

## **Towards a more sustainable Paris**

Recommendations and best practice in planning, housing, transport and reduction of carbon emissions

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### **Learning from Paris**

Why this seminar in Glasgow about more sustainable Paris? There is a historical link between urban planning of Paris and Glasgow. The lack of water and sewerage infrastructure in Glasgow caused three epidemics of typhus and cholera in 1849-50, 1853-4 and 1863-4 (Edwards, 1993). The city architect, medical officer and the Lord Provost visited Paris in 1866 to gather information on the sanitary improvements and developments in Paris which were going on under the supervision of Baron Haussmann.

The delegation saw a network of sewers and waterpipes which were laid beneath Parisian streets, as well as the large city squares and uniformly designed street facades. The visit to Paris influenced sanitary improvements in Glasgow and the regeneration of some city neighbourhoods such as the Gorbals on the south bank of the Clyde.<sup>1</sup>

Glasgow City Council is currently in the process of developing a Climate Change Strategy within its strategy for sustainable development. Glasgow City Council is currently in the process of developing a Climate Change Strategy within its strategy for sustainable development. Maybe it is worthwhile looking again what Paris is doing now regarding more sustainable urban development. This seminar has been prepared after the insight gained during my visits to Paris in 2007 and 2008.

The introduction to the seminar presents the actions for more sustainable Paris that can be noticed while walking through the streets of Paris. The seminar provides information on the activities of the Centre for Architecture and Heritage and the City Observatory. The latter one has given a series of recommendations on more sustainable Paris.

The seminar also presents some projects of the architects Anne Lacton and Jean-Philippe Vassal who have won Grand Prix for architecture in 2008. Their architecture shows some routes towards a more sustainable building design and refurbishment in the current economic crisis. The exhibition of their work is on until 15th March 2009. A few examples from the exhibition on sustainable architecture in Paris which presented work of 30 architects are also included in the seminar.

### **Signs of the sustainability on the streets of Paris**

A walk through the streets of Paris reveals signs of some old and some new ways of sustainable urban living. In many, even narrow streets, there are parking spaces for

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<sup>1</sup> Edwards, B. (1993) Glasgow Improvements, 1866-1901. In Reed, P. (Ed.) *Glasgow, The Forming of the City*. Edinburgh University Press, Edinburgh, 84-103.

bicycles and motorcycles. Fresh produce is available in small open markets and shops in each neighbourhood.

In June 2007, a promotion of healthy eating was organised in front of the Town Hall. Free apples were given to people who came to the square, while other fresh products and juices were sold at the temporary stalls. In May 2008, the square in front of the Town Hall served as the exhibition space for plants and flowers.

In May 2008, a sculpture of a dragon made of recycled materials was installed in a public park. In summer 2007, the free bicycle scheme “Velib” was promoted in the streets and now is fully functional across Paris. The Velib parking stations are now located across Paris. In 2007, new models of bicycles that could be folded, then easily moved and stored in a small space were also promoted in the streets. At the same time, information on bicycle routes from Paris to Brussels or to the south of France were distributed. Parking and recharging spaces for electric cars have been provided in many areas of the city.

The former railway above the ground in Daumensil quarter in Paris has been transformed into a park. The former industrial area in Bercy has been regenerated in a lively neighbourhood centre full of restaurants and shops. New social housing scheme in the same area looks towards public garden on the south while the back gardens are developed as allotments. New, carefully designed public parks have been developed in Bercy along the Seine.

### **The Centre of Architecture and Heritage (Cité de ‘Architecture et du Patrimoine)**

If we want to learn more about the history of architecture and urban planning in Paris and France in the past and today, then the Centre of Architecture and Heritage is the place to visit. The Centre opened in 2007 in the east wing of the Chaillot Palace, facing the Eiffel Tower at the Trocadero Place. The original building, Trocadero Palace, was built in 1878 for the World Exhibition and was designed by the architect Gabriel Davioud. It was remodelled in 1937 by the architect Jacques Carlu for the International Exhibition of Art and Technology in Modern Life.

It includes the Museum of French Monuments and the Chaillot School for conservation of architectural heritage as well as the French Institute of Architecture which houses the exhibition of contemporary French architecture. The Centre was planned as a cultural centre that will respond to diverse demands and a broad public.

The Chaillot Palace has been refurbished by the architect Jean-Francoise Bodin who has adapted the building as galleries for casts, models and drawings of French architecture. The converted galleries are flooded by natural light that comes through the glass roof. The Centre Chairman, Francois de Maziers, says that the Centre’s present task is to raise public awareness of the different domains of architecture and national heritage, as well as to satisfy the needs of professionals working in the architectural and municipal sectors. Training and lecture sessions cater for both architects and building contractors. The battle the Centre is now engaged in is for

architectural quality by enlightening the public and the political and economic decision-makers.<sup>2</sup>

For anyone who wishes to quickly learn about the structures, sculptures, decorative painting of interiors and stained glass in Romanesque, Gothic, Renaissance, Baroque and Neo-Classical French architecture, a visit to the ground floor gallery will be very helpful. It should be a recommended tour for the students of history of architecture.

On the upper level, Modern and Contemporary Architecture Gallery covers all the changes that have occurred in architecture since the Industrial Revolution. Among other exhibits, it includes the full-scale reconstruction of an apartment from the Cité Radieuse housing unit in Marseilles. The reconstruction was entrusted to seventeen secondary schools for vocational and professional training in the Ile-de-France region. This initiative extends the initial idea of Viollet-le-Duc who, when assembling the collections of the Museum of Sculptures, forerunner of the Museum of French Monuments, emphasised the demonstrative qualities of life-sized reconstructions.

A space is also provided for the exhibition of contemporary architecture in the Pavillon d'About. Another exhibition space is provided twice a year to practices known for their inventiveness, who are given carte blanche to preset a installation. The first exhibitors were Dominique Jakob and Brendan MacFarlane and their architectural practice Périphériques. A visit to the Centre provides an insight into French architecture from the 12th century until today.

### **The City Observatory**

The partners in the City Observatory are the Centre of Architecture and Heritage, Bouygues Immobilier and AMC. Bouygues Immobilier, a founding partner of the City Observatory, is a leader of the promotion of private development in France and in Europe which has 1,600 collaborators and whose business turnover was Euro 2,075 M in 2007. Established in 1989, AMC is a monthly publication on architectural and urban development in France.

The City Observatory defines itself as a group for reflection about the city of tomorrow. In the conference handouts they state the following: “Regarding housing, planning of urban neighbourhoods or wider global urban planning, different stakeholders in this sector (residents, promoters, elected representatives, architects, urban planers...) think, act, realise and live in the city in an isolated way without a true place for exchange which would allow them to join their expertise and points of view. The City Observatory seeks to respond to this need by offering a place of information, reflection and exchange of views on the state of French cities, on their evolution and their problems which should be addressed by the stakeholders. This observatory has the objective to create circumstances that enable debate on social issues, to imagine innovative solutions and to propose actions to the creators of the city of tomorrow.”

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<sup>2</sup> Soiciété Française de Promotion Artistique (2007) Cité de l'Architecture et du Patrimoine, Connaissance des Arts

The Observatory is run by a committee of eight experts, whose expertise covers economics of developments, sustainable development, architecture and urban planning. They are as follows:

Mr. Alain Salles, Chairman, Urban Economist, Professor Emeritus of the ESSEC and former Professor at the National School of Bridges and Roads

Francis Beaucire, Geographer

Guy Burgel, Geographer, Professor at the University Paris X Nanterre

Christian Devillers, Architect and urbanist

Jean-Claude Driant, Urbanist, Professor at the Institute of Urbanism of Paris, University of Paris 12, Creteil

Francoise-Helene Jourda, Architect

Phillipe Madec, Architect and urbanist

Jean-Michel Vincent, Director of the sustainable strategy and development, DREIF (Direction Régionale de l'Équipement Ile-de-France)

The committee of experts meets during a period of seven months to reflect on a specific topic. Beyond their personal expertise, the committee relies on complementary studies (surveys, technical reports etc.) and invites specialists and the key stakeholders of the city (elected representatives, social groups, researchers, etc.) The results of this work take the form of proposals presented in a report on each topic that has been addressed.

The City Observatory has organised three public debates on the following topics:

- Urban density, February 2007
- Sustainable urban neighbourhoods, December 2007
- Can sustainable development be achieved by increasing the attractiveness of the City Region? December 2008

The recommendations of the debate on urban density were as follows:

1. Reconstitute the 19th century urban fabric (high density, ground floor + 7 storeys)
2. Revitalise the dense old neighbourhoods through the housing improvement programme
3. Build and re-use tall buildings within the traditional street grid
4. Increase density of existing residential neighbourhoods
5. Increase density of urban blocks
6. Increase density of the city and suburban centres
7. Plan higher density around public transport stations in suburban areas
8. Plan local commercial centres within suburban neighbourhoods
9. Develop and extend public transport towards suburbs
10. Plan radial increase of density in suburbs around specialised sectoral clusters of activities
11. Prioritise rehabilitation of brownfields located near public transport networks
12. Create the conditions for modification of high density housing to suit the needs of the occupants

The recommendations of the debate on sustainable urban neighbourhoods were as follows:

*At the national level*

1. Fully transform urban communities and agglomerations before 2014 (by enabling local authorities to propose local legislation for sustainable development regarding transport, housing and social policies)
2. Integrate environmental requirements within the funding for social housing
3. Re-launch public acquisition of land to enable urban densification around transport nodes
4. Develop a national programme for improving energy use in existing buildings

*At the city level*

5. Develop a national plan for construction of eco-neighbourhoods on the land reserved for new cities, at the urban edges and in the suburbs in which density should be increased or which should be restructured
6. Calculate carbon emissions and ecological footprint for all urban planning projects

*At the neighbourhood level*

7. Concentrate urban services for population and businesses within neighbourhoods
8. Create pilot projects of sustainable planning

*At the building level*

9. Extend the duration of loans and improve the rates of borrowing for the construction of high energy quality buildings either “passive” or energy positive
10. Change the regulations regarding total built and habitable surface to provide a disincentive for contractors to minimise the width of walls in order to maximise habitable surface.
11. Promote the proximity of building services in order to have energy consumption around 50 kWh/m<sup>2</sup>/year.
12. Provide financial incentives for transformation into eco-housing at the time of transaction.

**Can sustainable development be achieved by increasing the attractiveness of the City Region?**

The third debate, in December 2008, aimed to answer the above question. The premise of the debate was that sustainable development has become an unavoidable imperative for cities. In relation to this imperative, the panel aimed to answer the following questions:

- In what way is the situation in the Paris region specific in relation to this view?
- Is the objective to reduce greenhouse gasses by the factor of four from now until 2050 realistic?

The panel’s vision was that sustainable development of Paris could not be disassociated from its attractiveness. This vision implies a strategy which relies on

objectives, programmes, investments, but also on the creation of new processes for innovation. The focus is on

- the transformation of urban and metropolitan mobility which can initiate evolution of urban forms, the change of behaviour and the choice of infrastructures
- the reduction of energy consumption and carbon emissions through the evolution of housing towards energy self-sufficiency
- regarding the equity, at what conditions will the objectives of social mixture, the re-balancing between west and east of the city, and the elimination of the housing shortage be achieved?

The experts invited to the third debate were as follows:

Vincent Fouchier, Joint General Director of the IAU Ile-de-France

Jean-Paul Lacaze, Honorary Professor and Chairman of the honorary section of the General Council of Bridges and Roads

Jean-Pierre Orfeuill, Professor, University of Paris East, Institute of Urbanism of Paris

Jean-Michel Paumier, Honorary Director of RATP – Member of Economic and Social Council of the Region Ile-de-France (CESR)

Bertrand Warnier, Urbanist and architect

Marc Wiel, Consultant on Urbanism, former Director of the Urban Agency of Brest

Manuel Valls, Depute Mayor of Evry, Chairman of the Community agglomeration Evry Centre Essonne

The experts have jointly worked on a study whose outcomes were 13 recommendations.

### **The context**

The need to fight against the climate change through the European and national engagement to reduce the emission of greenhouse gases by four between 1990 and 2050, and to change behaviour in energy consumption have framed the picture of the study. The study also aims to integrate strategies for preservation of natural resources and biodiversity, a more equitable organisation of the capital city and an environment which respects the health of citizens.

*Environmental issues:* Residential and commercial buildings at Ile-de-France use 48% of the total energy, the land transport 23% and aerial transport 19.5 %. 23% of all carbon emissions come from buildings. Transportation is the primary cause of the emissions of carbon monoxide (CO) with 77% of the total and of carbon dioxide (CO<sub>2</sub>) with 29% of total. The air and noise pollution from the vehicle traffic affects the health of people although the circulation of cars has been reduced in some densely populated zones. Regarding the situation of the users of public transport, it has become unbearable due to the saturation and discomfort of the transport links that are used by a large number of passengers. At the same time, the disappearance of the need for individual vehicles is still far away due to the dispersion of housing in the region and the preference for individual houses which stands against the efforts of urban planners to promote higher urban density.

*Social issues:* Considering the distribution of socio-professional categories, location of social housing and vulnerable neighbourhoods, it is not possible but to

acknowledge the distortion between the well-off west and the east of the Region of Ile-de-France. There is also a problem of long journeys between work place and homes. The insufficient mixture of housing and social imbalance also need to be addressed through sustainable development.

*Economic issues:* The proposals on social as well as environmental issues are given within the context of the international economic and financial crisis. To address them, the states, including France, are turning towards Keynesian type of measures. Large works on railway infrastructure, support for the transformation of vehicles and for improvements of thermal insulation of housing are some of the measures studied not only to reduce the consumption of energy produced from fossils but also to support employment. Beyond the problems brought on by the increase of unemployment, the world economic crisis and the views about the long-term cost of petrol, can the envisaged measures have as a by-effect an adaptation of the city to the needs of sustainable development.

Regarding competitiveness, the findings of the comparative studies in 2002 that showed a net reduction of the attractiveness and competitiveness of the Ile-de-France in comparison to the big European cities should not be forgotten. The research undertaken in 2000 showed that the availability of services for the citizens and the quality of life are the most important components of urban attractiveness. This entails, among other issues, public transport, pollution prevention and reduction of the social fractures in vulnerable neighbourhoods. These criteria should also include health for which the epidemiological studies reveal an excess of certain pathologies at Ile-de-France.

### **The thirteen proposals**

The 13 proposals given by the City Observatory on 5th December 2008 include the above considerations. They do not address the management of big projects because different other teams work on them. Rather, they are aimed at the transformation processes serving global strategies for sustainable development. The proposals are presented according to the double classification, on one side in relation to the pillars of sustainable development: environment, economy (competitiveness and attractiveness), society (an equitable city) and health, and on the other side according to the area of application: building, mobility-transport and urbanism.

*I – Proposals regarding the environment: Reduction of greenhouse gases and energy consumption*

#### **BUILDING**

1. Expand the Climate Plan adopted by the city of Paris (thermal refurbishment) to the City Region. This plan's objective is to apply innovative investments for thermal assessment and energy rehabilitation of old buildings, the principal issue in the reduction of energy consumption. The plan could be applied on a grid of building classification which has been developed by Françoise-Hélène Jourda in her Report on the inclusion of sustainable development in construction completed in September 2007.

2. Create a European centre of sustainable development of construction in the City Region. Create in the City Region a centre of sustainable city development aiming to improve the productivity of the supply chain for construction of sustainable buildings. This centre will particularly be dedicated to information and education of craftsmen, and will advise on the conditions to obtain labels “Sustainable development” of existing and new construction and buildings. It will contain a permanent exhibition of techniques and materials used for sustainable building. The best results in sustainable construction have been achieved in countries that have best qualified workforce.

## MOBILITY

3. To support shared use of vehicles, introduce reserved lanes on the main routes in the City Region. To support shared use of vehicles, we propose the introduction of reserved lanes on highways and fast routes in Ile-de-France. The access would be allowed only to vehicles with at least three or four passengers.

4. Reduce the speed limit on the main roads of Ile-de-France to reduce CO2 emissions. This measure is least expensive and more immediate for reducing CO2 emissions than the investment into alternative ways of the vehicle use. This measure for “calmer highways”, from the optimal rate of 110 km/h on highways ad 90 km/h or 70 km/h on fast roads, according to their nature, will not cause loss of time due to the better average traffic flow. It will also help avoiding the investment into the noise reduction barriers and the rupture of landscape that they create.

5. Develop the usage of electric bicycles and provide free-service vehicles in the agglomeration of Paris. The success of Velib (free bicycle) scheme has created an expectation for the similar free-vehicle service, particularly at the immediate outskirts of Paris. It has also shown that the residents of Ile-de-France were ready bicycles if their use is facilitated. The comfort of an electric bike could attract a larger clientele. The bike will become a complementary public transport, particularly at the big centres of work ad housing, by creating a network of safe routes for cycling and garages for bikes at the public transport stations.

6. In Paris, creation of car parks at the end of public transport lines and adaptation of the parking fee in the city. Car parks at the edge of public transport or close to the suburbs will have lower parking fees to reduce car traffic and emission of greenhouse gases in densely populated agglomerations. One could imagine an introduction of a system that would offer a return ticket to the passengers of a vehicle left at a car park. The complement of this measure for reducing the use of vehicles will be an increase of occasional parking and reduction of the fee for residential parking.

## *II – Proposals related to the attractiveness of the city region*

### URBANISM AND PUBLIC TRANSPORT

7. Create a network of public transport of high capacity in close suburbs. With a view to increase the density of close suburbs and facilitate life of residents and businesses, it seems urgent, within the next decade, to build in the suburbs a high-capacity network of fast public transport. Legal, technical and financial resources (including

loans) need to be reserved to create the infrastructure, not necessarily under ground, similar to the existing one within the city of Paris.

8. Increase the attractiveness of the future big urban developments and new cities through the construction of eco-neighbourhoods. Strengthening the attractiveness of the future big urban projects and the competitiveness of new cities within the polycentric scheme of the City Region by building eco-neighbourhoods would have both economic and ecological value. Regarding the economy, new eco-neighbourhoods, well articulated within the old urban grid, will increase visibility and give a new image to the future big urban projects that could be developed, for instance, on the Plateau de Saclay, in the Plaine de France or in the other big peripheral zones that will be restructured. The attractiveness and competitiveness of new towns would also be increased because they offer the advantage of still having large land reserves which will have public infrastructure and services realised by public funds. Through the establishment of companies, they will achieve a better balance of housing and work than the rest of Ile-de-France. The realisation of eco-neighbourhoods and the zones of sustainable activities will improve quality of life and ecological development of these towns.

9. Increase the density of neighbourhoods located around the nodes of public transport. Increasing the density of neighbourhoods located near the nodes of public transport will be facilitated by eliminating height limits, while respecting minimal distances between buildings. Increased density will be supported by fiscal and regulatory measures in relation to the planned or potential projects around the nodes of public transport. Fiscal measures could especially be applied on the most valuable areas supported by the public investments.

10. Provide trade and urban services for citizens at the level of neighbourhood. Urban planning of neighbourhoods at the adequate scale allows a reduction of the movement of cars in favour of softer mobility. The condition of this re-centralisation is to provide trade, services and work near the centre of the customer catchment area. Movement of cars linked to the visit to the big shopping centres at the periphery are harmful for the environment, and the authorisation of these big shopping centres should be strictly controlled. In comparison, the number of large shopping centres at the periphery of cities is much higher than in other European countries such as Germany, which have been concerned with the environment for a long time.

### *III – Proposals related to an equitable city*

#### HOUSING AND SOCIAL MIXTURE

11. By offering new housing, make possible residential mobility to adapt to the transformation of the employment market and to the stages in life cycle. Residential mobility allows bringing closer home and work place for one part of population and reduces this type of movement constraint which remains the most important (and the longest) in terms of time and distance covered. The new offer of housing could have as the major objective to contribute to the flow in the employment market that is currently blocked. The housing journey has a different temporality from the life journey, especially from the professional and family one. In the cities in which the housing market is tight, only the youngest (less demanding regarding the flat size and

comfort) and those most at ease can adapt their housing conditions and their residential location to the evolution of their work places.

As the false ideal town in which all work places are equally accessible for all for a minimum cost of transport is beyond reach, the issue is to make possible the adjustments through residential mobility. To do this, it is necessary to take three complementary actions:

- Ensure that the principal role of new housing is to stimulate residential mobility: all new housing should enable at least two or three re-housing within the existing area, which directs new housing towards a family type to the detriment of small housing units which are already very much available and have no impact on housing mobility.
- Encourage residential mobility within the social housing through a reform of the allocation that facilitates internal changes to allow to the households to adapt their housing conditions to the evolution of their needs.
- Reform by reducing taxes on the change of property and encourage the banks to relax the conditions of re-sale of properties to reduce the usual obstacles that a property brings into conflict with the housing mobility.

12. Strengthen the requirements for social diversity of housing at all levels of the city. It is a matter here to limit the effect of the revenue level on the choice of housing location and, as a consequence, on the cost of moving and the room for manoeuvre within the work market.

For households with a low income, the question of sustainable development today is related to the cost of moving and the lack of energy. A compact and/or polycentric city that will address the issues of sustainable development cannot make savings against its accessibility to all social categories that nourish its economic dynamism. This occurs through the provision at all levels of housing that combines high environmental performance with financial affordability for all. The requirement for sustainability and reduction of CO<sub>2</sub> emissions reinforces the need for the social mixture.

In practical terms, the objective of 20% of social housing in urban neighbourhoods has to be maintained, even higher to increase the density of central areas or to develop new neighbourhoods. This should be accompanied, for social housing, with ambitious qualitative objectives regarding environmental issues. This implies that specific investment should be planned to ensure the financial feasibility of operations without putting a strain on the tight budget of households with a modest income.

#### *IV – Proposals in relation to the improvement of health of the residents of Ile-de-France*

13. Add to the three pillars of sustainable development the fourth one on health. The research on the health of residents, in particular of the Ile-de-France, shows that the energy saving measures regarding environmental quality only partially cover those related to the health. It is therefore particularly important, in the view of the sustainable health of the current and future generations, that large cities as the City Region, take care of good health of their inhabitants during their whole life. At the Ile-de-France, there is especially high mortality related to breast and skin cancer,

respiratory allergies and premature births. Such a situation is a handicap in terms of attractiveness. Among the aggravating agents, among others, are outdoor and indoor air pollution, pesticides, nano-materials and electromagnetic waves. Construction materials, thermal air-tightness, high-tension power lines and the density of electromagnetic waves in which urban residents are immersed are the priority in medical research, control systems and precautionary measures.

### **Grand Prix for architecture 2008: Anne Lacaton and Jean-Philippe Vassal**

After understanding the values promoted by the City Observatory for more sustainable urban development, it is not surprising to see that the Grand Prix for architecture in 2008 has been awarded to the work of the architects Anne Lacaton and Jean-Philippe Vassal.

In the catalogue of their exhibition, Francois de Mazieres, Chair of the City of Architecture and Heritage, writes: “The approach that Anne Lacaton and Jean-Philippe Vassal take seems like a remedy in the difficult times through which we are going. That approach, often described as “minimal”, explores the constraints and transforms them into creative energy.”

“Freedom is a fundamental aspect of their work: to free the spaces, shape up the volumes, adapt the strategy of transformation and provide the possibility that, after them, the use of the building could be radically changed. Their aesthetic follows their ethics: simplicity, efficiency, harmony and exchange – between generations, social groups, cultures... Their projects touch individual habitat as well as social housing and public projects. They optimise all the resources that they have at their disposition – the budget, the techniques, the materials, the natural environment – with the primary goal to serve the well-being of those who inhabit their realisations. Their projects touch individual habitat as well as social housing and public projects. The main preoccupations of Lacaton and Vassal is to offer more space, more comfort, more quality of life to occupants; expand the existing by saving spaces and resources; renovate, re-use the existing to make it better. It presents their concept of architecture, of the meaning that it dreams about and of answers that it can provide in face of the social urgencies and the housing crisis.”

The best known examples of their work include the following:

- Maison Latapie - Floirac, France – 1993. Situated in the inner suburbs of Bordeaux, it was a commission for a family home - a couple and their two children, with a small budget. The structure is metal. One half, on the street side, is covered with an opaque skin, with fibrocement cladding, and the other half, the greenhouse, with a transparent skin, and PVC cladding, on the garden side. A wooden volume behind the opaque cladding delimits an isolated winter area. The home's living area can vary from season to season, from small - living room and bedrooms - to large, encompassing the whole garden at the height of summer.
- Maison à Lège, Cap Ferret, France, 1998. Architects Anne Lacaton and Jean Philippe Vassal were asked by a brother and sister to build for them a holiday house on land they owned on the Atlantic coast of France. A key condition of their request was that the project should respect as much as possible the 46 trees – some

up to 30 metres in height and over 80 years old – that grew on the site. Sloping down harshly to the bay, the landscape consisted of 15 metre dunes covered with pine trees, shrubs and mimosa. In order not to spoil the dunes, the foundations consisted of twelve micro-piles rammed eight to ten metres into the ground.

The architects conducted a study in collaboration with the French agricultural authority to ensure that the trees going through the house were not endangered by the project. Another consequence of the strict respect for the existing vegetation, was that six pine trees perforated the house. To enable the trees to move with the wind, while at the same time keeping the house completely rainproof, a rubber collar fastened the trunks to skylights. These skylights are Plexiglas plates tied to the roof of the house by elastic belts that allow them to slide following the movements of the trees.

- Palais de Tokyo, Paris, 2001. The firm designed the Palais de Tokyo contemporary art gallery in Paris, completed in 2001. The project, a bare bones reclamation of a semi-derelict art deco building near the Seine, was short-listed for the Mies van der Rohe prize in 2003 and has been immensely influential as perhaps the most extreme of found-space galleries. Palais du Tokyo is an exhibition gallery within the west wing of the Chaillot Palace whose exterior has not been changed.

The original highly polished marble floor and columns have been preserved, but the ceilings and some walls have been stripped bare revealing rough edges, different materials and services. A recycled caravan, which might have been used for the sale of ice cream, is now used for selling the tickets. White washed walls provide a neutral background for exhibitions. Cheap light fittings and furniture in the coffee shop provide a relaxed atmosphere which resembles interiors of a student union spaces.

The bare concrete structure of the ceiling seems like a statement that there is nothing that should attract the attention towards the ceiling and that it is not worthwhile spending any money to hide its rough surfaces and exposed wires. The simple, sometimes colourful light fixtures, wires and pipes seen against the grey concrete surface create abstract patterns and compositions. A visual cacophony of the ceiling is in a strong contrast with the white walls beneath them. In an industrial building this would not probably be noticed, but in a gallery it is a statement.

The material used for partitions is functional – transparent or semi-transparent according to the functional needs – and probably the cheapest that could be found. Bare brick walls and rough edges of a brick wall that has been removed provide rough background to the exhibits in the gallery store. But, when the focus is on the books and other objects, it does not seem to matter where they are displayed. Recycled fridges for soft drinks are used to exhibit art objects in the gallery shop.

Teenagers play on skateboards on the marble surfaces around the gallery. We are not sure any more whether the graffiti on a screen in front of the gallery are part of the design or the work of a local teenager, but they do not look out of place. The visit to the Palais du Tokyo might seem as a glimpse into the future of the

young people that are now playing around the gallery, into the way how they will use the spaces left as a heritage of the bankrupt society.

- Social housing, Mulhouse, Haut-Rhin, France, 2005. Lacaton and Vassal earned a reputation for being able to do a lot with very little – be that money, materials or space. They have a new way of looking at the idea of luxury, and see the job of the architect as providing the maximum possible enclosure for the available budget rather than using conventionally luxurious trappings of exotic materials or highly-refined details. Luxury, they say, is about providing lots of space for inhabitation – exemplified by their recently completed 12-unit social housing scheme in Mulhouse, where the floor area in each house is more than double the average for social housing in France.
- Tour Bois le Prêtre. In 2005, Lacaton & Vassal and architect Frédéric Druot were selected to reshape the Tour Bois le Prêtre, a 17-story housing tower on the city's northern edge designed by architect Raymond Lopez in 1957. The team proposed to cut away most of the thick concrete façade's partitions, installing balconies and large sliding windows in their place. Besides opening the apartments to more natural light, the units are being significantly enlarged and opened, and new heating, ventilation and electric systems will be installed.

### **Exhibition on Sustainable Architecture in Paris**

The exhibition on sustainable architecture in Paris was prepared under direction of Jacques Ferrier, architect and urbanist. In the introduction of the exhibition catalogue, Anne Hidalgo (First Assistant at the Paris City Council in charge of Urbanism and Architecture) wrote: “I believe that sustainable development is, before anything else, an ethical approach. ... Since 2001, the city of Paris has acknowledged the importance of the issues by putting in place a plan for sustainable urban development. In October 2007, Paris has adopted an ambitious Climate Plan. “

“The projects presented at this exhibition aim to show that the first criterion and also the most important one of sustainable development lies in a new approach towards a dense city that reinstates a citizen in the centre of the world which has been perceived as too artificial.”, writes Jacques Ferrier. For him architecture equals sustainability (durability in French). This is expressed in the title of the exhibition Architecture = Sustainable (durable). Ferrier states that “there is no a sub-group, the ‘environmental’ type of architecture: the architecture is or is not. ... However, if there is no sustainable or environmental architecture, there is the emergence of an “architecture for sustainable society”.

Among the thirty exhibited projects, there were the project of the architects Lacaton and Vassal for the refurbishment and extension of high-rise housing blocks. The following projects also illustrate the range of tasks tackled:

- Mixed use city centre, Issy-les-Moulineaux, 2007, by Jacques Ferrier and Philippe Chiambaretta. The project includes a business tower, an auditorium, shops and housing. The business tower would have an integrated system for capturing rain to water the plants within internal gardens spanning few storeys. Wind turbines at the top of the tower, solar panels on the south façade and the weight of the moving

lifts would produce electricity. The tower would be connected to district heating. Natural ventilation and shading would provide comfortable indoor environment.

- Rehabilitation of the Halle Pajol, 2008, by Jourda Architects. Re-use of a disused rail infrastructure within urban area is the challenge of this project which is met by retaining the existing structure and connecting indoor and outdoor spaces with internal and external gardens.
- Child care facilities in Paris, 2008, by Emmanuel Combarel and Dominique Marrec. This small project within a densely built urban area provides a protected oasis for children within an internal garden.
- Villa Respiro, Romainville, 2008, by Reichen and Robert and Associates. This small housing project skilfully integrates communal internal gardens into the scheme and connects them with green space beyond.

### **Dominique Jakob and Brendan MacFarlane, co-founders of Peripherique**

Established in Paris since 1992, Jakob + MacFarlane were both professors in 1998 at the Special Architecture School in Paris Nanterre. They are also the co-founders of Périphériques which organises expositions, conferences or publications, as well as "36 models for a house" (1998).

They exhibited their projects at the Centre for Architecture and Heritage in 2007. In 1998, they re-designed the interior of the restaurant in the Centre Georges Pompidou in Paris. Different functions of the interior space are indicated by sculptural forms suggesting that the restaurant is amongst or partially within sculptures.

Colourful chequered pattern of the longitudinal façade of their community centre for new music and dance in Savigny-le-Temple indicates the jazzy content of the building. The restrained white and grey palette in the interior of Ricard Foundation (2008) provides neutral background for modern art work. The refined aesthetic of their projects resembles the elegance and perfection of haut couture as a conscious choice for a high quality minimalism extracted from an environment of material abundance.

The minimalist architecture designed by Anne Lacaton and Jean Phillip Vassal, on the other hand, resembles a nonchalant freedom of the street fashion which makes as much as possible from the scarce and cheap resources. The convergence of the two approaches seems increasingly likely in the world that has become more aware of the scarcity of natural resources.

### **Conclusions**

As all the cities, Paris is exploring ways towards more sustainable development. Its focus is not only on environmental issues, but also on economic incentives that can provide better quality of life and health for its citizens and help in developing a more homogeneous society.