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Ho Chi Minh City

Fouzii Benkhelifa - D.R.

Cities and territories: energy and climate risk

How can we give an adequate impression of the wealth of content of the 2006 ADP one day seminar?

Some papers have been given a small amount of space in the eight pages at our disposal, but others, which are equally outstanding, have not. I shall therefore attempt to sum up what I consider to be the main points raised at the seminar under seven headings. Those topics which have been covered only in the proceedings are marked with an asterisk.

1. The inexorable rise in the cost of energy will only help to combat climate risk under certain conditions, because although energy savings are necessarily advantageous, replacing one primary form of energy is not.
2. Every day a little more of the excess greenhouse gases (GHGs) which the natural carbon cycle is unable to deal with are added to the upper atmosphere. The only solution is to drastically reduce input, but this will not provide a way of rapidly reducing the quantities that have built up. It is therefore necessary to anticipate climate change which is now inevitable and eliminate its cause on a long-term basis as rapidly as possible.
3. The industrialized countries, which are in absolute terms by far the most responsible, have an urgent duty not only to reduce their consumption of non-renewable energy and their GHG emissions but also to consider the important impact of the image they project through their attitudes.
- 4.* Travel is a key element in the consumption of fossil resources and GHG

emissions in urban areas: the number of trips and their structure outweigh developments in vehicles (in the broad sense), even though these can be disseminated more rapidly. The issue is particularly important in developing countries because of the rapid expansion of cities in developing countries. (N.B. For future discussion it is worth pointing out that population densities are very high which means that they have a less harmful impact as regards energy and the climate than cities in industrialized countries).

5. Action at all levels must be considered: the fact that, for example, the Maghreb envisages one day becoming a producer/exporter of solar electricity does not prevent each city or region from examining as from now its own potential for making energy savings and using renewable energies.
- 6.* Wood will continue to provide domestic fuel at an unbeatable price in the cities of developing countries. Replanting can make this a renewable form of energy. Production and marketing activities must be organized for this purpose. Niger and Madagascar are good examples to be followed.
- 7.* "Energy and greenhouse effect" issues have important territorial aspects and call for approaches which are in many ways similar to those employed in urban planning. It was therefore quite natural to end with an invitation to energy specialists to join the AdP. ■

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Energy and climate: the role of developing countries

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Climate issues are now familiar, particularly the irrefutable fact that the atmospheric concentration of greenhouse gases (GHGs) has increased, and the human origin of this increase has now been proven. The atmospheric concentration of carbon dioxide now exceeds 375 parts per million, compared with 280 at the dawn of the industrial revolution. Without strong measures as regards emissions, we can expect temperatures to rise rapidly, between approximately 2°C and 6°C in the course of this century.

In order to avoid or limit climate change, it is necessary to stabilise atmospheric concentrations of greenhouse gases, and we know – at least in the case of CO₂ which is the main GHG – that, whatever the level at which we wish to stabilize it, in the long term global emissions must be reduced by a factor of four at least. It is the rate at which emissions are reduced and not their final level which will determine the level that can be attained. In any event, in order to achieve equilibrium and a stable concentration it will be necessary to reach a level of almost zero net emissions. A doubling of CO₂ levels will mean a temperature increase of between 2°C and 6°C, a quadrupling an increase of between 6°C and 15°C.

Energy poverty

Two indicators can be used to measure “energy poverty”. According to these, 1.6 billion people are without electricity and 2 billion rely on biomass energy (almost exclusively for cooking, domestic heating or heating water).

The problem of energy poverty principally affects Africa and South-East

Asia and India. China is a special case due to its very high level of connection to electricity supplies and high dependence on biomass energy for cooking and heating. China has moved very quickly from the group of countries with low levels of electricity supply (Africa and South-East Asia) to the group of developing countries with high levels of electricity supply (Latin America and North Africa). A minimal “survival” level of electricity supply and replacing biomass with kerosene for cooking purposes for these two billion or so “energy poor” would not significantly increase global CO₂ emissions. However, average per capita emission levels in developing countries will remain considerably lower than ours while nevertheless growing a lot more rapidly.

Future global emissions

In terms of energy-related CO₂ emissions, we can state with certainty that the developing countries all together (4.5 billion persons) will catch up with the developed countries (1.5 billion persons) between 2020 and 2030. According to the IEA’s estimates, global

emissions will increase by more than 50% between now and 2030. It is forecast that fossil fuels which currently provide almost 85% of all energy will still meet 80% of energy demand between now and 2030. If we look at the forecast trends for primary energy sources, hydro power will increase only slightly because of the few sites which remain to be developed and nuclear power will remain stable (a few new power stations in Asia that balance out the closure of ageing power stations in Europe and the United States).

Hydro power will produce exactly the same amount of electricity as nuclear power, even if the primary energy balance suggests there is a difference because all the heat produced by nuclear power stations is counted while only 40% of it is actually converted into electricity (Carnot efficiency).

The importance of the other renewable energies will grow, particularly wind and solar power, but this increase in absolute terms will not be enough to increase its market share. Consumption of coal, which is an energy source not of the past but of

the future, will continue to increase in absolute terms. A few months ago we still thought that it would soon be overtaken by natural gas on the grounds of the latter’s versatility and environmental friendliness, but it is apparent today that coal consumption is growing at the same rate as gas consumption. Oil will remain the form of energy that is used to bring the global energy balance sheet to equilibrium.

Available emissions reduction technologies

Energy efficiency can be improved in the main end-use situations, namely buildings (housing and the tertiary sector), industry and transport. Energy conversion in power stations and refineries can also be made more efficient. It is also important to encourage fuel switching – the change to lower carbon content fuels – such as natural gas and oil, which produce less CO₂ than coal. However, ultimately only coal will be left and the increased burning of coal represents a real threat to the atmosphere. It is therefore necessary to develop carbon-free energies (nuclear power and renewable energies) and use fossil fuels with carbon capture and storage.

Ruling out one of these possibilities is to run the risk of increasing costs (for a given level of concentration) or attaining higher concentration levels and therefore increasing climate damage.

What is our margin for manoeuvre?

In 2050, forecasts with contrasting technological scenarios lead either to an increase – more than a doubling – of CO₂ emissions – or to a slight reduction in emissions in compared with the current level. If there was a collective desire to do so, it would therefore be possible to return to the current concentration of GHGs in 2050 after which a gradual reduction could begin, compatible with a stabilization of volume concentrations at 550 parts per million.

We know already that Kyoto will be inadequate. Kyoto 2012 will barely stabilize the emissions it covers, i.e. approximately a third of global emissions, because some major industrial countries, such as the United States and Australia, who signed the Kyoto agreement have not ratified it, because developing countries have been given no quantified objectives and, last, because the protocol excludes maritime and air fuel.

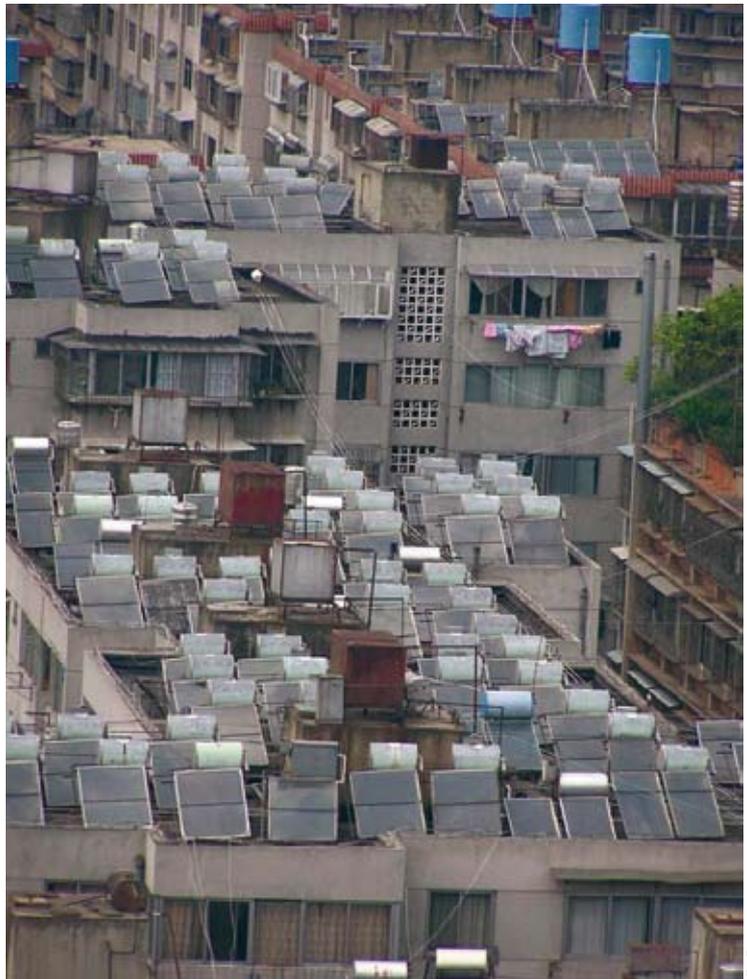
What is to be done: the IEA's point of view

Briefly, we should neither reject Kyoto nor imagine that it can remain unchanged for the future. Permit exchanges should be kept as they are much easier to change than taxes in order to cope better with the cost uncertainties that result from fixed objectives.

As far as developing countries are concerned, the IEA's proposal is for objectives to be indexed to growth, for objectives not to be constraining and to start by developing sectoral mechanisms.

We have also envisaged a number of options for industrial countries such as indexing objectives to

In 2004, 75% of the solar water heating panels installed in the world were in China. The model in question was developed by an Australian University and is effective and economically appropriate, and might one day find itself onto our market.



D.R.

growth. These may consist of emissions reduction objectives which are gradually adjusted on the basis of actual economic growth, in order to eliminate part of the economic risk. Alternatively, cost ceilings could be introduced.

Economic actors will endeavour to attain their

emissions objectives, but if the cost of emissions reductions exceeds a previously fixed ceiling, they would be able to purchase the right to make slightly more emissions, on condition they pay the price. What is involved is making sure the price of a tonne of CO₂ does not reach

levels that are difficult to justify, which could lead governments to question measures to combat climate change, while at the same time making sure that everyone makes a certain effort. ■

China's oil needs

China, which was formerly an oil producing country, became an oil importer in 1993. It then, in 2003, became the world's second largest oil importer after the United States, ahead of Japan. However, in spite of

impressive rates of economic growth, and hence energy consumption, China's increase in demand is, in absolute terms, of the same order of magnitude as that of the United States, or the whole of Europe and Japan

combined. It is therefore mistaken to blame China alone, or China with India, for the rise in oil prices. Industrial countries have much to do themselves to reduce oil demand and limit price rises.

Energy policies and local actors

The case of the cities in the Mediterranean basin

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It is clear that energy issues cannot be resolved solely at government level. Even though the State is involved with regard to energy supply and the creation of large-scale energy production and transport infrastructures, cities have a central role to play in the success of energy policies. To this end, the strategies which are put in place must lead to energy policies becoming an increasing part of urban policies.

Energy issues in the Mediterranean: unacceptable trend scenarios

The scenarios developed in the Blue Plan show the scale of the energy-related tensions to be expected in the year 2025 with an envisaged 65% increase in consumption by that date. These changes will be responsible for several major risks for the region:

- a geopolitical risk focused around the issue of supplies,
 - a social risk, linked to inequalities between citizens and companies regarding access to energy in the various countries,
 - an economic risk due to the scale of energy price increases,
 - last, an environmental risk resulting from the scale of GHG emissions, the "over-utilization of coastal zones", pollution and hazards associated with the transportation of energy in the Mediterranean.
- These trend scenarios are unacceptable from the economic, financial, energy and environmental standpoints. But renewable energies on their own will not be able to solve all the problems that are posed.

However, ambitious strategies with regard to energy savings may provide a genuine alternative to the trend scenario, and villages have a central role to play in this.

An alternative scenario

The Mediterranean Energy Observatory (OME) has constructed an alternative scenario that aims to achieve a 30% reduction in primary commercial energy demand by 2025. The repercussions of this scenario are considerable: energy savings, a reduction in the whole region's energy dependency, and therefore a reduction in energy production expenditure: US\$ 1092 billion saved on the construction of power stations, 157 fewer 500 MW power stations to be built on the coast (even though between 400 and 500 are planned in any case) and 860 million tonnes of CO₂ emissions avoided. This alternative scenario assumes that there will be fairly radical changes in energy policies,

consumption modes and technological choices. In the framework of the UMET we have investigated the role of regions and regional authorities in carrying through this scenario.

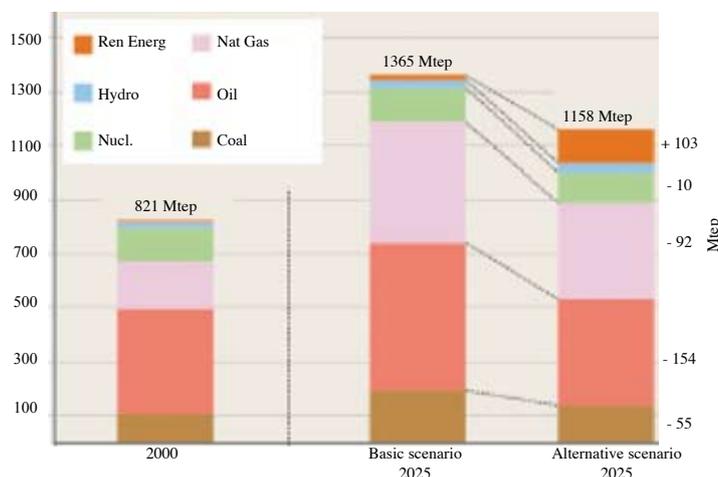
The Mediterranean strategy for sustainable development, adopted last year, aims to achieve this. One aspect of this strategy is sustainable urban development: increasing the value of assets, anticipating and planning urban growth, asking for commitment on the part of all the conurbations, particularly the major

cities, to become involved in Agenda 21 type local initiatives before 2015, or alternatively improving urban governance.

Energy policies and urbanization

Since 1950, the Mediterranean region has become considerably more urbanized, with the urban population increasing from 94 million in 1950 to 274 million in 2000. On the basis of this trend, it is forecast that urban dwellers will account for 74% of the population around the Mediterranean in 2025. This has major consequences in energy terms: it will be necessary to construct buildings, choose technologies and provide energy. These are extremely strong constraints. The question of the dimensions of an alternative scenario for the city therefore arises.

Potential energy savings and CO₂ emissions with the alternative scenario in 2025 (all Mediterranean countries)



Source: Blue Plan, OME

Energy and local government: what link between the two?

The urban planning decisions made by cities generate certain levels of long-term energy consumption. Selecting dense urban development with stringent requirements concerning energy efficiency and the role of renewable energies, implementing ambitious urban transportation strategies all play a role in this alternative scenario. The link between citizens and national policies is also made at city level. Urban authorities can therefore help the population to understand national policies better and become involved in the ensuing issues. In this context the urban authorities play the role of an intermediary. In addition, they act as

a regulator and arbitrator with respect to the various actors involved in the city's energy system.

A major topic of investigation within UMET

Within UMET, the discussions organized around these issues have covered a range of topics: for example, governance, generalizing exemplary regional energy-related procedures, the role of the State, etc.

Questions of other types were also raised in the UMET workshops, for example the handling of long-term energy issues and the very short-term day-to-day decisions that must be made by elected officials.

The issue of energy demand requires elected officials to have a clear and shared vi-

sion of long term energy issues in order to allow them to make far-reaching decisions with regard to energy efficiency and the development of renewable energies. Participation, i.e. the citizens' debate on energy, provides a good basis for this, as it enables local authorities to obtain the support the long-

term vision needs to make it possible to implement the associated energy policies. The State has a role to play, it must continue to show the way, while handing over a number of responsibilities to local and regional authorities to enable them to be active in the area of energy and urban planning. ■

The UMET (Université d'été de l'énergie en Méditerranée) brings together, on an annual basis, decision-makers from the region in the fields of energy and the environment. The UMET is organized by OME, with support from ADEME (Agence de l'environnement et de la maîtrise de l'énergie), CEA (Commissariat à l'énergie atomique), the European Commission, EDF, Gaz de France, INSTN (Institut national des sciences et techniques nucléaires), the Italian Ministry of the Environment, ENEL (Ente nazionale per l'energia elettrica), IEPF (Institut de l'énergie et de l'environnement de la francophonie), STEG (Société tunisienne de l'électricité et du gaz), and ANME (Agence nationale pour la maîtrise de l'énergie). Its aim is to find an opportunity, in an informal academic framework, to discuss long-term energy scenarios with a view to making common progress on major energy policy issues.

Funding projects by selling CO₂ emission rights —

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In response to the threat of climate change, the development of a low carbon economy is a universally recognised priority. However, it is still necessary to find the least costly ways of reducing greenhouse gas emissions, carbon dioxide in particular. Emissions rights trading provides one way of optimizing the costs of reducing domestic and international levels. This appearance of a collective good on the market is made possible by the creation of a physical constraint (an emissions cap measured in CO₂ equivalent) whose dual nature results in market costs: this is what is known in the United States as "cap and trade".

The Kyoto Protocol (KP) imposes emission limits on participating developed countries that must be reached before 2012; in particular, this includes the European Union and therefore France. At European level, a system of emission permits has been set up for

the major emission producing industries. On this basis, a market for these permits operates and this determines a price.

The permit market is a market for a product: the tonne of carbon dioxide equivalent, which takes account of the six greenhouse gases

(GHGs) whose emissions are limited or permitted. The market contains final sellers (those who emit less than their limit) and final buyers (those who emit more than their limit) as well as intermediaries, investors and speculators. The result is a price per tonne of

CO₂ which varies between 10 and 30 Euros with an average value of roughly 15 Euros.

The effect of GHG emissions on the global environment means the concept can be extended to emerging countries on which the KP imposes no limits. The principle is to encourage actors in the developed world to invest in an emerging country in exchange for emissions reduction units or "certificates": this is the CDM or the Clean Development Mechanism. A similar mechanism has been set up for former Eastern Bloc countries.

Figure 1 shows the outline of a CDM project: as what

Outline of a CDM project

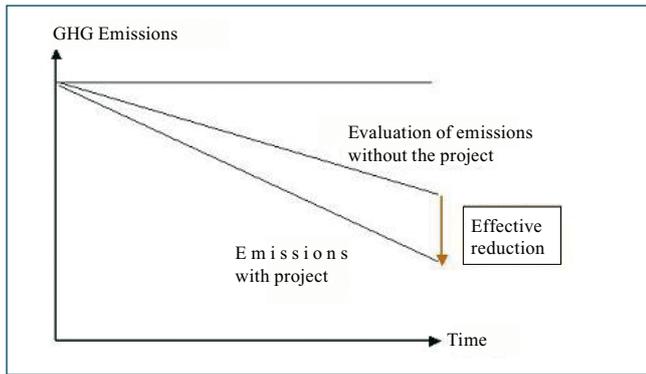


Figure 1

is involved is a project not something that exists, it is necessary to define a baseline case (change in emission levels without the project) to which the future situation (emissions with the project) can be compared. The certificates are effective reductions over the period of application of the KP, i.e. 2008/2012 with possibilities before and after. It is important to note that the certificates do not refer to the initial situation but to the baseline.

A Clean Development Mechanism (CDM) project therefore involves a relatively complex process. It is run by a subsidiary of the United Nations (CDM Executive Board / EB). Figure 2 summarizes the arrangement in which the key document is the "Project Design Document" or PDD. CDM

projects relate to many sectors of activity: waste treatment (methane / CH₄), industries that produce emissions (cement, steel etc.), energy, transportation and reforestation. The ratio between the value of the certificates and the project investment varies according to the sector (see Table 1).

The transactions attained a considerable value by 2005; the permit market accounted for 330 million tonnes of CO₂ at a total cost of \$US 8,300 million, i.e. a price of \$25 per tonne, and the certificate market accounted for 375 million tonnes of CO₂ at a total cost of \$US 2,700, i.e. a price of \$7.2 per tonne. The difference between the price of permits and certificates is explained structurally by the degree of uncertainty and in this particular situation by the

very high cost or permits in Europe in 2005 (which was "corrected" by the price crisis which hit them in April 2006).

In concrete terms, the initial major sellers on the CDM market were China, India and Latin America. The final buyers were those developed countries with difficulties meeting their objectives under Kyoto (such as Japan, the Netherlands, the United Kingdom, etc.) and the private sector either through obligation or desire (for example to make an activity "carbon neutral"). As on all markets, the intermediaries play a key role: among them one can mention the World Bank, the majority of regional development banks, Japanese trading companies, etc.

The CDM system has major advantages: it is more acceptable than a tax, it helps

The CDM project design document

- key document: CDM-PDD
- existing or new methodology (for the "baseline" and "follow-up")
- third-party validation
- registration by the CDM-EB
- issuing of certificates
- third-party verification and certification.

Figure 2

reduce GHG emissions, it creates a source of income for developing countries and it assists technology transfer. It has the disadvantage that the complexity of the process means it has a significant cost. Its future is directly related to the follow up that will be given to the Kyoto Protocol after 2012: what consensus will be found between the stance of the poorest countries, emerging countries and developed countries which include the United States, the European Union and Japan? ■

Ratio between CDM and investment

	Waste	Industry and energy	Transport
Cost	Low	High	Very high
Certificates	High	Hygh	Low
Ratio between CDM and Investment	from 120 to 60%	from 15 to 30%	from 1 to 4%

Table 1

Atmospheric pollution and sustainable transport in Ho Chi Minh City

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The marked economic growth of Ho Chi Minh City (the region's GDP rose by an average of 9.5% per year in the 1990s), accompanied by a combination both urban and industrial development has led to uncontrolled transport growth, the saturation of urban space and an increase in air pollution. Consequently, the People's Committee (the City Council) has requested expertise from France with a view to implementing a sustainable transport strategy for the city.

Rising household living standards in Ho Chi Minh City have facilitated the purchase of motorcycles. Between 1992 and 2002, entry-level

prices were divided by a factor of 2.5 and the size of the motorcycle fleet tripled (2.5 million registered motorcycles in 2002). At the same time, the number of private cars and lorries has increased by a factor of three. However, the number of public transport seats remained unchanged.

This state of affairs is explained by the fact that at the end of the 1990s, the motorcycle accounted for more than 80% of motorized trips during the evening rush hour. Public transport (essentially buses and lampros) accounted for only 2 to 3% of urban traffic, although it was dominant until the mid-1980s.

The uncontrolled increase in transport, which has led to the saturation of urban space, an increase in air pollution beyond maximum recommended levels and an increase in the number of accidents, is likely to jeopardize the city's economic and social development. This has prompted the municipal authorities to call on ADEME (Agence de l'environnement et de la maîtrise de l'énergie) to help it develop strategies and the French consultancy firm Explicit was asked to provide technical assistance on sustainable transport in the framework of what is known as an ETAP process. The ETAP (Energy, Transport Air and Pollution) programme was conducted in three phases between 1999 and 2004. During the first (diagnostic) phase, ETAP mapping showed that transport was responsible for more pollutant emissions than either industry and housing, leading to a concentration of nitrogen oxides in the city centre that exceeded acceptable limits (WHO standards).

These initial findings highlighted the need to improve

the quality of transport supply in order to improve the urban environment.

The second stage, the forward study, highlighted two development options. The first of these, known as S1 or the Trend Scenario, involved the continuation of the present transportation policy with the principal (utopian) aim of achieving congestion-free traffic essentially with personal modes. In this case, the market share of public transport would barely exceed the 5% level in 2010 and approach 10% in 2020. A second development option, known as S2 or the Active Scenario, aimed to restrict the use of motorcycles and private cars and develop exclusive right-of-way public transport. In this case the market share of public transport would exceed 15% in 2010 and 30% in 2020.

The forward study has shown that the public transport option obtains better results than any other as far as improving air quality is concerned. With regard to air pollution and the health

risk to the population, Scenario S2 could reduce the population's exposure to certain atmospheric pollutants by a factor of ten. The urban planning option (exclusive right-of-way public transport) was more effective from an environmental standpoint than an approach based solely on vehicle emissions standards.

As a result of this study, the Ho Chi Minh City Transport Department and Environment Department have signed a memorandum concerning the implementation of a sustainable transport policy.

In practical terms, during the third phase of the ETAP programme, an interdepartmental working group on improving public transport was set up, bringing together not only the Departments of Transport and the Environment but also those of Education and Health and the powerful Department of Planning and Investment as well as representatives of civil society.

This permanent working group introduced practical solutions such as school

minibuses, a fixed fare of 1000 VND per trip (0.05 euros) and monthly and weekly travel cards. Explicit and BR were called in to assist the Transport Authority, in particular by specifying and developing a traffic management and optimization tool for urban transport. This software (UTAM) provides a day-by day picture of traffic and a means of optimizing the bus routes managed by more than thirty cooperatives, a municipal company and a private operator (Saigon Star).

The first results from the municipal public transport management centre show that in 2005-2006 public transport's market share was approximately 6% (compared with 2 to 3% previously) with the total number of passengers rising from 28 million in 2002 to 200 million in 2005. On the basis of this trend we can expect its market share to grow to between 10 and 15% by 2010. ■



Banner indicated the creation of a bus lane, Ho Chi Minh city

Fouzi Benkheifja - D.R.

News on cooperation

Lyon-Ouagadougou cooperation agreement

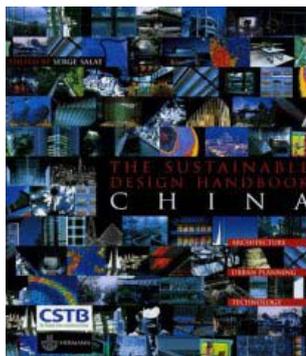
On 2 October 2006, a cooperation agreement for the period 2007-2009 was signed between the City Councils of Lyon and Ouagadougou. This will strengthen cooperation between the two cities in three priority areas: municipal policing, street lighting and urban park management. A cooperation agreement was also signed with le Grand Lyon, which

brings together 55 municipalities. This agreement relates in particular to cleansing, waste collection and management, the computerized management of services, transport and traffic lights, the vehicle fleet and workshops. Last, the Agence Française de Développement and le Grand Lyon are considering operational collaboration in connection with a

programme to upgrade the outlying districts of Ouagadougou for which le Grand Lyon will be asked to assist in project management,

in *La Lettre AIMF* dated Nov. 20, 2006 – www.aimf.asso.org

Publications

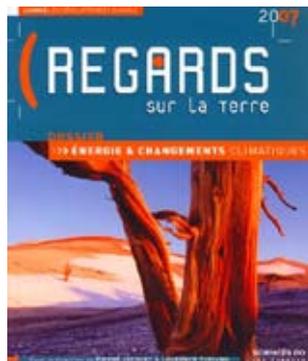


The sustainable Design Handbook China

CSTB - 400 p., 2006.

Price: 75 Euros

Published at the request of the Chinese Ministry of Construction, this handbook has been published firstly in Chinese and English and deals with the application of sustainable development to Chinese cities. The concept was to transfer the French approach to sustainable construction to the Chinese market, making use of French and European know-how and products. The town planning architect Serge Salat, who was the guide's Editor-in-Chief, clearly emphasizes this: "What we have tried to do above all is to produce a field guide. It is explicitly targeted at project leaders and is intended to provide an irreplaceable aid to decision-making in a context that could hardly be more complex". This guide identifies 12 major issues and proposes 50 design strategies.



Regards sur la Terre

L'annuel du développement durable - 2007

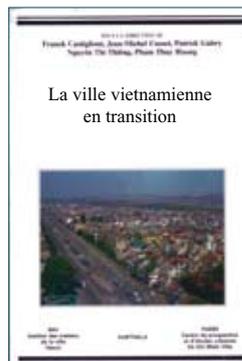
Under the scientific direction of Pierre Jacquet (AFD) and Laurence Tubiana (IDDRI and Sciences Po). Presses de Sciences Po, 302 p., 2006.

www.afd.fr

Price: 25 Euros

This publication provides a critical, scientific and documented interpretation of the main events of the year in the field of sustainable development and the issues that fuel international deliberations and discussions. Focusing on planetary issues, it is distinguished by its global approach, its analytical perspective and its educational approach.

This annual publication analyzes the events of the previous year and their implications for the developing world, and in addition provides a list of important meetings in the coming year.



La ville vietnamienne en transition

Castiglioni, Franck (dir.) Cusset, Jean-Michel (dir.), Gubry, Patrick (dir.), N'guyên, Thi Thiêng and Pham, Thuy Huong. Karthala, IMV, PADDI, 314 p., 2006

www.karthala.com

Price: 29 Euros

This publication presents research results on the general topic of Vietnamese cities in transition. The research in question deals mainly with Hanoi and Ho Chi Minh City, covering topics such as the actors (institutions, civil society, international experts) and processes of transition, intra-urban mobility, urban renewal, water management, or rehousing the population of squatter settlements. This research was conducted in the framework of the Urban Development Research Programme (PRUD) funded by the Ministry of Foreign Affairs and led by GEMDEV and ISTED (2001 - 2004).

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