Reflections on the Eve of the CHOGM & Copenhagen Summits,
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The YouTube video on Indonesia sent out by Wendy Lee is further confirmation of the extent of the contribution of human action to global warming. The atmospheric pollution, so graphically shown in the video, is an indication of the future to which we might be condemned if we continue to dither on taking effective action to promote alternative development policies which could mitigate or halt environmental degradation.

As I argued in my critical analysis of the Port of Spain Declaration on Sustainable Development, the problems that Caricom and other under-industrialized countries in the South face in this area are, in many respects, qualitatively different from those faced by the industrialized countries. Moreover, all but three Caricom countries are small island states, a fact which makes us vulnerable to the effects of global warming in ways that do not affect non-island countries, except for a few low-lying ones like Bangladesh. Recent scientific projections indicate that sea levels could increase up to six feet in the course of this century. If the Greenland ice sheet were to melt entirely, sea levels could increase as much as 23 feet. Countries like ours in Caricom would be among those to suffer most from such a rise. The policies we adopt to respond to the threat of global warming must necessarily take account of our specific circumstances. Consequently, Caricom countries cannot afford to depend largely on the action that the industrialized countries in the North and the newly industrialized in the South (China, India, and Brazil) might take in reducing their greenhouse gas emissions, nor should we concentrate our efforts on ensuring that adequate emission reductions form part of a binding international agreement. Such agreement is absolutely essential for everyone but it should be complemented by action that is specific and relevant to our own situation.

Article 1 of the Liliendaal Declaration On Climate Change And Development**,** which was adopted by the last Caricom Heads of Government Conference (2-5 July 2009), emphasized the urgency of concluding "an ambitious and comprehensive agreement". The Declaration did recognize the need for improved land use management, which was completely absent from the Port of Spain Declaration on Sustainable Development, but like the POS Declaration, agriculture was given short thrift. Alternative agricultural development was mentioned only as one of a number of areas in which the region's educational institutions should provide training and research.

The 39-member Alliance of Small Island States (AOSIS) includes 14 Caricom countries (all except Montserrat), making Caricom the only cohesive group in the Alliance. Consequently, Caricom would certainly have exercised a determining influence in the formulation of the AOSIS Declaration on Climate Change adopted two months ago (21 September 2009). Such Caricom influence is reflected in the fact that Grenada's Permanent Representative to the UN is currently Chairperson of AOSIS. The AOSIS Declaration reads very much like the Port of Spain one, in that both the problem of global warming and the remedy for it are defined in terms that are much more relevant to the industrial North (and to a few big newly industrialized countries in the South e.g. China, India, and Brazil) than to small, under-industrialized countries like Caricom. Article 9 of the AOSIS Declaration reads:

> *"We further recognize that the inclusion of Carbon Capture and Storage (CCS) is potentially an important mitigation option for achieving the ambitious emission reduction targets being supported by AOSIS and urge the development of a program of work on Carbon Capture and Storage in order to resolve related issues."*

Carbon capture and geological storage is a technique for trapping carbon dioxide as it is emitted from large industrial polluting sources. The gas is then compressed and transported to a suitable storage site where it is injected into the ground. CCS has great potential as a technique for mitigating climate change but carbon capture and storage is extremely expensive even where it concerns large single-source quantities of the gas, which hardly exist in the under-industrialized Caricom countries. It is perfectly natural for AOSIS (and Caricom) to "urge the development of a program of work on Carbon Capture in order to resolve related issues" but it is much less natural that the Declaration would omit to mention a similar technique that is equally or even more effective than CCS which, unlike that industrial technique, is very relevant to our largely agricultural economies, and the cost of which is well within the limited resources of small developing countries like ours.

Although industry is the single most important contributor to greenhouse gas emissions, conventional agriculture is also a significant one - methane from livestock, nitrous oxide from the (over)use of chemical fertilizers, and carbon dioxide from farm-related energy and fuel use. The most effective policy action to reduce such emissions would be a shift to organic agricultural methods and techniques. A 2008 research paper, Regenerative 21st Century Farming: A Solution to Global Warming is a research paper by Timothy LaSalle & Paul Hepperly of the Rodale Institute in Pennsylvania, USA, which has conducted the longest-running U.S. field trials comparing organic and conventional farming practices. The paper describes the benefits of an integrated systems approach to farming, which uses regenerative, organic practices that include cover crops, composting, and crop rotation to reduce atmospheric carbon dioxide by removing it from the atmosphere and storing it in the soil as carbon:

> "*Data from nearly three decades of research trials indicate that wide-scale implementation of established, scientifically researched and proven practical farming methods will change agriculture from a global warming contributor to a global warming inhibitor, from a problem to a solution*."

Rodale's agricultural field trials have demonstrated that while chemical fertilizer and oil-based pesticides release carbon dioxide into the air, the organic approach sequesters carbon, removes it from the atmosphere, and returns it to the soil. The paper states:

> "*Agriculture is an undervalued and underestimated climate change tool that could be one of the most powerful strategies in the fight against global warming. Nearly 30 years of Rodale Institute soil carbon data show conclusively that improved global terrestrial stewardship--that specifically includes 21st Century regenerative agricultural practices--can be the most effective currently available strategy for mitigating CO2 emissions. Agricultural carbon sequestration has the potential to substantially mitigate global warming impacts. When using biologically based regenerative practices, this dramatic benefit can be accomplished with no decrease in yields or farmer profits. Even though climate and soil type affect sequestration capacities, these multiple research efforts verify that regenerative agriculture, if practiced on the planet's 3.5 billion tillable acres, could sequester up to 40 percent of current CO2 emissions."*

Organic agriculture would produce several other benefits of considerable value to developing countries like Caricom. According to the research paper, organically managed soils can convert carbon dioxide from a greenhouse gas into a food-producing asset, which would be no small benefit, considering that a substantial drop in food production, high food prices, and food scarcity are widely predicted as a consequence of climate change. Indeed that trend has already begun. We saw it happen to Haiti last year. Organic agriculture would also reduce soil erosion and prevent loss of fertility, while the discontinuation of chemical fertilizer and pesticide use will lead to cleaner waterways. For countries like Caricom, it will also mean cleaner coastal waters, cleaner beaches, and healthier coral reefs - an asset of inestimable value for countries where tourism is economically important. An important factor underlined in the research paper, is the rapidity and the low cost of switching to organic agriculture, which puts well in within the reach of almost all farmers: "*Farmers can transition to new practices relatively quickly and inexpensively using low-cost tools.*"

Several university research centres in the United States have corroborated the research findings of the Rodale Institute. A January 2008 Greenpeace report, Cool Farming: Climate impacts of Agriculture and Mitigation Potential, by Pete Smith of the School of Biological Sciences, University of Aberdeen, contains similar findings. According to the Report, "The most important finding is the fact that agriculture has the potential to change from being one of the largest

greenhouse gas emitters to a net carbon sink." It details a variety of farming practices which can reduce agriculture's contribution to climate change that are easy and inexpensive to implement.

The Liliendaal Declaration did refer to *"increasing carbon sequestration through the conservation and sustainable management of forest crops which are good carbon dioxide sequestrators*" but that would only concern the three continental Caricom countries. Like the POS Declaration, the omission of any reference to agroecology in the Liliendaal Declaration and the apparent failure to grasp the central importance of agriculture in sustainable development (in the former Declaration) and in climate change (in the latter one) despite the considerable amount of published research available, is most puzzling. So is the inexplicable fixation of Caricom decision-makers (and the officials who advise them) on solutions proposed by the North which are of little or no relevance to the situation of Caricom - Carbon emissions cap-and-trade, in the case of the POS Declaration, and Carbon Capture and Storage, in the case of the AOSIS Declaration - when there are accessible, relevant, appropriate, and arguably more effective solutions available.

It is not outside the realm of possibility that environmentally vulnerable societies like ours in the Caribbean might face collapse because of the range and seriousness of the problems that severe environmental degradation could cause us - not in the short term, perhaps not in the medium term, but possibly in the long term - if left unaddressed or if the wrong policies are adopted to deal with them.

Maya society was the most culturally advanced and the most sophisticated society in the Pre-Columbian New World. Climatologists and paleoecologists came across evidence in recent years that ancient climate change and environmental changes may have played a significant role in its collapse. Joseph Tainter, the American anthropologist and historian, author of the most cited book on societal collapses (The Collapse of Complex Societies, 1988), dismisses environmental changes as a credible cause for the collapse of complex ancient societies, like the Maya. He argues that such advanced societies, which had the capability to do manage their environmental resources, would hardly sit by and watch their depletion without taking corrective action.

> *"It is curious that they [complex societies] would collapse when faced with precisely those conditions they are equipped to circumvent…… As it becomes apparent to the members or administrators of a complex society that a resource base is deteriorating, it seems most reasonable to assume that some rational steps are taken towards a resolution. The alternative assumption - of idleness in the face of disaster - requires a leap of faith at which we may rightly hesitate" (The Collapse of Complex Societies)*.

Jared Diamond, the American evolutionary biologist and geographer, disagrees. He has identified environmental mismanagement as a cause of societal collapse. Diamond demonstrated, from a number of case studies he has undertaken, that societal collapses have occurred repeatedly in the past, in precisely the circumstances which Tainter considered unimaginable. (Collapse: How Societies Choose to Fail or Succeed, 2005). From the cases he studied, Diamond identified failures of group decision-making, on the part of whole societies or other groups, as the reason for such otherwise inexplicable societal collapses. He found a range of factors that contributed to such failures in group decision-making, among which were conflicts of interest among members of the group and group dynamics.

> *"Lest one be misled into thinking that crashes are a risk only for small peripheral societies in fragile areas, the Maya warn us that crashes can also befall the most advanced and creative societies."* (Diamond, 2005*).*

Caricom decision-makers, elites, and the educated classes, would be wise to take heed.

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