main roads, where there are more pedestrians, heavy or quick traffic and where crossing the road is more difficult.

The populations most affected are under 14 years old for injured pedestrians and over 65 years old for killed pedestrians. **In town**, the “**over 65 years old**” age group alone **represents 63% of pedestrians killed** (*figure 2004*).

2. (Recent) publications on pedestrian issues

What publications are there nationally regarding the general and specific research questions?

Per publication:

- author(s)
- title (in English)
- short abstract (approximately 100 words)
- kind of publication (book, report, reviewed article,...)
- where it is available (publisher, library, possibly internet link?)

2.1 Publications CERTU

Publications concerning specifically disabled people

- **Certu (2007) - Urban accessibility auditings. Comparative case study analysis and proposals.** Book available through : Certu library.
- **Certu (2007) - What kind of vehicles and facilities are required to provide transport services for people with reduced mobility?** Book available through : Certu library.
- **Certu/Cete Nord-Picardie (2007) - Elaborate an accessibility plan for public road network. Experiment in Valenciennes.** Report Certu. Pdf via www.certu.fr
- **Certu (2006) - The accessibility of roads and public spaces. Elements for formulating diagnoses in small municipalities.** Book available through : Certu library.
- **Certu (2006) - Urban accessibility auditings : Examples and elements of good practices.** Brochure (4 pages). Pdf available via www.certu.fr
- **Certu (2006) – Signalised intersections for the visually impaired persons. Implementation.** Report Certu. Pdf available via www.certu.fr
- **Certu (2006) – Access to the city for all: what diagnosis tools ? Proceedings of the June 16th, 2005 seminar.** Pdf available, via www.certu.fr
- **Certu/DSCR (2005) - Podotactiles surfaces for the visually impaired persons.** Report Certu. Pdf available, via www.certu.fr
- **Certu / Technicités (2005) - Handicaps and city.** Classeur + mises à jour. Publisher : TechniCités. Available through : Certu library
- **Certu (2005) - Elderly persons and public transport.** Book available through : Certu library
- **Certu (2005) - Accessibility of the urban public spaces. Ergonomic tool of evaluation.** Report Certu. Pdf available, via www.certu.fr
- **Certu (2005) - Access to the city for all : public equipments. Proceedings of the June 03rd, 2004 seminar.** Pdf available, via www.certu.fr
- **CSTB (Centre Scientifique et Technique du bâtiment) (2005) - LOQACCE Cité.. Software dealing with the accessibility quality of the city. Multimedia tool to better understand rules.** Publisher : CSTB – Available via : publication@cstb.fr
- **Certu (2004) - Access to the city for all: commercial activities. Proceedings of the May 21th, 2003 seminar.** Pdf available via www.certu.fr
- **Certu (2004) - Pedagogic kit for accessibility to roads by reduced mobility persons.** CD Rom. available through : Certu library

- **Certu (2004) - Consultation related to accessibility for reduced mobility persons. Methodological elements.** Book available through : Certu library.
- **Certu (2002) - « Access to the city for all».** Leaflet (16 pages). Pdf available, via www.certu.fr
- **Certu (2002) - Mobility and aged people. Proceedings of the mobility club - 2002.** Pdf available, via www.certu.fr
- **Certu (2001) - Guide to bus accessibility.** Guide available through : Certu library

Others publications in link with « pedestrians »

- **Certu (2006) – Road networks for all.** Brochure (4 pages). Pdf available via www.certu.fr
- **Certu (2006) – 30 km/hr zones: best practises.** Book available through : Certu library
- **Certu (2005) – Getting organised to develop public spaces. Organisational approaches and procedures.** Book available through : Certu library
- **Certu (2005) – Road safety in urban mobility plans: approach and method.** Book available through : Certu library
- **Certu (2004) – Urban grounds: a sensitive approach.** Book available through : Certu library
- **Certu (2004) – The “landscape Light” : approaches and methods for a "lighting policy" in the city.** Book available through : Certu library
- **Certu (2002) – Play and leisure. Taking them into account in the development of public spaces.** Book available through : Certu library
- **Certu (2001) – Chambéry : 20 years of traffic calming and diversity in the travel modes.** Video available through : Certu library (in French and English)
- **Certu (2000) – Guide to road layouts for public transport.** Book available through : Certu library
- **Certu (1999) – Urban crossroads guide.** Book available through : Certu library
- **Certu (1997) – Protecting sidewalks against uncontrolled parking practices.** Book available through : Certu library
- **Certu (1995) – 30 km/hr Zones: making districts more attractive to live -** Brochure (6 pages). Pdf available via www.certu.fr
- **Certu (1994) – Safer cities, accident-free districts. Project applications and evaluations.** Book available through : Certu library
- **Cetur (1990) – Safer cities, accident-free districts. Expertise and technical guidance.** Book available through : Certu library
- **Cetur, ADTS, IBSR (Belgique), IREC (Suisse), La sécurité Routière (Luxembourg) (1990) – Street. Better and safer trough traffic calming.** Book available through : Certu library
- **Cetur (1986) – The city on foot. For an urban layout that's better adapted to pedestrians.** Book available through : Certu library

2.2 Publications INRETS

- **LOBJOIS, R. - CAVALLO, V. (2007). Age-related differences in street-crossing decisions.**The effects of vehicle speed and time constraints on gap selection in an estimation task. Accident Analysis and Prevention. (Under printing)
- **GRANIÉ, M. A. (2007). Gender differences in preschool children's declared and behavioral compliance with pedestrian rules.** Transportation Research Part F: Traffic Psychology and Behaviour. (Under printing)
- **GRANIE, M.A. (2006). Pedestrian children : a new educational software.** Brochure of scientific current events of Inrets AXE 1 - N°48.
- **GRANIE, M.A - ASSAILLY, JP (2006). The evaluation of the educational actions in road safety with the aim of setting up an education for the youngest.** Brochure of scientific current events of Inrets AXE 1 - N°41
- **GRANIÉ, M. A. (Ed.). (2006). Gender, Risk, Education, Socialization. The role of the sex and the gender in the social influences on the development of the relationship at the risk in the childhood and the adolescence.** Research status report 1 & 2. Financed by: PREDIT/DSCR. Available : l'INRETS.
- **PAPON,F (2006). Walking and cycling look for their place in transports.** Brochure of scientific current events of Inrets AXE 2 - N°16.
- **LOBJOIS, R., CAVALLO, V., VIENNE, F., ET AL. (2005). The crossing of street by elderly pedestrians: risk factors and methods of recovery.** Final report. Contract between Conseil National de la Sécurité Routière / Direction à la Sécurité et à la Circulation Routière / INRETS. Available: INRETS.
- **GRANIE, M. A. (ED.). (2005). Social development and road safety.** Final report PREDIT/DSCR. Available: INRETS.
- **YERPEZ,J (2004) The road insecurity of the elderly pedestrians and the urban layouts.** Publisher : Documentation Française
- **GRANIE, M.A. (2004). Children road education: evaluations of educational actions. Contributions of the research in psychology to the understanding of child in road safety.** Report Inrets n°254.

Through the evaluation of the impact on the safety of the behavior and the representation of the danger of diverse precocious educational road safety experiments, 200 5-year-old children, and 100 children aged of 8, 12 and 17 years as well as their parents were requested. In this work, the author examines the current knowledge on the child in road safety, investigates new research angles and proposes an evaluation of the educational frames in their contributions to the child road safety. Its opens finally new tracks for the education of the child to the road.

- **BRENAC,T - NACHTERGAELE,C - REIGNER,H (2003) Prototypical scenarios of accidents involving pedestrians and prevention possibilities.** Report Inrets N°256.

This research work deals with traffic injury accidents involving pedestrians. It is based on detailed case analyses and uses the concept of accident prototypical scenario. A randomly selected sample of 374 accidents, representative of the pedestrian injury accidents on the French networks, has been studied on the basis of police reports. 25 other cases have been analysed on the basis of detailed reports of the In-depth Accident Study carried out by INRETS at Salon de Provence. A series of 20 accident prototypical scenarios has been constructed and validated. They represent about 85 % of the accident cases. These scenarios are described in detail in this report, and prevention possibilities are discussed with reference to the international scientific literature. Some less frequent scenarios are also mentioned.

- **Jung, S., Granié, M. A., Grislin-Lestrugeon, E., Aubert, G., Charron, C., Lepoutre, F.-X., et al. (2003). Construction of a simulator for learning the pedestrian mobility:**

RESPECT. Final report RES-RFI. Financed by: PREDIT 2 / Ministère de la Recherche. Grenoble: CORYS-TESS, Inrets, CRP2C, LAMIH.

- **CARRE, JR - JULIEN, A (2002) Pedestrian trips and risk exposure.** Paper in "RTS" magazine.
- **CARRE, JR - JULIEN, A (2000) Analysis method of the pedestrian sequences during the city-dwellers daily trips and measure of the risk exposure of the pedestrians.** Report Inrets N°221.

Inquiries on the mobility badly take into account walking. In these documents, the authors bring to light in so complete a way that possible the indicators which characterize the pedestrian activity and in particular those who allow to measure their exposure level at the risks. The proposed method consists in coupling interviews with observations and direct measures of the activities of movement thanks to a follow-up of the persons a whole day. These observations are completed by the production of mental maps.

- **PAPON, F (1999) Walking and cycling in transport inquiries. Tome 2: typology of the pedestrians.** Report.
- **YERPEZ, J _ GIRARD, Y (1998) Traffic accidents and subjective insecurity of the elderly pedestrians in average cities.** Paper in "RTS" magazine.
- **YERPEZ, J _ GIRARD, Y (1998) Traffic accidents and subjective insecurity of the aged pedestrian in average city.** Publisher : Anthropos – Economica
- **FONTAINE, H - GOURLET, Y - ZIANI, A (1996) The pedestrians accidents: typological analysis.** Paper in "RTS" magazine.
- **FONTAINE, H - GOURLET, Y - ZIANI, A (1995). The pedestrians accidents: typological analysis.** Report Inrets N°201.

3. Current research projects

Which projects are currently carried out? Please indicate per project, if known:

- Research topics or title of project
- Expected results and products, when?
- Names of institutes
- Name(s) of researcher(s)
- Contact details (organisation, name, address, telephone, e-mail)
- Research context (part of larger project?)
- Amount of money, time and staff involved

3.1 Programme of research, experimentation and innovation in land transport (PREDIT)

PREDIT is a programme of research, experimentation and innovation in land transport, started and implemented by the ministries in charge of research, transport, environment and industry, the ADEME (French Environment and Energy Management Agency) and the ANVAR (French national agency of development of research). By stimulating cooperation between public and private sector, this programme aims at encouraging the creation of transportation systems that would be economically and socially more effective, safer, more energysaving, and finally more respectful of Man and environmentally-friendly.

Three programmes have been achieved since 1990:

- PREDIT 1 (1990-1994)) was mainly devoted to technological innovations in vehicles: TGV, automobile vehicles, light automatic underground trains.
- PREDIT 2 (1996-2000) covered a noticeably wider field, considering the subjects concerned (involvement of Man and Society sciences, Life sciences...), but also the aims of the research (transport services organization, goods, harbour interfaces...). This second programme made about 1,400 research projects possible.
- PREDIT 3 (2002-2006) is channelled by three general objectives: to ensure the sustained mobility of people and goods, to increase the safety of transportation systems, to reduce environmental impacts and contribute to the fight against the greenhouse effect. It has been given about 300 million Euros in public funds.

A new PREDIT (PREDIT 4) is being prepared.

Among pedestrians research projects, the followings have been done or are in progress (list not complete):

PREDIT 3

- **PUVAME: protection of the vulnerable users by alarms or operations of avoidance**
Objective: to contribute to reduce the accidents implying vulnerable users (pedestrians, children, cyclists, motorcyclists) by developing technological systems of supervision and alert for the driver. Improvement of the perception capacities of the driver in his close environment. Detection and appreciation of the dangerous situations. Release of alerts and actions associated in the vehicle. Release of horns intended for the vulnerable users. Integration and experiment on vehicle and preliminary study on buses and/or trams. Partners: ARMINES, INRIA RHONE ALPES, Technopole d'Izarbel, EUROLUM, Probayes, Intempora, ENSMP, INRETS
- **DSSR: Social Development and Road safety**

Construction of rules, moral judgment of gravity and dangerousness for the children; effect of the stereotypes of sex; road crossing behavior; preparatory studies with children from 6 to 12 years old; analyse of trip strategies concerning the 11-year-old children; dangerous driving behavior concerning the fifteen-year-old teenagers. Partners : INRETS, Universités paris 10, Toulouse 2, Rennes 2, Caen.

- **GENRES : Gender, Risks, Education, Socialization.**
Influences of the gender. Impact of the difference of sex in the relationship at the risk and at the rules as concern the child and the teenager. Application to the pedestrian behavior. Partners : INRETS, Université Paris 10, INETOP/CNAM.
- **SOVE: active system “optoélectronique” of pedestrian protection for vehicles**
The violence of the pedestrian shocks against the driving hood of cars being at the origin of numerous pedestrian deaths, the objective of the project is to work on a sensor of detection with optical fibres covering the totality of the car bumper and on an algorithm of decision-making in case of pedestrian shock. Partners : SIEMENS VDO, Micromodule Brest, LSP (Université de Strasbourg).
- **APPA: improvement of the pedestrians protection in case of collisions with cars**
Partners INRETS, UTAC, FAURECIA, LAB PSA-Renault
- **Car high traffic and pedestrian safety**
The research consists in describing how in certain urban situations, the combination between high car traffic and high pedestrian flow comes possible "without danger". Which are, in these situations, the dynamic characteristics of the traffics (especially, speed) and the morphological characteristics of the streets ? Which are the difficulties?. Partners : MAGISTRAM (Magistère aménagement urbanisme de Paris I)
- **PROTEUS: protection of the head of vulnerable users.**
The statistics show that the cranial traumatism remains an important cause of death or incapacity among the road users (at first one as concern the pedestrians, then the cyclists, the motorcyclists and also the motorists). Among the results expected from this research: a digital tool of prediction of the crâno-encephalic injuties, a bio-similar prototype of head, recommendations for the car research departments, an optimized crash helmet. Partners ULP-IMFS, LAMIH, CEESAR, SHARK, GIE PSA Reunault LAB.
- **LOVE : software of vulnerable road users observation**
LOVE wants to contribute to improve road safety by finalizing softwares of observation of the vulnerable users. The accent is more particularly put on the pedestrians. Partners : Université Blaise Pascal Clermont 2 / CNRS, Renault, Valeo, CNRS , INRIA, CEA , Armines, LCPC
- **DO30: detection of obstacles until 30 m.**
The objective of the project is to study the feasibility of a sensor of obstacles for cars. The purpose being to reduce the shock energy before the impact by action on the braking system and to decrease the possible injuries for the vehicle occupants and the pedestrians. Partners : CEA, PSA, Renault, VALEO

PREDIT 2

- **RESPECT: Safety road for pedestrian children**
Objective: road safety education of the children from 6 to 11. Creation of an educational simulator prototype. Partners: CORYS-TESS, Universités Valenciennes et Rennes 2, INRETS.
- **Urban mobility and not motorized modes.**
It is about the synthesis of around thirty researches led from 1996 to 2002 within the framework of Predit.-INRETS.
- **Evaluation of the effects of the urban cuts for pedestrians and cyclists - IFRESI**
- **Conception of a simulation model of pedestrians' flow**
To conceive a simulation model of pedestrians'flow in the transport multimodal spaces (stations, railway stations, ...)- ATN
- **The pedestrians: characteristics of the trips and measure of the risk exposure .**

The objectives of the research were to obtain : a precise measure of the percentage of the daily trips made by walking - a detailed description of the pedestrians routes – indicators characterizing finely the activities of the pedestrians - an analysis of the determining factors in the decision to walk or not to walk - Inrets

- **DOMUS : Development and experiment of tools for an urban mobility associated with services.**

The objective was, from the use of mini-vehicles, coupled with inter-actives borders, to study the development of a new mode of transport and information in reduced urban zones (with a lot of pedestrians) offering an alternative to car. Partners : ISIS, Avenir France, Inrets, Institut National de Recherche en Informatique Appliquée, Transdev, Certu, Sagem

- **Safety demonstrator.**

This safety demonstrator use to a large extend the electronics to improve the road safety, especially as concern pedestrian safety. Partners : GIE PSA Peugeot Citroen

For more information: <http://www.predit.prd.fr>

3.2 "Behavior of the pedestrian in his environment" : research at INRETS

INRETS is the French National Institute for Transport and Safety Research. It is a state-financed scientific and technological body under the administrative supervision of the Ministries in charge of Research and Transport.

In 2005, a Platform **COPIE « Comportement du Piéton dans son Environnement »** ("Behavior of the pedestrian in his environment") was created by INRETS. As its name indicates, it deals specifically with pedestrian. It brings together a researchers' community (MSIS, GRETIA, GARIG and LPC laboratories) coming from diverse disciplines as well "Sciences For the Engineer" as "Sciences of man and the Society". It has for vocation:

- internally in Inrets, a better pooling of the knowledge in touch with the subject: critical discussions about the current projects, confrontation of the various used approaches, definition of the perspectives to be considered, etc.
- in external, the dissemination of the knowledge. A first French-speaking conference is moreover planned on Thursday, November 08th, 2007 in Paris, with for subject: "The pedestrian and his environment: what interactions? what adaptations ?"

The various laboratories or research units associated work more particularly on the following topics :

- the consideration of pedestrian's presence in the adaptive control of crossroads with traffic lights (*research unit GRETIA*)
- the modelling of pedestrian behavior for improving the driving simulator (*research unit MSIS*)
- the effect of the ageing on crossing behaviour (*laboratory LPC*)
- the biomechanics of the shocks "pedestrian – vehicle" (*laboratories LBMC et LBA*)
- the scenarii of pedestrian accidents, the layout of roads (*research unit MA*)
- the epidemiology of the accidents via the accidents' register of the Rhône (*research unit UMRESTTE*)
- the analysis of the pedestrian risk (*research unit GARIG*)
- the ageing: handicaps and mobilities (*laboratory LESCOT*)
- the practices of the teenagers mobility (*laboratory LVMT*)

For more information on COPIE : <http://pfi-copie.inrets.fr>

3.3 SEMINAIR « Walking in the city » - CRESSON

The Sound Space and Urban Environment Research Centre (*Centre de Recherche sur l'espace Sonore et l'environnement urbain: CRESSON*) is a research laboratory located at the Graduate School of Architecture in Grenoble.

In 1997, in partnership with the Architectural Methodology Study Centre (Cerma) in Nantes, it started a mixed research unit "Architectural and urban atmospheres", affiliated to France's National Research Centre (CNRS) and France's Architecture and Heritage Directorate (DAP).

In that context, CRESSON started in July 2007 a seminar entitled "Walking in the city".

Three days are organized to make researchers, students, artists and designers meet themselves on the following topics:

- the walking spaces in the city (July 2007)
- the sensitive and physical dimension of walking in the city (November 2007)
- the tools of observation and analysis of walking in the city (January 2008)

The objective of this seminar is to point out relevant questions on walking, questions which will contribute to define a specific walking research program in the research unit.

For more information:

<http://www.cresson.archi.fr>

<http://www.cresson.archi.fr/elements/semMARCHE/semMARCHE.htm>

4. Policy statements

Current (published) policy statements regarding pedestrians and walking

- national government White Papers and Policy Notes (National, Regional and Local Transport and Traffic plans)
- Land Use plans
- Health sector plans
- Education sector plans (incl. walking to school)
- Statements of political parties / party scientific bureaux

There is no national government White Papers on pedestrians in France. Nevertheless the tendency (and the reality) is obviously to reduce the use of cars in cities and to develop the use of public transport, bicycle and walking, for road safety, quality of life and health reasons.

UTP (Urban Transport Plans)

Compulsory for the conglomerations of more than 100 000 inhabitants, the urban transport plans (*Plans de Déplacements Urbains : PDU*) are very successful tools of planification, in court and middle term. Tools conceived originally (by the law LOTI 1982) to answer problems of transports management, they have been reformed by the law on the air and the rational use of the energy (law LAURE 1996) with as first orientation " *the decrease of the car traffic* " and the creation " *of a more respectful transport system with regard to the health and the environment* ". The law relative to the solidarity and to the renewal urban (Law SRU of 2000) still developed them by asking them to participate in the intensification of the social and urban cohesion.

Among the 8 objectives of current PDU, we can quote the 3 following ones:

- to improve road safety, especially by defining a better-balanced modal sharing of the public road network,
- to decrease the car traffic,
- to develop the collective transports and the thrifty means of transport in energy and the least polluting, especially the use of the bicycle and walking

Law on handicap

In 2002, the french President announced the decision to make of the insertion of the handicapped persons one of "three important priorities" of his five-year term. The two others were the " fight against the traffic road insecurity " and the "fight against cancer ".

Three years later, on February 11th, 2005, the "law handicap" comes into effect. This law asserts fundamental rights in terms of employment, schooling, accessibility (housing, transport, public road network) and of access for new social-security benefits. Partly, it strengthens already existing devices, partly, it creates new ones.

As regards the accessibility to the public road network, very precise rules were already existing, especially since the law of 1991 and its texts of application of 1999 and 2000. The new rules of 2005 thus comes to complete those already existing, adding new commitments, as for example the obligation for every municipality (or group of municipalities) to elaborate by the end of 2009 a " plan of accessibility for the public road network ". This plan will have to determine the required measures to make accessible to the handicapped persons all the

pedestrian paths and parking areas situated on the territory of the municipality. (NB: all the updated technical prescriptions relative to the accessibility of the public road network and the public spaces, is delivered by the decree N°2006-1657 of 21/12/2006 and its order of application of 15/01/2007.)

Furthermore, for the municipalities (or groups of municipalities) of more than 5000 inhabitants, "municipal committees for the accessibility" must be created. They have to be constituted by representatives of the municipality, of the associations of road users and of associations representing the handicapped persons. Then they will have to inventory the accessibility problems of the public spaces, the transport and the housing. A report will have to be annually presented to the municipal council.

For more information : <http://www.handicap.gouv.fr>

Walking to school

The ecomobile initiatives which have for objective to reduce the dependence to the car during the trips home/school, are encouraged. Numerous examples of Pédibus or Vélobus exist today in France.

These initiatives join more global ones called "Plans of Schools Transports" (*Plans de Déplacements Etablissements Scolaires : PDES*) who consist in:

- doing, for every school, a diagnosis of the mobility and the means of transports of the children and the parents between home and school, by examining the level of traffic and safety, as well as the most used paths.
- suggesting actions and, possibly, adapted layouts to encourage a modal transfer towards walking, cycling, public transports or car-sharing.

There is no legal obligation to implement PDES.

French Environment and Energy Management Agency (ADEME) encourages strongly the development of PDES. Through its 26 regional agencies, ADEME offers its technical expertise to accompany the local PDES. ADEME supports financially this kind of projects.

Decrease of greenhouse gases

The increase of walking (and of cycling) is a question which begins to be studied in the national programs like "Climate Plan" or "Transport, Town planning, Greenhouse Gases Plan", with the objective to decrease the urban use of transport modes producing a lot of greenhouse gases.

5. Legal position of pedestrians

A short review of regulations regarding walking, the pedestrian and handicapped persons in:

- Land Use Planning Acts
- Traffic rules and traffic signs with regard to pedestrians and the handicapped
- Rules regarding behaviour towards the handicapped
- Transportation rules & pedestrians
- Guidelines and legislation for road authorities with regard to pedestrians and facilities for the handicapped (traffic management, management, maintenance, design, traffic lights guidelines etc.)
- Health & Safety regulations
- Education rules and legislation
- Jurisprudence
- Liability rules
- Enforcement practise.

Traffic rules :

Traffic rules concerning pedestrians (as moreover all the other road users) are defined by a single document, the Highway code.

Below are the main rules, extracted from this code:

concerning the pedestrian "duties"

- The pedestrians have to use the spaces which are reserved for them (like sidewalks). If these last ones are absent or not passable, they can walk on the edge of the road.
- The pedestrians have to cross the road by taking into account the visibility as well as the distance and the speed of vehicles.
- They have to use, when it exists unless 50m there, the zebra crossings.
- In the intersections near which zebra crossings do not exist, the pedestrians have to cross in continuation of the sidewalk.
- The crossing in diagonal of intersections is forbidden.
- The pedestrians have to cross the road perpendicularly.
- When the crossing is settled by traffic lights, the pedestrians have to wait for the green light approval for them before crossing.

concerning the pedestrians "rights"

Drivers have to give the way to the pedestrians "duly crossing" the road (including in the absence of zebra crossing).

If they do not respect this priority, they can pay a fine (4th class) and lose four points of the driving licence. They can also contract an additional punishment of suspension of the driving licence which can go to 3 years.

Improvement of the Highway Code:

In France, the Minister of Transport opened in April 2006 a national work called "Code of the Street" to examine the current rules of the Highway code as concern urban roads. This work aims to make urban traffic rules better known or improved, to better take into account the cyclists and pedestrians, to reach a more well-balanced sharing of the street between all the users, and to improve the road safety in cities.

The work started by a collection of the expectations and the propositions, distinguishing :

- the identification of the current measures of the highway code requiring to be valued (because insufficiently known or not respected),
- the inventory of the wished evolutions of the traffic rules.

A lot of expectations expressed by road users associations concern the "Pedestrian".

Nowadays, more detailed works has started on 4 priorities. They concern :

- the possibility to introduce into the Highway Code a general principle of caution from the more strong user to the weakest,
- the possibility to introduce into the Highway Code a new concept of "zone de rencontre". This concept exists in Switzerland and in Belgium. It allows to create sectors with a very reduced speed (< to 20 kmph) and with a pedestrian priority.
- the possibility to generalize the circulation of cyclists in the opposite sense when there are one-way streets.
- the possibility to introduce the obligation for the driver to give the way to the pedestrian who approaches the edge of the sidewalk or who is ready to it to cross (without waiting that the pedestrian is engaged).

On these four points, studies are in progress to better measure the impacts of the modifications wished as well as their feasibility.

Liability rules

The Highway Code is a tool of the « code pénal » ; it enables to share the liabilities and the penalties.

On the other hand, there is the law **N° 85-677 of july the 5th, 1985 called « Badinter »** which comes under the "droit civil" and determine the compensations (without sharing the liabilities).

This law indicates, in its article 3, that the victims, except the drivers of motor vehicles, are indemnified for their damages in a traffic accident (excepted if unforgivable fault of the victim).

So in the quasi-totality of the cases (except unforgivable fault *) this law allows to indemnify the pedestrian for his damages in a traffic accident. What nevertheless does not subtract him from his penal responsibility if there is one...

** Unforgivable fault: it is defined by the case law as the voluntary fault of an exceptional gravity, exposing without valid reason its author to a danger of which he would have been able to be conscious*

Guidelines and legislation with regard to road layouts

As indicated in the previous chapter (4 - Policy statements - Law one handicap), the law enforces that the public road network and the public spaces in general are accessible to the handicapped persons. For more information: <http://www.handicap.gouv.fr>

As a consequence, very precise technical prescriptions exist. They especially concern:

- the overall design (nature of the surface, vertical alignment, rest landings, acceptable steps, cross sections, width, various obstacles - holes and cracks, bollards and posts- , stairs, safety railings ...),
- the footways (dropped kerbs at pedestrian crossings and also differentiated surface in order to indicate them to partially sighted people),
- vehicle parking (number and width of places, layout, signing),
- the traffic signals (provision of audible or tactile devices to help pedestrians at crossings equipped with traffic signals).
- ...

These prescriptions benefit naturally to all the pedestrians and gradually lead in France to a consequential improvement of the confort and safety of all the pedetrian trips. They are today a part of the basic specifications for any pedestrians layout.

Independently of these rules, there are in France recommendations of more general order, for the decision-makers or the designers. One can find them in various guides of Certu. See Chapter 2 - Publications on pedestrian issues.

6. Best Practises

Which Best Practises examples do you know of in your country?

Please indicate per example:

- the issue (i.e. pedestrian policy, safe crossing, Design for All, supportive authorities, Walk to School,...)
- what is the quality?
- who is responsible / initiator / owner?
- where is it?
- available documentation
- contact information.

7. Innovations

What innovations can be spotted in your country with regard to

- Education and communication
- 'traditional' technical innovations
 - Pedestrian safety and vehicles
 - New forms of transport
 - Outdoor gadgets
 - Infrastructural innovations
 - public space design innovations
- Intelligent technical innovations
- Organisation & implementation methods
- Research methods

Seminar of innovative conception « La marche au cœur des mobilités » - RATP

An interesting experience of research and innovation concerning pedestrians is the one launched by the forward-looking unit of the RATP (*Régie Autonome des Transports Parisiens*) who runs public transports in Ile-de-France (bus, subway, RER and trams). It is about a seminar of innovative conception called « La marche au cœur des mobilités ». The associated partners are the French Environment and Energy Management Agency (Ademe), the Regional council of Ile-de-France, the City of Paris and Decathlon.

This seminar aims to engage a process of innovation around walking and its part in intermodality. It started in March, 2007 and takes places in 3 phases:

- a phase of sharing and capitalization of the knowledge,
- a "creative" phase of elaboration of concepts and products allowing a new synergy between walking, public transports and the city,
- a phase of "project" to transform the concepts and new products in explorations and experiments

A synthesis report (including the identified tracks of innovation) is expected for autumn, 2007.

8. General Atmosphere

The general atmosphere can be described using statement samples from the media and on the internet regarding:

- The attitude towards pedestrians by other road users
- Spotted behaviour of pedestrians and others towards pedestrians
- Perception of the living environment and the quality of public space
- Positions taken in discussions regarding walking and pedestrians

Is there a Pedestrians Association or related NGO? What is its position?

SWOT analysis of pedestrian situation in the country (Strengths, Weaknesses, Opportunities, Threats)

These last years, the image of walking seems to change little by little: we see a revalorisation of this one, especially through awareness campaigns for a better health which recommend a minimum of 30 minutes of walking per day. Nevertheless if "walking as leisure" goes gradually into the mentalities and the practices of people, "walking as a real mode of transport" is more difficult to be accepted (for proof the figures of households inquiries which globally show a stagnation of the percentage of walking in the transport trips).

By comparison to the 70s when the general tendency was in the whole car transport, today, after numerous years of reorganization and reappropriation of the public space in favour of the other transport modes, we assist finally at a good acceptance by the car drivers themselves of the policies which aim to slow down the "excess car transport". That results in an improvement of the cohabitation and of the courtesy with cyclists and pedestrians.

Nevertheless the margins of progress in these domains are still big !!! So, the associations of cyclists or pedestrians fight for the respect for their spaces (ex: they fight against cars parking on cycle strips or sidewalks) as well as for the observance of their rights (ex: observance of the distance of 1 meter when cyclists are overtaken by cars; observance of the rule of priority for pedestrians duly crossing the road). For the rest, at the request of various associations of road users, the Minister of Transport opened in April 2006 a national work called "Code of the Street" to examine the current rules of the Highway code as concern urban roads. This work aims to make urban traffic rules better known or improved, to better take into account the cyclists and pedestrians, to reach a more well-balanced sharing of the street between all the users, and to improve the road safety in cities.

Today, facing the increase of the number of cyclists in the cities where the systems of cycles in self-service develop, we observe another phenomenon which concerns the cohabitation cyclists / pedestrians. Pedestrians' associations rebel against the illicit use of sidewalks by the cyclists (exception made for the cyclists of less than 8 years which are authorized there) and refuse categorically any possible cohabitation with the cyclists on their sidewalks.

Always in term of general atmosphere, we can notice through the press a renewal of interest for the "Pedestrian". The promotion of the "sweet modes" (walking, cycling) is frequent nowadays in the newspapers. Best practices of public spaces giving a wide place to pedestrians or cyclists, best practices of Pédibus are presented and commented. In brief, "newspapers speak about the pedestrian", what joins in an inversion of the tendencies observed until times very recent !.

As concern associations, there is in France a national association representing specifically the pedestrians: it is "The rights of Pedestrians ". Its main activity is to help people to formulate to the municipal authorities the complaints concerning the safety problems or the discomfort of the road network (lack of pedestrian crossings, dysfunction of traffic lights, laxness in the construction sites of public works hampering the moving of pedestrians, weakness of the repression concerning cars parking on sidewalks or on pedestrian

crossings). Local associations also exist and militate in a smaller scale. It is difficult to measure the global impact of these associations on the the national policies or strategies.

More general associations (that means no fighting exclusively for pedestrians), as "The street of the Future " or " The road accident prevention " also deal with pedestrians and seem to have a more important impact.

Besides, there are numerous associations of handicaped persons, the 4 main ones being the following:

- Association of the Paralytics of France (*Association des Paralysés de France : APF*)
- National union of the associations of parents and friends of persons mentally defectives (*Union Nationale des Associations de Parents et Amis de Personnes Handicapées Mentales : U.N.A.P.E.I*)
- National union for the social integration of deaf or weak hearing persons (*:Union Nationale pour l'Insertion Sociale du Déficient Auditif: U.N.I.S.D.A.*)
- National committee for the social progress of the blind persons and the persons with amblyopia (*Comité National pour la Promotion Sociale des Aveugles et des Amblyopes: C.N.P.S.A.A*)

These associations strongly put pressure on the national administrations so that the needs of the handicaped persons are better taken into account. They obtain significant headways (as well in laws as in technical specifications of layouts).
