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**“Cleantech”, economic dynamics and urban developments:
the effects of the greenhouse effect**

The greenhouse effect and fossil fuels are becoming increasingly important issues all around the world, even if public awareness of them may be greater in certain countries, particularly in Western Europe. And we often hear it said that the recognition of these planetary issues could profoundly change the way we use land, how we produce, our lifestyles and international relations.

It is clear that the importance of these questions is going to produce a certain number of changes. However, my hypothesis is that the changes that take place will not be those most frequently announced or called for. There are many who predict or fight for radical changes of lifestyle in the developed countries, drastic restrictions in various types of consumption (especially those that are energy-intensive), a reduction in the mobility of people and goods, new ways of organizing production, a return to very dense urban forms, etc.

The hypothesis that I find most plausible today is that societies in the developed countries are in the process of selecting the environmental issues that are most likely to support new forms of market production, and that these will undoubtedly be a component of economic dynamics in future years.

In fact, the argument I wish to develop is close to the one I put forward some 15 years ago, when I criticized the prophets who claimed that the new information and communication technologies would eradicate distance and dissolve cities. I showed that, in fact, IT would actually accentuate the urban development I’ve come to refer to as “metropolitanization”¹. The fundamental reasons for this were that the concentration of human and material wealth in and around the big cities is what drives the essential dynamics of contemporary society, by means of the market economy and the division of labour. So IT should not be analyzed as alien objects that were going to transform society, but as a consequence and instruments of that society’s dominant processes and actors.

In fact, IT has contributed powerfully to globalization and metropolitanization, to expanding market relations to new spheres, and to the development of an economy that is sometimes called “cognitive capitalism”, because it has made information and knowledge about merchandise fundamental to the evolution of contemporary society. This does not mean that these technologies have not had extensive social affects of all kinds, but that these have been primarily determined by the pre-existing and “persistent” rationales of our modern societies (hence with certain differences from one country to another). So we have not tipped into what some people call a “post-modern” society, but in fact modernity has increased, radicalized.²

The hypothesis I am developing today about the impact of environmental questions on society is of a similar order. It seems to me that although global warming as a result of greenhouse gas emissions is a genuine reality, it is also a “social construct”: by this I mean that the way in

¹ Ascher François, *Métapolis, ou l’avenir des villes*, Éditions Odile Jacob, 1995

² Ascher François, *La société hypermoderne. Ces événements nous dépassent, feignons d’en être les organisateurs*, [Hypermodern society. We’re in way over our heads: why not pretend we’re in command?], Éditions de l’Aube, 2005.

which society now poses the problem of environmental issues, and the methods suggested for dealing with them, depend on complex interaction processes.

However — and this is a secondary and a fairly safe hypothesis — it is very likely that economic factors will dominate the human factors. In other words, we are in the process of witnessing the “ social construct of the environment market”, a construction in which government regulation has begun to play a key role, from the local to the national to the supranational. The paradox — undoubtedly a bitter pill for some ecologists to swallow — is that the very people they consider responsible for the greenhouse effect are the ones now appropriating it in order to revitalize and extend their own activity base. However, this also means that the way in which environmental questions are perceived and dealt with will be increasingly influenced by this context. The place taken by the economics of fighting the greenhouse effect could thus modify public policy, its objectives, and the way it operates and is assessed.

Of course, it cannot be ruled out that catastrophic events on a global scale may one day result in the disappearance of modern societies, just as a giant meteorite is thought to have wiped out the dinosaurs. Capitalists are by no means dinosaurs and they seem quite able, so far, to profit from the greenhouse effect.

Today, therefore, the conviction of ecologists and then of a certain number of scientists, supported by a few climatic events, has largely persuaded public opinion and a good number of politicians. It is driving a variety of public regulations on different scales, and is in the process of making cleantech economics the second driving force of a type of capitalism that can increasingly be described as “cognitive and environmental”.

Another hypothesis, which results from the preceding, is that the dynamics of metropolitanization and metapolization, which are strongly linked to economic dynamics, have little chance of being curbed by the measures taken to fight global warming; they could even be strengthened. By metropolitanization is meant the concentration of human and material resources in, near, and around the largest agglomerations. By metapolization is meant that new types of cities are formed, stretched out, discontinuous, heterogeneous, and polynuclear. Large cities have in fact absorbed medium cities, small cities and rural areas into their zone of daily functioning, forming a new type of urban space.

Daily life, like the economy, will therefore continue to be increasingly organized on the scale of vast urban regions with motley spatial qualities, varied densities, and multipolarized, etc. However, a few tendencies could be asserted a little further, for example with the formation of "clumps" in periurban and rurban areas, the multiplication of intermediate centers, the accentuation of gentrification of the central areas of metropolises, and the development of intermodality in urban travel. But the dominant logic of metropolitanization and metapolization should no longer radically call lifestyles and production methods into question; therefore again contradicting what the same type of technology analysts predicted for us, when they announced that the development of information technologies would lead to the end of most travel and the implosion of cities!

I. The social construct of the environmental market

One can qualify as the " social construct of the environmental market" this process that progressively transforms the concerns and struggles of a certain number of actors into a recognized stake for all actors and that in fact creates a possible field for a specific saleable output.

Originally, environmental concerns were led by groups concerned with the preservation of a natural world that modern societies were transforming. It was especially a matter of defending endangered animal species, or even "primitive" societies progressively destroyed by contact

with modern societies. The movement was reactionary in the literal sense, i.e., it attempted to oppose the spread of modernity into certain areas.

Increasingly, these concerns have added new approaches. First, movements have developed that paid more attention to the defense of cultural specificities, combining them with claiming protection for local cultural patrimonies, or even primary forms of resistance to economic integration of every-greater territories. The slogan "to live and work in one's land" illustrates this form of politicization.

Secondly, all sorts of social movements in defense of the environment against the creation of new infrastructures or facilities have been developed, frequently bringing together the occupants of the areas bordering these facilities with environmentalists with less immediate motivations. These movements have given a great deal of attention to the idea of nuisance, be it atmospheric, acoustic or visual.

1. A first mutation: from defensive environmentalism to the issue of sustainable development

A first mutation occurred when the Brundtland report was released, with the invention of the concept of sustainable development. The idea behind the concept was to transition from a defensive environmentalism stance to a proactive environmentalism approach. Instead of opposing progress and promoting "zero growth", the idea was to reconcile economic development, social justice, protection of natural and cultural patrimonies and controlled management of non-renewable resources. This compromise between the requirements of performance, justice and ethics became indispensable both in developed countries where defense of the right to work, for example, could appear to contradict strict environmental protection, and in impoverished countries, to whom development should not be denied in the name of defending various types of natural and cultural patrimonies.

In this new context, new forms of politicization of the environmental field are apparent. In certain countries, the environmental question has partially taken the place of the social question in the denunciation of capitalism. A fraction of the extreme left has thus been converted to environmentalism, endeavoring to show that environmental problems were directly linked to the profit motive and the activity of multinationals. Even so, it sometimes also attacked environmental injustices that can directly affect socially disfavored categories. In other cases, environmental dynamics have led to questioning forms of representative democracy and to criticizing the habit of deferring to experts to define general or common interests. We are thus led to a resurgence of advocacy planning, experiments in direct democracy and so-called participative approaches.

This second period of environmental concern also saw the elaboration of new reflections in moral and political philosophy. The concept of "ethics of responsibility" —developed by Hans Jonas — thus experienced a significant success. It notably asserts that humans must remember that contemporary technology gives their actions increasingly far-reaching impacts in time and space, and thus they must consider their responsibility with regard to people who are far-removed from them, such as future generations. In parallel, the concept of risk has taken on an increasing importance. A typically modern concept, it is particularly supported by the development of sciences and technologies that replace the responsibility of the gods and destiny by the requirement for understanding and knowledge, and which transform danger into risk that one must endeavor to calculate in order to control it.

The ethics of responsibility and risk have thus led to the precautionary principle that national and international laws have attempted to codify, not without difficulties.

The context was given more support when a series of catastrophes crossed local borders and affected vast areas, even a good part of the planet (Chernobyl, oil spills, mad cow disease,

notably). The precautionary principle is not a stranger, in some cases, to an illusory scientific ambition of zero risk, since it postulates that unless an action can be proven harmless, it should be prohibited. Now, who can say that the development of sciences and technologies will not result in a new risk in the future? This noted, the formula often retained is that of "measures proportionate to potential threats targeted by this action, which finally put the decision in the hands of policy-makers..."

As for environmental struggles, they are supported by various organizations in diverse countries, sometimes powerful international organizations, somewhat broadly covering the range of traditional politics. We are thus sometimes led to alliances or convergences between organizations of a rather revolutionary nature and the Nimby (Not In My Backyard) reaction of local inhabitants. Environmental concerns are increasingly echoed in a context of economic and social change that has fed various forms of fear of "progress".

In western nations, environmental movements have sometimes tried to participate in the national political life, with mitigated and irregular success. In Germany, for example, they played a significant role by constituting a red-green political alliance for a number of years. In return, in France, significant electoral results were obtained only in some local elections, even if they participated in the organization of a government of the left.

Decentralization has also favored local struggles in numerous countries, against all types of nuisances, and has constituted a support for a certain type of environmental slogans.

Environmental concerns have therefore progressed a great deal overall throughout this second period, but they remained heterogeneous, more or less bringing together "defenders of nature", "local inhabitants" wishing to protect their immediate environment, and revolutionary or alternative environmentalists, wishing to promote another type of society. But the questions of the greenhouse effect, and secondarily of energy costs, are profoundly changing this environmental landscape.

2. A second mutation: from sustainable development to climate challenges

With the greenhouse effect, a second mutation is in the process of upsetting relationships in environmental matters. Global warming, which becomes more probable every day and which seems largely attributable to greenhouse gas emissions, certainly assures the triumph of environmental concerns. But at the same time, it provokes considerable changes in the manner of approaching environmental questions.

First of all, with the possible consequences of the greenhouse effect, the environmental question is joined to concern about climate, which is in a way one of the foundations of the relationship of humans with their environment. This being the case, it finds a new strength and resonates in social groups that were previously somewhat uninvolved. This is because the current weather, the past weather, and, especially, the future weather are issues that industrialization and urbanization have not done away with, although they have been transformed by them. The feeling of undergoing climatic crises is an ancient one, and various events often cause it to recur. In the 1950s and 1960s, the atomic bomb and nuclear tests, which provoked great fear, were often believed to be responsible for "the end of seasons". This new "meteorological" dimension of the environmental question is very important: it disseminates concrete representations of environmental challenges, and considerably broadens the social base on which environmental fears and claims can rest. Thus, it contributes to legitimizing the actions of public authorities in this field. As a result, local collectivities, states and European and international organizations increasingly legislate these questions and impose all sorts of standards. Even political leaders who otherwise defend theses promoting "less government" attach themselves to this movement and promise to actively pass legislation on this matter if they are elected.

The specific question of energy resources has now been added to this dynamic of public opinion and authority linked to the increasing credibility of global warming due to greenhouse gas emissions. In fact, not only does the use of fossil resources emit a great deal of greenhouse gas, their price also has a tendency to increase. This is probably due to objective reasons, such as the depletion of certain deposits, but it is also clear that the countries and actors producing these resources have a tendency to dramatize the situation and to control supply so as to raise prices. Thus, new attitudes with regard to energy are slowly created, considering it a resource to be used as sparingly as possible, not only because it participates in climate warming, but also because it is limited and expensive.

Is this situation, and the awareness that it produces, capable of profoundly changing contemporary societal dynamics? This is what some militant environmentalists believe, who call for changes or even complete ruptures, not only from the point of view of the use of energy resources, but also in the functioning of all of society. The most radical of these take up the catch phrase "zero growth", which had some success in the 1970s, in a revolutionary manner, and promote "antigrowth" policies. However, it is highly probable that the issue of the greenhouse effect and the apparently increasing rarity or price of energy resources, far from calling the dynamics of modernization into question, are even more likely to stimulate it, to make it bounce back, if only while changing certain concrete modalities.

3. New environmental paradigms and changes in the systems of actors

First of all, in an apparently paradoxical manner, the greenhouse effect powerfully participates in the process of modernization in that it announces the end of nature in a certain way. By showing that the whole Earth today is entirely dependent on human intervention, from the most inaccessible areas of Amazonia to the confines of the Gobi desert, it certainly takes away the basis for the dualist representation of the world that separates culture and nature. The greenhouse effect concept completely humanizes the planet by making it the responsibility of humans and their societies.

Clearly, this will have profound consequences on the manner in which environmental issues will be construed. At first glance, it is only obviously a question of fighting greenhouse gas emission and protecting against their climatic effects. But potentially, advances in the understanding of climate, such as the development of active instruments in this field, will give a new impetus to this somewhat anthropological ambition to control the climate, even to harness it. Previously, it was necessary to attract the good graces of the gods to obtain rain or sun. But why should humans and their societies accept climate inequalities, injustices or unknowns tomorrow if the fight against the greenhouse effect has given them the ambition and the means to act on elements and climates?

The greenhouse effect is also clearly a powerful factor in "globalization". In fact, it renders diverse activities increasingly interdependent on the global scale, inducing cross-border cooperation and conflict, regulations and public and private policies. The existence of these common measures contributes to various forms of cultural, legal and, obviously, economic homogenization.

But, more important still is the fact that these public regulations contribute decisively to creating new markets linked to the fight against the greenhouse effect and to saving energy. Indeed, up until now, only a small number of economic sectors were positively interested by environmental questions. For the majority of economic actors, environmental regulations were factors that increased costs and did not open possibilities for increasing markets or profit margins, on the contrary. As a result, consumers, except for the most militant, did not consider the environmental qualities of products and services.

The increasingly imperative measures taken by various public authorities are in the process of radically changing this context. In fact, from the moment when devices limiting greenhouse gas

emissions and energy consumption became mandatory, they ipso facto became a market. Concretely, this means that it can become profitable to invest in environmentally correct techniques and equipment. Thus the automobile industry is progressively changing its position with regard to environmental regulations. Up to now, it believed that these regulations, by subjecting the use of automobiles to all sorts of restrictions and constraints, increased their costs and hindered the development of markets. Today, the new antipollution standards will progressively make the use of cleaner vehicles mandatory, promoting a renewal of automobile resources and creating a handicap for competitors who are incapable of adapting to these new regulations.

Likewise, oil companies invest in new energy sources, particularly in wind power. Finally, it is probable that the nuclear industry will find new arguments in the greenhouse effect for renewing the construction of nuclear power plants.

In this context, the current situation in the United States is somewhat particular since their government has not signed the Kyoto agreement and since the Republican majority may have a hard time convincing its electorate — who are large consumers of four-wheel drive vehicles and not very, or at all, favorable to international governmental organizations — of the necessity of these environmental measures. This is why President Bush formulated the challenge in a somewhat original manner in his State of the Union address in 2006. Indeed, he explained to the American people that the enemies of the United States today control a majority of the petroleum resources, and that as a consequence, since there was a serious threat to national independence and prosperity, saving energy should be a patriotic act, and thus science and technology should mobilize to accomplish this, becoming a sort of new frontier. For this purpose, the President announced new measures for focusing public and private efforts toward energy and environmental research and for improving teaching of science, mathematics and physics at all scholarly levels. In other words, the President, in his way, announced the mobilization of public authorities in the great battle of "cognitive and environmental capitalism". He took this approach in consideration of his electorate. At the same time, evangelists begin to support this new interest in the environment; indeed, they have found true environmental recommendations in holy writ. Moreover, California and several other states of the union, who have already shown a certain avant-gardism in the matter, are developing new regulations that could constitute test legislation for later generalization.

II. The consequences of the emergence of an environmental market

The emergence of an environmental market, such as is currently underway, will have diverse repercussions, both from the general point of view as well as with regard to the dynamics and forms of metropolitanization.

1. First of all, it should be noted that the systems of actors involved in environmental challenges will evolve considerably.

The predominantly militant, defensive or argumentative approach of various environmental movements will progressively give way, on the one hand, to public authorities on various territorial scales, and on the other hand, to companies producing or using goods and services reducing greenhouse gas emission.

In the case of public authorities, complementarities will be established between local authorities who, for example, will limit the use of the most polluting automobiles in certain areas, promote "alternative" transportation, bringing about the production of a "sustainable" urbanism, and national or international authorities, who will establish new compulsory standards and who may launch policies for assisting the development of environmental industries.

Numerous industrial operators, who environmentalist considered "enemies" up until now will venture into new environmental markets, upsetting the roles of the actors. Thus, the oil or electricity industries, who are currently mobilizing the production of wind power, will find the support of environmentalists, while the local inhabitants who were the traditional allies of these environmentalists will try to impede the creation in their area of these noisy windmills that are more than one hundred meters high.

Meanwhile, the most anti-capitalist environmentalists are obliged to abandon the issue of sustainable development since it no longer calls the economic system into question; they then invest in an "anti-growth" approach that reduces their audience to very politically-engaged milieus, notably in perspectives called "alter-globalists".

Finally, since the traditional sphere is in nearly complete agreement regarding the questions of the greenhouse effect and energy conservation, the environmentalist parties will experience rapid dissolution of their electorate; some will join the established parties, others will rally to alternative radical movements.

2. The modalities of the social construct of the environmental market will also have an important effect on the manner in which environmental questions will be selected or prioritized, and on the modalities for resolving them that will be proposed by public authorities as well as economic actors. These actors will clearly be forced to dissociate environmental questions from the question of the production system itself as much as possible.

In the first place, major economic actors have a tendency to prioritize the question of the greenhouse effect and power shortage among environmental questions. Electric companies, nuclear power plant producers, and even some oil industries have already launched large advertising campaigns on these subjects and have, inarguably, contributed to convincing public opinion and authorities of the threats to the planet, such as our energy supplies.

In the second place, the predominant motive imposed in the next few years will thus most probably be to attempt to reduce greenhouse gas emissions and energy consumption, everything else being equal. Now, enormous progress is possible in this matter, and the results have a chance to be much quicker than those of policies that attempt to modify production methods, ways of developing cities, and ways of traveling or lifestyles³.

This does not mean that the new environmental context will not have effects at these different levels, but various studies have shown that this environmental capitalist dynamic will probably be more politically and culturally "realistic", and more effective for developing technology and attracting investment.

Furthermore, other pollution will probably be considered less and the question of preserving natural and cultural patrimony will be partially dissociated from the question of the greenhouse effect and energy conservation. However, there is no reason in principle for these values not to give rise to new merchandise later and therefore also be supported by economic dynamics.

3. The development of the environmental economy will have diverse economic, social and spatial consequences.

³ Jean-Pierre Orfeuil thus shows that on average a new high-performance urban street car line producing a greater than average modal shift from the car to the street car will reduce carbon emission by 3000 tons annually. The reduction of 2 g of carbon emission per liter of gasoline by the introduction of two million new cars each year generates an annual saving of 60,000 tons. This does not mean that street cars should not be built, but the argument of the greenhouse effect will not be determinant in this type of urban policy choice.

The new eco-friendly goods and services will induce additional costs in any event. The new environmental standards will probably thus penalize the consumptions that are most elastic to price. In return, the least elastic consumptions – more "indispensable" – will be more resistant and their overall turnover should even increase.

Mobility is largely inelastic in our metropolitan society. Travel has become indispensable in order to have broad access to employment markets and to have access to the majority of facilities, to benefit from services, and to have choices in the various spheres of activities of daily life. A good number of transportation services have thus proven somewhat inelastic to price. This is largely the case of the automobile. Recent history in the price of energy shows that automobile use in all cases is not very elastic to price. As a result, there are not many real alternatives, economical and not too demanding in terms of time and comfort, for a good part of the urban population who live and work in less dense urban or periurban zones, and who are supplied by superstores. Urban forms and lifestyles have rendered the use of the automobile indispensable for a large part of the population. Some authors have spoken about this dependence on the automobile. Various studies have shown that for most households, except those who live and work in city centers, even large investments in public transportation would have only limited effects on modal shift, convenience, comfort and price being otherwise equal⁴.

The choice of individual habitat also seems to be somewhat poorly elastic to price. Increases in transportation costs could even, by revaluing central locations near a certain number of metropolitan facilities, increase the cost of real estate even further in the central zones of agglomerations (taken by the leisure classes who are the greatest users of this center) and push the populations that have only a low use of the center still further toward the urban periphery. In return, in the medium term this could generate individual forms of habitation that consume less energy and emit fewer greenhouse gases. From this point of view, one can imagine that subdivisions that are energy self-sufficient or use collective fuel cells could be somewhat successful. Likewise, new transportation services, such as shuttles to points of access to public transportation, or for bringing children to daycare and school could also be successful in periurban zones. However, it is clear that, since urban growth is limited in countries that have been industrialized and urbanized for a long time, these new urban forms risk having only limited and relatively long-term effects. New construction represents one percent of existing housing stocks. Acting on ten percent of this new construction would still be very successful. But this only represents a thousandth of the cities already existing. This being noted, small streams become great rivers and no effort would be negligible.

Since the use of the automobile is largely inelastic to price, it is obviously the most modest social categories that risk being the most penalized by the additional expense of environmental provisions. Furthermore, in the developed countries of Western Europe, poor populations most often live on the periphery while the upper middle classes are often engaged in a fairly significant return to central zones of agglomerations (the process called gentrification) where they find employment and the facilities that they frequent most assiduously. The inelasticity of automobile use could, in return, have consequences on the types of vehicles used by these social classes affected by the increase in price due to environmental requirements. This could therefore have consequences on the definition of the performances and equipment of low-end and midprice automobiles, which would have to sacrifice other attributes or achieve very high increases in productivity.

⁴ See for example Massot Marie-Hélène, Armoogum Jimmy, Hivert Laurent, *Pari 21 : étude de faisabilité d'un système de transport radicalement différent pour la zone dense francilienne (Pari 21: study of the feasibility of a radically different transportation system for the dense Île-de-France zone)* INRETS [French National Institute for Transportation and Safety Research] Report ISSN 0768-9756 National Institute for Transportation and Safety Research Report, 2002.

The impact of the increase in energy cost on urban personal transportation therefore could have implications that are social and industrial as well as spatial. Since the real estate economy has shown us that the increase in costs of new urbanization engenders increases in prices in areas already urbanized, it is probable that the increase in the suburban cost of living will mechanically raise the price of residential locations more economic in transportation. Areas well-served by public transportation and where travel methods are convenient will therefore experience price increases. The development of the environmental economy therefore has every chance of also feeding a gentrification process that is already well underway in large metropolises. A sort of hyper-residentialization of city centers could also lead to a "de-downtownification" of certain central areas, like Vancouver has already experienced⁵.

This being noted, the development of environmental policies and an environmental economy will also have consequences on the forms of suburban urbanization. The increase in transportation costs will certainly promote intermodality, notably train-car, the development of all sorts of public or shared transportation and the bicycle in the dense parts of cities, and the multiplication of microcenters in periurban and rurban habitation zones. We will thus be led to a sort of "precipitation" of urban sprawl and the formation of clumps in the less dense urban fabric.

With regard to the question of the possible impact of the increase in transportation costs on the methods of production organization, it should be emphasized that this effect would be somewhat limited. Certainly, the current production system is organized on the basis of inexpensive transportation and it is probable that increasing transportation costs would promote a certain increase in the number of logistical hubs and platforms rather than their growth, like what is observed today. But this effect risks being limited, since currently transportation costs represent a relatively small, and decreasing, part of production costs. The consequences will be greater for low added value products than for high value added products. The increase in transportation costs should therefore not curb globalization much, nor slow down metropolitanization, inasmuch as this is driven today more by developments in service and high added value activities than in heavy industrial productions.

In conclusion to these various reflections on the development of an environmental economy, one can emphasize that the challenges of the greenhouse effect and fossil energy resources have no reason in themselves to modify the dynamics of modernization that have marked western societies for several centuries, and therefore to call into question capitalist production systems or the dynamics of metropolitanization. It is a mistake to believe that the environmental question will completely disrupt our societies in the short or medium term. Likewise, it was a mistake, as is proven today, to think that new information and communication technologies would lead to either an urban implosion by confining city-dwellers in a hyper-wired residence, or a dispersion of populations into every space and the end of metropolitanization due to working and obtaining services and leisure entertainment, etc., online. The greenhouse effect, like communication technologies, is a social production. It therefore participates in the dominant dynamics of the society. They are manipulated by the dominant actors. Of course, in the long run, they may possibly serve as supports for societal mutations. But we are not there yet. In the short and medium term, the greenhouse effect appears more like an opportunity for the capitalist economy to proceed to a vast purge, rendering non-environmentally correct production equipment, goods and services obsolete, eliminating companies that are not capable of adapting to this new context and carrying out the necessary research and investments, and finding new usage values for merchandise production. It is also probable that the development of an environmental economy and the primacy of the question of greenhouse gas emission will perceptibly influence both public policy objectives and their modalities of action. Researching effectiveness in terms of carbon emissions will provoke new areas for action, modify priorities,

⁵ See Boddy Trevor, "L'ultime centre-ville ?" (The ultimate city center?) p. 67 – 70 in *Constructif*, No. 16, February 2007, FFB publisher.

change evaluation criteria, and take an increasing place in regard to monetary measurements (environmental merchandise with various types of tolls). Local and larger-scale political coalitions will also be influenced. Wind power has already separated environmentalists from local residences and brought them closer to EDF [Électricité de France]. International relations will not escape this new environmental economy. Highly industrialized countries and countries where public opinion pressure is strong with regard to environmental matters will probably be led to set environmental standards to try to improve their competitive position within the context of globalization. Europe may be led to use this argument in WTO negotiations, with regard to the United States and as well as China or India. As a result, the poorest countries will clearly have more difficulty integrating these new environmental requirements. Moreover, the development of "biofuel" cultivation could have serious consequences, not only because it consumes a lot of water, but also because it decreases the surface area dedicated to food production and raises the price of necessary food products.