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**Alternative Indicators for Development:**  
**A Case Study of Atlantic Canada**

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**International Development Studies  
Saint Mary's University,  
Halifax, Nova Scotia, Canada**



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# **Alternative Indicators for Development:**

## **A Case Study of Atlantic Canada**

Thesis submitted in partial fulfilment of the Master of International Development studies

Saint Mary's University, Halifax, Nova Scotia, Canada


Calista Rajasingham, 1998

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**Dedicated**

**to**

**My Dada, Mama, & Anne**

# **Alternative Indicators for Development:**

## **A Case Study of Atlantic Canada**

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# **Alternative Indicators for Development:**

## **A Case Study of Atlantic Canada**

### **Abstract**

Existing data for Economic, Social and Environmental indicators are analysed. Costs for these indicators are defined and discussed. Cost estimates are provided for all three sets of indicators. This framework is used to compare present costing and future costs that would occur if the current trends continue to exist. The implications of present cost distribution on economic, social and environmental efficiency, equity and development considerations are explored. Recommendations are provided for reforming current decision making. The integrating theme of the new methods of accounting is the view of "Sustainability;" In contrast to the short-term changes in quantitative growth tracked by the GDP, sustainable development acknowledges the dependence of the human economic subsystem on an encompassing ecosystem and our responsibility to future generations. Economic activity is valued according to long-term qualitative non-market transactions, social equity and environmental considerations. Surveys by Statistics Canada is the primary source of data used for most of the indicators.

Knowledge of environmental, social and economic costs can help many policy and planning decisions. How costs are valued affects not only the economic efficiency and competitiveness but also the equity and the sustainable approach to exploiting the environment in the process of development. Some non-market social, economic and environmental services to the economy as well as to human progress tends to be given little weight or no weight in some policy planning areas and in the present system of national accounts. In recent years techniques have been developed to measure a wide variety of non-market costs. Some of these methods are discussed and used in this study to allow how costs could be compared and to measure human progress.

**Calista Rajasingham – Nova Scotia, November, 1998.**

## Acronyms and Abbreviations

<b>AD</b>	Alternative Development
<b>CPM</b>	Capability Poverty Measure
<b>DATA</b>	Information collected by a researcher
<b>GDI</b>	Gender Development Index
<b>GDP</b>	Gross Domestic Product
<b>GEM</b>	Gender Empowerment Measure
<b>Gini Coefficient</b>	A measure of inequality of dispersion in a group of values, such as income inequality in a population. The larger the coefficient the greater the dispersion. It is calculated by taking the mean difference between all pairs of values and dividing that by two times the population mean. Sometimes called the “coefficient of concentration.”
<b>GPI</b>	Genuine Progress Index
<b>HPI</b>	Human Poverty Index
<b>HDI</b>	Human Development Index
<b>HRD</b>	Human Resource Development
<b>INSTRAW</b>	United Nation’s Institute for Training and Research for the Advancement of Women
<b>INDEX</b>	Any observable phenomenon that is used to indicate the presence of another phenomenon, as when church attendance is used to indicate religious commitment.
<b>MEAN</b>	The average to get the mean add up the values for each case and divide the total by the number of cases.
<b>MEDIAN</b>	The middle score in a set of ranked scores.
<b>MODE</b>	The most common (most frequent) score in a set of scores
<b>NGO</b>	Non Government Organization
<b>NS</b>	Nova Scotia
<b>OECD</b>	Organization for Economic Corporation and Development
<b>Social Indicators</b>	Statistics describing variables that reflect social conditions, that is, that “indicate” something about the nature and quality of life in a society.
<b>SNA</b>	System of national Accounts
<b>Statistics</b>	A number that describes some characteristic of (the “status” of) a variable or of a group of data such as a mean or a correlation coefficient.
<b>UN</b>	United Nations
<b>UNCED</b>	United Nation’s Conference on Environment and Development
<b>UNCSD</b>	United Nation’s Commission on Sustainable Development
<b>Variable</b>	Any finding (an attribute or characteristic) that can change, that can vary, or that can be expressed as more than one value or in various values or categories. the opposite of a variable is a constant.

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## **Chapter I**

### **Introduction**

#### **1.0 Posing the Problem**

This study explores the economic, social and environmental costs of the economic development process. It investigates these issues in the context of Atlantic Canada, and it does so with reference to the hypothesis that significant costs are generally ignored in the measure of Gross Domestic Product (GDP); and in this context it explores the implications of such omissions on economic efficiency, equity and environmental sustainability in the process of development. The emphasis of this study on costs is not intended to undervalue the significant benefits of development in social, environmental and economic sectors. However, there is an important difference in the distribution of benefits and costs. While there are clear and identifiable beneficiaries of development processes the benefits are generally enjoyed by users while many costs are borne by other individuals or society as a whole. These external costs, if significant, imply a conflict between individual and societal interests, and indicate the likelihood of economic efficiency and inequity. To appreciate the importance of these costs it is useful to consider situations in which certain activities change in a community and residents must respond to the resulting impacts. For example, imagine that:

- Volunteer work in your community was expected to decrease by 50percent in a few years. What economic and social problems might increase?
- A new technology eliminates a specific external cost of driving, such as traffic noise or accident risk. How much should the community pay to implement it?

- Which activities detract from welfare and cause current harm, damage and social costs, like crime, auto accidents and oil spills?
- Which current expenditures produce no immediate welfare gains (and may necessitate current sacrifice), but are designed to positive benefits in the future? They include capital investment expenditures in natural, human, produced and social-cultural capital, like education, preventive health care, protected areas, and infrastructure.
- What are “defensive” expenditures, which do not produce any gain to welfare, but are designed to ward off harm, limit damage, or repair and clean up past damage, like burglar alarms and security systems, water and air filters, legal and insurance costs, pollution cleanup?
- What are “intermediate” expenditures, which produce no net gain to welfare, but are necessary in order to accomplish a different objective, like commuting to work, moving expenses etc.<sup>1</sup>

These are slightly exaggerated examples of real issues. This study analyses various costs which are generally ignored and their implications to help provide answers to these and similar questions.

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<sup>1</sup> Litman, Todd (1995), Transportation Cost Analysis: Techniques, Estimates and Implications, Victoria Transport Policy Institute, British Columbia, Canada.



### 1.0.1 Gross Domestic Product (GDP) and Development.

The GDP is simply a gross measure of market activity, of money changing hands. It makes no distinction whatsoever between the desirable and undesirable, or costs and gain. It investigates only at the portion of reality that economists choose to acknowledge the segment involved in monetary transactions. The crucial economic functions performed in the household and volunteer sectors go entirely unrecognised. The Genuine Progress Index authors, Ted Halstead, Clifford Cobb and Jonathan Rowe notes:

As a result, the GDP not only makes the breakdown of structure and the natural habitat upon which the economy and the life itself ultimately depend; what's worse, it is actually portrays such breakdown as economic gain. It is oblivious to the difference between progress and regress and loss and gain. By the curious standard of the GDP, the nation's economic hero is a terminal cancer patient who is going through a costly divorce. The happiest event is an earthquake or a hurricane. The most desirable habitat is a multi-billion dollar superfund site. Something similar happens with the natural habitat. The more the nation depletes its natural resources, the more the GDP increases. This violates basic accounting principles in that it portrays the depletion of capital as current income. No business person would make such a fundamental error.

This is particularly an issue for the developing countries, because much of the development, which has led to the biggest gains in GDP growth, is actually based on rapid depletion of raw natural resources like mining, forestry, agriculture, fisheries, and raw materials.<sup>2</sup>

The effects of the GDP fixation can be seen, perhaps, most vividly in the developing nations. The very term "development" is defined mainly in terms of GDP, specifically in the context of policies by the World Bank, which is a kind of development

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<sup>2</sup> Clifford, Cobb, Halstead, Ted and Rowe, Jonathan , "If the GDP is up why is America down?", The Atlantic Monthly, Washington, October, 1995, pp 60-72.

czar for the nations of the South. It is, indeed, absurd to use such a measure to assess the economies of less-developed nations, where much production takes place in the household economy and is therefore diminish the well-being of the nation's people, while devastating the habitat to boot.<sup>3</sup>

In 1989 Barber Conable, then the president of the World Bank, acknowledged the problem with respect to environmental issues. "Current calculations ignore the degradation of the natural resource base and view the sales of nonrenewable resources entirely as income." He wrote. "A better way must be found." Yet on the floors beneath him the bank economists continued churning out loan strategies aimed at boosting GDP. One recent World Bank publication reaffirmed it as the "main criterion for classifying economies," and a wrongheaded one. A classic example to demonstrate this would be the study conducted by the World Resource Institute on Indonesia in 1989, to explored the implications for natural resources.

As of the 1970's, Indonesia has been a success story for the conventional development school, achieving an exceptional growth rate of seven percent a year. But such an amphetamine pace cannot be sustained forever. Indonesia is selling off precious non-renewable mineral wealth. Clear-cutting its forests and exhausting its topsoil with intensive farming, it is, in effect, robbing the future to finance the current boom. After adding in these and other factors, the institute found that the country's real, sustainable growth rate was only about half the official rate. And that was not counting the broader spectrum of environmental and social costs, which would have brought the growth rate

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<sup>3</sup> *Ibid.*

down even more. Here is another example under the gross domestic product; the profits are attributed to the country where the factory or mine is located, even though they won't stay there. This accounting shift has turned many struggling nations into statistical boomtowns while aiding the push for a global economy. Conveniently, it has hidden a basic fact: the nations of the north are walking off with the south's resources and calling it a gain for the south.<sup>4</sup>

The integrity of biological and other natural systems are the single most important element of any economy. The collapse of ancient civilizations that violated this principle is a reminder that human cultures can ignore the constraints of natural systems only for so long. To understand how the national accounts became trapped in the assumptions of a bygone era, it is useful to study the era in which the current form of economic accounting was wrought. Originally, it was a measure to stimulate war-time production. Eventually, it became a national economic system, which was not something created to measure the overall wellbeing of a society. GDP is not the problem. It's an accounting system that reflects the current economic system. GDP is a symptom of the problem. This problem might be a particular economic philosophy. The way we define the wellbeing equated to economic growth based on economy may be a problem. This thesis will investigate to see whether the alternatives might serve the developing nations better. It is important to note that the GDP method equates wellbeing with growth of all kinds without distinguishing benefits and harms. The Authors of the Genuine Progress Index, Cobb Clifford, Ted Halstead and Jonathan Rowe notes:

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<sup>4</sup> Op.cit.

The findings of the GDP are cause for concern. They reveal that much of what economists now consider economic growth, as measured by GDP, is really one of three things:

1. fixing blunders and social decay from the past;
2. borrowing resources from the future; or
3. shifting functions from the community and household realm to that of the monetized economy.

Simon Kuznets, The original architect of the GDP notes:

The welfare of a nation can scarcely be inferred from a measurement of national income as defined (by the GDP)...Goals for 'more' growth should specify of what and for what.<sup>5</sup>

There is an urgent need to improve and broaden the accounting framework that guides public policy. If we are to preserve our social structure and natural habitat, we must develop means to estimate their contributions to our economic wellbeing. This thesis offers the Genuine Progress Index (GPI) as a step in this direction.

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<sup>5</sup> Cited from Colman, Ronald (1998), "Measuring Sustainable Development: Application of the Genuine Progress Index to Nova Scotia Progress Report and Future Directions", Halifax, Canada, GPI Atlantic.

### 1.0.2 Thesis Statement.

The way the economy is measured has a great impact on development. Distinctions must be made between the quantity and quality of growth, between its costs and , and between the short and the long run impacts. It indicates what we measure is what has value. The thesis of this study is that the present system of accounting for the Gross Domestic Product (GDP) is not an accurate measure of the prosperity of a nation and that in order to adjust to the needs of the economy, to avoid costly errors and misguided investments, and to identify leading edge sustainable industries that can contribute to long term prosperity, countries must adopt a more precise and a wide ranging set of indicators as an **adjunct to the GDP**. For example, countries need a system to measure how sustainable industries, energy efficiency and conservation can enhance competitiveness by reducing inputs and production costs while protecting resources and the environment. An alternative is presented in the form of the Genuine Progress Index (GPI), which has been originally constructed by Clifford Cobb, Ted Halstead and Jonathan Rowe.

It is also argued in this thesis that a progressive index should include equity considerations; a measure of viable economic activities which do not include monetary transactions but which a society depends on, as well as an accounting of the outputs of economically sustainable ways of preserving the environment.

GPI is an approach that takes into account economic, social, and environmental factors. It is also a workable approach with significant practicality. Countries face extraordinary challenges in the process of seeking development while preserving their natural resources. Some of the questions that might arise are: how can the natural habitat

be preserved in a sustainable manner while extracting natural resources? How can prosperity be measured without leading to the breakdown of social equity? In the process of development, how can local skills, training and entrepreneurship encouraged without giving in to foreign investors? How can a sustainable form of development be ensured? Our present system of accounting the GDP does not enable the policy makers in developing countries to have a way to meet these challenges and answer these questions. This study examines ways of applying the GPI and how workable it is in practice. It is argued that the GPI is a viable alternative to existing measures of economic progress.

The Genuine Progress Index, developed by Clifford Cobb, Tom Halstead and Jonathan Rowe, is one of the most advanced and workable alternatives to the GDP developed to date, factoring in 26 different economic, environmental and social indicators to chart the actual prosperity and wellbeing of a society. Economists Partha Dasgupta of Oxford University, Robert Dorfman, Stephen Marglin and Juliet Schor of Harvard University, Robert Heilbroner of the New School for Social Research, Nobel Laureate Herbert Simon, and over 400 other economists, asserted in a joint declaration:

Since the GDP measures only the quality of market activity without accounting for the social and ecological costs involved, it is both inadequate and misleading as a measure of true prosperity . . . New indicators of progress are urgently needed to guide our society . . . The Genuine Progress Index (GPI) is an important step in this direction.

Variations of the GPI approach and methodology have been successfully applied by several U.S. counties and municipalities, have been used in natural resource measurements by the Alberta Treasury (Canada); have produced successful sustainable indicator studies in Seattle (US), Hamilton-Wentworth (Canada); and it is currently been used in Edmonton (Canada) and in Nova- Scotia (Canada). The power of

measurement systems which consider quality of life indicators is that they bring basic human values to the forefront, encourage policy makers to consider sustainability, equity and social justice as legislative priorities, and point to the interdependence of economic, social and environmental factors in determining genuine progress.

### 1.0.3 Purpose of this Study

The purpose of this thesis is to analyse the dynamics of the Genuine Progress Index (GPI) as an alternative set of indicators for development by examining its viability in the context of Atlantic Provinces in Canada.

### 1.0.4 Why Atlantic Canada? The context for the Study.

Since the early 1970s significant progress has been made in remedying the flaws of the GDP. Initiatives by the UN, the World Bank, the OECD, the World Resource Institute, and many leading research institutes and economists, have advanced natural resource accounting to the point where even valuations of nonmarket ecological services can be included in the national accounts, as the government of Norway has demonstrated. For example, some studies have calculated values for forests as carbon sinks according to the costs of reducing carbon dioxide emissions by equivalent proportions to the carbon sequestration capacity of different forest species.<sup>6</sup>

In addition, some composite indices, (like the Genuine Progress Index (GPI), the Index of Sustainable Economic Welfare, and the Measure of Economic Welfare), now  
✓ accounts for unpaid work, income distribution, changes in free time, the durability of

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<sup>6</sup> Colman, Ronald (1998), "Background Material", March 3rd 1998, Presentation, Halifax, Canada.

consumer goods and the value of natural capital, and distinguish direct contributions to economic welfare from defensive and intermediate expenditures and from economic activities that produce an actual decline in human progress.

In 1993, the United Nations, OECD, and the commission of the European Communities jointly issued a new set of internationally accepted guidelines for the preparation of national accounts the System of National accounts 1993. For the first time, international guidelines prescribed that natural resources should be incorporated into government balance sheet accounts. In fact, the guidelines prescribed the development of a “satellite system for integrated environmental and economic accounting”, to make explicit environmental protection expenditures, to link resource and waste production to economic data and to calculate an environmentally adjusted Net domestic Product to account for natural resource depletion and environmental degradation.<sup>7</sup>

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<sup>7</sup> *Ibid.*



Statistics Canada released on December 4, 1997, the new Canadian system of Environmental and Resource Accounts, which will be incorporated into the country's national balance sheets and input-output accounts. In fact, a major goal of Statistics Canada's new Environmental Protection Expenditure Accounts is "to provide those who might be interested in calculating an environmentally adjusted GDP along these lines with the information necessary to do so." In short, there is now a significant global movement to remedy some of the shortcomings of the GDP and to incorporate critical social and environmental information in new sets of expanded accounts. The following countries have taken the lead in this effort: Norway, Finland, Germany, Australia, Denmark, the Netherlands, Sweden and France. As a result of these international initiatives, there are now excellent models and methodologies available, and a sound basis for international comparability. Needless to say, continuous improvements are needed in the methodologies of all these indices, but they share the advantage of acknowledging the complexity of economic, social and environmental linkages in assessing and measuring progress and wellbeing. They are best taken as a basic flexible approach to more accurate and precise accounting subject to ongoing refinements in valuation techniques, rather than as a rigid formula or system.<sup>8</sup>

The integrating theme of the new methods of accounting is the view of "sustainability". In contrast to the short-term changes in quantitative growth tracked by the GDP, sustainable development acknowledges the dependence of the human economic subsystem on an encompassing ecosystem and our responsibility to future generations. Economic activity is valued according to long-term qualitative environmental, social and

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<sup>8</sup> Op.cit.

economic standards. Perhaps the greatest challenge of this view to the traditional economic thinking which the GDP reflects, is its recognition that progress and well-being may, in some cases, depend on limits to growth rather than continued economic expansion. Thus, sustainability has both ecological dimensions, the necessity to live within the carrying capacity of our natural resource base and waste assimilation capabilities, and social components concerned with the quality of life, such as the balance between increased output and the value of leisure and the value of human capital. Sustainability recognise that social stresses may undermine future prosperity. Increasingly, it also has a legal basis both in domestic legislation setting targets, standards and thresholds for environmental protection and waste reduction and in Canada's international commitments.

Presenting its new Natural Resource Stock Accounts, Statistics Canada notes<sup>9</sup>

Canadians now recognise that their natural resource base is finite and that it must be managed for the benefit of both current and future generations. This recognition is translating more and more often into economic policy that looks beyond the conventional orientation or economic growth, setting instead targets for sustainable development.

Since businesses, governments and individuals base their decisions from the system of financial incentives and penalties, the vital link in moving towards more sustainable development in actual practice is an economic accounting system which incorporates economic, environmental and social benefits and costs. That in turn is the fundamental basis for taxation systems, subsidies, pricing structures and other policy tools capable of encouraging actions that will ensure future prosperity.

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<sup>9</sup> Cited From: Colman, Ronald (1998), "Background Material", March 3rd 1998, Presentation, Halifax, Canada.

A recent National Round Table report on Maritime woodlots, for example, noted that current accounting practices actually encourage woodlot owners in the province to harvest unsustainably. The report warned of serious consequences to the forest industry in the absence of full-cost accounting procedures reflected in the structure of taxes and subsidies. The new measures of progress are clearly timely and necessary supplements to the GDP.

A progressive index for Atlantic Canada can provide many benefits. It can provide the necessary information on which the outcome measures can draw. The data can facilitate a benefit-cost analysis of alternative policy recommendations and investment strategies. It can contribute early warning systems of potentially unsustainable activities and trends, allowing timely, graduated remedial action. An index of this nature has the capability to assess progress towards the sustainability of consumption patterns and of economic activities in particular sectors, and towards the fundamental goals and values of the society, signalling where prior policies should be strengthened, and where necessary changes should be made. A progressive index can stimulate broad discussion among Nova Scotians on vital issues that are obscured by current systems of accounting. (For example, should productivity growth lead to increased output, the current assumption, or increased leisure time, which is included in the GPI valuations?). In years to come a progressive index of this nature can provide the basis for implementing a strategy of sustainable development in Nova Scotia. These initiatives can make more substantial contributions by providing an accounting basis for the major economic re-orientation that will be needed in the new millennium, as people learn to live within a finite resource base (carrying capacity) and begins to integrate human, social and

environmental values fully into economic policies and activities. An effective suite of sustainable development policies that carefully weigh long-term benefits and costs can help ensure the future generations of Nova Scotians a legacy of care and responsibility from the previous generations that contributes to their future well-being and prosperity.<sup>10</sup>

Why choose Atlantic Canada as a study on development related issues? Atlantic Canada resembles developing countries in a number of ways. Atlantic Canada suffers from chronic economic backwardness, and has great dependence on the central and western Canada for equalisation payments. This region is predominantly dependent on natural resources like forestry and fisheries: it has a comparatively high unemployment and poverty rate, and it has an average income two-thirds the national average. It is also dependent on an industrial centre outside the region, has insufficient technological resources, a chronic shortage of research funds, experienced a brain drain, and is primarily an exporter of raw materials. Atlantic Canada has also experienced capital flight and the repatriation of profits of multinational corporations located outside the region; it has insufficient control over these multinationals; and it is disadvantaged by uneven development, to name it a few. These issues are all related to development and to developing nations. Therefore, the need for fundamental reform is paramount. Like most developing countries, Atlantic Canada provides more community stability, and has less crime compared to the rest of Canada. In this respect, developing countries also have rich cultural traditions and stronger communities.<sup>11</sup> Therefore, Atlantic Canada would be an ideal context to apply the GPI.

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<sup>10</sup> Colman, Ronald (1998), "Measuring Sustainable Development: Application of the Genuine Progress Index to Nova Scotia Progress Report and Future Directions", Halifax, Canada, GPI Atlantic.

<sup>11</sup> See chapter IV for The Voluntary Work Contribution to Nova Scotia

## **1.1 Defining Development: Theoretical Framework and Approach**

### **1.1.1 Defining Development**

The notion of development is ambiguous and is subject to different interpretations. Three such interpretations can be distinguished. First, development is often treated synonymously with economic growth and therefore interpreted to mean increases in labour productivity, declining share<sup>12</sup> of agriculture in total output, technological progress, and industrialisation with a consequent shift of population to urban areas. It is important to note that while these structural changes are generally associated with economic growth, equating them with development shifts the focus to economic aggregates and away from living standards and human dimensions.<sup>13</sup>

The second view of development attempts to remedy this deficiency by concentrating on such indices of living standards such as poverty, income distribution, nutrition levels, infant mortality, life expectancy, literacy, education, access to employment, housing, water supply and similar amenities. This approach to development brings it closer to the common-sense view and endows it with greater human reality. Nevertheless, the emphasis continues to be on economic and social indicators, and

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<sup>12</sup> Chapter two offers in-depth elaborations of the UNDP Human Development Report 1990-94.

<sup>13</sup> Veltmeyer, Henry (1997), The search for Alternative Development, Working paper No. 97.2, Halifax Saint Mary's University.

individual human being and social groups tend to be off-stage, passively supplied with goods, services and materials.

In contrast, the third view of development puts the spotlight on the human potential and capabilities in the context of relations with other social groups. According to this view, development is seen in various terms such as greater understanding of social, economic, and political processes, enhanced competence to analyse and solve problems of day to day living, expansion of manual skills and greater controlled over economic resources, restoration of human dignity and self respect, and interaction with other social groups on a basis of mutual respect and equality. This notion of development does not exclude material deprivation and poverty but the focus shifts to the realisation of human potential expressed in such terms as human dignity, self-respect, social emancipation, and enhancement of moral, intellectual and technical capabilities.

The three ways of looking at development of course, are not mutually exclusive. Indeed, the optimal pattern of development should embody elements of all three: the growth of human capabilities and potentials must be accompanied by progressive reduction of material deprivation and social inequalities which, in turn should flow from structural change and modernization of the economy. But in practice, these aspects of development often involve in a harmonious relationship and typically emphasis on one or the other would have different implications for organization of economic activities, patterns of investment and design of programmes and projects.<sup>14</sup>

The process of development is multidimensional. Its critical or major components include: **economic** with reference to the process of increasing productive capacity and the

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<sup>14</sup> Veltmeyer, Henry (1997), The search for Alternative Development, Working paper No. 97.2, Halifax Saint Mary's University.

output of goods and services, a process that traditionally has depended on industrialisation. **Social**, with reference to the process of improving the quality of life of the population and a more equitable or just distribution on society's productive resources and the benefits of the process. **Political**, with reference to the process of releasing and freeing individuals (and oppressed peoples) from structures and conditions that inhibit or limit their capacity to develop their human potential. **Cultural and ethnic**, with reference to the process of assuring the respect for autonomy, human rights, cultural identity, and indigenous forms of organisation, particularly of the indigenous peoples that for centuries have been marginalised and oppressed lost in the interstices of the dominant society and culture. **Ecological**, with reference to the need to protect the environment and not to exceed the limits of the ecological systems on which human life and the development process depends.<sup>15</sup>

Development is focused and based on the satisfaction of the fundamental human needs, on the generation of growing self reliance, and on the construction of organic articulation of people with nature and technology, of global processes with local activity, of the personnel with the social, of planning with autonomy and of civil society with the state. Human needs, self-reliance and organic articulations are the pillars that support human scale development. One of the scenarios presents the possibility of a great transition the passing from a dominant rationality of blind economic competition and greed to a rationality based on the principles of sharing and solidarity. We might call it the passing from a Mutually Assured Destruction to an era of Mutually Assured Solidarity.<sup>16</sup>

Considering the challenges posed by the process of development it is important to dispel the fog around the word 'development' and decide more precisely how to define it. Only then it is possible to devise meaningful targets or indicators, and thus to help

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<sup>15</sup> *Ibid. pp. 20-21*

<sup>16</sup> Neef, Max, "Human scale development: An option for the future", Development Dialogue, 1989.

improve policy, be it national or international. The critical point is that attempts should not be made to avoid what the positivists disparagingly refer to as 'value judgements'. 'Development is inevitably a normative concept, almost a synonym for improvement. To pretend otherwise is just to hide one's value judgements.' Questions should be raised in related to where are these judgements to come? The conventional answer, which Tingerben accepts for his system of economic planning, is to draw the values from governments. Unfortunately governments have necessarily a rather short-term or narrow view, which in some cases discounting the future at a very high rate. More seriously, some governments are them selves the main obstacles to development. On any plausible definition, and once this is conceded, where is one to obtain the yardsticks by which government objectives are to be judged? Even supposing that governments represented faithfully, in some sense, popular attitudes, these are endogenous to the development process and therefore cannot provide a means of assessing it. Since indicators include an attempt to quantify some conception or definition of development, the nature and scope of the indicators, as well as the nature of the relations between them, will depend on the defined conception. There lies the possibility that this so called conception being rather vague and once the indicators are being selected, they are apt to take over the definitional function.<sup>17</sup> It should be noted here that there are many definitions and theories of development and it is not possible to review them all in this chapter or in this thesis.

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<sup>17</sup> Seers, Dudley (1972), What are we trying to measure? Frank Cass and Co. Ltd.



### 1.1.2 The New Paradigm.

“Those who choose to change their paradigms early do it not as an act of the head, but as an act of the heart.”<sup>18</sup>

Joel Barker. Paradigm Pioneers

The dominant logic of the industrial era is a production logic and its dominant goals are production centred. Its values, systems, and methods were geared to the exploitation and manipulation of natural resources to produce an increasing flow of standardized goods and services and to the creation of a mass consumer society to absorb them.<sup>19</sup>

The postindustrial era faces conditions quite different from those of the industrial era and presents an important new potential to enhance human growth, and well-being, equity, and sustainability the central themes of people centred development. But to accomplish this potential the development actions that shape the industrial era must incorporate by a new paradigm based on alternative ideas, values, social techniques, and technology. There is reason to believe that such a paradigm is currently emerging from a global process of collective social invention. The dominant logic of this paradigm is that of a balanced human ecology, its dominant resources are the inexhaustible resources of

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<sup>18</sup> Cited from Kendrick, Martyn, Moore, Linda (1995), Re-Inventing Our Common Future, Hamilton, Ontario, Canada, Seldon Printing Limited.

<sup>19</sup> Korten, D.C and Klaus, R. (Eds) (1984), People Centred Development, West Hartford, Connecticut, Kumarian Press.

information and creative initiative, and its dominant goal is human growth defined in terms of greater realization of the human potential.<sup>20</sup>

The New Paradigm elaborated at the end of 1980s has five components. An emphasis on popular participation, that is, the incorporation of the identified beneficiaries of public policy and associated projects, particularly the poor and the women. Decentralization of decision making and the implementation and administration of public policy, sharing it with institutions of local (municipal and regional governments) and other partners (NGOs). Prioritising the problems and the conditions of extreme poverty, alleviating their effects with projects financed by a special social investment fund set up to this purpose. Specific policies with relation to health, education and employment and, in some versions, the promotion of micro enterprise and in order to incorporate women into the development process, empowering them/assuring their active participation. Structural reforms designed to create a favourable environment for a new social policy and a social development process.<sup>21</sup>

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<sup>20</sup> *Ibid.*

<sup>21</sup> Veltmeyer, Henry (1997), The search for Alternative Development, Working paper No. 97.2, Halifax, Saint Mary's University.

### 1.1.3 Alternative Development

The spread of the AD movement is impressive. It has diversified and takes multitudinous forms (its proponents do not believe in one single path towards development). Forms include development concerned on a human scale (Max-Neef, Elizonda and Hopenhayn); that is participatory (Rahman, UNRISD), equitable and sustainable (Wolfgang Sachs), human (Max-Neef, UNDP, ICPF), liberating (Goulet) self-centred and -reliant (Schuldt, Amin), from the inside (Sunkel), from below, people centred (Korten), community based and directed (UNICEF), and equitable (ECLAC).<sup>22</sup>

According to the thinking popularized by the Dag Hammrskjold Foundation and the magazine Development Dialogue, Another Development should be defined as: **Need oriented** (being geared to meeting human needs, both material and non material). **Endogenous** (Stemming from the heart of each society, which defines in sovereignty its values and the vision of its future). **Self reliant** (Implying that each society relies primarily on its own strength and resources in terms of its members' energies and its natural and cultural environment). **Ecologically sound** (utilizing rationally the resources of the biosphere in full awareness of the potential of local systems as well as the global and local out limits imposed on present and future generations). **Based on structural transformation** (so as to realize the condition of self-management and participation in decision making by all those affected by it, from the rural or urban community to the world as a whole, without which the goals above could not be achieved).<sup>23</sup>

The postulates and theoretical and political propositions (and some models) of this alternative development are diverse and wide ranging and the search continues--but it

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<sup>22</sup> *Ibid pp.22.*

is possible to identify some domain assumptions, common elements, and guiding principles the heart we might say of these alternative proposals. The pillars of the various models constructed within this alternative conception of development can be summarised in the following terms:<sup>24</sup>

The community as the base of development. This is a fundamental element of the approach. For the exponents of AD the process of development is based on community-based organisations; it is defined at the level of community, an entity characterised by an awareness of collective identity (what sociologists call “community spirit,” something that tends to be lost in the process of development--modernisation, industrialisation, urbanisation, etc.). The community appears as the social base and the beneficiary of development, both object and subject of the process.

Popular participation as an essential condition (of solidarity) is another key element. It is essential that the beneficiaries, the object of the process, are at the same time the self-constituted social subject or agent of the development process. The principal protagonist in the development of the community in all of its dimensions economic, social, political, cultural and ecological, Both neoliberalism and neostructuralism identify and project “participation” as an essential condition of the process of the development, the “missing link” between the process of productive transformation and the achievement of equity or social justice in the distribution of productive resources. “Participation” in these models has as its basic purpose the incorporation of the intended beneficiaries into the development process and not their

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<sup>23</sup> Hettne, Bjorn (1990), Development Theory and the Three Worlds, UK, Longman Group Limited, pp. 153-154.

<sup>24</sup> Veltmeyer, Henry (1997), The search for Alternative Development, Working paper No. 97.2, Halifax, Saint Mary's University pp. 23

constitution as a collective social subject, with the objective of empowering people directly. This is the goal and strategic objective of an alternative development.

Another element of alternative thinking is local action and control. Related to the question of popular participation is the idea of the need of privileging local action. The propositions of AD presuppose the need for a selective delinking from this world economy (to pursue a path of national self-reliance), or, at least, as an alternative focus on conditions that directly affect the local community. In this context, for example, proposals for AD focus on the need for (a) using locally available resources, both natural and human, designing technology appropriate to the human scale of small enterprises and the use of local resources to encourage the formation of local and regional centres of technological research and development, with respect to both appropriate technology and enterprise development management, the creation of industry in, or close to, rural communities in the country side, strengthening local and regional markets and reorienting production facilities to them, with eyes to these markets, to capitalise and to encourage the formation of small and corporative enterprises with a high capacity for generating employment and income growth, raising thereby mass consumption level and promoting community development.<sup>25</sup>

Besides these three principles or pillars the propositions and proposals of AD are characterised by an emphasis on the multi-dimensionality and integral form of development. If one were to establish a hierarchy among the several dimensions of the

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<sup>25</sup>Veltmeyer, Henry (1997), The search for Alternative Development, Working paper No. 97.2, Halifax, Saint Mary's University pp. 23-24

development process, then, according to Ignacy Sachs, the emphasis must be on the social aspect, accepting the ecology as a finite and definite limit, and the economic as a means of achieving an integrated form of social and human development. A motto of AD is to “think in global terms but to act locally.” This formulation points towards the problem of connecting the multiplicity of community development projects with processes that reach well beyond these communities and that generate at other levels (national, global) structural conditions of local development.

In this regard, the AD movement provides very few ideas aside from the proposal of forming connections and links between public policy and the actions of social organisations and citizens. Democratising the structures and the institutions of the state, creating thereby political spaces for the actions of these organisations at the national level and ditto at the global level; and seeking and forming organisations and the forms of mediation and net working that can assure the effective participation of civil society in national institutions such as education, health, banking, and other indispensable state institutions.<sup>26</sup>

#### 1.1.4 Sustainable Development.

Sustainability is a principle that has appeared in development theory as a consequence of the environmental concerns from the mid 1970s onwards. It is particularly associated with Lester Brown and the World Watch Institute, and the central theme it carries is that neither the old nor any new international economic order would be viable unless the natural biological systems that underpin the global economy are preserved. Lester Brown (19?) has underlined four areas that are problematic from the

viewpoint of sustainability: The lagging energy transition; the deterioration of major biological systems; the threat of climate modification; and global food security.<sup>27</sup>

Gro Harlem Brundtland, Our Common Future notes:

Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their own need.<sup>28</sup>

Although the depressed world economy has made the development of energy demand less dramatic than projected, the transition to new sources of energy is still a necessity. The deterioration of the four major biological systems oceanic fisheries, grasslands, forests and croplands is another serious problem, since their 'carrying capacities' are exceeded. Thus, not only non-renewable but also renewable resource bases are in grave conditions.<sup>29</sup>

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<sup>26</sup> *Ibid.* pp.25

<sup>27</sup> Hettne, Bjorn (1990), Development Theory and the Three Worlds, UK, Longman Group Limited, pp. 153-154.

<sup>28</sup> Cited from Kendrick, Martyn and Moore, Linda (1995), Re-Inventing Our Common Future, Hamilton, Ontario, Canada, Seldon Printing Limited

<sup>29</sup> Hettne, Bjorn (1990), Development Theory and the Three Worlds, UK, Longman Group Limited, pp. 153-154.

## 1.2 Measuring Development: The methodology

### 1.2.1 What are we trying to measure?

Development includes creating the conditions for the realization of human personality. It is therefore must evaluate three linked economic criteria: whether there has been a reduction in (i) poverty; (ii) unemployment; (iii) inequality. GNP or the GDP can grow rapidly without any progress on these criteria; so development must be measured more directly.<sup>30</sup>

Why development has been confused with economic growth? One could hardly argue that the situation depicted by a set of projections was preferable to that shown by another set simply because the former implied higher *per capita income*. After all, in what sense is South Africa more developed than Ghana, or the United States than Sweden? One explanation is that the national income is a very convenient indicator. Politicians find a single comprehensive measure useful, especially one that is at least a year out of date. Economists are provided with a variable that can be quantified and movements in which can be analysed into changes in sectoral output, factor shares or categories of expenditure, making model building feasible. It is possible fall back on the supposition that increases in national income, if they are sufficiently fast, sooner or later lead to the solution of social and political problems. But the experience of the past decade makes this belief look rather naive. Social crises and political upheavals have emerged in

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<sup>30</sup> Seers, Dudley (1972), What are we trying to measure?, Frank Cass and Co. Ltd.



countries at all stages of development. Moreover, it is evident that these afflict countries with rapidly rising per capita incomes, as well as those with stagnant economies. In fact it looks as if economic growth not merely may fail to solve social and political difficulties; certain types of growth can actually cause them.<sup>31</sup>

Now that the complexity of development problem is becoming increasingly obvious, this continued addiction to the use of a single aggregate indicator, in the face of the evidence, takes on a rather different appearance. It begins to look like a preference for avoiding the real problems of development.<sup>32</sup>

#### 1.2.2 The “compatibility” of Indicators.

The problems associated with weighing and comparing different indicators is a daunting enterprise. It is, of course, impossible to explore all its aspects here, but it may be useful to indicate some major possibilities of inconsistency and how serious these problems are. To reduce unemployment is to remove one of the main causes of poverty and inequality. A reduction in inequality will of course reduce poverty. But are other things equal? Does lowering the concentration of income imply a slower rate of economic growth? And would slower growth impair unemployment prospects? There is a well-known, indeed classical, argument that inequality generates savings and incentives and thus promotes economic growth and employment.<sup>33</sup>

The argument that the need for savings justifies inequality is unconvincing today. Particularly in countries with high unequal distributions, savings propensities are after all

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<sup>31</sup> *Ibid.*

<sup>32</sup> *ibid.*

very low; unlike the industrial countries with less concentration of income have, by contrast, much higher savings propensities. Absolute level of incomes affected by the savings. However, the explanation of this paradox must in part lie in the high consumption standards of an unequal society. "Moreover, the rich in most countries tend to have extremely high propensities, not merely to spend, but to spend on goods and services with a high foreign exchange content, and, for countries suffering from an acute foreign exchange bottleneck, this is a major obstacle to development." Though it is possible to control demand through administrative control, this leads to the elaboration of a bureaucratic apparatus which is expensive, especially in terms of valuable organising ability, and which in some countries becomes riddled with corruption. In fact, the result of import control is often design to protect a highly profitable local industry, which itself depends heavily on imports of intermediate products and capital goods, and remits abroad a large flow of money in profits, through the channels of interest, royalties, licence fees and service charges of various sorts. In any case, in a highly unequal society, personal savings often would not contribute to development. Most of these personal savings flow abroad or go into luxury housing and other investment projects of low or zero priority for development, or even for growth. Where there are barriers of race or class or caste to advancement, the argument that only inequality can provide the incentives that are necessary is also obviously of limited validity in a country.<sup>34</sup>

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<sup>33</sup> Baster, Nancy (1972), Measuring Development: The Role and Adequacy of Development Indicators, London, Frank Cass and Co. Ltd.

<sup>34</sup> *Ibid.*

### 1.2.3 Indicators and Development.

Development, as indicated above, is viewed as multi-dimensional, involving changes in structure and capacity, as well as output. In these forms three different, but overlapping, approaches to the definition of indicators are distinguished. The definition of indicators in the context of theoretical models of development, consisting socio-political as well as economic indicators. The use of indicators in the empirical study of interrelations between economic and non economic factors; and the role of development indicators for policy and planning. The progress along each of these three dimensions depends on the integration of economic, social, and political variables, and the identification of systematic relations between them.

To be meaningful development should not only involve change but also relate to values. It can be argued that development is necessarily a normative concept, and involves values, goals and standards making it possible to compare a present state against a preferred one. This raises immediately the question of whose values and goals are to be taken into account in assessing development. Planners' values or people's values? Market values or politically determined values? Most national 'welfare functions', as far as they are explicitly stated, are a mixture of these different elements.<sup>35</sup>

### 1.2.4 The nature and purpose of indicators

A development indicator represents some dimension of development, such as industrialisation, health, equity, participation. It may be a direct measure of an economic

or social variable in the sense that GNP measures the output of goods and services, or, more often, an indirect measure of some non-measurable phenomenon. Most of the generally accepted indicators of the quality of life, for example, are indirect measures of different aspects of welfare. Opinions differ as to the boundaries of indicators. Drewnowski, for example, argues that indicators should be limited to observable and measurable phenomena. Irma Adelman and Cynthia Taft Morris, on the other hand, make a case for a more flexible approach to the measurement of institutional phenomena, which would rely on expert judgement on qualitative rankings on reasonably explicit criteria of complex phenomena such as the degree of political participation.<sup>36</sup>

Indicators may be desegregated, composite (aggregated) or representative. In the first case a complex phenomena is broken down into a number of elements or components and indicators are selected to represent these different components. Ideally, these elements should be homogeneous, mutually exhaustive, and mutually exclusive. In the second case, a single indicator is constructed by combining a number of indices, involving some system of weighting. In the third case, a representative indicator is selected as the 'best' measure of a particular phenomenon on the basis of some criteria such as closeness of correlation with other indicators of the same phenomena. In all three cases the validation of the indicator depends on its reliability, sensitivity and accuracy, and on the consistency of its relation to other development indicators. In the final

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<sup>35</sup> *Op.cit.*

<sup>36</sup> Baster, Nancy (1972), Measuring Development: The Role and Adequacy of Development Indicators, London, Frank Cass and Co. Ltd.

analysis, however, the justification for particular indicators, and for particular selection processes will depend on the purpose for which they are to be used.<sup>37</sup>

Development indicators are used or needed for a number of different purposes. They are used to describe trends to diagnose a particular development situation (and to compare these trends and situations); they may be used to analyse interrelations between variables; they may be used for prediction; and they may be used for planning, both for measuring targets and objectives, and for evaluating progress.<sup>38</sup>

#### 1.2.5 Defining “cost”

Since this paper investigates costs and costing a clear definition should be provided. Cost refers to the trade-offs that individuals and society must make between the use of resources. The term cost and price are often used interchangeably, but in formal economics cost is defined broadly as any “benefits forgone.” This can involve money, time and other resources, or the loss of an opportunity to enjoy benefits. Price usually refers specifically to market costs. Lee states,

The economist’s notion of cost—which is used here—is the value of resources (used for a given input) in their best alternative use. If, for example, less gasoline were used in highway travel, what would consumers be willing to pay for the fuel for some other purpose, or if it were converted instead to heating oil? If less time were used in travel, how valuable would the time be for whatever purpose travellers chose to use it? If clean air were less consumed in dispersing vehicle pollutants or for breathing cleaner air? This concept of costs depends, then, on benefits forgone; there is no separate measure of cost that is distinct from valuation of benefits.<sup>39</sup>

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<sup>37</sup> *Ibid.*

<sup>38</sup> *Op.ci..*

<sup>39</sup> Cited From Litman, Todd (1995), Transportation Cost Analysis: Techniques, Estimates and Implications, Victoria Transport Policy Institute, British Columbia, Canada.

Because of their mirror image relationship, the measurement of costs often begins by defining the benefit of good that is forgone. Costing (also called monetization) involves quantifying these in monetary units.

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### **Costs--A Primer**

“Consider the costs of owning a pet, such as a dog. A dog can often be obtained for a low price or even for free. But pet owners quickly discover that a dog imposes many costs. Some, such as pet food purchased at the store, are market costs. Others, such as the nuisance of cleaning up after the animal, are non-market costs. These non-market costs can sometimes be estimated using a market cost as a reference, such as the cost of paying somebody else to cleanup after the dog. Some pet costs, such as registration fees and vet fees, are fixed, the price is the same for any size dog, while others such as food, are variable because they depend on the animal’s size and breed. Some costs are not separate expenses; they are price premiums or extra costs to other expenditures, such as more frequent rug cleaning, or the increased rent required for a larger back yard. In addition to the internal costs borne by their owners, dogs can impose external costs on other people, including noise, smells, messes, and fear.”<sup>40</sup>

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#### **1.2.6 Pricing non-market goods**

Including non-market costs in public decision making is challenging but none the less important. Excluding the skews decisions toward options with high environmental and social impacts. Assigning monetary values to nonmarket goods can improve planning and policy making. It facilitates equity and economic efficiency. For example, it would be unequitable and inefficient if one firm or sector was required to spend \$2,000 per ton of NOx reduction while another firm producing comparable emission spends significantly less. Greater total benefits may be achieved by shifting resources to the more cost-effective option. Of course, there are situations in which different unit cost for

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<sup>40</sup> *Ibid.*

environmental protection are justified, for example, to place a greater burden on firms with more resources, but these should be conscious decisions. This requires that the costs per unit of benefit be determined as a reference, which is essentially monetization.<sup>41</sup>

There is nothing unusual or mysterious about valuing non-market goods. Individuals and public officials often make decisions which trade non-market goods, such as clean air, quiet, and wilderness preservation, against money or market goods. For example:

- \* Home buyers must decide how much extra they will pay (in dollars or by giving up other amenities) for a residence that is subject to less noise or air pollution.
- \* Public agencies must decide how much society should spend (either in direct expenditures or by giving up other benefits) to achieve goals such as improved air quality, reduced accident risk, or increased speed and comfort for drivers.

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<sup>41</sup> Op.cit.

When numerous transactions involving trades between market and non-market goods are performed it is possible to identify patterns that effectively determine the price paid for the non-market good. In recent years a number of methods have been developed to measure in monetary units the value that society is willing to pay for non-market goods. Monetization of non-market goods is becoming increasingly common in a number of fields including energy planning, injury compensation, and environmental policy analysis.<sup>42</sup>

#### 1.2.7 Criticism of non-market goods' cost analysis

The analysis in this approach tends to be criticised from two perspectives. One is the argument that too much emphasis is placed on costs without acknowledging the benefits provided by those non-market goods. When confronted with evidence of external costs their reaction to costs tends to follow the following progression:

1. "The cost does not exist."
2. "It may exist, but is not significant."
3. "It may be significant, but is not related to that specific non-market good(s)."
4. "It may be related, but cannot be quantified."
5. "It may be quantified, but incorporated it into decision making is impractical."
6. "It may be incorporated in decisions, but to do so would not be politically acceptable."

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<sup>42</sup> Litman, Todd (1995), Transportation Cost Analysis: Techniques, Estimates and Implications, Victoria Transport Policy Institute, British Columbia, Canada



7. "Benefits to society surely outweigh this cost." <sup>43</sup>

The response to points 1-5 rests on the strength of each analysis to establish that a particular cost exists, that it may be significant compared with costs currently considered in the non-market goods which contributes to it, and that methods exist to measure it. Since these are relatively new fields of research there is still uncertainty about some costs estimates, resulting in the recommendation, universal to all such studies, that further research is needed. However a key reason that decision makers are not aware of the full range of external costs, and fail to use monetized estimates of non-market costs in planning and investment analysis is simply that they lack the necessary data and information or, have made little effort to learn about current research in these fields or to expand existing data to fill gaps.<sup>44</sup>

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<sup>43</sup> *Ibid.*

<sup>44</sup> *Ibid.*

“A crude approximation, made as exact as possible and changed over time to reflect new information, would be preferable to the manifestly unjust approximation caused by ignoring these costs, and thus valuing environmental damage as zero.”--Richard Ottinger.<sup>45</sup>

#### 1.2.8 Treatment of uncertainty

Since non-market goods analysis explores new areas of research, limited data sources, and complex modelling, estimates incorporate various levels of uncertainty when assessing costs problem; individuals, businesses, and society often face uncertainty when assessing costs and benefits. A conventional way to deal with uncertainty in economic analysis is to include only costs that are generally accepted and easily quantified. If a cost is difficult to measure, it is often ignored, even if it is probably comparable in magnitude to other costs. Excluding or using low estimates of costs that incorporate uncertainty is often defended as being “conservative,” implying that this approach is cautious.<sup>46</sup>

The use of the word “conservative” in this context is confusing because it results in the opposite of what is implied. Low cost estimates result in undervaluing damages and risks, thereby overvaluing relative benefits and assets, which is less cautious and less conservative in accounting terms. Accountants prefer to use high estimates of risks and losses and low estimates of benefits and assets when uncertainty exists in order to protect wealth from careless optimism. For example, if different assessments are made of an asset’s value, an accountant should generally use the lower estimate for calculating net worth because most individuals and businesses can handle an unexpected abundance of wealth better than its unexpected absence.

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<sup>45</sup> Cited From, *Ibid*

<sup>46</sup> Litman, Todd (1995), Transportation Cost Analysis: Techniques, Estimates and Implications, Victoria Transport Policy Institute, British Columbia, Canada

It should be noted that when economists call low estimates of costs “conservative” they are not using the accounting or resource conservation definition but using the word in its political meaning of maintaining the status quo. “In practice, low estimates of non market and indirect costs leads to increased social and environmental damages since these have only recently been included in economic analysis.” For example, It will reduce the justification for investing in emission control efforts a low estimate of air pollution costs, resulting in more pollution and less conservation of natural resources. Less conservative and cautious analysis would result in the exclusion or undervaluation of these costs.<sup>47</sup>

#### 1.1.9 Development indicators in an operational context

The quantitative analysis of development indicators at the national or international level suggests one avenue for exploring the interrelations between economic and non-economic aspects of development. It also indicates the development of linkages between indicators in a policy relevance context. Most development programmes or sets of programmes needs to be defined in terms of a number of variables drawn from sub-sets ‘belonging’ conventionally to different disciplinary approaches. A problem-oriented approach draws extensively on the current emphasis on system analysis, theories of decision making and organisation theory. The delimitation of boundaries and sub-systems, the relation between resources, activities, and functions or outcomes, and the relations between different sub-systems, provides a generalised framework through which

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<sup>47</sup>*Ibid.*

it may become possible to integrate the different dimensions of development in a number of policy oriented models.<sup>48</sup>

It should be noted that statistics are never value free, however objective or accurate they may be. They incorporate world-views, goals and social values: those unique 'cultural DNA codes' that underlie societies, their traditions and visions for the future. Although economics parades itself as value free, even as a science, it clearly does not represent an objective search for truth. There is growing concern about GDP growth policies that widen poverty gaps and exacerbate unemployment. The interests of social scientists and environmentalists in overhauling the GDP based System of National Accounts (SNA) emerged at least 40 years ago. By the 1950s, social and natural scientists had started a movement to apply broader indicators in the United States, Canada and Europe for the documentation of social costs. By the 1960s these scientists were critiquing a GDP that, in its simplistic averaging of incomes, could not distinguish between people who were worse off or left out and a few more millionaires. Emile van Lennep, former Secretary General of the OECD, attempted at that time to introduce social indicators into the organisation's predominantly economic analyses. Van Lennep encountered objections that such social indicators were normative or value driven, even though, of course, economic indicators are also normative. Early efforts toward alternative indicators include the work of Richard J. Estes, David Morris, Hazel Henderson, Hirofumi Uzawa, James Tobin and Richard Nordhaus, among others.<sup>49</sup>

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<sup>48</sup> Baster, Nancy (1972), Measuring Development: The Role and Adequacy of Development Indicators, London, Frank Cass and Co. Ltd.

<sup>49</sup> *Ibid.*

Sustainable development became the rallying cry of some 26,000 representatives of Non-Governmental Organizations (NGOs) at the Rio Earth Summit and Global Forum of 1992. They popularised the demand for new indicators and provided opportunities for coalition building among four major global constituencies:

- \* Environmentalists concerned with green indicators;
- \* Women who pushed to have household management, parenting, home enterprises and subsistence agriculture accounted for in GDP;
- \* Citizens and NGOs concerned with social justice, urban problems, human rights and corporate and government accountability;
- \* Policy makers in developing countries who are beginning to exploit the bargaining power they have over the North regarding environmental and social issues. This power is based on logic and ethics: why should developing countries have to arrest their own development, when it is Northern industrial countries that have caused the lion's share of pollution and depletion?<sup>50</sup>

#### 1.2.10 Why indicators of sustainable development?

Development of sustainability indicators can provide a theoretical and practical framework for defining the meaning of a sustainable community and for measuring progress towards that goal. It would ensure that incremental steps are moving in desired directions and some form of accountability could be directed towards the choices that individuals and collective entities make. Sustainability indicators can enable comparisons among communities, but would be most valuable when measuring a community against

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<sup>50</sup> Henderson, H (1982), Changing Paradigms and Indicators: Implementing Equitable,

itself over time. Indicators enable decision makers and taxpayers to understand how well their investments are working and where changes are needed and desired. Probably the greatest contribution of indicators is that hidden agendas, unanticipated consequences, successful efforts on undesired pathways, and inadequate sensitivity and responsiveness for concerns of all members of a community are revealed and can be addressed.<sup>51</sup>

By analysing different configurations of community, Henderson defined four characteristics of a sustainable community: economic security, ecological integrity, quality of life, and empowerment with responsibility. Henderson notes that although no community embodies all aspects of all four characteristics, this definitional framework provides a conceptual goal. “The next step,” he adds, “is to help people identify indicators to measure progress towards fulfilling this picture of a sustainable community. The four characteristics are the foundations from which indicator pathways are identified. By understanding the pathways of progress, people can through a community-engagement process-derive appropriate indicators.”<sup>52</sup>

#### 1.2.11 Sources of Data

Surveys by Statistics Canada, will be the primary source of Data used for most of the indicators. Other Sources of Data includes GPI Atlantic Data by Ronald Colman, State of the Environment in the Atlantic Region Data and UN statistics.

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Sustainable and Participatory Development, Washington DC, Pluto press centre

<sup>51</sup> *Ibid.*

<sup>52</sup> Henderson, H (1982), Changing Paradigms and Indicators: Implementing Equitable,

### 1.3 Study Outline and scope

It is argued that the analysis in this thesis relates to two current trends. The first is a growing concern over social and environmental impacts. There are indications that growing resource consumption and waste production endangers our environment and the quality of our lives. One might argue that society must manage activities that impose such threats with greater care to guarantee ecological and social sustainability.

To address these problems it is necessary to develop a vocabulary to describe them and methods to measure them, preferably in monetary units. Economics tend to ignore features that cannot be assigned a monetary value. "The market sees only efficiency--it has no organs for hearing, feeling or smelling either justice or sustainability." Traditional economics does not deny the existence of non-market (also called intangible) impacts such as air pollution or habitat destruction, but economic models typically assume that they are small compared with the market costs and benefits. If non-market costs are found to be significant then they must be incorporated in to the national accounts or to an alternative indicator. Otherwise decision making or even the best intended policies and programs may make society overall worse off.<sup>53</sup>

The argument for the thesis is organised in the form of five chapters. Chapter I poses the problem of the study and provides a thesis statement. It examines various definitions of development, the New Paradigm, its underlying assumptions and its organic components. It addresses the issues of alternative and sustainable development

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Sustainable and Participatory Development, Washington DC, Pluto press centre

<sup>53</sup>Litman, Todd (1995), Transportation Cost Analysis: Techniques, Estimates and Implications, Victoria Transport Policy Institute, British Columbia, Canada.

and provides a framework of ideas to guide policy analysis. Also, it traces the linkages between indicators and development and explores why sustainable indicators are needed for nations and attempts to trace the linkage between indicators and policy. The commonalities will be discussed between Atlantic Canada and the developing nations. The limits of Gross Domestic Product (GDP) as means of development will be addressed, The need for an Atlantic Index will be established, the Genuine progress Index and its components will be examined as an alternative set of indicators. An attempt will be made to provide the theoretical framework for the study.

Chapter **II** provides the existing approaches to the use of development indicators, and the on going search for alternative indicators. Chapter **III** examines the exclusion of viable economic activities in the conventional economic/national accounts. Specifically, the GDP, in the context of the economic indicator used in existing methodologies. To this purpose the data analyses the monetary value of Unpaid work and Voluntary Work for Nova Scotia as an alternative set of economic indicators.

Chapter **IV** examines equity as a necessary condition of social development and proposes a possible indicator. In these terms, the social conditions of development are defined and measured in terms of income distribution and disparities. The assumption is made that improving welfare for greater number of population will lead to a decrease in social inequality. It is similarly assumed that the growth of poverty reduces the equality of income distribution. It investigates the rationale for social indicators and equitable distribution as a necessary condition for achieving equity. The chapter analyses



the income distribution for Nova Scotia and the UNDP approach to measuring income. It also discuss Equity as a missing dimension of the Gross Domestic product (GDP).

Chapter V is based on the assumption that unsustainable practices on the environment harms the development process. In this context the chapter establishes the omission of natural resource accounting in the GDP measure of economic growth. The chapter presents increased Transportation “Costs” and the unsustainable practices as a cause for the depletion of the fish stock in Atlantic Canada. The data for telecommuting and automobile commuting costs for Nova Scotia will be analysed as an alternative set of environmental indicators.

Chapter VI summarises the conclusion made in chapter III-V and establishes the inter-linkages among economic, social and environmental indicators. The argument for GPI as an alternative development index is reviewed. It is concluded with reference to Data for Atlantic Canada, that it is a better tool for measuring progress of development of a country or region and that the GPI is viable.

## **Chapter II**

### **Alternative Approaches: A Review of the Literature**

Several previous studies on Alternative Indicators are been studied and assessed. The studies summarized in this chapter were selected because they include at least some original research, are comprehensive, or because they represent unique perspectives.

#### Past development strategies in quick review

In the 1950s, mainstream development strategists-adopting the new neo-Keynesian growth model of Roy Harrod and Evsey Domar and following the intellectual lead of such Third Worlders as Arthur Lewis, Raul Prebisch, and P.C. Mahalanobis-were preoccupied with industrialization and with lifting the capital constraints on development. However, pessimism existed in related to the ability of developing countries to increase their earnings from exports fast enough to pace with import requirements. Accordingly, two measures were emphasized for helping countries gear themselves up onto paths of self-sustaining growth: They needed net inward transfers of preferably concessional capital (i.e., aid), and they needed to encourage import substitution.<sup>54</sup>

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<sup>54</sup> Lewis, John P. and Kallab, Valeriana (1986), Development Strategies Reconsidered, Washington, D.C., U.S. Third World Policy Perspectives No.5 Overseas Development Council.

At that time, in the aftermath of the 1930s and of World war II, many theorists as well as policy designers were less than awed by the magic of the market. In the poor countries-the older ones of Latin America, those newly independent in Asia, and others yet to achieve independence in Africa there was need, it was felt, for massive, restructuring interventions by governments that could be adequately knit together only by comprehensive economic planning. Planning in most developing countries under circumstances of thin, imperfect, slow acting markets and import -substitution- induced imbalances tended to be coupled (although the linkage was not logically essential) with the proliferation of forms of direct control and proliferating bureaucratic administrations.<sup>55</sup>

Nevertheless, there was a significant reaction, a change in the mainstream circles in the 1960s. The virtues of the market as an instrument of social control were rediscovered. In the estimates of development analysts, the importance of policies and needed policy changes began to dominate the importance of quantitative planning. There were related efforts to unshackle economies from direct controls internally, liberalize their trade regimes, rationalize their exchange rates, and thereby geared towards export promotion strategies.<sup>56</sup>

At the beginning of the 1970s, the attention was drawn from growth to equity. Many Indian economists, including Jagdish Bhagwati, persuasively argued that the issue of poverty was discovered long before the 1970s and that growth was not pursued as an end in itself in the 1950s and 1960s. They note for example, that from 1961 onward, the

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<sup>55</sup> *Ibid.*

Indian Planning Commission sought to define and implement minimum needs programs as a way of addressing domestic poverty.

It is important to note that a realization was shared related to the development professionals that the development thinking had become so operationally preoccupied with growth promotion that they had lost sight of poverty. Much more attention was addressed to intra national distributional questions in particular to low-end, “absolute” poverty, but also to inequalities in the income scale. The pejorative “trickle down growth” entered the mainstream vocabulary. There was renewed concern with the problems of unemployment and underemployment, which in poor countries were seen to merge with the problem of poverty. Direct intervention on the latter, along with growth promotion, were needed. Meeting “basic human needs” became a target, if not the primary target, of development promotion. However, most analysts and policy makers (if not publicists) argued that basic needs had to be met mainly by raising the productivity and therefore the earned incomes of the poor, not through handouts. Yet it is also true that much of the basic needsmanship of the 1970s was closely associated with a variety of innovative but complex integrated-rural development ventures. This new shift in conventional wisdom or the so-called “populism” spread, and quickly, to most of the development community in the early and mid-1970s. Robert McNamara became the school’s most prominent spokesman, yet he did not invent it or set its boundaries. Anti-poverty cum basic needs was a donor strategy. It was favoured by various multilateral agencies, and nearly every bilateral aid donor represented in the Development Assistance

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<sup>56</sup> *Ibid*

Committee of the Organisation for Economic Co-operation and Development adopted the and reformed its operations in some of the directions prescribed. But most developing countries also went along for a while. The populist movement reached its crest in the remarkably substantive Declaration of Principles and Programme of Action adopted with very few reservations by all the developed- and developing-country delegations to the International Labour Office's (ILO) World Employment Conference of June 1976.<sup>57</sup>

Towards the middle 1970s, the world had already been through two versions, that of the 1950s then that of the 1960s, on how to accelerate growth, followed by a heavy pro-equity shift in mainstream development policy. Then came the stage where basic needs and integrated-rural development thrust fell, partly of its own weight. As noted by "It gave too low a priority to aggregate agricultural output as well as to building human and institutional infrastructure for development." Beyond this, added,

developing country tolerance for intrusions into various internal distributional issues was short lived. The conciliatory tones of basic needs dialoguing, wherein the developing countries of the 'Group of 77,' emboldened by the newly evident muscle of their oil-exporting members, demanded faster reductions in inter country inequalities while asserting sovereign prerogatives to deal with their own internal equity issues as they saw fit.<sup>58</sup>

This last, however, suggests an overlapping 1970s phenomenon whose impact was far more direct and profound than were the effects of any shifts in North-South, inter block diplomacy, especially the effects of the oil shocks first in 1973-74, then in 1979-80.

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<sup>57</sup> Lewis, John P. and Kallab, Valeriana (1986), Development Strategies Reconsidered, Washington, D.C., U.S. Third World Policy Perspectives No.5 Overseas Development Council

<sup>58</sup> Cited from *Ibid.*

The first shock (in ways that have been described in various ODC publications among others) established the context in which the newly industrializing countries pressed ahead with the export oriented growth strategies they had adopted in the 1960s. The production and income advances of all of them, however, contributed to the widening differentiation of development performances that characterized the 1970s. With many low income countries (especially in Africa) not sharing these advances and even in economic retreat, it became clearer than ever that in the future even the broadest development strategies would need to be country- group specific.<sup>59</sup>

Simply prioritising to adjustment does not mean forgetting about either growth or equity. It is a type of adjustment and an adjustment facilitating finance-that slows growth as little as possible. At the same time in terms of the programs of the International Monetary Fund's (IMF) programs, there is great concern voiced constantly -to cushion the impact of adjustment of the poorest, most disadvantaged, developing country constituencies. However, in the force of mainstream thinking for the past half-dozen years the adjustment priority has remained.<sup>60</sup>

### The UNDP approach to Human Development<sup>61</sup>

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<sup>59</sup> *Op.cit.*

<sup>60</sup> *Op.cit.*

<sup>61</sup> See Chapter III for UNDP Report 1995 and its proposals for reducing gender disparities. See Chapter IV for UNDP Reports 1996 and 1997. See Chapter V for UNDP Report 1998 and its central message.

The Human Development Report 1990 (Concept and measurement of Development.) had as its main theme the question of how economic growth translates or fails to translate - into human development. The central focus was placed on people and on how development enlarges their choices. The Report discusses the meaning and measurement of human development, proposing a new composite index while attempting a practical and pragmatic approach. It summarizes the record of human development over the past three decades, and analyses the experience of 14 countries in managing economic growth in the interest of the maximum possible number of people. With this as its foundation, the Report then sets forth strategies for human development in the 1990s, demonstrating the importance of restructuring budgetary expenditures, including military expenditures, and creating an international economic and financial environment conducive to human development.

The Human Development Report 1991 (Financing Human Development) describes the lack of political commitment rather than the lack of financial resources as the real cause of human neglect. This is the main conclusion of the 1991 Human Development Report, the second in a series of annual reports on the subject. The Report points to an enormous potential for restructuring of both national budgets and international aid allocations in favour of human development. However, it indicates that the need for greater allocation for efficiency and more effectiveness in the area of spending does not jeopardize the need for economic growth, or for increased resource mobilization. The Report argues that a more efficient and effective public sector will help

strengthen the private role in human development. A key argument for additional resources is been described as the well management of the existing funds.

The 1992 Human Development Report (Global Dimensions of Human Development) as the title indicates, explores aspects of development. Its findings indicate that the richest 20 percent of the population now receives 150 times the income of the poorest 20 percent. The report prescribes a two-pronged strategy to get out of this dilemma. As a necessary condition it should involve making massive investments in their people and strengthening national technological capacity which then in turn enable some developing countries to acquire a strong competitive edge in international markets. The report points to the East Asian industrializing tigers as examples of this approach. As another necessary condition it encourages basic international reforms, including restructuring the Bretton Woods institutions, while setting up a Development Security council within the United Nations, and convening a World Summit on Social Development to consider a global compact for all nations and all people.<sup>62</sup>

The 1993 Human Development Report (People's Participation) examines how and how much people participate in the events and processes that shape their lives. It looks at three major means of peoples' participation: people-friendly markets, decentralized governance and community organizations, especially non-governmental organizations (NGOs), and explains concrete policy measures to address the growing problems of jobless growth. The Report's conclusion includes five pillars of a people centred world order that should be built: new concepts of human security, new strategies for sustainable



human development, new partnerships between state and markets, new patterns of national and global governance and new forms of international co-operation.

The 1994 Human Development Report (New Dimensions of Human Development) introduces a new concept of human security which equates security with people rather than territories, with development rather than arms. This report investigates the dimensions of national and the global concerns of human security. The report makes the attempt to study these concerns through a new paradigm of sustainable human development, capturing the potential peace dividend, a new form of development co-operation and a restructured system of global institutions. Among its proposals it includes a world social charter endorsing the World Summit for Social Development and it further endorses a sustainable human development paradigm. The report also recommends the creation of a global human security funded by capturing the future peace dividend, approving a 20/20 compact for human priority concerns. It also proposes global taxes for resource mobilisation and the need to establish an Economic Security Council.

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<sup>62</sup> See Chapter IV for more details on World Summit for Social Development Copenhagen, 1995 and for the Copenhagen Declaration.

### An Emerging Paradigm Shift?

The Human Development Reports and the Human Development Index have built on the basis of previous theories on “basic needs”, social indicators and measures of the physical quality of life. But the “human development” of the UNDP reaches beyond the tabulation of the human condition by means of social indicators, or poverty alleviation by the provision of “basic needs”. The Human Development Index has played an important role in showing up the inadequacies of existing national accounts especially the GNP as a measure of the standard of living, and redirected attention from the level of commodity production to more directly meaningful measures of “well being” such as nutrition, education, and health. It is important to note that the Human Development Index (HDI) has been criticised as an empirical construct without a theoretical base though the criticism is largely invalid. The severe discounting of income in the construction of the HDI implies a theoretical proposition concerning the declining contribution of additional income to human well being, above what is required to provide good nutrition and to finance health and educational services.<sup>63</sup>

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<sup>63</sup> Levitt, Kari (1997), “The Contribution of Amartya Sen to the UNDP Human Development Reports”, Unpublished Paper, IDS Seminar, Saint Mary’s University, Halifax.

The 1996 Report is an initial change from the 1990 report where it emphasis the concept and measurement of “human development” and “capabilities” and differentiate it from the economistic approach of the production of an increasing quantity of material goods as the primary objective of human activity and human development. “The 1996 Report suggests a theoretical quantum leap toward a paradigm shift. The advance over previous reports consists in the explicit rejection of the instrumental approach of economics to human welfare, and the downgrading of private income as a component of the standard of living. The “instrumental” rationality of economics (and the implicit “market” valuation of human effort and labour) is confronted with an alternative approach which treats human life and human achievement as intrinsically and innately valuable, whether they increased production or not.”<sup>64</sup>

Economic analysis regards the activities and achievements of people instrumentally as an input to the production and accumulation of marketed commodities (goods and services). The “utility” derived from the quantity of commodities available to “consumers” is considered as the principal determinant of the standard of living. The approach is most clearly illustrated by the treatment of “human capital” as an important explanatory factor in “total factor productivity”. Education to enhance the contribution of a literate and numerate labour force is considered as a “cost effective” means of increasing productivity and competitiveness. The authors of the HDR-96 drew attention

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<sup>64</sup> *Ibid.*

to the confusion between “human development” and “human resource development (HRD)”. The key distinction is one between means and ends.”<sup>65</sup>

“Human resource development” considers human beings merely as a means to greater output of commodities. Human development, by contrast, identifies people as ends-seeing their well being as the ultimate and only purpose of development. Human resource theory treats people as “human capital” - merely as another production input on a par with physical or natural resources. Thus when governments “invest” in, say, health or education, the value of this investment is judged by its economic rate of return, either to individuals or to society. Those who advocate human development take a different view. Human capabilities, such as health or knowledge, are more than means of achieving human well being. They are essential components of human well being. (HDR-96: 54).<sup>66</sup>

Since the birth of industrial capitalism doubts about economic growth have prevailed for two centuries or more. Fabulous new wealth was generated by the revolutionary methods of production used by this system. Through this new accumulation of wealth by the industrialists, an approach to eliminating the scarcity was perceived, the bankers, the politicians and the economists for the first time in human history. However, in the hands of small elite groups in a few rich countries beginning the benefits derived from this were concentrated. As noted by Amartya Sen “For many other people the reality was a form of enslavement...which turned men women and children into instruments of accumulation -toiling in the “dark satanic mills”. And those working in the

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<sup>65</sup> Op.cit.

colonies on the peripheries of the world economy saw their countries and their lives harnessed to the supply of raw materials to the rich nations.”<sup>67</sup> The classical economists helped to justify this process through the concept of labour as just another commodity alongside capital and manufactured goods, with value only to the extent that it produced profits, reducing people to means, serving the objective of greater production. (HDR-96: 43-4)

Concern for the poor was pushed into the background. Policy makers assumed that even if poverty increased in the short term, this was a price to be paid for long term stability and growth. Voices were raised in protest principally, churches, trade unions, non-governmental organizations, the International Labour Office and UNICEF published Adjustment with a Human Face (1987). The response of International financial institutions came in the form of “poverty alleviation” and “social sector” programmes to modify the fall out from the structural adjustment. As Levitt notes”

throughout this period the cause of the poor and the need to focus on human concerns was aided tremendously by the theoretical work of Amartya Sen and his central concept of promoting “human capabilities. In his view a society’s standard of living should be judged not by the average level of income, but by peoples’ capabilities to lead the lives they value (HDR-96: 49).<sup>68</sup>

#### Amartya Sen’s contributions to the measurement of Standard of Living.

Sen’s extensive writings on collective choice and social welfare rejects the notion of both income and “utility” as useful approaches to the measurement of “human well

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<sup>66</sup> Levitt, Kari (1997), “The Contribution of Amartya Sen to the UNDP Human Development Reports”, Unpublished Paper, IDS Seminar, Saint Mary’s University, Halifax.

<sup>67</sup> *Ibid.*

being.” “Amartya Sen has lifted the discussion of the “standard of living” out of commodity or utility “space” into the “space” of “functionings” (“doings” and “beings”) and the “capabilities” to engage in whatever “functionings” an individual may choose to engage in. It is profoundly liberal approach which values freedom as an essential component of well being, not only instrumentally as facilitating choice, but as an intrinsically valuable component of well being. This approach has more in common with the old liberalism Adam Smith and the early Marx than it has with the neo-liberal agenda of the “market-friendly approach”, based on the “negative” freedoms of property from interference by governments. “Capabilities are notions of freedom in the positive sense: what real opportunities you have regarding the life you may lead” (1987:36).” The approach is based on “positive” freedoms from hunger, illness and premature death, with a necessary condition on the intrinsic value of freedom in and of itself, as a key component of well being.<sup>69</sup>

In a lecture on “the Standard of Living” (1987), Sen developed his view that

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<sup>68</sup> *Ibid.*

<sup>69</sup> *Ibid.*

commodities are no more than means to other ends. Ultimately the focus has to be on what life we lead, and on what we can or cannot do, what we can or cannot be. Ultimately the standard of living is really matter of functionings and capabilities, not a matter of opulence, commodities or utilities. The value of the living standard lies in the living and not in the possession of commodities which has derivative and varying relevance.<sup>70</sup>

### A critique of the “Basic Needs” approach

Levitt notes that the extensive literature and the contributions made by Sen on basic needs, quality of life, poverty and income distribution in developing countries has been “comprehensively ignored” in theory of welfare economics, or treated as essentially ad hoc suggestions. The problem, as he observes it, lies in the different modes of arguments used in welfare theory and development theory. The way to bridge the gap, as he suggests, is “by exiting from commodity and utility space and embracing the capabilities approach to social evaluation.” Insofar as the “basic needs” literature defined these needs in terms of certain minimal amounts of essential commodities such as food, clothing and shelter, this literature also remains imprisoned in “commodity-centered evaluation.” The commodity perspective is severely compromised by the variability of the conversion of commodities into capabilities. (1989:46-47).<sup>71</sup>

Levitt further notes:

that it would be a mistake to regard “basic needs” as a deeply founded approach”, Sen did not want to “chastise” this literature which has played a key role in challenging the over emphasis on GNP and economic growth (1997:25). “It has a respectable ancestry in the early welfare economics of Pigou, and needs support which may come from various quarters, including

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<sup>70</sup>Cited From Levitt, Kari (1997), “The Contribution of Amartya Sen to the UNDP Human Development Reports”, Unpublished Paper, IDS Seminar, Saint Mary’s University, Halifax.

<sup>71</sup> *Ibid.*

from utility, as argued by Pigou, or from the value of functionings and capabilities as argued by Sen.<sup>72</sup>

### The components of the Genuine Progress Index (GPI)

In recent years there has been significant progress in developing more comprehensive measures of progress that integrate economic, social and environmental factors. One such set of indicators is the Genuine Progress Index, developed by Cobb, Halstead and Rowe 1995, which measured 26 variables. In response, 400 leading economists, including Nobel Prize winners wrote:

We, the signatories, agree that: Since the GNP/GDP measures only the quantity of market activity without accounting for the social and ecological costs involved it is both inadequate and misleading as a measure of true prosperity policy-makers, economists, the media and international agencies should cease using the GNP/GDP as a measure of progress and publicly acknowledge its shortcomings. New indicators of progress are urgently needed to guide our society: ones that include the presently unpriced value of natural and social capital in addition to the value of conventionally measured economic production. The GPI is an important step in this direction.<sup>73</sup>

Genuine Progress Index sought to develop estimates for the economic contributions of over twenty aspects of the economic aspects of that the GDP ignores. Among other indicators some of the indicators GPI currently measures and the GDP exclude include: the value of unpaid housework, voluntary work and child-care, trends in income distribution, trends in leisure time. Related to this as a livelihood security index, it includes the costs of underemployment and the value of unpaid overtime work, the costs of crime, natural resource accounts for indicators on forestry, soils, agriculture, subsoil assets and wildlife, Greenhouse gas emissions, Air and water quality and costs of

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<sup>72</sup> *Op.cit.*

<sup>73</sup> This study does not imply that the GDP should be abolished or GPI should replace the GDP.



pollution, An ecological footprint analysis, transportation cost analysis valuations of durability, trends in debt loads, trends in health care and educational quality.<sup>74</sup>

These factors has been integrated into a composite measure so that the benefits of economic activity could be weighed against the costs. The Genuine Progress Index (GPI) is a pilot measure of the wellbeing of the nation expressed in economic terms. It includes the values of both market and non-market activity within a single, comprehensive framework; and it has a long term perspective that the GDP lacks. For example, where the GDP looks only at flows of expenditure in a given year, the GPI takes into account of the depletion of natural and social capital. As a result this approach provides guidance as to weather current modes of economic activity can be sustained over the long term.<sup>75</sup>

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<sup>74</sup> For data on these indicators please see the website [www.gpiatlantic.org](http://www.gpiatlantic.org) which constructs the GPI for Atlantic Canada.

<sup>75</sup> Cobb, Clifford, Halstead, Ted and Row, Jonathan (1995), "The Genuine Progress Indicator: Summary of Data and Methodology", Washington, Redefining Progress, pp 1-9.

### Summary of the GPI methodology

Original GPI uses estimates of 26 components from the social, environmental and economic categories. It includes a discussion on growth of the GDP and unequal progress, and the need for new measures of Progress. The 26 components of the GPI indicator, as described in **Table 2-1**.

#### The Genuine Progress Indicator summary of Data and Methodology:

As in the GDP, the GPI begins with the nation's personal consumption. From there it follows a different approach. The GDP proceeds to simply add other elements of national production: business investment and government spending, as well as net exports. It makes no attempt to approximate a net benefit from these. The GPI, by contrast, starts with personal consumption, adjusts for income distribution, and then adds and subtracts a variety of elements that represent economic, social and ecological costs or benefits.<sup>76</sup>

In this respect, the GPI is much closer to the common-sense accounting that a household would do. A family would not add together its income and expenses to assess its financial condition; nor would it lump together every kind of expense to determine if it were doing better or worse. For example, college tuition and the cost of a new burglar alarm system would appear very differently: one, a way of getting ahead, the other a necessary defence against falling behind. Similarly, the GPI adds up the value of services and products consumed in the economy whether or not money changes hands. Then it subtracts out three categories of expense related to that consumption:

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<sup>76</sup> *Ibid.*

- 1) defensive expenditures (which compensate for past costs);
- 2) social costs; and
- 3) the depreciation of environmental assets and natural resources.<sup>77</sup>

Table 2-1 outlines the components of the GPI.

#### The limitations of the study.

Chapters **III-V** represent some of the key variables used to confirm the Genuine Progress Index. Chapter **III** examines the variables of unpaid work and voluntary work. These are being used as a set of economic indicators to provide the critical importance of valuing variables that go beyond monetized activity. Unpaid work and Voluntary work variables are used in this thesis to recognise the undervaluation and non-recognition of this valuable work contribution to Nova Scotia's economy. The theoretical justification for the inclusion of these two variables are based on the critical importance of measuring invisible outputs and the potential dangers of undervaluing such vital services on which an economy depends. This study emphasises the need to explicitly include these two variables in a progressive index to render these outputs more visible.

Chapter **IV** examines the degrees of social inequality by use of the variable of income distribution under the set of social indicators. The theoretical justification for this variable is based on the recognition of equity as a necessary condition of social

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<sup>77</sup> Op.cit.

development. This point is taken as a matter of principle. Chapter V examines the variables fisheries in Nova Scotia and transportation costs as part of the environmental indicators. The use of fisheries variable as a part of natural resource accounting provides an understanding of the degradation of marine resources through commercial fish exploitation in Nova Scotia. It addresses the sustainability of the fishery as a resource system since fisheries have played a pivotal role in Nova Scotia's development and the present is of considerable importance to Nova Scotia's economy and society. The variable of transportation costs as a set of environmental indicators has been used in this study to demonstrate that transportation costs variable(s) is a necessary variable for a progressive index. Through the inclusion of such a variable it indicate the critical importance of significant transportation costs.

In the context of this thesis, it should be noted and emphasised, that the entire set of variables comprising the GPI considerations are beyond the scope of the study. As indicated, only specific variables of the GPI will be tested. As a result, the study should be construed as exploratory, pointing towards the need for more comprehensive and systematic test of the GPI as a study. However, this study makes a limited test of this index composed of its key variables to provide a general overview of the index. Clearly the GPI requires further testing on the basis of the complete set of variables used in its construction.

The Genuine Progress Index (GPI) itself is based on a critical analysis of the original Index of Sustainable Economic Welfare (ISEW), from which the GPI was derived. Among the series of critiques Robert Eisner, professor of Economics and the

author of The Total Incomes System of Accounts, have criticized particular elements of the ISEW. He focuses attention on the exclusion of human capital, the inadequate treatment of government generated capital, the methodology of analysing income distribution, the treatment of services from capital, the correction of advertising, the calculation of commuting costs, the estimate of urbanization and pollution costs, the value of agricultural land lost, the ISEW's rejection of discounting future costs and benefits, the procedure for estimating environmental damage, and the method for calculating net international position.<sup>78</sup>

Criticisms of Allan H. Young and Carol Carson of the US Bureau of Economic Analysis on the other hand, point towards efforts to develop a "single dimension aggregate measure of sustainable welfare." They advocate the United Nations System of National Accounts in which nonmarket values are included in "satellite" accounts rather than in the national accounts. This approach allows for the comparison of accounts among different nations. In this context, they point out that one of the weakness of the ISEW is precisely the inability to make international comparisons.

Similarly E.J. Mishan, a renowned British Economist, who has written numerous works on the social costs of growth, raises the central question, "Is a welfare index possible?" Mishan examines among the more specific difficulties with the ISEW: the introduction of distributional issues, the use of concept of sustainability (and intergenerational equity) and the incompleteness of the estimate of crime prevention. In his concluding remarks, he suggests that welfare cannot be properly understood within

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<sup>78</sup> Cobb, Clifford W. and Cobb, John B. Jr., (1994), The Green National Product: A Proposed Index of

the bounds of the principles of economics unless one is to severely distort the most important of human values to fit within a framework that assigns monetary value to every experience. Further, he asserts that technological advances have a great impact on human lives and that the categories included in an index of economic welfare are “incidental” to more broadly conceived changes in welfare.<sup>79</sup>

Nobel laureate in economics Jan Tinbergen emphasises the ISEW’s failure to go far enough in several directions. First, he points out that the ISEW deals only with economic welfare. According to Tinbergen a more complete welfare index should include elements of wellbeing such as family life, ethnic relations, national security and job satisfaction. However, he does not propose any specific methodology for measuring these variables. Secondly, he argues that measures or “checks” apart from the ISEW (or GNP) are needed to measure fully the present situation. These include measurements of stocks of resources, of population growth rates and of income distribution. He also advocates international comparisons of these elements. Implicitly he suggests that rather than each individual nation, the world as the appropriate arena in which to determine how well off we are. Finally, Tinbergen advocates that not just measurement but action is needed.<sup>80</sup>

In response to the critics and revision the authors Clifford W. Cobb and John B. Cobb, Jr. of the ISEW examines the question: “is a welfare measure possible? This relates to the question of values. In response to criticisms of the entire enterprise involved in constructing a composite measure of economic welfare, that no set of objective criteria

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Sustainable Economic Welfare, Maryland USA, Human Economy Center, University Press of America, Inc. pp. 12

<sup>79</sup> *Ibid.* pp. 13-14

<sup>80</sup> *Op.cit.* p. 14

can be developed to measure welfare, the author raises some key questions: "Should our society then accept the information provided by national income accounts as the most reliable knowledge we have of economic welfare; and "Should we conclude that the wellbeing of society is unknowable because some element of judgement is involved in measuring welfare?" Further, Cobb and Cobb Jr. argue that the way an index of welfare is constructed in itself reflects certain values. This is also true for the GNP and for any other measure of welfare when it is used for that purpose. Despite all claims that GNP is not a measure of welfare and that it was not intended for that purpose, in practice it functions that way in the political arena.<sup>81</sup>

ISEW shares one element with existing national accounts consumption expenditures. However, this does not withstand the critique by Mishan that higher consumption levels may not contribute to welfare. Another considerable factor is the analysis by Power on regional variations in the relation between income and welfare. Furthermore, the need to impute a number of values that are not directly observable since they are not recorded as market transactions has been acknowledged by Eisner. Therefore the real issue is not whether to impute unrecorded values, but which values on which basis should be included. Measuring values not included in the national accounts has been accepted by Carson and Young. They proposed that those values be relegated to satellite accounts. That method ignores the importance of recording the relationship between market and nonmarket accounts. The authors of the ISEW note:

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<sup>81</sup> *Op.cit.* pp. 249-251

Any welfare index involves choices based on values, and those value decisions are inescapable. The question for public policy then becomes not which index is the most objective but which most plausibly includes a range of widely shared values.<sup>82</sup>

The debate on the evaluation of welfare of a society is far more than a technical dispute over what elements to include. It amounts to a choice of the type of a future that will be pursued. It is also a conflict over power in a nation that is prone to be swayed by numbers if any to use. For example it indicates who will have it and how they will be allowed to use it. In order to increase the output those who would use technology without any regard to the social consequences prefer a measure such as the GNP that disregards the damage that may create. Some alternative must be pursued by those who are concerned about the qualitative dimensions of life that can undermine the emphasis on GNP as the symbol of a culture.<sup>83</sup>

In response to the critics on the international implications Clifford W.Cobb and John B. Cobb, Jr. argues that the change of focus they are proposing is relevant in every nation not limited to the United States. Nevertheless, they do not admit that an accounting framework modelled precisely on the ISEW could be replicated around the world. They further note:

Diefenbacher's work in Germany demonstrates the difficulty of trying to reproduce the ISEW in its exact form in other countries. Perhaps it is not important for welfare measures to transcend national boundaries. Their more important function would be to help determine whether a nation was becoming better off over time, not whether it is better or worse off than other nations.

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<sup>82</sup> *Op.cit.* pp. 249-251

<sup>83</sup> Cobb, Clifford W. and Cobb, John B. Jr., (1994), The Green National Product: A Proposed Index of Sustainable Economic Welfare, Maryland USA, Human Economy Center, University Press of America. Inc. pp. 279



It is not a mere academic exercise developing indicators similar to the ISEW in other nations. For example, were the work performed primarily by women in households included in a composite measure of welfare, it could lead to changes in national policies that would treat domestic labour with households on par with the similar work that is valued in the market. Were the value of forests, wetlands and other features of the natural resource base that help flood control, water quality and wildlife preservation services at no cost included in the calculations of human progress, the political will to protect such resources would be strengthened.<sup>84</sup>

Robert Eisner notes in his concluding remarks of the ISEW:

This is not to say that accounts of this kind cannot be extremely useful, indeed vital, in the evaluation of factors contributing to economic welfare and in the formulations of policies that will increase it. It is in that sense that ISEW and efforts of its kind are very much to be welcomed.

Alternative indicators to the ISEW (including the GPI) could be used for various purposes. These indicators could contribute vital information for groups that are seeking to fend off the giant development projects proposed by the national governments or various organizations such as the World Bank.<sup>85</sup> The necessary statistical justification could be provided by the alternative indicators such as the GPI or ISEW for policies promoting sustainable development.

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<sup>84</sup> *Ibid.* pp. 279-280

Table 2.1

Components of the Genuine Progress Index (GPI) <sup>86</sup>

Column	Item	Adjustment
A	Personal Consumption	Positive
B	Income Distribution	Adjusts consumption)
C	Personal Consumption weighted for consumption	$A/B*100/1$ B/C
D	Value of Household Work and Parenting	Positive
E	Value of Volunteer Work	Positive
F	Services of Consumer Durables	Positive
G	Services of Government Capital	Positive
H	Cost of Crime	Negative
I	Cost of Family Breakdown	Negative
J	Loss of Leisure Time	Negative
K	Cost of Underemployment	Negative
L	Cost of Consumer Durables	Negative
M	Cost of Commuting	Negative
N	Cost of Household Pollution Abatement	Negative
O	Cost of Automobile Accidents	Negative
P	Cost of Water Pollution	Negative
Q	Cost of Air Pollution	Negative
R	Cost of Noise Pollution	Negative
S	Loss of Wetlands	Negative
T	Loss of Farm Land	Negative
U	Depletion of Nonrenewable Energy Resources	Negative
V	Other Long-term Environmental Damage	Negative
W	Cost of Ozone Depletion	Negative
X	Loss of Old Growth Forests	Negative
Y	Net Capital Investment	Positive/Negative
Z	Net Foreign Lending or Borrowing	Positive/Negative

<sup>85</sup> *Op.cit.* pp. 280

<sup>86</sup> Source: Cobb, Clifford, Halstead, Ted and Row, Jonathan (1995), "The Genuine Progress Indicator: Summary of Data and Methodology", Washington, Redefining Progress, pp 10

## **Conclusion**

This chapter has focussed on past development strategies and its implications and UNDP approach to development. It is also written to the purpose of providing an understanding of the Genuine progress Index as an alternative indicator for development. Chapter two has written in the recognition that alternative indicators are fundamentally important in the process of measuring human progress.

It is evident that there is an urgent need to improve and broaden the accounting framework that steers public policy. In order to preserve the natural habitat and to measure the human progress it is necessary to develop means to estimate their contributions to the human wellbeing. This thesis offers the GPI as a step in this direction.<sup>87</sup>

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<sup>87</sup> Please note: The GPI is not designed as an index to be incorporated with the GDP.

## Chapter III

### Economic Indicators: Valuing Unpaid Work and Voluntary Work

“This great purposeful unfolding of human potentialities towards goals bettering human societies, perfecting the means of production and fostering conditions of people’s lives so that they might fulfil themselves is essentially a spiritual as well as an instrumental and materialistic endeavour.”<sup>88</sup>

Hazel Henderson, Paradigms in Progress

#### 3.0 Introduction: Economic aspects of development

Monetized activity is the almost exclusive focus of economics and economic policy. There are many activities that are vital for a society and to its development process are not treated as “economically active,” by many mainstream economists and therefore seen as invisible and “unproductive” in the economic literature in general. Women are the primary “unproductive” and uncouncted and unaccounted for labourers. The economic concept of Adam Smith’s “invisible hand,” which converted self-interest and greed into the common good, operated only in the monetized market. Nancy Flobre and Heidi Hartman indicated that the contribution of women to economic contribution has been ignored and has left the question of gender inequalities beyond the purview of economic analysis. In capitalist and socialist countries the mainstream of economic thought has focused on monetized activities counted and valued even when they are

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<sup>88</sup> Cited from Kendrick, Martyn and Moore, Linda (1995), Re-Inventing Our Common Future, Hamilton, Ontario, Canada, Seldon Printing Limited

violent and destructive, while ignoring non-monetized work and undervaluing, although this continues to be a fundamental component to the functioning of the formal or monetized economy.<sup>89</sup>

#### Economic development and trade

Apart from the imperialist aspects of the international trade a critical question that needs to be addressed is the question of the security of international trade. Countries should be free to trade if they want to. Therefore, the security of international trade can be defined as enabling countries and communities to trade without the threat of violence. It also encompasses those who do not wish to trade will not be forced into trading. The security of the international trade needs to be explored in the context of the economic power of the capitalist states, the collapse of the Soviet economy and the international political disintegration in the Soviet Union. "China's acquiescence with U.S policy relates more to its own international economic position and objectives rather than to any considerations of global equity or justice. This then is not so much the rule of law, but the selective application of rules of the rich and powerful, by the rich and powerful, for the rich and powerful."<sup>90</sup>

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<sup>89</sup> Makhijani, Arjun (1992), From Global Capitalism to Economic Justice, New York and London, The Apex Press.

<sup>90</sup> *Ibid.*

As Makhijani states:

A central element of the international system of inequalities and exploitation since World War II has been the international monetary system. Indeed, the last few decades of the exploitation of the Third World may well be termed “monetary imperialism.

Another key aspect of the international trade system could be explored in the greed it tends to engender in people. It is an ideology where the progress of neighbouring countries or future generations can be widely disregarded without shame. In the prevailing system often overriding goals are the limitless acquisition and consumption. This approach also leads to a widespread consumerism. Apart from defining the “good life” always by the ruling class for the rest of the people, today’s culture of consumerism is also driven by systematic corporate policies and the structure of the world economy. More profits are been gained through rapid discarding of goods rather than careful construction. For example, frequent change of fashion is more profitable. While the needs of the poor, which are not backed up by money through “effective demand” produce none, the unneeded consumption by the rich produces profits in the existing structures of the international trade. The culture of consumerism is underlined by an immense morally and intellectually dishonest and corrupt system of promotion of goods, where the act of purchase sometimes appears to be more the goal than the possession, let alone use, of the object that is purchased. As the basis co-operation within and between communities of trade and mutual benefit, and consideration for future generations, cannot be established securely unless principle of enough as part of economic culture is not been established.<sup>91</sup>

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<sup>91</sup> See Chapter five: The UNDP Report 1998 and its central theme on consumption.

“The ideology of limitless consumption goes hand-in-hand with the ideology of greed and limitless profits and limitless riches.” As a result this ideology had contributed to the production of grave inequalities.<sup>92</sup>

Another central element of the existing structure of international trade that needs to be addressed is the capital mobility and the control of capital by large corporations and banks for the purpose of profit. In the prevailing structures of international trade it is highly unlikely to accomplish any serious or equitable world-wide prospect of providing meaningful and productive work to all who need it in order to end poverty and marginalization. International monetary system has been a central element of inequalities and exploitation since World War II in the international system. In the Third World this monetary system operates to keep wages far below the relative productivity of workers. According to the economic theory when labour is more productive, then wages can be higher and prices lower at the same time. When it comes to capitalist countries this scenario is often used to explain the relatively high wages and affluent standard of living. However, if a comparison is to make on prices of most goods in capitalist and Third World countries at the present exchange rates, it is evident the same dollar can purchase more in Third World countries like Mexico, Brazil or Bangladesh than it can in the U.S, UK or France. This contradicts the existing theory that indicates that the prices should be lower where the economy is deemed to be more productive.<sup>93</sup>

The values of the currencies are not set on the basis of relative productivity of workers by the world’s monetary system. Rather, the values of the currencies are been set on the

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<sup>92</sup>Makhijani, Arjun (1992), From Global Capitalism to Economic Justice, New York and London, The

basis of balance of payments considerations. This has had serious negative impacts not only in the Third World countries but also in the developed countries. The domestic products of the Third World countries are drastically undervalued in relation to what those countries can buy in the international market place which is also contributed to wide-spread miserable conditions in these countries. Under these circumstances, Third World countries are at a structural disadvantage in their trade with the developed world. The extent to which the goods and labour of Third World countries are undervalued can be gauged by an overall calculation of the amount of time that is worked to import the immense amount of Third World resources and finished products by the people in the capitalist countries. Arjun Makhijani notes:

All of the imports to the capitalist countries from the Third World, including oil, raw materials, agricultural products, and manufactures are paid for with less than five percent of the monetized labour-time worked in the capitalist countries. It is not surprising then that the Third World cannot purchase very much from the capitalist countries, and that it has chronic balance of payments deficits.<sup>94</sup>

A monetary system based on relative productivities of monetized labour proposed by Makhijani and Browne includes features such as the relative prices of “baskets” of comparable consumer goods would be the determination of exchange rates of currencies. A new international currency, a unit would contain fixed purchasing power in every country in terms of the “baskets” of consumer goods will be issued by a world central bank. Another feature would be in each country the creation and maintenance of

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Apex Press.

<sup>93</sup> *Ibid.*

<sup>94</sup> Makhijani, Arjun (1992), From Global Capitalism to Economic Justice, New York and London, The Apex Press.



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Apex Press.

<sup>93</sup> *Ibid.*

<sup>94</sup> Makhijani, Arjun (1992), From Global Capitalism to Economic Justice, New York and London, The Apex Press.

commodities of a monetary value proportional to that of the country's foreign trade as a guarantee against balance of payment deficits. Unlike the present system driven by balance of payments considerations and currency speculation and exacerbates rather than correct economic disparities and environmental destruction this proposed system named as the "productive- standard- system" differs significantly.<sup>95</sup>

### 3.1 General measurement approaches

The concept of economic activity relates primarily to activities which involves monetary exchange. In principle, the measurement and valuation of economic activity, as defined, is relatively straightforward. Monetary transactions are generally recorded and summary information on what is exchanged, between whom, at what prices, places and dates, can be obtained through survey and administrative records.<sup>96</sup> However there are many economic activities that does not include monetary transactions goes totally unrecognised according to the conventional measurement approaches. For example the notion of economic activity underlying the measurement and valuation of households' unpaid work extends the conventional concept. In this case, economic activity comprises those kinds of activities are, or **conceivably could be**, the object of monetary exchange.

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<sup>95</sup> *Ibid.*

### 3.1.1 The definition of production

While money is the sole measuring rod of value in many aspects, some would argue that what is not counted as economic production often left invisible, unimportant, unnoticed and deemed of little or no value. Before one can debate the merits of the issue however, it is necessary to understand what constitutes production in an economic sense. *“Generally, production is the activity carried out by an economic unit using inputs of capital, labour as well as goods and services to produce outputs.”* The definition of economic production in the national accounts is somewhat narrower. It only includes an output which can be delivered (i.e., a good) or provided (i.e., a service) to another economic unit or used up by the producer in a subsequent production process, leaving out entirely the services produced by households for own consumption as well as volunteer work. Specifically, the activities the national accounts includes under the definition of production are as follows.

- 1) “the production of all individuals or collective goods and services that are supplied to units other than their producers, or intended to be so supplied, including the production of goods and services used up in the process of producing such goods or services;
- 2) the own account production of all goods that are retained by their producers for their own final consumption or gross capital formation;
- 3) the own account production of housing services by owner occupiers and of domestic and personal services produced by employing paid domestic staff.

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<sup>96</sup> Statistics Canada (1995), Households' Unpaid Work -- Measurement and Valuation: Studies in- National

By and large, GDP, the standard macro-economic aggregate, is defined as the value of market production.”<sup>97</sup>

### 3.1.2 Productive activity

In principle an activity is either productive or non-productive. Output is derived from the distinction between the two things. In a broader sense, all activities yield something, if only a different state of physiological or psychological well being. Statistics Canada notes:

If the distinction between productive and non-productive activity is to be meaningful, whatever is deemed as an activity output must be something other than utility. Otherwise there can be non-distinction between production and consumption, as both would contribute to output.

A somewhat narrower notion of productive activity relates to those activities that yield output capable of being exchanged. For example, the preparation of a meal can be the object of an exchange (meal preparation is productive) while the wellbeing arising from eating a meal, on the other hand, cannot possibly be exchanged (eating a meal is non-productive). In the same sense, working for pay and looking after ones’ children are productive. An exchange actually occurs in the first instance, since the employee is remunerated for services rendered. It is conceivable in the second instance that one could

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Accounts, Ottawa, Canada, Cat.13-603E, No.3 – Occasional Papers.

<sup>97</sup>Statistics Canada (1995), Households' Unpaid Work -- Measurement and Valuation: Studies in- National Accounts, Ottawa, Canada, Cat.13-603E, No.3 – Occasional Papers.

pay someone to look after the children, or be paid to look after the children or someone else's children instead.<sup>98</sup>

Some activities do not lend themselves to exchange. Such activities include biological, social, recreational and personal activities like sleeping and eating and so on. Yet, these activities are nonetheless important and valuable, if only because someone believes they are worth doing. As Makhijani, Arjun notes:

Yet no economy can function without the kinds of work that have traditionally been done by women-cooking, gathering fuelwood, bearing and nurturing children, fetching water, maintaining homes-whether this work is monetized or not.

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<sup>98</sup> *Ibid.*

Moreover, they embody a cost associated with the use of time and some are necessary for survival and physical, emotional and spiritual wellbeing.<sup>99</sup>

### 3.1.3 Market activity

In principle an activity is also seen as either market or non-market. The distinction between the two things upon whether or not an activity gives rise to an actual exchange. It may be a two-way exchange of goods or services or an exchange of goods or services for money now or at a later date. The conventional approach is to treat all remunerated activity, including barter and unpaid work for a family farm or business, as market activity. All market activity is productive in the narrow sense mentioned above. If only because it involves exchange. In other words, the exchange itself is productive while some market activities are not identified.<sup>100</sup>

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<sup>99</sup> Makhijani, Arjun (1992), From Global Capitalism to Economic Justice, New York and London, The Apex Press.

<sup>100</sup> Statistics Canada (1995), Households' Unpaid Work -- Measurement and Valuation: Studies in- National Accounts, Ottawa, Canada, Cat.13-603E, No.3 – Occasional Papers.

### 3.1.4 Economic value

“The nonmonetized, invisible contribution of women is \$11 trillion a year.”

United Nations (1995), Human Development Report: The revolution for gender equality.

The fundamental notion of economic value underlying the national accounts is that of exchange value. It represents the worth of goods or services as determined in the market place. In principle, the market price provides an objective measure of exchange in the context of monetary value, in so far as both the seller and buyer agree upon the amount of payment. Moreover, the market price can be obtained from available information and does not require subjective adjustments on the part of the statistician. It reveals what the object of exchange is worth at least to the buyer and also its cost of acquisition. It also reflects the cost to producers of bringing goods or services to the market.<sup>101</sup>

Another notion of value, namely that of value-at-cost, is particularly useful for the valuation of production in a non-market setting. When there is no exchange and no market price, exchange value cannot be determined. The most obvious example of non-market production, apart from that of households, is that of the services provided free of charge or at a nominal price by governments and non-profit institutions such as the voluntary work contributions to a society. In the national accounts, these services are

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<sup>101</sup> *Ibid.*

valued at cost, that is, as the sum of all costs entering their production (wages and other operating expenses). It is thus possible to impute a value in the absence of market prices.<sup>102</sup>

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<sup>102</sup> Op.cit.



The monetary valuation of households' unpaid work is difficult and controversial. It is mostly related to the absence of information and the need to impute value, while the controversy is about the choice of value imputation methods and the validity of their assumptions. For example to understand such an approach, it is important to distinguish between personal value an exchange value and value-at-cost. "The former relates to an individuals' subjective assessment of what something is worth to them. This value naturally differs among people and even the same person can reassess a value overtime or as circumstances change. "<sup>103</sup>

### 3.1.5 Measuring income: The UNDP approach to economic development

According to the 1995 Human Development Report: Gender and Human Development, the far reaching message was that human development, if not engendered, is endangered. The Report examines the progress made in reducing gender disparities in the past few decades, and highlights the wide and persistent gap between women's expanding capabilities and limited opportunities. It introduces two new measures for ranking countries on a global scale by their performance in gender equality, analyses the undervaluation and non-recognition of women's work and offers a five-point strategy for equalising gender opportunities in the decade ahead. An innovative feature of this report is the design of two new composite indices it introduced: The Gender related Development Index (GDI) and the Gender Empowerment Measure (GEM), both of which rank countries on a global scale of gender equality. The GDI captures gender

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<sup>103</sup> Op.cit.

inequality in human capabilities, and the GEM reflects inequalities in key areas of political and economic participation and decision-making. The Report also introduces for the first time, substantial amount of data from a sample of countries on the contributions of women and men to paid and unpaid work. The Report concludes that that the unvalued contribution of women is so large that any reasonable valuation would lead to a fundamental change in the premises on which today's economic, social and political structures are founded.<sup>104</sup> Makhijani notes:

The failure to take women's work adequately into account is a reflection of sexism in society generally, and in the economic system specifically. The failure to value fully both the monetized and nonmonetized work of women seems a worldwide phenomenon which has not yet been overcome in capitalist, socialist or Third World economies despite some steps in the right direction in some countries.

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<sup>104</sup> For discussions on the previous UNDP Reports (1990-1994) see Chapter II. For a discussion on UNDP Reports 1996 and 1997 see Chapter IV. See Chapter V for a brief discussion on UNDP report 1998 and its underlying theme.

### 3.2 The Exclusion of Unpaid Work

“The productive activities of housewives and other family members, rendered within the family circle...are an important complement to the market eventuating process in supplying goods to ultimate consumers, and should be considered in any attempt to evaluate the net product of the social system in terms of satisfying wants with scarce means.”

Simon Kuznets, Principal Architect of the GDP (1941), Pioneer of Modern National Accounts<sup>105</sup>

There is an argument for including the housing services produced by owner-occupiers, since an imputation in GDP for housing services produced by owner-occupiers are not intrinsically different from household services. In order to avoid distortions of the GDP when there are changes in the extent of home ownership, there is a rationale for imputing non-market-housing services. Whenever services start being produced by the market instead of the household it can be argued that a similar distortion arises. For the sake of consistency unpaid household services should be included in GDP.<sup>106</sup>

The problems associated with the valuation of Unpaid Work are many. For example, there are no records of its occurrence, of what is or could be exchanged, between whom, and so on. Moreover, there is no agreement on what constitutes unpaid work or on how to value it, and estimation entails applying non standard methods which yield results of still uncertain accuracy. In either case the main goal is the measurement

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<sup>105</sup> Cited From, Colman, Ronald (1998), “The Economic Value of Unpaid Housework and Parenting in Nova Scotia”, Halifax, Unpublished Paper, GPI Atlantic, pp. 13.

<sup>106</sup> Statistics Canada (1995), Households' Unpaid Work -- Measurement and Valuation: Studies in- National Accounts, Ottawa, Canada, Cat.13-603E, No.3 – Occasional Papers.

of output resulting from economic activity. It is the output that is ultimately exchanged (or exchangeable) between producers and consumers. Many forms and yield a diverse assortment of goods and services includes productive activities and various measures can be used to estimate output. The output of all producers, market and non-market alike, the aggregation requires some common measurement unit, like the dollar or hours of work. In practice, it is not always consistent the measures of market production and households' unpaid work with their underlying concepts. This is often less than ideal and reflects the need for adaptation to actual data. It is evident although in theory the GDP includes all economic production without regard to its legality, some illegal and underground transactions escape measurement as they leave few trace records. Similar problems can be encountered with unpaid work. The fact that most market production leaves trace records, while most unpaid work does not, leads to some contrast in their measurement. The measurement of market production is based largely upon administrative and accounting records.<sup>107</sup>

Households hardly keep any records of their unpaid work, which makes measurement more problematic. In addition, since unpaid work involves no transactions, its entire valuation must rely on some sort of imputation. While the valuation of most market production is made at objective prices, that of unpaid work is to some degree subjective.<sup>108</sup>

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<sup>107</sup> *Ibid.*

### 3.2.1 Unpaid work and national accounts

“The implications of these data could revolutionize policy making and planning and ultimately women’s social status. Recognizing the value of unpaid work is acknowledging the fact that the total economy is a two-legged -entity fueled and maintained by complementary inputs from both the market and the household sectors. These results taken together, points out that women contribute as much labour as (if not more) than men, and, therefore, are entitled to an equal share of the total productive outputs or resources of a nation.”

United Nations: (Ed. Ahooja-Patel Krishna), INSTRAW News: Women and Development, Special Issue, Santo Domingo, 1996, No. 24/25.

It is important to address the question, the exclusion of unpaid work of households from the Gross Domestic Product. The latest national accounts guidelines despite some demands to the contrary, recommend continuing to exclude households’ unpaid work from GDP. “The fact that unpaid work is not counted in GDP is no way precludes accounting for it or developing measures of non-market production, which could be compared or combined with GDP.”<sup>109</sup>

The most recent INSTRAW study reveals that of the total economic production in Nepal, about US \$4 million is unaccounted for, of this amount, 84 percent unpaid work hours are performed by women. Women’s contribution to the “invisible productive outputs” accounts for 60 percent in Canada and in Finland. The 1995 Human

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<sup>108</sup> *Op.cit.*

<sup>109</sup> United Nations: (Ed. Ahooja-Patel, Krishna), INSTRAW News: Women and Development, Special Issue, Santo Domingo, 1996, No. 24/25.

Development Report provides a figure of “\$16 trillion of global output as invisible, and 11 trillion was produced by women.”

INSTRAW notes:

The impact of this statistical distortion is much more far reaching than gender bias. It can affect the validity of fundamental policy decisions on virtually every aspect of economic and policy planning. Its range is wide from transportation to nutrition services.

Comprehensive and accurate data becomes critical while equally important are the questions in the methodology which is appropriate to fully account for unpaid work contribution to the economy, family and society, and the components which constitutes the invisible outputs. Another relevant question would be the approach that could be used to include the unpaid work contribution in the national accounts, the valuations, and the national economic indicators. The policy implications that will be affected by valuing the unpaid work sector is also an important dimension.<sup>110</sup>

In the valuation of unpaid work, should it include activities such as fetching water, collection of fuel-wood, and secondary food processing? These activities have been included within the production boundary of the revised System of National Accounts (SNA), but are not reflected in the calculation of GDP. The absence of data and techniques to account for unpaid work is been provided as a reason for GDP's exclusion of unpaid work. There is also another aspect involves the boundary which sets the limits only to unpaid household activities which are, by definition and practice, totally excluded

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<sup>110</sup> United Nations: (Ed. Ahooja-Patel, Krishna), INSTRAW News: Women and Development, Special Issue, Santo Domingo, 1996, No. 24/25. Pp.26

from the SNA. Both of these points of view directly addresses the invisibility of unpaid work especially the huge contributions made by women to the economy, as those activities are traditionally performed by women. If a more comprehensive definition of production were to be applied, both viewpoints should be counted, even though the approaches may initially differ.<sup>111</sup>

Much of women's contribution to the economy still remains undervalued and invisible in official statistics and indicators. In Nepal for example it is estimated unpaid work value is twice the value of Nepal's GDP. "The gender division of unpaid production runs exactly counter to that of paid production in Canada and in Finland." In Canada, male contribution for market GDP accounts for 63 percent while females account for 61 percent of unpaid production. Similarly, in Finland males account for 59 percent of market GDP, females account for 59 percent of unpaid production. Due to the large volume of unpaid production, the contribution by women to the total (paid and unpaid) production significantly increased in comparison to their estimated contribution to the regular GDP. Women were estimated to contribute only 37 and 41 percent to the GDP of Canada and Finland, respectively. These estimates increased sharply to 44 and 48 percent when unpaid production was taken into account.<sup>112</sup> The implications of these data could have far reaching effects on policy and planning and in its process of empowering women.

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<sup>111</sup> *Ibid. pp26*

<sup>112</sup> *Ibid.*

### 3.2.2 Concepts and definitions for valuing unpaid work

There is no official definition of households' unpaid work sanctioned by the United Nations, International Labour Organisation, or the Organisation for Economic Co-operation and Development. Nonetheless according to Statistics Canada several definitions of unpaid household work or production have been examined. According to its findings some of these definitions share a number of common threads: <sup>113</sup>

1. the activities of households yield simultaneous tangible and intangible outputs;
2. market goods and services can be substituted for household work and
3. household work is done by and for members of the household.

Examples include:

Baker, Household Production notes:

“The concept of household production as activities not directly in the market sector but with direct (and sometimes indirect) economic value. That is, household production combines or creates family inputs to satisfy wants, builds up want satisfying power in something or somebody, or yields products, services or knowledge (both within and between families)”

Beutler and Owen, “A Home Production Activity Model defines:

“Home production is by and for household members with the output having use value rather than exchange value...Household Production is by and for household members and it is market replaceable in the sense that it could be conceivably be delegated to a paid worker...”

Hawrylyshyn (1971), Estimating the Value of Household Work in Canada defines:

“I define household work as those economic services produced in the household and outside the market, but which could be produced by a third

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<sup>113</sup> Statistics Canada (1995), Households' Unpaid Work -- Measurement and Valuation: Studies in- National Accounts, Ottawa, Canada, Cat.13-603E, No.3 – Occasional Papers



person hired on the market without changing their utility to the members of the household...”<sup>114</sup>

### 3.2.3 Measuring time spent on unpaid work

The measurement of unpaid work uses time use surveys. Some common practices have emerged, though there are no international guidelines on the subject. For example, the multinational time budget study, has served to guide the design of many subsequent surveys of time use in Canada and elsewhere and many classifications of time-use are derived from it. Several design features of time-use surveys are relevant to the measurement of household's unpaid work. In order to measure all unpaid work done throughout the year within national boundaries, ideally the survey should provide full coverage in terms of population, area, day of the week or season, and activities. In practice, this is seldom take place. Moreover, in the absence of international guidelines, practices vary from one survey to another. Time-use survey should include all persons, regardless of age or residence (household or institution). For practical reasons however, most services do not provide full coverage. The General Social Survey by Statistics Canada for instance covers persons aged 15 and over in private households. Similarly, the survey sample is often drawn from only one or a few locations, with obvious drawbacks, although national surveys are a more common approach in recent times. The time periods covered also makes a difference since daily activity patterns vary during the week or according to season.<sup>115</sup>

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<sup>114</sup> Cited From *Ibid.*

<sup>115</sup> Statistics Canada (1995), Households' Unpaid Work -- Measurement and Valuation: Studies in- National Accounts, Ottawa, Canada, Cat.13-603E, No.3 – Occasional Papers

While it is quite possible to design a sample which is representative of the population, area and time period, the inclusion of all the activities is more problematic. , Some activities remain difficult to capture even with a clear definition of what constitutes unpaid work. At the same time obtaining information on some activities can require such extensive questioning of respondents as to be impractical. It should be noted that decision making and time- management are productive activities which cannot be captured adequately with current survey methods.<sup>116</sup>

#### 3.2.4 Valuing unpaid work in Nova Scotia (NS)

Most economic valuations of unpaid work use the opportunity cost method or that of replacement cost. The two methods are applied in a variety of ways, depending on research objectives and data constraints. Opportunity costs' basic idea is that time spent on unpaid work could be spent doing something else. A cost exists in the household's unpaid work: the benefit foregone of doing something else instead. Cost can influence household decisions, therefore it has an economic significance. Colman (1998), "The Economic Value of Unpaid Housework and Parenting in Nova Scotia" notes:

The notion of opportunity cost it self is hardly controversial, however, it is use in valuing unpaid work and the assumptions made." Resources are assumed to be allocated to those uses where the benefit outweigh the cost, with the implication that time allocated to unpaid work is worth at least its opportunity cost. The opportunity cost approach is criticised generally for oversimplification and lack of realism and relevance. Even if these assumptions are accepted, applying the notion of net marginal benefit from paid work is exceedingly difficult.

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<sup>116</sup>*Ibid.*

The basic concept of the replacement cost method is that households could forego their unpaid work and purchase similar goods or services instead. To do so would entail a 'replacement cost'. Such costs are economically significant in that they can influence households' decisions either to do things themselves or delegate them to the market. However, the notion of replacement cost is not all that controversial. What is debatable is the assumptions made and its application to the valuation of unpaid work. The main variants of the replacement cost method differ in their assumptions regarding the choice of market substitutes. The replacement cost with the market specialist variant, of a given type of unpaid work is imputed on the basis of the people employed in a similar occupation on an hourly basis. For example, the replacement cost for preparing meals or doing laundry is calculated in relation to the hourly earnings of cooks and chefs or laundresses, respectively. The key assumption here is that households can delegate tasks to businesses (and indirectly to their employees). In contrast, with the household generalist variant, the replacement cost for household work is imputed on the basis of the hourly earnings of domestic employees. Households can delegate tasks directly to paid domestic staff has been used as a basic premise. Households are assumed to have only one alternative, and household members are assumed to have only one alternative, and household members are deemed as productive as market specialists in one case, or paid domestic staff in the other in either variant.<sup>117</sup>

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<sup>117</sup> Colman, Ronald (1998), "The Economic Value of Unpaid Housework and Parenting in Nova Scotia", Halifax, Unpublished Paper, GPI Atlantic. pp. 62

The assumptions underlying the replacement cost method can be criticised on a number of grounds. The assumption that all households either delegate to business or take on domestic employees goes against the evidence that some opt for one, some for the other, and others for both. It is argued as well that the appropriate replacement cost is that of the output of unpaid work, not the time spent on it. The assumption of equal productivity, at least for the market specialist variant, is criticised as being unrealistic. It is emphasised that the work of market specialists is characterised by substantial division of labour, economies of scale and often more capital-intensive production, with ensuing productivity gains. The assumption is viewed as more realistic with the household generalist variant, because domestic employees work in the same setting as household members, with the same equipment. But even then, it is pointed out that domestic employees do not undertake all household tasks, particularly those related to management as well as volunteer and community work. The replacement cost method poses several practical difficulties as well. In particular, the market specialist variant requires matching occupations and unpaid work activities, which is done on a subjective basis. It also requires the choice of an appropriate group of persons whose earnings replacement costs can be established. There are many possibilities here, but little theoretical guidance. The way these issues are handled in practice entails different assumptions about the productivity of unpaid work in relation to similar paid work.<sup>118</sup>

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<sup>118</sup> Colman, Ronald (1998), "The Economic Value of Unpaid Housework and Parenting in Nova Scotia", Halifax, Unpublished Paper, GPI Atlantic. pp. 63

For example, Canada Pension Plan contributions and benefits are based solely on paid work. There are many women (47% of unattached women over age 65 live below the “low income cut-off”/ poverty line) in NS have less security in old age. The difference in part indicates dependence on pensions based on earnings and the lack of provisions for CPP contributions and benefits based on unpaid work. The failure to value unpaid work, until recent time produced subtle forms of discrimination in court awards. In 1992 the Canadian Supreme Court for the first time in Canadian history awarded direct compensation to a Saskatchewan Woman, Verna Fobel, for lost capacity to do unpaid work. Prior to this development it was generally awarded to a husband for loss of his wife’s services.<sup>119</sup>

#### Unpaid work summary of results for Nova Scotia

As Colman’s study “The Economic Value of Unpaid Housework and Parenting in Nova Scotia,” indicates:

As a whole the value of labour inputs into household production in Nova Scotia amounts to 42% of GDP value at market prices, and 51% of GDP value at factor cost, the second highest ratios in the country after Prince Edward island.

This study further estimates that the unpaid work for Nova Scotians is worth \$8.5 billion per year, or \$11,084 per adult 15 years and older. As Colman notes, “this is the asset value for unpaid housework used in the Genuine Progress Index.” Nova Scotians each contribute an average 1,230 hours per year of unpaid household work to the

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<sup>119</sup> *Op.cit.* pp.64

economy, for a total of more than 940 million hours in 1997, the equivalent of 490,000 full year, full time jobs. Taking into account the actual mix of full time and part time jobs in the economy, household production would produce 567,000 jobs at an average of 34.6 hours per week, if it were replaced for pay in the market economy.<sup>120</sup>

Nova Scotians 15 years and older devote an average of 20 hours and 40 minutes a week, or 3 hours a day, to unpaid house work. From this figure, nearly an hour is spent cooking and washing dishes, 40 minutes is spent on house cleaning, and for laundry and 38 minutes is allocated to shopping. Parents contributed an additional two hours per day to primary childcare. Further, if these figures were to be broken down by the women's share of unpaid house-work, it is evident unpaid work hours are not evenly distributed among population groups.<sup>121</sup> As Arjun Makhijani describes:

Yet the failure to count the labor of a large portion of the population-consisting mainly of women and children-still stands out as one of the most glaring failures of the present system of economic accounting.

The heaviest household work burden in Nova Scotia is carried by unemployed mothers, contributing to a 7.5 hours per day spread over a week, or 52.5 hours per week, based on the 1992 General Social Survey by Statistics Canada. This is down marginally from the 7.75 hours per week reported in the 1986 General Social Survey. On average Nova Scotian women spend two hours more per day than men performing unpaid household work. Within dual earner families, full time employed mothers contributed more than an hour and a half more per day on unpaid housework which includes primary

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<sup>120</sup> Colman, Ronald (1998), "The Economic Value of Unpaid Housework and Parenting in Nova Scotia", Halifax, Unpublished Paper, GPI Atlantic. Pp. 38

<sup>121</sup> *Ibid.* pp. 38

child-care, than full time employed fathers. Full time hours can vary widely and may include overtime work. According to Statistics Canada's Labour Force annual averages, general full time hours are 44.3 for men and 39.9 for women. Averaged over a week, this illustrates that full time employed mothers still contributed 47 minutes more total work time per day than full time employed fathers, after housework figures are adjusted to account for the extra paid hours of fathers. This further illustrates that women's share of unpaid work in Nova Scotia has remained almost unchanged despite significant increases in the paid work.<sup>122</sup>

By industry sector, Nova Scotians contributed 266 million unpaid hours on food preparation and cleanup in 1997, equal to nearly 140,000 full time jobs. More than 186 million hours were spent in cleaning the household and on laundry, which is the equivalent of producing 100,000 full time house-cleaning jobs in the market economy. 177 million hours were contributed to grocery shopping and other household goods and services, which accounts to more than 92,000 jobs in the market economy. Parents in Nova Scotia (excluding the time spent looking after children while doing other tasks) unpaid work in child care equates to 61,000 full time jobs in the child-care industry, amounting to 116.5 million hours per year. The data indicates that altogether Nova Scotians work significantly more hours without pay in the household economy than they do in the market economy. Statistics Canada Labour Force Survey indicates that Nova Scotians put in 707 million hours for pay in 1997, one third less than their total household work hours. It also should be noted that the ratio of unpaid to paid work in Nova Scotia is

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<sup>122</sup> *Op.cit.* pp. 42

the second highest in the country after Newfoundland, and the Atlantic Provinces have generally higher ratios than the rest of Canada due to the relatively higher levels of unemployment in this region. Nova Scotians are doing the same amount of household work today as in 1981, increased by one hour per week in comparison to the 1986, and one hour less in comparison to 1961 estimates. “In other words, production hours in the household economy have remained relatively constant over 40 years despite the dramatic increase in the number of paid hours contributed by women in the same period.”<sup>123</sup>

In terms of monetary value of unpaid work labour inputs into the household economy are valued for Nova Scotia at the replacement cost (generalist) method, which yields lower estimates of value. The replacement cost (generalist) method assesses what it would cost to replace unpaid work production in the market at the average hourly rate paid for domestic help and child-care. Factoring in wage inflation, this amounts to an overall rate of \$9.02 an hour for Nova Scotia in 1997. This is based on an average hourly rate of \$9.20 for housework including meal preparation and cleanup, house cleaning, laundry, repair and maintenance, and all other domestic chores and \$7.58 per hour for child-care. Since more accurate methods for assessing the value of capital inputs into household production have not yet been developed in Canada, the GPI valuation is currently based on the value of labour inputs only. Colman notes:

“Extrapolating from Ironmonger’s Australian data, it is possible to estimate that this value would be about \$3 billion higher if capital inputs are included, for a total of \$11.5 billion.”<sup>124</sup>

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<sup>123</sup>Colman, Ronald (1998), “The Economic Value of Unpaid Housework and Parenting in Nova Scotia”, Halifax, Unpublished Paper, GPI Atlantic, pp. 38.

<sup>124</sup> *Ibid.* pp.61



If Nova Scotians contributions to the market economy through unpaid work to be valued by industry sector, the estimations are consistent with the overall value of \$9.02 an hour used in calculating the value of household production in the province as a whole. Even without adding capital inputs, the three largest industries in Nova Scotia economy are food service within the household economy, house cleaning and laundry within the household economy, and servicing household production through shopping for goods and services. Labour inputs into household production are worth more than twice the total GDP value at factor cost of all goods producing industries in the province, and more than two-thirds the value of all service producing industries. They are equal in value to the combination of all manufacturing, construction, transportation, total retail and wholesale trade, finance, insurance, real estate and health services industries.<sup>125</sup>

### **3.1 The Exclusion of Voluntary Work**

Gross Domestic Product (GDP) has many shortcomings as a comprehensive measure of human progress. Because it excludes non-monetary production, the GDP records shifts in productive activity from the household and non-market sectors to the market economy as economic growth, even though total production may remain unchanged. As a result paid child care, hired domestic help and restaurant food preparation all add to the GDP, while the economic values of parenting, unpaid housework, home food preparation and all forms of volunteer work remain invisible in

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<sup>125</sup> *Op.cit.* pp. 64

the economic accounts. Another aspect where GDP fails as a comprehensive measure of human progress is its income approach that fails to value natural and human resources as capital assets subject to depletion and depreciation. As such it fails to send early warning signals to policy makers indicating the need for re-investment in natural and human capital. Most importantly, the GDP is a measure of quantitative growth only and fails to account for qualitative changes, both in the mix of economic activity and in the quality of consumer durables.<sup>126</sup>

Voluntary work has a direct economic value though it remains invisible in the economic accounts. In a national survey, a significant number of Nova Scotian volunteers cited “helping others” as the main motivation for their work. If the motivation for volunteering is so clearly altruistic, why assign an economic value to it? Though motivated by generosity and care, if this service were to be eliminated, the implications are such that either our standard of living would deteriorate significantly, or else government and private sector would have to provide the lost services for a pay. Particularly in an era of fiscal restraints and governments cutbacks, we depend even more directly on the work of voluntary organisations and informal volunteers.<sup>127</sup>

According to Statistics Canada’s report *Giving Freely: Volunteers in Canada*:

Volunteers are instrumental in programs or groups addressing critical issues of our times, such as a rapidly growing elderly population, marital breakdown, disaffected youth, and environmental protection, to name a few.<sup>128</sup>

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<sup>126</sup> Colman, Ronald (1998), “The Economic Value of Civic and Voluntary Work in Nova Scotia”, Halifax, Canada, GPI Atlantic. pp. 1

<sup>127</sup> *Ibid.* pp.6

The original Genuine Progress Index developed in the United States described its rationale for including the value of voluntary work as:

Work done here is the nation's informal safety net, the invisible social matrix on which a healthy market economy depends. Whether each additional lawyer, broker or advertising account executive represents a net gain for the nation is arguable. But there is little question that workers in the under served community and volunteer sectors- the churches and synagogues, civic associations and informal neighbourly efforts- are doing work that is desperately needed. Despite its crucial contribution, however, this work goes entirely untallied in the GDP. The GPI begins to correct this omission.<sup>129</sup>

It is important to note that what is not counted and measured is often under valued and given a less priority in policy planning. This approach can be potentially dangerous where critically important unpaid work may not receive the necessary support. Also, Colman notes:

women's 'double day' of paid work and unpaid domestic labour" has led to an emerging "crisis of care giving, a direct result of the 'time crunch' that now characterise the female life course.

By making the economic value of voluntary work explicit and thus more visible, it is assumed that the likelihood of vital voluntary services will be supported and that participation rates will remain high. Indeed, a primary function of the GPI is to draw attention to such hidden factors that directly impact our quality of life and to make the linkage between the economy and social and environmental factors.<sup>130</sup>

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<sup>128</sup> Cited from, *Ibid.*

<sup>129</sup> Cited from, Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic. pp. 7

<sup>130</sup> *Op.cit.* pp. 7

Another aspect is the network of community and voluntary organisations is widely regarded as the backbone of “civil society”, and their active strength as a critical indicator of healthy democracy. Therefore, for many social scientists the strength of a society’s commitment to voluntary work is a touchstone of social health, stability and harmony. Finally, as the Graph 3.1 indicates below, the voluntary sector is of particular importance to Nova Scotia. It is one of Nova Scotia’s primary assets and strengths pointing that Nova Scotians devote more time to voluntary activity than other Canadians, and has the highest proportion of volunteers involved in caring for the environment and working for their communities of any province. It is a hallmark of our quality of life, community strength and care for each other.<sup>131</sup>

### 3.3.1 Definition of volunteers

Voluntary work can be rendered either through a formal non-profit organisation or independently of any group by people helping on their own. These are called “formal” and “informal” volunteers, respectively. About one third of voluntary work is offered by the formal organisations in Nova Scotia while the other two thirds is been provided informally.

The designation “voluntary” work is therefore used here to refer both to work and services performed willingly and without pay through volunteer organisations, and also to informal unpaid help and care rendered to those outside one’s own household and to

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<sup>131</sup> Op.cit. pp. 8

adults, such as elderly relatives,\* within the household. Voluntary work refers to three types of assistance:

1. Help provided directly to others, as in caring for the disabled and elderly,
2. Working for the environment or wildlife, and
3. Providing benefit to society at large or to the local community.<sup>132</sup>

### 3.3.2 Formal and informal volunteers

Formal Volunteers play a key role in the non-profit organisations which include groups working towards health care, education and youth development, social services, religious activity, sports and recreation, environmental protection, law and justice, employment opportunities, arts and culture, and general public benefit.<sup>133</sup>

Among informal volunteers, the most common activity is providing direct help to others. About 57 percent of informal volunteers visit the sick or elderly, 49 percent shop for or drive those unable to do so themselves, and 47 percent provide unpaid child care for those outside the household in order that others can take paid jobs. Nova Scotians also have the highest percentage of informal volunteers in the country working for the environment (35 percent compared to 24 percent nation wide) and engaged in wider community and social concerns (20 percent compared with 14 percent in Canada as a whole.) 63 percent Of Nova Scotian volunteers informally helped seniors 65 and older, 45% helped children and youth, and 27% provided care for the disabled.<sup>134</sup>

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<sup>132</sup> Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic. pp. 9

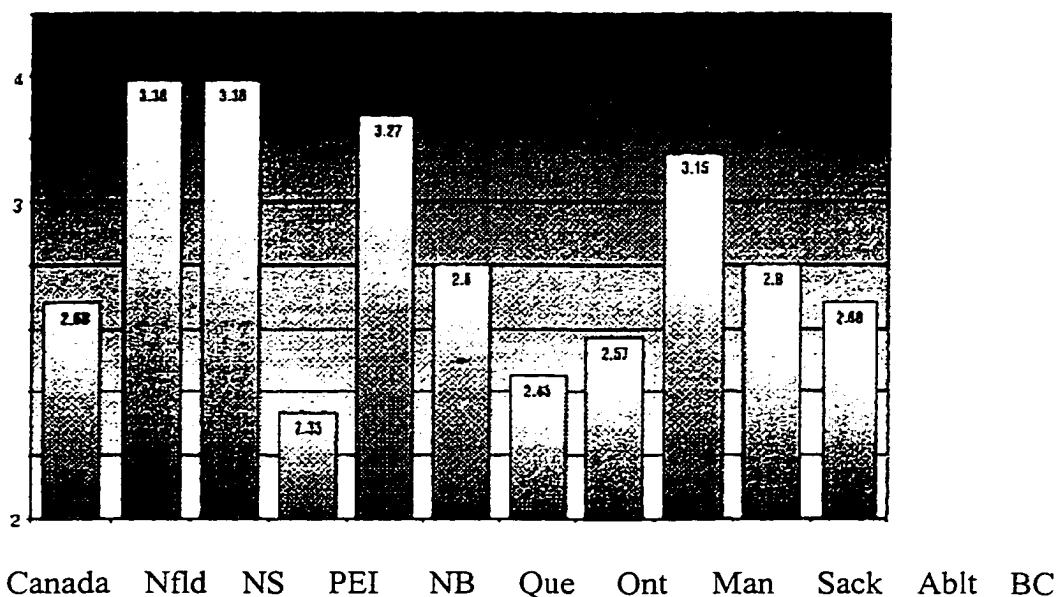
<sup>133</sup> *Ibid.* pp. 10

<sup>134</sup> *Op.cit.* pp. 12

according to the motivations for volunteering The National Survey on Volunteer Activity concluded that helping others” was the most important motivation cited by 68% of Nova Scotians and 63% of Canadians surveyed, while 66% of Nova Scotians and 60% of Canadians also cited “helping a cause you believe in” as a “very important” reason for volunteering. The reason most often cited as “not important at all” was making contacts useful for employment.<sup>135</sup>

**Graph 3.1**

**Average hours of voluntary time, by Province**



**Source:** Colman, Ronald (1998), “The Economic Value of Civic and Voluntary Work in Nova Scotia”, Halifax, Canada, GPI Atlantic.

<sup>135</sup> *Op.cit.* pp. 13

**Table 3.1 Formal volunteers**

	Pop. 15+	Pop. 15+ Male	Pop 15+ Female	Major Cities
Canada	27%	24%	30%	24%
NS	32%	27%	37%	34%
Informal	Volunteers.Canada			63%
NS				71%
Canada	66%	64%	69%	
NS	74%	72%	77%	

**Source:** Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic.

### 3.3.3 Monetary valuation and methods of voluntary work

The method used in this study to calculate the economic value of volunteer hours is the "replacement cost (specialist)" method, and reflects the hourly wage rate that would be paid in Nova Scotia to replace existing voluntary activities at market prices for the same types of work. For Nova Scotia, the replacement cost (specialist) rate for voluntary work in 1997 has been assessed at \$13.02 an hour compared to the Canadian average of \$15.70. This is based on Statistics Canada's *Households' Unpaid Work: Measurement*

*and Valuation*, and has been adjusted to 1997 dollars using the Consumer Price Index for Nova Scotia.<sup>136</sup>

The total voluntary time of Nova Scotians, 134.7 million hours a year, is valued at \$1,754 million for 1997 at the replacement cost rate of \$13.02 per hour. This \$1.7 billion is not reflected in the GDP, employment statistics or in any of the standard economic accounts, but amounts to 9.3 percent of total GDP value, and nearly twice the annual payroll of all paid health and social service workers in the province. It exceeds the wage bill for all public administration in the province, including the armed forces, and amounts to 20 percent of total salaries and wages paid in the province.<sup>137</sup>

Fifty percent of formal volunteers reported that they incurred out of pocket expenses that were not reimbursed, in order to carry out their voluntary activities. These expenses include spending on required equipment, supplies and uniforms as well as food and transportation costs to assist the elderly and disabled. If these expenses are taken into account, Nova Scotian volunteers contributed an additional \$128 million to the provincial economy, for a total of nearly \$1.9 billion, or 10 percent of GDP value (Chart 3.2). This voluntary activity averages out to a total economic contribution of \$2,500 annually for every Nova Scotian 15 years and older and \$3,400 for every active volunteer.<sup>138</sup>

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<sup>136</sup> Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic. pp. 34

<sup>137</sup> *Ibid.* pp. 17

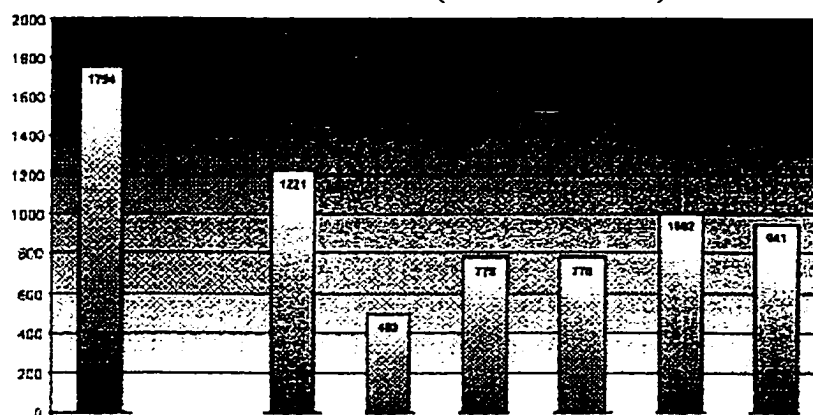
<sup>138</sup> Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic. pp. 17



### 3.3.4 Voluntary work (job equivalents) in Nova Scotia

Volunteers contributed the equivalent of 70,000 full time jobs, equal to 22% of all full time employees in the province, a ratio 38% higher than the Canadian average and the second highest in the country after Newfoundland. More accurately, given the current distribution of full time and part time jobs in health and social services in the province, the volunteer hours of Nova Scotians would produce 81,000 full and part time jobs with an average 34.6 hour week, if voluntary work were actually replaced by paid labour. This is double the number of all paid health and social service employees and 21% of the 391,000 employees in the province.<sup>139</sup> (Graph 3.2 and 3.3)

**Graph 3.2**      **Value of voluntary work compared to annual payrolls,**  
**selected industries, Nova Scotia,**  
**1997**                  **(\$1997 millions)**



**Manufacturing, Construction, Transportation, Retail, Education and Related Services,  
Health and Social Services**

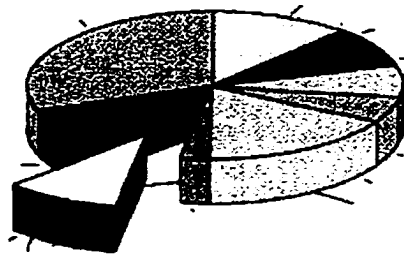
Source: Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic.

<sup>139</sup> *Op.cit.* pp. 20

**Figure 3.3 Provincial Gross Domestic Product at factor cost by industry  
Nova Scotia and equivalent value of voluntary work  
1997**

Other Industries: 32%

Manufacturing: 12%



Finance, Insurance and Real Estate: 17%



**The equivalent value of voluntary work is 10% of total GDP value**

**Source:** Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic.

As discussed in more detail in the first chapter on data and methodology, it is possible to use alternative methods to assess the monetary value of voluntary work. If the "specialist" cost replacement rate of \$13.02 is applied only to formal volunteer work for

non-profit organisations, and if a lower “generalist” rate of \$9.86 an hour, corresponding to the average hourly wages for domestic services in the province, is applied to the informal volunteer sector, then the economic value of voluntary work hours in Nova Scotia is \$1,470 million a year instead of \$1,754 million. If the “opportunity cost” method is used to reflect the wages that volunteers would earn if they were to engage in their normal work instead of volunteering, then voluntary work hours in the province are worth \$2,290 million a year (Table 3.2).<sup>140</sup>

**Table 3.2 Hours, job equivalents and value of voluntary work, Nova Scotia**

**1997**

<i>Annual Volunteer Hours</i>	Hours	Full-time job Equivalents	Full & part-time Jobs (avg. 34.6hrs/wk)
Formal	46 million	23,800	27,540
Informal*	89 million	46,200	53,460
Total	135 million	70,000	81,000
	Replacement Cost (Specialist)	Replacement Cost (Generalist)	Opportunity Cost (Pre-tax)
<i>Value of Volunteer Work Hrs. 1997 dollars</i>	\$1,754 million	\$1,470 million	\$2,290 million
Expenses	\$218 million	\$218 million	\$218 million
Total	\$1,972 million	\$1,688 million	\$2,508 million
% of GDP value	10.5%	9%	13.3%
Per capita value	\$2,582	\$2,210	\$3,284
Per volunteer value	\$3,490	\$2,987	\$4,438
<i>Registered to charities 1997 dollars</i>	<i>\$98 million</i>		
			<i>donations</i>

Source: Colman, Ronald (1998), “The Economic Value of Civic and Voluntary Work in Nova Scotia”, Halifax, Canada, GPI Atlantic.

<sup>140</sup> Colman, Ronald (1998), “The Economic Value of Civic and Voluntary Work in Nova Scotia”, Halifax, 109

It should be noted that in this study Charitable Donations to non-profit organisations, amounting to about \$100 million a year in Nova Scotia, are also excluded from the valuations. Revenue Canada reported \$92 million in individual charitable contributions in 1995 from 168,260 Nova Scotians, with an average donation of \$547. Since this includes only donations for which official tax receipts are available and which are reported for tax deduction purposes, the actual total of donations is likely to be considerably higher.<sup>141</sup> This study therefore measures the value of voluntary work rather than the economic contribution of the volunteer sector as a whole.

### 3.3.5 Voluntary work's indirect contribution to the Nova Scotia economy

Skills training is a vital contribution provided by the formal voluntary sector to the market economy by providing training in technical and office skills, management and organisation, communications, fundraising and interpersonal skills, as well as work experience and specialised knowledge of particular subject areas.<sup>142</sup>

According to the 1987 National Survey on Volunteer activity reported that 70 percent of all formal volunteers learned new skills in their voluntary jobs. More than 10 percent of them directly transferred their newly acquired expertise to paid work, and another 44 percent stated that these skills had improved their job prospects. About one

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Canada, GPI Atlantic. pp. 19

<sup>141</sup> Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic. pp. 20

<sup>142</sup> *Ibid.* pp. 20

half of all volunteers with non-profit organisations, about 120,000 Nova Scotians, receive actual formal training provided by these organisations.<sup>143</sup>

At the same time some informal voluntary work enables others to take paid jobs, which in turn contribute to GDP growth. For example, the largely invisible network of unpaid child care provides paid work opportunities for many families, but only the paid child care industry is registered in the official accounts and appears in the statistics. It is important to note that without the services provided by the informal voluntary child care sector the labour force participation particularly the female participation rate would likely be lower, directly impacting economic growth rates. In addition an estimated 89,000 Nova Scotians every year informally provide unpaid voluntary help to others operating a business or for farm work. This contributes to the viability of many economic activities, increase output and provides spin-off benefits to the market economy.<sup>144</sup>

### 3.3.6 Women and voluntary work

Women constitute the majority of volunteers both in Nova Scotia and in Canada. Their role of particularly significant in care giving activities of which the principal beneficiaries are the elderly, the disabled, and the very young. The women's rapidly expanding participation in the paid labour force has not been matched by a corresponding decline in women's share of unpaid domestic labour, leading to a "double day" for many working women. According to John Myles:

The result is that the end of the 20th century society faces a crisis of care giving, a

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<sup>143</sup> *Op.cit.* pp. 21

<sup>144</sup> *Op.cit.* pp. 21

direct result of the 'time crunch' that now characterises the female life course<sup>145</sup>

The 1987 National Survey showed that married women, who are the most highly time stressed group in the population, also have the highest rate of formal volunteer activity, especially in Nova Scotia, where 39% of married women in the province worked for volunteer organisations.<sup>146</sup>

Conversely, increased attention to flexible work option for women in the market economy can yield dividends in the non-market sector, which can help maintain the quality of critical voluntary services. As an example, a recent US study found that every dollar invested in family-friendly work arrangements produce a return of between \$2 and \$6 in reduced absenteeism, increased employee productivity and higher rates of retention.<sup>147</sup>

### 3.3.7 Voluntary work in Nova Scotia: Summary of major results

Nova Scotian volunteer workers in 1997 contributed an estimated 134 million hours of their time to voluntary work. Their work was worth nearly \$2 billion a year to the economy, the equivalent of 81,000 jobs and nearly 10 percent of GDP, but was not included or measured in the economic accounts. This contribution averages to \$2,500 a year for every adult Nova Scotian and \$3,400 for every volunteer in the province. These volunteers also paid out \$128 million in non-reimbursed out-of pocket expenses to perform their voluntary work. Volunteer organisations also contributed to the formal

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<sup>145</sup> Cited from, Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic. pp. 25

<sup>146</sup> *Ibid.* pp. 26

economy in various ways through valuable skills training etc. On average, every adult Nova Scotian devoted three hours and 23 minutes a week to voluntary work, the highest rate in Canada and well above the Canadian average of two hours and 40 minutes a week. Most volunteers are women. One third of adults in the province work for non-profit volunteer organisations, and three-quarters volunteer informally. Excluding the out-of-pocket expenses and monetary donations the aggregate asset value of voluntary work hours in Nova Scotia for 1997 is estimated at \$1,754 million. This figure represents the amount that would have to be paid by the government and private sector to replace existing voluntary work in Nova Scotia.<sup>148</sup>

### **3.4 Conclusion**

Based on our data analysis Nova Scotia leads the country in the time and commitment of its citizens to voluntary work. The strength of the network of community and non-profit organisations in the province and the commitment by Nova Scotians to voluntary work constitute a vital social asset that merits support and recognition. Despite the large contribution and economic importance that is been provided by the volunteer sector it is currently omitted from the conventional accounts, which track only monetary transactions. What is not measured remains largely invisible in the policy arena and is in danger of being undervalued. Lack of support may threaten the viability of organisations

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<sup>147</sup> *Op.cit.* pp. 27.

<sup>148</sup> Cited from, Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic. pp. 5

providing these vital services. In fact, vital and cost effective voluntary services maybe threatened just when they are most needed, after prolonged government cutbacks.

If a small proportion of the resources currently allocated to collecting data on the market economy were dedicated to tracking trends in the volunteer sector, there would be a substantial improvement in the quality of information available on this vital sector to the economy and a dramatic increase in the visibility of volunteer work and the value assigned to it. That could impact in stronger public and policy support of voluntary work, increased attention and assistance to voluntary groups, enhanced financial security and viability for volunteer non-profit organisations, and thus an even greater contribution by this sector to the economy and society of Nova Scotia. Statistics Canada in its report on Human Capital and the Use of Time noted:

It is only by quantifying the civic contributions of citizens that the value of basic institutions such as the family, school, faith community and voluntary associations will be more fully appreciated.<sup>149</sup>

The two basic measurements needed to maintain this component of the GPI over time are:

1. the percentage of the population 15 years and older engaged in voluntary work,
2. the annual number of volunteer hours contributed.

Simple though they are, these measures can serve as a proxy indicator for the health of civil society, and provide a quantifiable basis for comparison with other provinces and countries if they follow this approach in tracking these measures. Observing these trends over time can also indicate whether the net work of civic, voluntary and community



organisations is strengthening or weakening, and whether the society is successfully nurturing an existing asset.

It should be noted that Time Use studies are a particularly powerful tool of analysis for this purpose. Since hours are finite and equally allocated to all segments of the population, shifts in the proportion and balance of different sectors of the economy and between paid and unpaid work can be readily assessed. These are useful instruments available to assess market trends, like increase overtime and female labour force participation, are impacting the contribution of volunteer organisations. By emphasising the relationship between the paid and unpaid sectors of the economy, the GPI attempts to provide the potential costs to government and the formal economy of any diminution of voluntary activity and to the benefits of providing support to voluntary sector.<sup>150</sup>

The imputation of market values should be seen as a temporary measure only, and as a tool of communication with the world of conventional economics, rather than as an end in itself. It is necessary only while financial structures, such as prices, taxes and monetary incentives, provide the primary cues for the actual behaviour of businesses, consumers and governments. It also serves to demonstrate the linkages and connections between non-market and market factors, such as the reality that depletion of natural resource will produce an actual loss of value in the market economy.

We may acknowledge the absurdity of assigning monetary values to non-market assets, yet we do so consistently in almost every sphere except for our economic

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<sup>149</sup> Cited from Colman, Ronald (1998), "The Economic Value of Civic and Voluntary Work in Nova Scotia", Halifax, Canada, GPI Atlantic. pp. 28-29

<sup>150</sup> *Ibid.* pp. 30

accounts. We may pay a higher apartment rent for the aesthetic pleasure of overlooking a park rather than a busy street. Insurance companies determine premiums based on non-market risk assessments and assign monetary value to the loss of human limbs and lives. Courts make financial awards for grief and suffering, and since the 1992 Canadian Supreme Court decision in the case of Vern Fobel, for lost capacity to do unpaid work. Without such monetary assessments, social and environmental assets will likely be undervalued and their loss inadequately compensated.<sup>151</sup>

It should be recognised that money is a poor tool for assessing the value of caring work, the quality of education, the non-timber values of a forest, the costs of pollution or the global warming. A materialistic criterion cannot sufficiently assign value to the nonmaterial values, which provides human life meaning. At the same time so long as market statistics and monetary values dominate our economic thinking which guides policy and planning process, the GPI can play a critical role for communication between the market and non-market sectors. Certainly it provides a more accurate measure of overall progress than can be achieved by measures which omit important social and environmental variables entirely. Through an alternative set of indicators such as the GPI could be used as a valuable tool to point to important linkages between various environmental, social and economic sectors.<sup>152</sup> GPI enables the means to surpass the monetary valuations towards a more comprehensive framework and integrated policy and planning in the process of development.

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<sup>151</sup> *Op.cit.* pp. 31

<sup>152</sup> *Op.cit.* pp. 32

## **Chapter IV**

### **Income Distribution as a Social Indicator**

#### **4.0 Defining Social development**

The Development defines social development as the improvement of general well-being measured in terms of such social indicators as life expectancy, the rates of infant mortality and literacy; the provision of social services, etc. The improvement in the capacity of poor communities, strategic management, community management, and environmental analysis are often now employed within a context of people-centred development.<sup>153</sup>

##### **4.0.1 Social and Economic order**

The hypothesis that economic growth and social development are interrelated is the basis current strategies for development pursued by rational governments, sub national (community based) and international organizations. Societies through reliance on achieve stability in social codes, indicating that basic social needs must be examined in relation to the developing process.<sup>154</sup> Originally this concept was purely economic, and the social and political aspects were absent. But it appears, that freedom from external economic dependence is critical to the form of development pursued by developing countries. For example, it is reflected in the 1974 call in the UN for a New International

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<sup>153</sup> Welsh, Brian and Butorin, Pavel (1990), Dictionary of Development: Third World Economy, Environment, Society, New York and London, Garland Publishing Inc.

Economic Order. Behind this call is the notion of that population and not the production of goods is the primary focus of development.<sup>155</sup> This is the form of development as concerned and predicted by institutions such as the South Center that reflects the interests of the developing countries by erstwhile 'Group of 77.'

#### 4.0.2 Failures of Economic growth

The liberalization agenda of "market friendly" growth has gained a virtual monopoly over policy prescriptions of official development agencies since the collapse of the Soviet Union and the communist regimes in Eastern Europe. Development in the process as assistance has been severely scaled down. Developing and "transition" countries are invited to compete in global markets where "winners" may succeed if they comply with the "market-friendly" policy prescriptions of the World Bank. "Losers" are guaranteed failure, if they cannot or do not wish to comply. The 1996 Human Development Report notes:

The imbalances in economic growth, if allowed to continue will produce a world gargantuan in its excesses and grotesque in its human and economic inequalities. Development that perpetuates today's inequalities is neither sustainable, nor worth sustaining.<sup>156</sup>

Its explicit message is that "economies exists for people- not people for economies". Economic growth is a means to increase human well being and is absolutely necessary in the so-called "least developed countries", which require a minimum annual

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<sup>154</sup> Beguin, B, "The place and role of social factors in a New International Economic Order", Labor and Society, July-Oct, 1976, pp 33-38.

<sup>155</sup> Hope, Kempe-R, "The Concept of Economic Development Toward a New Interpretation", Man and Development, June, 1981, pp 77-82.

growth rate of 3 percent. But the quality of economic growth is crucial: if it does not translate directly into the enhancement of the capacities of people to participate productively in society and open economic opportunities, it does not serve human development. Beyond a certain level, economic growth no longer serves the attainment of a high level of human well being.<sup>157</sup>

The HDR-90 introduced the Human Development Indicator (HDI) as a measure of “human development” based on a average life expectancy, educational attainment and a measure of GNP per capita, strongly discounted for the declining “marginal utility” of income above a level set at average world GNP per capita. A ranking of countries according to the HDI is significantly different from a ranking according to GNP per capita. Some richer countries show low achievement in human development; some poorer countries score high in human development. The conclusion is that government policies are vitally important. Improvements in human development are ultimately matters of domestic policy. There are no simple answers and there is no single model, Economic growth is necessary for the poorest countries, but the effectiveness of increased material resources in raising social indicators is a matter of policy. 40 Percent of the population of the developing world are deprived of basic nutritional, health and educational capabilities to conduct their lives free from the constraints of crushing poverty and deprivation.

The 1996 Human Development Report was more explicit in its challenge to mainstream doctrines of “development” than previous reports. It presented an approach to

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<sup>156</sup> Cited from, Levitt, Kari (1997), “The Contribution of Amartya Sen to the UNDP Human Development

development, based on providing people with the basic capabilities to be well nourished, healthy, knowledgeable and able to conduct their lives in a way that is personally meaningful and fulfilling. The radical implication of this approach lies in the fact that the material resources required to enhance these human capabilities are finite and limited, and far less than the wasteful consumption of private goods as measured by GNP per capita in industrial countries.<sup>158</sup> Further, the 1996, Human Development Report argued that mismanagement of economic growth can lead to “jobless, voiceless, ruthless, rootless and futureless and thus detrimental to human development. The quality of growth is therefore as important as its quantity for poverty reduction, human development and sustainability.”<sup>159</sup>

The report concludes by emphasizing the linkages between economic growth and human development that must deliberately forged and regulated by skillful and sound policy management. It identifies employment as critical component for translating the benefits of economic growth into the lives of people. In order to accomplish this new patterns of growth will need to be developed and sustained well into the 21st century and new mechanisms must be developed to integrate the weak and the vulnerable into the expanding global economy.<sup>160</sup>

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Reports”, Unpublished Paper, IDS Seminar, Saint Mary’s University, Halifax, Canada.

<sup>157</sup> *Ibid.*

<sup>158</sup> *ibid*

<sup>159</sup> Cited from, Levitt, Kari (1997), “The Contribution of Amartya Sen to the UNDP Human Development Reports”, Unpublished Paper, IDS Seminar, Saint Mary’s University, Halifax, Canada.

#### 4.0.3 The problem of social indicators

During the past two decades or so there has been a number of crisis related to measurement methodologies. These measurements depict the socio-economic realities and are been used as an international yardstick or standard for regional and country comparisons. During this period the central issue of measurement shifted from “what to measure” to “how to measure”. Until mid 1990, the former had remained the exclusive domain of the discipline of economics; while the latter was considered to be the area of research for ‘soft social science’ such as sociology and anthropology. The general focus on the areas of enquiry on which these disciplines based are also classified as non-economic or social or cultural by the development theories. At the same time the definitions of “nature” and culture” also restricted their entry to the purely ‘economic’ analysis. The new and emerging norms during this era focussed on the struggle of those groups in society who had been marginalized or excluded from the mainstream ideas on development. The issues which prevailed at the community, country and international levels encompassed more and more aspects of social and cultural life.<sup>161</sup>

It is argued that the nature and scope of indicators, as well as the nature of the quantitative analysis of relations between them, will depend on the conception and definition of development. For an economic or social variable to be called a ‘development indicator’ commonly means that it represents some factor that is part of the process of development. Since development tends to be an independent process, a good

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<sup>160</sup> *Ibid.*

<sup>161</sup> Ahooja-Patel, Krishna and Lusthe, Polanyi Core (1996), “Development has a Woman’s Face: A Paradigm Shift”, Concordia University, Quebec. pp. 2

indicator in fact reflects, in varying degree, many more things than it directly measures. For example, agricultural productivity (per adult male agricultural worker) is conditioned by and reflects a country's level of technology, level of education, communications etc., and in turn itself conditions a number of factors. Life expectation reflects not only the level of medical services but also, among other things, literacy, housing conditions, diet, income, occupational structure (all of which correlate more highly with it than do relative numbers of doctors or hospital beds). Conversely, if an item shows little or no relation to other aspects of development, it is questionable whether it should be called a development indicator.<sup>162</sup>

While in the economic field many (but not all) factors of development are directly measurable or at least considered so, in the social development field most main goals like 'health', 'education', 'security', 'equity' and other objects of social policy are not directly measurable in their totalities or even clearly defined, and indicators commonly serve as proxy or partial measures of these entities. The theoretical or assumed connection between the indicator and the entity to which it points in these cases is usually based on a cause effect or part whole relationship. Health indicators, for example, represent presumed causes or instruments of good health (relative number of doctors or hospital beds), or partial forms of ill health (contagious diseases). The assumption underlying such indicators may, of course, be wrong or largely wrong: the relative number of doctors and hospital beds in a country may not be the major factor conditioning the level of health; deaths (in particular of youth) may reflect primarily accidents, not sickness; the

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<sup>162</sup> Baster, Nancy (1972), Measuring Development: The Role and Adequacy of Development Indicators,



amount of contagious disease may not be a good representative of ill health in general; and there is something odd about measuring ill health by the relative number of days spent in hospital beds while good health is indicated by the relative number of hospital beds. These problems concerned with the relations of the indicators to their objects of indication are quite different from statistical problems of accuracy or reliability of data.<sup>163</sup>

An indicator that has conspicuous deficiencies on the other hand may nevertheless function quite well in practice. If low attendance and poor quality consistency go with low enrolment while high attendance and good quality go with high enrolment it is conceivable that school enrolment, which to all appearances is a poor indicator of education because it does not measure actual attendance at school or quality of schooling, may nevertheless perform its function relatively well.<sup>164</sup>

#### 4.0.4 Equity as a necessary condition of social development

Two decades of empirical research on economic growth, have revealed that there is no automatic link between economic growth and human development, proxied by GNP per capita and life expectancy. This empirical finding is an initial departure of the approach of the Human Development Reports initiated by the UNDP in 1990. A second empirical finding was that there exists no “trade off” between growth and equity. This

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London, Frank Cass and Co. Ltd.

<sup>163</sup> *Ibid.*

<sup>164</sup> Baster, Nancy (1972), Measuring Development: The Role and Adequacy of Development Indicators London, Frank Cass and Co. Ltd.

runs counter to received doctrine of the economics of growth and accumulation. Based on Keynesian consumption functions, early development economists believed that an inequitable distribution of income is conducive to a high rate of investment because savings derive from profits. Another reason for the assumed inevitability of “growth with inequality” was grounded in the belief that growth must inevitably result in deteriorating income distribution as people move out of “traditional” agricultural occupations into higher productivity “modern” industries. This view was substantiated by the “inverted Kuznets U curve”.<sup>165</sup>

The 1996 Human Development Report noted that inequalities on a global scale have accelerated at an alarming pace since the 1970s. A surge of unprecedented economic growth in 15 countries brought rapidly rising incomes to 1.5 billion people, more than one quarter of the world’s population. At the same time economic decline or stagnation affected more than 100 countries, reducing incomes of 1.6 billion people. These declines were also unprecedented, far exceeding in duration and some times in depth, the decline of the ‘Great Depression’ of the 1930s in the industrial countries.<sup>166</sup>

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<sup>165</sup> Levitt, Kari (1997), “The Contribution of Amartya Sen to the UNDP Human Development Reports”, Unpublished Paper, IDS Seminar, Saint Mary’s University, Halifax, Canada.

<sup>166</sup> *Ibid.*

#### 4.0.5 The Copenhagen Declaration

The Copenhagen Declaration based on ten commitments to achieving social - development, included an acknowledgement by the world leaders that more women live in absolute poverty than men. Women in this aspect can carry a disproportionate burden of the problems trying to cope with poverty, social disintegration, unemployment, environmental degradation and the consequences of war. The Declaration emphasizes that “equality and equity between women and men is a priority for the international community and, as such, must be the centre of economic and social development.” A primary component of the campaign was the recognition and empowerment of the role played by women in the process of development at all levels from political to social. The Copenhagen Summit was the international community’s most forthright acknowledgement that the issues confronted by women lie at the heart of the global agenda.<sup>167</sup>

#### 4.1 Degrees of social inequality on the basis of income distribution:

##### A missing dimension of the GDP

“Poverty reduces people’s capacity to use resources in a sustainable manner; it intensifies pressure on the environment”

(World Commission, 1987, p. 49)<sup>168</sup>

##### 4.1.1 Defining poverty in the social context

The 1997 Human Development Report defines poverty as a denial of opportunities and choices most basic to human development and which lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-respect and the respect for others. “It is in the deprivation of the lives that people can lead that poverty manifest itself. Poverty can involve not only the lack of the necessities of material wellbeing, but the denial of opportunities for living a tolerable life.” The report indicates that the contrast between human development and human poverty reflects two different ways of evaluating development. One is based on, the “conglomerative perspective”, which focuses on the advances made by all groups in each community, from the rich to the poor. This differs from the “deprivational perspective” in which development is judged by the way the poor and the deprived fare in each community.

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<sup>167</sup> United Nations: (Ed. Ahooja-Patel, Krishna), INSTRAW News: Women and Development, Special Issue, Santo Domingo, 1996, No. 24/25.

<sup>168</sup> Cited from Kendrick, Martyn and Moore, Linda (1995), Re-Inventing Our Common Future, Hamilton, Ontario, Canada, Seldon Printing Limited

It should be noted that poverty has many dimensions therefore it should not obscure the fact poverty is too complex to be reduced to a single dimension of human life. It has become frequent for countries to establish an income based or consumption based poverty line. It should be noted that although income focuses on an important dimension of poverty, it provides only a partial picture of the many ways human lives can be blighted. For example, an individual can pursue a healthy long life but be illiterate and thus may lack the capability for learning through communication and through interaction with others. Another individual may be literate and well educated yet prone to premature death due to epidemiological characteristics or physical distribution. Yet another individual may be excluded from participating in the important decision making process affecting her life. The deprivation of none of these individuals can be fully captured from the level of their income. Human poverty is multidimensional in character and diverse rather than uniform in content.<sup>169</sup>

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<sup>169</sup>United Nations Development Program (UNDP), Human Development Report: Human Development to

#### 4.1.2 Income poverty and capability poverty

“The poor are forced to forgo the needs of the future to meet the needs of today”

( Holmberg et al., 1991, p. 32)<sup>170</sup>

The 1996 UNDP Report introduced a new multidimensional measure of human deprivation, the Capability Poverty Measure (CPM), intended to complement income poverty measures and the HDI.<sup>170</sup> Rather than examining the average state of people’s capabilities, it records the percentage of people who lack basic or minimally essential human capabilities. The CPM explores the absence of three capabilities. One of the key conditions is to be well nourished and healthy-represented by the proportion of births unattended by trained health personnel; the third is the capability to be educated and knowledgeable, represented by female illiteracy. The index is noteworthy for its exclusion of “income poverty” and its emphasis on the deprivation of women adversely affects the human development of families. The CPM is derived by a simple average of these three indicators. A low score indicates the absence of capability poverty. Countries attain a high level of human capability when no children are underweight; no women give

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Eradicate Poverty, New York, (1997)

<sup>170</sup> Cited from *Ibid.*

birth without the presence of trained assistance; and no women are illiterate, as determined by a standard test of comprehension.<sup>171</sup>

A comparison with the World Bank “head count” measure of poverty shows that 37 percent of people in the developing world are capability deprived, whereas only 21 percent are below the World Bank’s income poverty line. If China is omitted, 45 percent of people lack basic capabilities. In most countries capability poverty is more widespread than income poverty. This is the case in India, Pakistan and Bangladesh. Other poor countries, including Sri Lanka, Jamaica and Cuba score well on the CPM. In some countries incomes are so low when distributed income poverty exceeds capability deprivation. This is the case in some African and Latin American countries, and also in Haiti.

Levitt notes:

The experience of countries which have largely eliminated capability deprivation with low or modest levels of GNP points to the key role of the public services offered by government. The role of private incomes and public services in developing countries lends qualified support to the view that certain components of public spending can matter greatly in enhancing human development and that they matter quite independently of what they do or don’t deliver in terms of reduced income poverty. It is the latter claim that lies at the heart of the differences in policy implication between the human development approach and the more traditional income centred approaches of development. The role of public services is especially effective in the health sector, where the study found that the contribution of economic growth lies in the extent to which increased resources support public health services, rather than the extent to which growth increases private incomes.<sup>172</sup>

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<sup>171</sup>Levitt, Kari (1997), “The Contribution of Amartya Sen to the UNDP Human Development Reports”, Unpublished Paper, IDS Seminar, Saint Mary’s University, Halifax, Canada.

<sup>172</sup> Cited from, *Ibid.*

#### 4.1.3 The socially disadvantaged

UNDP study describes “socially disadvantaged means chronically poor and that chronic poverty sustained over many years and sometimes carried from one generation to the next has a more serious effect on people than transient poverty. Further, studies of poverty that follow the progress of the same people over time show that long term poverty is more likely for certain social groups such as immigrants in Germany and African Americans in the United States. For example, in Germany the average poverty rate for German nationals is 7 percent, while for foreigners it is 18 percent. In the United States the average poverty rate for White Americans is 15 percent and for Black Americans it is 49 percent. The most common reason for falling into poverty is associated with the employment or marital status.”<sup>173</sup>

#### 4.2 **Measuring poverty**

Is it possible to target and monitor the concept of human poverty? Is it possible to define an internationally comparable measure? Can an overall measure of poverty be developed that can inform? Human poverty is larger than any particular measure, including HPI. As a definition “human poverty includes many aspects that cannot be measured or not being measured.” It is difficult to reflect them in a composite measure of human poverty. Critical dimensions of human poverty excludes political freedom, inability to participate in decision making process, lack of personal security, inability to

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<sup>173</sup> United Nations Development Program (UNDP), Human Development Report: Human Development to Eradicate Poverty, New York, (1997)



participate in the life of community and threats to sustainability and intergenerational equity.<sup>174</sup>

#### 4.2.1 Costs of poverty

The 1997 Human Development Report indicates the costs of eradicating poverty is only about 1 percent of global income and no more than 2-3 percent of national income in all but the poorest countries. Further reductions in military spending, with the savings channelled to poverty reduction and pro-poor growth, would go far towards providing the necessary resources. The costs of delaying the reduction of poverty should be measured against the costs of political conflict and instability, continuing disease and environment degradation in many parts of the world, affronts to humanity and human sensibilities. It cannot be hidden the pains of poverty, excesses of wealth and the inequalities in today's world of instant communication and growing global awareness. Reduction of poverty is a moral imperative, an attainable goal. "No longer inevitable, poverty should be relegated to history along with slavery, colonialism and nuclear warfare."<sup>175</sup>

#### 4.2.2 Human Poverty Index

The Human Poverty Index (HPI) is an attempt to bring together in a composite index the different features of deprivation in the quality of life to arrive at an aggregate judgement on the extent of poverty in a community. Human Development Report 1996 attempted this through a particular version of the "capability poverty measure". The HPI

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<sup>174</sup> *Ibid.*

pursues the same approach, focussing on a broader and more representative set of variables, in a consistent relationship to the Human Development Index (HDI).

HPI concentrates on the deprivation in three dimensions of human life: Longevity, knowledge and decent living standard. Longevity relates to survival the vulnerability to death at a relatively early age and is represented in the HPI by the percentage of people expected to die before age 40. Knowledge emphasis the world of reading and communication and is measured by the adults who are illiterate. Decent standard of living is represented by three variables the percentage of people with access to health services and to safe water, and the percentage of malnourished children under the age of five.<sup>176</sup>

#### 4.2.3

#### Degrees of social inequality

#### on the basis of income distribution Data for Nova Scotia.

One method of measuring the level of income inequality according to Statistics Canada is by means of the “Gini Coefficient”. The Gini Coefficient is a summary measure of income inequality. On the Gini scale, zero represents perfect equality of incomes (every family/ unattached individuals has the same income) while one represents perfect inequality (one family or an individual has all the income and the others have none). In most cases, a decrease in the value of the Gini Coefficient can be interpreted as a decrease in the income inequality. The coefficients demonstrate the reduction of income inequality through the degree to which the distribution of government transfer payments

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<sup>175</sup> Op.cit.

<sup>176</sup> United Nations Development Program (UNDP), Human Development Report: Human Development to Eradicate Poverty, New York, (1997)

and the levy of income tax. For example, as described in **Table 4.1** below, the Gini Coefficient for unattached individuals is reduced by 0.170 when the coefficient is based on income before transfers and is further reduced by 0.056 when moving from total money income to income after tax. These results indicates that although both cash transfers and income taxes are income equalizers, the impacts of transfers is greater than that of income taxes.<sup>177</sup>

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<sup>177</sup> Statistics Canada (1996), Income After Tax, Distribution by Size in Canada, Ottawa, Canada, Catalogue 13-210-XPB pp. 19 and 47

**Table 4.1 Gini Coefficients and Average Income (Calculated on Different Income Concepts) by Province, 1996**<sup>169</sup>

	Income before Transfers		Total Money income		Income after tax	
	Avg.	Gini	Avg.	Gini	Avg.	Gini
	\$		\$		\$	
<b>All Units</b>						
Newfoundland	28,995	0.545	38,471	0.376	31,886	0.334
Prince Edward Island	30,694	0.491	38,769	0.365	32,549	0.335
Nova Scotia	30,622	0.514	37,978	0.378	31,643	0.342
New Brunswick	31,826	0.505	39,253	0.378	32,420	0.341
Quebec	34,377	0.520	40,687	0.406	31,941	0.356
Ontario	46,142	0.481	52,284	0.398	41,579	0.359
Manitoba	36,504	0.482	42,414	0.380	34,657	0.341
Saskatchewan	35,493	0.494	41,332	0.393	32,906	0.348
Alberta	42,432	0.456	47,141	0.386	38,345	0.351
British Columbia	41,221	0.499	47,108	0.414	37,746	0.373
Canada	40,136	0.498	46,272	0.403	36,946	0.362
<b>Families</b>						
Newfoundland	33,479	0.496	43,564	0.335	35,955	0.292
Prince Edward Island	38,364	0.420	47,414	0.303	39,623	0.270
Nova Scotia	37,229	0.454	45,087	0.331	37,400	0.293
New Brunswick	38,339	0.446	46,284	0.330	38,074	0.281
Quebec	44,134	0.441	50,935	0.344	39,727	0.290
Ontario	56,044	0.421	62,614	0.346	49,653	0.304
Manitoba	46,014	0.409	52,132	0.325	42,393	0.283
Saskatchewan	44,646	0.424	50,847	0.337	40,279	0.289
Alberta	52,654	0.393	57,735	0.330	46,793	0.294
British Columbia	52,731	0.425	59,440	0.348	47,421	0.305
Canada	49,988	0.431	56,629	0.347	45,032	0.303
<b>Unattached Individuals</b>						
Newfoundland	11,346	0.699	18,428	0.385	15,873	0.330
Prince Edward Island	14,256	0.581	20,240	0.358	17,390	0.318
Nova Scotia	14,697	0.599	20,844	0.367	17,764	0.319
New Brunswick	13,833	0.600	19,827	0.362	16,799	0.311
Quebec	16,560	0.607	21,976	0.396	17,724	0.331
Ontario	21,717	0.547	26,804	0.399	21,665	0.343
Manitoba	17,211	0.547	22,698	0.348	18,960	0.295
Saskatchewan	17,305	0.553	22,425	0.374	18,257	0.309
Alberta	21,850	0.496	25,810	0.372	21,334	0.326
British Columbia	21,401	0.547	25,873	0.305	21,084	0.351
Canada	19,362	0.563	24,433	0.396	19,893	0.340

Source: Statistics Canada (1996), *Income After Tax, Distribution by Size in Canada*, Ottawa, Canada, 13-210 XPB

<sup>169</sup> *ibid*

The Gini Coefficient indicates that between 1980 and 1994, inequality measured on income before transfers increased more than total income inequality (after transfers and before taxes), while after tax inequality remained relatively stable. Periods of increasing inequality corresponded with economic downturns, while the recovery of the late 1980s led to a reduction in income inequality. Since 1994, however, for all income measures inequality has edged upwards including after tax income. These conditions are relatively similar in Atlantic Canada. Transfers and taxes have kept income inequality in check over time. Since 1980, economic downturns saw the gap in incomes before transfers and taxes grow significantly between high and low income families. As families experienced reduction in pre-transfer income as a result of reduction in earnings from job losses, the evidence indicates that lower income families were hit the hardest. The recession of the early 1980s and 1990s produced similar results. The recovery of the late 1980s, reduced the gap, as lower income families recorded the largest percentage increases in earnings. Statistics Canada notes:

However, the inequality was not enough to counter the inequality increases associated with the 1981-82 recession and so the level of inequality in 1989 was still above the level in 1980. The result was a trend to greater pre-transfer, pre-tax income inequality between 1980 and the early 1990s. After transfers and taxes, however, there was virtually no increase.

The data for the most recent recovery indicates a possible disconnection with the pattern of longstanding stability in after tax inequality. Besides a one-year reduction in 1994, pre transfer inequality has increased. Lower income families have not benefited from the latest advances in earnings to the same degree that they did during the recovery of the late 1980s. At the same time, transfer payments have declined as a proportion of total income.

While reductions are common during the economic upswings (since the need for government assistance is less), the most recent declines in transfers were also influenced by program restructuring. As a result, transfers and taxes did not entirely counter an increase in pre-transfer inequality, resulting in a rise in the 1996 after tax income inequality in Canada affecting the Atlantic Provinces as well.<sup>179</sup>

### 4.3 Conclusions

Poverty reduction must include some form of redistribution of economic, social and political resources though some times it faces vigorous opposition. Any strategy (see below) to eliminate poverty must be explored in the context of vested interests which are being occupied by various groups of that society.<sup>180</sup>

#### 4.3.1 Vested interests in perpetuating poverty

Most often poor people are being seen as a burden on society. “Yet, poverty often serves the vested interests of the economically powerful, who may depend on poverty stricken to ensure that their societies run smoothly.” For example a mobile pool of low paid and unorganized workers is useful for doing the “dangerous, dirty and difficult” work that others most likely would not do. Further it could be pointed out that in many industrial countries’ occupations which are considered menial are being held by legal and

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<sup>179</sup>Statistics Canada (1996), Income After Tax, Distribution by Size in Canada, Ottawa, Canada, Catalogue 13-210-XPB

<sup>180</sup> United Nations Development Program (UNDP), Human Development Report: Human Development to Eradicate Poverty, New York, (1997)

illegal immigrants. Most of these workers do not have any form of legal protection or opportunity for collective action, most of these workers are often exploited and receives wages far below the minimum wage level. The Poor can also be politically convenient. In some countries they serve as scapegoats for the ills of the society, as immigrant workers do in Europe and North America. But they can also serve as useful pool of voters for politicians who claim to serve their interests even if they never consult them.<sup>181</sup>

#### 4.3.2 What the 1997 Human Development Index (HDI) reveals

Since 1990 the Human Development Report offered the Human Development Index to capture as many dimensions as possible in one composite index and to produce a ranking of achievements in human development. It should be noted that the concept of human development is far deeper and richer than what can be captured in any composite index or even by a detail set of statistical indicators. Yet HDI makes the assumption that it is useful to simplify the complex reality and it makes an attempt to do so. It indicates for example that in developing countries as a group, human poverty affects more than a quarter of the population. Poverty is most pervasive in Sub Saharan Africa and in South Asia which has the highest incidence in both income poverty (by the \$1 per day poverty line) and human poverty at about 40 percent. The incidence of human poverty in Sub-Saharan Africa is 42 percent and that of income poverty 39 percent. In South Asia human poverty is 38 percent. The cause for greatest concern for Sub Saharan Africa is that

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<sup>181</sup> *Ibid.*

poverty is increasing both in proportion and in absolute numbers and the increase is occurring in both human poverty and in income poverty. HDR notes:

face of income poverty is rapidly changing. Today a poor person is more likely to be African, to be a child, a woman or an elderly person in an urban area, to be landless, to live in an environmentally fragile area and to be a refugee and to be a refugee or a displaced person.<sup>182</sup>

South Asia is also home to two fifths (515 million of 1.3 billion) of the income poor of developing nations and almost half of those in human poverty. East Asia, South East Asia, South Asia and the Pacific combined account for 960 million of the 1.3 billion income poor in developing countries and more than two thirds of the people in human poverty.<sup>183</sup>

#### 4.2.2 The costs of poverty eradication

Many claim that poverty eradication could not be achieved. "In a world economy of \$25 trillion this argument is patently false." The additional cost of achieving basic social services for all developing countries is estimated to be \$40 billion a year over the 10 years to 2005. This is about one percent of developing country income less than 0.2 percent of world income. UNDP report notes that most of the sources could be allocated

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<sup>182</sup> United Nations Development Program (UNDP), Human Development Report: Human Development to Eradicate Poverty, New York, (1997)

<sup>183</sup> *Ibid.*



from restructuring the existing budgets. For universal access to basic social services, \$30 billion could be allocated national budgets and perhaps 410 billion from aide.<sup>184</sup>

In order to provide universal access to basic social services and transfers to alleviate income poverty would with efficient targeting costs roughly \$80 billion. That is less than the combined net worth of the seven richest men in the world. "Poverty can be sustainably eradicated only through pro-poor growth, not through transfers. And most countries have more than enough to generate the resources needed to eradicate income poverty and to provide basic social services for all. Lack of political commitment, not financial resources, is the real obstacle to poverty eradication. Eradicating absolute poverty is eminently affordable."<sup>185</sup>

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<sup>184</sup> Op.cit.

## Chapter V

### Environmental Indicators

“[Development must focus on] human potential and the sustainable management, restoration, and enhancement of ecosystems on which all economic systems rely.”  
- Hazel Henderson <sup>186</sup>

#### 5.0 Introduction: The Environment and Development

There is a phenomenal importance about the debate on environment and development at the local, national and global levels. The texture and tone of the debate have undergone considerable change with the flux of time. The Cartesian view of human being the controller of nature had generated an economic system, whether capitalist or socialist, which exploits nature to produce more and more goods and services to meet the material needs of homo sapiens. The exploitation of nature to a point where survival of human race was jeopardised, emerged as a result of the pursuit of this approach to development.<sup>187</sup> As Mukherjee and Agnihotri notes the importance of environmental considerations in the process of development:

The functions of the environment can be impaired or enhanced by society and may, therefore, constitute a constraint or a potential for the achievement of the basic goals of development. Hence the mutually

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<sup>185</sup> Op.cit.

<sup>186</sup> Cited from, Kendrick, Martyn and Moore, Linda (1995), Re-Inventing Our Common Future, Hamilton, Ontario, Canada, Seldon Printing Limited

<sup>187</sup> Mukherjee, Amitava and Agnihotri, V.K. (1993), Environment and Development (Views from the East and the West, Shastri Indo-Canadian Institute.

dependent relationship between environment and development be fully and explicitly taken into account in any development strategy.

During the first stages the question asked and solution sought revolved around the issue of whether to have development and to neglect environment or preserve environment and foreclose development. Development progress became inevitable while preserving environment, ecology and bio-diversity at a “warranted” level was paramount. Therefore the debate transformed itself into how best to have development without further injury to environment. “From this crucible two approaches emerged to tackling the problems of environmental degradation and prospects of development from two polarised perspectives the Northern and Southern perspective.”<sup>188</sup>

The 1998 Human Development Report: Changing Today’s Consumption Patterns for Tomorrow’s Human Development, explains that when the links are often broken-down, consumption patterns and trends are hostile to human development. The environmental resource base has been undervalued by today’s consumption patterns. It is exacerbating inequalities while the dynamics of the consumption-poverty-inequality-environment nexus are accelerating. If the existing trends continues without change for example by not redistributing from high income to low income consumers, not shifting from polluting to cleaner goods and production technologies, not promoting goods that empower poor producers, not shifting priority from consumption for conspicuous display

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<sup>188</sup> *Ibid.*

to meeting basic needs today's problems of consumption and human development will worsen.<sup>189</sup>

#### 5.0.1 Northern and Southern views

The North pointed out that establishing environmental priorities involves trade-offs by developing countries of the South. Further, North indicated that the developing countries in the South should change their behavioural patterns in order to accomplish environmental management. Two sets of policies are seen as critically important. Policies should be geared towards harnessing the positive links between environment and development, while policies that are not oriented towards both growth and the environmentally friendly should be eliminated. The debate on environment and development as it has evolved in the North explores the inter-link between development and environment from two perspectives. Environment quality itself being a part of the improvement in welfare which development in the final analysis attempts at, and damage to the environment can undermine present and future growth productivity, which again a part of development. It is in this context that the complementarity between policies directed to improve and preserve environment, and toward accomplishing development are focussed.<sup>190</sup>

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<sup>189</sup> United Nations Development Program (UNDP), Changing Today's Consumption Patterns for Tomorrow's Human Development, New York, (1998)

<sup>190</sup> Mukherjee, Amitava and Agnihotri, V.K. (1993), Environment and Development (Views from the East and the West, Shastri Indo-Canadian Institute.

The South pointed out that much of the blame for environmental problems present and potential has been directed towards the doorstep of population growth. There is an insufficient understanding in the North about two important dimensions of population growth. The bearing that the “locale” of the population growth has on the issues at hand and the fact that all environmental problems currently recognised as being due to population growth is not based on irrefutable arguments.<sup>191</sup>

It is evident that the environmental impact of one unit of population growth in the high income developed countries of the North far outstrips the impact of one unit of population growth in the low income developing countries of the South. “Nine thousand out of every ten thousand births in the world would occur in the next decade in the developing countries, but every thousand baby born in the developed industrialised world consume three to four times as much of the earth’s resources as 9000 born in the developing world.” That is, every 1000 babies born in the developed countries in the North impose on the earth’s carrying capacity a burden equivalent to that imposed by 36,000 babies born in the South. The North should take note of this massive disparity in the consumption of resources as being incompatible with sustainable development. The United States besides being the world’s worst polluter is also consumes most of the resources and releases 21% of CFCs in to the atmosphere.<sup>192</sup>

The South also argues that the two basic causes which perpetuates poverty in the developing countries namely international trade and international debt have largely escaped the debate. As Mukherjee and Agnihotri describes:

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<sup>191</sup> *Ibid.*

The Southern countries are reluctant to believe that the North, primary purveyors of the third world debts, should have exhibited supposed unawareness of the phenomenon that third world countries contribute 300 percent more financially (alone) to the North through debt repayments than what they were receiving through aid, and of the resultant environmental implications. The bulk of these on the original loans, now up to 400 percent higher than what they were when they were originally contracted. The contribution of huge foreign debts to environmental plunder, "ethocide" and the widespread impoverishment can hardly be denied.

To the poor of the South, who are struggling to ensure their daily survival, it hardly matters whether their problems are due to depletion of the ozone layer or the distinct possibility of exhaustion of natural resources in their environment.<sup>193</sup>

#### 5.0.2 Common grounds

There is an unanimity that economic development and environmental management are necessary conditions for sustainable development. There is a general understanding of the depressing phenomenon that over one billion people around the world are in abject poverty, and the next generation will see the world's population rising to 3.5 billion. What is most fearsome is that most of these births will be in poorer families, which makes alleviating poverty not only a moral responsibility of the current generation but also a necessary condition for environmental sustainability of this earth and for leaving intact the very basis of future generations' welfare."<sup>194</sup> The 1998 Human Development Report notes:

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<sup>192</sup> *Op.cit.*

<sup>193</sup> Mukherjee, Amitava and Agnihotri, V.K. (1993), Environment and Development (Views from the East and the West, Shastri Indo-Canadian Institute.

<sup>194</sup> *Ibid.*

The 20<sup>th</sup> century's growth in consumption, unprecedented in its scale and diversity, has been badly distributed, leaving a backlog of shortfalls and gaping inequalities.

Economic growth is an integral part of progress in developing nations. However, growth achieved at the cost of depleting the natural resources and injuring the environment through air and water pollution, growth in the real sense of the concept could be lower than what the figures reveal per se and such growth does not have welfare effect<sup>195</sup>, and neither sustainable nor worth sustaining.

### 5.0.3 The Resolution

It is evident the North and the South have more differences than commonality. An understanding of each-sides views are essential in accomplishing sustainable development around the world. A resolution is an absolute necessity particularly where environmental issues are inter-linked to poverty and population that can be resolved only through a dialogue between the North and the South. "In real life situation, it is perhaps easy to remove poverty in the South than to persuade the North to reduce their consumption. The dialogue should aim at a new life style which ensures limiting material growth within the boundary conditions set by ecology, environment and resources."<sup>196</sup>

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<sup>195</sup> Op.cit.

<sup>196</sup> Mukherjee, Amitava and Agnihotri, V.K. (1993), Environment and Development (Views from the East and the West, Shastri Indo-Canadian Institute.

#### 5.0.4 Rio Declaration on Environment and Development

The Rio Declaration states that the only way to have long term economic progress is to link it with Environmental Protection. The Rio Declaration on Environment and Development contain 27 principles defining the rights and responsibilities of nations as they pursue human development and well being. The 27 resolutions helped establish a dialogue between the highly industrialized society on the one hand and the developing society on the other. The problems faced by these two societies in respect of development are the same, one believing in the investment of more capital and earn more profit, while the developing nations, in order to improve their standards of living, invest more to produce greater amount of food to feed their millions of populations adequately. The import of the two societies on environment are slightly different where one is much more concerned with the air pollution, acid rain, depletion of ozone and the green house effect. The other is much more concerned with the land degradation and water pollution. This illustrates that these problems are only a question of priorities of the two societies.<sup>197</sup>

The United Nations Environment Programme in its treatise *Choosing the Options* (1980) indicated that the sustained economic and social development of growing population requires an expanding utilization of natural resources and the environment. It is, therefore, of utmost importance to understand the interactive physical, chemical and biological processes that regulate the total earth system, the unique Environment that it provides for life, the changes that are occurring in this system and the measures to manage it.

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<sup>197</sup> Mukherjee, Amitava and Agnihotri, V.K. (1993) "Environment and Development (Views from the East and the West "Shastri Indo-Canadian Institute.



in which they are influenced by human activities. Developed countries increased reliance on the developed world to fulfill the developed countries rising level of production and consumption and the evolution of their high technology and life-styles, have led to the demand for raw materials with an increasing reliance on imports from the third world. Developed countries have begun to experience an increasingly serious problem of degradation of the environment with negative effects on the quality of life, and their production and consumption pattern is posing major threat to the biosphere. These threats to the environment and the conditions have not been confined to national boundaries but have been extended to other developed and as developing countries and the world as a whole.

On the other hand, the Scenario of the developing countries in respect of their natural resources is that they depend on the developed countries and export to them their primary commodities. Minerals, oil and products of many industrial crops are imported by the developed countries. In this regard, the resource-based industries involving its practices, technologies and investment have a close bearing on environment as well as on development of these countries. The acquisition of technology, the creation of new transport and communication, marketing, industrialization and financial systems, are all parts of the development process. Increasing food production by applying new technologies, in view of the rising population, is an important development process of the developing countries. All the processes that have been mentioned, have a direct effect on environment and is a part of the environment.<sup>198</sup>

The dynamics of the developed countries is based on intensive technological innovation and is highly capital and energy intensive. It will thus be seen that the development process in developing countries is born out of great necessity in view of the high rate of population growth, unemployment and underemployment.

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<sup>198</sup> *Ibid.*

<sup>199</sup> *Op.cit.*

employment and the general poverty scenario. In the process of quick development, the environment comes under stress and gives rise to problems of land, water and air pollution. The life style that prevails in developed countries, the massive consumption pattern brings the environment under stress giving rise to the green house effect, acid rain and ozone depletion. The developing countries in the process of growth and development through their primary export activities are subjected to the depletion of the higher grade and best located non-renewable natural resources and the deterioration of renewable resources such as forests and marine resources.<sup>199</sup>

It is evident that a wide range of environmental issues poses serious problems to society. It is also apparent that, at Rio and elsewhere, policy changes have been inadequate even to prevent the problems getting worse. In part, the muted response has resulted from different interpretations and interests, but a major factor has been the plethora of pressure groups and value positions. In parallel with work on scientific, technical and political aspects of environmental issues, the environmentalists need to be more explicit about the values that inspire them. It is simply not good enough to let media debates rest on the dualism 'deep green versus shallow', especially when it is strongly implied that the former are 'wrong but romantic' and the latter 'right but repulsive'. In solving environmental problems economics should be the means rather than the end.<sup>200</sup>

In the North there is a tendency to perceive economic growth and environmental protection as mutually compatible, not contradictory goals of policy. It is evident that environmental quality has become an integral part of the quality of life in the North. The largest and most technically advanced environmental markets have developed

comprehensive environmental regulations. In marked contrast the problems in the developing countries stem from underdevelopment and poverty. This was an underlying theme of the Brundtland Report.<sup>201</sup>

#### 5.0.5 Agenda 21

Agenda 21, is a blueprint on how to make development socially, economically and environmentally sustainable. It explains that the primary driving forces of environmental change are the population, consumption and technology. The role of social and environmental indicators became a focus of attention after the UN Conference on Environment and Development (UNCED) in Rio de Janeiro, 1992. New measuring rods, the subject of hot debate over the past decade, are now emerging. The United Nations Commission on Sustainable Development (UNCSD), formed to follow up on the implementation of Agenda 21, will monitor efforts to integrate sustainability criteria and data into national accounting, corporate balance sheets and economic theory under the expert eye of Nitin Desai, the United Nations new Undersecretary General for Policy Coordination and Sustainable Development. Such panels on statistical instruments, for better or worse, guide governments, enterprises, institutions and, when amplified in the mass media, most societal decisions.<sup>202</sup>

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<sup>200</sup> Mukherjee, Amitava and Agnihotri, V.K. (1993) "Environment and Development (Views from the East and the West "Shastri Indo-Canadian Institute.

<sup>201</sup> *Ibid.*

<sup>202</sup> United Nations Development Program (UNDP), Human Development to Eradicate Poverty, New York, (1997)

#### 5.0.6 Rio Plus Five

The commitments made at the United Nations Conference on Environment and Development (UNCED) in 1992, encapsulated in Agenda 21, provides equal weight to poverty and environment, while recognizing the intrinsic relationship between the two in the context of sustainable development. Agenda 21 identifies that a specific antipoverty strategy is one of the basic conditions for ensuring sustainable development. Unfortunately this form of emphasis on poverty has been lacking from the global mechanisms established to implement Agenda 21. Further more, the UN Commission on Sustainable Development which involves the monitoring process of Agenda 21, has not made poverty a theme of its agenda. Meanwhile, the Global Environment Facility, the financing mechanism for meeting the global environmental goals of Agenda 21, is not geared to investigate the poverty-environment relationship. UN Commission on Social Development should be credited for making poverty as the central theme. Yet, it fails to recognize eradication of poverty in the context of its relationship to environmental protection and sustainable use of resources. This flow must be recognize and repaired. Global policies and mechanisms, bilateral and multilateral financing criteria and national policies and budgets should be allocated to promote the welfare of the poor especially those who derive their livelihoods from natural resources. It is important to redress the absence of the need to reduce poverty in the practical application of Agenda 21.<sup>203</sup>

## 5.1 Omission of Natural Resource Accounting

Rio's Agenda 21 commits all 178 signatory countries to expand their national statistical accounts by including both environmental factors and unpaid work. Forests, biodiversity, wildlife, fresh water, soil and other natural resources clearly have economic value and are essential for development and for human survival. They are economic assets because they can generate future income. Yet under current national income accounts methods, natural resource assets are not valued as productive assets and depreciated over-time as are assets such as machinery and equipment. National budgets and other annual audits seldom consider the value or the depletion of natural resources. The standard national income accounting framework used by all market economies for economic forecast and analysis fails to distinguish between the creation of income and the destruction of natural resource assets.<sup>204</sup>

The gross discrepancy between how we measure economic activity and how we appraise the use of natural resources that ultimately sustain the economy often results in a distorted view of economic health, and sends misleading signals to policy makers. It is indeed ironic that when we destroy forests, bio-diversity, deplete the fertility of croplands, and pollute air and water income as measured by the Gross Domestic Product (GDP) shows an increase. The lack of natural resource accounting supports and appears to validate the notion that rapid economic growth can be realized and sustained by

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<sup>203</sup> United Nations Development Program (UNDP), Human Development to Eradicate Poverty, New York, (1998).

<sup>204</sup> Corson, Walter H. (1990), What You Can Do About the Environmental Crisis, The Global Ecology Hand Book, Beacon Press, Boston.

exploiting the natural resource base; the result is deceptive gains in current income at the expense of permanent losses in a nation's wealth. In short, we fail to view our natural resources and environment as productive capital, even though we use them as such, and we are rapidly consuming our natural resource capital instead of living within the income derived from it.<sup>205</sup>

The problems associated with natural resource degradation and its omissions in the conventional accounting systems has resulted in misleading economic accounting which is widespread and endemic to economic systems in developed and developing countries alike. For example in Germany, the estimated cost of forest damage from acid deposition is approaching \$3 billion a year; in the United States, soil erosion may result in yearly costs of more than \$6 billion, and water pollution is estimated to cost over \$20 billion each year, yet none of these figures are currently subtracted from the Gross Domestic Product.

Since 1960, the Philippines has cut 90 percent of its old growth hardwood forests, thus losing a resource that could have produced substantial annual income. Timber exports were the country's leading source of foreign exchange during the 1960s; they have since fallen sharply as Philippine forests have been depleted. The country will face a trade deficit in the coming decade, and now must cope with heavy runoff and flooding from deforested watersheds that damage irrigation systems, food production, and fisheries. Brazil has spent billions of dollars to encourage cattle ranching in the Amazon, despite evidence that it is neither ecologically nor economically viable; to support iron

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<sup>205</sup> *Ibid.*

production that can break even only by consuming 70,000 acres of forest each year; and to plan dams that would flood vast areas of forest but produce power costing more than twice that of alternative energy saving investments. Such projects are clearly environmentally destructive, but the irony and unrecognized tragedy is that they are also economically destructive. Studies in Brazil and Peru indicate that net-revenues from long term harvesting of non-timber forest products such as rubber oils, resins, nuts and fibers are two to three times greater than from commercial logging or clearing a forest for cattle ranching.<sup>206</sup>

The first step toward including natural resources in national income accounts is to estimate values for these resources and for the services they provide. Using Indonesia's timber, soil and petroleum resources, World Resource Institute (WRI) study has developed methods to integrate resource depletion into their economic analyses. Canada, Netherlands, Japan and the United States are developing quantitative measures of pollution and environmental quality. Economist Robert Repetto of WRI observes that "no single innovation would so powerfully demonstrate that steps to protect the environment are in countries' own economic interests." This innovation in accounting would also go far toward enabling individual enterprises to institutionalize growing concern for environmental quality and natural resource management.<sup>207</sup>

Inclusion of natural resource accounting is paramount in the governing process it would provide the ability to conserve natural resources, protect the quality of life, and

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<sup>206</sup> Corson, Walter H. (1990), What You Can Do About the Environmental Crisis, The Global Ecology Hand Book, Beacon Press, Boston.

<sup>207</sup> *Ibid.*

move toward sustainable development. As indicated earlier, economic, social and ecological systems do not work in discrete sectors such as energy, industry and agriculture. Problems with air, water and soil pollution effects many sectors and need to be addressed broadly. Many of these problems are not addressed or made worse by fragmentation of responsibility between sectors. Ecological, economic and social issues need to be integrated. For example the goal of preventing environmental degradation should be shared by all sectors.

As natural resource accounting becomes part of the governing process and the national accounting system, all government agencies will be able to develop clearer ideas of the relative cost of pollution damage and resource degradation, the expense of repairing damage after it has occurred, and the savings from preventing damage. Such cost estimates could be used to help develop ways to “internalize” both the high cost of repairing current and future damage the ‘polluter pays” principle, and the lower cost of prevention the “pollution prevention pays” concept used successfully by some chemical manufacturers.<sup>208</sup>

National resource accounting by governments could be coupled with the development of improved governmental foresight capability, to allow the assessment of long term costs and benefits, for all economic, social and environmental sectors, of policies to protect natural resources and environmental quality in order to move towards a genuine human progress. These assessments would be directly linked to current decision making. Environmental objectives should become part of tax policies, policies affecting

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<sup>208</sup> Op.cit.



investment in research and development, and foreign trade incentives. Special attempts should be made to ensure that environmental goals become part of both national and the private sector policies that affect the pricing of goods and services. Economic activities must account for the environmental costs of production, and environmental goals should be an integral part of economic policy.<sup>209</sup>

Economic incentives could enhance the efficiency of resource management. When resources are priced to reflect the cost of extracting as well as increasing their supply, resource management could be improved. When resources are priced to improve the cost of minimizing environmental harm resulting from their production and processing, the expense of environmental protection can be covered. One of the examples of how pricing can affect resource usage is the effect of OPEC oil price increases in the 1970s on energy consumption. In the United States the total energy use dropped by two percent between 1972 and 1983 even though US GDP increased significantly, the efficiency of US energy use during the period increased by one third.

Apart from the benefits derived from the economic incentives, essential gains can be achieved through improving the management of natural resource use and environmental protection, particularly in the developing world. Improvements can include increased employment opportunities through appropriate technical personnel, information systems, and legal and administrative means to plan and guide resource use. In order to be effective, any such resource management program must involve, in both planning and implementation, the people and groups that are directly affected. Usually,

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Central governments and large organizations are generally unaware of local needs, skills, preferences; yet these factors are often the key to successful resource management. According to the United Nation Population Fund, a characteristic of many successful projects around the world dealing with population and resource based problems is that the power to control key decisions affecting their livelihoods were given to local communities or interest groups.<sup>210</sup>

#### 5.1.1 Degradation of marine resources: Fisheries

Number of the world's major ocean fisheries yields have leveled off or are declining, and some have collapsed due to over fishing. Some species have depleted to near extinction due to excessive harvesting of whales.<sup>211</sup> Protecting our ocean and coastal resources is of fundamental importance towards sustainability. As Carleton Ray notes:

The coastal zone may be the single most important portion of our planet. The loss of its bio-diversity may have repercussions far beyond our worst fears.

The earth is largely a water planet, oceans covering more than seventy percent of the planet's surface. It contains some of the earth's most complex and diverse ecosystems. Recent studies indicate that the oceans contain animal life that rivals tropical forests in its diversity of species. Of the world's 71 phyla (group of life forms), 42

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<sup>209</sup> Op.cit.

<sup>210</sup> Corson, Walter H. (1990), What You Can Do About the Environmental Crisis, The Global Ecology Hand Book, Beacon Press, Boston.

<sup>211</sup> *Ibid.*

include marine species, while only 28 contain land species. Marine species play a central role in the biological, chemical and physical cycles on which all life depends.<sup>212</sup>

Besides providing a home to a vast array of plants and animals, the oceans also supply people with food. Over half the population of developing nations obtains 40 percent or more of their total animal protein from fish. In the United States alone, seafood represents a \$10 billion industry. The oceans are also a store-house of mineral wealth and a potential source of energy. In addition, they influence weather patterns and stabilize climate around the world. It is evident that the present harvest of marine species is dangerously high, given their limited ability to reproduce and the environmental mismanagement placed on these vital resources which are essential for human survival. These mismanagement methods include the over fishing, serious pollution from industrial, municipal and agricultural sources, oil spills, the dumping of toxic wastes, and the destruction of rich coastal ecosystems by the development of seashore regions.<sup>213</sup>

From a global perspective of the nearly 20,000 known species of fish, about 9,000 are currently harvested. However only 22 species are regularly caught in significant quantities. Nearly two thirds of the annual catch includes six groups containing herrings, cods, jacks, redfishes, mackerels and tunas. Between 1950 and 1970, the world fish catch rose by 7 percent annually, more than tripling from 21 million to 66 million metric tons. This steady increase is the result of technological advances in the fishing equipment. In 1972 the world's fish catch dropped over six percent due to the collapse of the Peruvian

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<sup>212</sup> *Op.cit.*

<sup>213</sup> *Op.cit.*

anchovy fishery. During the next decade the fish catch increased about two percent a year, reaching 77 million in 1983. Since 1983, the fish catch has increased by four percent annually, reaching 91 million metric tons in 1986. Although the world fish catch grew substantially between 1983 and 1986, much of the gain was in low value species used for animal feed and conversion to fish-meal rather than in the more desirable high value species. At the same time these world totals do not include the estimated 24 million metric tons caught annually by local fishers for private use or sale in their communities. Out of the total marine harvest, a third is used to feed animals and fertilize croplands.<sup>214</sup>

#### 5.1.2 Commercial fish exploitation in Nova Scotia

Atlantic Canada is strategically located adjacent to some of the world's most resourceful fishing grounds. Historically, fisheries have played a pivotal role in regional development. The Region provides habitat for large populations of a wide variety of seabirds, shorebirds, marine mammals, and commercially vital finfish and shellfish. The coastal is also a favored habitat for humans. Many settlements were established near the coast since traditionally there was a dependence on waters for transportation, food and recreation. One of the motives for the original explorations of Atlantic Canada in the 16<sup>th</sup> century was the abundance of fish on the offshore banks. The traditional fisheries were for groundfish: cod, pollock, haddock, halibut and plaice. The settlers built weirs in rivers to catch salmon. Eels and alewives, migrating up or down stream. Some of these hunting pressures were excessive. Whales have yet to recover; the great auks, slaughtered for

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<sup>214</sup> Op.cit.

their fat and feathers, are now extinct. The scale of the fisheries off eastern Canada has expanded greatly since the 1950s, in the number and size of the ships, and the size of the overall harvest. Groundfish catch rates increased in 1965 and have gradually declined. The harvest for redfish, carried on since the 1930s, has increased in intensity. Coastal waters are also the recipients of the wastes for many residences, institutions and industrial processes. Approximately half of all major industrial effluents discharged in the Atlantic Provinces enter directly into estuaries or the sea. Perhaps the most obvious consequence of this misuse of the coastal zone is the closure for shellfish harvesting, due to contamination by municipal sewage, and agricultural and industrial wastes, of most of the productive estuaries of the Region.<sup>215</sup>

Today a diminishing fish resource base threatens the economy and social structure. Depletion of the fish stock is the result of a combination of factors, and the management challenge to restore and maintain a sustainable fishery is a demanding and complex task. Fish populations are affected both by fishing practices as well as by naturally occurring environmental factors. Both of these factors are spatially and temporally variable. For example, fishing pressure is a function of both the spatial and temporal intensities of effort which depends on fishing practices and technology. Fluctuations in the physical environment add uncertainty and variability to the management problem. Managing a sustainable fishery requires searching for alternative approaches to identify and respond to both natural and human made factors.

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<sup>215</sup> Eaton, Peter B., Gray, Alan G. and Hundert, Eric (1994), State of the Environment in the Atlantic Region, Environment Canada, Atlantic Region.

The vital role of the fishery to the region's economy can be demonstrated by the 65,000 permanent and 33,000 seasonal employment opportunities it has provided in the fish processing sector. Total production was valued at \$2.2 billion in 1988. The total catch for all species was about 1.3 million metric tonnes. Dependency on the fishery varies by province, however one quarter of all Atlantic Canadians live in small fishing communities. (With populations under 1000 residents.) Nova Scotia fisherman, on average, earn the highest annual incomes of all fisherman in the region. (grossing over \$28,000.)<sup>216</sup>

In 1989 (and continuing into 1992), the Atlantic fishing industry began to face serious problems, largely as a consequence of overcapacity (the capability to catch and process too many fish), groundfish stock declines and weakened export markets. Fish plant closures occurred in every province, while many fisherman, due to reduced quotas and lower prices, struggled to meet escalating operating costs. At the present time economic pressures, however, compel many small boat operators to venture further from port, and some vessels are fishing 100 nautical miles or more from land.<sup>217</sup>

The intent of recent management measures was to limit fishing pressures on declining resources. Unfortunately, dramatic increases in harvesting capacity (fishing power) of existing vessels have resulted in far reaching ramifications on both the resource and the fishing industry. Especially, since the 1978, the trend towards replacement of smaller, less powerful vessels with larger, more sophisticated, higher capacity and higher powered vessels, intensified the race for fish. At the same time the need to be able to

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<sup>216</sup> *Ibid.*

make high boat loan payments, combined with higher fuel and maintenance costs, has led to increased fish harvesting. This in turn has led to earlier closure of specific fisheries (when quota limit are reached) and a tendency toward illegal fishing and misreporting. Most Atlantic Canada groundfish stocks are at the lowest levels. Declining in catches and biomass have occurred throughout the 1980s and 1990s. Various stocks (such as cod, haddock and flatfish) are in a very precarious position. Several factors have influenced such as fishing mortality more than F0.1 recommended levels, foreign over fishing, highgrading and discarding by domestic fishermen, predation and competition from seals, and environmental conditions that are limiting stock recovery in many areas where conservation measures have been initiated.<sup>218</sup>

### 5.1.3 Depletion of fish stocks Atlantic Canada

The yields of some major fisheries, especially in the North Atlantic, have leveled off or are at the point of declining. A study indicated that the stocks of four fisheries in the Northwest Atlantic had been depleted and nine others were described as “fully exploited” (Which often means over fished), with their yield reduced below their biological maximum. Since 1982, North Atlantic yields have averaged less than 14 million tons a year, below the peaks of around 16 million tons in the 1970s.

Apart from the Peruvian and North Atlantic fisheries (which included the collapse of the Newfoundland’s codfish), other fisheries that have collapsed or declined due to over exploitation include the California sardine, North sea cod, Alaskan pollack, and the

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<sup>217</sup> Op.cit.

South African pilchard and anchovy fisheries. When Over harvesting of a particular fishery is followed by its collapse, the chances for eventual recovery to earlier yields may be rare as the Peruvian anchovy collapse demonstrates. In the case of the Peruvian anchovy fishery, the harvest more than tripled between 1969 and 1970, reaching at more than 13 million tons in 1970 before collapsing to less than 2 million tons by 1973 and remaining below 2 million until 1986. According to analyst Roger Revelle, the collapse was largely due to both over fishing and climatic disturbances that followed an abnormally warm El Nino current in 1972.<sup>219</sup>

#### 5.1.4 Depletion of the fish stocks in Asia Pacific

According to the 1987 FAO report on World Fisheries, the time of spectacular increases in fish harvesting is over since almost all important stocks of demersal species are either fully exploited or over fished on many of the stocks of the more highly valued species are depleted. Furthermore, reef stocks and those of estuaries and littoral zones are under threat from illegal fishing and environmental pollution. It is possible that in the years to come, the implications of over fishing will be felt regionally in the areas where over fishing and pollution combine to reduce the catch. FAO (1989) indicates that the fisheries resources in the Gulf of Thailand and the Straits of Malacca have been over exploited for years. In Malaysia, the depleted inshore resources are incapable of meeting

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<sup>218</sup> Eaton, Peter B., Gray, Alan G. and Hundert, Eric (1994), State of the Environment in the Atlantic Region, Environment Canada, Atlantic Region.

<sup>219</sup> Corson, Walter H. (1990), What You Can Do About the Environmental Crisis, The Global Ecology Hand Book, Beacon Press, Boston.



the growing demand for fish. Similarly, in India the scope for further increases in production from a 0-50 metre depth area has become limited. In fact, according to the FAO (1989) it appears to have reached or have exceeded the estimated potential in all areas of the country except in the north-east. In the Pacific as local fisherman go further and deeper to ensure an adequate catch of fish, it has resulted in a overlap between artesanal and commercial fishing which also has increased. As the subsistence fishery sector is of vital importance to the nation this problem is a growing concern. In many cases the depletion has affected many species in the region which has been over fished. For example, the production of both penaeid and non-penaeid shrimp/prawn in South East Asia declined during the 1977-1985 period as a result of the full harvesting and partial over exploitation in the area. Other species such as small and medium size pelagic fish such as sardines, round scads and mackerel in the Gulf of Thailand and the Andaman Sea have also exceeded the maximum harvesting levels. Thailand's production of scad dropped significantly.<sup>220</sup>

## **5.2 Sustainability for commercial fisheries**

Sustainable Development according to the NS Department of Fisheries and Oceans Is defined as “a process of finding a balance between protecting fish stocks and their habitat and providing fish and fishing opportunities for Canadians now and in the future.” Finding ways to achieve these goals, is a formidable task. It's a difficult challenge since the global demand for protein is on the rise, at the same time fish

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<sup>220</sup> United Nation's Economic and Social Commission for Asia and the Pacific, (1992), State of the

catching technology has become more efficient and many Atlantic coastal communities has a dependency on the fishing industry for employment and revenue.<sup>221</sup>

Recurring crises in the industry have demonstrated that fishery resources are finite, and thus controls on harvesting are a necessity. Apart from environmental factors influence on the fish stock, the scientific capacity in terms of stock assessment, setting total allowable catches, and ecosystem modeling needs improvement. Also, the important role on conducting systematic studies to assess the impacts of fishing should be directed towards species and habitats. After centuries of relative stable exploitation, the Northwest Atlantic fishery began to show signs of depletion in the 1960s due to intense fishing by offshore fleets from various nations. Extension of fisheries jurisdiction to 200 nautical miles in 1977, as part of a worldwide movement resulted in an additional 632,000 square nautical miles under Canadian Management Authority. Initial expanded controls appeared to be beneficial towards Canadian fleets. Total groundfish harvest increased from 467,000 tones in 1977 to a high of 782,000 tones in 1982. Catch rates by offshore vessels also increased from an average of 8 tones/day to between 15 and 19 tones per day. As a consequence of perceived resource abundance and economic opportunity Canadian fish harvesting and processing increased rapidly. During the 1980s conditions of excess capacity and over capitalization were becoming evident. Among the numerous problems one of the key problem was inside the Canadian 200 mile where problems in controlling Canadian catches within legal limits prevailed. For example, vessel length

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Environment in Asia and The Pacific 1990, Bangkok, Thailand.

<sup>221</sup> Eaton, Peter B., Gray, Alan G. and Hundert, Eric (1994), State of the Environment in the Atlantic Region, Environment Canada, Atlantic Region.

restrictions to limit harvesting capacity were undermined by the development of the “jumbo” dragger with larger hold capacity and more powerful engines. Outside, in the high seas area adjacent to the Canadian line, there was massive over fishing of stocks which extended outside Canadian waters. Groundfish stocks, especially cod is decreasing across Atlantic Canada. Therefore, with a notable exception in the lobster fishery fluctuations and decreases in fish harvesting since 1982 have jeopardized the viability of many offshore and inshore enterprises.<sup>222</sup>

Besides domestic and foreign fishing pressures, environmental and climatic factors also influences the fish stock. The extent, if any, the expanding seal populations are contributing to the decline of the fish stock is largely unknown. Environmental stresses resulting from commercial fishing activity in the Northwest Atlantic are difficult quantify. There has been no systematic effort on a region wide basis to assess or compare the impacts of alternative fishing technologies on habitat. The five year \$584 million Atlantic fisheries Adjustment Program, announced in 1990 included a substantial allocation to assist the scientific research in order to obtain more accurate data regarding fish behaviour and the influence of physical oceanographic conditions on stock recruitment. More importantly, the ongoing research that is being carried out by the Science Branch of DFO into quantifying uncertainties and analyzing the risks associated with the resource assessments. In order to prevent the disruption from the fishing technology, the most current research indicates that bottom topography, location and season, are probably the most significant variables. Management responses include quota

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<sup>222</sup> *Ibid.*

reductions, gear restrictions, area closures and the introduction of enterprise allocations and individual boat quotas. The collapse of the northern cod stock in particular, is a prime example of how these pressures threaten the fisheries resources. On the positive side of the Atlantic Fishery, lobster stocks are at record levels, and scallop and shrimp stocks are in satisfactory condition.<sup>223</sup>

It is evident that the Northwest Atlantic fishery faces threats from environmental and anthropogenic sources, growing awareness of the vulnerability of the marine resources and the need for protection is a positive development. Fisherman's Organizations are beginning to take steps to regulate their own activities and act as resource stewards. Some examples include dumping oily wastes at shore based reception facilities as opposed to discharging at sea, bringing refuse back to shore, lobbying for new management measures such as area closures on fish spawning or nursery grounds, and using more conservation oriented gear.<sup>224</sup>

#### 5.2.1 Ecological Carrying Capacity

Ecological carrying capacity is defined as the maximum size of a population that can be sustained indefinitely within a given environment. In a coastal or watershed fishery system, just as the natural environment determines the carrying capacity of the resource base, so too does the socioeconomic environment effects the "carrying capacity" of human activity. There is considerable scope for research in developing carrying

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<sup>223</sup> Op.cit.

<sup>224</sup> Op.cit.

capacity measures for various resource systems. A recent approach of Rees takes an inverse view, developing a concept “ecological footprint,” which measures the per capita human impact on usage of land and other resources in a particular ecosystem.<sup>225</sup>

#### 5.2.2 Sustainability checklist for fisheries

A critical question that needs to be addressed for fishery is the question of sustainability for fishery as a resource system. A checklist could be developed to assess the sustainability criteria for fishery system. These criteria must incorporate dimensions of the ecosystem, the macro-level socioeconomic structure, the micro-level wellbeing of local communities, and the institutional integrity of the system.<sup>226</sup>

### 5.3 **Omission of transportation costs**

Gross Domestic Product as a measure has utility in capitalist economic systems where monetized activity can be measured on the basis of profit or loss and can be determined in a systematic way. Through nonmonetized activity monetized profits cannot be generated. Therefore it appears to be irrelevant from the point of view of production, sales and circulation of commodities and of capital.<sup>227</sup>

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<sup>225</sup> Charles, Anthony T. (1997 ), “Sustainability Assessment for Fishery Systems”, Saint Mary’s University, Halifax, Canada. pp. 5 and 6

<sup>226</sup> *Ibid.*

<sup>227</sup> Makhijani, Arjun (1992), From Global Capitalism to Economic Justice, The Apex Press, New York and London.

Transportation costs are not been fully accounted in the GDP. Transportation costs effects are less visible in the short term but over the long term, due to traffic and generated through various methods, these costs become significant. Yet these increased costs are generally ignored or undervalued in transportation planning and is yet another missing dimension of the GDP. Sustainable Transportation Indicators can play an essential role in transportation planning and policy decisions. Most current transportation indicators relate to traffic speeds, volumes and congestion. This approach contributes to direct investments toward highway improvements to accommodate growth in vehicle travel, rather than development of better forms of access. This rewards inefficient transportation and is inequitable.<sup>228</sup>

It is possible to measure these costs and to incorporate them into policy planning. There are alternative indicators for evaluating sustainable transportation: average portion of household expenditures devoted to transportation, including direct expenditures on vehicles and fares and indirect expenditures such as residential parking and taxes spent on transportation facilities. Average amount of residents' time devoted to non-recreational travel. Other variables would be per capita automobile use (annual kilometres of travel, Ability of non-drivers to reach jobs and services, number of major services (grocery, library, school, green space, etc.) within walking distance of residents, Per capita land area paved for roads and parking facilities, Quality of pedestrian and bicycle environment, Quality of public transit service,

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<sup>228</sup> Littman, Todd(1996), "Using Road Pricing Revenue", Transportation

including number of service hours, service frequency, average speed relative to automobile traffic speeds, safety, comfort (including number of standees during peak periods, number of bus shelters and other waiting facilities), availability of information, and integration with other modes.<sup>229</sup>

#### **5.4 What are transportation costs?**

Transportation cost are generated in numerous ways: Roadway land use, increasing roadway capacity, through congestion and user travel time, vehicle operation, parking road facilities, land use impacts on resource consumption, noise, air pollution, waste generation and barrier effect. Although automobiles are expensive to own, they are cheaper than ever to use. Once a car been purchased, and paid registration and insurance charges, the user only pays about ten cents per kilometre to drive it. The incremental cost is so low that most automobile owners do not hesitate to take an extra cross-town trip, or to purchase a home in a location that requires increased driving.<sup>230</sup> This apparent affordability of driving is actually sleight-of-hand. Motor vehicle use imposes many costs on households and society. For example: Generally 15 to 25 percent of household expenditures are devoted to motor vehicles. Transportation costs are a financial strain, particularly for lower income families. Free parking is a cost imposed on businesses and local governments that is ultimately borne

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Research Record 1558, British Columbia, Canada.

<sup>229</sup> Littman, Todd (1996), "Using Road Pricing Revenue", Transportation Research Record 1558, British Columbia, Canada.

<sup>230</sup> *Ibid*

by employees, consumers and tax payers; The costs of local roads and traffic services are ultimately borne by residents through their property taxes.<sup>231</sup>

Transportation impacts the environment through air pollution, water pollution and paving over green space reduces the quality of life and human health. Automobile-oriented land-use patterns and transportation systems force drivers to spend an increasing amount of time chauffeuring children and other non-driving household members.

From the economic perspective a basic tenet of economic theory indicates that prices consumers pay for a good should reflect marginal cost (all incremental costs of providing that good). Prices that are too low (underpricing) encourage consumers to use resources wastefully. While nobody likes to pay more for goods and services, it is nearly always better to pay directly than to disperse costs broadly across society as the present system does which forces everybody to pay regardless of how much they contribute to an impact or benefit.<sup>232</sup>

From an Environmental perspective, automobiles are a major source of air pollution in the Atlantic Region, as they are elsewhere. Though substantial reductions in emissions from automobiles have been achieved, automobiles remain the largest source of air pollution, mostly because their numbers continue to increase. The number of cars in Canada increased by 50 percent between 1970 and 1980. Nitrogen Oxide emissions have been rising since the early 1970's because of the increase in the

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<sup>231</sup> *Op.cit.*

<sup>232</sup> Littman, Todd (1996), "Using Road Pricing Revenue", Transportation Research Record 1558, British Columbia, Canada.



number of vehicles. Nationally, as of 1985, cars were releasing 20 percent of the nitrogen oxide, 37 percent of the carbon monoxide, 23 percent of the hydrocarbons, 26 percent of the volatile organic compounds and 10 percent of the carbon dioxide emitted in the country. These percentages are very similar in the Atlantic Region.

Automobiles are not the only part of the transportation sector to emit the air pollutants. Other gas burning vehicles, such as trucks and motorcycles, contribute an additional 5 percent carbon dioxide to the Canadian total, with another 14.5 percent contributed by diesel driven vehicles (trucks, trains, ships) and air craft. These other non-automobile transportation systems contribute an additional 44 percent hydrocarbons and 22 percent of volatile organic compounds to the burden of air pollutants in Canada. Similar sources are generated by these sources in the Atlantic Region.<sup>233</sup>

#### 5.4.1 Equity considerations in transportation indicators

For the sake of equity, it is particularly important that lower income and physically disadvantaged people have a maximum number of travel options. A more balanced transportation system would mean more frequent, convenient, comfortable and secure transit service. Fares can be paid using "smart cards" that charge users for the distance they travel. Connections between modes should be improved, for example by coordinating transit service with ferry terminals and airports, and providing bicycle racks on buses. Delivery services can allow people to shop for heavy and bulky goods by walking,

bicycling and transit. These are all possible if alternative modes receive a fair share of public resources, and as increased demand creates a more lucrative market for such services.<sup>234</sup>

It is important to minimize transitional costs and to avoid placing new burdens on low-income people. Four principles could be used for a smooth and equitable transition: Make price changes as predictable and gradual as possible, typically stretched over several years. For example, the UK is committed to increasing vehicle fuel taxes by five percent a year for the next several years. Consumers there can take those future prices into account when making vehicle purchase and location decisions. Convert vehicle ownership costs (such as insurance and registration) into vehicle operating costs that vary with use. This allows lower income households to own automobiles while only using them as needed. Total costs (ownership and operating) would stay the same or decline for most-lower-income households. Use pricing revenues to benefit lower income people, by funding transit and other transportation alternatives, by reducing regressive taxes, or with per capita rebates. How revenues are used is the primary determinate of how pricing affects equity.<sup>235</sup> Increase transport and housing options. Public policies that effectively subsidize sprawl should be avoided. In particular, public facilities such as schools and commercial centres should be located where they are accessible without an automobile, and developers and residents should pay for the higher costs of utilities and other public services associated with low density suburban expansion. Policies improve the quality of

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<sup>233</sup> Eaton, Peter. B, Gray, Alan G., Johnson, Peter W. and Hundert, Eric (1994), State of the Environment in the Atlantic Region, Environment Canada, Minister of Supply and Services, Ottawa, Canada.

<sup>234</sup> Littman, Todd (1996), "Using Road Pricing Revenue", Transportation Research Record 1558, British Columbia, Canada

life in existing built up areas, including funding for city school improvements, traffic calming to protect neighbourhoods from excessive traffic, and other measures to improve urban environmental quality can make cities more comfortable and desirable places to live.

In sum, these policies would significantly increase the costs of automobile use. This approach is expected to reduce total travel in private motor vehicles by 30 to 50 percent, which would alleviate most of the current transportation problems. The higher costs would be more than offset by savings in vehicle ownership expenses, housing costs, local taxes, healthcare costs and environmental degradation. Fewer people would be employed in automobile industries, but much of the money that consumers and governments save would be spent on transit and accessibility investments that would increase local employment and economic development in most communities. Lower income and physically disabled people particularly benefit from such policies. They would have more choices for independent travel, and would no longer be forced to subsidize the costs (such as free parking and roadway services) that benefit their wealthier, automobile-dependent neighbours. An improved urban environment, with less traffic, less accident risk and more green space, is particularly appreciated by people who spend a lot of time walking or wheeling on public streets. Both equity and efficiency increase if consumers

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<sup>235</sup> *Ibid.*

pay directly rather than indirectly for the costs they impose, provided that transaction costs are low and there is no overriding equity justification for shifting costs.<sup>236</sup>

Also under equity considerations Quality of mobility services for residents with special mobility needs, affordability of public transit service by lower income residents (fares as a portion of lowest quintile income) should be included in sustainable transportation indicators. These indicators also should be able to relate to Portion of residents with transit service within 1/2 kilometre, Per capita motor vehicle accident fatalities and accidents, Medical costs attributed to transportation (including medical care for injuries, pollution-related diseases), and Per capita transportation energy consumption. Residents' participation in transportation and land-use decision making can contribute to ensuring Equity in the Transition Correction of auto underpricing. Currently, consumers have hundreds of options when purchasing a motor vehicle, but few options when purchasing non-automotive travel. Automobile travel is a luxury that has become a necessity in many communities due to automobile dependency.<sup>237</sup>

#### 5.4.2 Impacts of "underpricing" in transportation

There is a vivid vocabulary to describe overpricing. Consumers who are charged too much are said to have been "gouged," "ripped off," or "fleeced." It is easy to demonstrate that overpricing is unfair and economically inefficient, therefore overpricing is a favourite target for political campaigns and government intervention. However often ignored is the aspects of underpricing which has similar negative impacts particularly in

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<sup>236</sup> Op.cit.

the longterm costs. But we are unlikely to hear a popular cry, "Raise my prices, please." Low prices may be acknowledged intellectually as a problem, but because impacts are usually dispersed, it seldom creates emotional fervour. Similarly, it is unlikely that many communities will refuse an offer for a road improvement provided by another level of government, or oppose municipal governments when they require developers to supply free parking in their projects. Such tempting transportation subsidies will not be refused by the people. These are highly relevant issues for transportation policy. For the last century one of the primary objective of transportation planning has been to minimize user costs of driving. These efforts have been wonderfully successful.

Underpricing of private vehicle use results in many forms from subsidies such as free parking, and failure to include "external" costs such as air and water pollution. At the same time, vehicle use decisions are also affected by another form of underpricing. Private vehicles have high fixed costs and low operating (variable) costs. Fixed costs include vehicle depreciation, insurance, some repairs, and residential parking. Vehicle owners must pay these regardless of how little or how much they drive. Underpriced driving exacerbates almost every problem related to transportation. It increases traffic congestion, vehicle pollution, roadway expenses, accidents and urban sprawl. It makes our communities automobile dependent and reduces travel choices, making non-drivers increasingly disadvantaged compared with those who can own and drive a personal automobile.<sup>238</sup>

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<sup>237</sup> Litman, Todd, "Driving out subsidies: how better pricing of transportation options would help protect our environment and benefit consumers.", *Alternatives*, British Columbia, 1998, V.24(1), pp 36-42

<sup>238</sup> *Ibid.*

Underpricing private automobile travel is inequitable because drivers benefit at somebody else's expense. People who drive less are forced to subsidize the travel of people who drive more. This is particularly unfair because vehicle travel tends to increase with income. It makes no sense, for example, that low income non-drivers should pay for parking facilities for wealthier automobile users. The conventional response is to apply technological solutions that address each problem individually: widen highways to alleviate congestion, install emission controls to reduce pollution, build more parking facilities, and subsidize public transit to provide a minimal level of mobility to non-drivers. But as long as the price of driving is so low, these solutions will be undermined because automobile use will continue to increase. It would be far better to apply a systematic approach that encourages more efficient transportation overall.

Underpricing of automobile use is accompanied by failure to consider full costs in transportation planning. This skews design and investment decisions towards higher cost modes, such as automobile travel, and away from cheaper alternatives such as public transit, bicycling, walking and telecommuting. For example, a recent study compared the costs of widening a highway with constructing a new rail transit system to improve access between suburban communities and a particular city. It concluded that the highway improvements would be somewhat cheaper than the rail option. However, the study did not take into account the additional parking requirements and congestion on local streets that would be imposed by the additional automobile trips, costs that would be avoided by the rail option. When these costs are incorporated in the analysis, rail becomes the cheaper option. Incomplete analyses of this kind have skewed countless

transportation decisions, resulting in increased automobile use and a reduction in the affordability and quality of public transit service in Canada.<sup>239</sup>

These decisions directly involve many hundreds of millions spent on transportation facilities and services, but they also have a wider effect, leveraging billions of dollars worth of individual consumer travel and location choices. It is therefore not surprising that transit ridership has declined, driving has increased, and cities are sprawling outward throughout Canada. This is not to say that driving would cease if prices and planning recognized all costs. Automobile users would be willing to pay a higher price for some trips. However, a significant portion of driving has relatively low value to the user, either because the trip itself provides little net benefit, or because alternative modes exist. Charging users directly rather than indirectly for the costs of driving would reward consumers financially for driving less. This incentive would improve the overall efficiency of our transportation system.<sup>240</sup>

#### 5.4.3 Measuring transportation costs

Some of the transportation costs are relatively easy to measure. For decades transportation economists have calculated vehicle operating expenses, transportation facility costs, and even the value that people place on travel time, safety and comfort under different conditions. Other costs, such as environmental impacts, are more difficult to quantify, but in recent years new techniques and innovative studies have strengthened the ability to measure them and even provides estimates in monetary terms. By applying

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<sup>239</sup> Litman, Todd, "Driving out subsidies: how better pricing of transportation options would help protect

these techniques it is possible to develop cost estimates that allow different forms of travel to be evaluated and compared. These costs are grouped into three major categories according to how they affect consumers' transportation decisions.<sup>241</sup>

#### 5.4.4 Internal costs of transportation

Users' short-term costs are been assessed as **Internal Variable Costs** which vary with the amount of travel that occurs. This includes out-of-pocket expenses, travel time and accident risk borne by the traveler. These directly impacts trip decisions. **Internal fixed costs** are users' longer-term costs, which are not perceived as being proportional to the amount of travel that occurs. These include vehicle ownership costs such as depreciation, insurance, registration, and residential or leased parking. These tend to affect consumers' vehicle purchase decisions, but once a vehicle is purchased they have little impact on travel.<sup>242</sup>

#### 5.4.5 External costs of transportation

Although external costs are not directly borne by individual users everybody, including vehicle users, bears them in aggregate. These include costs of roadway and parking facilities not charged directly to users, congestion impacts on other road users, accident risks borne by other road users, and environmental pollution. Because these costs are not included in prices that drivers pay, they do not directly affect individual

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our environment and benefit consumers.”, Alternatives, British Columbia, 1998, V.24(1), pp.36-42

<sup>240</sup> *Ibid.*

<sup>241</sup> *Ibid.*

<sup>242</sup> Op.cit..



consumers' transportation decisions, although they may affect a community's transportation policies over the long term. The largest individual costs are internal. These include user travel time, vehicle ownership, vehicle operation, and accident costs borne by users. Each external cost is relatively small, but there are many of them. The internal-variable costs (the type of costs that affect individual trip decisions) constitute less than half of all costs. Almost a third of costs are external. This indicates that user charges would need to increase significantly to internalize all costs. In addition, almost a quarter of costs are internal but fixed. Once users pay these costs they do not affect vehicle use.<sup>243</sup>

Most motorized forms of transportation impose significant external costs. The exception is a rideshare passenger, an additional vehicle passenger using an otherwise empty seat, which has the lowest cost of all modes. Fuel-efficient and electric cars slightly reduce some external costs, such as air pollution, but not others, such as congestion, parking subsidies or accident risk. Transit has relatively high external costs per passenger kilometre, primarily vehicle operating subsidies, but because transit riders tend to travel less than automobile users, their total annual external costs are typically much lower than those of drivers. Because of this price structure, automobile owners receive only a small portion of the total savings they produce by reducing their driving. For example, under urban peak period travel conditions, automobile driving imposes external costs averaging about \$0.50 per passenger kilometre, while bus riders' external costs average only \$0.20 per kilometre. Therefore if a commuter making a typical 20

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<sup>243</sup> Litman, Todd, "Driving out subsidies: how better pricing of transportation options would help protect

kilometre round trip shifted from driving to public transit, the external cost savings would be \$6.00 each time. But these savings are not returned to consumers. Driving often costs a car owner less than bus fare, due to the large portion of fixed and external costs. This underpricing reduces the incentive for individuals to use the cheapest overall travel option for any particular trip. Although underpricing of such a common consumer good may appear beneficial from a narrow perspective (and does benefit many individuals in the short term), mispricing reduces overall economic efficiency. External costs are not eliminated. They show up instead as higher prices for commercial goods (for parking subsidies), increased local taxes (to pay for road services), increased injury and illness (from pollution and accidents), and lower residential property values (from urban traffic).<sup>244</sup>

Underpricing contributes to automobile-dependent transportation and land-use systems that reduce travel options. Underpricing also reduces economic productivity and competitiveness through increased expenditures on automobiles which impacts on fewer expenditures and jobs in other industries. Is there any reason to believe that the automobile industry offers more or better employment than other industries? Certainly not at the local level, and probably not at the national level either. According to the British Columbia Treasury Board, one million dollars spent on transit services provides more than 21 full time jobs, while the same amount spent on automobiles only provides seven jobs. Reducing automobile expenditures stimulates the economy if consumers spend the money on goods with more local labour content. Even at the national level,

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our environment and benefit consumers.”, *Alternatives*, British Columbia, 1998, V.24(1), pp.36-42

purchases of new vehicles include a large portion of imported value. A quarter of new automobiles purchased in Canada are imported, and a major portion of the components of vehicles assembled in Canada are manufactured in other countries. Most economic benefits claimed from underpricing, such as increased employment in vehicle production and bulk transport industries, are mostly economic transfers, in which one group benefits at another's expense. Since driving is cheap and automobile ownership rates are high, traffic congestion becomes a major constraint to increased vehicle travel. Congestion is virtually unavoidable with current transportation policies. The questionable logic is illustrated well by Moore and Thorsnes: No rational concert promoter would decide how big to build a stadium based on the number of people who would come to see the Grateful Dead if the tickets were free. But that is often how transportation planners decide highway capacity: they estimate how many trips would be made on an unpriced facility, then try to build a facility big enough to accommodate that number of trips. Increasing road capacity does little to reduce traffic congestion, since any additional capacity is soon filled with "generated" traffic, additional vehicle travel that would not otherwise occur. As a result, the benefits of road improvements tend to be much smaller than predicted. Over the long term, increased roadway capacity leads to automobile oriented land use patterns, and increases various costs.<sup>245</sup>

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<sup>244</sup> *Ibid.*

<sup>245</sup> Littman, Todd (1996), "Using Road Pricing Revenue", Transportation Research Record 1558, British Columbia, pp. 24-28.

#### 5.4.6 Telecommuting and automobile commuting costs for Nova Scotia

Telecommuting costs are assessed as follows: Annual equipment and utility costs are assessed at \$600 per employee. Assuming 100 telecommuting days a year, each displacing a 32 kilometer round trip automobile commute, "ownership" costs are estimated as roughly equivalent to vehicle ownership costs per vehicle kilometer. Internal savings to the employee are therefore primarily in travel time, fuel costs, and parking costs. External savings are primarily in reduced air pollution, resource use and other environmental costs, as well as decreased accident costs. Land use impacts from telecommuting are assessed as equal to those from automobile use, since telecommuting is as likely to encourage urban sprawl as automobile dependency.<sup>246</sup>

Statistics Canada's time use surveys reveal that commuting accounts for about 28 percent of total travel. This is in line with U.S. Bureau of the Census estimates that commuting accounts for 30 percent of total non-commercial vehicle miles in the USA. (Statistical Abstract of the United States). Total vehicle and driving costs are therefore pro-rated according to this ratio to assess automobile commuting costs.<sup>247</sup>

Colman notes according to the recent study on automobile commuting costs for Nova Scotia:

Accounting for a full range of external costs, telecommuting costs are approximately one fifth of automobile commuting costs. Considering only internal (user paid) costs, telecommuting still costs less than 30% of automobile telecommuting costs.<sup>248</sup>

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<sup>246</sup>Colman, Ronald, (1998), "Preliminary Data on the Costs of Automobile Commuting Compared to the Costs of Telecommuting", Halifax, GPI Atlantic.

<sup>247</sup> *Ibid.*

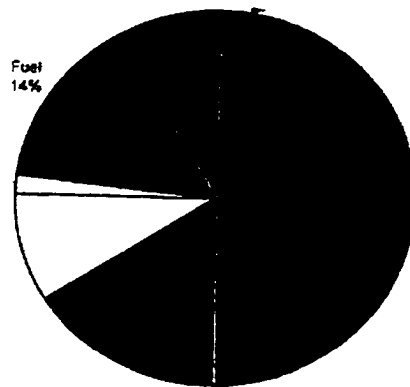
<sup>248</sup> Cited from, Colman, Ronald, (1998), "Preliminary Data on the Costs of Automobile Commuting Compared to the Costs of Telecommuting", Halifax, GPI Atlantic.

**Table 5.1 Average daily auto commuting distance, Nova Scotia**

Average annual distance driven per vehicle per year	18,925 km
Average annual distance driven per vehicle per year	28%
Commuting as percentage of total travel	5,300km
Average commuting distance per year	22.08km

**Source:** Colman, Ronald, (1998), "Preliminary Data on the Costs of Automobile Commuting Compared to the Costs of Telecommuting", Halifax, GPI Atlantic.

**Figure 5.1 Distribution of vehicle ownership and operating costs**

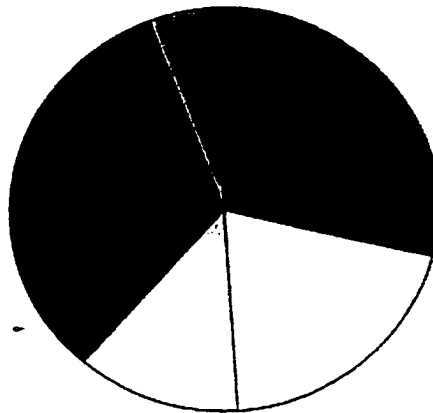


Fuel 14%, Maintenance 6%, Tires 3%, Depreciation 50%, Insurance 16%, Finance 9%, Licence and Registration 2%

**Source:** Colman, Ronald, (1998), "Preliminary Data on the Costs of Automobile Commuting Compared to the Costs of Telecommuting", Halifax, GPI Atlantic.

**Figure 5.2     Distribution of auto commuting costs**

Peak hr. Congestion 12%     Other External Costs 6%     Vehicle Ownership 22%  
Vehicle Operating 22%



Environmental 14%     Accident 7%     Parking 12%     Time Cost 20%

**Source:** Colman, Ronald, (1998), "Preliminary Data on the Costs of Automobile Commuting Compared to the Costs of Telecommuting", Halifax, GPI Atlantic.

## **5.5     Conclusion**

### Strategies for sustainable transportation

There is no single solution to the problems identified here. A number of strategies are needed to encourage more efficient and fair transportation. Economic biases that favour automobile travel over alternative modes should be eliminated as much as possible. For example, current Revenue Canada policies allow most employees to avoid paying income tax on free parking provided by their employers, a benefit worth an

estimated \$1772 annually in average pre-tax income for an urban employee. There is no comparable tax exemption for transit fares. There would be virtually no cost and numerous benefits if Canadian tax regulations were changed to make employer-provided transit passes tax exempt as they are in most other countries.<sup>249</sup>

A comprehensive strategy would be for employers who provide subsidized parking to offer its cash equivalent to employees who use alternative commute modes, so that commuters who car pool, bicycle or walk would also receive benefits. This is called "cashing out" free parking. It typically results in a 15 to 25 percent reduction in automobile commuting. There are several ways to convert users' fixed costs into variable costs. This allows consumers to use a motor vehicle when they need it, while providing an incentive to use alternatives whenever available.<sup>250</sup>

Another ideal strategy would be Distance-based vehicle insurance. This means that vehicle insurance would typically cost five to ten cents per kilometre, depending on other rating factors such as driving record, vehicle type and geographic location. Each year the vehicle odometer would be checked and the results will be used to calculate the insurance rate. This alone could reduce total automobile travel by an estimated ten percent. Car pooling is another approach to avoid fixed vehicle costs. Car-pooling includes vehicle co-operatives and rentals located in residential areas to make it easy to use an automobile without owning one. Users typically pay an hourly fee of \$1.00 to \$1.50 and a fee of 25 per kilometre. Experience in Europe, where such programmes are

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<sup>249</sup> Littman, Todd (1996), "Using Road Pricing Revenue", Transportation Research Record 1558, British Columbia, pp. 24-28.

<sup>250</sup> *Ibid.*

common, indicates that they allow a portion of households to own fewer automobiles, and result in reductions in annual vehicle use of up to 50 percent per member. Car sharing provides additional benefits to users by allowing members to choose the type of vehicle they need for a particular trip, and is particularly helpful to lower income households that want to be able to use an automobile occasionally without the high costs of vehicle ownership.<sup>251</sup>

In order to reduce parking subsidies several measures should be used. Local zoning requirements need to be modified to reduce the oversupply of parking spaces. As much as possible, drivers should be charged for both on- and off-street parking facilities. This can become much easier with electronic charging systems that avoid the need to put coins in meters or predict the amount of time that a vehicle will be parked. Rather than providing parking spaces with each apartment and condominium unit, it is far better to rent spaces separately since, households vary in the number of vehicles they own, so they should pay for the parking spaces they use. Current practices force households with fewer than average vehicles to subsidize the parking costs of their often wealthier neighbours who own more vehicles. This would help make housing more affordable since excessive parking requirements constitute a particularly large portion of lower priced housing costs.<sup>252</sup>

Electronic charging systems can be used efficiently to charge congestion tolls and road user fees. This strategy could reduce congestion while avoiding the need to widen

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<sup>251</sup> *Op.cit.*

<sup>252</sup> Litman, Todd (1996), "Using Road Pricing Revenue", Transportation Research Record 1558, British Columbia, pp. 24-28.



roads, and would raise revenue to improve transportation choices and compensate those who are impacted by motor vehicle traffic. A weight-distance fee is an effective way to charge vehicle users for their share of road facilities and services such as traffic police.

Pollution charges can be based on vehicle emission rates and annual kilometres traveled, augmented by roadside sensors that identify high polluting vehicles. A portion of revenue from these sources should be allocated to municipal governments so that local taxes would no longer subsidize traffic costs. It is worth noting that although new technologies, such as alternative fueled vehicles, can help address some problems, they provide little benefit by themselves. For example, electric or super fuel efficient vehicles can help conserve petroleum and reduce air pollution costs, but they do nothing to lessen congestion, parking requirements, accidents, roadway costs, or urban sprawl, or to improve mobility for non drivers. In fact, because they have a higher fixed to variable cost ratio (purchase prices are higher and operating costs are lower), owners tend to drive more, increasing these problems. Only if users have the proper incentives are new technologies likely to be used to increase sustainability.<sup>253</sup>

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<sup>253</sup> Litman, Todd (1996), "Using Road Pricing Revenue", Transportation Research Record 1558, British Columbia, pp. 24-28.

## Chapter VI

### Conclusions

“In global apartheid, the hungers, desires, tears, joys, the very humanity of the dispossessed, do not register as parts of the economic system. The process by which we rid the world of economic depravity and excess is surely the same one by which we organize to end the suffering of the children who die of want and of their parents who must bury them. That will be the process by which the present economic system based on exploitation, violence and environmental destruction will be replaced by one in which human well-being, neighborliness, friendship and nurture of the Earth will flourish.”<sup>254</sup>

This study has examined the Gross Domestic Product (GDP) as both a measure of development and human progress. It establishes as a cause for concern is the use of GDP as an indication of human development or progress and the need for alternative indicators that reflect more accurately human progress. It is argued argued that there are fundamental contradictions in the present system of accounting. Thus, this study challenges not only the current measures of growth and development tracked by the GDP but also the practical use of alternative indicators such as the GPI in measuring development. This study began with the challenge to make use of important dimensions that conventional measures have neglected and still continues to neglect. For example, with reference to an alternative index, the GPI, this study argues the importance of

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<sup>254</sup> Cited from, Makhijani, Arjun (1992) From Global Capitalism to Economic Justice, The Apex Press New York and London

integrating social and environmental indicators in the measure of human progress to ensure the avoidance of costly and misguided errors in the development process.

This thesis addresses five critical missing dimensions of the Gross Domestic Product as a measure of development. The exclusion of Unpaid Work and Voluntary Work (Chapter 3); Degrees of social inequality on the basis of income distribution (Chapter 4); and the Omission of Natural Resource Accounting: the Degradation of Marine Resources and Transportation Costs (Chapter 5).

1. Chapter three examines the problems associated with the valuation of unpaid work. It argues the fact that unpaid work is not accounted in GDP in no way precludes accounting for it through an alternative index. It emphasizes the critical importance of comprehensive and accurate data to measure the invisible outputs. Through the analysis of unpaid work summary results for Nova Scotia and the statistics of unpaid work for various nations the chapter focuses on the valuable contributions to the economy which remain undervalued and invisible in official statistics and indicators. It establishes the need for measuring unpaid work through the use of a Genuine Progress Index to overcome one of the most glaring failures of the Gross Domestic Product as a measure of development.

Chapter three also focuses on the Voluntary Work contributions to the economy as a missing dimension in the GDP. Through the monetary valuation of voluntary work contributions to the Nova Scotia economy it highlights the crucial contributions provided by this sector and establishes the potential dangers of undervaluing such vital services on which an economy depends.

It emphasizes as the need to make economic value of voluntary work explicit and thus more visible. Chapter draws the conclusion that Voluntary work is indeed one of Nova Scotia's primary assets and strengths.

2. Chapter Four is written in the recognition that equity is a necessary condition of social development. It also addresses the critical dimensions of social inequality. The degrees of social inequality on the basis of Income Distribution data for Nova Scotia has been analysed through the measure of the Gini Coefficient. This Chapter argues that development that perpetuates inequalities is neither sustainable nor worth sustaining. It draws the conclusion that improving welfare for a greater number of the population will lead to a decrease in social inequality.

3. Chapter Five is written to the purpose of providing an understanding of the importance of Natural Resource Accounting. It examines the Rio Declaration, Agenda 21 and Rio Plus Five, and focuses on the critical importance of expanding the national statistical accounts by including environmental factors. It investigates the deceptive gains in current income at the expense of permanent losses in a nation's wealth. It describes the potential dangers of current income measures, especially the GDP's exclusion of natural resource accounting. It discusses the benefits that can be derived from economic incentives and essential gains that can be achieved through the practical use of natural resource accounting.

Chapter Five investigates the degradation of marine resources through commercial fish exploitation in Nova Scotia. It addresses the sustainability for fishery as a resource system. Chapter Five also argues that significant transportation costs are been excluded in the conventional accounting system, the GDP. It establishes the critical importance of sustainable transportation indicators as an alternative set of indicators. Telecommuting and automobile commuting costs for Nova Scotia have been analysed as external costs of transportation indicators. Strategies for sustainable transportation are provided. Chapter Five argues; through the studies of degradation of marine resources and transportation costs, that mutually dependent relationship between environment and development should be acknowledged. It draws the conclusion that a progressive index should fully and explicitly account for natural resources as an important dimension of the development process. As such, it should be incorporated into and be part of a human progress index.

Chapters three to five have deliberated upon the need and the importance for accounting these indicators and the harmful effect of the absence of data and techniques to account for these dimensions. Even though there is a significant global movement to overcome the shortcomings of the Gross Domestic product, there persists a commonly held belief about the absence of data and techniques as well as the financial burden, especially on poorer nations involved in gathering these statistics.

It should be noted that the 1998/99 World Development Report proposes a new way of perceiving the problems of development from the perspective of knowledge. It notes:

Knowledge is Like Light. Weightless and intangible, it can easily travel the world, enlightening the lives of people every where. Yet billions of people still live in the darkness of poverty-unnecessarily. Knowledge about how to treat such a simple ailment as diarrhea has existed for centuries-but millions of children continue to die from it because their parents do not know how to save them.

The same theme could be applied for the absence and the exclusion of alternative indicators for measuring human progress. Rich and poor nations hold the most valuable asset of all human knowledge. Through the use of knowledge, new data and techniques could be developed and could expand the emerging new techniques and approaches to measure the human progress through the use of alternative indexes.<sup>255</sup>

Clearly, many choices and trade-offs need to be addressed to pursue the pathways of sustainable development by countries and regions. For example, trade-offs between the short term political, economic, social and environmental gains will have to be confronted. Integrating economic, social and environmental indicators to the Genuine Progress Index to successfully apply it to measure the human progress therefore requires courage and a set of policies. No such policies can be achieved without a price. Overcoming statistical distortions by the use of comprehensive data to value the invisible outputs of non-

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<sup>255</sup> Due to time constraints and the limited scope of a Master Thesis, this study did not focus on the aspect of measuring the Human Freedom as a Political Indicator. However, the author of this thesis recognizes the importance of human freedom indicators as a part of any set of development indicators to measure human progress. Therefore, 1990 Human Development Report's Charels Humanna's Human Freedom Index has been included in the Appendix.

monetary transactions like unpaid and voluntary work in accounting for the labour of a large population; the elimination of chronic social inequality in order to achieve equity; and natural resource accounting as a measure of avoiding the gross discrepancy between the way economic activities are measured and the use of natural resources that ultimately sustain the economy, may be a goal for which such price worth paying.

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## **APPENDIX**

1. Transportation Cost Analysis: Techniques, Estimates and Implications. (18<sup>th</sup> February, 1995) By Todd Litman. Victoria Transport Policy Institute. This is a comprehensive and well researched study of existing roadway transpiration cost. It includes twenty costs which are defined and discussed, and existing estimates are summarized. "Best Guess" cost estimates are provided for 11 travel modes under urban peak, urban off-peak, and rural travel conditions. This framework is used to compare costs per passenger mile of different modes for planning and policy analysis. Transportation Cost Categories are shown below.

### Transportation Cost Categories

<b>Cost</b>	<b>Internal/ External</b>	<b>Fixed/ Variable</b>	<b>Market/ Non-Market</b>
1. Vehicle Ownership	Internal	Fixed	Market
2. Vehicle Operating	Internal	Variable	Market
3. Operating Subsidies	External	Fixed	Market
4. User Travel Time	Internal	Variable	N-M
5. Internal Accident	Internal	Variable	N-M
6. External Accident	External	Variable	N-M
7. Internal Parking	Internal	Fixed	Market
8. External Parking	External	Fixed	Market
9. Congestion	External	Variable	N-M
10. Road Facilities	External	Variable	Market
<b>Cost</b>	<b>Internal/ External</b>	<b>Fixed/ Variable</b>	<b>Market/ Non-Market</b>
11. Roadway Land Value	External	Variable	N-M
12. Municipal Services	External	Variable	Market
13. Equity and Option Value	External	Variable	N-M
14. Air Pollution	External	Variable	N-M
15. Noise	External	Variable	N-M
16. Resource Consumption	External	Variable	N-M
17. Barrier Effect	External	Variable	N-M
18. Land Use Impacts	External	Variable	N-M
19. Water Pollution	External	Variable	N-M
20. Water Disposal	External	Variable	N-M

2. Measuring human development and freedom (1990) Human Development Report. This study focuses Human Freedom Index and its variables. The World Human rights Guide, by Charles Humana, uses 40 indicators to measure freedom.

### **The Human Freedom Index**

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#### **The Right to**

- 
- \* travel in own country
  - \* travel abroad
  - \* peacefully associate and assemble
  - \* teach ideas and receive information
  - \* monitor human rights violations
  - \* ethnic language
- 

#### **The Freedom From**

- 
- \* forced or child labour
  - \* compulsory work permits
  - \* extra-judicial killings or “disappearances”
  - \* torture or coercion
  - \* capital punishment
  - \* corporal punishment
  - \* unlawful detention
  - \* compulsory party or organization membership
  - \* compulsory religion or state ideology in schools
  - \* arts control
  - \* political censorship of press
  - \* censorship of mail or telephone-tapping
- 

#### **The Freedom For**

- 
- \* peaceful political opposition
  - \* multiparty elections by secret and universal ballot
  - \* political and legal equality for women
  - \* social and economic equality for women
-



- \* social and economic equality for ethnic minorities
  - \* independent newspapers
  - \* independent book publishing
  - \* independent radio and television networks
  - \* independent courts
  - \* independent trade unions
- 

### **The Legal Right to**

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- \* a nationality
  - \* being considered innocent until proven guilty
  - \* free legal aid when necessary and counsel of own choice
  - \* open trial
  - \* prompt trial
  - \* freedom from police searches of home without a warrant
  - \* freedom from arbitrary seizure of personal property
- 

### **The Personal Right to**

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- \* interracial, interreligious or civil marriage
  - \* equality of sexes during marriage and for divorce proceedings
  - \* homosexuality between consenting adults
  - \* practice any religion
  - \* determine the number of one's children
-

## **Time Use Research:**

Time Diaries and time data for extension of Economic Accounts. (1976) By Andrew S. Harvey and W. Stephen Macdonald. D. Reidel Publishing Company, Dordrecht-holland. This essay includes the nature and measurement of Non-market activity. Various items are summarised below.

### **Non-Market items for extension of National Accounts**

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- 1. Household Operation**
  - (a) Food Related
    - (1) Meal preparation and cleanup
    - (2) Food growing, canning, freezing etc.
  - (b) Care of house
  - (c) Care of clothes
  - (d) Marketing and Record keeping
- 2. Household Maintenance**
  - (a) Repair and upkeep
  - (b) Home improvement
- 3. Family and Child Care**
  - (a) Adult care
  - (b) Child care
  - (c) Other child related activities
- 4. Education and training**
- 5. Volunteer Work**
- 6. Journey to Work**
- 7. Leisure**