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SUSTAINABLE DEVELOPMENT: KEY CONCEPTS AND QUESTIONS

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INTRODUCTION

Sustainable development (SD) is a concept that has been generally embraced by all sectors of society; industry, civil society[1] and governments. In Canada it is one of the government's main goals, requiring horizontal action by all federal departments. However, while SD has a generally accepted definition, it has a wide range of interpretations; for this reason, identifying clear objectives and how to achieve them remains problematic. The following paper discusses some key concepts of sustainable development and their interpretations.

A BRIEF HISTORY OF SUSTAINABLE DEVELOPMENT

Some of the fundamental ideas behind sustainable development have been on the minds of politicians and others for over 100 years. At the opening address of Sir Wilfrid Laurier's Canadian Commission of Conservation, for instance, the Chairman of the Commission stated:

> the best and most highly economic development and exploitation … can only take place by having regard to the principles of conservation.[2]

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(1) Civil society organizations (CSOs) are non-state associations whose main aims are neither to generate profits nor to seek governing power. Rather, they seek to unite people to advance shared interests and agendas, whether short-term and local or enduring and universal. CSOs are extraordinarily diverse, reflecting the societies in which they are rooted; they include environmental groups, think-tanks, trade unions, religious congregations, grassroots and indigenous movements, and sports clubs. Many networks, coalitions and alliances are formed to achieve common objectives, reflecting considerable overlap among CSOs' areas of engagement, and their growing role in building social awareness and consensus. (Description is based on that provided by the United Nations Development Programme.)

(2) Commission of Conservation, Canada, *Report*, King's Printer, Ottawa, 1910, as cited in F. J. Thorpe, "Historical Perspective on the 'Resources for Tomorrow' Conference" in *Resources for Tomorrow: Conference Background Papers*, Queen's Printer, Ottawa, 1961.

It was not until 1987, however, that the term sustainable development was first clearly articulated, in the report of the World Commission on Environment and Development, *Our Common Future* (sometimes referred to as the Brundtland Report, named for the Chair of the Commission Gro Harlem Brundtland). The definition on which the Commission agreed was:

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

This phrase is followed in the text with the following clarifications:

> It contains within it two key concepts:
>
> - the concept of *needs*, in particular the essential needs of the world's poor, to which overriding priority should be given; and
> - the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.(3)

The concept of SD therefore adds the third important dimension of the needs of the poor to the integration of conservation and economies articulated by the conservation movement of the beginning of the 20th century. Further elaboration of the SD concept has led to the general acceptance that SD rests on three "pillars": social, economic and environmental. If one pillar is ignored while priority is given to the others, the foundation for long-term quality of life becomes unstable.

INTERPRETING SUSTAINABLE DEVELOPMENT

Opinions regarding SD vary widely. A few believe that it is a socialist plot designed to bring market economies to their knees, while others embrace it as the only way to ensure long-term quality of life.

There is also a wide spectrum of interpretations within the community that professes to adhere to the concept. One interpretation sees SD as a trade-off mechanism that assists in balancing economic, social and environmental objectives. Some would argue that,

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(3) World Commission on Environment and Development, *Our Common Future*, Oxford University Press, 1987, p. 43.

following this interpretation, all sides of the equation are diminished by the need to reach a compromise.

Others see the three pillars as interdependent and mutually reinforcing.(4) According to this interpretation, it is impossible to have long-term economic development without also having a clean environment and social equality. Economic development, in turn, is essential for the others. In the integration of these objectives all sides are seen to win, particularly over the longer term.

Sustainable development also has different implications, or at least emphases, in different contexts. In the developed world, emphasis is often placed on the interaction of the environment and the economy, though social issues – particularly with respect to urban poor and Aboriginal people – remain critical. In the developing world, however, while there are clear links between the three pillars, the critical issue is poverty. The question arising from the different emphases in developing and developed world contexts is whether or not economic development and the relief of poverty can occur without putting undue pressures on the environment.

A. The Environmental Kuznets(5) Curve: An Economic Imperative?

The developing world's immediate needs are clearly more economic than environmental and social – a fact that was acknowledged in the Brundtland Report's emphasis on the "overriding priority" that should be given to the "essential needs of the world's poor" (though it should not be ignored that developed nations also have poor people).

Do these essential needs, particularly in the less developed regions of the world, mean that economic development is a prerequisite to attaining the other objectives? Some clearly think so. Speaking at the Eighth Conference of the Parties (COP8) to the United Nations Framework Convention on Climate Change, which took place in October 2002 in New Delhi, India, then Indian Prime Minister Shri Atal Bihari Vajpayee stated:

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(4) World Summit on Sustainable Development, *Plan of Implementation*, 2002, paragraph 2.

(5) Simon Kuznets won the Nobel Prize in economics (1971) "for his empirically founded interpretation of economic growth which has led to new and deepened insight into the economic and social structure and process of development"; see http://nobelprize.org/economics/laureates/1971/index.html.

> There have been suggestions recently that a process should commence to enhance commitments of developing countries on mitigating climate change beyond that included in the Convention. This suggestion is misplaced for several reasons. … Developing countries do not have adequate resources to meet their basic human needs. Climate change mitigation will bring additional strain to the already fragile economies of the developing countries, and will affect our efforts to achieve higher GDP growth rates to eradicate poverty speedily.(6)

One related hypothesis that supports the economic imperative is that of the environmental Kuznets curve. The general idea is that measures of environmental degradation, such as air pollution, follow an inverted U-shaped curve in relation to economic growth. Up to a certain level of economic output, environmental quality declines as the economy grows. Once that level of output is reached, environmental quality then improves.

According to this theory, developed countries went through a period of environmental degradation as they gained wealth and have since seen significant environmental improvements. In the end, economic growth leads to improved environmental quality. Therefore, following this reasoning, any effort to clean up the environment and improve social problems is putting the cart before the horse, and in fact delays the very economic growth that is the true driver of sustainable development.

There is little doubt that economic growth leads to increased capacity to address environmental and social problems, as reflected in the second half of the Kuznets curve. Whether economic growth leads automatically to the resolution of these problems is, however, questionable.

The environmental Kuznets curve is based on empirical observation; but it does not always hold, nor does it explain why such a relationship between economic growth and environmental quality exists, if it exists at all. Benefits to the environment could, for example, be attributable to purely technological factors, or a shift in dirty manufacturing from more to less developed countries, or increased demand for environmental regulation in developed countries.(7)

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(6) Speech of Prime Minister Shri Atal Bihari Vajpayee at the High Level Segment of the Eighth Session of the Conference of the Parties to the UN Framework Convention on Climate Change, New Delhi, 30 October 2002. Note that at COP10 in Argentina (December 2004), developing countries continued to resist any targets for emission reductions.

(7) See S. W. Pacala *et al.*, "False Alarm Over Environmental False Alarms," *Science*, Vol. 301, p. 1187 and references therein.

In addition, since there is little theoretical underpinning to the Kuznets curve, there is no reason to believe that the environmental damage incurred during development is inevitable. Even if it is largely true that developed countries achieved that status through environmentally unfriendly means, does this mean that all development must be achieved in this manner? Some believe that it is essential that it does not. The main concept behind this belief is that of carrying capacity.

B. Carrying Capacity

Many have made the point that, should the developing world follow in the same path as the developed world did in attaining its wealth, the global environment would be put under unprecedented pressure. The following quote attributed to M. K. Gandhi graphically describes the problem:

> If it took England the exploitation of half the globe to be what it is today, how many globes will it take India? (8)

Though this is a somewhat dramatic description of carrying capacity, the concept has a scientific basis. The earth is finite and receives a finite amount of energy from the sun, which puts limits on the resources and energy humans can consume. The following text describes the carrying capacity of the earth relative to human consumption patterns.

> We already appropriate by some means or other 40 percent of the planet's organic matter produced by green plants. If everyone agreed to become vegetarian, leaving little or nothing for livestock, the present 1.4 billion hectares of arable land (3.5 billion acres) would support about 10 billion people. If humans utilized as food all of the energy captured by plant photosynthesis on land and sea, some 40 trillion watts, the planet could support about 16 billion people. But long before that ultimate limit was approached, the planet would surely have become a hellish place to exist.(9)

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(8) Hans Bresser and Dave Huitema, "Economic Instruments for Environmental Protection: Can We Trust the 'Magic Carpet'?" *International Political Science Review*, Vol. 20, 1999, p. 175.

(9) Edward O. Wilson, *The Future of Life*, Knopf, New York, 2002; excerpt posted on the Scientific American Web site at http://www.sciam.com/print_version.cfm?articleID=000E5878-3E45-1CC6-B4A8809EC588EEDF.

KEY QUESTIONS

As an economic model to explain the relationship between development and environmental quality, the Kuznets curve is weak; nonetheless, it raises important questions regarding the nature of sustainable development.

- Can the world support a population of 10 billion people (or more) living the lifestyle of the developed world, if indeed it is that *level* and *type* of economic activity that is necessary to improve environmental and social conditions? In other terms, is there a global Kuznets curve wherein continued economic growth leads to continued environmental improvements, without being truncated by carrying capacity?

- Are environmental degradation and social upheaval necessary side effects of the initial stages of gaining wealth, as suggested in the Kuznets curve hypothesis?

If the answer to the first question is "yes," then the concept of sustainable development is reduced to a moral imperative to diminish the impact of development on social and environmental health during the earlier phases of development.

This is, in fact, a significant part of achieving SD. Regardless of the applicability of the Kuznets curve, it is difficult to argue that economic growth is not a large factor in achieving the "overriding priority" of meeting the needs of the poor. The problem is that depletion and contamination of local resources, combined with social problems, are already creating human misery and threatening the very prosperity that is needed to alleviate poverty in many parts of the globe still at the earlier stages of development.

Society must, therefore, find a way to uncouple or diminish the correlation between economic growth and environmental degradation seen in the earlier part of the Kuznets curve. In fact, there is evidence that some growth in developing nations can follow, and is following, a different pattern than occurred in developed nations.

The concept of carrying capacity as described above, however, would suggest that, particularly at the global scale, the correlation between economic growth and environmental improvements seen in the second half of the Kuznets curve may eventually break down, greatly diminishing quality of life. Sustainable development in this case becomes not simply a moral issue, but a matter of necessity if a high quality of life for all is to remain a possibility.

CONCLUSION

Using this analysis, then, the goals of SD are to reduce environmental and social degradation during development and to avoid patterns of consumption that threaten to approach the limits of the earth to sustain a high quality of life for all.

In the first instance, the developed world will need to give a helping hand to developing nations, particularly regarding technology transfer and building governance and institutional capacity. This is a major reason why many of the international SD agreements (on climate and biodiversity in particular) include significant measures for technology transfer and capacity building in developing nations. Moreover, it is not necessary for developing nations to use older, dirty technologies, for example in energy production and transportation, since cleaner technologies exist.

In attempting to meet the second challenge of avoiding unsustainable consumption patterns, countries are increasingly recognizing that gross domestic product (GDP) is not always a good measure of quality of life. Recognizing that environmental health also contributes to quality of life, attempts are being made to integrate natural capital into national accounts. In the meantime, alternative indicators of sustainable development are being reported alongside strictly economic indicators such as GDP.

Equally, it is unlikely that the current patterns of high consumption in the developed world are a prerequisite to maintaining a high quality of life. For instance, some studies have found that self-reported levels of happiness and satisfaction with one's life do not correlate well with gross national product above a threshold of approximately US$13,000 per capita.[10],[11]

Though this may be the case, a change in the situation of developed countries, for instance to a lower level of economic output or to economic output from more sustainable sectors, is bound to have a negative impact on levels of happiness; and this would be reflected in election outcomes. Introducing change that might lead to widespread discontent in a society,

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(10) World Bank Purchasing Parity Estimates, 1995 US$, about that of Spain and Portugal; while the United States had almost $30,000 per capita.

(11) Ronald Inglehart and Hans-Dieter Klingemann, "Genes, Culture, Democracy and Happiness," in *Culture and Subjective Well-Being*, ed. Ed Diener and Eunkook M. Suh, Bradford Books, Cambridge, MA, 2000.

however temporary, would be politically very difficult. This is why the Brundtland Commission, which brought the term sustainable development into current usage, also came to the following conclusion:

> Yet in the end, sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs. We do not pretend that the process is easy or straightforward. Painful choices have to be made. Thus in the final analysis, sustainable development must rest on political will.