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# Transportation Planning in France and the challenge of Sustainable Development: actors, tools and methods.

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## Introduction

The majority of the countries are confronted today with important changes in the modes of planning. In the case of France which has a long tradition of town and country planning, these evolutions result in the passage from a rational planning, based on the logic of plan, and carried by a State who guarantee the respect of general interest, to a strategic planning, where the general interest is built in the negotiation. The great political changes (emergence of the local and global levels, withdrawal of the State, opening of the decision-making process), economic changes (crisis of public finances, recourse to the financing by private actors) and social changes (rise of the practices of negotiation, rise of the stakes of sustainability and acceptability) of these last years are for much in these evolutions, and result in a complexification of the decision-making processes and the methods of action.

We will expose in this presentation the great changes which affect the planning of the transport infrastructures in France, according to a double approach:

- Draw a parallel between one side the introduction of the sustainable development, which imposes new requirements traditionally carried by the public actor; and on the other side the more and more important part played by the private actor, who imposes his criteria of economic and financial profitability, opposed to sustainability.
- Analyze which part public and private actors can play for the integration of sustainable development in the planning of transport infrastructures.

That supposes to reconsider the definition of sustainable development and its bond with transport, to identify the role of public and private actors, and the tools they have to answer the challenges posed by sustainable development. Two choices have been made for this intervention: on the one hand, the question of the introduction of transport into the “sustainable city” and its consequences about urban morphology is not examined; and, only road and rail are evoked.

## **The sustainable development and great projects of infrastructures in France.**

By introducing new requirements, sustainable development makes evolve the modes of planning of the great projects of transport infrastructures. New challenges, like the participation or the environmental protection, make the management of infrastructures projects more complex.

### **Sustainable development and transport infrastructures.**

#### **Definition and stakes of sustainable development.**

The term of sustainable development appears for the first time in 1975 in a decision of the PNUE (Program of the United Nations for the Environment), but it is especially popularized by World Commission for the Environment and Development (CMED), in the Brundtland report in 1987. It is on this occasion that the French translation (“Développement durable”) is adopted. The first appearance of this concept answers a series of major and fast evolutions which affect our society, since the middle of the 20th century: technical changes (acceleration of the means of transport, NTIC), socio-economic changes (globalization, urbanization), and natural changes (growth of the world population, climate warming). The world disasters are more and more violent; the economic and social inequalities persist. These evolutions come up a question on our way of life, and then incite us to consider new type of development which guarantees an economic, social and environmental progress. Concretely sustainable development is defined as “a development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Report, 1987). That means: to reconcile economic efficiency, social equity and environmental protection, in the respect of good governance. The association of these three stakes, economic, social, and environmental, is fundamental, and it results in new action systems. Some great principles are associated with sustainability: solidarity or equity (between the generations, the people, and thus between the territories); participation and good governance (to imply all the actors and to create partnerships); precaution. It also supposes an integration of the actors in all the levels, and all the territorial scales, in the decision-making process. Moreover, it raises the question of the integration of various temporalities (short and long term) in our decisions.

#### **Why the transport infrastructures are blamed?**

The great transport infrastructures are blamed for two primary reasons: the technical object that they represent, and the traffic that they generate. The infrastructure represents an imposing technical object, which it is necessary to integrate in the landscape. Its space impact is often very important: a section of highway (2x2 ways) requires nearly 28 meters of width, a TGV line 15 meters. What results in a more or less large space cut, which is also in urban environment an economic and social cut. In many cities, the gradients of poverty, unemployment, quality of life, explode on the other side of the beltway. The urban highways raised above ground level, which was built in the 1970's, are the symbol of these great infrastructures in total contradiction with the ambitions of sustainable development. The long period of building works, the noise, the slow-moving traffic which is caused, are often unacceptable for the people. The protests, the oppositions and other forms of blocking are frequent. The infrastructure is also responsible by the mode of displacement which it imposes, and traffic that it causes. Transport constitutes in France the sector the most emissive in gas with greenhouse effect (26,5% in 2005). This sector knew a strong progression of its emissions between 1990 and 2005 (+22%). The increase of displacements makes the situation less and less bearable. Road transport is particularly responsible of most of the C02 emissions, and because of its domination on the rail.

#### **How to define a sustainable transport infrastructure?**

A durable transport infrastructure must be elaborated, built and exploited by taking account of the stakes and great principles of sustainable development. A way to answer is to say that a sustainable infrastructure must be connected with a sustainable transport system. The European Commission gives us the following definition: a sustainable transport system must ensure freedom of circulation, health, safety and the quality of life of the citizens of the present generation and future generations; is ecologically viable; must create the conditions of a dynamic and opened economy and giving a universal access to the services. We find here the whole of the requirements carried by sustainable development, and applied to transport. So a sustainable infrastructure is integrated, accepted by the inhabitants, built with the negotiation of all stakeholders, takes account of the current and future request of transport, takes part in economic development, respects quality of life and the environment, is inter-connected with the network, etc. On the whole, it is the articulation between transport, planning and environment which must be reconsidered, to lead to an integrated management.

The application of sustainable development is confronted today with considerable challenges: to reduce the congestion in urban traffic and on the main roads, and to increase accessibility (social like spatial). To answer these challenges, the transport infrastructures are an essential tool. The transport planning makes it possible to

ensure the diversity of the spatial organisation, facility the integration of the populations, to create local development, to organize the management of the territories, to support the local democracy, etc.

### **How to build sustainable transport infrastructures?**

The requirements carried by sustainable development change our way to design and manage transports projects.

#### **To introduce sustainable development throughout the life of the infrastructure.**

The question of the sustainability of the infrastructure must be posed throughout the project, from the choice of the infrastructure to its exploitation and its maintenance.

- In first place, the question of the relevance of an additional infrastructure is posed, by taking account of existing network, current needs expressed and future needs supposed.
- Then the choice of an infrastructure is raised. The criteria of sustainable development influence this choice, between road and rail, each one having advantages and disadvantages. The road allows a fine irrigation of the territory (door to door), is a major tool for accessibility, allows a division of the highway between individual transport, public transport and soft modes; but at the same time, the deployment of automobile traffic, the increase in pollution, the urban spreading out, are effects opposed to sustainability. The rail allows an intensive public transport, without CO2 emission, promotes the interurban relations (downtown area with downtown area) and metropolitan flow (between downtown and suburb), but represents a large consumption of space and a cut. The feasibility studies today introduce the stakes of sustainable development in order to define the type of transport infrastructure best adapted. They integrate in particular an analysis of the traffics, a socio-economic and environmental evaluation, to identify the objectives to which the new transport infrastructure will have to answer.
- The choice of the layout which follows then is a strong moment of the integration of sustainable development. It results in a public debate, within authorities of consultation, to construct the general interest with all the stakeholders. During this stage of the project, the socio-economic and environmental impact of the infrastructure is analyzed. The technical choices selected must integrate the whole of these criteria.
- During the construction of the infrastructure, the requirements of sustainable development are always present, and condition the technical choices once again: job management, choice of materials, choice of manufacturing processes, etc.
- The exploitation and maintenance of the infrastructure are also subjected to the same stakes. Measurements of security, traffic regulation (by the means of specific equipment or by the introduction of a flexible toll) can be taken to respect the sustainable development.

On the whole, the sustainability of an infrastructure is evaluated throughout its life.

### **Which methods of action?**

The introduction of sustainable development into transport planning is based on two approaches.

The strategic approach which means: the identification of great stakes and clear objectives to reach; the research, and the communication, in order to diffuse knowledge and make evolve practices. The operational approach corresponds to the production of tools and work methods, the application of standards. Several types of action can be carried out, according to the various challenges:

- To answer the environmental challenges: we can act on the limitation of the landscape impact of the infrastructure, its impact on the biodiversity, with studies on the profile of the infrastructure, the layout selected, and the different equipments (ex: bury part of the infrastructure, build a specific wall against noise). During the construction, the actions on the building site are multiple: to limit the noises, to organize the waste processing, to use new fabrication processes and new materials. After the construction, the regulation of the traffic makes it possible to decrease pollution and congestion, thanks to the equipment and of regulation (ex: speed limitation in the dense urban areas), or the division of the highway to develop public transports and soft modes.
- To answer the economic challenges: we can take several measures like stimulate the economic and touristic development (Law 1% Landscape); make studies to analyze the transport needs (ex: viability study, mobility study); create an association with the local economic actors to construct the project with them.
- To answer the social challenges: the infrastructures are made more accessible by the multiplication of access points; the creation of authorities of consultation, to open the decision-making process; the information and the communication guarantee the transparency and the good governance of the project; procedures of compensation can be applied (ex: expropriation, exposure at the risk); the exemption from payment of the network gives access to all people to transportation, and in the case of paying routes, a modulation of the toll is studied.

An essential tool emerges and makes it possible to answer these three types of challenges simultaneously: intermodality. It means the integration of the infrastructure in the whole of the transport network, to allow the passage from a mode to another, with coordination and no competition. The intermodality requires the development of coherent plans which treat various modes together (attempt failed with the plan of collective services in 2005), the creation of partnerships between the actors, the construction of common equipment (ex: junction stations).

### **The good questions to ask.**

The ADEME (French Environment and Energy Management Agency) built a very interesting question schedule, to analyze the projects of infrastructures taking into consideration the challenges of sustainable development. This national agency creates many tools to apply sustainable development, and this question schedule is one example of what they do. Their objective is to create a similar tool for the design, the construction and the exploitation of the infrastructures than those which exists in the building with standards HQE. The question schedule is structured around 6 principal sets of themes. The most important questions are the following:

- Concerning the total coherence of the project: How the project serves the quality of local town planning, avoids the effects of cut, and is part of the landscape? What is the local socio-economic impact of the project? How the equipment is integrated into the existing transport network? Which are the perverse effects of the project (generated traffic, solution or not)? Have all the possible alternatives or improvements been studied?
- Concerning the limitation of the harmful effects and environmental quality: How the project generates a reduction of noise? How the project integrates the control of energy and consumption? In what the project reduces the pollution of water, air, and ground? Does the project respect the natural spaces and the biodiversity? Which is the degree of reversibility of the project? How the total management of the project integrates the principles of environmental management?
- Concerning the quality of service and management: Which are the services offered to the users? How the dialog is optimized?

We saw in what the great projects of transport are concerned with sustainable development and which actions could be started to build sustainable infrastructures. However the design, the construction and the exploitation of the infrastructures concern today two types of actors: the public actor and the private actor. Which roles have these two actors? How they take part in the application of sustainable development in transports projects and which actions did they start?

## **The role of the public actor.**

### **Actors and institutional networks engaged for sustainable development.**

#### **The State and its institutions.**

The State designs, builds and exploits the road infrastructures, with its engineering services, and for the railway infrastructures by the means of a public enterprise (RFF/SNCF). It is responsible of almost 20 000 km of roads and highways (including 8000 km of turnpikes), and 30 000 km of railways. The State is responsible for the structure of the national transport network, and at the same time, is responsible for the planning policy and must ensure the access of each one to the services and the economic activity. It's a guaranteeing of national solidarity, which it makes respected by means of the public service. The State has to build a national network, which serves territorial cohesion and unity. For that, it makes plans, finances and regulates the traffic. The State guarantees a free transport network, except from some paying routes like the main highways or structures, whose price is justified by the additional service that they bring compared to the rest of the network (speed). For as much, transport is not totally free. It is in general the taxpayer who finances the infrastructures, and more rarely the user by a toll.

The State is also the main actor to apply the sustainable development. It intervenes to translate at a national level the main trends adopted at the European level or during international agreements. The whole of the institutions which represent it is concerned with sustainable development.

- The President by his engagements in front of the citizens and the other States (signature of international treaties, protocol of Kyoto, commitments in UNO and the EU).
- The Prime Minister and the government, which lead the general policy and undertake the execution of the laws. They engage in front of the President and the citizens, on priorities and an action plan. The recent creation of the new Ministry for Sustainable Ecology, Development and Planning is a strong symbol of the great role of sustainable development in the public action. The Ministry of Transport, Equipment, and Tourism, as well as the Department of the Environment (became the Ministry of Ecology and Sustainable Development in 2002) were gathered within this great Ministry. Four major sets of themes are carried within this new ministry: ecology and sustainable development, the habitat

and transports, the energy policy, and finally town and country planning. Transports cannot be thought any more apart from sustainable development. For this new Ministry, it is necessary to distinguish: a Central Administration and its many Directions (DGR, DGMT, DNP, D4E, etc.) which implement the sustainable transport policy; several Councils and National Committees like the National Council of Water or the National Council of the Landscape; Public Establishments under the supervision of Ministry (ADEME, INRETS, CERTU, SETRA, ONF, etc.); the Decentralized Services (DDE, CETE, DIR, DIREN, etc.) which are the more operational services. The DDE builds the great projects of urban development, road, railway, maritime or river in partnership with the territorial collectivities, and take care of the application of the regulations, in particular those relating to sustainable development.

- The Parliament, which proposes and votes the laws, can impose sustainable development in the French legislation.
- The Constitutional Council, which introduced the Charter of the Environment into the Constitution, has also a role to play.

### **The local authorities and public establishments.**

- The local authorities take part in the development, the construction and the exploitation of road infrastructures, and are increasingly concerned with the decentralization of services and the downgrading of many national highways. They manage 360 000km of roads. January 1st, 2006, 17.000 km of national roads, which were of local interest more than national, were transferred to the departments. This step was accompanied by a reorganization of the services, the DDE being placed at the disposal of departments to ensure a better management. The local authorities also build their own network, with great projects of transport, coordinated in the Plans of Urban Displacements. The authorities apply the regulation imposed by the State within the framework of the sustainable transport policy, but can also engage of original initiatives (Local Agenda 21, cooperation between cities, creation of tools...).
- The Public Enterprises, in particular RFF and the SNCF which build and exploit the railway infrastructures in France, apply the main trends of the State. Become of an EPIC (Industrial and Commercial Public Enterprise), they have a certain administrative and financial autonomy, and fulfill a public service mission. Both are engaged for sustainable development. RFF, owner and responsible for the national rail network, has published in 2005 its first assessment on its implication in sustainable development. The orientations taken by the company concentrate around the three pillars of sustainable development: the environment with the reduction of the railway noise, the protection of the water resource, the respect of the ecosystems, the insertion in the landscape ; the economy with the integration of economic rationality in the railway system, the improvement of the offer, the optimization of the railway network, the participation in town and country planning; and finally the social one with the guarantee of equity, the implementation a constructive social dialog, the guarantee of the safety of the infrastructure, the promotion of the rail and intermodality.

### **A sustainable transport policy.**

#### **The great legislative evolutions.**

The analysis of the great evolutions of the French legislation is a relevant tool to see the great moments of the integration of sustainable development in the transports (Poutchy-Tixier, 2004).

- The development of the conciliation procedures and the opening of the decision-making process are one of the most important challenges. Since the beginning of the 20th century, France has a procedure of investigation on the public utility of a project. The first investigations are carried out in the 1910's, and are instituted by the law in 1933. These investigations preliminary to the DUP (Public Utility Declaration) are justified to allow the expropriation, so we are not yet in a real conciliation procedure. The procedure is criticized because of its democratic deficit. The participation of the public is instituted by the law of 1983 relating to the democratization of the public surveys. The law institutes a guarantee of environmental protection and the realization of great infrastructures projects with a public survey when they are likely to attack the environment. The purpose of the investigation is to inform the public, to collect its comments, its suggestions and its counter-proposals. The laws of 1985 and 1986 extend the democratization of the public surveys to many fields. The principle of a prior consultation to any operation is also established in July 1985 by the law. However the constructor is not related to the results of this dialog and is not held to modify its project. The debate upstream on the great transport infrastructures is not introduced at the origin by the law, but by a circular: the Bianco Circular in 1992. This public debate, on the initiative of the Minister in charge for transport, is led by a Prefect. It precedes the studies on layout and must take place before any publications or decisions fixing the main features of the project. After the public survey, the great transport projects must be the subject of a publication of engagements of the State, with constitution of a follow-up committee and realization of

assessments after 1 year, 3 years and 5 years. The relative law with environmental protection in 1995, known as “Law Barnier”, generalizes the procedure of participation of the public preliminary to the public survey. The great projects are subjected to a preliminary public debate. The law Barnier makes legal the obligations of participation of the public for the whole of the great projects. The law of 2002 on the democracy of proximity enhances three objectives: democratize the great projects, give responsibilities to territorial authorities in their projects, and improve the legal security of the projects. The law announces five great principles: the right to the participation of the citizens; an independent administrative authority to guarantee it (the CNDP); the public debate as a place of controversy; a public debate upstream of the great projects; a field of application widened (more projects are subjected to the debate). In all the cases, a report and an assessment are drawn up and published in the end of the public debate. In the 6 months after the publication of the assessment, the constructor makes a decision specifying the conditions of continuation of the project or stop. The law imposes the publication of the decision and makes possible a contentious recourse on the decision.

- Concerning the laws on town and country planning, the evolutions go in the same direction. The procedure of decentralization engaged by the laws of 1982 and 1983 opens the decision-making process to the local actors. After decentralization, the Law of Orientation for the City in 1991 allowed treatment by urban great projects of a certain number of ailing districts and the construction of new infrastructures. In 1995, the LOADT supporting the intercommunality made it possible for cities to gather together and to ensure the accessibility of their territories. In 1999, the LOADDT (Law of Orientation for Installation and the Sustainable development of the Territory) introduces the principles of sustainable development in planning. It founds in particular plans of Collective Services, which in the case of transport gather the various types of infrastructures in an ambition of intermodality (but failure). Finally, the law SRU, in 2000, confirms the promotion of a policy of sustainable displacements. The whole of these laws supports the integration of the infrastructure in urban environment, by developing concerted procedures where the infrastructure is one of the elements of the urban project.
- The laws on the environment and the protection of the nature have changed the manner of making infrastructures. They force to take into account new data and to make evaluations. The first laws, the oldest laws, concern the protection of monuments and natural sites (1913 and 1930). In 1961 is promulgated the first law against atmospheric pollution. In 1976, the law for protection of nature makes compulsory the realization of an impact study on the environment for a certain number of projects. This date is very important and completely renovates the transport project process. Laws on the protection of the architectural and urban heritage (1983), on water or noise (1992), induce effects on the infrastructures projects. The Law on the Air and the Rational Use of Energy (LAURE) in 1996 reinforces the protection of the fauna and flora and introduces the restriction of the automobile traffic like an objective of the city planning.
- The laws directly related to transport also introduced the new challenges of sustainable development. The Tax Transport Payment created in 1971 is gradually spread, to support the development of public transport and to allow the financing of the infrastructures. The Law of Orientation on the Transports (LOTI) in 1982 defines the large features of a sustainable policy of transports; it affirms the existence of a right to the transports. In the first article, we can see that the sustainable development seems an important ambition: “The transport system must satisfy the needs for the users under the economic, social and environmental conditions. It contributes to the unit and the national solidarity, with the defense of the country, the social and economic development.” This law makes also obligatory the socio-economic and environmental assessments 3 to 5 years after the startup of the great transport infrastructures, in order to analyze and explain the differences between the forecasts and the real observations.

### **The strategic directions.**

The main trends of the transport policy have been presented at the Inter-ministerial Committee CIADT in December 2003. The new transport policy intends from now on to reconcile several objectives: economic development, the attractiveness of the territory and the taking into account of the environmental, global and local challenges. Four priorities are proposed: improvement of the quality of the service rendered to the user (reinforcement of the existing networks, concentration of the State on a structuring network of infrastructures); a rebalancing between the various means of transport (excessive prevalence of the road, development of the railway freight and the highways of the sea); the requirement of the road safety; and finally the fight against the noise. The CIADT determines the priority great projects of infrastructures for the next years, and gives in 2003 the budgetary priority to all the infrastructures except the road. These priorities correctly translate the evolution into sustainable development. The Ministry is engaged through 2 sets of themes: the climate change and the biodiversity, which result in concrete engagements. The Climate Plan (2006) envisages a reduction of 10% of the CO2 emissions from here to 2010; forty measurements relate to transport in this Plan. The Strategy for the

Biodiversity (2004) includes 7 action plans, of which an action plan on terrestrial transport infrastructures, which results in the support for the development of a flexible tariff of tolls for the clean vehicles, and the creation of the certificates of energy saving. Action plans are associated with the whole of these measurements, and concern: the development of the alternative modes to the road; work on the behaviours, the development of the intermodality, etc.

The National Strategy of Sustainable Development federates and articulates the whole of these objectives in the field of transport and all the other fields, in order to create a great policy for the development. The Inter-ministerial Committee for the Sustainable Development (CIDD) ensures the follow-up of this policy. The CIDD is charged to define, animate, coordinate and take care of the implementation of the policy led by the Government as regards sustainable development. It examines the coherence of the action of each ministry with the development policy durable stopped by the Government, in particular in the positions and commitments entered into by France in the European plans and international. The CNDD has the role of bringing together the representatives of the civil society and the territorial authorities in order to associate them. The SNDD was adopted in 2003 per 5 years and was brought up to date in 2006.

### **Various types of action taken by the public actor.**

The sustainable development introduces deep changes into the modes of regulation of the public action. It implies the passage from a public action imposed by the Central State to a public action negotiated between the State, the local authorities and the private actors. It modifies the decision-making process and the methods of production of the rule. To impose sustainable development, the public actor has recourse to three types of actions.

#### **The normative measurements:**

The regulation evolves to the multiplication of standards to frame the practices in the respect of the sustainable development challenges. The creation of standards becomes the main tool for the public regulation. A standard indicates a set of specifications describing an object or a way to operate. It generally results in a principle of action, a rule or a technical reference. It is supplemented by the law which can make it compulsory. In the case of the transport infrastructures, the State intervenes by the means of many standards: CO2 emissions limits, speed limits, noise limits, antipollution standards, etc. We can add the laws evoked previously which modify the transport project process, like the obligations to set up a public debate, to make an impact study, etc. The French Association of Standardization (AFNOR), recognized of public utility and placed under the supervision of the ministry in charge of Industry, takes part in the diffusion of the standards ISO 14000 in particular, which relate to environmental management, and can be applied to the transports. The public actor also undertakes measurements of certification (diffusion campaign of the “ecolabel”). The development of charters follows the same logic: the Charter of the Environment, which makes of the protection of the environment a human right. The Charter recognizes “the right to life in a balanced and respectful environment of health, the right to reach the information held by the public authorities and the right to take part in the development of the public decisions affecting the environment”.

#### **The inciting measurements:**

The public actor can also act with inciting measurements, in particular financial, to apply sustainable development. In the most traditional case, the infrastructures are financed by the State and the local authorities within the framework of CPER. The State introduces the criteria of sustainability into the choice of the priority infrastructures, and into the negotiations related to the planning of the infrastructures. The AFTIL (Financing Agency of transport projects), created in 2004, has the role to ensure the financial contribution of the State in the respect of the sustainable development. This is the same thing when the public actor negotiates with a private actor. He can vary the subsidies granted to support the most sustainable projects. Concerning the regulation of the traffic, the public actor counts today on this type of measurements to support the clean vehicles (the modulation of the tariff of tolls in reflection, certificates of energy saving set up in 2005).

#### **The informative measurements:**

The public actor acts finally by developing the communication and information, the formation, the research, on sustainable development. The research organizations on transport are particularly concerned. Within PREDICT (national research program on transport), we can observe a very strong orientation of research around the sustainable development. The ambition of this program is to support the emergence of transport systems economically and socially more effective, safe, and more respectful of the environment. In its last program (2002-2006), the PRDICT is endowed with 300 million euro of public funds, in order to ensure a durable mobility of people and goods, to increase the security of the transport systems, and to reduce the environmental impacts and to contribute to the fight against the greenhouse effect. The same observation can be made in the other research organizations.



## **The role of the private actor.**

### **Privatization and the private sector ascension.**

#### **The withdrawal of the State and the financing need.**

The current economic context is marked by increased needs for equipment and by the limitation of public funds, which make essential the recourse to private sector. The State, heavily in debt, cannot succeed alone to implement projects, more complex and more expensive. The programs of infrastructures however need to continue and to be realized. The recourse to the mixed economy is largely developed in France, with the delegation of public services. It allows a double financing, by public and private funds. The highway network in particular has profited from this system, thanks to the creation of the concession contracts. The State entrusts the construction and the exploitation of the infrastructure to a private or public-private company. This company receives a toll, and sometimes a subsidy. According to the types of infrastructures, we can see different evolutions, but overall it is the financial disengagement of the State which dominates. This disengagement continues today, as well by the transfer of competence to the local authorities, as by the more and more active research for new partners. The situation is made even more alarming, by the dismantling of public finances which made it possible at the origin to guarantee funds for the financing of the infrastructures. The public funds for the transports projects are no more guaranteed. This evolution leads to several problems. The last report concerning the financing of the transport infrastructures (2003) specifies that whatever the followed orientations, the development program of the transport infrastructures from here to 2020 will require important public funds. Concerning the road projects, the whole of the projects will probably cost 63 billion euro, of which 23 would be public funds; it means an expenditure of 1,28 billion euro per year for the State. Concerning the railway projects, the realizable scenario would cost 24,8 billion euro, including 11,8 billion for the State (with a peak of the investments for 2010). In the both cases, if the State doesn't find enough money, the realization of these projects is call into question. The economic and institutional context is in favour of the private partners. The private sector has a very huge capacity of investment, and it can quickly unfreeze its funds. The policy of deregulation, which involves a modification of the regulation framework, is another good thing for the private sector. For the local authorities, the recourse to the private sector is often promising. The private operators offer innovating solutions, with turn-key projects. They leave the free field to the public power to find a role of regulator, taking care of the respect of the rules of competition, the specifications of public service.

#### **The various degrees of privatization.**

The construction of mega transport projects was allowed by the massive recourse to the private partners, and resulted in a multiplication of the contracts. The concession contract was widely diffused. In spite of some recent evolutions (concerning the contract time), it's a very topical contract. But the financing needs lead to the research of new forms of partnership. The Public-Private Partnership is the last one. In a context of privatization of all the concessionary-holding companies, the PPP makes it possible to answer the new market rules.

In the case of the concession: the State can entrust, for a limited time, the financing, the construction, the maintenance and the exploitation of highways at concessionary-holding companies, which collect a toll. The DGR is in charge of the contract.

In the case of a PPP: a contract is signed between the State and a private company. The company finances the project, but needs remuneration. The State pays a rent. It's a long term contract (15 to 35 years or more). It ensures a private pre-financing but with public payment. Public payments are spread over the life of the contract and linked to performance objectives. These new agreements are created by the law in 2004. The purpose of this new contract is to optimize the respective performances of the private and the public sectors and to carry out as soon as possible the projects which present an emergency character or the more complex projects.

The role of the private actor can strongly vary, according to the degree of privatization of the project. Several elements are to be taken into account: public or private funds; the property of the credits of the company (temporarily private, definitively private or public); the property of the capital of the operator; the delegation of service to public or private sector. For the public actor, 2 questions have to be raised: what does it have to do itself or what can it make made by someone else? And the infrastructure must be free (paid by the taxpayer) or not (paid by the user)? Once these choices made, several options are possible to finance an infrastructure (PIRON, 2005):

- Option 1: the bridge is entirely built with public funds; is free; is exploited by a public entity (law MOP).
- Option 2: the bridge is built by a public authority, with imposition of a toll (law MOP with real toll).
- Option 3: the bridge is designed, built and exploited by a private company; with private funds; a toll (Concession).
- Option 4: the State entrusts all the work to a private company (design, realization and exploitation) (Concession, with a restricted toll by the State).

- Option 5: a specific public establishment is created, to finance, make build the bridge and receive the toll and a subsidy (SEMCA).
- Option 6: the bridge is built by a privately held company, which is remunerated on the long-term by the State; no toll (PPP).
- Option 7: a PPP with a toll, the State receives the toll.

To compare these various options it is necessary to take account of several parameters: socio-economic benefit or utility (the toll rate); overall costs of the work. It is known that the public procedure is appreciably more expensive than the private one (more efficiency of the private operator; the private actor takes into the totality of the life of the work; no annual voting of the budget for the private actor), but at the same time, the introduction of the private sector leads to a rise of the financial costs.

### **Privatization vs sustainable development.**

The role played by the private actor raises several questions today. The organization of public transport and the construction of the infrastructures, essential to guarantee the accessibility of each one, concern in all the countries the responsibility for the public authorities. However tendency to privatization forces to give more and more importance to the economic and financial criteria. The objective of the private actor is not to make public service but to satisfy its customers and maximize its profit. So what's about the territorial cohesion, the social justice, the protection of the environment? The introduction of sustainable development into the private sector is not so easy. In the case of the transport infrastructures, the timeline profile of flows of expenditure and receipts strongly differs from another ordinary industrial investment. In the case of the infrastructure: the initial expenditure is often very heavy and very long; then the receipts are long in becoming positive, but on the other hand they will continue to grow during many years. Moreover, the infrastructures are not always profitable. The rate of intern profitability of many operations is weak, or lower than the rate required by a private operator. In the case of the SNCF for example, only 1/3 of the TGV network has a TRI superior with 8% (minimum rate required by the State). The private sector would not build the TGV (at least, without subsidy).

### **How the private actor can support the sustainable development?**

#### **Which advantages for the private sector?**

- Speed of execution and the availability of the funds: the private actors make it possible to carry out projects which should wait years. The public expenditure is strictly regulated every year by the vote of the budget and the immediate observation of the expenditure, which support the operating expenses and not those of investments. The PPP in particular allows: to reinforce the quality and the performance of the public administration (by the private management); to increase and accelerate the investment in the public services. VINCI, in its last report, offer to unfreeze one billion euro between 2006-2009, within the framework of PPP or concessions to obtain each year of new projects. Even if this amount does not concern only the transports sector, we can easily imagine the importance of this available sum compared with the public funds. The PPP contracts have been extended to the rail (in 2006), in order to accelerate the development of the national railway network. The viaduct of Millau is a good illustration of the private sector efficiency. The convention of concession is approved by the Minister in October 2001, the inauguration of the structure takes place in December 2004. The viaduct is built in just 39 month.
- Capacity of innovation: in a competitive context, the partnership with the private sector permits to benefit from its capacity of innovation. It is once again the case of Millau. The group Eiffel Steel Constructions (Eiffage) has created a new process to build the superstructure: a system of temporary piers with translators to deploy progressively the apron.
- Integrated process: The integration of design, construction, exploitation and maintenance of the infrastructure supposes that the operator is responsible for the project, until its end. For the operator, a well conceived project means a structure easy to exploit, to manage and to maintain. It is especially the case in the PPP contracts. The overall costs of the projects will be optimized thanks to: the integration of design and construction in the process, the implication of all the partners upstream, the optimization of planning and the logistic organization. The organization of the group Vinci, first European operator of transports concessions, symbolizes this capacity of the great groups to integrate all the stages of construction and management of the mega projects.
- Private logic: the concession of public services makes it possible to substitute the constraints of the administrative management for a financial logic. It seems an advantage to manage people, to get out the restricting control of public attribution, to introduce processes of evaluation and the interrogation on performance and satisfaction of the users.

## Sustainability: a market for the private sector?

The competing framework obliges the actors to innovate and fulfill the requirements imposed by the public sector. Sustainable development becomes thus a market for the great groups. The respect of the social, ethical and environmental conditions is translated then into a competitive advantage. For the private actor, the introduction of the stakes of sustainable development is combined with a global policy of risk management. It's also a question of respectability and publicity. These groups take advantage of the respect of sustainable development challenges, and most of them communicate on this point.

### Some examples of good practices.

- Eiffage: The group has launched a policy of eco-design in the middle of the years 1990, which resulted in an identification of a risks hierarchy, according to two types of activities within the group: building sites, and industrial productions. Concerning the building sites, several types of work were set up: development of new procedures to decrease the accidents, the research & development to find alternatives to the more risky processes (research solutions to avoid the utilization of toxic products, by financing PhD on sustainable development, etc). The group set up an environmental management system, in conformity with the reference frame ISO 14001. With the introduction of sustainable development, the management, the methodology, the organization of the group are totally reconsidered, and it's concerned all the activities.
- VINCI: Its engagement around the sustainable development is articulated around 5 priorities. The process is animated by a committee of sustainable development within the executive committee of Vinci, a delegation of sustainable. It's also relayed by more than 250 correspondents in the various subsidiary companies.

## Conclusion

In conclusion, this comparative table sums up the different roles that public and private actors can play to introduce the sustainable development in transport projects. It represents the main advantages and disadvantages which make that sustainability can be integrated in transport projects.

Table I:

	Advantages to support sustainable development	Disadvantages to support sustainable development
Public	<ul style="list-style-type: none"> <li>-Legislative Tool</li> <li>-Creation of standards: role of regulator</li> <li>-Economic and social cost-benefit Analysis; Introduction of the social costs</li> <li>-General interest, equity: public values similar with sustainable values.</li> <li>-Concept of public service</li> <li>-The regulation of competition between the modes; support for intermodality</li> </ul>	<ul style="list-style-type: none"> <li>-Slowness of the process, brake to the action</li> <li>-Vote of the budget every year (it supports more the operating expenses than the investment expenditures), weakness of the sums available, debt</li> <li>-Economic profitability can win against social criteria</li> <li>-Weakness of the evaluation, weakness of ex-post control</li> <li>-Administrative and sectoral Divisions, lack of coordination (perhaps a change with the new ministry?)</li> </ul>
Private	<ul style="list-style-type: none"> <li>- Speed of execution (to answer the needs more quickly), respect of the cost and the deadlines</li> <li>- Preoccupation with an efficiency, logic of company, coordination and management, capacity of innovation</li> <li>- Integrated Solutions, from the upstream to the downstream; integration maintenance and exploitation in the project (by taking into account all the life of the structure); reasoning on a service and not on an object)</li> <li>- Challenge of customer-user satisfaction</li> <li>- Pollution duties, Introduction of the negative externalities: Regulation by the market</li> </ul>	<ul style="list-style-type: none"> <li>- Stake of profitability: economy is always more important than the social or environmental criteria</li> <li>- Tariff of the infrastructure: right to the transports only if you can pay</li> <li>- Only the customer is taken into account</li> <li>- Cost of the infrastructure for the community: the private actor sells a hypothetical future value that the State must pay today; Cost evaluation integrates new data: the cost of the saved time (outputs + outcomes and not just the inputs)</li> </ul>

	<ul style="list-style-type: none"> <li>- Dependence of the evaluation imposed by the market and the competition: speed of adjustment (+/- consequences)</li> <li>- Mobilization of private actors on the intermodality: the PPP can support the intermodality (applies to all the modes) / PPP can increase the competition between the different modes of transport (by supporting the most profitable)</li> <li>- Tarification: the toll price regulated by the market price (a tool for the traffic regulation, to avoid the congestion) / you can use the infrastructure only if you can pay.</li> </ul>
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On the whole, the private sector can carry the sustainability challenges as much as the public sector. The both have a role to play. The problem undoubtedly holds in their relationship (transparency and control/cooperation), one being able to answer the weaknesses of the other. The introduction of sustainable development requires more than ever the crossing of the two modes of regulation, public and private. It also supposes the evolution of the methods of public action, towards a State which is devoted to its function of regulation and supports the emergence of compromise between contradictory interests.

## Reference list

### Books:

Poutchy-Tixier J-C, (2004). France : Processus de décision et transports durables. Etat du cadre légal, des méthodes et des outils. In : Conférence Européenne des Ministres des Transports, Evaluation et prise de décision pour des transports durables, Paris, OECD Publications.

### Journal Articles:

Piron V, (2005). Financement comparé de grands projets d'infrastructure. PCM Le Pont, 103(3), 35-39.  
 Borel M, Piron V, (2003). Le partenariat public-privé : pour une autre approche de la valeur du temps dans la décision d'investissement publique. PCM Le Pont, 101(12), 48-53.  
 Antoine J-P, Héritier B, Marcelloux J, (2006). Développement durable et entreprise routière, l'exemple d'Eiffage Travaux Publics. Travaux, 830, 68-72.

### Web sites:

RFF, (2005). Réseau Ferré de France au service du développement durable : édition 2005. Available : [http://www.rff.fr/pages/connaitre/rapport\\_activite.asp?lg=fr](http://www.rff.fr/pages/connaitre/rapport_activite.asp?lg=fr)  
 ARENE, (2005). Qualité des infrastructures de transport au regard du développement durable, Grille de questionnement. Available : <http://www.areneidf.org/transport/pdf/qit-grillequestion.pdf>  
 Ministère des transports, de l'équipement du tourisme et de la mer, (2007). Dossier de presse : Lutte contre le changement climatique, un ministère en marche, février 2007. Available : [http://www.equipement.gouv.fr/IMG/pdf/Dossier\\_de\\_presse\\_-\\_5\\_fevrier\\_2007\\_valide\\_cle6a7bff.pdf](http://www.equipement.gouv.fr/IMG/pdf/Dossier_de_presse_-_5_fevrier_2007_valide_cle6a7bff.pdf)  
 Ministère de l'Ecologie et du développement durable (2005). Charte de l'environnement. Available : [http://www.ecologie.gouv.fr/IMG/pdf/charte\\_environnement-2.pdf](http://www.ecologie.gouv.fr/IMG/pdf/charte_environnement-2.pdf)