The Ethics of Global Climate Change

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It is not accidental that the focus of this year's Earth Day campaign is global climate change. Over the past few years awareness has been building around the fact that global climate change is not simply an environmental threat lurking in the future. Given the potential impacts, it could well be the greatest social and economic challenge humanity has ever faced. The intensity of the debate around how to deal with this daunting challenge is due to the fact that at its root, global climate change presents an ethical dilemma.

As we begin to develop strategies for facing the threat of climate change, there are three basic questions we constantly ask ourselves:

- Who is responsible?
- Who is affected?
- Who should do something about it?

Were the answer to all three questions one and the same, the matter would be a relatively simple one. The fact that the answers are all different, puts us into the perplexing arena of an ethical predicament.

Let us examine each of these questions.

1- Who is responsible?

It is undeniable that the major components of our biosphere (including the air, the oceans, the soil cover, the range of animal and plant species, and the climate system itself) have all been altered by the intensity of twentieth century human exploitation of the earth's resources.

The responsibility for this exploitation lies along a North - South axis, which must be understood in terms of several major macrotrends. First, the explosive growth of population. Global population doubled between 1950 and 1987, reaching 6 billion at the turn of this century. Increasing population means increasing pressure on the land. Arable land per capita has been rapidly dwindling since the 1950's. The average then was 1.2 acres per capita. The average today is less than half that much. In developing countries the pressure on the land has been "solved" by clearing forests and converting them to poorly performing agricultural land. Deforestation means carbon dioxide emissions. 23% of global greenhouse gas emissions are due to deforestation,

and most of this comes from the developing countries. In Latin America alone, well over two thirds of our total emissions are due to deforestation. There is clear climate change responsibility here.

The second macrotrend is consumption. It is not just population per se, but the total world population multiplied by per capita consumption that determines the rate of environmental destruction. While world population over the past 50 years has doubled, our world energy consumption has increased five fold in the same amount of time, and could double that again in the next 25 years. As we have relied mainly on fossil fuels for that energy generation, the growth in consumption has brought on parallel increases in greenhouse gas emissions. Annual releases of carbon dioxide into the atmosphere grew from 1.5 billion tons in 1950 to 6 billion tons today. Thus carbon dioxide concentrations in the atmosphere have increased from 280 parts per million before the industrial revolution to 360 ppm today, a level unprecedented on earth.

There is a clear historical responsibility for the accelerated increase in GHG emissions. Due to their intense use of fossil fuels for energy generation, the industrialized countries are today responsible for 76% of global emissions. (One individual country, which we all know and cherish, is responsible for a whopping 21% of the emissions having only 4% of the world's population.) In contrast, the group of 136 developing countries is responsible for 24% of the emissions. The relative burden of responsibility will shift in or about the year 2020, when population growth and increased energy consumption in the developing countries will push them to emit half the total world emissions.

Enough of data. Suffice it to answer the first question of who is responsible, with a George Orwell approach: all countries are equally responsible, but some are more equally responsible than others.

2- Who is affected?

The comparative vulnerability of countries to global climate change lies also along a North – South axis. Unfortunately, and herein begins the dilemma, in the inverse direction to the historical responsibility.

It is clear that populations in developing countries are more vulnerable than those in developed countries. Rising temperatures will bring significant increases in the geographic incidence of insect-borne diseases, such as malaria and dengue, particularly in the tropics and subtropics. The change in volume and distribution of water will cause increased risk of hunger and famine for many of the world's poorest people who depend on isolated agricultural systems, especially in the tropics and subtropics. Rising sea levels will displace

tens of millions of people from small island states and the low lying delta areas of Egypt, Bangladesh and China.

Vulnerability defines the extent to which climate change may damage or harm a system. It depends not only on a system's sensitivity or extent of change, but also its ability to adapt to new conditions. Developing nations are not only more sensitive to climate change, they are less able to adapt. Successful adaptation depends on technological advances, institutional infrastructures, availability of financing, and information. On the whole, developing countries have less favorable economic circumstances, weaker institutions, limited access to capital, and restricted information exchange. Those nations which are most sensitive to global changes are precisely those which are the least prepared to adapt.

Without a doubt, developing countries are the most negatively affected by global climate change. Our dilemma is clear.

3- Who should do something about it?

Under the UN Framework Convention adopted in 1992 industrialized countries took on a voluntary commitment of emission reduction. The commitment went unfulfilled. The Kyoto Protocol would constitute the first legally binding commitment of reduction for industrialized countries. But the Protocol's entry into force is threatened by a unanimous US Senate resolution barring the Protocol from being submitted for ratification in the US without the "**meaningful** participation of key developing countries." In the context of historical responsibility on the one side, and increased vulnerability on the other side, one wonders what meaningful could possibly mean.

India stresses the per capita emission right. Being responsible for three quarters of the world emissions, industrial countries are home to only 20% of the planet's population. By the year 2020 when the developing countries will emit one half the world's emissions, they will also hold 87% of its population. The most striking number is the comparison of the 5.5 tons of carbon per capita per year being consumed in the US, and the 0.1 tons of carbon being consumed per capita in India. One is reminded of the famous cartoon of the tall white man who drives up in his SUV, and asks the bushman to put out his campfire in order to reduce global emissions.

It is not surprising that Indian negotiators stress that their people should not be limited to a few "survival emissions" while industrial countries are not even willing to accept modest cutbacks in their "luxury emissions." What moral right do we have to preach austerity, or for that matter even energy efficiency, to the people of India? …. On the other hand, what kind of a world will we live in, if each of the 3 billion Chinese and Indian citizens which

will exist in 2025, reach a per capita consumption equal to that of each one of us sitting right here? When do we decide that the consequences are grave enough to grant us a righteous stance?

Furthermore, developing countries are already curbing their emission patterns. China, Brazil, India and Mexico have already cut fossil fuel subsidies, reducing consumption by 25 million tons of carbon. South Korea, China, Mexico and Thailand have adopted efficiency standards as well as tax incentives for energy efficiency. India holds the world record for wind energy with 950MW installed capacity. All these policies were adopted primarily for economic reasons, but are at the same time cutting greenhouse gas emissions. How much more can they sensibly do? Can we seriously argue that industrialized countries cannot comply with the Kyoto Protocol due to the negative economic implications, and with the same breath demand that developing countries take on reduction obligations asserting it will not impinge on **their** economic growth?

Actual costs and risks of environmental degradation are not distributed equally among all states, so some are more motivated than others to participate in international efforts to solve the problem. Nor do states have the same perceptions of equitable solutions, due to their disparate national interests. But finger pointing to past responsibility for, or future contribution to the problem, is not going to get us very far. Let us remember that what is at stake here is the global commons. These threats cannot be solved unilaterally, by one side or the other. While the stakes for all participants continue to grow, we must find ways of working together.

In order to lead us out of the dilemma, I would like to ask one last question.

4- Can we do something about it?

Fortunately, that question is the one which we can answer with a clear conscience. Yes we change our production and consumption patterns. We can continue to grow while at the same time diminishing our imprint on nature. To reach this goal two paths are beginning to emerge: technological innovation, and changes in lifestyle.

New technologies open heretofore unknown possibilities. But let us be clear. Fossil fuels will remain an important energy source for the foreseeable future. Contrary to what we thought some twenty years ago, we now know that the earth still has important oil reserves. But the reason why we moved beyond the horse and buggy a hundred years ago was not because we ran out of hay. As was the case when the oil era first emerged, new technologies are being developed today which will launch us into a whole new era of energy production. An energy revolution is now in the making, with advanced new technologies such as hydrogen fuel cells which will revolutionize

transportation, thin-film solar cells which will be easily applied to building facades and windows, and super efficient wind turbines with long term energy storage capacity. The rapid progress being made by these new technologies gives us hope that we will be able to supply increased energy needs without further contaminating our atmosphere.

Technology is indeed a necessary but certainly not a sufficient condition for improving our lot. In fact, the development of new technology is the simplest component. The far more complex component is internalizing a new growth model.

The model which supported the last hundred years of rapid economic expansion was based on the assumption that there is not only an infinite supply of natural resources, but also of "sinks" for disposing of the wastes from exploiting these resources, provided the free market is operating, of course. Because economic theory is concerned with the allocation of scarce resources, and nature was not considered a constraining factor, that paradigm considered the environment to be irrelevant to economics.

It was not until we began to realize that our economic development and population growth were starting to strain the earth's carrying capacity, that we slowly began to replace the dominant paradigm with the alternative, which we are now calling sustainable development. After last week's platform you are all well versed in sustainable development. You know that it is the realization that economic growth can no longer take place at the expense of the earth's natural capital. Instead we must care for that capital, and live off the interest. Far from being irrelevant to economics, the ability of plants to convert carbon dioxide to oxygen, the ability of wetlands to cleanse water, or the ability of a forest to stabilize aquifers, are all environmental services which are crucial to our continued growth, and thus must be valued in economic terms.

The mainstreaming of environmental stewardship into our economy begins with simple things. When my girls correct me for throwing my bottle into the wrong bin, when they frown on ice cream cones that come packaged in three different wrappings, when they complain about the pure insulation of a hundred year old home, and refuse to eat from Styrofoam plates, that's valuation of the environment. My long hot showers and green family van are probably not very good examples. As individuals, we can all do better at home.

And as individuals, we can all exercise our power as shareholders. (Well, this week there are probably less stocks being held than two weeks ago…) Nonetheless, just three days ago BP Amoco shareholders passed a resolution calling on the company to abandon its controversial offshore oil project in the Arctic, and redirect funds into its solar subsidiary BP Solarex. In fact, last year Dow Jones and the Sam Sustainability Group launched the Dow

Jones Sustainability Index, which tracks performance of leading companies world-wide. The Index addresses increasing investor interest in companies committed to innovative technology, industrial leadership and social well-being. There is mounting evidence that the management of these particular factors is directly related to superior financial performance.

The direct relationship between these two factors demonstrates a real paradigm shift. Although there are as many definitions of sustainable development as there are people involved in promoting it, the crucial common denominator is assigning economic value to the long-term management of natural resources. That allocation of value has started at the level of the investing public. The message is being directly received by listening corporations.

You have all heard about BP Amoco and Shell's voluntary greenhouse gas emission reduction plans. Tokyo Electric Power has announced an $82 million dollar investment in reforestation in Australia. Daimler Chrysler's recent bid for a controlling stake in Mitsubishi Motors Corporation is a result of Daimler's desire to diversify its product mix by adding smaller, more fuel-efficient cars. Aware that - with or without the Kyoto Protocol – the future trend is toward less carbon intensive economies, multinational corporations have seen that efficient energy systems with low-emissions will prevail sooner rather than later. A slow but massive reallocation of assets has already begun. The shift is having an impact on investment decisions, as analysts begin to benchmark greenhouse gas efficiency as a mainstream component of the corporate investment strategy.

Despite all the debate, the confrontations and the frustration, we have begun to move in the right direction. The issue now is the pace. The longer we procrastinate, the tougher it will be. While capital stock turnover could be achieved in years to decades, the stabilization of atmospheric concentrations of long-lived gases can take decades to millennia.

Each one of us is called to make a difference on this planet. We can be proud of many differences we have made over the last hundred years, but certainly not of the imprint we have had on the natural resources of this planet. Let us commit to mending our ways, so that at the end of our lives we can stand before our children and **proudly** say, This is the planet we bequeath you.

Let us be kind to the earth as we tread, and may God bless all of us.