

Overview of Documents on Sustainable Development

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A **journey** of a thousand leagues begins
with a single step...

Lao Tseu, Tao Toe King, poem LXIV

INTRODUCTION

There is no doubt that the road to sustainable development will be a very long one. First, because the very concept of sustainable development, whether in an urban environment or elsewhere, is still largely undefined. And then because the radical changes that it already requires, in terms of resource and waste management, land-use management or the democratization of decision-making, require “revolutions” that cannot take place without clashing with all kinds of interests.

The road will thus be very long and steep. Nevertheless, the way has already been at least partially signposted by virtue of past experience. Thus, the experience we have acquired in terms of environmental assessment, now enables us to recognize the importance of a more integrated and dynamic approach to the environment, while acknowledging that the dimensions of the new approach to be promoted still remain to be determined. There is also general agreement now on the spirit, if not the letter, of the broad

Depending on the proclivities of the translator or researcher, the English term “sustainable development” has been translated into French as “developpement durable, viable, soutenable” or “vivable”. We will not go into here all the subtleties involved in each term and the original French text refers simply to “developpement durable”, as this expression is the one

general principles of sustainable development, a term coined and promoted by the World Commission on Environment and Development (WCED). We thus recognize that sustainable development must:

- a) fulfil the needs of present and future generations;
- b) achieve equity and social justice;
- c) maintain cultural diversity and integrity;
- d) maintain ecological integrity.

While it is true that it remains extremely difficult to determine precisely the full implications of these principles, they are nonetheless important signposts, if only for the supports and obstacles they enable us to identify. In fact, in terms of supports, these four principles all highlight the importance of a greater harmony between mankind² and nature, even in the “artificialized” environments of our cities. Sustainable development thus involves new attention to community relationships, respect for the human aspects of projects as well as greater attention to the rhythms of nature, especially in terms of resources, renewable or otherwise (optimal resource use, respect for their regenerative capacity, the extent to which waste can be absorbed, etc.).

An analysis of these same principles nevertheless also reveals that sustainable development proposes objectives that are contradictory or, at the very least, not very compatible: economic development and environmental

most commonly used.

²In this paper the masculine form is used for the sake of stylistic felicity, with the sole aim of facilitating the reading of the text.

concerns, individual satisfaction and the quest for the common good, respect for local differences and an integrated approach, government participation and the assumption of responsibility by elected politicians and government officials, quick solutions to current problems and concern for the long term impact, etc. It is clear that reconciling the components of the triad of economic, environmental and social concerns is a complex undertaking. It can also generate acute tensions, to such an extent that some people are concerned that the political authorities, beset by their inability to manage all these conflicts, are already considering abandoning the road to sustainable development, just as they abandoned the road to the development of the ecosystem, that virtually-forgotten concept of the 1970s.

It is therefore urgent that we gain a better understanding of the concept of sustainable development, the various principles on which it rests and their implications. It is also important that we specify, as quickly and concretely as possible, its components and indicators in order to determine how to apply and manage it.

This document aims to provide an overview of six conference and research reports³, all on the issue of sustainable urban development in the

³COLNETT, D. An Evaluation of the Greater Vancouver Region in the Context of Sustainable Development, March 1990 (21 pages). [Collnett]

GARIEPY, M., DOMON, G. AND JACOBS, P. Développement durable et évaluation environnementale en milieu urbain: recherche exploratoire et essai d'application au cas montréalais [Sustainable development and environmental assessment in urban areas: exploratory research and test application to Montreal], Faculty of Planning, draft, July 1990 [University of Montreal]

GAUDREAU, M., HAMEL, P. J. Le développement urbain viable à Montreal:

Canadian context. These reports are extremely diverse in terms of their structure, content, purpose and scope. Some of them contain specific case studies, other propose some general principles, although few propose concrete solutions, especially to problems related to the biophysical environment.

You will note that this overview refers only rarely to specific cases. Its objective is rather to extract from the reports reviewed the points on which there is consensus and to stress in passing the areas where they diverge. The overview therefore does not summarize the contents of each document yet draws its inspiration directly from it.

The paper has six sections. The first chapter contains an overview of the triad supporting the concept of sustainable urban development: environmental concerns, social issues, economic imperatives. The second chapter stresses the importance of drawing first on the city's human capital and the third takes a brief look at the biophysical capital of cities. The fourth chapter is dedicated to the consequences for city administration of

quelques avenues de reflexion et d'action, INRS-Urbanisation [Quebec institute of scientific research-city planning department], March 1990 (113 pages). [INRS]

Globe'90 Conference - Urban Development Stream Summary, March 1990 (4 pages). [Globe]

Presentation on the Greater Vancouver Regional District Livable Region Strategy, Manager's Policy Committee, March 1990 (20 pages). [GVRD]

Rapport de l'atelier sur le developpement urbain viable organisé par le comité de developpement durable et des établissements urbains du Conseil canadien sur les évaluations environnementales [Report on the workshop on sustainable development and urban establishments of the Canadian Environmental Assessment Research Council], Enviro-sage, 1990 (35 pages). [Envirosage]

Sustainable Development for Small Communities, June 1989 (44 pages). [SC]

adopting principles of sustainable urban development. The fifth chapter contains two proposals for applying the principles of sustainable urban development. Lastly, chapter six presents a general conclusion with some elements for a sustainable urban development model in the Canadian urban context..

1. THE CONCEPT OF SUSTAINABLE URBAN DEVELOPMENT IN CONTEXT

The WECD has identified poverty as the greatest threat to the environment. Perhaps more than anywhere else, this conclusion is especially germane in urban areas where environmental problems are most inextricably linked to social issues and economic development, to the point where we cannot hope to achieve sustainable development without sustainable urban development (University of Montreal:12).

A. Environmental concerns

We know that a city cannot survive without the resources brought in from outside and that it also tends to send its waste outside its limits. It thus has a direct impact on its hinterland, to the point where it has been said that, in small communities, the more important a project, the more likely it is that it originates outside the community, ie, in the cities (SC:8).

We also know that the majority of the industrialized countries' population now live in urban areas and this environment already bears the scars, of ten very deep ones, of human activity of all kinds, the direct result of the various policies (or lack thereof...> on transportation, housing, development, etc. We cannot underestimate the current weaknesses in the built environment (in terms of transportation infrastructures for

example) nor forget that. these defects are here to stay (Envirosage:18). Some efforts are nevertheless called for purely on their own merits: decreasing incompatible activities, noise, visual or atmospheric pollution, etc (Envirosage:7).

Moreover, in an urban environment, the relationships between individuals and the "natural " environment are often very indirect; the concept of "ecological integrity" which developed from that of "conservation", has aroused very little interest in many highly urban areas (University of Montreal:11). All this generates specific environmental problems (accumulation of waste, pesticide use, excessive consumption of energy and drinking water, deteriorating living environments, production of CFCs and CO₂, etc.) which have a considerable impact on the global environment

Social issues

The combination of numerous cultural, social and economic factors has, moreover, led to the increasing impoverishment of an ever-growing segment of the urban population while another, much smaller, segment became considerably richer. We are already familiar with the effects of poverty on the health and feeling of safety of the population; we also know that deteriorating living conditions have a direct impact on the physical environment. Also, low income levels make more and more city dwellers incapable of bearing the costs related to environmental imperatives (INRS:12).

Additional trends which might eventually further strain the human fabric of the cities are: marked diversification of the migrant population, polarization of the labour market, privatization of some public services, loss of confidence in the political authorities, etc. The environmental impact of the deterioration in the overall social climate is already visible: the “not in my bac kyard” syndrome, disinvestment in public infrastructure, urban sprawl caused by the exodus to the suburbs, aging of the urban population, etc.

Furthermore, a growing number of communities find themselves now part of networks which they did not help build and which are imposed on them by the imperatives arising out of the globalization of trade and communications (SC:32). This frequently results in a loss of a sense of belonging and the loyalties that accompany it. Under such circumstances, it is hardly surprising that the behaviour of individuals does not always reflect strong concern for the common welfare or the long term.

It would therefore seem fundamental that a strategy of social development for improving the biophysical environment be articulated, failing which a great deal of effort is likely to be futile.

C. Economic imperatives

It goes without saying that a city's economic vitality has a direct influence on the living conditions of its inhabitants. The costs, direct

and indirect, of this economic vitality, however, remain to be determined. When its environmental consequences are taken into account, the pursuit of unchecked growth has already been shown to be unrealistic and suicidal. It is thus imperative to find alternatives to conventional industrial development (Envirosage:21).

In the long term, we can undoubtedly count on the real development potential of a recycling industry, made cost-effective by the size of urban markets, and on the restructuring of industry based on non-polluting sectors (high technology, communications, etc.). In the short term, however, market forces and international competition exert strong constraints. If we hope to bequeath to future generations the means to a better life, we must start now to provide today's city dwellers with a decent income (INRS)...

An attempt has already been made to define economic development as the process by which inequalities are reduced between rich and poor, between regions and between countries (SC:9). Even if we accept this definition, which is by no means undisputed, we will still have to arbitrate between, let alone reconcile, priorities which are difficult to render compatible, such as the choice between safeguarding a region's ecological integrity and promoting its economic development (Envirosage:14).

D. Reorganizing the power structure

The imperatives of sustainable urban development shed new light on a number of urban problems with which we are already familiar. They also

reveal new linkages between the economic, cultural, social and ethnic components of cities and the need to harmonize them.

But how should this be achieved? The vast majority of researchers, elected officials and citizens consulted agree that it is impossible to achieve true sustainable urban development without the active participation of ALL urban partners, based preferably on respect for the individuality of each one. The inevitable and essential compromises required for sustainable urban development must be negotiated and accepted by the greatest possible number of parties. Ideally, one might hope, by all of them...

There is universal agreement that this involves a significant shift of perspective which requires us to reexamine the whole set of methods and procedures involved in urban affairs management; it also involves redefining the relationships between elected officials and their constituents as well as between the various levels of government. One could almost allude here to the need for a cultural revolution... A revolution for elected officials and experts who are called upon to consult the population more and to take into account the results of these consultations. A revolution too for numerous citizens who have come to delegate to others the research and implementation of concrete solutions to the problems of their community (SC:24).

A revolution in the value system, albeit essential, is not, however, sufficient by itself. In fact, it is clear that changes in values do not always result in changes in behaviour (for example, the increased

environmental awareness on the part of the population does not seem to have diminished its attachment to private cars). Similarly, opinion polls also reveal that, while a majority of citizens say they are concerned about environmental problems, many of them seem to believe that the solutions lie in the passage of stricter legislation or in stricter enforcement... while in the same breath they voice their profound scepticism of politicians.

These perceptions illustrate the strength of people's belief in solutions "from above" and, at the same time, demonstrate the limits of the government's political freedom of action in "imposing" similar solutions. In light of this situation, some people place their faith in the implementation of micro-projects, preferably ones with an inherent synergy, which must involve a very large number of citizens in the process of change towards sustainable urban development. Other experts, however, believe that, their pedagogical value notwithstanding, "micro-initiatives" would not be capable of bringing about the radical changes required. Sustainable urban development will call for, let alone demand, very great sacrifices: no partial solution to current problems would be satisfactory (Envirosage:18).

It is worth noting, furthermore, that the discussions on sustainable urban development invariably take place in a specific social, political, economic and cultural context. One can never take the shortcut of analyzing the overall combination of circumstances, whether propitious or not, in which efforts leading to sustainable urban development must be made. (SC:32).

2. DRAWING ON THE CITY'S **HUMAN** RESOURCES

A city's vitality and viability depend above all on its inhabitants. **Even** if we allow that this population is highly stratified and that the various groups that make it up do not all share the same interests, creating new ways of living together in cities still remains the pre-eminent task. More than ever before, cities must draw on the potential of their inhabitants. All the more so since much past experience has tended to show that, often, the solution to environmental problems depends on more than purely technological capabilities: in many cases, it is actually the ability to communicate and coordinate and the motivation of the individuals and groups concerned that make the difference (Collnett:17).

A. Housing and neighbourhood life

For many people, the road to sustainable urban development does not necessarily require the adoption of a policy on housing (INRS). **The same** policy might and should serve to promote such urban values as the benefits of the city's ethnic, social and cultural diversity, thereby contributing to a further increase in urban density.

Cities could be called upon to guarantee their inhabitants access to appropriate, affordable housing. Building codes should be reviewed in light of the principles of sustainable urban development; the new codes should, in particular, guarantee that new construction and renovation leave open all

the options for using new forms of energy while keeping rents at an acceptable level for residents (INRS:79).

It should also be recognized that it is increasingly difficult to live and work in the same place since a large proportion of households now include more than one wageearner (Colnett:5) Nevertheless, without wanting to turn it into a panacea, a revitalization of neighbourhood life is necessary. To achieve this, it is important to make room in cities for children and to maintain areas which are safe for less independent people (INRS:16). It also goes without saying that neighbourhood life must adapt to socio-demographic change in cities (increase in the number of households with only one member, single-parent families> and their cultural evolution. In this respect, greater attention should be paid to the arrival of new immigrant groups whose values may have an increasing influence on the social and political life of the city. In most large cities, a new ethnic relations dynamic is emerging; it should be allowed to develop in such a way that it is based, at least partly, on certain principles of sustainable urban development. Perhaps more attention should be paid to satisfying the inhabitants' esthetic or spiritual needs and desires. These aspirations are all too often neglected and yet they can generate a very strong sense of belonging and commitment (SC:10)

Some people believe that we should aim for a situation in which each citizen can satisfy the majority of his needs in his neighbourhood without having to use a car A "PEDESTRIAN POCKET" model has already been proposed for this (GVRD:12).

Note here the importance of developing a variety of scenarios with the utmost care before new projects or programs are adopted. The lessons of the past must be remembered and there is a great need for applied research to show, in a concrete manner, the consequences of adopting the basic concepts and principles of sustainable urban development (Envirosage:19). One could and should hope that this research will include a retroactive analysis of decisions already taken as well as other, more future-oriented themes. Once again, we should stress the extent to which cities constitute outstanding places for multidisciplinary research and those in charge of research institutes, university departments, etc should be made more aware of this (Envirosage:14).

The revitalization of neighbourhood life will not be possible either without the development of a sense of solidarity among residents. In order to revitalize neighbourhoods and heighten their inhabitants' awareness and sense of responsibility concerning the impact of their production, consumption and waste management, it has been suggested that it might also be useful to adopt the principle of "No absentee landlords" (SC:39). The practical and political implications of this principle still remain to be clarified at all levels of management and decision-making.

Furthermore, it is important that we achieve a clearer understanding of the mechanisms by which residents take decisions with a potentially significant environmental impact, with regard to transportation, choosing a place to live, or consumption habits. We have not yet succeeded in

identifying clearly the factors which influence these choices. Similarly, we should also ensure that we understand better the mechanisms which prompt real public participation or foster resistance to change (SC:38).

Lastly, it is worth remembering that no neighbourhood, area of a city or city can any longer be totally self-sufficient. It is thus crucial that we develop satisfactory models for various types of network (from local to international) for communications and trade (SC:5).

B. Economic development

In terms of economic development, some people now say that "all things being equal, the traditional factors governing location are decisive for only a decreasing fraction of investors. Businesses on the contrary tend more and more to establish themselves in areas where their employees will be happy to live (INRS:76). Improving the framework and overall quality of life of the population can thus constitute an extremely worthwhile investment.

Numerous observers have also noted that the business community should be made to see the possibilities offered by sustainable urban development, whether in terms of water supply or treatment, transit systems which create an alternative to the private car or waste recycling, etc (Globe).

Moreover, if we accept that sustainable urban development involves greater self-sufficiency in terms of energy and food (Colnett:14) for the

communities concerned, it follows easily that this should have a direct influence on the business sector, which is called upon to modify at least part of its activities in light of local needs

C. Citizen participation

There is no longer any doubt about the crucial importance of active citizen participation in efforts towards sustainable urban development. Individuals, community groups, government authorities and experts all agree on the need for local solutions that are appropriate to a community's specific problems, drawing on the real knowledge of its inhabitants, whether formalized or not. It is also generally recognized that, overall, the current modes of public consultation allow only for a reaction a posteriori, thereby greatly decreasing their impact. Public hearings are often, if not always strictly consultative, convened "downstream" of projects and confined within predetermined parameters; they thus allow for no more than minor adjustments and are bereft of any future orientation.

It has also been broadly stressed that many of the groups involved too often lack access to financial and human resources equivalent to those of project promoters. The credibility of public consultations has diminished to the point where fears are already being voiced in some quarters that they merely serve to reinforce, if only indirectly, people's mistrust of government.

It is also not surprising to note **that many** of the groups which are able to make presentations at public hearings are there to defend their **own** special interests . **For** this reason, they do not always have the global outlook that sustainable urban development requires: environmental groups sometimes ignore economic development imperatives, as does business with social equity, social groups with long-term ecological conservation, etc.

Experience has thus shown that there is no quick consensus on the right path to achieve the objectives of sustainable urban development. Some observers even consider such a consensus unattainable, given the yawning and irreconcilable gulf between the interests involved (INRS). However, whether one entrusts the political level with the task of arbitrating or believes in the possible emergence of a consensus, there is general agreement on the necessity of developing new ways of resolving disputes at the municipal level.

It is also recognized that it has become essential to identify appropriate areas for public participation and, at the same time, to involve the public in all major steps in the decision-making process. In order to do so, we need to have a better understanding of the forms, rhythms and methods of consultation best suited to the various cities (Envirosage:6). This is particularly true since, considering the complexity of the problems and their potential impact, the role of experts and researchers should not be underestimated. This effort to reflect and clarify could enable us to prevent the population from becoming tired of having their opinions solicited with increasing frequency. There have

already been suggestions that we resort to participatory research (SC:15), where experts and the groups concerned act jointly as researchers. Others have proposed that closer links be established between municipal governments and local research institutes (Envirosage:4).

There is agreement however on the vital importance of effective information and communications mechanisms, especially on the basic principles of sustainable urban development, which will enable all the parties concerned to participate fully in the debate. In order to make the stakes clear, we should be in a position to put forward effective risk-assessment models which can take into account the continuation of current behaviour as well as its possible modification (Envirosage:21)

In terms of solutions to concrete problems, the difficulty often lies in moving from general considerations to specific applications. To make this connection as smooth and effective as possible, we must ensure that there are adequate processes which provide links among experts, urban planners, political authorities and the citizens' groups concerned (Envirosage:21)

Lastly, we should point out that it is lack of information that slows down public participation, causes mistakes to be repeated and research efforts to be dissipated. Active networks for exchanges and information should bring out the points of agreement and disagreement among the various cities and thereby promote the adoption of solutions appropriate to local conditions.

3. REBUILDING AND ENHANCING THE PRODUCTIVITY OF THE CITY'S BIOPHYSICAL CAPITAL

The city's balance sheet normally contains an entry showing certain assets as well as liabilities with regard to the biophysical environment... In general terms, it is clear that Canadian cities are heavily dependent on the excessive use of non-renewable resources, and yet fail to pursue the search for substitute resources and or control effectively the resulting waste. It is also clear that Canadian cities, in addition to using the food, water and energy resources of non-urban areas, contribute by their constant expansion to destroying natural habitats and disturbing ecological processes. Their form of government is also very often centralized and divorced from the community level (Colnett:3)

In order to reverse these powerful trends, some authors have suggested that we proceed first with as precise an evaluation as possible of the condition of the city and surrounding region, including a strategic analysis of the problems, a compilation of the resources available and a realistic assessment of the constraints and opportunities (Colnett:17).

A. Green space and urban design

There is agreement in general terms on the necessity of "re-greening" the built environment--whether by restoring natural habitats or other means

(Colnett 14)--and on the importance of landscaping in the urban environment.

However, we should recognize that this objective sometimes yields to the logic of economic development: all too frequently, parks must still give way to developers (INRS:17). Nevertheless, the importance of preserving undeveloped and farm land in urban areas is generally recognized (INRS:77,Colnett:14) despite the constraints which might result on economic activities and on the development of space for housing. However, many observers find it deplorable that urban design potential still remains largely under-estimated and under-utilized (Envirosage:20).

We must still, nevertheless, harmonize certain objectives, such as how to reconcile the conservation of green space with its development for recreational use by local residents?

B. Land-use planning

In terms of land-use planning, even when one allows that low-density land use is the root cause of great wastage in terms of soil and energy (INRS:29), the debate surrounding urban densification has not yet ended: scattered development vs consolidation of the inner city, suburban growth vs densification of the inner city, the fight against poverty vs gentrification, etc (INRS:24).

While recognizing the importance of a degree of decentralization, particularly to reduce financial and ecological infrastructure costs, the need has been nevertheless acknowledged for a more integrated, more COMPREHENSIVE planning approach which allows for an overall perspective for a given area (Colnett:17). In other words, some authors would like to see a polycentric vision of cities promoted, one which would not multiply excessively the number of sub-centres but which is based on the real potential (in terms of savings in transportation and energy) resulting from the development of activity in the service sector without in any way weakening the unique advantages of the regional city core (INRS:39); in this respect, the best approach should be found somewhere between very high and very low densities (INRS:37).

C. Waste management

Waste management is without any doubt one of the greatest challenges facing municipal governments. The recognition of source control as one waste treatment strategy is a step in the right direction (Colnett:13). In addition, the use of recycled material by municipalities, in addition to reducing pollution, helps create markets for such products and we know that it is often the absence of these markets that slows the development of recycling industries.

It is worth noting that the development of a true waste management policy clearly shows the importance of integrated planning, based on the ecosystem. In fact, to be truly effective, such a policy should include:

the collection and recycling of domestic waste, the conversion of cars to less-polluting forms of energy, the adoption of preferential provisions for non-polluting businesses in purchasing policies and of accurate mechanisms for evaluating the environmental risks involved in new projects, the support of conservation agencies, etc (Envirosage:16).

It goes without saying that a great deal of attention should be paid to the inventory of contaminated soils. We should also seek to make accessible to the general public more, relevant scientific information. The air quality index, now available, is a good example of this: it allows the public, as well as the decision-makers, to monitor the development of a situation, the impact of corrective measures, etc. (Collnett:15).

D. Transportation

Two general observations. First, we should recognize that the organization of transportation is one of the pillars of urban development: the exchange of goods, some of which may be dangerous, and the moving of people are central to urban life. It is thus crucial that we develop strategic links between land-use planning, urban densification, reducing private transportation, developing mass transit systems and improving traffic flow. We must thus not only find alternative technologies and fuels, but in particular embrace broader social and economic perspectives enabling us to manage demand through appropriate infrastructures (Globe).

Secondly, for many observers, the automobile represents one of the greatest threats to the environment (GVRD:8). To control this threat, it has been proposed that we must rethink the concept of unlimited mobility which is now characteristic of our society; more imaginative approaches to public transit (reserved lanes for buses, carpooling, rail transit, etc.) and to demand (flextime, fuel taxes, parking fees, etc.) have also been promoted

These two observations, each in their own way, illustrate the difficulties involved in applying the principles of sustainable urban development to the area of transportation. Thus, we still try too often to deal with the symptoms rather than the cause of problems. Here, we should clearly highlight the links between the effects observed and lifestyle and consumption patterns (Colnett:16) and in consequence adopt courageous policies which are integrated and aimed at the long term. This task is made all the more difficult, however, because responsibility for managing transportation usually is split among several levels of government, each with its own objectives for the short, medium or long term and each with its own structure within which various parties can intervene, thereby multiplying the possible levels of intervention (University of Montreal:20).

CHANGING THE WAY WE GOVERN

An analysis, even a brief one, of the transportation issue in light of the imperatives of sustainable urban development, eloquently demonstrates the need for significant changes in current political and administrative structures. Other examples serve to confirm the need for fundamental institutional change.

A. Public administration

We reiterate that we cannot embark on the road to sustainable urban development and manage public administration as we have been doing. Sustainable urban development cannot be achieved with “business as usual”. We must also recognize that the current situation results from a long series of bad decisions and that it is quite utopian to dream that a miracle solution can be found (Envirosage:15). We must resort to radical and sometimes painful changes.

Major reorganizations are required at the administrative level. Existing structures, organized by type of intervention or by specific area of action, do not allow us to take into account fully the totality of the problems, nor to adopt true strategies for sustainable urban development. Thus, if waste management becomes a branch of municipal government, there is a danger that people will forget that it is consumerism which,

fundamentally , constitutes the core of the problem. The symptoms will thus be treated, with various satisfactory degrees of effectiveness, without tackling the causes. We should therefore aim to create teams which are increasingly multisectoral and versatile, able to cross geographic, legal or discipline boundaries in order to achieve real solutions to the current problems (Colnett:15). Ideally, we should reach the point where the concerns linked to sustainable urban development are shared by all the parties involved, every level of the population, voluntary organizations, pressure groups, the public service and political leaders at all levels of government (Envirosage:4).

To bridge the great gaps between administrative (and sometimes political) logic and that of sustainable urban development, it has been suggested that a backdrop be created with a philosophy of sustainable urban development for each one of the broad areas of municipal activity; to these could be added sectoral analyses of the dichotomy that exists between the current situation and the imperatives of sustainable urban development. Subsequently, it would also be important to have access to studies on the possible links (and the existing ones) between the various sectors, always from the perspective of sustainable urban development (Envirosage:32).

B. The role of citizens and their elected representatives

In order to bring about changes in public administration and initiate the necessary institutional reform, the initial momentum must be created by elected officials who themselves have adopted a political culture which

favours the emergence of sustainable urban development. However, we note that sometimes, given the political culture prevailing in municipal government, elected local politicians have neither the expertise, the vision nor the means to bring about the changes inherent in the objectives of sustainable urban development.

These questions take us right to the limits of representative democracy as we know it, one of the perverse effects of which is to “deresponsibilize” citizens between elections. However, without active participation by the general public, plus a willingness to accept certain sacrifices and change certain consumption habits in order to achieve certain shared goals, few governments would have the political courage to embark on the radical changes required.

If the role of experts is essential for sustainable urban development, citizen participation is no less so. We saw earlier that we cannot opt for sustainable urban development without coming up against special interests and without having to resolve certain contradictions. In order to “arbitrate” these inevitable conflicts, elected officials, responsible to an aware electorate, must assume their role in full measure. And, because the values promoted by a society are always socially based, it is crucial to ensure that the building of this new consensus is done as democratically as possible: this is impossible without citizen participation and the assumption of responsibility by elected officials (INRS:63). It is not simply a question of finding solutions to “problems”: the general public must be given new powers and commensurate responsibilities (Envirosage:14).

For this transfer of power to produce really worthwhile results, it is vital to develop mechanisms for forging links between experts, elected officials and citizens (Envirosage:21).

It is also urgent, moreover, to operationalize the concepts of sustainable urban development if they are to play a useful role in the decision-making process. It is really very difficult for elected officials to calculate all the actual costs (economic, social, environmental) involved in the various urban activities, to determine who should pay for them (now and in the future) and to arbitrate conflicts of interest. There is a crying need for clear and effective indicators (Envirosage:20); the politicians' "tool box" does not contain sufficient instruments to make enlightened decision-making possible in complex situations.

There is a further need to create effective information networks among municipalities; we must ensure that experiments (successful or otherwise), work, research, project assessments, development scenarios (completed or not) are used as widely as possible. Too often, municipal authorities find themselves isolated, with inadequate resources to carry out their mandates fully.

Also, in terms of sustainable urban development strategy, the imperatives of routine city management must never be forgotten: decisions must be taken, electoral considerations can never be totally set aside, compromises must be accepted. Elected officials must carry out their day-to-day responsibilities and cannot always wait for the "perfect" solution,

generated by exhaustive research and broad consultations. They must take decisions. They must therefore have access to different scenarios to enable them to discharge their responsibilities better. We have already seen how in some cases, because the objectives set for ecologically responsible urban development proved impossible to achieve, the teams in place were replaced by others which viewed themselves as more “realistic” and renounced these objectives. We have therefore moved away from some of the broad principles of sustainable urban development by renouncing a comprehensive approach, considered unrealistic, too expensive in terms of time, money, etc (Colnett).

Elsewhere, it is also becoming increasingly important to reexamine the sharing of power and responsibilities between elected politicians and their officials. There is also some reflection on the concept of impunity in environmental matters.

C. Developing local AND global perspectives

It is clear that sustainable urban development must take into account the global environment. In order to achieve its underlying objectives, cities need to work in a concerted manner, on a regional, national and even global basis. Municipal governments must also take into account the areas in which other levels of government are involved.

There is henceforth an essential requirement for a regional roundtable to undertake concerted action and to achieve a global perspective. We must

fight. against excessive fragmentation among municipalities by promoting efforts towards initiatives of regional significance. The "tax base sharing" formula (Collnett), in particular, could be used to finance projects and reduce competition among municipalities.

This cooperation on a regional basis should also extend to the various levels of government whose jurisdiction extends to many structural services and facilities (transport, housing, health, education, culture, etc). In fact, we should not underestimate the impact of the various programs and policies of one level of government on the activities of the other governments with jurisdiction in this area. In addition to social, environmental and economic impacts, such interventions can have an impact on the organizational structure of a community and alter the existing balance. This impact should also be studied (SC:30). Strategic planning principles, already applied in some municipalities, could perhaps be useful in this respect, provided environmental concerns were better integrated (SC:26).

5. APPLYING THE PRINCIPLES OF SUSTAINABLE URBAN DEVELOPMENT

The range of past experiments has already shown some of the limitations inherent in the various approaches (ecological optimum, cost-benefit environmental analysis, multicriteria evaluation, etc.) needed to reconcile development and the environment. But criticism, albeit necessary, is nevertheless not sufficient. The task facing us at this point is thus to determine, in a concrete and realistic manner, how to pave the road to sustainable urban development.

Based on the Montreal case study, two teams of researchers have proposed strategies for this. One of these teams is associated with the INRS City Planning Department and consists of M. Gaudreau and P.J Hamel; the other is associated with the Faculty of Planning and Development at the University of Montreal and consists of M. Gariépy, G. Domon and P. Jacobs.

This paper presents only the broad outlines of the work of these teams.

A. Planning sustainable urban development

For Hamel and Gaudreau, it is imperative that as precise a plan as possible be worked out for sustainable urban development, (or "viable" urban development, the term preferred by these researchers).

This plan should be formulated, not in terms of common values, which the authors consider impossible to define in a context as socially stratified as that of large cities, but, more realistically, in terms of shared objectives. The general thrust of the plan would be the subject of a democratic approval process, while the plan itself would be incorporated into city and neighbourhood development plans.

The adoption of such a plan will bring with it important changes in the way we assess impacts. Contrary to normal procedure, projects would not be analyzed in isolation on the basis of an abstract reference to economic, social or environmental feasibility. And the test determining a project's acceptance should relate to its contribution to implementing the development plan and achieving its objectives: a project's desirability will be enhanced if it integrates the broad thrust and priorities already defined in the plan.

Hamel and Gaudreau believe that, if the development plan in practice should prove partially unsuitable, which would be only normal, rather than producing a negative assessment of a specific project, the development plan should be amended accordingly (INRS:75).

Furthermore, if we accept that a city should be considered an environment, some authors fear that too strict a plan for sustainable urban development, as advocated by INRS, could not take into account all the interconnections and linkages involved in such an environment. The claim is

also made that well-designed and well-managed public consultations can reveal broad and real consensus among urban partners.

While Gaudreau and Hamel believe that a concerted planning process that is transparent to the public is the best way to sustainable urban development, other authors question the possibility of anticipating and thus planning for the full impact of an activity in an urban area. Here, the social impacts are especially difficult to predict (Envirosage/overview:5).

B. Integrating sustainable development and environmental management

Gariépy, Domon and Jacobs believe that the principles of sustainable urban development are complementary to the environmental assessment process, in that they provide a more solid, substantive foundation.

For researchers, environmental assessment is a means of questioning projects which goes beyond their economic feasibility and should highlight their potential consequences for their environment. It thus rests first on a systematic analysis of the consequences and these should be assessed in light of certain principles and objectives which need to be defined. This is where the principles of sustainable urban development come in, and provide meaning and a global sense to the environmental concept. They thus provide a basis on which the potential consequences of a project can be assessed. To the authors, the concept of sustainable urban development thus constitutes the substantive aspect which forms part of the environmental

assessment process (University of Montreal:3) and which may well become a process of environmental management.

In **terms** of a process which allows us to move from “traditional” environmental assessment to the now essential environmental management, Gariépy, Domon and Jacobs advocate an approach with the following characteristics:

- a) integration of the planning, decision-making and follow-up stages;
- b) consistency between projects, policies and programs;
- c) taking into account area assessments and systemic interactions;
- d) taking into account the potential benefits of various methods and adopting the most appropriate method to the project under study;
- e) taking into account the activities of the private sector, with the imperatives of flexibility and efficiency involved;
- f) institutional decompartmentalization to ensure horizontal consistency among departments and vertical consistency between levels of government;
- g) adoption of an integrated comprehensive system of reference (and not an ad hoc approach) (University of Montreal:6).

In terms of substance, the research team **drew** up a list of “minimum dimensions” of the fundamental principles of sustainable urban development, based on an analysis of their scope, in order to determine which indicators could be subjected to the criteria of relevance and scientific validity (University of Montreal:16) The list compiled by the research team does

not claim to be exhaustive, but nevertheless offers a preliminary frame of reference which needs to be enriched and supplemented.

Among the many observations resulting from this exercise, we learned that the quantity and quality of indicators available varies considerably according to the principles adopted. Thus, while there are already some relative indicators for the ecological integrity of an area, we are nevertheless far less well equipped when the time comes to assess the impact of an activity on "social equity" or "the fulfilment of essential needs" (University of Montreal:22). In fact, researchers stress that the concept of sustainable urban development "involves taking into account relatively new elements: essential needs of future generations, the presence of elements with symbolic meaning", etc (University of Montreal:23). The assessment process then becomes all the more cumbersome. Nevertheless, the authors also note that the approach to sustainable development is not a neutral one: there is intrinsically an obvious influence on the nature of the developments to be favoured. It also obliges the assessment process to take into account a temporal axis, particularly through the use of simulation exercises.

The exercise carried out by the planning faculty team, and especially the attempt to draw up a list of indicators for each of the dimensions of sustainable urban development, has already promoted a great deal of thought. On the one hand, there is a recognition of the need to operationalize the concepts, to make them concrete and measurable, not only in terms of the projects themselves but also in planning terms. There is on the other hand,

scepticism in some quarters towards adopting check-lists which would tend to overlook the linkages between interventions. The researchers admit there is some risk of that: in addition to developing a list, a synergizing process should occur involving the various levels of intervention (Envirosage:31).

6. CONCLUSION

When we set out on the road to sustainable development, we must first recognize that an ever-increasing proportion of the population, both in our country and in the rest of the world, now lives in urban areas. We must also recognize that cities bear the mark of history: their physical build and their spatial and administrative organization faithfully reflect the industrial, economic, social and cultural development that has brought us to where we are today. Some of these traces of history look more like scars, while others are open sores which, in the short term at any rate, will not disappear.

Furthermore, the combination of several cultural, social and economic factors has led to an increasing dualization of urban communities. This dualization coincides with a marked diversification of the immigrant population and a general trend towards a loss of confidence in elected politicians and in government. The sense of belonging and community solidarity are thus significantly weaker.

The overall economic context, moreover, remains characterized to a marked degree by acute competition among the players involved. The imperatives of economic development, essential to the survival of cities and to fulfilling the needs of their inhabitants, involve difficult choices: while integrity of ecosystems must be safeguarded and their

resources preserved, we must still provide jobs and income for the population as a whole. In such a context., it is difficult to apply simultaneously the principles of sustainable development, in other words, seek to fulfil the needs of present and future generations, while achieving social justice and equity, maintaining cultural diversity and integrity **and** maintaining ecological integrity

Let us first say that, given the current state of affairs **where every** component of sustainable urban development still awaits a precise definition, numerous research teams should probably explore a variety of avenues for choosing appropriate social, ecological and economic indicators. Integrative approaches, conceived in a multidisciplinary perspective, also need to be elucidated. **The** concepts deserving of special attention include, in particular, that of "essential needs" which can take on radically different meanings within the same culturally, socially and economically stratified urban population. Also, the concept of cultural or ecological "integrity" can turn out to be of limited use in a socially structured and continually changing urban environment. Lastly, research on the special characteristics of the urban biophysical environment should be encouraged further.

Given the foregoing, some general principles nonetheless **emerge from** the **body of research studied**. They can be grouped under the three chapter headings: drawing on the city's human capital, enhancing the productivity of the biophysical capital and undertaking a comprehensive redistribution of **powers**.

Drawing on the city's human capital

The various reports acknowledge that sustainable development requires new ways of living together in urban areas. In more concrete terms, this means that certain more or less marginalized groups should once again be given a place at the table, particularly children and people who are losing their self-sufficiency

The evolution of cities also requires us to pay greater attention to the dynamics of interethnic relations in order to harmonize them, as far as possible, with the principles of sustainable urban development. For cities to become, or revert to being, places where solidarity flourishes, they also need to be able to fulfil the esthetic and spiritual needs of their inhabitants, thereby creating new linkages and connections.

We would reiterate the need for additional studies on risk management methods and resistance to change. We still know little about the motivation, values and beliefs which cause people to overturn certain attitudes and behaviour. The links between changes in values and changes in behaviour are still poorly understood: we know that cognitive gains in terms of environmental impact do not necessarily result in concrete action but we are less knowledgeable about how this new behaviour is initiated. The factors supporting resistance to change, at the individual, institutional and social levels, are still not well understood. Studies in

these areas would enable us to understand better and measure the potential implications of the a range of options for action... or inaction.

C. Reorganizing the power structure

We have seen that sustainable urban development involves a fundamental rethinking of urban policies.

For the general public, sustainable urban development requires a broad measure of participation by the parties involved. A great deal of research remains to be done to determine the places, methods and possible impact of public consultations. Also, mechanisms that allow for a degree of retroactive action in the wake of consultations remain to be developed. The role of experts and researchers should also be reexamined. Given the complex issues at stake, the role of research and expertise must necessarily be recognized, without allowing technocrats to seize control. This requires the establishment of a delicate balance.

Managing the inevitable conflicts generated by public consultations and the choices inherent in sustainable urban development represents a considerable challenge. A great deal of effort is still needed in this area: how to avoid conflict without avoiding the real issues, how to manage the conflicts that do arise and how to cope with the fallout from them--there are so many research topics to be explored. Let there be no misunderstanding: this involves breaking paths towards a redemocratization

of public life, a reassertion of the role of the citizen and the establishment of mechanisms for transferring real power. **No mean task...**

For elected officials and decision-makers, sustainable urban development frequently poses a great dilemma: a choice between an **often** unpopular and always somewhat uncertain action **for the sake of the** long term and a far more popular short-term action with immediate initial impact. Faced with this alternative, and the limitations posed by elections, many elected officials have shown a great need for effective decision-making tools both for **ad hoc** decisions **AND** for more systemic choices (Envirosage/overview:5); tools which should, at least ideally, enable them also to share the objectives of sustainable urban development with the people who elect them. **How do we** design such tools? **How** should they be disseminated among elected politicians and the general public? How can their effectiveness and performance be assessed? These are still very much open questions.

For governments, the challenges involved in restructuring and transforming the institutional culture remain very important: the partitions and the limitations, systemic or otherwise, still block the **processes of** change. Many of the players involved in municipal **affairs have** often reiterated the need for comparative studies of alternative scenarios, and the sharing of experiences and information. The mechanisms for making all these **exchanges** possible and productive remain to be defined.

It is also acknowledged that, since sustainable development cannot be achieved through any partial solution, there is an urgent need to undertake a reorganisation of powers and the development of real ties between "local" and "global" aspects of the issue. Splendid isolation is no longer possible at any level of government.

These changes mean redefining the respective roles and responsibilities of individuals, government officials, experts and elected politicians. The way in which these groups interact should also be reexamined: on the one hand, too many people have come to delegate to other people, politicians or officials, the implementation of concrete solutions to their community's problems, while on the other hand too many politicians, administrators and experts still neglect to consult the people affected by their decisions... or to take the results of these consultations into account. Whether one believes in the effectiveness of the synergy generated by a large number of micro-projects or whether one advocates more radical changes, the information function is especially crucial: a poorly-informed population cannot truly feel a partner in the ensuing debates and decisions.

As we said at the outset: the path to sustainable urban development will be long and steep. It will also be difficult. However, the other avenues available appear to be either blocked, suicidal or utterly impractical. There is thus no reason to hesitate.