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CHANGES IN LEISURE/TOURISM MOBILITY PATTERNS FACING THE STAKE OF GLOBAL WARMING: THE CASE OF FRANCE

Jean-Paul CERON . Centre de recherche interdisciplinaire en droit de l'environnement, de l'aménagement et de l'urbanisme (CRIDEAU : Université de limoges, CNRS, INRA), 32 rue Turgot, 87000 Limoges. ceron@chello.fr

Ghislain DUBOIS. Tourisme Environnement Consultants (TEC) 16 rue Daumier 13208 Marseille. dubois@orleans.ird.fr

CHANGES IN LEISURE/TOURISM MOBILITY PATTERNS FACING THE STAKE OF GLOBAL WARMING: THE CASE OF FRANCE[1]

The access to leisure, to tourism, and thus to the mobility they imply are now accepted as an important dimension of welfare. This has not always been the case in western societies. The uses of time in the industrial society did not consider leisure nor of course tourism as legitimate except for upper social classes: this was clearly expressed by Napoleon saying that a workman can work every day since he eats daily… Lafargue's book "le droit à la paresse" was in its time considered as extremely provocative (Lafargue 1970)… Nearer to us it can be recalled that one of the first tasks of WTO has been to obtain a recognition of the right to tourism , a point which is stressed from the Manila declaration on world tourism (1980) to the Global code of ethics for tourism (1999), (Dubois & Ceron 2000)

Today, in industrialised countries, holidays are usually considered as a right and should be accessible to all. Staying at home is largely admitted by public opinion as an indicator of poverty and exclusion: not going on holiday when the majority have the means of financing their leisure and departure is tantamount to being put aside from one of the important times of collective life.

The growth of tourism in developing countries, for instance on the southern and eastern Mediterranean, also shows there is a true desire for taking holidays as soon as economic conditions allow to do so. In Egypt the yearly growth rate of domestic tourism (number of nights out of home) is 11.6% since 1993; in Cyprus the growth is 150% between 1985 and 1998.

Within the same period, as this movement is taking place, the impacts of human activities on the environment are increasingly questioned. Throughout these last thirty years, it became gradually admitted that there are global environmental limits to human activities and that environmental problems cannot be solved by relying only on technology but might imply changes in lifestyles . One of the major issues to be tackled is that of the risk of global warming. Transportation is one of the major sources of greenhouse gas and also, owing to the dramatic increase of human mobility, the most difficult to curb.

The impacts of human mobility on global warming will certainly have to be addressed and this can be a major threat to tourism, all the more if tourism goes on expanding as WTO prospects suggest (WTO 2001). Will there be in a more or less foreseeable future restraints of some kind or another on travelling? If so , how will they be shared if the access to tourism, be it restricted, is still considered as a human right? Ultimately, to what extent do potential restrictions on tourism question welfare: tourism is after all only one of the uses of leisure time. Are there any elements tending to show that tourism is not bound to expand indefinitely and that people might be willing to substitute it partly by other uses of their leisure time which request less mobility? To what extent can leisure-time policies influence the current trends ?

This paper first points out the growing dependence of tourism on transport and its contribution to global warming. Given the scale of the impact, mitigation policies might seriously question tourism The second part of the paper tries to show how this new constraint could combine with the trends in the uses of time to reshape tourism and leisure patterns, notably by modifying their articulation.

[1] This paper is linked to a research in progress : Temps hors travail, loisirs , tourisme et mobilités : scénarios à 20-30 ans for the Direction de la recherche des affaires scientifiques et technique. Ministère de l'équipement, des transports et du logement, du tourisme et de la mer.

Recent trends in French tourism / leisure mobility demand and their impact on climate change

THE GLOBAL ENVIRONMENTAL IMPACTS OF TOURISM/LEISURE MOBILITY

Within an environmental assessment of the tourism sector at a national scale, we conducted for the French Institute for the Environment (Ifen), an evaluation of the contribution of tourism transport to global warming. It is all the more important for the tourism sector to be aware of these figures as tourism is both highly and increasingly dependent on transport.

We previously presented the detailed methodology of this evaluation (Ceron and Dubois, 2002).

Hypothesis and methodological choices (Ceron and Dubois, 2002)

In order to simplify the evaluation, and taking into account the reliability of data, in the Ifen study we decided :

- to take as a starting point the tourist himself rather than the economic activities related to tourism (i.e. to privilege a consumption approach rather than a production approach). Therefore, the impacts of sub-sectors, such as travel agencies, or the operating of air companies (independently of the air trip itself), are not included in this assessment ;

- not to get involved in a life-cycle approach. In such an approach the impacts of the construction and destruction of air planes, hotels, equipment or energy plants should be added, as well as the impacts of implementing «clean» energy production processes .

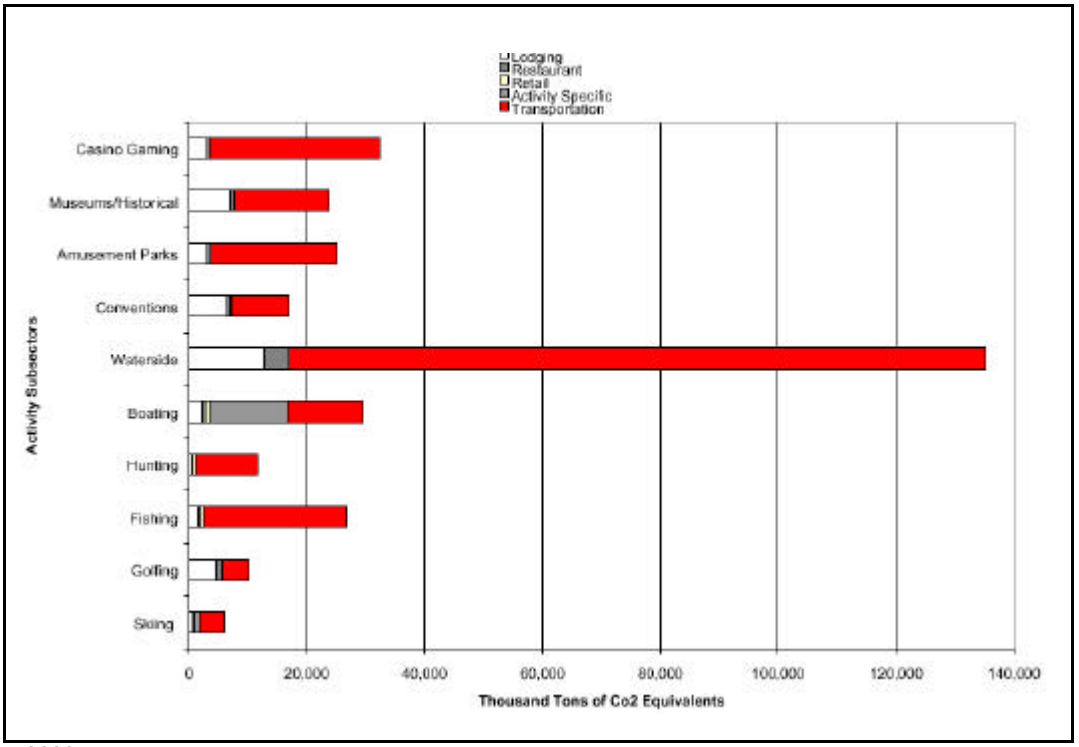
- to evaluate, tourism impacts at a national level rather than at the destination level.

- to calculate a *total* contribution rather than a *net* contribution to greenhouse gas emissions. If a tourist stays at home instead of spending vacations, he nevertheless travels on a local scale for leisure and produces greenhouse gas which should be subtracted from the total tourism impacts in order to calculate the net emissions due to tourism.

- to evaluate only the contribution of tourism transportation to global warming. The main components of the tourism product/experience are transport, lodging and catering, the use of equipments (ski lifts, swimming pools, etc.), and activities (i.e. walking, swimming, etc.). More generally speaking, the impacts of tourism on the environment can be parted between on-site impacts (including on-site transports) and transportation (to the destination) impacts. Each step of this consumption pattern contribute to global warming and, legitimately, should be evaluated, though it is not the case here.

In spite of a considerable amount of research devoted to the environmental impacts of day-to-day household travel, until recently only little work specifically focused on the environmental impacts of household *tourism* travel. According to OECD, «*One source of tourism-related environmental impacts – travel - remains consistently and conspicuously absent from the general discourse on sustainable tourism.*» (OECD, 2001). With regards to global warming, the evaluation of transportation impacts should be considered as a priority: the Environment Protection Agency (EPA, 2000 see Figure 2), estimated that for the United States 76,5% of greenhouse gas emissions of the tourism and recreation sector are caused by transportation (against 15% for lodging, 2,7% for restaurants, 1% for retail, and 4,8% which are activity-specific). On-site travels usually have a lower impact than the travels from home to destination. In Calvia (Balearic Islands) on-site tourist movements represented 73 000 tons of CO_2 in 1995, whereas air transport to the destination contributed eight times more to greenhouse gas emissions (534 000 tonnes) (Ajuntamento de Calvia, no date).

Figure 1: Total CO2 Equivalent Emissions for Selected Activity Subsectors



Source: EPA, 2000

We first calculated emissions of greenhouse gas (GHG) related to domestic tourism by road transport, for which very precise data were available ; then we extended our investigations to the whole of tourism transport, taking into account the modal distribution of domestic and adding international tourism to France;

1. DOMESTIC TOURISM ROAD TRANSPORT EMISSIONS

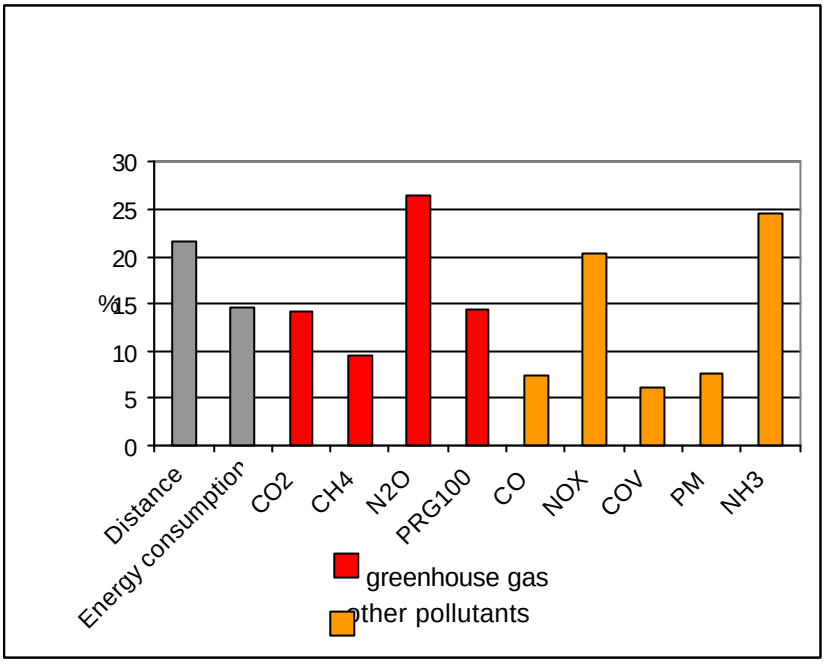
The first result in the case of France is the important contribution of tourism to the emission of air pollutants: the contribution of domestic tourism to road transport emissions (Figure 2) varies from 6% for COV[2], to 26% for Nox.

Compared to the French overall emissions in 1994, the contribution of domestic tourism is negligible for methane (CH4: 0,1%), which mainly comes from agricultural sources, or ammoniac (NH3), but is still important for air pollutants such as carbon monoxide (CO: 4,1%), nitrogen oxides (Nox: 11,8%), light organic compounds (COV: 2,4%) and carbon dioxide (CO2: 5,5%).

Domestic tourism road transport represents (Figure 3) 24% of personal vehicles emissions of CO2, 14,7% of road transport, 12% of the overall transport sector, and 5,5% of French emissions. It reaches annually 105 billions of km and emits 17 millions of tons of CO2. The global warming potential (GWP100) of domestic tourism road transportation accounts for 3,8% of French total emissions (4,8 million tonnes carbon equivalent).

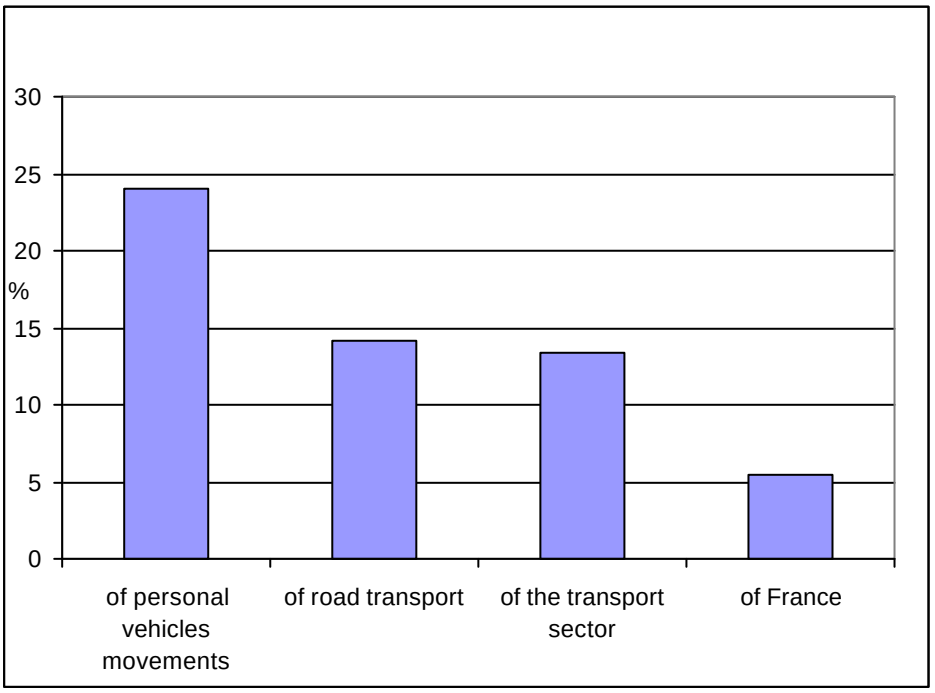
[2] Volatile organic compounds

Figure 2 : Contribution of domestic travel to greenhouse gas emissions of road transport



Source : IFEN based on SNCF, European Environment Agency (Copert III and MEET programmes), IPCC, Airbus Industries, EDF

Figure 3: contribution of domestic tourism road transport to CO2 emissions of…



Source : IFEN based on SNCF, European Environment Agency (Copert III and MEET programmes), IPCC, Airbus Industries, EDF

2. FRENCH TOURISM TOTAL GHG EMISSIONS

The total contribution (domestic and international tourism, all modes of transports included) is about twice more important, **from 7 to 8% to French GWP100 ,** since:

- air transport for domestic tourism reaches 15% of the distance travelled by road for tourism purposes, with emission per passenger.km from 2 to 4 times more important. This leads to a rough estimate of 45% of domestic road tourism transport.
- rail transport for domestic tourism represents 20% of the distance travelled by road, with emissions per passenger.km 3 times less important (Transports Survey)., thus about 7% of domestic tourism road transport emissions.
- international tourism travel to France represents 30% of domestic tourism travel, with more air travel than domestic tourism. This comes up to, at least 45% of domestic tourism road transport emissions[3].

To calculate the overall French tourism emissions, including accommodation and equipments, at least 20% should be added to the tourism transport emissions, which would led to a 8 to 10% of French GWP100. But this is a fairly bad estimate.

These results for tourism are not surprising, since the overall transport sector has a growing responsibility in greenhouse effect : the contribution of transport in French CO2 emissions climbed from 8% to 39% between 1960 and 1990 (Fontelle, Chang, Allemand 1999).The modal choices (and consequently the infrastructure choices) have a strong impact on this contribution.

This issue is all the more important for tourism as it is highly dependent on transport.

A GROWING DEPENDENCE ON TRANSPORTS

1. INBOUND TOURISM: QUANTITATIVE STAGNATION, GROWING TRANSPORT INTENSITY

1.1. Traditional holidays patterns do not work anymore

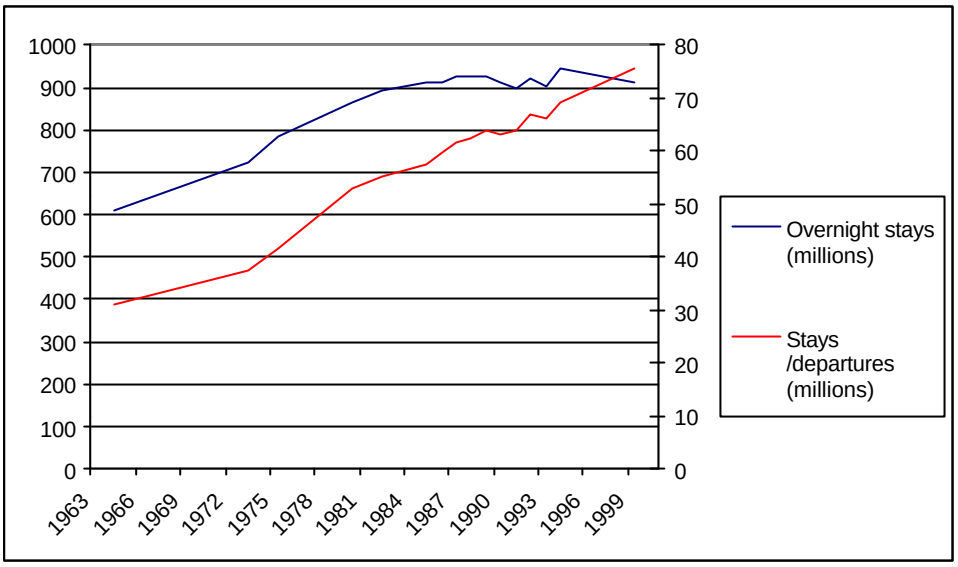
Even though tourism in France is a prosperous activity, it appears that:

- from 1979 to 1999, the number of overnight stays in France by French tourists staggered from 733 millions to 709 millions (-3%), whereas the number of departures (i.e. the number of tourist trips) increased from 43,8 millions to 62,1 millions (+ 41%) (Insee, « Vacances » Survey)[4].
- The average length of stay for a French tourist dropped from 18 to 12 days between 1975 and 1999 (Insee, « Vacances » survey)

[3] This figure is surely underestimated, owing to far distance travel.

[4] This trend is by no means specific to France: from 1971 to 1998 the holidays taken by the British in Britain dropped from 34 to 27 million (Transport visions 2000 p 13)

Figure 4 Evolution of overnight stays and departures- Long personal stays of French residents – 1964-1999



Source: Insee, « Vacances » Survey, 1964-1999

Inbound tourism of the French has come to some kind of maturity. Nevertheless, if the French do not spend a longer part of their time on holiday, they tend to move more for their leisure (outings…), which is not necessarily reflected in tourism statistics. The average number of personal annual departures jumped from 3,1 to 4,8 between 1982 and 1994 (Insee, Transports Survey), and has decreased from 4,4 to 3,9 between 1995 and 2001 (SDT Survey).

The pattern initiated in 1936 with the law on paid leave, and more and more popular in the fifties and sixties, where the year was clearly parted between a working period and long summer holidays no longer prevails.

1.2. The growing dependence on road transport

For various reasons, French domestic tourism highly relies on road transport :

- the French tend to organise their holidays themselves more than their neighbours do, and Tour Operators (which are more likely to use collective means of transportation, be it coach, train or plane) only hold a low market share;
- rural tourism accounts for one third of domestic tourism. It is obviously more difficult to provide a coach or rail service in rural areas than in waterside or urban resorts (87% of stays in rural areas use car, against 73% in urban destinations).
- especially on the coastline, tourist lodgings are spread over the territory rather than concentrated in centre cities (Ifen 2000 pp.140-141).

By nature, tourism relies on transport but it also does more and more. Rather than the growth of overnight stays, the changes in households travel behaviours is the main reason for the growth of tourism mobility in France.

Tourism and transport surveys show more frequent departures, for shorter stays and longer distances. The recent French law on the reduction of working time (« 35 heures »), adopted in 1999, will certainly reinforce this trend, since it enables more departures and shorter stays. In short, the same activity for hotels, restaurants… requires more transport than it used to.

Shorter stays, more frequent and further away, these three evolutions led to a 31% increase of kilometres travelled by cars for vacation purposes between 1982 and 1994, and a 38% increase of kilometres travelled for week-end purposes ("Transports" Survey), in the context of a stagnation of overnight stays.

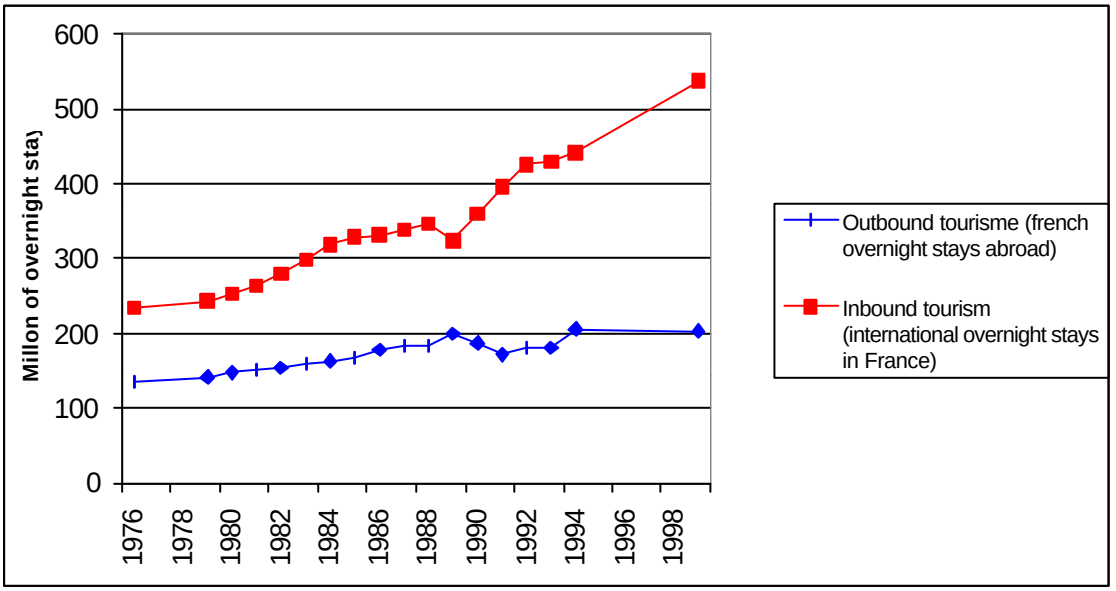
2. THE GROWING IMPORTANCE OF LONG HAUL TRAVEL

2.1. French tourism economic health relies on international tourism growth

International tourism related to France can be said to be dynamic and profitable from two points of view.

- The number of foreign tourists coming to France is steadily increasing even if the figure of 77 Million visitors ought to be considered cautiously, keeping in mind the fact that a good deal of foreigners travel across the country rather than stay, even for one night, which explains the low expenditure per visitor in France
- French, just as Spanish or Italian tourism, is far less outbound than in the neighbouring countries of north western Europe. It is still far from catching up even if international departures do increase, fostered by the appeal of distant exotic countries or of sunny low cost destinations nearby (Tunisia, Turkey).
- The result is an increasingly beneficial travel payments balance, + 58% from 1997, to 2001 (15,4 billions Euros) (Secrétariat d'Etat au Tourisme 2002)

Figure 5: Evolution of international tourism to and from France, 1976-1999



Source: «Vacances» Survey and «Enquête aux frontières»

Note : French outbound tourism only covers long stays for personal reasons (more than 4 nights) whereas inbound tourism include short stays for professional and personal reasons. The overall outbound tourism of French is about 20% over the figures above (SDT Survey), but this does not change the trends

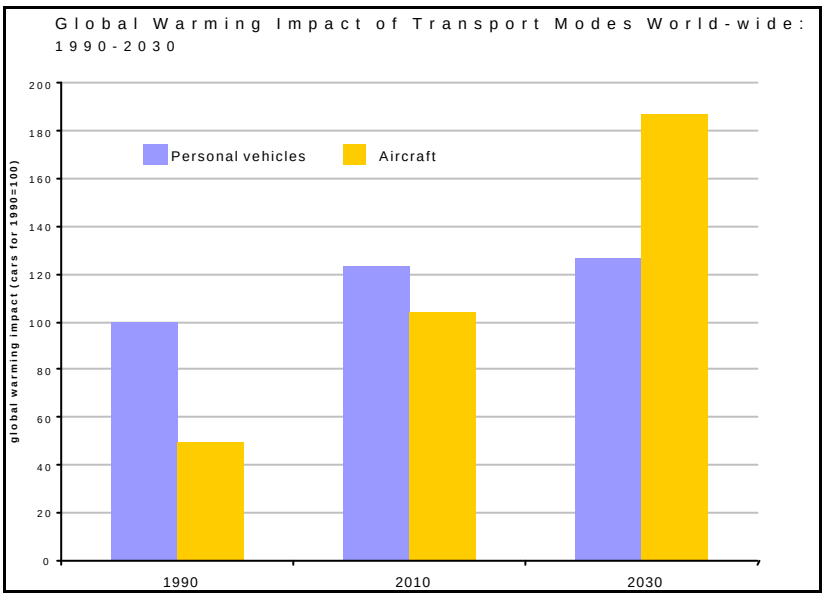
2.2. The dependence on air transport

With the stagnation of domestic tourism, the economic health of French tourism relies on inbound and outbound (international) tourism. Outbound overnight stays increased by 32% while departures increased by 76% between 1979 and 1999 ("Vacances" Survey). Here again, the travel intensity of international tourism increased, all the more as the average distance to destination increased (more than 2 000 km per trip for French people, according to OECD, 2001)

Contrary to remote areas (such as islands), France benefits from the proximity of other European countries (main international markets). This is why 57% of Foreign tourists used their car to reach France in 1996. However, international tourism remains strongly dependent on air transport: 44% of French departures to international destinations (including French territories) use planes (SDT Survey, 1997), so do 15% of international arrivals to France («Enquête aux frontières» Survey, 1996)

This has to be replaced in the context of a growing responsibility of air transport to greenhouse gas emissions. According to OECD forecasts, aircrafts emissions are to exceed personal vehicle emissions, worldwide, between 2010 and 2030 (Figure 6).

Figure 6 : The growing impact of Aircrafts on Global Warming



Source : CST 1999, IPCC 1999, OECD, 1995

3. THE DEVELOPMENT OF "PARA TOURISM"

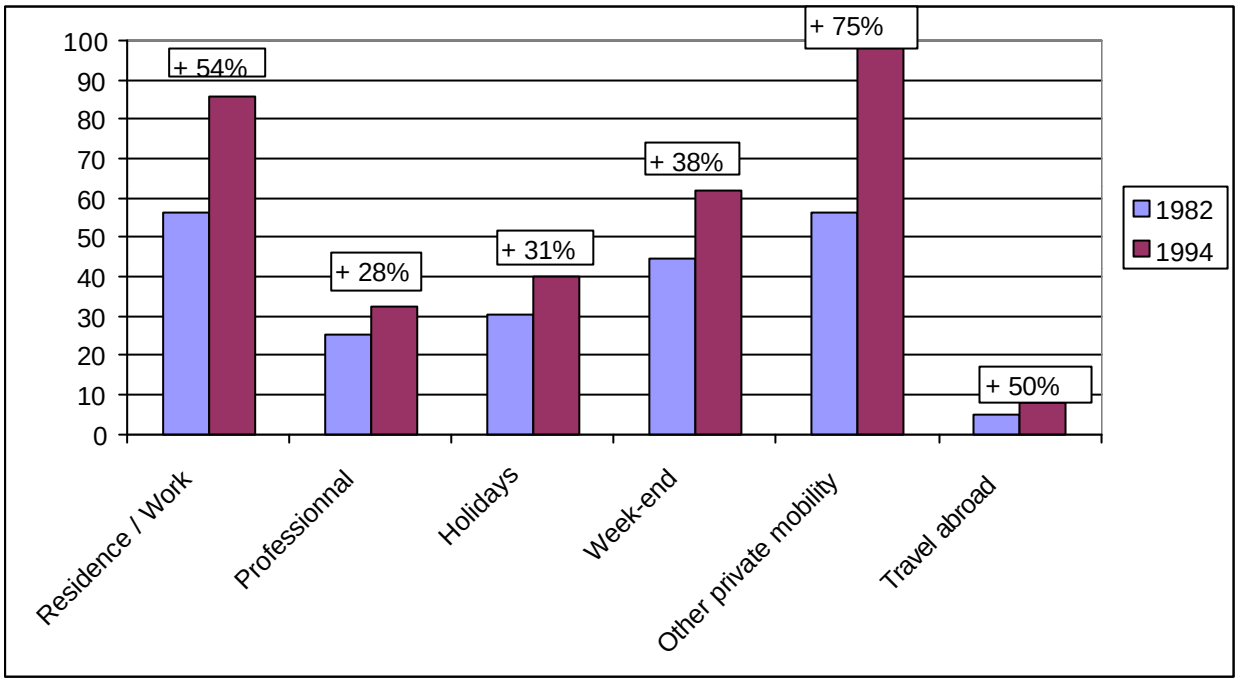
Three other trends are only emerging, but could play a more important role in the future, even though the following leisure practices can not be included in the field of tourism, as internationally defined. They are usually refered to as "para tourism".

- A growth in outings (excursions), which can only be explored since very recently, with the extension of the field covered by the national survey"Suivi des déplacements touristiques des Français" (SDT)
- A development of multi-residential ways of life, with weekly or annual migration between two (or more) homes.
- A development of proximity leisure, (outdoor activities or cultural attractions).

The "transports survey" which analyses the average use of personal vehicles, shows a 75% increase of mobility for "other personal purposes" between 1982 and 1994 (Figure 7). These figures include constrained activities, such as shopping, but also leisure activities (outings and immediate proximity leisure). They are growing faster than the other categories of mobility, and represent almost as many kilometres travelled as those for "holidays" and "week-end".

All of these activities are transport intensive, and reinforce the dependence of tourism/leisure on transport.

Figure 7 Average annual kilometres travelled by personal vehicles, by purpose, 1982-1994



Source : Insee, « Transports » Surveys, 1982 and 1994

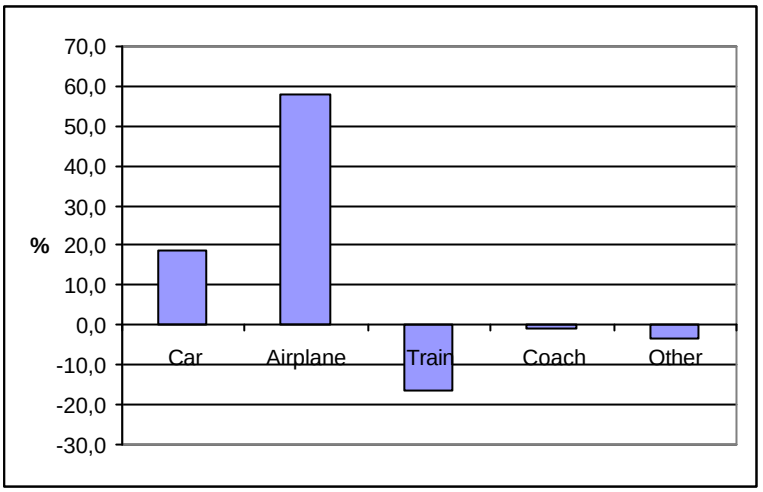
4. EVOLUTION OF MODAL SPLIT FAVOUR THE MOST POLLUTING MEANS OF TRANSPORTATION

Current trends show that greenhouse gas emissions follow the increase in mobility. Moreover, the contribution of French tourism to greenhouse effect will increase even faster than the number of departures, since, as Figure 8 shows, the most polluting modes of transport (airplane and cars) take a more and more important share in departures. French tourism seems structurally dependent on road and air transport. The attitude of tourists to transports (individualism), the spatial distribution of resorts within France, past infrastructure choices (highways rather than train service), and current trends of the tourism demand (the attraction of French tourists for remote areas, etc.) lead to this high-impact situation.

The following example of a Paris/ Nice trip (Figure 9) shows that a family will contribute three times more to global warming with an airplane than with a car, five times more with a car than with a train. In the case of an individual traveller –responsible for the total of the car emissions, but only for one fourth of the airplane and train emissions calculated for a family – airplane and car emissions are almost equal. In all cases, the train is the winner of this competition, with very low emissions when the electricity comes from nuclear or renewable sources. For that range of

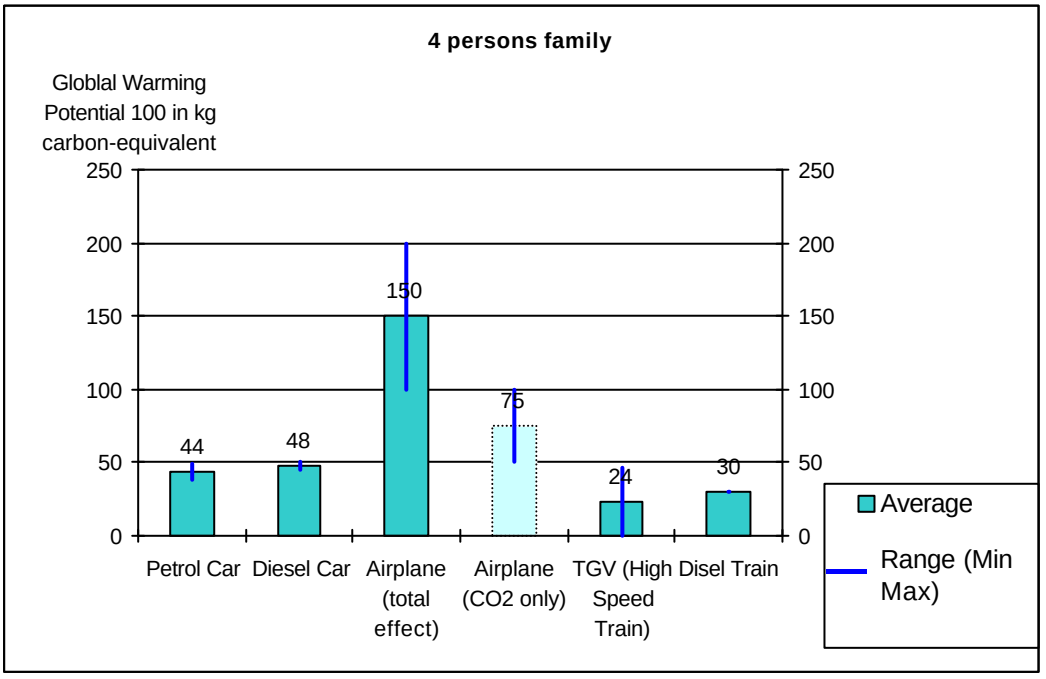
travel distance, air transport represents 2% of personal trips taken in France, the train 18%, the cars 80% (*Insee, Transports Survey*).

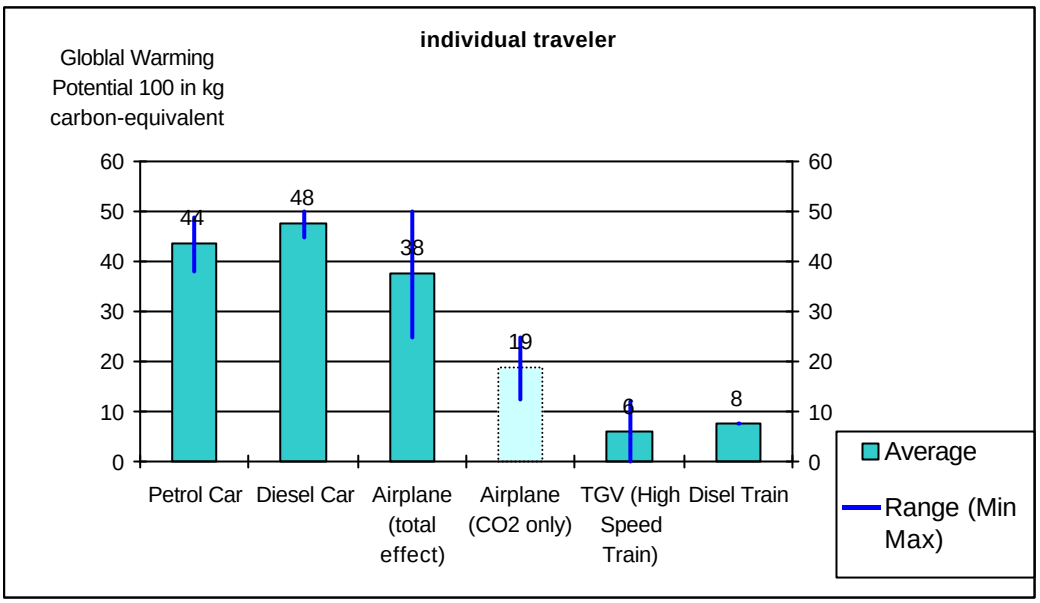
Figure 8: Evolution of the modal repartition of holiday departures (> 4 nights), 1986-1999



Source: Insee, «Vacances» survey

Figure 9 : Impact on the greenhouse effect of a journey from Paris to Nice, depending on the mode of transport





Source : IFEN based on SNCF, European Environment Agency (Copert III and MEET programmes), IPCC, Airbus Industries, EDF

Remarks. Range : from the most to the least polluting vehicle in each category.

Cars. Variables : age , horsepower , type of journey (motorway or main road)

Planes. variables : type of aeroplane. Two estimations are given: one for the effects of carbon dioxide (CO2), which are well known, and the other for the impact on the greenhouse effect of all pollutants emitted during the flight ; In this case, the effects of nitrogen oxides, water vapour, sulphur oxides and jet trails are all taken into account .

Trains. Variables :type of energy used to produce electricity for a TGV , from hydraulic power (0 or near 0) to coal (47)

[5] This figure is surely underestimated, owing to far distance travel.

Mobility patterns prospects and their impact on climate change

FACTORS FOR CHANGE : TOURISM AND THE OTHER USES OF TIME

The evolution of tourism / leisure mobility demand depends on a large number of factors : economic growth and inequalities, demography, conditions of travel (safety…), transport infrastructure development, tourism and leisure supply, technologies…

The followings insist on one particular factor : in a context where both income and leisure time increase, then, how are the other (than tourism) uses of leisure time evolving, what are the prospects of their competition with tourism and the impact of this on mobility ?

According to Dumontier & Pan Ké Shon (1999) the uses of time can be divided into four categories :

- Physiological time: roughly half of the day
- Domestic time: about four hours
- Leisure time: four and a half hours
- Working time which widely differs according to categories of people

On a scale leading from working time to tourism time, some intermediary categories of time enable leisure. Their share in responding to the demand of leisure could be a key factor explaining the further developments of household mobility.

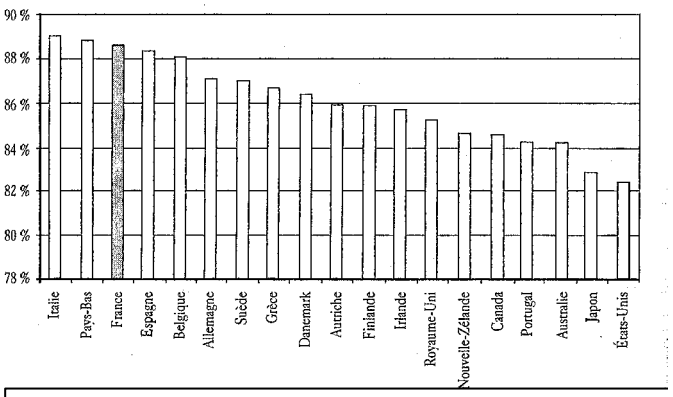
1. WORKING TIME

Working time is traditionally considered as a command variable shaping the other categories, knowing that on the social scale and within a generation, physiological time is not flexible.

Work occupied 70% of a person's waking life in the 19th century, this figure is now reduced to 14% in France; since the war we have gained more in life expectancy than we spend at work in our whole life (Viard 2002 p. 44) Even if OECD countries' values and cultures related to work differ , the part of on working time is not so different from one to another.

[6] See, for instance the maximalist interpretations of the precautionary principle
[7] Suivi des déplacements touristiques des français

Figure 10 Part of waken non working time in some OECD countries



Source : OECD, quoted by Viard (2002) p 64

It is uncertain whether this trend towards diminishing working hours is going to continue.In most European countries there seems to be a demand for shorter working hours (Viard 2002 p. 76), but there is also a growing pressure on employees to have them work longer: competition linked in particular to globalisation, the threat of unemployment. (WTO 1999 p. 118). So, in France during the last decade while time left by work has continued to grow on a global scale, most categories of employees have experienced longer working hours, at least till the law bringing down the standard weekly working time from 39 to 35 hours (Dumontier, Pan Ké Shon 1999).

Generally prospects where the time that can be potentially devoted to leisure grows for society as a whole while it diminishes for employees are not excluded and could have serious impacts on tourism: more time to travel for the retired and for students which can contribute to a seasonal spread of holidays on the one hand, the need for short breaks, for a time efficient tourism, for a quick access to destinations on the other.

Figure 11 Daily working time of full time employees

Temps de travail quotidien		
	1986	**1999**
Cadres du public	8h30	8h42
Cadres du privé	8h45	9h14
Prof. Inter. du public	7h53	8h02
Prof. Inter. du privé	8h32	8h42
Employés du public	7h58	8h05
Employés du privé	8h18	8h26
Ouvriers du public	7h57	7h58
Ouvriers du privé	8h33	8h27
Ensemble du public	7h58	8h08
Ensemble du privé	8h30	8h36
Total	**8h21**	**8h29**

Scope employees over 15 years old in metropolitan France working on a full time basis (excluding teaching staff)
Source : (Dumontier, Pan Ké Shon 1999)

2. TIME LEFT BY WORK: CONSTRAINTS AND LEISURE

The following chart gives the average uses of time in France in 1986 and 1999 on a day basis (less than 15 years old excluded). No need to say that these figures do not correspond to what an "average" person does, because no one can be at the same time a student, an employee and retired ; they include week ends, which explains the low figures for working hours. They both point out trends and help to distinguish within the time left by work what is constrained and what is leisure.

Figure 12: Average daily uses of time in France in 1986 and 1999

	Homme				Femme				Total actifs occupés		Ensemble	
	Actif occupé		Inactif		Active occupée		Inactive					
	1986	1999	1986	1999	1986	1999	1986	1999	1986	1999	1986	1999
Temps physiologique dont	**11h22**	**11h22**	**12h51**	**12h39**	**11h32**	**11h35**	**12h42**	**12h37**	**11h26**	**11h28**	**12h06**	**12h04**
Sommeil	8h31	8h23	9h53	9h34	8h46	8h37	9h47	9h32	8h37	8h29	9h13	9h03
Toilette, soins	46	42	48	46	53	49	56	53	49	45	51	48
Repas dont	2h05	2h16	2h09	2h18	1h54	2h09	1h59	2h12	2h00	2h13	2h02	2h14
repas avec amis, parents, etc.	25	*43*	*20*	*34*	*24*	*38*	*22*	*33*	*25*	*41*	*23*	*37*
Temps prof. et de formation[1] dont	**6h33**	**6h22**	**1h54**	**1h32**	**5h15**	**5h01**	**59**	**59**	**6h00**	**5h46**	**3h39**	**3h23**
Travail professionnel	5h53	5h42	23	13	4h43	4h28	10	5	5h23	5h09	2h48	2h32
Trajets domicile-travail	35	37	11	9	28	30	6	5	32	34	20	20
Études	1	1	1h16	1h07	1	0	42	47	1	1	28	29
Temps domestique dont	**1h51**	**1h59**	**2h45**	**2h55**	**3h49**	**3h48**	**5h16**	**4h47**	**2h41**	**2h48**	**3h30**	**3h26**
Ménage, cuisine, linge, courses,etc.	1h00	1h04	1h33	1h35	3h13	3h06	4h26	3h59	1h56	1h58	2h38	2h30
Soins aux enfants et adultes	9	11	5	6	24	27	32	26	16	18	19	18
Bricolage	25	30	30	36	3	4	2	5	16	18	14	18
Jardinage, soins aux animaux	18	14	38	38	9	11	17	18	14	13	19	20
Temps de loisirs dont	**2h46**	**2h57**	**4h38**	**5h06**	**2h00**	**2h19**	**3h15**	**3h57**	**2h27**	**2h40**	**3h07**	**3h35**
Télévision	1h35	1h47	2h22	2h44	1h09	1h24	1h59	2h28	1h24	1h37	1h46	2h07
Lecture	21	16	42	36	19	17	29	30	20	17	27	25
Promenade	11	15	26	32	10	14	16	22	10	14	15	20
Jeux	10	12	18	30	7	6	10	15	8	9	10	16
Sport	10	10	16	15	5	5	4	5	7	8	8	9
Temps de sociabilité (hors repas) dont	**51**	**47**	**1h04**	**1h10**	**48**	**43**	**1h09**	**1h04**	**49**	**45**	**58**	**56**
Conversations, téléphone, courrier	26	13	34	20	26	16	33	22	26	15	31	18
Visites, réceptions	16	26	21	36	17	22	27	33	16	24	20	29
Temps libre (loisirs et sociabilité)	**3h36**	**3h44**	**5h38**	**6h15**	**2h48**	**3h02**	**4h24**	**5h01**	**3h16**	**3h25**	**4h05**	**4h31**
Transport (hors trajets domicile-travail)	**39**	**33**	**49**	**38**	**36**	**34**	**38**	**35**	**40**	**34**	**39**	**35**
Total	24 h	24 h	24 h	24 h	24 h	24 h	24 h	24 h	24 h	24 h	24 h	24 h

Champ : personnes de 15 ans et plus de France métropolitaine
1. La prise en compte des samedis et dimanches pour le calcul de ces moyennes rend surprenant les temps quotidiens de travail ou d'études ; multipliés par 7, ils sont plus conformes au sens commun.
Source : Insee, « emploi du temps » Surveys ; 1986 and 1999

The first point to notice is that physiological time remains much the same over the period. Note that this category includes meals with friends parents etc. which have something to do with leisure and seriously increase: this translates an evolution in lifestyles which might impact on tourism : more home centred lifestyles, more local leisure facilities might induce less desire to travel frequently. Basically, as a whole, the time gained by diminishing working hours is devoted to domestic activities and leisure.

Domestic time includes constrained activities and what Dumazedier calls semi leisure (Creux 2001 p.301): do it yourself, gardening. These can be characterised as non merchant work which creates wealth even if it is not accounted for in GDP. People might be more or less compelled to such activities (insufficient revenue) but they practise them under no hierarchical constraint and can express there some creativity (Bonnette-Lucat 2001)

The fact is that time devoted to semi leisure is increasing, including among employees. This, as well as the time devoted to meals with relatives mentioned above and the time to visit them, is significant of a change in the relationship of the French with their home. Housing conditions improve in terms of comfort, larger homes (see figure 13), unifamilial suburban homes with a garden : in France 12 M households take care of 13.5M gardens (Creux 2001 p. 297), in Belgium 80% of the households have a garden (Viard 2002 b, p. 18)

Figure 13: Space and comfort indicators for main homes

	1984	2002
per home		
Average space : m^2	82	90
- unifamilial homes	96	108
- flats	65	65
number of rooms	3,8	4,0
average number of people	2,7	2,4
Per person		
Average space : m^2	31	37
Average number of rooms	1,4	1,7
Proportion of unifamilial homes (%)	54,0	56,6

Source , Insee Housing survey

3. LEISURE TIME AND TOURISM TIME

This improvement in housing, adapting it to or permitting new leisure activities implies a certain amount of self organisation and do it yourself . It can have important consequences for leisure activities out of the home and for tourism in France and elsewhere[8]. Seemingly, some home centred activities traditionally seen as constrained can also be considered as pleasant: 53% of men living in a couple and 33% of men living alone find cooking a pleasure (Dumontier, Pan Ké Shon 1999 p2)

Within the activities considered as pure leisure it is obvious that the major gains concern watching TV, which is by far the main activity. Walking, playing games, register more gains than sports do.

Last, the French do not spend more time in mobility for both leisure and work, which does not mean that they do not travel over longer distances with the subsequent environmental impacts it implies.

[8] For instance N. Curry show that the staggering of outings in the English countryside can be related to the changes in home ownership during the thatcherian period. (Curry 2001)

4. WHAT THE FIGURES DO NOT SHOW

The highly aggregated figures above do not show the extremely diverse time pattern models. Some differences are traditional and well known (and nevertheless important), other partitions are more or less specific to France, some are just emerging. The specificity of the current period is precisely an individuation of time patterns, compared to a mass model that was previously dominating.

The differences in time use patterns according to PCS are well known and documented, so as their trickling down from one social class to another (Packard 1960, Bourdieu 1979). One should notice here the gradual disappearance of the very specific time use pattern of farmers (which used to influence other inhabitants of rural areas) owing mainly to the dwindling of their number.

There are of course difference between genders. The French specificity is there both deeply cultural (status of women in Latin civilisations) and imbedded into recent history: after the war women started working essentially on a full time basis, which is not to this point the case in neighbouring countries (more part time in Netherlands, more women at home in Germany with a less developed system of child care etc.). Working French women are thus said to have two jobs, at home and outside, and not much leisure; this is changing very gradually with a greater implication of men in domestic tasks (Chenu & Herpin 2002 pp.24 sq)

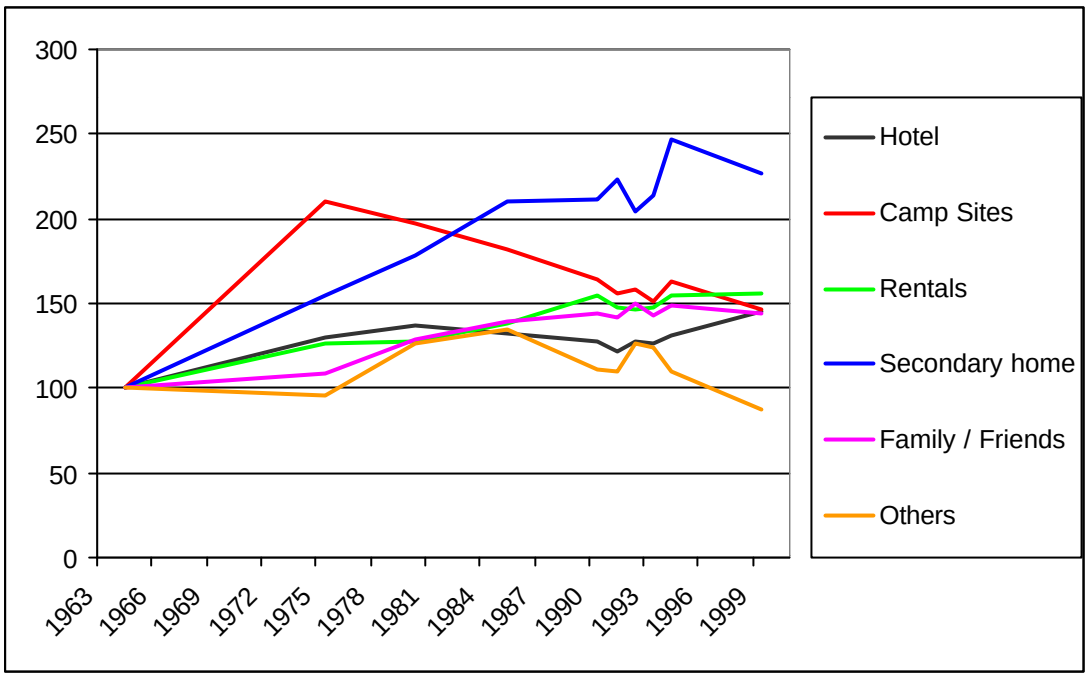
There are also differences according to age which reflect a position towards work but also the experiences the various generations have had with work and leisure. The young and the retired have had a very different relation to leisure The retired have been integrated into society through work, they have had a progressive access to leisure and holidays. Nothing such occurs with the younger generation which starts working much later and has, previously to work, an experience of the integration into society largely through leisure activities and often tourism. Whereas work was the leading factor structuring a life, this might be much less the case in the future and leisure experiences might to some extent substitute for this.

The leisure time patterns are not only increasingly split between social categories but also much more individualised. Different factors push towards this: the flexibility of working hours which favours more individualistic uses of leisure time since working hours less coincide between the family members (Boulin & Du Tertre 2001), the growing fragility of couples etc. ; as a whole, people want more and more to decide what they do with their free time.

The borders between the different categories of time are increasingly blurred and porous. More people work at home, sometimes during the week end or while on holiday: 40% admit they work some time during the week-end and 20% during their holidays (Potier 2002 p.26). Reciprocally some surf on the internet for their pleasure during working hours… Small portable computers, e-mails, cellular phones have within the length of one decade permitted leisure and working time to penetrate each other and the same goes for places previously devoted to work or to leisure.

This means for instance, that the use of secondary homes should probably be reassessed. There are about 3 million secondary homes in France, they end to accommodate a larger proportion of holiday makers (Figure 14), which would be even greater if mobile homes, caravans that no longer move, upgraded garden sheds etc that play the role of second homes are included. It is felt that statistics at hand do not reflect correctly the importance of the bi residential life patterns of life that are emerging (Urbain 2002 p 173).

Figure 14 : Evolution of overnight stays by type of accommodations, 1964-1999



Source: Insee, "Vacances Surveys" from 1984 to 1999

At a quite global level, it appears that regional and local development are more and more determined by quality of life assets. Up to now we have been taught that the spatial distribution of French people was linked to natural resources (agricultural endowments, landscape etc.) which have determined (together with political and sociological factors) the location of activities and employment (Braudel 1986). The French population is now shifting to regions that have a strong appeal in terms of leisure, climate etc. which are precisely those it has experienced through its holidays. These assets tend to determine the location of new industries; firm managers care about where they and their family live, they are also sensitive to the possibility of attracting a good quality labour force. A growing number of employees develop lifelong residential strategies (Viard 2002 c) in which the different places they wish to live in play a central role (in a city centre while students, in the countryside while the children are young, then nearer the town centre when they are in a secondary school, in a great city, near medical facilities when they get old, for instance).

Tourism, which could be described as "leisure elsewhere", will evolve, taking into account all the previous contextual elements. Future studies insist on the fact that it is impossible to predict one determined future. Typically in this case it is very tempting to try and think tourism prospects in terms of alternative scenarios so as to frame the range of their impacts in terms of mobility.

While the future of tourism seems highly uncertain , it remains clear that different patterns of time uses will develop alongside; the question is rather which of those will dominate the others

SCENARIOS FOR TOURISM / LEISURE MOBILITY DEMAND

Building scenarios is a more or less complicated and sophisticated exercise. Those just below are of a highly simplistic character. We are of course conscious that tourism and leisure mobilities depend on a large number of variables (demography, infrastructure choices, urban

policies etc.) just as well as on the trends of the uses of time (see above). The three following scenarios are built on a caricature of the latter .

As it has already been stressed, on a domestic scale the future of tourism highly depends on how it will share non working time with other leisure activities. We shall consider four types of time use patterns which seem to derive from the present trends described in the first part of the paper. We compare the mobility of four types of households with the aim to evaluate the incremental tourism mobility compared to average everyday life (which itself includes some leisure mobility). A person living in France moves more or less 40 kms per day[9].

The first pattern is a conventional one. The family takes 20 to 30 days [10]off away from home including two long distance trips (the present average distance of a long distance trip –ie more than 100kms- is around 1500kms) and 6 outings[11]: week ends, short stays or excursions (200kms each). This pattern includes a moderate use of leisure opportunities near the home, implying 30kms travel. All this sums up to 5760 kms per adult belonging to the household[12]. They mainly travel by car, as it is the case now (near 80%: Ifen 2000 p 39)

The second pattern (great travellers, or "Parisian" scenario) pushes tourism to some kind of extreme. The household still takes 2 long distance trips but also one far abroad (6000kms per travel); they move frequently for outings but tend to stay at home the rest of the time (15Kms a week for leisure near the home). This leads to the figure of11380kms.

The third pattern takes into account the facts that the home, its garden, its semi-urban surroundings constitute an increasingly attractive place for leisure. Thus people stay more at home. They are no longer tempted to go and live elsewhere for a couple of weeks or so: the garden needs watering etc. They are of course still interested by visiting far away exotic destinations , every couple of years (such trips are rather expensive…). In the meantime they will still go away for short breaks: three each year and they move a lot for leisure near the home. This comes up to 6720Kms.

The last pattern is a bi-residential one in which it is hard to guess which is the main home and which the second one, since those people spend during the major part of the years 3days in one and 4 in the other. This roughly implies 40 travels from one home to the other, distant from an average of 250 kms. This goes with a travel to exotic destinations every two years , a limited number of short stays per year: 3 and a low travel intensity for leisure near the home. The total distance travelled is in this case: 24 380 kms.

Three means of transport are considered with GHG intensities reflecting the impacts assessed in figures 8 and 9. If 1is the impact for car, then we consider that plane is 3 and train 0.5 for a four persons family. Long distance domestic trips overwhelmingly use the car; we shall admit that the two marginal uses of train and plane neutralise each other and thus abide by a factor 1.We sal admit that bi residential and travel for leisure near the home use the car and collective means of transport (railway) in equal proportions thus leading to a factor of 0.75. Very long distance trips use the plane.

Such figures show that the advantage of more home centred leisure in terms of mobility can very easily be offset by the search for more exotic tourism, the more as this means a systematic use of the plane (which on average has a much higher impact on climatic change).

Bi-residential patterns are very costly in terms of emissions (5 times the distance and the impact compared to the conventional one). They remain so even in the case of a reasonable use of the

[9] 14400 kms per year. (Ifen 2002 p 453)
[10] At present, on average 22 days out of home are taken, with 2.4 stays over 4 nights (SDT survey)
[11] At the moment, the average is 1.7 outing with a night spent out of home; to this daily trips must be added. The final figure also reflects the trend towards shorter departures
[12] children are not supposed to travel as much, but this is the case in each scenario

train between the two homes. Their impact is equivalent or slightly superior to that of the high tourism scenario

A society which would combine the third and fourth patterns in the respective proportions of 90% and 10% would obtain an average distance of 9158Kms, that is 60% more than the conventional scenario and 2.5 times more emissions

On the whole a decline in conventional tourism does not necessarily mean less impact on climate change.

Figure 15 : Scenarios for tourism / leisure mobility

		Number trips	distance	total kms	GHG intensity	emissions index
Conventional				**5760**		**5370**
	Long distance	2	1500	3000	1	3000
	very long dist.		6000	0		0
	outing	6	200	1200	1	1200
	bi-residential		500	0		0
	short distance	52	30	1560	0,75	1170
Great travellers				**11380**		**23185**
	Long dist	2	1500	3000	1	3000
	very long dist	1	6000	6000	3	18000
	outing	8	200	1600	1	1600
	bi-residential		500	0		0
	short dist	52	15	780	0,75	585
Home centred				**6720**		**11940**
	Long dist		1500	0		0
	very long dist	0,5	6000	3000	3	9000
	outing	3	200	600	1	600
	bi-residential		500	0		0
	short dist	52	60	3120	0,75	2340
Bi-residential				**24380**		**25185**
	Long dist		1500	0		0
	very long dist	0,5	6000	3000	3	9000
	outing	3	200	600	1	600
	bi-residential	40	500	20000	0,75	15000
	short dist	52	15	780	0,75	585
coefficients						
car	1					
train	0,5					
plane	3					

TOURISM FACING GREENHOUSE GAS EMISSIONS MITIGATION POLICIES

Tourism contributes significantly to the greenhouse effect, and relies more and more on transport: these two statements show the sensitivity of tourism to future transport policies in the context of a reduction of greenhouse gas emissions under the Kyoto protocol, and furthermore in the context of more restrictive transport policies which might emerge in the future.

The last part of the paper explores two contrasted scenarios taking into account these prospects.

The first is based on a maximalist interpretation of sustainable development which will consider that the right to emit greenhouse gas should be equally shared between all inhabitants of the planet. The second takes as a starting point the states' commitments, namely the Kyoto protocol on greenhouse gas . This contrast reflects the fact that even though sustainable development calls for equity, there are various interpretations of this notion.

▪ AN EQUALITARIAN PERSPECTIVE

The use of energy generates roughly 6 billion tonnes carbon equivalent for some 6 billion people. In a equalitarian perspective, this would lead to a right to emit greenhouse gas of about one tonne per individual, (less with an increasing population), if one just tries to stabilise emissions which is far from guaranteeing the respect of ultimate environmental constraints. Since the global warming potential of French residents' tourism is somewhat over 5% of the global French contribution (road + plane +train), the question is : what could each of us do with the quota of 50kg carbon equivalent it could devote to his travelling for tourist purposes. Figure 10 shows that this quantity is a little more than the cost of a travel from Paris to Nice, and only allows to come back the following year.

Such an approach might be considered as extremist. The theme of an equalitarian access to resources is nevertheless supported by groups of intellectuals both in the North and in the South ; one can also recall that radical discourses might be listened to[13] , especially when they meet the frustrations, the lack of perspectives large groups of population are confronted with.

A MINIMALIST PERSPECTIVE

The second type of approach consists in abiding by the commitments that have been taken by the states. By signing the Kyoto Protocol, France has committed itself to bring back its emissions to the 1990 level. This can be seen as the first step towards reducing emissions in the long run, at a moderate rhythm. In this case also, it is worth while looking at how an expanding tourism activity can cope with such prospects. Naturally this issues concerns France and Europe where growth prospects are moderate, but also other regions of the world where tourism is expanding at a much higher rate.

To what extent can productivity gains, which diminish the quantity of energy used per kilometre, help ?

[13] See, for instance the maximalist interpretations of the precautionary principle

As far as cars are concerned , for a given category of vehicle, gains around 25% in energy consumption are expected in the next decade; this gain will be partially offset by safety requirements which increase the weight of cars, and by the consumption of more frequent air cooling equipment. This figure can also be compared to the 31% and 38% increase in holiday and week end distances between 1982 and 1994 (Insee, transport survey)

As far as planes are concerned, the decrease of energy consumption per passenger.km is roughly 25% from one generation of planes to the next (every 25 years). Before the next technological leap occurs (use of liquid hydrogen), the gains are likely to be less important than previously. OECD believes that during the next twenty years, the contribution of air transport to total greenhouse gas emissions due to energy use will increase from 3% to more than 7%. At world level it could, somewhere between 2010 and 2030, catch up with that of road transport(OECD 2001). One can remind that the number of holidays taken by the French in a Foreign country increased from 3.8 to 11 million between 1964 and 1994 (Insee "Vacances" Survey) and that the figure of personal trips of the French, using air transport increased by 16% from 1996 to 2000 (SDT survey).

For air and road transport, technical progress does not permit to offset the effect of the increase of tourist movements and it seems it will be even less the case in future decades.

To mitigate such alarmist assessments, one can remind that all types of mobility are not equally useful or that people can choose to privilege one type of travel to the detriment of another. Multiple trade-offs are possible providing the huge stakes or problems they imply can be dealt with. Clearly this means, for a given volume of trips to choose between tourism on the one hand and other types of trips : home to work, professional trips, daily trips etc. on the other hand . At a upper level, the choice is between transports and other uses of energy. These trade-off possibilities are to be considered seriously ; work is currently done on the instruments supposed to manage them : debates on a carbon tax or on tradable emission permits. Already the environment committee of the International Civil Aviation Organisation, admits it will be necessary for air transport to enter such negotiation processes and buy tradable permits to continue expanding. One naturally wonders what it would cost and what would be the price effect on fares. Estimates of the cost of a tonne of carbon on the tradable permits markets vary according to the hypotheses on the market characteristics and on the number of countries that would be involved. If one takes a rather high price of 200 euros, buying (over the quotas devoted to civil aviation) the quantity of carbon necessary to travel between Europe and the east coast of the US would cost about 150 euros. This marginal cost , distributed over the mass of trips would not lead to an unacceptable price increase. Nevertheless one cannot refrain from thinking of a scenario where the prices of tradable permits would soar up, owing to the rigidity of the demand in competing commodities. After all, it is at least as necessary to go to work , to heat one's home etc. as to go on holiday; it is not sure that the possibilities to satisfy these needs at a low emission cost, thus putting on the market permits at an acceptable price for tourism, would be found in time.

[14] Suivi des déplacements touristiques des français

Conclusion

Tourism necessarily implies mobility. Some how the impacts of this mobility on the global environment will have to be addressed. Foreseeable technological improvements do not seem sufficient to cope with this issue: technological progress seems to improve much faster the conditions of virtual communications than those of physical travel. The answer to this challenge can be sought in two types of directions.

The first is to try to maintain the possibility of travelling largely unrestricted. Meeting global constraints would then mean diminishing the other uses of GHG generating energies even more drastically than expected. When facing the cruel dilemmas this would imply, would people be willing to?

The second direction is to try to have a just as pleasant life with less long distance tourism. We have great difficulties to imagine to imagine ways of life radically different from present ones, which is after all surprising if we consider how they have changed and what we have experienced through the last half century (for instance time watching TV[15]), and the fact that obviously the pace of change is not slowing down. The key point is the part tourism will take within leisure time; forward thinking on that point implies that we should admit that leisure activities and the uses of leisure time will probably change considerably over the next decades. The important point is not so much to predict what will change (what is the future of gardening, of reading, of watching TV, of home computer games etc…), but to know that the change will be considerable and might both upset the demand for tourism mobility (pressure towards growth or decline, no one knows…) and allow to rethink the place of tourism mobility within leisure time.

French public policies during the last twenty years (since the short-lived Ministère du temps libre in 1981) have focused essentially on tourism and left aside leisure. They appear to have been led mainly by the search of the economic benefits of tourism (notably the inflow of foreign currencies) and by the effects on employment of shorter working hours ("les 35 heures"). Do they not somehow miss the point of more ambitious leisure / quality of life policies ? The need for tourism is often linked to a bad quality of life, to a desire to escape, especially from urban areas (the Parisian syndrome…). Would a better quality of life (possibility of outdoor recreation, green belts, leisure activities) undermine the need for a tremendous mobility ?

We are living times where technological, economic and social changes are opening new opportunities but also where global constraints must be now dealt with. In a globalised world sustainable mobility is one of the major challenges that has to be faced and tourism mobility is, not alone though, part of the problem.

[15] Who in 1950 would have expected that 50 years later the French would spend on average 2 hours a day watching TV ? (Dumontier , Pan Ké Shon 1999)

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- Enquête aux frontières
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