

TRANSITION IN TOFINO AND UCLUELET:
USING INDICATORS TO BECOME MORE SUSTAINABLE

by

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ABSTRACT

Many small communities in British Columbia are dramatically affected by economic transition. This project discusses how two communities, Tofino and Ucluelet, have responded to transition and how indicators can lead to a more sustainable future. While the communities share several similar biophysical and geographical traits, key differences exist in their historical and socio-economic development. The communities, dependent on natural resources throughout their history, have developed different responses to the challenges created by transition. This project will discuss the transition experiences of Tofino and Ucluelet and detail how sustainable development tools (indicators) can help the communities move towards a more sustainable future.

This project is guided by three key questions. First, the project considers the factors contributing to structural economic transition in Tofino and Ucluelet within the context of British Columbia as a whole. Secondly, the project examines how the communities of Tofino and Ucluelet have addressed the challenges of economic transition and how are they planning for sustainability. Finally, the project addresses how sustainability indicators can be used by the respective communities to move towards a more sustainable future. This project drew on information from the literature related to economic transition, sustainability indicators, and from interviews with the Planners in Tofino and Ucluelet.

A process for how Tofino and Ucluelet could develop indicators is provided. Additionally, key environmental, socio-economic, and tourism indicators are provided that address some of the planning issues in the two communities. The project suggests that planners need to work with communities to facilitate the development of indicators that support principles of sustainability. Finally, it is suggested that a mechanism be developed to integrate indicators into formal planning practice.

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List of Interviews

September 18, 2000: Kathy McNamara, Municipal Planner, Tofino.

September 18, 2000: Felice Mazzoni, Municipal Planner, Ucluelet.

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1.0. Introduction

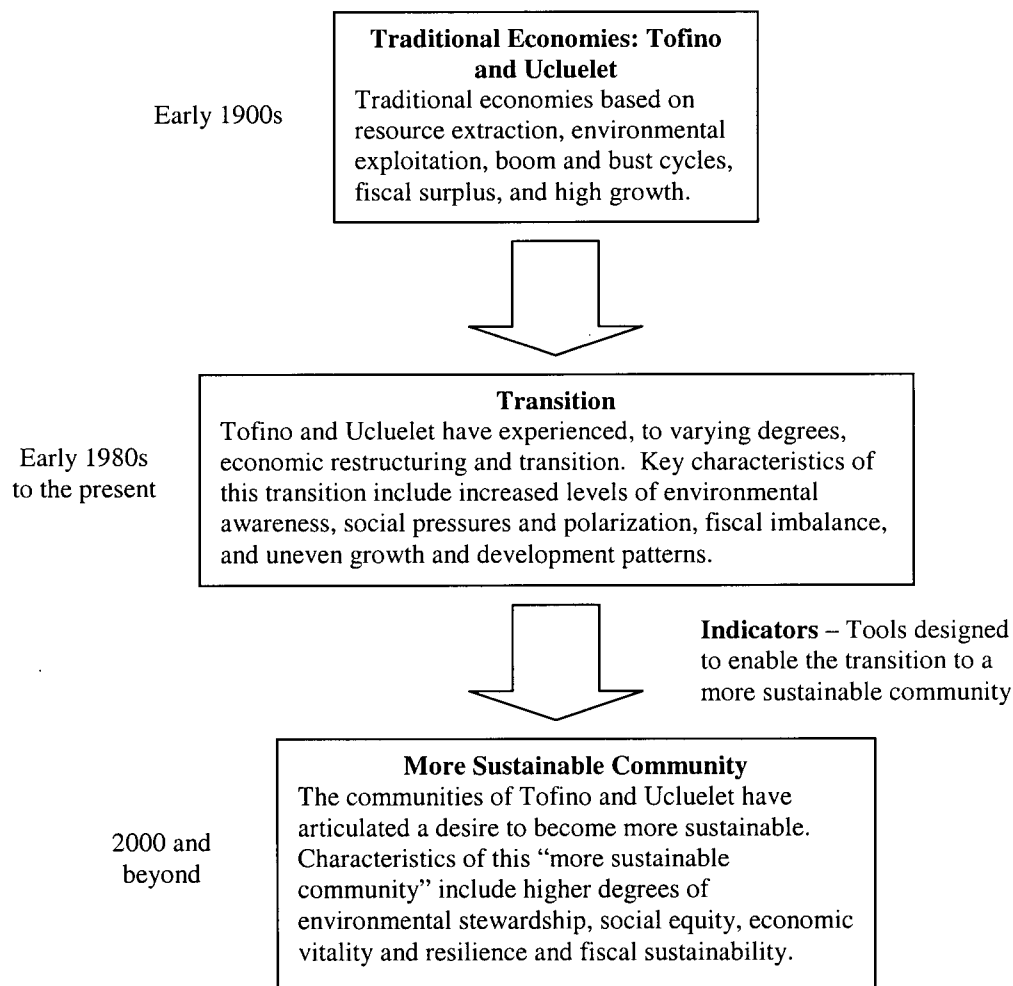
British Columbia is experiencing economic transition associated with a diminishing natural resource base and a corresponding shift to secondary and tertiary resources. In the past, financial capital generated from the exploitation of BC's natural resources has resulted in significant wealth creation in the form of corporate profits, government revenues, and personal incomes. However, due to a number of internal and external forces affecting the BC economy, there has been a significant decrease in the wealth generated from primary resource extraction that has had serious and important implications for many of BC's communities.

A key factor in the restructuring of the provincial economy is the substantial and increased contraction in resource extraction industries due to structural change in supply and demand conditions and increased public pressure to curb environmental degradation and resource depletion. Increasingly, communities in British Columbia have witnessed conflict that arises from the wide range of preservation and non-preservation values stemming from different perspectives associated with the natural environment (Roessler and McDaniels, 1994). In the past few years, the concept of sustainability has been advanced to address the challenges inherent in processes and policies that sacrificed long term environmental and community health for short - term economic gain.

Two communities dramatically affected by economic transition are Tofino and Ucluelet. While the communities share several similar biophysical and geographical traits, key differences exist in their historical and socio-economic development. The communities, dependent on natural resources throughout their history, have developed different responses to the challenges created by transition. However, both communities are acutely aware that in order to become healthy and

self-sufficient in the long run, they need to develop planning strategies that reflect the concept of sustainability (Interview, McNamara, 2000 and Interview, Mazzoni, 2000).

The following diagram represents key factors in the transition experienced by the Tofino and Ucluelet and provides a conceptual framework for the development of this project. This project will discuss the transition experiences of Tofino and Ucluelet and detail how sustainable development tools (indicators) can help the communities move towards a more sustainable future.



The project's purpose is to introduce indicators as a means to enable the journey towards more sustainable communities.

1.1. Project Objectives

The objectives of this project are to address three key questions:

- What are the factors contributing to structural economic transition in Tofino and Ucluelet within the context of British Columbia as a whole?
- How have the communities of Tofino and Ucluelet addressed the challenges of economic transition and how are they planning for a more sustainable future?
- How can sustainability indicators be used by the respective communities to move towards a more sustainable future?

This project seeks to develop indicators that Tofino and Ucluelet could utilize to facilitate progress towards becoming more sustainable. In doing so, the project seeks, in part, to embed settlement planning in a biophysical context. The development of indicators is not a planning panacea for all of the challenges faced in a move towards sustainability. The creation and implementation of indicators contributes to a greater understanding and discourse on the importance of becoming more sustainable and provides a mechanism to determine “how well” each community is making the move.

1.2. Approach and Methodology

Section Two will provide the context in which the analysis will take place. This section will introduce the theory behind structural change and economic transition. This portion of the project will draw on the literature related to economic transformation and will frame the discussion within the context of British Columbia. Section Three will introduce Tofino and Ucluelet providing a brief introduction of their socio-economic status and development history. These sections will address the first key question of the project: What are the factors contributing to structural economic transition in Tofino and Ucluelet within the context of British Columbia as a whole?

Section Four will analyze how Tofino and Ucluelet have responded to economic transition. The discussion will be based on qualitative research that focuses on interviews with the region's respective planning offices. The different planning responses to economic transition, coupled with variable internal and external development forces, have resulted in two very distinctive communities. This portion of the project will address the second key research question: How have the communities of Tofino and Ucluelet addressed the challenges of economic transition and how are they planning for a more sustainable future? This portion will focus on direct planning action within the communities by the respective planning offices.

Section Five will then introduce indicators as a sustainable development tool that can be used to ease the transition to a more sustainable future. The theory behind the development and implementation of indicators will be introduced. Several key indicators will be presented that the two communities could use to measure progress. Additionally, the project will suggest a process by which indicators can be integrated into planning practice. The project represents a "first step" in using indicators to facilitate the transition to sustainability. This portion of the project is designed to be useful for the communities of Tofino and Ucluelet in their move towards a more sustainable future. This project is written for the planning offices of Tofino and Ucluelet, as well as members of the respective communities, to facilitate the ongoing transition towards sustainability.

2.0. Context – British Columbia in Transition

In 1993, the British Columbia Round Table on the Economy and the Environment (BCRTEE) was charged with the duty of producing a “sustainability strategy” for the province of British Columbia. While the Round Table was eventually disbanded, it developed several concepts designed to guide British Columbia towards sustainability during a period of significant economic transition.

This purpose of this Section is to introduce and build upon the BCRTEE analysis of sustainability and economic transition to provide a context for the development challenges facing the coastal communities of Tofino and Ucluelet. It is important to recognize that the trends and issues experienced in these coastal communities are shared, to varying degrees, by many smaller, peripheral, rural communities throughout British Columbia. Additionally, the planning responses designed to address these issues in Tofino and Ucluelet may be applicable to other areas and scenarios in BC.

2.1. Key Factors in British Columbia’s Economic History (1960 –1995)

Two key indicators, traditionally used by economists, point to heightened economic opportunities in BC during the sixties until the 1990s. “From 1961 to 1989, the Gross Domestic Product (GDP) grew an average of 4.7 percent per year. This growth was higher than any Canadian jurisdiction” (BCRTEE, 1993, 8). This economic growth was complemented by a doubling of the province’s population and an increase in the real disposable income of British Columbians. Additionally, public services expanded as government revenues, tied to a growing economy, swelled.

Historically, British Columbia’s economic activity has been based primarily in resource extraction and export. Staple exports have driven economic growth, job formation, social

development, and settlement patterns. This staple driven economy has occurred within the context of the core-periphery framework of the Canadian federation in which hinterland regions, such as Tofino and Ucluelet, supply resource commodities to the urban core region (Innis, 1930).

British Columbia is a classic example of a resource dependent or staple economy. The province is situated away from the decision making power of central Canada and its major form of economic activity is based on resource extraction and export. Hutton (1994) notes that there are several reasons for why BC's economy has developed as such. He offers the following characterisation of the general scope and depth of the resource sector's influence on the economy of British Columbia.

1. **Historical Role of Resources:** Natural resources were the key factor in the development of British Columbia's economy;
2. **Importance of Resources in Export Trade:** Staple commodities (such as lumber) make up the largest proportion BC's exports. These staple commodities are particularly important in terms of international exports.
3. **Resource Influence on Business Cycles and Development Path:** Due to the fact that BC is dependent upon resources and staple based trade, the province's economy and development path is characterized by recurring "boom and bust" cycles that are typical of staple dominated economies.
4. **Linkages Between Sectors:** A large proportion of the province's economic activity is focused on processing, refining, or manufacturing staple commodities. BC's large and expanding service sector is directly dependent upon the resource sector. Service activities dependent on resource can be found not only in urban areas such as Vancouver, but in the resource communities themselves.
5. **Influence Upon Infrastructure Investment:** Public and private infrastructure investment has been determined to a large degree by the resource sector. For example, road and rail

development occurred in order to “open up” the hinterland regions of the province so that resources could be extracted.

6. **Influence Upon Settlement Patterns:** Resource exploration and extraction shaped, and continue to shape, patterns of human settlement in BC.

British Columbia’s incredible wealth of natural resources has provided the basis for long periods of economic growth and prosperity as resource extraction has transformed natural (environmental) capital to financial (economic) capital on a massive scale. Financial capital generated from the exploitation of BC’s natural resources has resulted in significant wealth creation in the form of corporate profits, government revenues, and personal incomes.

Nevertheless, Hutton and Davis (1992) and Hutton (1994) note that significant fundamental and structural changes are occurring within the BC economy that are well established and possibly accelerating. These structural shifts have serious implications for the pattern of development in BC. Indeed, this structural transformation is so profound that many economists refer to BC as being at a developmental crossroads.

2.2. Economic Transition and Structural Change

The economic transformation presently taking place in British Columbia can be characterized by several key features (adapted from Hutton, 1994):

1. Significant pressure on the provinces “critical resource sector” caused by the commodity price shocks experienced in the early 1980s.
2. Substantial and increased contractions in resource extraction industries due to structural supply and demand conditions and increased public pressure to curb environmental degradation and resource depletion.

3. Rapid and pronounced shifts in the British Columbia economy caused by (i) a shift to a more service oriented provincial economy as a whole, (ii) the rapid tertiarization of major urban centers such as Victoria and Vancouver, and (iii) significant industrial expansion in suburban Vancouver, southern Vancouver Island, the southern interior, and the Prince George region.
4. A reconfiguration of growth and development within the province characterized by an increase in Vancouver's share of growth and development, the emergence of important regional centers, and the potential decline of smaller communities (such as Tofino and Ucluelet) in the resource dependent hinterland.
5. A reorientation of British Columbia's international relationships characterized by increased global trade, increased ties with the Asia Pacific region, and integration with Pacific Rim networks, markets, and societies.

Various governmental entities have played significant roles in the development and diversification of the province's economy. However, while "the sequence of diversification measures have met with some partial success ... the demands of structural adjustment ... suggest the urgent need for a new policy direction" (Hutton, 1994, 2). The need for a new direction is articulated via the British Columbia Round Table on the Environment and the Economy who, following a two year study on transition and development in BC state:

"[It is] a very different world from what we enjoyed in the 1960s and 1970s. The modest growth estimates reflect a fundamental shift in economic fortunes; they are not simply cyclical swings – a temporary down-turn in our "boom and bust" cycle. They reflect a structural shift in British Columbia's outlook that will not be transformed by a revival of international commodity markets ... The expansion and economic vibrancy of decades of resource prosperity are gone" (BCRTEE, 1993, 34).

With a significantly declining resource base, British Columbia's economy is now facing a period of transition. This transition can be very painful. Klein (1999) notes that tourism, instead of resource extraction is economic downsizing. Aside from a few entrepreneurs, the people who are the labourers take a huge cut. There is a massive reduction in wealth in the overall community.

This transition, with its associated issues and implications for communities, has resulted in an economy very different from traditional, resource dominated economies of the past.

2.3. Characteristics of a Mature, Advanced, Export Oriented, Staple Economy in Transition

The following discussion highlights the important characteristics of the provincial economy as it experiences transition associated with a diminishing resource base. All of these factors are evident in the communities of Tofino and Ucluelet, to varying degrees, as they experience economic transition.

1. Significant Depletion of Resources Following Extensive Periods of Resource Extraction

Hutton (1994) notes that mature resource economies face increasing stock management problems due to increasing pressures on the resource stock from multiple user groups. For example, in forestry, second and third growth timber stands, as well as forests in less accessible areas, are increasingly exploited. This pattern of resource exploitation has serious implications for the quality of life of the people and communities dependent upon those resources.

2. Well Established Export Markets for Principal Staple Commodities

Export markets are established over time to a variety of locations and are supported by marketing and promotion efforts.

3. Increasing Capital Intensive Extraction Processes

As resources are exploited, there is a marked increase in capital expenditures on infrastructure and extraction processes and technologies. Correspondingly, this increase in capital intensive processes sees a marked *decrease* in labour costs, resulting in job loss and layoffs.

4. Increasing Competition From Other Staple Regions

Different staple regions compete with the mature region, as costs rise with a decreasing resource base. Costs in the alternative regions are often lower as their level of resource depletion has not necessitated a corresponding increase in operating costs.

5. Shifting Development Path from a Pure Extraction Mode to a Value Added Mode

As the resource extraction economy matures, there is increasing emphasis on refining and processing resource commodities before they are exported.

6. Increasing Diversification of Industrial Structure of Settlements and Zones

As regions mature, there is a trend towards higher levels of manufacturing, tourism, local administration, and service activities. Resource communities tend to evolve to this state as the resource base diminishes.

7. Evolution of Settlement Patterns

In the case of British Columbia, the principal city, Vancouver, enters a post-industrial mode and develops linkages with external markets (Hutton, 1994). At the same time, smaller hinterland communities grow and mature and reduce their dependence on the principal city.

8. Increasing Awareness and Community Participation in the Policy Community

As the costs and consequences associated with resource extraction become more acute, there is increasing participation in policy debates from the community at large, environmental groups, other special interest groups, and politicians.

The next section will build upon the typology introduced here, focusing on the experiences of Tofino and Ucluelet.

3.0. The Experiences of Tofino and Ucluelet

Building upon the previous section, this section will introduce the key factors that contributed to structural economic transformation in Tofino and Ucluelet. Brief socio-economic snapshots of the communities will be provided. However, the majority of the discussion will focus on the development history of the respective communities in terms of economic transition.

3.1. Tofino - Background

Tofino was incorporated as a village municipality in 1932. In 1983, the boundaries of the community were extended to the Pacific Rim National Park and Tofino became the District of Tofino (see Map in Appendix A). Tofino comprises 1,940 hectares on the Esowista Peninsula. It is bordered to the south by Pacific Rim National Park and surrounded by the Pacific Ocean. The population fluctuates dramatically. The year round population is estimated at 1,479 (BC Stats, 2000). By road, Tofino is situated 40 km northwest of Ucluelet and 125 km west of Port Alberni. Tofino has historically been considered a fishing town and is the key departure point for people who live in the Clayoquot Sound region. Among the residents of the Clayoquot Sound region are the Ahousat, Opitsaht, and Hesquiaht First Nations. (Refer to Appendix A for an in-depth statistical analysis of Tofino.)

3.1.1. Tofino - Economy

Currently, the Tofino economy is based on seasonal tourism that draws upwards of one million visitors per year to the region. The influx of people exerts significant pressure on the area's local infrastructure including parking, roads, water, sewage, and housing. Additionally, many people who work in Tofino live in Ucluelet and make the daily commute along Highway Four.

In 1996, statistics indicate that the industries employing the most people in the community were accommodation, food, and beverage services (23.5%), retail trade (13%), and other service

industries. Primary industry (in the resource sector) provides work for 9.3 % of the labour force. The average income in Tofino is \$29,366, below the provincial average of \$37,894. Employment accounts for 71.5% of income in the community (66.3% is the provincial average) (BC Stats, 2000).

3.1.2. Tofino – Social Assessment

Over the past twenty years, the population of Tofino has experienced significant growth, from 656 people in 1979 to 1,479 in 1999. Over the past three years the community has experienced an average population growth rate of 6.5%. The unemployment rate in 1996 was 7.4%. As of December 1999, 2.0% of the population (age 19 to 64) was receiving BC Benefits and 6.9% Employment Insurance. In 1996, 10% of households paid 50% or more of their income to rent (BC Stats, 2000).

3.1.3. Tofino - Development History

Tofino began as a trading post to service settlements in the Clayoquot Sound region that depended on water transportation as a link to the outside world. The Tofino Board of Trade, now referred to as the Tofino-Long Beach Chamber of Commerce, was established in 1929 to lobby the federal and provincial government to develop a road link to the community. However, a road would not be built until the early sixties. Power and light was introduced to the community in 1950 via three diesel generators that were located at the airport (Guppy, 1997).

From the early 1900s, fishing, forestry, and mining were the primary industries in the region. At that time, the only tourist accommodations were provided by the Clayoquot Hotel, which had a sparse offering of rooms (Guppy, 1997). During this period, two major forest companies applied for tree farm licenses in the region. MacMillan-Blodel Ltd and BC Forest Products Ltd sought to log the area extending from Barkley sound westward into Clayoquot Sound. However, there was

some local opposition to the application because the application was in conflict with a government proposal to utilize a large track of timber as a "Public Working Circle" for small logging operators (Interview, McNamara, 2000).

In October 1954 an important agreement was made in which the two companies would construct sections of the road to the coast (or turn over existing logging roads) in exchange for the granting of the tree farm licenses. It was proposed that the road would remain private and industrial with limited public use until 1964, when it would be turned over to the government for use as a public road (Guppy, 1997).

The building of the road had serious implications for the development of both Tofino and Ucluelet. However, it is difficult to determine how much the road stimulated development in Tofino and how much of the growth and development would have occurred regardless. The fishing industry, especially salmon trolling, was booming – when salmon fishing was good, as many as four hundred boats would tie up on the Tofino dock. In 1960, the Tofino boat harbour, equipped with a breakwater, was completed (Guppy, 1997).

With the completion of the road in the mid-sixties, Tofino began to experience some significant growing pains. The lack of a community water system, sewage system, and garbage disposal system were all major issues for Tofino. Garbage was often disposed of by dumping it on the beach or throwing it off the end of the government wharf. As people increasingly became concerned with the aesthetics and health factors associated with waste disposal, it became apparent that a mechanism had to be developed to manage growth (Interview, McNamara, 2000).

In 1964, a campaign was initiated to have Long Beach designated as a National Park. Long Beach was officially designated a national park in 1971 along with the Broken Island Group and

the West Coast Trail. Towards the end of the sixties, and into the seventies, increased access via the road and the National Park designation, brought an influx of people from urban areas to the region. Young people often lived within the park boundaries as “squatters.” At the same time, more affluent people began to build houses in subdivisions near Long Beach Park. The two lifestyles did come into conflict at some times, but issues were resolved when the Pacific Rim Park administrator was given the jurisdiction to evict the squatters from the area. However, many of the squatters remained, eventually finding employment and housing in the region (Interview, McNamara, 2000).

Development in Tofino and Ucluelet continued to be influenced by transportation access. In 1972, the Port Alberni to Tofino road was paved, creating a demand for property and significantly increasing real estate values. In the 1970s tourism expanded – the main draw was the beauty of Pacific Rim National Park, but there was increasing recreational activity outside of the Park, including camping, surfing, kayaking, and whale watching. During this period many resorts and lodges developed to accommodate visitors.

Tourism was becoming an important activity in the region in the seventies, but resource-based activities still flourished. Tofino and Ucluelet were the major BC fishing ports in the 1970s. Up until the 1980s, the major employer in Tofino and Clayoquot was the Tofino Fish Plant. In 1983, the plant closed and fish farming emerged as a major industry (Guppy, 1997). Logging and mining still occurred in the region. However, well organized segments of the population were opposed to logging and mining in Clayoquot Sound. Through influence in the Chamber of Commerce and the Municipal Council and through the formation of their own special interest groups, these people have been very influential in the recent development of Tofino (Interview, McNamara, 2000; Klein, 1999).

The type of people who lived in Tofino began to influence the development direction of the region. In the sixties, seventies, and early eighties, the population was made up primarily of fishermen and loggers, just like Ucluelet. However, during this time, the population of aging hippies and people who were looking to for a a greater connection to nature increased dramatically (Klein, 1999).

The influx of people to Tofino not employed in the resource extraction industry and concerned with environmental issues led to an increase in the amount of environmental activism in the mid-eighties. Resource extraction, especially forestry and fishing, were in serious decline. Protecting remaining forests, the water and timber supply on nearby Meares Island (which dominates the Tofino viewscape), and addressing First Nation land claim issues became priorities in the late eighties and early nineties. Mining exploration in the region was also in decline and environmentalists were expressing concern over issues associated with fish farming.

Throughout the nineties, Tofino continued to experience significant growth in the resort and tourism industries while experiencing corresponding declines in the resource extraction industries (forestry and fishing). The District of Tofino acknowledges that estimating the value of tourism in the region is very difficult due to unreliable and consistent data (Interview, McNamara, 2000). Nevertheless, in terms of contributions to income and employment, tourism is one of the top industries in Tofino (along with seafood and timber production).

The evolution of development in Tofino has resulted in key issues that the community must face including the provision of adequate housing and municipal services for residents. In order to deal with the challenges facing the community, Tofino is currently in the process of reviewing their existing Official Community Plan (OCP). The new OCP will reflect the changes that have occurred in the past ten years, including the increase in tourists, the designation of Clayoquot Sound as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) reserve,

and the decline of the resource sector (Interview, McNamara, 2000). The development of a rigorous and responsive OCP is important for the image of Tofino and the whole of British Columbia, as the region receives significant international attention. Additionally, due to highly publicized resource conflicts, attention has been focused on the environmental effects of economic activity in the region.

3.2. Ucluelet - Background

Ucluelet means “safe harbour” and was named by the Nuu-Chah-Nulth First Nation. Ucluelet was incorporated as a district municipality in 1952 and is situated at the western entrance to Barclay Sound. By road, the district is 99 km west of Port Alberni and 42 km Southeast of Tofino. Ucluelet has a total area of 1,143.6 hectares and its current population is 1,764. (Refer to Appendix A for an in-depth statistical analysis of Ucluelet.)

3.2.1. Ucluelet - Economy

Present day Ucluelet has a relatively diverse economy that includes tourism, forestry, and fishing (commercial and recreational). It has been noted that the waters off of Ucluelet offer some of the world’s best salmon and halibut fishing. The major industries that provided employment in the community in 1996 were manufacturing (18.4%), primary industry in fishing and forestry (15.8%), accommodation, food and beverage (15.3%), and government services (10.2%). The average mean income in Ucluelet in 1996 was \$32,838 (the provincial average is \$36,961). Employment accounts for 70.3% of income generated in the community, compared with a 66.5% provincial average (BC Stats, 2000).

3.2.2. Ucluelet – Social Assessment

Over the past twenty years the population of Ucluelet has grown 18%, from 1,452 in 1979 to 1,764 in 1999. However, over the last three years, with the declining economy, the community

has experienced an average annual growth rate of 0.6%. In 1996, the unemployment rate was 12.2%. As of December 1999, 3.6% of the population (age 19 to 64) was receiving BC Benefits and 15.7% was receiving Employment Insurance. In 1996, 9% of households paid 50% or more of their income to rent (BC Stats, 2000).

3.2.3. Ucluelet – Development History

The first settlers in the region were fur sealers that arrived in the late 1880s. In 1903, a whaling station was established at Seachart in Barkley Sound that operated for several years. By the 1920s the fishing industry was booming in Ucluelet. However, the primary industry in the region was logging. With logging and the completion of the road to Port Alberni came increased growth in Ucluelet. On February 26, 1952, the village of Ucluelet changed its status to the District of Ucluelet to reflect the increasing population (District of Ucluelet, 2000).

After World War Two, the North Coast Logging Company began logging in the region and eventually sold out to MacMillan Blodel. MacMillan Blodel operated out of the Kennedy Lake logging camp until 1995. Resource extraction industries provided nearly all income and employment in Ucluelet. However, throughout the eighties and nineties, MacMillan Blodel pulled out of the region, eroding the Ucluelet economy (Klein, 1999). The decline of the forest industry can be attributed to several factors, summarized in the following passage:

“Towns ... employed a thousand people and more in individual mills, and work was easy to come by. At the plywood mill Bonthius, a seventeen year old high school dropout, quickly found work on the bundling line where plywood sheets were wrapped together in kraft paper. ‘I was living the good life, making good money, Bonthius recalls. ‘I remember the 1960s driving around in a car, and no matter where you drove there was wood. There were trees. In those days it looked like there would never be an end.’ But then Bonthius’s employer, MacMillan Blodel Ltd., made a big capital investment in the mill and suddenly it seemed as if no jobs were safe. ‘We had a mega layoff in the 80s,’ Bonthius said. ‘They added a lot of automated equipment and what it meant was a mill that once carried 912 people then carried 365.’ Those layoffs and others opened Bonthius’s eyes. ‘Probably in my forties I really started becoming aware of the diminishing forests, the poor logging practices. You didn’t need to go very far to find tonnes of wood lying rotting the forests’” (McGonigle and Parfitt, 1994).

The Ucluelet economy, alluded to above, was very hard hit with the pullout of MacMillan Blodel (Klein, 1999). The fishing industry was also in serious decline. With little other industry in Ucluelet, the community experienced severe economic hardship in the late eighties and nineties. Unlike Tofino, Ucluelet's economy had not begun to diversify – there was little tourism or alternative industry. However, recent planning initiatives have sought to diversify and strengthen the local economy. The promotion of the tourist industry, accompanied by the development of alternative fisheries and value-added production techniques, has resulted in a slow recovery from the hardship caused by the decline of the resource based economy (Interview, Mazzoni, 2000). A new Official Community Plan has been developed to help steer a course for a new Ucluelet.

This section has provided a background of the development of Tofino and Ucluelet, exemplifying key factors in the economic transition of the two communities. Analysis will now focus on how the two communities, through various planning initiatives, responded to this transition.

4.0. Transition and the Planning Responses

This section build upon the previous section by discussing how the communities responded to economic change either by deliberate planning action within the community or in a reactive manner, with little or no proactive planning input. The discussion is based entirely on interviews with the municipal planners in Tofino and Ucluelet.

The following questions were asked:

1. Describe the most important aspects in the planning history of Tofino and Ucluelet.
2. How have transition issues, associated with a move away from reliance on natural resources, affected planning in Tofino and Ucluelet?
3. What are the most important issues facing your community as you experience transition associated with a diminishing natural resource base?
4. What is the planning department's understanding of sustainability? How do you personally think about the concept of sustainability?
5. How has the concept of sustainability been considered in planning in Tofino and Ucluelet?
6. What mechanisms have the planning department used to track progress towards sustainability? (What type of indicators does the planning department use to track progress?)
7. Has there been an opportunity for community members to gather and discuss the issue of sustainability?
8. How would you characterize the relationship between Tofino and Ucluelet?
9. What do you perceive as the major differences between Tofino and Ucluelet from a planning perspective and a community development perspective?

What follows is a conceptualization of how the planners in the region (Cathy McNamara in Tofino and Felice Mazzoni in Ucluelet) understand how planning has endeavoured to meet the challenges of economic transition in the two communities.

4.1. Tofino

Cathy McNamara, the municipal planner in Tofino, recognizes that the community continues to experience substantial growth of the resort and tourism industry with the corresponding decline in the resource industry. However, McNamara notes that the transition from a resource based economy to a service based economy has been made easier, in part, by the persistence of diverse industrial activities (such as fish farming) and the overall strength of the tourist industry. In other words, transition in Tofino has not occurred overnight. Long before resource companies started

shutting down their operations, Tofino had developed diverse resource activities and tourism opportunities. Due to the area's natural endowments and the recognition of the growth potential of tourism, Tofino has adapted relatively well to the decline in natural resources.

While tourism has provided much needed income for Tofino, the community is not without significant planning problems. Due to the high rate of growth in Tofino over the past decade, the community has been reacting to development, instead of proactively planning for it. McNamara notes that this has resulted in mistrust, frustration, and lack of understanding in the development approval process in Tofino.

The provision of sufficient and adequate housing and the delivery of municipal services are two key planning challenges. Long time community members and individuals working in the remnants of the resource sector are increasingly being priced out of the housing market. There is a lack of affordability and variability in housing stock for existing residents and newcomers with changing and different needs. Additionally, there is a significant lack of rental stock and staff housing available in Tofino. The provision and delivery of municipal services, such as water supply, is problematic. Development in Tofino has been occurring rapidly, without sufficient knowledge of the supply and distribution of water. The community has no plan to deal with projected population growth and its effect on a water system that already faced acute shortages in the summer months.

A large part of the problem is the lack of an Official Community Plan (OCP) that reflects the recent changes that have occurred in the community. An OCP is a framework of objectives and guidelines that guides the decisions of local governments with regards to planning and land-use management. The active, living document considers the implications of decisions in a ten to twenty year time frame and is generally updated every seven years. Currently, Tofino is in the

middle of an OCP review process that will address the significant changes that have occurred in the community as a result of economic transition. Key issues in the community relate to the massive increase in tourism visitation in the past ten years, the collapse of the resource sector, and the designation of the UNESCO Biosphere Reserve. McNamara notes that the concept of sustainability will be a guiding principle in the new OCP.

McNamara is quick to caution that the new OCP will not be a planning panacea for all of the community's problems. She warns of heightened expectations. What she is optimistic about is that the new OCP will better meet the needs of the community. In the past when a developer's proposal was turned down because it was contrary to the OCP, the District would simply amend the OCP to allow for development within the community that would hopefully stimulate economic growth. While the provision of economic development was laudable, it sometimes sacrificed environmental and social goals. The new OCP will provide a holistic and integrated approach to development in Tofino.

McNamara posits that another critical challenge in planning for transition is a lack of resources. She notes that funding to provide baseline information on the state of Tofino is sorely missing. By pursuing relevant research that seeks to inform planning issues, McNamara feels the community could make progress towards sustainability. (For example, the development of indicators to measure progress towards sustainability would be a useful planning initiative for Tofino.) However, resource constraints, such as a lack of funding, prohibit such action.

In order to deal with this lack of resources, there has been a move to establish strategic partnerships in order to generate strategies for moving towards a more sustainable future. However, McNamara notes that creating planning partnerships among different groups that involve the community is not without significant challenges. Tofino's population is very diverse

and very political. Tofino's population is made up of a significant amount of educated individuals on one side (retired professors, for example) and loggers and fishermen without a high school diploma on the other. McNamara notes that the values and ideas of these two groups are often extremely variable and are often expressed very differently. Developing a vision of an "ideal Tofino" can be very difficult, considering the multiplicity of values and the willingness of citizens to participate in community processes. However, the concept of sustainability is well known in the community and a number of forums, public meetings, and workshops have been held to discuss the issue.

McNamara is hopeful that the new UNESCO designation (accompanied by a \$12 million endowment fund) will contribute to planning research and action that will proactively seek to implement sustainability in Tofino and the region. Partnerships with the UNESCO initiative may well address some of the planning challenges that the area faces. Additionally, it is becoming increasingly recognized that working with the District of Ucluelet in creating a regional sustainability strategy might also be useful. While any formal arrangement may be a long way off, there is now a move for staff members at the respective planning offices to meet and discuss strategies for developing the region.

4.2. Ucluelet

In contrast to Tofino, the transition away from an economy based in natural resource extraction has been more abrupt and painful in Ucluelet. Felice Mazzoni, the municipal planner for the District of Ucluelet, says that the declining fishing industry, coupled with the departure of MacMillan Blodel in the eighties and nineties, destroyed the local Ucluelet economy. With little or no tourism in the District and few industrial diversification endeavors in the region, Ucluelet suffered. In an attempt to provide guidance to a much needed diversification strategy, an OCP was developed that created a foundation for a shift to a more diverse and sustainable community.

During this period of economic hardship in the eighties and nineties, animosity grew between Tofino and Ucluelet. Many in Ucluelet saw the liberal minded conservationists and anti-corporate hippies living in Tofino as contributing to the down turn in industrial resource harvesting. The problem was made worse by the perception that Tofino was flourishing with a tourist economy that brought urbanites to the area while Ucluelet floundered in post-industrial despair. The OCP, which was completed in December 1998, provided a direction to planning in Ucluelet that would support a move towards a more sustainable community and seek to rectify the perceived inequality between the two Districts.

Mazzoni states that there were three major issues that characterized economic transition in the late eighties and nineties. First, with a pull-out of industry, there was a decline in population growth rates and a corresponding decrease in the tax base. Secondly, there was a decrease in net family income, resulting in the inability of many to afford sufficient housing. Thirdly, the transition caused a painful reduction in community fabric and social relations. Tension in the community associated with mass layoffs and people travelling farther and farther away to find work had serious implications for the overall well-being of the community.

Mazzoni has faith that the OCP has been able to support development in Ucluelet that is sustainable. Mazzoni asserts that zoning and land-use planning, supported by policy within the OCP that adheres to principles of sustainability, supports the transition to a more sustainable community. The OCP has a provision that allows a “guest zone” – a flexible zoning law that addresses any unforeseen factors that might arise in transition planning. However, the key principles of the OCP that support sustainability drive the planning process in Ucluelet.

Mazzoni notes that the concept of sustainability has been given extensive attention in the Ucluelet community through a variety of forums. Like McNamara in Tofino, Mazzoni recognizes that there is a multiplicity of issues and values and there is a serious discrepancy in levels of understanding related to certain issues. Nevertheless, he notes that discussion about sustainability is good for the community.

In order to become more sustainable, Mazzoni argues that two things need to be present. First the policies, goals, and objectives of the community need to be expressed and articulated via an OCP. Secondly, the corresponding infrastructure and programs need to exist to support the values and objectives of the community. Transition towards a more sustainable future needs to occur slowly, constantly assessing the capacity of the environment and socio-economic system to be able to deal with change and development. In this regard, Mazzoni recognizes the good fortune and pragmatic planning approach employed in Ucluelet that has considered the limits to growth in developing the District. In contrast, Tofino is facing serious development issues due to a development approach that did not consider the ability of the environment and community to support growth associated with a booming tourism industry. Ironically, Ucluelet now has the benefit of learning from the mistakes that Tofino made in their transition strategy.

Ucluelet is moving towards a more diversified economy that reflects important principles of sustainability. There is explicit recognition of the need to preserve environmental systems and amenities in order to support both the expanding tourist industry and resource activities (including a tanner crab fishery, selected forest harvesting, and value added processing ventures).

Mazzoni recognizes that the OCP is an active living document that will evolve to meet the needs of transition and sustainability. Currently, land use planning that supports the policies of sustainability outlined in the plan drives the transition to a more sustainable community.

Environmental assessments for specific sites support the adoption of plans in the District. However, Mazzoni notes that there is value in integrating indicators into Ucluelet's planning processes. Indicators would be extremely useful in terms of measuring how the community as a whole is moving towards sustainability. Mazzoni recognizes the value of indicators and has suggested that joint staff meetings between the District of Tofino and the District of Ucluelet might be well served to develop indicators (similar criteria) to help guide the planning process.

4.3. Applying Indicators

This project will discuss how the use of indicators can contribute to more sustainable communities. Indicators will be introduced as tools that can contribute to more sustainable communities. It has been recognized among policy makers that certain criteria need to be met to achieve sustainability:

Ecological Criteria

- Consumption by the economy of the products and services of nature cannot exceed their rates of production by the ecosphere.
- Production of wastes by the economy cannot exceed the assimilative capacity of the ecosphere.
- Economic activity must not jeopardize essential life support systems of the ecosphere.

*These factors lead to the following overall necessary condition for ecological sustainability (the constant natural capital stock criterion): **Each generation should inherit an adequate per capital stock of self-producing natural capital no less than inherited by the previous generation.***

Socio-Political Criteria

- Society must satisfy basic standards of material equity and social justice.
- Political stability must be assured through the effective participation of an informed citizenry.

Adapted from Hutton, 1994; Rees, 1994

In order for planning to reflect this reality, linkages between economy and environment need to be integrated into planning practice. Hutton (1995) notes several trends and developments in progressive planning that address the importance of the relationship between environment and economy:

1. Full Cost Accounting Practices

Conventional measures of economic well being, such as GDP, need to incorporate social and environmental factors. This approach would provide a more comprehensive and meaningful understanding of community welfare. It is the goal of this project to introduce indicators as a means for assessing community health on a variety of criteria not always considered in conventional planning practice. Indicators provide measurable criteria for assessing economic, environmental, and social factors related to community well being.

2. Planning in a Context of Economic Restructuring

In developing any planning initiative, the reality of economic restructuring needs to be considered. Most importantly, the implications associated with the decline of natural resources and the move away from “Fordist” production modes needs to be considered. This economic transformation involves a more “dematerialized economy.”

3. Environmental Quality Results in Progressive Economic Development

Jurisdictions with high degrees of environmental awareness and progressive environmental regulations are more likely to exist at advanced stages of economic development with favorable and diversified industrial mixes.

4. Environmental Amenity is a Positive Locational Attribute

Research finds that areas perceived to be environmentally healthy have two positive effects on communities. First, environmental enhancement is qualified as a social good - it makes for healthier communities. Secondly, environmental amenities act as positive locational factors in attracting desirable industries and skilled labour.

5. The Economy and the Environment Are Linked

The economy is a fully dependent subset of the ecosphere (Wackernagel and Rees, 1996).

6. Environmental Health Results in More Productive Human Capital

Evidence from social movements, such as the Healthy Communities Groups demonstrates that environmental quality has high socio-economic benefits in terms of the health and productivity of workers.

This project will focus on the development of indicators as part of a planning process that integrates socio-economic and environmental criteria in order to move towards sustainability. The use of indicators attempts to integrate and recognize the aforementioned trends in progressive planning. Both planners in Tofino and Ucluelet recognize the value of indicators in measuring progress towards a more sustainable future. However, due to a lack of resources and a development process rooted in land use planning, indicators have not been utilized to any great extent in either community. It is the purpose of this project to outline how indicators might be used by both communities, separately or as part of a cooperative regional planning effort, to track progress towards sustainability.

5.0. Using Indicators to Become More Sustainable

Much has been written about social change, and much about sustainable communities. But very little has been written about the creation of sustainable communities as a process of social change. Creating sustainable communities will require every tool we have to bring about change in institutions and individual human behavior.
(Moura Quayle, 1996)

This section seeks to develop a basic set of key socio-economic, ecological, and tourism-related indicators that could be applied to planning action in Tofino and Ucluelet. In the context of economic transformation associated with a diminishing natural resource base, and the corresponding issues of equity associated with the change, the concept of sustainability is becoming recognized as being extremely important. Tofino and Ucluelet are struggling with issues of sustainability and how to integrate the concept into planning processes and practices. In order to apply the concept of sustainability into planning practice, the gap between the concept of sustainability and its practical application needs to be addressed. The development and use of indicators contributes to this enterprise.

Tofino and Ucluelet both face planning challenges associated with change and growth stemming from economic transformation and an expanding tourism industry. Sustainability is extremely relevant to these communities as the area continues to grow and develop. While there is some recognition of the concept of sustainability in both towns, there needs to be a greater integration of the concept of sustainability into community development. By developing a set of sustainability indicators, the concept of sustainability can be further incorporated into the long term planning efforts of the two communities. This section will introduce the concept of sustainability and discuss how indicators can be used as a part of a larger process for working towards it. Examples of potential indicators will be provided that could be implemented into planning practice in Tofino and Ucluelet.

5.1. Sustainability

Many would argue that it is important to define what sustainability is, or might be, before any actions can be taken towards setting up more sustainable ... practices. We do not necessarily subscribe to the need to define sustainability to practice it, but the exercise of definitions is one useful way to understand perspectives and to understand competing views.

(Gibbon ET al, 1995)

The aforementioned discussion of sustainability typifies the lack of an overall consensus on the use and meaning of the concept. Nevertheless, "sustainability" persists as a popular idea, applied to a variety of contexts and situations. The vagueness associated with sustainability is captured and summarized by Schaller (1993): "As a destination, sustainability is like truth and justice – concepts not readily captured in concise definitions." Of course, all people want truth and justice, but the meanings of these concepts and their applicability can vary considerably between individuals and societies.

Perhaps the flexibility in understanding and describing sustainability is what has allowed the concept to gain such popularity. Those involved in sustainable development can provide their own take on the concept of sustainability, allowing all definitions to remain fashionable and mainstream. The uncertainty surrounding the idea of sustainability may be self-reinforcing and sustainable in and of itself (Bell and Morse, 1999). However, taking a less cynical approach, one could argue that the flexibility surrounding the concept of sustainability is suitable for addressing problems and challenges in a diverse world. A single definition for sustainability could prove to be not useful and potentially dangerous in a world typified by a multitude of different environmental, social, and economic conditions. Indeed some argue that "there is not, and should not be, any single definition of sustainability that is more logical and productive than other definitions" (Kidd, 1992).

5.2. Describing the Sustainability Debate

Why is there so much diversity surrounding the meaning of sustainability? More importantly, how is this relevant for communities that want to work towards sustainability as a goal? This section will describe and elucidate the reasons behind different understandings of sustainability – differences that occur, in large part, to various interpretations related to system quality.

Bell and Morse (1999) develop a scenario that is very useful in understanding the problems associated with sustainability. In the scenario, sustainability is represented by a change in a property referred to as system quality (Figure One). System quality is recognized as an extremely subjective term that is open to a wide variety of value judgements. Bell and Morse (1999) characterize the system as follows:

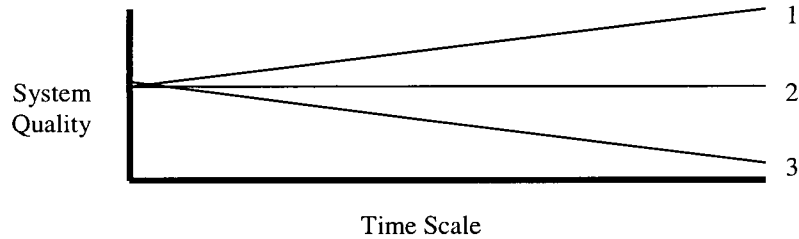
- When quality remains the same or increases, the system is said to be sustainable.
- When quality decreases, the system is unsustainable.

However, while this concept may be clear by analyzing Figure One, Bell and Morse (1999, 11-12) note that several problems necessarily arise:

1. *What exactly is the system we are ascribing some notion of quality to?* Who is in this system and who isn't? This may equate in a rather crude sense to the spatial dimensions of the system being evaluated, and one can ask where the system 'boundary' resides. Indeed, is there really a boundary at all?
2. *What do we take as a time scale across which quality is being gauged?* For example, in Figure 1.2b system quality fluctuates with time, but taken across the whole length of the time axis it remains more or less the same (=sustainable). If one only looked at small segments of the time axis rather than the whole length, the picture could be quite different. Some segments show a marked unsustainability as quality declines rapidly while other segments show a rapid increase.
3. *What is meant by system quality and how is it determined?* This problem is probably the most intractable. Quite frankly, given the same system and time scale it is possible for two people to arrive at very different views depending on what they see as important components of quality (Figure 1.2c). To one person the quality may be increasing while to someone else it is decreasing. This point can be illustrated from another angle – the costs of achieving sustainability or what some call 'profitability versus environment debate' (Schely and Laur, 1996). In the literature there is frequent reference to two types of sustainability ... depending on the costs incurred in attaining them (Common and Perrings, 1992; Rennings and Wiggering, 1997): strong sustainability and weak sustainability.

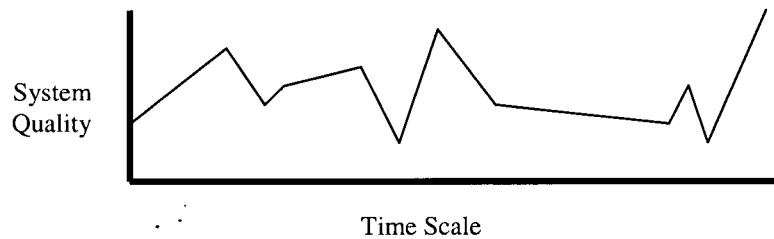
System Quality and Sustainability

a) Simple (one indicator)

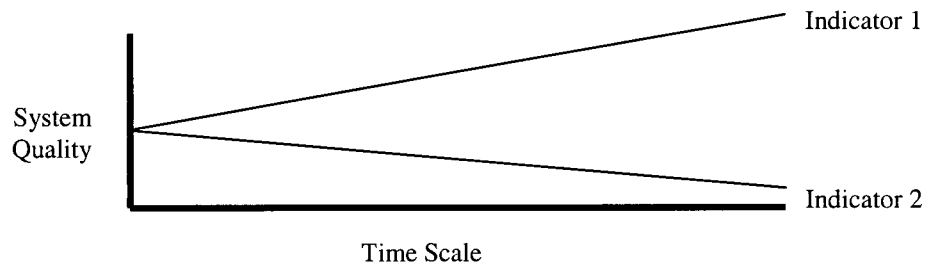


- 1 = sustainable (increase in quality)
- 2 = sustainable (quality remains constant)
- 3 = unsustainable (quality declines)

b) Complex (one indicator)



c) Simple (two indicators)



Source: Bell and Morse, 1999.

Variations in system quality, as discussed above, demonstrate the need for planners to work with communities to develop an understanding of the concept of sustainability. This understanding needs to focus on the values and ideas of the community. However, basic ideas, or minimum

requirements, need to be integrated into the community's comprehension of sustainability. An understanding of the concepts of strong and weak sustainability will elucidate how the concept of "system quality" needs to be resolved within a community before indicators can be created and sustainability can be worked towards.

5.3. Strong Sustainability Versus Weak Sustainability

"Strong sustainability recognizes the unaccounted ecological services and life-support functions performed by many forms of natural capital and the considerable risk associated with their irreversible loss" (Wackernagel and Rees, 1996, 37). For example, trees do not only provide lumber for building homes, but they provide a host of non-market functions including erosion control, heat distribution, and wildlife habitat. *The concept of strong sustainability requires that natural capital stocks (forests) be held constant or be enhanced separately or independently of human made capital (logs for homes).* Indeed, some authors further argue that manufactured human-made capital needs to be held constant so that there is no capital depreciation of any kind. When this scenario is achieved, the condition of strong sustainability will exist.

In contrast, weak sustainability argues that "society is sustainable provided that the aggregate stock of manufactured and natural assets is not decreasing. In other words, weak sustainability allows the substitution of equivalent human made capital for depleted natural capital" (Wackernagel and Rees, 1996, 37). For example, the loss of potential income caused by cutting down a forest is not a problem as long as the proceeds of liquidation are re-invested in other means of income earning potential. Weak sustainability refers to an economic sustainability in which financial value, determined by the allocation of resources and levels of consumption, is the key element of system quality.

Pearce and Atkinson (1993) argue that the concept of weak sustainability is ecologically meaningless. By analyzing data associated with trade flows, they demonstrate that weak sustainability fails to recognize that the manufactured and financial capital in rich countries comes from the depletion of other countries' natural capital and from common pool assets. Transferring this concept to a provincial scale, the "sustainability" enjoyed in many parts of British Columbia (Vancouver for example) comes at the expense of a massive and unaccounted ecological deficit with other parts of the province and world.

Communities need to recognize the difference between strong and weak sustainability in their planning processes. In order to be truly sustainable, policies need to reflect the principles discussed in the aforementioned definition of strong sustainability. Weak sustainability simply involves a spatial and temporal reallocation of unsustainable behaviour.

Rees and Wackernagel (1996, 32) conceptualize sustainability as "living in material comfort and peacefully with each other within the means of nature." This statement implies that human behavior must exist within the biophysical limits of the ecosphere. **Quite simply, planning policies and the development of indicators need to reflect the principles of strong sustainability.**

5.4. Sustainability In Practice – Measuring Progress

Sustainability must be made operational in each specific context (eg. forestry, agriculture), at scales relevant for its achievement, and appropriate methods must be designed for its long-term measurement.
(Heinen, 1994)

The previous section outlined some of the questions and quandaries surrounding the concept of sustainability. Sustainability shares much with the concepts of truth and justice – what makes up sustainability is influenced significantly by values, judgements, and ethics. Nevertheless,

regardless of one's vision of sustainability, once a goal has been set, a mechanism needs to be devised to figure out whether that goal has been attained. However, before a mechanism is invented (such as indicators), criteria needs to be established to analyze the potential effectiveness of that mechanism.

5.4.1. Criteria For Sustainability Indicators

Bell and Morse (1999) provide a list of principles for measuring progress towards sustainable development adapted from Hodge and Hardi (1997). These principles were decided upon in Bellagio, Italy in 1996 as part of an initiative to measure progress towards sustainability. The principles are summarized in Box One and provide a foundation for developing criteria for sustainability indicators (Bell and Morse, 1999, 17).

A Summary of Ten Bellagio Principles for Gauging Progress Towards Sustainable Development

1. What is meant by sustainable development must be clearly defined.
2. Sustainability should be viewed in a holistic sense, including economic, social, and ecological components.
3. Notions of equity should be included in any perspective of sustainable development. This includes access to resources as well as human rights and other 'non market' activities that contribute to human and social well being.
4. Time horizon should span 'both human and ecosystem time scales', and the spatial scale should include 'not only local but also long distance impacts on people and ecosystems'.
5. Progress towards sustainable development should be based on the measurement of a 'limited number' of indicators based on 'standardized measurement'.
6. Methods and data employed for assessment of progress should be open and accessible to all.
7. Progress should be effectively communicated to all.
8. Broad participation is required.
9. Allowance should be made for repeated measurement in order to determine trends and incorporate the results of experience.
10. Institutional capacity in order to monitor progress towards sustainable development needs to be assured.

Source: Adapted from Hodge and Hardi (1997).

Building upon The Bellagio Principles and integrating concepts from the literature related to indicator development, (Resilient Community Manual, 1999; Bell and Morse, 1999; Gregory, Julian, and Woolliams, 1999; Lafferty and Eckberg, 1998; OECD, 1998; Hart Website, 1996; Kline, 1997) the following criteria are necessary for the establishment of useful sustainability indicators. Indicators must be:

1. *Relevant to Definition of Sustainability*: Ecological, social, and economic sustainability needs to be considered in developing appropriate indicators.
2. *Highlight Equity*: Intergenerational equity is a key component of socioeconomic sustainability and is linked to ecological sustainability. Future generations must not have their needs compromised by decisions undertaken at present.
3. *Transferable*: The indicators must be designed so that they can be applied to a variety of communities so that progress among and within those communities can be compared. For example, the indicators developed must be able to be applied to both Tofino and Ucluelet in order to assess the relative success of each community in integrating sustainability into their planning processes.
4. *Consider Time as a Constraint*: The indicators must be responsive and able to recognize what is happening in communities before it is too late for planners and policy makers to take the appropriate action.
5. *Broad in Scope*: The indicators must consider a variety of factors and reflect a mix of long and short-term measures of sustainability.
6. *Comprehensive*: The indicators need to examine the community as a whole. The application of indicators needs to also consider the relationship of the community with the surrounding region.
7. *User Friendly*: The indicators must be easily accessible and easy to use by the planning body, organization, or individual that is using them.

8. *Practical*: It is important the use of the indicators is feasible in terms of measurability and implementation.
9. *Participatory*: The ideas and values of the community need to be assimilated into the construction and use of the indicators. The indicators need to reflect the priorities of the community as a whole. People in the community need to accept and understand the development and use of the indicators. Understanding will foster greater participation in the use and administration of the indicators.
10. *Measurable*: In most cases, indicators need to be measurable in some way. However, in some cases, indicators may need to be adapted to consider personal, anecdotal information, such as ideas and opinions expressed through the oral traditions of First Nation's people.

5.4.2. Developing Sustainability Indicators – Process and Community Participation

It is important that in developing a set of indicators to measure progress towards sustainability, the community is actively involved in determining two things:

1. A definition of sustainability that considers and includes the principles of “strong sustainability.” This definition needs to be derived from the community and needs to reflect the values of the community.
2. A set of indicators that reflects the agreed upon definition of sustainability and involves community values and ideas in moving towards more sustainable behaviors.

This section will provide a set of environmental and socio-economic indicators that Tofino and Ucluelet could use to track progress towards sustainability. However, providing a list of indicators for a community to use is not good enough. Groups that have worked with indicators note that the process associated with developing indicators is just as important as the indicators themselves (Tyler Norris Associates, Redefining Progress, Sustainable Seattle, 1999; Bowen Island Sustainability Project, 2000). It is important that communities derive the indicators themselves, to reflect the values of the community. One of the most important elements of any

indicator set is that they are relevant and useful to the community that they serve and that they contribute to a more sustainable future.

Integrating community values into the development of indicators is important in order to articulate the potential conflicts that could arise from the wide range of values derived from wilderness (natural environment) and the varying perspectives on their relative importance (Roessler and McDaniels, 1994). Gibson (1966) notes that the clear expression of values advanced informed debate, garners support, and develops feasible solutions. Roessler and McDaniels (1994, 2) expand upon this by arguing that “a more aware and fluent citizenry will be more apt to participate in and be impassioned about decision-making processes and will be more supportive of any decision in which they played and informed and effective role.”

However, while every community needs to develop their own system (process) for developing indicators (product), it does not necessarily have to start from the beginning. Several groups have charted possible paths towards indicator development and several groups have established indicators that would be useful in a variety of contexts. As a result, the process introduced in this section (and the indicators themselves) should be seen as a framework that a community might want to adopt in implementing a planning system that utilizes indicators.

Past work with indicators has resulted in a general framework that can guide the process of indicator development. In brief, the process for creating an initial indicator report can be summarized by the following ten steps:

Key Components In an Indicator Process

Step 1. *Form a working group*

- Any indicator process needs committed individuals that design the process, analyze technical information, perform research, and produce the final product.
- This group needs to reflect the diversity of the community in question. For example, in Tofino and Ucluelet it would be well advised to have members from different occupations and socio-economic categories in the working group.
- The group needs to have a certain degree of technical expertise.

Step 2. *Clarify your purpose*

- Indicators are most useful when they are supporting a particular purpose.
- There are three primary types of efforts that indicator projects support: Public education (increasing awareness of sustainability), policy background (indicators used to provide valuable information on trends that need action), and performance evaluation (indicators assess the degree to which certain policy goals are being met).

Step 3. *Identify your community's shared values and vision*

- It is important that the community clearly defines its shared values and visions in order to establish a process that is truly representative of the community.
- This step involves a component of how the group plans on working together in designing and implementing indicators.

Step 4. *Review existing models, indicators, and data*

- Often, there is already existing information on models, indicators, and data in the community, although that information may be more narrowly defined than is required for the type of indicator project being considered.
- By knowing what information is already out there, a community can define priorities and address some of the technical issues inherent in indicator development.

Step 5. *Draft a set of proposed indicators*

- Depending on the mandate of the project and the knowledge of existing data, the working group needs to decide what it wants to report on. The working group must decide on criteria for picking appropriate indicators.
- Indicator section needs to be consistent, with clear and defensible criteria so that the community will understand how and why those indicators were chosen.

Step 6. *Convene a participatory selection process*

- For indicators to be accepted and embraced by the community, there needs to be a sense of ownership among community members. Getting people involved in the indicator process facilitates buy-in, and contributes to a more participatory, collaborative, and successful project.
- A collaborative process creates dialogue among community members that leads to enhanced relationships and community empowerment.
- This step can be very challenging, as different values and ideas will be revealed. Effective collaboration requires skilled facilitation and respect among different people and stakeholders.

Step 7. *Perform a technical review*

- Indicators need to be measurable and defensible in technical terms.
- Indicators need to be accessible to the whole community – sophisticated measures may be useful to experts, but it is essential that the indicators used can be understood by the general public.

Step 8. *Research the data*

- Indicator selection is determined, in part, by the availability of data to support the use of that indicator. Researching data can reveal important insight into the indicators that can be used.
- Data availability varies considerably. Time needs to be spent researching past databases for useful information and projecting whether that information will be available in the future.

Step 9. Publish and promote the report

- Once indicators and supporting research have been determined the information needs to be made accessible to the community. It is essential that the report produced is attractive and easy to read.

Step 10. Update the report regularly

- Once the first report is completed, the community must ensure that the appropriate capacity has been developed to republish the report, including current data, new developments, and the effectiveness of outreach efforts.

Adapted from: Tyler Norris Associates, Redefining Progress, Sustainable Seattle (1999)

Additionally, it is essential that the indicators be integrated, through formal processes, into the planning process of the community. For example, the OCP of Tofino or Ucluelet could be designed so as to include targets, related to their goals of sustainability, that uses indicators to track progress towards those targets (see Section 5.9).

Finally, it needs to be recognized that developing and integrating indicators into planning practice will take time. The development of indicators are designed to be pieces of civic infrastructure that will persist over many years, being refined and improved with experience, changing values, and the engagement of new people. "Creating a vision of a healthy community can take a day. Creating an initial report card to measure your progress can be done in a matter of months. But realizing the vision may take a generation" (Tyler Norris Associates, Redefining Progress, Sustainable Seattle, 2000, 9). Having outlined the basic factors needed to create a process for indicator development, this section will introduce environmental and socio-economic indicators that Tofino and Ucluelet could use to track progress towards sustainability.

5.5. Environmental Indicators

This section will introduce Ecological Footprint Analysis and other “smaller scale” environmental indicators as means to measure progress towards environmental sustainability. These indicators serve as a guide, or as examples, that could be used to track progress towards sustainability. Ecological Footprint Analysis is discussed in greater detail because it is a very valuable measure of sustainability that integrates environmental and socio-economic factors. However, Ecological Footprint Analysis is very involved, with significant data and human resource requirements. Therefore, simpler indicators are also introduced.

Ecological Footprint Analysis provides a holistic assessment of ecological health and is based in the concept of carrying capacity. Carrying capacity, as is used for defining animal populations and range areas, is defined as the “maximum population of a given species that can be supported indefinitely in a specified habitat” (Rees and Wackernagel, 1996, 49). Carrying capacity is considered to be the number of individuals a given habitat can support without being permanently damaged (Odum, 1989, 158). An ecosystem can only support so many of a given species before the needs of that species can no longer be met at a local level.

Despite the advancement of human technology and ingenuity, we are still tied to the ecosphere for our survival. Our dependence on the earth’s carrying capacity is best exemplified by asking “whether remaining species populations, ecosystems, related biophysical processes (ie: critical self-producing natural stocks), and the waste assimilation capacity of the ecosphere are adequate to sustain the anticipated load to the human economy into the next century while simultaneously maintaining the general life-support functions of the ecosphere?” (Rees and Wackernagel, 1996, 50). This question alludes to the fact that planners need to be able to determine the level at which ecosystems need to be maintained in order to provide life support services. In other words,

planners need to derive indicators that can determine whether a particular region (as part of a global ecosphere) can support particular human behaviors.

Some qualifying points need to be made. In considering levels of human impact it is necessary to consider the role of culture. Human impacts in different places will vary considerably depending on the different levels of technologies and behaviors that various groups of people have adopted. For example, the footprint of a regular Canadian citizen would be much greater than the footprint of a regular Indian citizen because the Canadian citizen consumes much more than the Indian citizen. As a result, any consideration of impacts and carrying capacity must not only include a consideration of populations, but of the level of “load” that each person imposes on the ecosphere (Catton, 1986).

As mentioned above, footprints are determined not *only* by ecological processes, but also by cultural factors. This has implications for the relationships that communities establish with each other on a local and global scale. Due to trade, people have access to resources from all over the world. The regions of the world are all linked and interdependent, and as a result, the footprint of a particular population must be considered from a global perspective.

The concept of Ecological Footprint Analysis (Rees and Wackernagel, 1996) is extremely useful in determining the amount of land that is required to support particular human behaviors, providing a “yardstick” for determining the degree to which we are participating in sustainable behavior. Ecological Footprint Analysis assumes that every category of consumption (energy or material) and the corresponding waste discharge requires the productive or absorptive capacity of a fixed area of land or water (Rees and Wackernagel, 1996). “If we sum the land requirements for all categories of consumption and waste discharge by a defined population, the total area represents the ecological footprint of that population on the earth whether or not this area

coincides with the population's home region" (Rees and Wackernagel, 1996, 51). This calculation measures the land and water area required per person to maintain a certain lifestyle. The calculation, by its very nature, takes into consideration the role of trade and cultural variation in consumption into consideration. Additionally, the measure is useful because it provides planners with a quantifiable understanding of where people are, in terms of how well they are achieving sustainability. The measure provides a means to compare the production of the ecosphere with current patterns of human consumption. Planners can use the concept to evaluate the consequence of various policies in terms of how close those policies come to reaching or exceeding the carrying capacity of a given region.

In general, Ecological Footprint Analysis adheres to the following rules in an analysis (Wackernagel and Rees, 1996):

- Calculations are based on the assumption that current industrial uses and harvest practices are sustainable, which, in reality, they often are not.
- Include only the basic services of nature. There are a whole host of services that nature provides, yet due to the constraints afforded by any analytical model, the number of services is necessarily limited.
- Attempts to eliminate "double counting" when the same area of land provides two services at the same time.
- Uses a simple classification system of ecological productivity that uses eight land categories: land appropriated by fossil fuel energy use, built environment, gardens, crop land, pastures, managed forests, untouched forests, and non-productive areas.
- Is only beginning to include marine areas in the analysis.

The size of a certain population's ecological footprint is typically determined by using consumption figures divided by average yields per hectare for each of the classes of ecosystem.

This methodology translates “consumption” into surface area, which in turn relates to the total productive land and marine areas on the planet. For a more detailed description of the epistemology and methodology of the tool, refer to “Our Ecological Footprint – Reducing Human Impact on the Earth,” written by Mathis Wackernagel and William Rees, 1996. EFA is not a difficult tool to use and could be usefully applied to analyzing the ecological impacts of activities within a community.

Several key environmental indicators will now be introduced that could be used by the two communities. The use of these indicators is more manageable in terms of commitment of planning resources and the availability of data. These indicators are derived from a synthesis of the relevant literature.

5.5.1. Examples of Useful Environmental Indicators

| <u>Indicator</u> | <u>Specific Measures</u> |
|---------------------------|---|
| 1. Rainfall | <ul style="list-style-type: none"> • Annual precipitation |
| 2. Storms | <ul style="list-style-type: none"> • Number of major storm events, measured annually |
| 3. Atmospheric Quality | <ul style="list-style-type: none"> • Number of days with unacceptable air quality readings |
| 4. Water Quality | <ul style="list-style-type: none"> • Amount of bacteria, fecal coliform, (ppm), toxins • Levels of sediment (turbidity measure), |
| 5. Water Quantity | <ul style="list-style-type: none"> • Average lake and stream levels • Rate of recharge (as per specific water body being measured) • Amount of rainfall + groundwater reserves – runoff + evaporation = macro level indicator (water budget) |
| 6. Salt Water Intrusion | <ul style="list-style-type: none"> • Salinity of water sample (percentage of salt) in fresh water supply |
| 7. Contamination | <ul style="list-style-type: none"> • Percentage of toxic or harmful substances (as determined by water quality sampling) |
| 8. Streams and Creeks | <ul style="list-style-type: none"> • Percentage of creek / stream habitat available for spawning fish • Percentage of protected stream / creek area • Number of spawning salmon • Measure of water levels |
| 9. Lakes, Ponds, Wetlands | <ul style="list-style-type: none"> • Biodiversity within particular areas, measured by counts of important or keystone species (plants or animals) • Measure of annual water levels |

| | |
|---------------------------------|---|
| | <ul style="list-style-type: none"> • Percentage of existing and protected lakes, ponds, and wetlands |
| 10. Sea Levels | <ul style="list-style-type: none"> • Measure of annual sea levels • Amount of property damage from rising water levels (annual amount of damage, measured in dollars per year) |
| 11. Coastline and Estuaries | <ul style="list-style-type: none"> • Biodiversity of areas, measured by counts of important species (plants or animals) • Measure of total area of coastline and estuaries and percentage that is protected |
| 12. Fire Events | <ul style="list-style-type: none"> • Number of fire events per year • Hectares affected by fire per year |
| 13. Groundwater Recharge | <ul style="list-style-type: none"> • Rate of groundwater recharge |
| 14. Presence of Sensitive Areas | <ul style="list-style-type: none"> • Percentage of land classified as sensitive or susceptible to environmental stress • Number of mass wasting events per year |
| 15. Presence of Hazardous Areas | <ul style="list-style-type: none"> • Percentage of land classified as hazardous • Number of hazardous events per year |

Additionally, the state of vegetation, mammals, birds, fish, and vertebrates can all be considered by measuring the populations of certain keystone species, the existence of contaminants in certain species (ie: count of PCBs in heron eggs), and the amount of land available (total area of habitat) for certain species.

Environmental indicators have been discussed only insofar as they contribute to providing a framework that communities could use to measure their progress towards sustainability. These indicators should not be seen as a definitive list of indicators that should be used in the two communities.

5.6. Socio-Economic Indicators

An examination of the literature reveals that indicators often emphasize ecological goals, placing less emphasis on social and economic indicators. Nevertheless, planning seeking to integrate sustainability into the community needs to develop a mechanism in which social and economic goals can be considered and worked towards. The establishment of tangible, useful socio-economic indicators seeks to achieve this endeavor.

As mentioned earlier, this paper will introduce a basic typology that communities could use in working towards sustainability. Rather than “re-invent the wheel,” this paper provides a concise list of socio-economic indicators developed to track progress towards sustainability.

The following example of socio-economic criteria has been adapted from previous indicator studies that focus on socio-economic indicators (Gregory, Julian, and Woolliams, 1999; Resilient Community Manual, 1999; Bell and Morse, 1999; Lafferty and Eckberg, 1998; OECD, 1998; Hart Website, 1996; Kline, 1997). This paper contends that it is the job of the planner to promote the use of this sort of typology in guiding progress towards a community derived definition of strong sustainability. The example provided may provide useful insights into developing indicators, but should remain as an example to the community in question.

5.6.1. Basic Socio-Economic Indicators

The following indicators are an adaptation of key socio-economic indicators that draw particularly on work from Gregory et al., 1999:

Governance

- Long range planning (measured by the percentage of plans which are for time periods of greater than 5 years).

Mobility

- Transportation system that encourages human fitness and efficient use of resources (measured by modal split (modes include: walking / biking / taking transit / using the single-occupancy vehicle / using car-pooling) of passenger kilometers traveled).

Recreation

- Variety of available recreational and sporting options (measured as number of different options per capita).

Participation, Empowerment and Civic Responsibility

- Volunteerism (measured in hours per year per capita).

Economy

- Socio-economic equity of income distribution (measured in percentage of individuals below poverty line as well as the gap between the top 20% and the bottom 20%).

Youth

- Programs for youth in community (measured by number of programs).

Housing

- Diversity of housing alternatives including low-income options (measured by number of housing types and tenures).

Health and Safety

- Perceived quality of life (measured through population survey).

Education and Training

- Sustainability in school curricula and sustainability initiatives at schools (measured by number of programs and level of integration).
- Multiculturalism in school curricula (measured by number of programs and level of integration).

Culture

- Diversity of cultural opportunities (measured in type of cultural activities, and venues offered (i.e. number of opportunities for cultural activities in public spaces).

Community Interactions

- Interagency interactions for community welfare (measured by the percent of interagency activity devoted to solving community problems).

The aforementioned socio-economic indicators would be of value to the communities of Tofino and Ucluelet in order to track progress towards sustainability. However, due to the prominent role of tourism in the transformation of the communities' respective economies, it would be useful to introduce a set of "sustainable tourism indicators" to provide a means for assessing the role of tourism in contributing to a more sustainable Tofino and Ucluelet.

5.7. Tourism Indicators

The World Tourism Organization (1996) has produced a set of indicators that can be used to work towards more sustainable tourism practices. Admittedly, many of these indicators are based on ecological criteria. Nonetheless, the decision to use various tourism indicators should be based on the destination's characteristics and the development objectives of the area (World Tourism Organization, 1999). As with socio-economic indicators, the tourism indicators presented should serve only as a guide. Particular nuances of a community should be integrated into the development of indicators used by that community. The following is a list of key indicators that could be applied to sustainable tourism planning (World Tourism Organization, 1999, 136):

5.7.1. Tourism Indicators - Examples

| <u>Indicator</u> | <u>Specific Measures</u> |
|-----------------------|--|
| 1. Site Protection | <ul style="list-style-type: none"> Category of site protection according to International Union for Conservation of Nature and Natural Resources index. |
| 2. Stress | <ul style="list-style-type: none"> Tourist numbers visiting site (annum / peak month) |
| 3. Use Intensity | <ul style="list-style-type: none"> Intensity of use – peak period (persons / hectare) |
| 4. Social Impact | <ul style="list-style-type: none"> Ratio of tourists to locals (peak period and over time) |
| 5. Developing Control | <ul style="list-style-type: none"> Existence of environmental review procedure or formal controls over development of site and use densities |

| | |
|---|---|
| 6. Waste Management | <ul style="list-style-type: none"> Percentage of sewage from site receiving treatment (additional indicators may include structural limits of other infrastructural capacity on site such as water capacity) |
| 7. Planning Process | <ul style="list-style-type: none"> Existence of regional plan for tourist destination region (including tourism component) |
| 8. Critical Ecosystems | <ul style="list-style-type: none"> Number of rare / endangered species |
| 9. Consumer Satisfaction | <ul style="list-style-type: none"> Level of satisfaction by visitors (questionnaire based) |
| 10. Local Satisfaction | <ul style="list-style-type: none"> Level of satisfaction by locals (questionnaire based) |
| 11. Tourism Contribution to local economy | <ul style="list-style-type: none"> Proportion of total economic activity generated by tourism only |

Developing and utilizing the sustainable tourism indicators listed above, or some variation thereof, would help a community whose economy is based on tourist related activities move towards a more sustainable future.

5.8. Summarizing Indicators

In the context of economic transformation associated with a diminishing natural resource base, and the corresponding issues of equity associated with change, the concept of sustainability is becoming recognized as being extremely important. Communities are struggling with issues of sustainability and how to integrate the concept into planning processes and practices. In order to apply the concept of sustainability into planning practice, the gap between the theory of sustainability and its practical application needs to be addressed. The development and use of indicators contributes to this enterprise.

This section has introduced some of the issues surrounding the concept of sustainability. In an attempt to bridge the gap between the rhetoric surrounding the concept of sustainability and its practical implementation in communities, this section has introduced a potential set of key socio-

economic, environmental, and tourism-related indicators that could be applied to planning action in Tofino and Ucluelet. These indicators allow communities to monitor their progress towards a given goal and if necessary, make policy decisions based on the information generated from those indicators.

5.9. Implementing Indicators – An Example

This report has outlined how indicators can contribute towards sustainability in the communities of Tofino and Ucluelet. However, in addition to developing a process and useful indicators, it is essential that the indicators be integrated into planning practices. Policy decisions need to reflect the trends and information provided by the indicators. However, making sense of trends provided by indicators takes time. Additionally, developing policy to reflect the information provided by those trends could take even longer (Progress Nanaimo, 1998). However, with the appropriate political will, supported by a participatory process that considers the values of various stakeholders, the integration and effective use of indicators can lead to more sustainable communities.

How can indicators be integrated into planning processes? In particular, how can indicators be built into planning processes that generally use land-use policy as a tool to manage development? Within British Columbia, the City of Nanaimo has developed a set of indicators to track the implementation of their Official Community Plan, *Plan Nanaimo*. This plan contains policies that allow the Plan Nanaimo Advisory Committee (PNAC) to initiate an audit or report that assesses progress implementing *Plan Nanaimo* policies, every two years (Plan Nanaimo, 1998). In essence, indicators are used to assess how well the goals of the Official Community Plan are being met. The indicators are based on several key socio-economic and environmental criteria relevant to *Plan Nanaimo*.

What has resulted is the publication of two key documents that integrates indicators into conventional planning practices:

- *Progress Nanaimo Technical Report* – A report that describes and outlines indicators, data, and qualifiers used to track progress towards policies outlined in the Official Community Plan.
- *Progress Nanaimo* – A review or audit of progress towards *Plan Nanaimo* goals. This review allows the planning department to report to City Council, staff, and the public on the overall success in working towards the goals outlined in the plan and to assess the effectiveness of particular policies in reaching goals and policies outlined in the plan.

Plan Nanaimo (1998) recognizes that it will take time to assess how effectively and efficiently the particular planning goals will be implemented. However, in the short term, they are confident that indicators will provide a general understanding of the direction that the City is heading and whether policy decisions and actions are consistent with the principles of Plan Nanaimo. This project recommends that Tofino and Ucluelet take direct steps to develop indicators and then formally integrates their use into planning practice. Admittedly, the use of indicators, and their formal integration into planning processes is relatively new in BC. However, Nanaimo provides a useful model of how this integration could effectively take place.

6.0. Conclusion

Tofino and Ucluelet, to varying degrees, display characteristics of mature, advanced, export oriented, staple economies in transition. These communities, that share similar geographies and natural resources, have developed very differently due to different values internal and external development pressures. Due, in part, to a diminishing natural resource base associated with periods of unsustainable resource extraction, both communities have experienced, to different degrees, significant socio-economic upheaval. Planning strategies have sought to address the challenges afforded by transition by supporting the diversification of the economy and promoting sustainability.

While both communities recognize the importance of moving towards a more sustainable future, they both lack a means for assessing the relative success of that move. This project seeks to fill that gap by developing sustainable development tools that can be used by the respective communities to move towards a more sustainable future.

6.1. Recommendations

This project recommends the development and implementation of indicators to assist in the transition to a more sustainable future. Throughout the project, key issues related to indicator development have been introduced and discussed. In summary, several key recommendations related to the process and product of indicators are as follows:

Product

- Indicators need to reflect the values and priorities of the community.
- Indicators need to reflect the principles and concepts of sustainability.
- Indicators need to be associated with a specific goal and a suitable action to reach that goal.
- The indicators need to be integrated into planning policy.

- Indicators need to be mindful of the relationship between the social, economic, and environmental components of sustainability.

Process

- The process of indicator development needs to be transparent and accessible to the community at large.
- Planners need to work with the community, facilitating and guiding an overall process for indicator development.
- A detailed inventory and understanding of the community needs to support the process of indicator development.
- Process needs to have adequate and appropriate community representation.
- Process needs to have adequate resources in terms of funding and logistical support.
- Process should seek to efficiently and effectively use planning resources. In the case of Tofino and Ucluelet, this might involve working together to address similar, regionally specific issues.

Finally, a consolidated list of indicators has been provided that recognize several of the key issues and challenges faced by the communities of Tofino and Ucluelet. These indicators serve only as a guide and should be developed further by the communities of Tofino and Ucluelet through the process described in the project.

Environmental Indicators

| |
|---|
| • Annual precipitation |
| • Number of major storm events, measured annually |
| • Number of days with unacceptable air quality readings |
| • Amount of bacteria, fecal coliform, (ppm), toxins |
| • Levels of sediment (turbidity measure), |
| • Average lake and stream levels |
| • Rate of recharge (as per specific water body being measured) |
| • Salinity of water sample (percentage of salt) in fresh water supply |

| |
|--|
| <ul style="list-style-type: none"> • Percentage of toxic or harmful substances (as determined by water quality sampling) |
| <ul style="list-style-type: none"> • Percentage of creek / stream habitat available for spawning fish • Percentage of protected stream / creek area • Number of spawning salmon • Measure of water levels |
| <ul style="list-style-type: none"> • Biodiversity within particular areas, measured by counts of important or keystone species (plants or animals) • Measure of annual water levels • Percentage of existing and protected lakes, ponds, and wetlands |
| <ul style="list-style-type: none"> • Measure of annual sea levels • Amount of property damage from rising water levels (annual amount of damage, measured in dollars per year) |
| <ul style="list-style-type: none"> • Biodiversity of areas, measured by counts of important species (plants or animals) • Measure of total area of coastline and estuaries and percentage that is protected |
| <ul style="list-style-type: none"> • Number of fire events per year • Hectares affected by fire per year |
| <ul style="list-style-type: none"> • Rate of groundwater recharge |
| <ul style="list-style-type: none"> • Percentage of land classified as sensitive or susceptible to environmental stress • Number of mass wasting events per year |
| <ul style="list-style-type: none"> • Percentage of land classified as hazardous • Number of hazardous events per year |
| <ul style="list-style-type: none"> • Ecological Footprint of region |

Socio-economic Indicators

| |
|--|
| <ul style="list-style-type: none"> • Governance: Long range planning (measured by the percentage of plans which are for time periods of greater than 5 years). |
| <ul style="list-style-type: none"> • Mobility: Transportation system that encourages human fitness and efficient use of resources (measured by modal split (modes include: walking / biking / taking transit / using the single-occupancy vehicle / using car-pooling) of passenger kilometers traveled). |
| <ul style="list-style-type: none"> • Recreation: Variety of available recreational and sporting options (measured as number of different options per capita). |
| <ul style="list-style-type: none"> • Participation, Empowerment and Civic Responsibility: Volunteerism (measured in hours per year per capita). |
| <ul style="list-style-type: none"> • Economy: Socio-economic equity of income distribution (measured in percentage of individuals below poverty line as well as the gap between the top 20% and the bottom 20%). |
| <ul style="list-style-type: none"> • Youth: Programs for youth in community (measured by number of programs). |
| <ul style="list-style-type: none"> • Housing: Diversity of housing alternatives including low-income options (measured by number of housing types and tenures). |
| <ul style="list-style-type: none"> • Health and Safety: Perceived quality of life (measured through population survey). |
| <ul style="list-style-type: none"> • Education and Training: Sustainability in school curricula and sustainability initiatives at schools (measured by number of programs and level of integration). Multiculturalism in school curricula (measured by number of programs and level of integration). |
| <ul style="list-style-type: none"> • Culture: Diversity of cultural opportunities (measured in type of cultural activities, and venues offered (i.e. number of opportunities for cultural activities in public spaces). |

Tourism Indicators

| |
|---|
| • Site Protection: Category of site protection according to International Union for Conservation of Nature and Natural Resources index. |
| • Stress: Tourist numbers visiting site (annum / peak month) |
| • Use Intensity: Intensity of use – peak period (persons / hectare) |
| • Social Impact: Ratio of tourists to locals (peak period and over time) |
| • Developing Control: Existence of environmental review procedure or formal controls over development of site and use densities |
| • Waste Management: Percentage of sewage from site receiving treatment (additional indicators may include structural limits of other infrastructural capacity on site such as water capacity) |
| • Planning Process: Existence of regional plan for tourist destination region (including tourism component) |
| • Critical Ecosystems: Number of rare / endangered species |
| • Consumer Satisfaction: Level of satisfaction by visitors (questionnaire based) |
| • Local Satisfaction: Level of satisfaction by locals (questionnaire based) |
| • Tourism Contribution to local economy: Proportion of total economic activity generated by tourism only |

The histories of Tofino and Ucluelet have been quite variable as they have experienced structural economic transformation associated with a diminishing natural resource base. However, both communities recognize the need to move towards a more sustainable community. This project has introduced sustainability indicators as a tool to help make this move.

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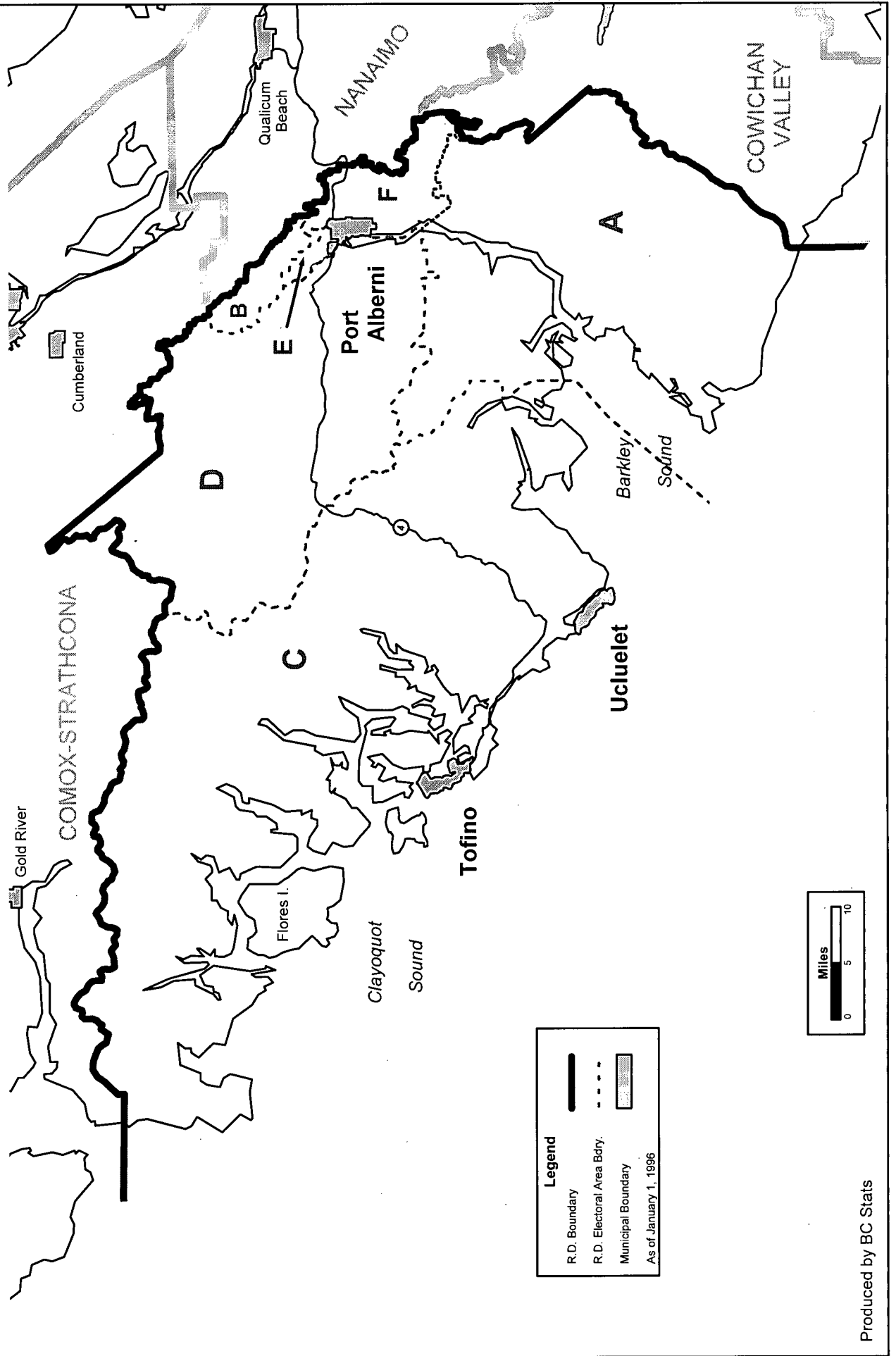
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Appendix A – Maps and Statistics

Tofino and Ucluelet

Regional District of Alberni-Clayoquot



Tofino District Municipality

1**General**

Incorporated in 1932, Tofino has a total area of 1,940.6 ha. By highway the District is 125 km west of Port Alberni. Tofino is in the Alberni-Clayoquot Regional District.

The three industries employing the most people in this area in 1996 were Accommodation, Food & Beverage Services, Retail Trade, and the Construction industry.

2**Population Estimates****Annual Estimates**

(as of July 1, includes estimate of Census undercount)

| Year | Tofino | % Change Prev. Year | B.C. | % Change Prev. Year |
|------|--------|------------------------|-----------|------------------------|
| 1996 | 1,222 | - | 3,882,043 | - |
| 1997 | 1,292 | 5.7 | 3,959,698 | 2.0 |
| 1998 | 1,380 | 6.8 | 3,997,504 | 1.0 |
| 1999 | 1,478 | 7.1 | 4,028,132 | 0.8 |
| 2000 | 1,540 | 4.2 | 4,063,760 | 0.9 |

Source: BC STATS

Age Distribution**Age and Gender - 1996 Census**

| | Tofino | | % Distribution | |
|----------|--------|--------|----------------|-------|
| | Male | Female | Tofino | B.C. |
| All ages | 580 | 590 | 100.0 | 100.0 |
| 0 - 14 | 120 | 110 | 19.2 | 19.7 |
| 15 - 24 | 85 | 105 | 16.2 | 13.0 |
| 25 - 44 | 205 | 220 | 36.8 | 32.7 |
| 45 - 64 | 135 | 120 | 21.8 | 21.8 |
| 65 + | 25 | 35 | 6.0 | 12.8 |

Source: Statistics Canada

3**Selected 1996 Census Characteristics****Experienced Labour Force by Industry****Occupied Private Dwellings**

| | Tofino | | Tofino | B.C. | | Tofino | B.C. |
|-------------------------------|--------|------|----------------|-------|----------------------------|---------------------------|-----------|
| | 1991 | 1996 | % Distribution | 1996 | | Total number of dwellings | 440 |
| Total Industries | 725 | 810 | 100.0 | 100.0 | Single/semi detached house | 290 | 839,940 |
| Primary Industry | 125 | 75 | 9.3 | 5.7 | Row House | 0 | 86,095 |
| Agriculture & related | 0 | 0 | 0.0 | 2.4 | Apartment building | 100 | 453,545 |
| Fishing & Trapping | 110 | 50 | 6.2 | 0.5 | Total dwellings -owned | 245 | 928,990 |
| Logging & Forestry | 15 | 25 | 3.1 | 2.1 | -rented | 195 | 491,540 |
| Mining, Quarry & Oil Well | 0 | 0 | 0.0 | 0.8 | Avg value of dwelling (\$) | 288,870 | 239,745 |
| Manufacturing Industry | 25 | 30 | 3.7 | 10.4 | Avg monthly -owner (\$) | 941 | 799 |
| Construction Industry | 40 | 85 | 10.5 | 7.5 | payment -renter (\$) | 529 | 704 |
| Transportation & Commun | 90 | 35 | 4.3 | 7.5 | General | | |
| Wholesale Trade | 0 | 25 | 3.1 | 4.8 | Labour Force | 815 | 1,960,660 |
| Retail Trade | 60 | 105 | 13.0 | 12.5 | Employment/Pop ratio | 78.6 | 60.0 |
| Finance, Insur. & Real Estate | 15 | 10 | 1.2 | 5.8 | Unemployment rate | 7.4 | 9.6 |
| Business Service | 10 | 35 | 4.3 | 6.8 | Avg household income(\$) | 49,641 | 50,667 |
| Government Service | 45 | 60 | 7.4 | 5.9 | Avg family income (\$) | 53,335 | 56,527 |
| Educational Service | 20 | 10 | 1.2 | 6.9 | Avg employment income(\$) | 22,829 | 27,480 |
| Health & Social Service | 45 | 65 | 8.0 | 9.5 | Incidence low income % | 8.4 | 15.4 |
| Accom., Food & Beverage | 165 | 190 | 23.5 | 8.4 | Persons per household | 2.5 | 2.6 |

Source: Statistics Canada

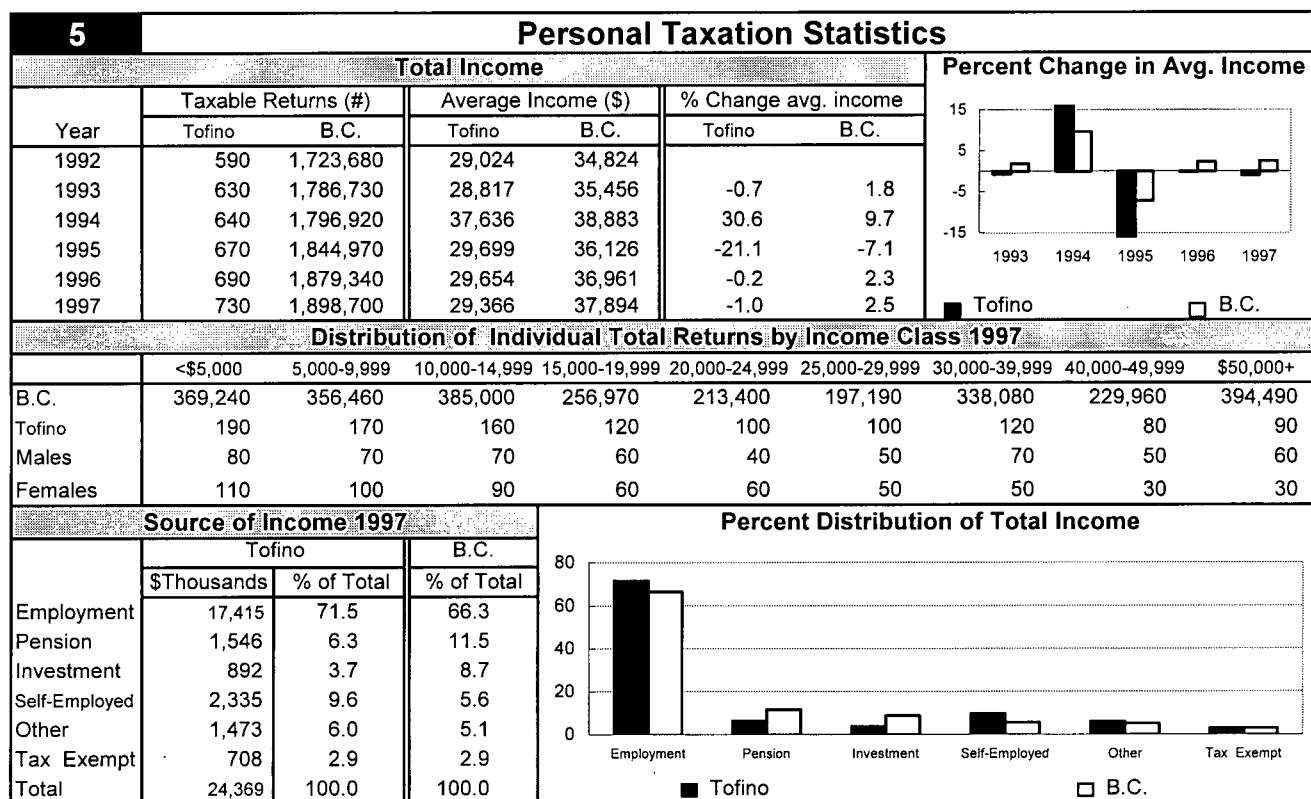
4**Values of Building Permits**

| Year | Residential | | | | Commercial | | Industrial | | Total |
|------|-------------|--------|--------------|-----------|------------|-----------|------------|---------|--------|
| | Number | | Value \$'000 | | \$'000 | | \$'000 | | \$'000 |
| | Tofino | B.C. | Tofino | B.C. | Tofino | B.C. | Tofino | B.C. | Tofino |
| 1994 | 23 | 40,082 | 2,741 | 4,546,362 | 427 | 1,075,329 | 91 | 175,311 | 3,259 |
| 1995 | 60 | 26,842 | 6,617 | 3,443,140 | 4,097 | 1,031,414 | 116 | 251,898 | 10,845 |
| 1996 | 20 | 32,410 | 2,433 | 4,095,987 | 1,892 | 1,225,837 | - | 252,646 | 4,350 |
| 1997 | 12 | 28,659 | 1,437 | 3,578,558 | 2,230 | 1,358,188 | 18 | 285,423 | 3,900 |
| 1998 | 39 | 20,943 | 3,775 | 2,717,270 | 1,160 | 1,311,124 | - | 273,279 | 4,935 |
| 1999 | 37 | 18,630 | 4,055 | 2,591,861 | 1,501 | 1,142,120 | 17 | 319,378 | 5,623 |

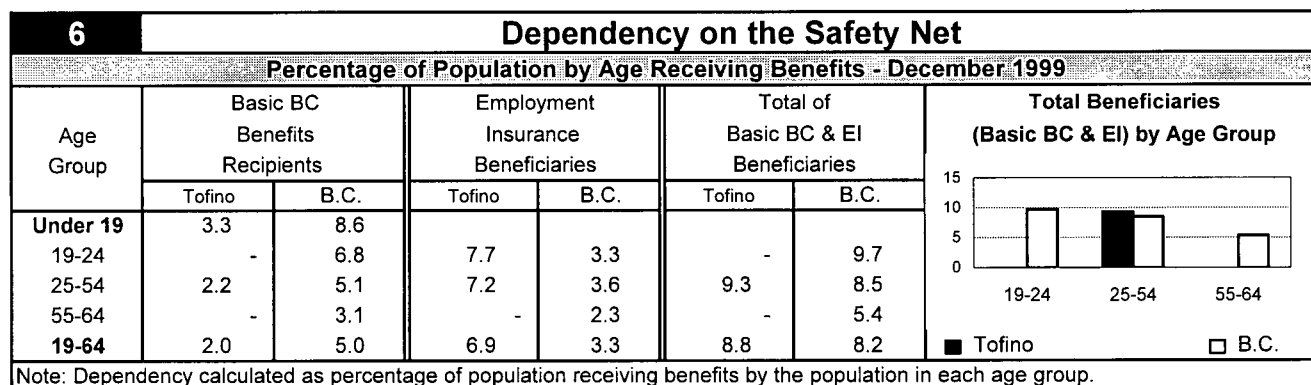
Source: Statistics Canada

Note: Total building permit value also includes Government and Institutional construction

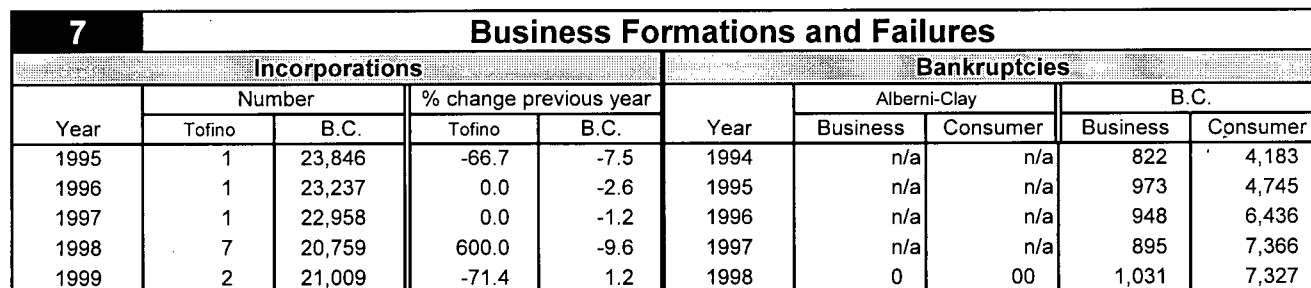
Tofino District Municipality



Source : Revenue Canada. Areas are defined by postal codes, not municipal boundaries.



Source : BC STATS. Prepared from administrative files from Ministry of Social Services, BC Government, and Human Resources Development Canada



Source: Ministry of Finance, B.C. Government

Source: Office of the Superintendent of Bankruptcy, Govt of Canada

Ucluelet Village

1**General**

Incorporated in 1952, Ucluelet has a total area of 1,143.6 ha. By highway the Village is 99 km west of Port Alberni and 42 km southeast of Tofino. Ucluelet is in the Alberni-Clayoquot Regional District.

The three industries employing the most people in this area in 1996 were Manufacturing, Accommodation, Food & Beverage Services, and Logging & Forestry industries.

2**Population Estimates****Age Distribution****Annual Estimates****Age and Gender - 1996 Census**

(as of July 1, includes estimate of Census undercount)

| Year | Ucluelet | | B.C. | | All ages | Ucluelet | | % Distribution | |
|------|----------|------------------------|-----------|------------------------|----------|----------|--------|----------------|-------|
| | Ucluelet | % Change Prev. Year | B.C. | % Change Prev. Year | | Male | Female | Ucluelet | B.C. |
| 1996 | 1,731 | - | 3,882,043 | - | 0 - 14 | 860 | 795 | 100.0 | 100.0 |
| 1997 | 1,742 | 0.6 | 3,959,698 | 2.0 | 15 - 24 | 185 | 195 | 23.3 | 19.7 |
| 1998 | 1,738 | -0.2 | 3,997,504 | 1.0 | 25 - 44 | 120 | 110 | 13.9 | 13.0 |
| 1999 | 1,764 | 1.5 | 4,028,132 | 0.8 | 45 - 64 | 310 | 295 | 36.6 | 32.7 |
| 2000 | 1,824 | 3.4 | 4,063,760 | 0.9 | 65 + | 185 | 140 | 19.6 | 21.8 |
| | | | | | | 50 | 60 | 6.0 | 12.8 |

Source: BC STATS

Source: Statistics Canada

3**Selected 1996 Census Characteristics****Experienced Labour Force by Industry****Occupied Private Dwellings**

| | Ucluelet | | Ucluelet % Distribution | B.C. 1996 | | Ucluelet | | B.C. |
|-------------------------------|----------|------|----------------------------|--------------|----------------------------|----------|-----------|------|
| | 1991 | 1996 | | | | 1991 | 1996 | |
| Total Industries | 1,015 | 970 | 100.0 | 100.0 | Total number of dwellings | 615 | 1,424,640 | |
| Primary Industry | 225 | 155 | 16.0 | 5.7 | Single/semi detached house | 420 | 839,940 | |
| Agriculture & related | 0 | 0 | 0.0 | 2.4 | Row House | 0 | 86,095 | |
| Fishing & Trapping | 115 | 45 | 4.6 | 0.5 | Apartment building | 110 | 453,545 | |
| Logging & Forestry | 110 | 110 | 11.3 | 2.1 | Total dwellings -owned | 395 | 928,990 | |
| Mining, Quarry & Oil Well | 0 | 0 | 0.0 | 0.8 | -rented | 220 | 491,540 | |
| Manufacturing Industry | 135 | 180 | 18.6 | 10.4 | Avg value of dwelling (\$) | 158,240 | 239,745 | |
| Construction Industry | 20 | 35 | 3.6 | 7.5 | Avg monthly -owner (\$) | 796 | 799 | |
| Transportation & Commun | 50 | 45 | 4.6 | 7.5 | payment -renter (\$) | 553 | 704 | |
| Wholesale Trade | 40 | 25 | 2.6 | 4.8 | General | | | |
| Retail Trade | 75 | 90 | 9.3 | 12.5 | Labour Force | 980 | 1,960,660 | |
| Finance, Insur. & Real Estate | 25 | 25 | 2.6 | 5.8 | Employment/Pop ratio | 68.8 | 60.0 | |
| Business Service | 15 | 0 | 0.0 | 6.8 | Unemployment rate | 12.2 | 9.6 | |
| Government Service | 90 | 100 | 10.3 | 5.9 | Avg household income(\$) | 52,374 | 50,667 | |
| Educational Service | 75 | 70 | 7.2 | 6.9 | Avg family income (\$) | 58,465 | 56,527 | |
| Health & Social Service | 0 | 25 | 2.6 | 9.5 | Avg employment income(\$) | 26,364 | 27,480 | |
| Accom., Food & Beverage | 245 | 150 | 15.5 | 8.4 | Incidence low income % | 3.3 | 15.4 | |
| | | | | | Persons per household | 2.7 | 2.6 | |

Source: Statistics Canada

4**Values of Building Permits**

| Year | Residential | | | | Commercial | | Industrial | | Total |
|------|-------------|--------|--------------|-----------|------------|-----------|------------|---------|----------|
| | Number | | Value \$'000 | | \$'000 | | \$'000 | | \$'000 |
| | Ucluelet | B.C. | Ucluelet | B.C. | Ucluelet | B.C. | Ucluelet | B.C. | Ucluelet |
| 1994 | - | 40,082 | - | 4,546,362 | - | 1,075,329 | - | 175,311 | - |
| 1995 | - | 26,842 | - | 3,443,140 | - | 1,031,414 | - | 251,898 | - |
| 1996 | - | 32,410 | - | 4,095,987 | - | 1,225,837 | - | 252,646 | - |
| 1997 | - | 28,659 | - | 3,578,558 | - | 1,358,188 | - | 285,423 | - |
| 1998 | 3 | 20,943 | 476 | 2,717,270 | 604 | 1,311,124 | 33 | 273,279 | 1,113 |
| 1999 | 27 | 18,630 | 2,375 | 2,591,861 | 290 | 1,142,120 | - | 319,378 | 2,665 |

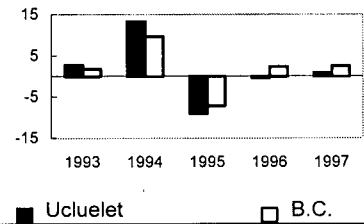
Source: Statistics Canada

Note: Total building permit value also includes Government and Institutional construction

Ucluelet Village

5**Personal Taxation Statistics**

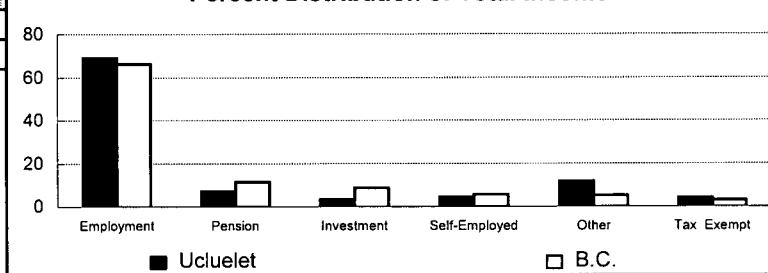
| Total Income | | | | | | Percent Change in Avg. Income | |
|--------------|---------------------|-----------|---------------------|--------|----------------------|-------------------------------|--|
| Year | Taxable Returns (#) | | Average Income (\$) | | % Change avg. income | | |
| | Ucluelet | B.C. | Ucluelet | B.C. | Ucluelet | B.C. | |
| 1992 | 1,040 | 1,723,680 | 30,715 | 34,824 | | | |
| 1993 | 1,050 | 1,786,730 | 31,548 | 35,456 | 2.7 | 1.8 | |
| 1994 | 1,070 | 1,796,920 | 35,736 | 38,883 | 13.3 | 9.7 | |
| 1995 | 1,120 | 1,844,970 | 32,498 | 36,126 | -9.1 | -7.1 | |
| 1996 | 1,080 | 1,879,340 | 32,383 | 36,961 | -0.4 | 2.3 | |
| 1997 | 1,060 | 1,898,700 | 32,674 | 37,894 | 0.9 | 2.5 | |

**Distribution of Individual Total Returns by Income Class 1997**

| | <\$5,000 | 5,000-9,999 | 10,000-14,999 | 15,000-19,999 | 20,000-24,999 | 25,000-29,999 | 30,000-39,999 | 40,000-49,999 | \$50,000+ |
|----------|----------|-------------|---------------|---------------|---------------|---------------|---------------|---------------|-----------|
| B.C. | 369,240 | 356,460 | 385,000 | 256,970 | 213,400 | 197,190 | 338,080 | 229,960 | 394,490 |
| Ucluelet | 170 | 190 | 180 | 140 | 150 | 140 | 200 | 110 | 190 |
| Males | 60 | 80 | 70 | 60 | 70 | 70 | 110 | 80 | 160 |
| Females | 110 | 110 | 110 | 80 | 80 | 70 | 90 | 30 | 30 |

Source of Income 1997

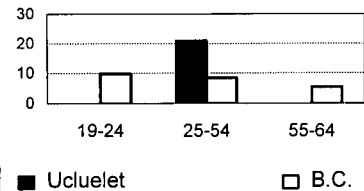
| | Ucluelet | | B.C. | |
|---------------|-------------|------------|------------|--|
| | \$Thousands | % of Total | % of Total | |
| Employment | 25,926 | 69.2 | 66.3 | |
| Pension | 2,642 | 7.0 | 11.5 | |
| Investment | 1,275 | 3.4 | 8.7 | |
| Self-Employed | 1,661 | 4.4 | 5.6 | |
| Other | 4,446 | 11.9 | 5.1 | |
| Tax Exempt | 1,534 | 4.1 | 2.9 | |
| Total | 37,485 | 100.0 | 100.0 | |

Percent Distribution of Total Income

Source : Revenue Canada. Areas are defined by postal codes, not municipal boundaries.

6**Dependency on the Safety Net****Percentage of Population by Age Receiving Benefits - December 1999**

| Age Group | Basic BC Benefits Recipients | | Employment Insurance Beneficiaries | | Total of Basic BC & EI Beneficiaries | | Total Beneficiaries (Basic BC & EI) by Age Group |
|-----------|------------------------------|------|------------------------------------|------|--------------------------------------|------|--|
| | Ucluelet | B.C. | Ucluelet | B.C. | Ucluelet | B.C. | |
| Under 19 | 2.9 | 8.6 | | | | | |
| 19-24 | - | 6.8 | 8.9 | 3.3 | - | 9.7 | |
| 25-54 | 4.2 | 5.1 | 17.7 | 3.6 | 21.0 | 8.5 | |
| 55-64 | - | 3.1 | 11.5 | 2.3 | - | 5.4 | |
| 19-64 | 3.6 | 5.0 | 15.7 | 3.3 | 18.6 | 8.2 | |



Note: Dependency calculated as percentage of population receiving benefits by the population in each age group.

Source : BC STATS. Prepared from administrative files from Ministry of Social Services, BC Government, and Human Resources Development Canada

7**Business Formations and Failures**

| Incorporations | | | | | Bankruptcies | | | | |
|----------------|----------|--------|------------------------|------|--------------|--------------|----------|----------|----------|
| Year | Number | | % change previous year | | Year | Alberni-Clay | | B.C. | |
| | Ucluelet | B.C. | Ucluelet | B.C. | | Business | Consumer | Business | Consumer |
| 1995 | 9 | 23,846 | -77.5 | -7.5 | 1994 | n/a | n/a | 822 | 4,183 |
| 1996 | 12 | 23,237 | 33.3 | -2.6 | 1995 | n/a | n/a | 973 | 4,745 |
| 1997 | 11 | 22,958 | -8.3 | -1.2 | 1996 | n/a | n/a | 948 | 6,436 |
| 1998 | 10 | 20,759 | -9.1 | -9.6 | 1997 | n/a | n/a | 895 | 7,366 |
| 1999 | 8 | 21,009 | -20.0 | 1.2 | 1998 | 0 | 00 | 1,031 | 7,327 |

Source : Ministry of Finance, B.C. Government

Source : Office of the Superintendent of Bankruptcy, Govt of Canada