

**An Evaluation  
of the Greater Vancouver Region  
in the Context  
of Sustainable Development**

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## PREFACE

The concept of sustainable development has recently attracted a great deal of attention from government, business, and special interest groups in Canada. It is seen as the new agenda for the 1990s, where economic development goals and environmental protection concerns are meshed together, as in the Globe 90 conference in Vancouver in March of this year. While the concept of sustainable development is difficult to grasp and define, as members of the various Round Tables on Environment and Economy can attest to, it is even more difficult to translate this concept into policies at the local level.

The majority of the literature on practical applications of sustainable development has been oriented to natural resource development activities and pollution control. Little has been written on the implications of sustainable development in urban areas and even fewer examples of sustainable development in an urban context exist. Therefore policy-makers at municipal and regional levels of government have few directions to follow if they want to get on the sustainable development bandwagon.

For some time now, people in the Lower Mainland of British Columbia, particularly those living within the Greater Vancouver Regional District (GVRD), have been wrestling with attempts to maintain a livable region while also maintaining economic growth. Although these efforts have not been called sustainable development, they certainly aspire to the ideal of maintaining ecological integrity while meeting human needs. "Maintenance of Greater Vancouver's natural environmental quality is among the most strongly held public objectives" (GVRD Technical Advisory Committee 1987: 43).

This discussion paper examines some institutional responses to issues related to the maintenance of agricultural areas, waste management, estuary management, and land use planning. Before the experience of Greater Vancouver is detailed, the concept of sustainable development is explored and criteria for sustainable urban areas are developed. Then the institutional arrangements relevant to the case study are explained. A brief chronological summary of various institutional initiatives is given to indicate how environmental quality is being managed. This summary is followed by an evaluation of the progress by the region towards sustainable development. The paper concludes with some observations about the problems of transforming our cities into sustainable urban regions.

## SUSTAINABLE DEVELOPMENT IN URBAN AREAS

The concept of maintaining the integrity of the natural environment, while continuing to have economic development, has taken various forms over the years. In the early part of this century, both the United States and Canada had 'conservation' movements. In the mid-1970s, the federal and provincial governments sponsored the 'Man and Biosphere Program', a two year program of public participation to define environmental and development goals for Canada and

the provinces. This effort, which became lost in the government bureaucracy, was later followed in 1977 by the 'conservation society', a federal government initiative. It is interesting to note that these initiatives became increasingly more oriented to urban rather than rural or wilderness areas as the Canadian population became more concentrated in cities.

## A Definition of Terms

The current form of this concept is now referred to as sustainable development, a term popularized by the United Nations World Commission on Environment and Development in their book, *Our Common Future*. In that report, the Commission challenged nations around the world to reconsider the existing relationship between economics and the environment. It is the way this relationship is defined that determines which definition of sustainable development people will use. The definition of the Commission, which is the most widely used, says that sustainable development "meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED 1987: 43). The Commission recognized that this definition requires changes in both the access to resources and the distribution of costs and benefits from developing those resources.

The definition of the National Task Force on Environment and Economy reflects the current political philosophy, however. "Sustainable economic development does not require the preservation of the current stock of natural resource or any particular mix of human, physical and natural assets." (1987: 3). In other words, the federal government favours little change to the existing economic structure.

Instead of prolonging the debate about the 'true' meaning of sustainable development, the definition of the WCED will be adopted for this paper with the understanding that it includes the following principles (Gardner and Roseland 1989):

- the fulfillment of human needs,
- the maintenance of ecological integrity,
- provision for social self-determination, and
- the achievement of social equity.

This definition of sustainable development goes beyond the current practices of managing environmental quality, as suggested in the National Task Force definition, to a more holistic and integrative concept. What it signifies is that the form and management of urban areas will have to change.

The current forms of urban development around the world, and especially in Canada, can be characterized as<sup>1</sup>:

- being dependent on fossil fuels, a non-renewable resource, especially for commuting and the movement of goods and services;
- using resources in a through-put manner leading to adverse cumulative effects such as water and air pollution and the over-harvesting of renewable resources;

- being dependent on non-urbanized areas for essential inputs such as food, water, raw resources, and energy;
- reducing natural diversity by replacing natural habitats with the built environment;
- interrupting essential ecological processes by replacing natural systems with energy- and capital-intensive infrastructure; and
- relying on centralized forms of governance, somewhat removed from the community level.

To be truly sustainable, the form and function of urban areas would change so as to<sup>2</sup>:

- conserve energy, use renewable energy, and emphasize the use of non-polluting forms of transportation;
- minimize pollution by using resources in a cyclical manner (e.g., recycling, composting) and conserving resources;
- become more self-sufficient in the production of food and energy;
- 'green' the built environment by encouraging more landscaping; restoring natural habitats wherever possible, and protecting existing open spaces;
- encourage higher densities for urban development to minimize land conversion from other uses, such as agriculture, thus reducing sprawl;
- reduce the high costs of providing infrastructure, both financial and ecological, by decentralizing systems and integrating them with biophysical processes; and
- devolve more decision-making powers to the local community level and increase citizen participation.

Taken together, these ideas point to a vision of urban development that offers a distinct alternative to the automobile-centred development that has dominated urban and suburban landscapes in North America for the last few decades. Part of that development has been the conflicts over the conversion of rural and agricultural lands to low density developments.

The emerging new vision of sustainable urban areas connotes cities in greater harmony with nature. By planning for sustainable urban development now, in a few decades a new pattern of urban settlement would be evident. Instead of the conurbations that are present now, urban regions would evolve into a linked set of pedestrian pockets, each with its own character, and each somewhat self-contained in the sense that most people would satisfy most of their needs without using private automobiles. These pockets would be surrounded by open space.

## CASE STUDY

Before the case study of Greater Vancouver is introduced, the relevant institutional arrangements are reviewed in the next section. The review starts with local governments then looks at regional and provincial institutions.

## Institutional Arrangements

In British Columbia, the Province has delegated land use planning powers to two levels of local government through the *Municipal Act*, RSBC 1979, c.290. At the urban or semi-urban community level are the City of Vancouver (the City's powers are defined in the *Vancouver Charter*, SBC 1953, c.55), municipalities, towns, and villages, with elected mayors and councils. This level of government has authority to prepare and adopt Official Community Plans, as well as by-laws (including zoning), and approve the subdivision of land. The City of Vancouver has the only elected Parks Board in British Columbia.

At the next level are regional districts, of which there are 29 in the province. Regional districts, established in 1965, are partnerships of municipalities and unorganized territories (referred to as electoral districts). Regional districts are governed by a board of directors who are appointed from member municipalities and elected from unorganized territories. The exact function of each regional district depends on the needs of the municipalities and rural areas that it serves. Water supply and distribution, sewage collection and disposal, hospital planning, and regional parks are some of the most common functions provided on a region-wide basis. The GVRD has additional authority for social housing, air pollution, and watershed forestry.

One function not included in this list is that of regional land use planning and zoning. The province removed the statutory and regulatory authority for this function in 1983. Since that time, any regional planning had to take place on a voluntary, cooperative basis between the regional district and member municipalities. Recently, in July 1989, the provincial government changed the legislation to allow non-regulatory planning activities such as "coordination, research and analytical services relating to the development of the regional district". (sec. 787, *Municipal Amendment Act* 1989). These activities are referred to as development services.

Agricultural lands in BC are protected through provincial legislation (*Agricultural Land Commission Act* RSBC, c.9). The Agricultural Land Commission, appointed by the provincial government, has powers to designate agricultural land reserves (ALR)<sup>3</sup>, regulate activities within such reserves, and enforce those regulations. The ALR designation supersedes local zoning by-laws so these lands cannot be subdivided or used for non-agricultural purposes. Agricultural land can be added to or removed from the reserve through specific procedures defined in the *Act*. Cabinet can initiate proceedings to remove land from the Agricultural Land Reserve notwithstanding the policies of the local government or the Commission. Municipalities, regional districts and the Commission must apply to Cabinet for removal of lands while the owner of such lands must apply only to the Commission. In the former case, public hearings are necessary. In the latter case, a person dissatisfied with the Commission's decision can appeal to Cabinet. BC is the only province to designate agricultural reserves using soil classifications and climate information.

With regards to transportation, the province still retains control over road and highway improvements and the transit authority. The Vancouver International Airport is, of course, under federal jurisdiction. There are three port authorities in the study area: Vancouver Port, Canada's largest port; the North Fraser Harbour Commission, and the Fraser Port.<sup>4</sup>

The management of water pollution and solid wastes are provincial responsibilities. (Municipalities are still responsible for the collection of wastes). Since approximately 1970, sewage treatment plants and landfill sites have operated with permits and approvals from the provincial Ministry of Environment. That system is now being replaced. Since 1952, with the passage of the *Waste Management Act*, a municipality (or regional district) can prepare a waste management plan to replace the previous system of permits. Once the plan is approved by the Minister of Environment, the municipality can discharge waste in accordance with the limits defined in the plan. The plans are prepared in two stages, both having opportunities for public input.

The Province also has responsibility for air quality management in all areas of the province with the exception of the Greater Vancouver and Prince George areas. Like the Communauté urbaine de Montreal, the regional districts in these areas are responsible for controlling industrial, commercial, and residential sources of air pollution.

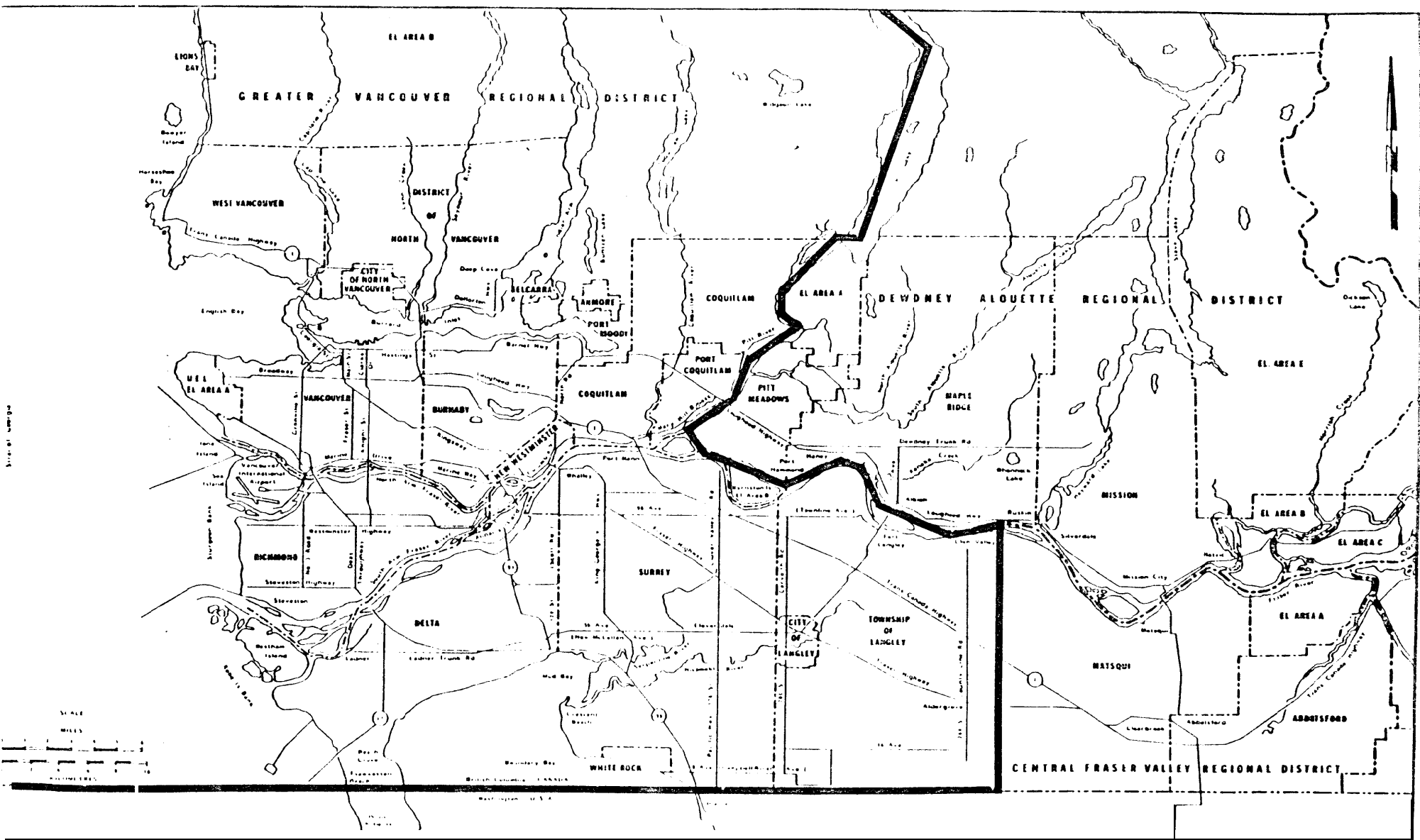
## **The Study Area**

The urban area that is referred to as the Lower Mainland is overlaid by the Jurisdictions of four regional districts and many municipalities. In addition, some of the areas within the regional districts are unorganized territory. For the purposes of this case study, the boundaries will be the same as those of the Greater Vancouver Regional District, as indicated in Map 1. The term Greater Vancouver will refer to this regional district and not the larger area.

Close to half the population of BC lives in the GVRD which is comprised of 18 municipalities and three electoral areas. Some of the key features of the study area are described in Table 1.

The physical extent of urban development in Greater Vancouver is limited by several factors, most of which are naturally occurring. Geographically, the urban area is located on the delta of the Fraser River and bounded on three sides by natural features. To the north are the Coast Mountains; to the west is Georgia Strait, the water body between the mainland and Vancouver Island; and to the east are the rich agricultural lands of the Fraser Valley. The fourth boundary, to the south, is political--the international border with the United States.

Greater Vancouver is world renowned for the physical beauty of its location and significance of wildlife habitat. The North Shore mountains, the green oasis of Stanley Park near downtown Vancouver, and the extensive beaches are enjoyed by residents and tourists alike. Public access to the waterfront, both oceanic and riverine, in the region is fairly extensive, including public trails along dykes,



Map 1. Greater Vancouver Regional District



seawalls, and many parks. The wetlands of Boundary Bay, in the south, support the highest density of wintering water-fowls, shorebirds, and raptors in Canada (Kennett and McPhee 1988). Millions of salmon pass through the Fraser estuary each year on the way to their spawning grounds in the interior of BC.

Total land area (hectares)	278,626	
Total area in municipal jurisdictions	23 1,054	(83)%
Land in the Agricultural Land Reserve	7 8,925	(28)%
Streets, roads, and alleys	21,467	(7)%
Population (1989 estimate)	1,493,963	
Labour force (September 1989)	824,000	
Average household income (1985 \$)	36,167	
Registered motor vehicles (January 1989)	854,025	

\* Includes the municipalities of Maple Ridge and Pitt Meadows, which may become full members in the near future.

Source: Greater Vancouver Regional District Development Services (1989:4).

## Concern About Environmental Quality

Because the presence of the natural environment is so pervasive in Greater Vancouver, the residents have a heightened appreciation of the need to protect environmental quality. Much of the drive behind the first regional planning effort, the 1939 formation of the Lower Mainland Regional Planning Board, was a general concern about protecting agricultural lands from urban sprawl. Over the years, the primary focus of regional and local planning efforts has been to reach the elusive goal of maintaining the quality of the local environment while continuing to develop one of the largest urban areas in Canada.

Like any urban area around the world, the development of Greater Vancouver has given rise to environmental problems: loss of agricultural land; loss of natural habitat; air pollution; and water pollution among others. As described in Appendix 1, these effects are cumulative, where each event is somewhat insignificant but when considered over time, and within a geographic region, are very significant. These effects are not only aggregate, they are also synergistic as in the case of the impacts of water pollution and loss of habitat on the declining heron population.

Cumulative effects are difficult to manage, as evidenced by the continuation of these problems despite a number of management initiatives over the years. Recently, there has been a renewed interest in dealing with these environmental issues in the context of sustainable development. The next section will take a historical look at the institutional response at the local level to these issues.

## INSTITUTIONAL INITIATIVES REGARDING ENVIRONMENT AND DEVELOPMENT

The major initiatives taken to manage environmental quality in the region are described in a somewhat chronological order in the following sub-sections. The descriptions are by no means comprehensive and are primarily intended to highlight the progression toward a regional focus for managing issues such as regional land use planning, pollution, and open space protection. Most descriptions focus on the actions of the GVRD but some initiatives are from individual municipalities or the Province. At the end of this section, a short description is provided of major projects that have been subject to environmental impact assessments.

### Phase I - 1949-1967

- Lower Mainland Regional Planning Board

The Lower Mainland Regional Planning Board was formed the year after a major flood occurred on the Fraser River. The flood was a practical illustration of the risk of developing in the floodplain. In 1949, the planning area extended as far east as Hope, encompassing the bioregion of the Fraser Valley and including the rural areas that had economic links to Vancouver. The major focus at that time was to use land use planning for the wise use of land and prevent development from encroaching on agricultural areas. A Regional Plan, approved in 1966, included land use maps and a policy framework. The framework was seen as the means to coordinate municipal and federal government activities in the region.

- Regional Parks

A regional parks plan, indicating areas for acquisition and protection, was prepared in 1966.

- Pollution Control Programs

An air pollution control program originally began in 1939 with a City of Vancouver initiative. That program was extended to three other municipalities by 1959.

The first sewage treatment plants (primary treatment only) in the region became operational in 1962 and 1963, serving the North Shore, Vancouver, and Burnaby.

### Phase II - 1968-1976

- Creation of Regional Districts across the Province

- Development of the Official Regional Plan and the Livable Region Strategy

The Lower Mainland Regional Planning Board was dissolved and replaced by four regional districts in 1968, as part of a province-wide initiative to set up regional government. The GVRD, being the most urbanized of the four regional districts, and subject to the most development pressures, established a 'Livable Region

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Planning Program in the early seventies. An extensive public participation process was used to identify objectives and strategies, resulting in the Livable Region Strategy. The major components of this strategy are listed in Table 2. The Strategy was adopted by the GVRD Board in 1975 but compliance among member municipalities was voluntary. The Livable Region Strategy was complementary to the Official Regional Plan, which had regulatory authority over the designation of land use.

**Table 2. The Livable Region Strategy (1975)**

1. Share residential growth to reduce travel and equalize service costs.
2. Promote a balance of jobs to population in each part of the region.
3. Build regional town centres.
4. Build a transit-oriented transportation system.
5. Protect and develop regional &en spaces.

- Agricultural Land Reserves

The regulatory protection of agricultural land became a provincial matter in 1972 with the imposition of an agricultural land freeze by Order-In-Council. People wanted to halt the increasingly frequent conversion of prime agricultural land to urban uses (-6,000 ha/year province-wide). The next year the Land Commission (now the Agricultural Land Commission) was established to administer the *Agricultural Land Commission Act*.

- Regional Parks

The function for regional parks was added to the GVRD in 1971 and a major acquisition program took place over the next five years.

- Regional Pollution Control

Over ten years later, in 1970, the province changed the *Pollution Control Act 1967*, to establish the GVRD as the single authority for air pollution in the region. This was the same year that the province created a permitting system for air pollution .

Two more sewage treatment plants were added to the region in 1973 and 1976 and the regional district obtained the authority for solid waste management in 1974.

### **Phase III - 1977-84**

- Fraser River Estuary Study

Studies regarding the Fraser River Estuary were initiated in 1977 due to public concern regarding deteriorating environmental conditions in the lower Fraser River. Through these studies, undertaken as a joint project of the federal and provincial governments, a management plan was to be developed with the goal of balancing human needs (economic and otherwise) with protection of the ecological integrity of the estuary. The work occurred in three stages.

During the first stage (1977-79), work groups investigated four “interactive” issues: land use, transportation, and port development; water quality; recreation; and habitat. These issues were estuary-wide and had no clearly defined management authority. Another work group explored new management options based on institutional and legal constraints. Information about activities on the estuary, and the ecology of the estuary, was scarce and poorly organized. By the end of this stage, however, the work groups had synthesized existing information and identified gaps in data and understanding?

The second stage (1979-82) was characterized by a wider range of involvement by groups outside the federal and provincial governments (Harvey, Melliship, and Toner 1982). Representatives from the public, industry, and municipal and regional governments defined a range of issues and concerns through a varied program of public participation. This information, together with technical data, led to the formulation by the study group of a vision, policies, area plans, activity programs, and a management system for the estuary. In addition, several technical reports regarding various aspects of water quality and options for management strategies were published.

From 1982-84, a Federal-Provincial Review Committee evaluated the recommendations from the previous stage and designed an implementation strategy. Their final report (O’Riordan and Wiebe 1984) proposed a simplified management structure and program of core activities, as seen in Figure 1, called the Fraser River Estuary Management Program (FREMP). The inter-governmental agreement for FREMP was finalized in 1985.

- Transit

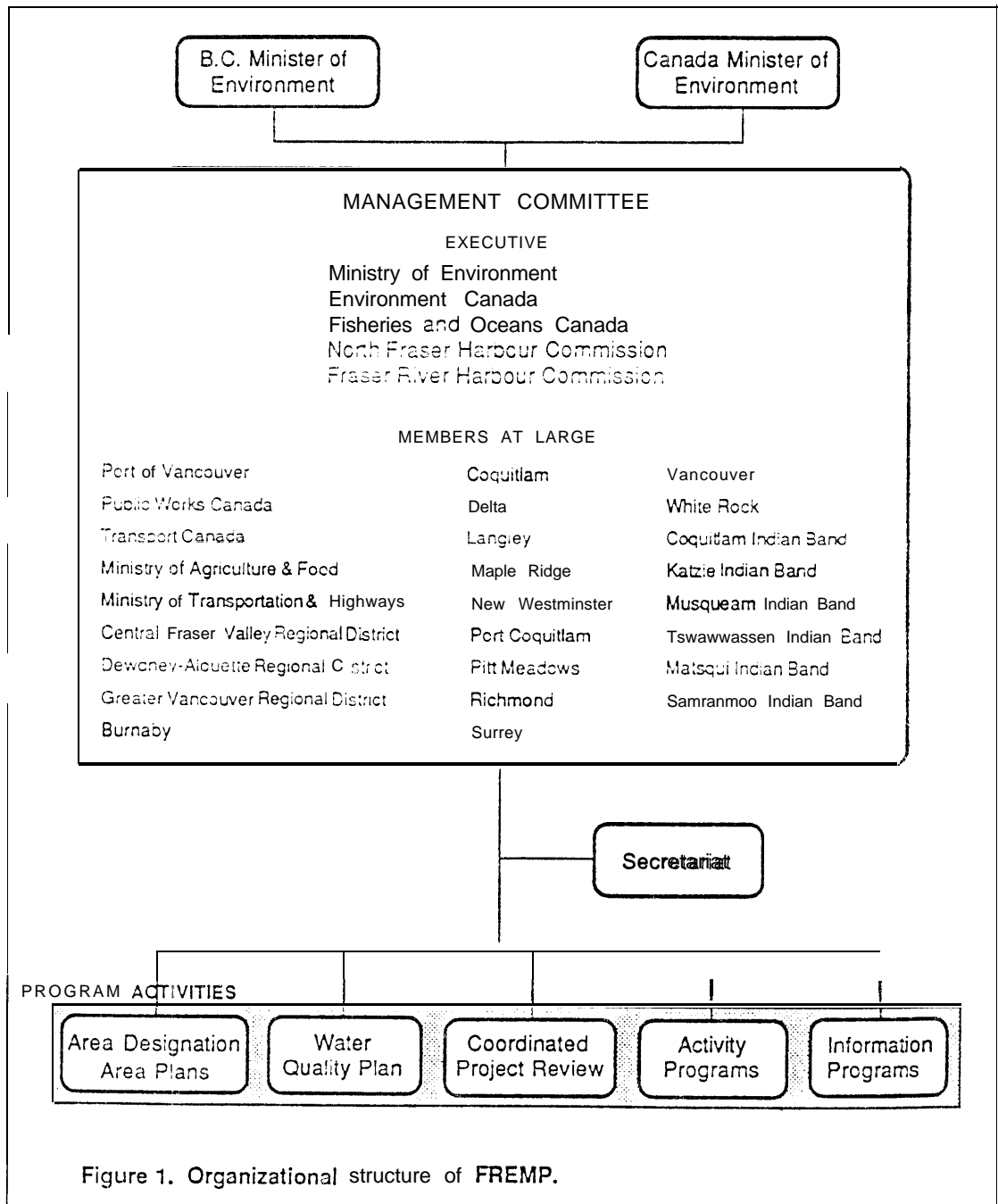
In 1980, the Province transferred authority for transit planning in the region to the GVRD but responsibility was still shared with the Urban Transit Authority. In 1983, the Province created a new crown corporation, BC Transit Authority, which incorporated all transit planning and management functions under one organization.

- City of Vancouver Core Plan

In 1981, the City of Vancouver initiated a growth management strategy of its downtown area, recognizing that the way in which the city core grows determines regional transportation and housing policies and also affects the livability of the region. This program, which included public participation, followed from the City Council’s endorsement of the Livable Region Strategy. Although the plan never received Council’s approval, it became an internal policy document for city planners. To date, the City of Vancouver has neither a comprehensive plan nor an overall plan for the downtown area.

- Solid Waste Management Program

A regional Solid Waste Management Program was approved by the GVRD Board in 1982. It included plans to build an incinerator, find alternate sites for landfills, and encourage and support recycling.



Source: O'Riordan and Wiebe 1984.

### . Land Use Planning

The authority for regional land use planning in all but unorganized areas was taken away by the Province in 1983 with the passage of the *Land Use Act*. In response, the GVRD renamed their Planning Department the Development Services Department, and contracted with individual municipalities to undertake regional transportation planning, data collection and dissemination, and research.

### Phase IV - 1985-present

#### • Fraser River Estuary Management Program

The third stage of the Fraser River Estuary Study, the implementation stage, is referred to as FREMP. Under a federal-provincial agreement, FREMP has been in place from 1985 - 1990. The Management Committee operates at a strategic level of implementation, the Committee members at large direct activities at the operational level, while the actual activities are performed at the program level. The following activities of FREMP are particularly noteworthy.

- The Coordinated Project Review Process provides a single “window” approach for developers seeking approval from the multitude of agencies that have jurisdiction in the estuary. A Central Project Registry provides a publicly accessible record of applications in the estuary.
- FREMP is working with municipalities to encourage the incorporation of area designations for the foreshore and river (similar to zoning districts) into Official Community Plans.
- The Recreation Activity Work Group is recommending an innovative plan for the estuary that goes beyond the conventional definition of limiting recreation to parks. The plan suggests that public lands, municipal and regional parks, and industrial areas adjacent to the foreshore be linked by a concept of ‘exploring the Fraser’ that encourages an interpretation of both the natural and built environment. This concept reduces the necessity for the outright purchase of lands and encourages people to become more familiar with the industries that use the river.

#### • Regional Pollution Control

By 1985, solid waste disposal was a critical problem because a new landfill site had not yet been found. The incinerator and a resource recovery plant were under construction, however. By 1987, two new landfill sites had been found, one within the region and the other at Cache Creek, approximately 340 km north of Vancouver. A detailed recycling plan for the region was completed last year, with the goal of reducing solid waste by 33% in five years. Currently, about 15% of solid waste is recycled. The plan, which was developed through public consultation, will be implemented through individual municipal programs. There is already a noticeable difference within the region with the development of such programs.

The preparation of a Liquid Waste Management Plan finally began in 1985 in response to the 1982 change in the provincial pollution control strategy and legislation. By 1986 construction had begun on extending a sewage outfall into the ocean to reduce foreshore pollution. The first stage of the Liquid Waste Management Plan, approved in 1989, emphasizes source control as well as capital

improvements to the drainage and sewage system. The estimated cost of this program over the next decade or so is approximately \$1.5 billion at current dollars.

An air quality index was made available to the public in 1985 through a phone-in service. The information for the index is generated from an extensive air quality monitoring program that continuously inputs data to a central computer. The regional district is currently preparing an Air Quality Plan (Concord Scientific Corp. and B.H. Levelton & Assoc. 1989). It includes emission reduction initiatives such as a vehicle emission inspection and maintenance program to replace the system eliminated by the Province several years ago. In addition, a Task Force has recently recommended measures to reduce the use of chlorofluorocarbons and halons in the region.

- Transit

An elevated Automated Light Rail Transit (ALRT) system, called SkyTrain, was opened in time for EXPO 86, linking downtown Vancouver, and the SeaBus Terminus (to the North Shore), with New Westminister. An extension across the Fraser River to Surrey was recently completed. Debate is now underway to determine the location of the next major transit axis.

- Revitalization of Livable Region Strategy

In the face of new growth pressures that are becoming increasingly more complex to resolve, the GVRD has undertaken a revision of the Livable Region Strategy. The GVRD Board has a new set of seven livability goals for the region, as indicated in Table 3. These goals became the starting point for a four month program of public discussion and evaluation which is currently underway. As in 1975, the Board hopes to develop some consensus on the strategies for managing growth and economic development in the region. Unfortunately, the linkages between economic development and environmental quality are poorly defined in this effort at regional planning.

**Table 3. Livability Goals for Greater Vancouver (1989)**

1. A region in nature.
2. An economy of growth and change.
3. Accessibility for people and goods.
4. An equitable region.
5. A healthy and safe region.
6. A region of diversity and vitality.
7. An efficient region.

Source: GVRD Development Services 1989.



- Individual Municipal Initiatives

Many local governments are looking for ways to incorporate environmental considerations into their planning processes and to put appropriate regulations and policies in place to support sustainable development. The following descriptions provide some examples of such initiatives.

- Surrey: Study of Ecologically Sensitive Areas

The municipality of Surrey has commissioned a study of the environmentally sensitive areas (ESAs) within its boundaries. This study will produce two products: (1) a detailed map of ESAs, with descriptions of important physical, biological, and archaeological and historical features, and (2) a list of strategies and policies to protect such areas (Abs 1990).

- Burnaby: Hiring an Ecosystem Planner

The municipality of Burnaby, British Columbia, has established the position of Ecosystem Planner to coordinate activities between departments, evaluate area plans and new proposals from an ecosystem perspective, and educate the public. This is not attached to any one department and, thus, can provide assistance to all departments. Other related initiatives by Burnaby include the formation of an Environment and Waste Management Committee, a requirement for environmental assessments for proposals in undeveloped and environmentally sensitive areas, and a by-law requiring the recycling of CFCs in air conditioners.

- Vancouver: Task Force on Atmospheric Change

A Task Force has recently been created by Vancouver's City Council to study the issues related to air pollution and the greenhouse effect, solicit public input, and recommend specific actions the City and its citizens can take regarding these issues. Thus far, a discussion paper has been released (City of Vancouver Task Force on Atmospheric Change 1990) and public submissions have been requested. Public meetings will be held near the end of April, with a final report being released in June.

## Environmental Impact Assessment in the Greater Vancouver Region

Two projects have gone through the public hearing stages of the Federal Environmental Assessment and Review Process (EARP) and a third project is currently in the midst of the process. The first project was the reactivation of the Boundary Bay Airport for non-jet planes, closely followed by the expansion of the coal port at Roberts Bank Port. The construction of a Third Runway at Vancouver International Airport will be evaluated in public hearings in the Fall of 1990. In all cases, the projects have created significant public controversy.

The panel for the Boundary Bay Airport concluded that the airport could be reactivated without significant effects to the valuable migratory and raptor bird habitat so long as certain mitigation measures were followed (Boundary Bay Airport Reactivation 1979). With regards to the Roberts Bank Coal Port, the Panel recommended limited expansion because of the international significance of the area for fish and wildlife. The panel also noted the potential social impacts

from air pollution, noise, and increased local service requirements (Roberts Bank Port Expansion 1979) would be detrimental to the surrounding area.

Proposals for expanding the International Airport have been under public scrutiny since 1973. A tri-level airport planning committee was discontinued in 1976 due to public resistance to the plan. Since that time, Transport Canada has embarked upon a planning process that included public input and the preparation of an airport master plan and an EIA. They are currently waiting for the Panel's evaluation of the EIA.

## AN EVALUATION OF PROGRESS BY THE REGION TOWARDS SUSTAINABLE DEVELOPMENT

The previous descriptions of institutional initiatives to manage environmental quality in the Greater Vancouver region indicate there is some movement towards what is called sustainable development. In this section these and other initiatives will be evaluated in terms of the seven criteria of sustainable urban areas that were listed under the definition of sustainable development. This section will also identify some of the strengths and weaknesses of the various approaches.

- *conserve energy, use renewable energy, and emphasize the use of non-polluting forms of transportation.*

Energy use and conservation are issues that are not addressed at the regional level and do not appear on any planning agenda in the foreseeable future.

There has been some progress, however, towards developing a regional transit system with the construction of SkyTrain but this has proven to be a very expensive solution that only reaches a small segment of the population. Initiatives are currently underway to establish a process for conducting a comprehensive transportation planning process but the Province seems reluctant to get involved on the terms proposed by the region. The next stage of the Air Quality Management Plan, which will include strategies to reduce air emissions, will probably provide the rationale to speed up development of a transit plan.

- *minimize pollution by using resources in a cyclical manner and conserving resources.*

The Air Quality, Liquid, and Solid Waste Management Plans are slowly moving in this direction by including source control as one of the strategies to treat waste. As this strategy has not yet been implemented in any of the sectors, however, it is difficult to determine the effectiveness of this approach. Nevertheless, these management programs still focus primarily on capital-intensive, technological projects that are needed to meet current population projections and pollution standards. The major barriers to recycling in the region are the slow

implementation of programs by some member municipalities and the lack of suitable markets for the materials.

- *become more self-sufficient in the production of food and energy.*

These issues rate very low on the political agenda of the regional district. Over the past fifteen years, food production in the GVRD and neighbouring regions has increased to some degree but this trend is counter-balanced by two processes: the conversion of many agricultural properties to golf courses and decreased agricultural productivity due to high ground-level ozone concentrations.

With the continued reliance on hydro-electricity generated elsewhere in the province, energy will not be an issue in the foreseeable future unless environmental interest groups, which are largely based in the urban area, are able to block the construction of the next dam (Site C on the Peace River).

- *'green' the built environment by encouraging more landscaping, restoring natural habitats wherever possible, and protecting existing open spaces.*

The Greater Vancouver region has done fairly well in progressing towards this criteria. Within the context of FREMP, the Department of Fisheries and Oceans has developed a process for negotiating no net loss of fisheries habitat with developers, which has slowed the rate of loss of these valuable areas. The growth in the regional and municipal parks systems and Surrey's study of environmentally sensitive areas are further indications of the effort to maintain the sense of nature in the region. Much work remains, however, to ensure the Agricultural Land Reserve is maintained and many other areas, such as Boundary Bay, are protected from development. The regional district staff did not receive funding this year, as requested, to update the 1976 open space plan.

- *encourage higher densities for urban development to minimize land conversion thus reducing sprawl.*

The concept of focusing growth in Regional Town Centres is working to some degree but people are finding that economic factors, rather than planning initiatives, are the major determinants of growth. An additional hindrance to achieving higher densities is the preference for single-family housing. Although many residents agree in principle with higher densities, they do not want to see their own neighbourhoods change.

- *reduce the high costs of providing infrastructure, both financial and ecological, by decentralizing systems and integrating them with biophysical processes.*

There have been small-scale initiatives in municipalities to reduce the costs of infrastructure as in the case of Surrey, where detention ponds were built instead of storm sewers. Not only are capital costs reduced in the long term, but new

opportunities for creating habitats within neighbourhoods are made possible. There has also been a slow shift to low maintenance landscaping in parks and public spaces, reducing the need for chemical and mechanical treatments. In general, however, there is little progress towards this criterion.

- *devolve more decision-making powers to the local community level and increase citizen participation.*

The Province appears to be gradually allowing the region to have a greater say in determining some aspects of its future. The process of establishing Waste Management Plans allows regions to determine how they will meet provincial standards and provide; a forum for public discussion about critical issues. In most cases, however, such as transportation, transit, and economic development strategies, the Province retains controlling interest. Although the GVRD can pass by-laws, they often rely upon cooperation by member municipalities to implement initiatives, as in the case of recycling, with uneven results across the region.

The planning programs of the 70s and early 80s, as evidenced by the Livable Region Strategy and the Vancouver Core Plan, involved the public to a greater degree than some of the current programs, such as the revitalization of regional planning strategy. Current opportunities for public involvement in various planning processes are often consultative rather than participative. Interest groups and individuals who would like to participate are usually constrained by limited financial resources and a lack of time to attend numerous meetings. An additional constraint is poor access to information. Overall, the public involvement programs in the region could be greatly improved.

#### Elements of Success

The region has made some positive steps in moving in the direction of sustainable development. Most of these gains are in the areas of developing alternative processes for decision-making and the innovative use of scientific information.

There is an increasing trend to use multi-sectoral task forces to work on issues of regional concern such as recycling. Such groups are capable of cutting across geographic, disciplinary, and jurisdictional boundaries to reach consensus among diverse interests. FREMP serves a similar purpose by creating a forum for conflict resolution and mutual learning amongst government agencies and developers.

The process of regional planning, as illustrated in the Livable Region Strategy, shows how local governments can coordinate their efforts to reach common goals. The challenge of the future is to reach consensus on goals that will move the region closer to being a sustainable urban area.

The air quality index is an example how scientific information can be converted to a form which can be understood and monitored by the public. The index is also useful for decision-makers in determining the magnitude of the air pollution problem and gauging how well policies and pollution control programs work. Such

an approach would probably work equally well with an issue such as transportation.

### **Areas Needing Improvement**

To help the region move in the direction of sustainable development, many changes need to take place. The priority is to change the mindsets of many of the people involved in setting agendas and making decisions. Currently, many people believe sustainable development is business as usual with the addition of a treatment plant. This concept needs to be expanded through public awareness programs to include the principles of maintaining ecological integrity, providing for social self-termination, and achieving greater social equity.

Very few initiatives in the Greater Vancouver region are addressing the root causes of environmental problems. Instead, people are treating the symptoms by using crisis management. As a result, there are poor linkages between economic development strategies and programs to improve environmental quality. The issue of golf courses versus the protection of agricultural lands is one obvious example. People need to become more aware of the interconnections between issues and determine the most effective expenditures of public funds to resolve fundamental issues.

Solutions for environmental problems are often issue specific and rely on technological answers. People again need to have a greater awareness of the linkages between issues and become familiar with a range of solutions that include incentives and taxes to alter human behaviour.

The remaining category of needed change is in the area of government. Although some of the Regional District staff feel there is more cooperation among municipalities, now that regional land use planning powers have been removed, the urgency of dealing with the impending environmental crisis may require stronger government at the regional level. Having a stronger regional government does not negate the devolution of some responsibilities to the community level. In fact, such an arrangement can be mutually supportive. In addition, the provincial government will probably have to share control with the GVRD over key factors such as transportation, transit, and economic development if the region is really going to determine its own future. Another problem with government is that its current structure of having discrete departments inhibits the development of comprehensive planning programs (Richardson 1989).

### **CONCLUSIONS**

The problem of how to practice sustainable development in an urban context is difficult to resolve. Not only is it difficult to define the problem, it is even more difficult to find appropriate solutions.

One of the major hurdles to overcome is the issue of governance. The structure and function of municipal governments were determined before automobiles were

invented. Now these governments are faced with the challenge of adapting to the activities of a post-industrial society. The structure of government, with its multitude of departments having distinct areas of responsibility, tends to limit solutions to previously defined categories. For example, the problem of pollution from wasteful use of resources becomes the 'solid waste' problem or the water treatment problem, which are both resolved by applying technological solutions. Within this context, it is difficult to redefine these issues to reveal their root causes (e.g., consumerism). Much of what passes for environmental management is merely tinkering with existing structures which are known to be limited in their ability to address the complex, interdisciplinary problems now facing urban areas.

To move in the direction of sustainable development, regions need to take a comprehensive planning approach. This approach can be summarized as:

- defining a vision and setting appropriate goals for the region.

Sustainable development goals would include conserving energy in all sectors, providing a variety of housing, and increasing food self-sufficiency.

- evaluating the current status of the region.

This evaluation would include a strategic analysis of problems in the region, an identification of available resources, and an explicit recognition of the constraints and opportunities related to the goals.

- mapping out alternative strategies to support the development of the region in the direction of its vision.

Having a range of available strategies allows for an adaptive approach in managing the region, in case new situations arise.

To be successful, a comprehensive planning approach requires support and participation from all sectors in society. As seen in the case of the Greater Vancouver Region, those task forces or organizations that have both political support and representation from a wide range of interests are the most successful. The issue of finding the best means of involving the public needs further examination and experimentation, however.

Success also seems to be more dependent on people skills, such as effective communication and the ability to coordinate people and tasks, than on technological solutions.

A comprehensive planning approach would also provide a supportive context for conducting environmental assessments of projects and policies in urban areas. The information collected from these assessments could feed into the process of conducting State of Environment reports.

In summary, sustainable development in an urban context can mean many things to many people. Instead of disagreeing about the definition of the concept, people need to work together on projects that have multiple benefits and can satisfy a number of goals. Ultimately, the move to sustainable development comes down to recognizing the urgency of finding more harmonious ways to live on this planet.

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## FOOTNOTES

<sup>1</sup> These points have been summarized from Gardner and Roseland 1989, *ibid.*; W.E. Rees, 1988. *Defining Sustainable Development*. Vancouver: Centre for Human Settlements; and W.E. Rees, 1990. The ecology of sustainable development. *The Ecologist* 20 (1): 18-23.

<sup>2</sup> This information is summarized from P. Calthrope and S. Van der Ryn. 1986. *Sustainable Communities*. San Francisco: Sierra Club Books and R. Register. 1987. *Ecocity Berkeley*. Berkeley: North Atlantic Press.

<sup>3</sup> BC is the only province to designate agricultural reserves using soil classifications and climate information.

<sup>4</sup> Approximately 45% of the total volume of cargo in Canada is moved through these three ports.

<sup>5</sup> Information in this section is based on Fraser River Estuary Study Steering Committee. 1978. *Fraser River Estuary Study Key Findings and Recommendations*. Victoria: Environment Canada and B.C. Ministry of Environment. August.

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## **APPENDIX 1.**

### **EXAMPLES OF CUMULATIVE EFFECTS IN GREATER VANCOUVER**

- loss of agricultural lands.

The BC Agricultural Land Commission reports that although the amount of land within the Agricultural Land Reserve has remained nearly the same since 1972, between 1974 and 1987 the net loss of high class (1-3) land was 6000 ha, primarily in the southern and central regions. (BC contains .95 million ha of class 1-3 lands).

- loss of natural habitats

The Fraser Estuary, a significant habitat for juvenile salmon, migratory birds, wintering waterfowl, and a diverse variety of mammals and insects has suffered significant losses of wetlands. By 1974, 71% of the saltmarsh, 29% of the tidal freshwater marsh and 98.7% of flooded habitat was lost to various developments (Kennett and McPhee 1988).

- urban sprawl and air pollution

The area of land needed for urban uses is increasing at a rate greater than the rise in population. Land use planning significantly affects the economics of transportation. Providing single family residential areas with public transit is cost prohibitive because the population is so dispersed. Therefore, longer distances between work and residence increases people's need to rely on automobile transportation.

Vehicle emissions, a significant component of air pollution, are contributing to the problems of acid rain and the enhanced greenhouse effect. For example, the 1986 Canadian State of Environment report stated that one of the highest national concentrations of ground level ozone is found in south western BC. Ozone is harmful to the human respiratory system and also retards plant photosynthesis, reducing agricultural productivity.

In the GVRD, mobile sources (passenger and commercial vehicles, trains, buses, vessels, and airplanes) account for 98% of the carbon monoxide, 82% of the particulate matter, and 78% of the nitrous oxides detected in the region. (Concord Scientific Corp. and B.M. Levelton and Assoc. 1989).

- water pollution

Another significant indirect effect of urbanization is the impact of development, primarily from sewage and non-point sources, on water quality. The BC Ministry of Environment reported in 1986 that since 1970, water quality had decreased in the lower Fraser, Serpentine, Nickomekl, and San Jose Rivers and Okanagan watershed.