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Advancing Human Security: The Role of Technology and Politics

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Report on Working Group 6
Mitigation of Global Environmental Change

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The theme of this conference is "Advancing Human Security: The Role of Technology and Politics." The second part of this title recognizes that we need integrated approaches to ensure our survival. Scientific and social inventiveness together will help us address our complex problems. Similarly, "Human Security" is a fertile concept. We must chose to define "security" broadly. Our security - our safety - is inextricably tied up in the health of the Earth. It is time to expand our intellectual horizons to include the urgent and real threat of environmental degradation.

Under continuation of recent trends, we can expect, by 2100, a tripling of pre-industrial levels of atmospheric carbon dioxide, with a quadrupling almost unavaoidable thereafter. That world would be a "scorched earth:" unbearably high surface air temperatures, severe drought conditions, dramatic change in ocean levels, and irretrievable loss of biodiversity.

Global Climate Change is primarily a human-induced phenomenon. In the past fifty years, climate models which combine natural processes with human intervention correlate extremely well with temperature records.

Levels of consumption, the carbon intensity of energy sources and processes such as deforestation and land degradation all determine atmospheric CO2 levels. Reforestation can reduce CO2 and has local benefits but cannot be relied upon alone to abate global climate change.

Stabilization of global population will help. For example, in countries where universal free education has been extended, especially to women, fertility rates are lower. One possible solution is to reduce population growth rates through education.

However, it is the high energy consumption on behalf of the developed world which is most urgent. Carbon-based fuels contain hidden subsidies that artificially lower their cost, placing a barrier to renewable energy sources. Wind and solar energy are too intermittent to provide adequate base loads of electricity. For many countries, the main alternative to coal, whose carbon emissions are extremely high, remains nuclear power. In that sense, countries may need to consider keeping the nuclear option open providing issues such as nuclear proliferation, vulnerability to terrorist attacks and the safe disposal of nuclear waste are solved. The widespread move to renewable energy sources, while desirable, requires a thorough economical and technological assessment.

Despite these difficulties, it is urgently important that mitigation strategies are not sacrificed in favour of adaptation strategies. Whereas the cost of mitigation will be borne largely by rich countries, poor countries bear the brunt of adaptation measures. Further, climate change information risks becoming commoditized and sold to the highest bidder, giving preferential access to those least in need. Early knowledge about climatic events, for example, can enable rich farmers to exhaust the supply of drought-resistant seeds. Focus upon adaptation, which is dependent upon access to scientific data, can drive a wedge deeper between rich and poor.

Many areas of the world are already facing dwindling water resources. Given the high prevalence of transboundary water systems, nations must cooperate through water sharing and joint management in order to avert water-based conflicts. Concurrently, nations must balance their needs for capital investment with an affirmation that water is a universal human right. Governments must distinguish between different uses of water so that water for basic survival purposes is not commoditized.

On the one hand, large scale projects such as dams and industrial irrigation can provide sophisticated technological solutions to water problems. On the other hand, water management at the individual level - such as collecting rainwater and using backyard filtration systems - can vastly increase water yields. The imposition of inappropriate water technologies can undermine social cohesion. Managers of local water resources should weigh the high legitimacy of small-scale, individual efforts against the technological advantage of large-scale projects.

Traditional knowledge has much to offer science. For example, oral accounts by the indigenous inhabitants of Canada's Arctic region can provide researchers with information about climate change for which there is no numerical data. An appreciation of complexity and ambiguity challenges the administrative mind which tends to artificially compartmentalize problems into narrow parts. Technological fixes are no panacea but must rather be seen as part of a bigger picture.

A "sustainability" paradigm should inform responses to the global environmental threat. A shift towards this paradigm must be achieved through the "ultimate" drivers of society: our values and needs, our knowledge and understanding, our power structures and our culture. The participation of a number of different actors, termed "Governance," can accomplish this goal better than the more limited conception of government. Support for governance initiatives can be bolstered by research into, and education about, the ultimate drivers of society.

Is sustainability an appropriate conception for Pugwash to adopt? We are familiar with the Russell-Einstein manifesto of 1955. As one participant in our group suggests, however, it may be appropriate to reformulate the manifesto to address the pressing needs of today:

We are speaking as an integral part of planet Earth, whose continued provision of a hospitable environment for humanity is in doubt… remember sustainable use and forget the rest… If you cannot, there lies before you the risk of universal death.

The words of TS Eliot give us sober pause to reflect upon the changing nature of our world: "This is the way the world ends/ Not with a bang but with a whimper." Human security today is threatened by nuclear proliferation. But we have more to fear than the big bang. The whimpers contained in the warnings of environmental exhaustion threaten our security just as much. Pugwash can, and should, assist in bolstering support for sustainable development world wide.

This can be achieved without undermining Pugwash's esteemed position in the intellectual and political communities. Pugwash can lend support to organizations at the local, national and international levels by commissioning scientific studies whose findings would be accessible to specialists and generalists alike. This working group urges individuals in Pugwash to contribute to the following initiatives:

1. Develop a workable international strategy to implement the thorough findings of IPCC. The Intergovernmental Panel on Climate Change has extensive evidence and recommendations about global climate change. Due to their close relationship with national governments, however, they have not been given the mandate to devise a concrete strategy. Pugwash members have the expertise to translate their findings into action, and the independence to advocate this new strategy to national governments.

2. Prepare readable and accessible studies on specific environmental threats in local areas. Grassroots organizations can use this data to support their advocacy activities.

3. Study how businesses can operate within a sustainability paradigm. If business have access to solid suggestions on how to decrease their ecological impact in

ways that can increase their economic efficiency, they will be likely to implement them. Given the increasing role of multinational corporations, this recommendation is particularly relevant. Pugwash can advocate the "quadruple bottom line" that urges business to consider not only economic but also social, environmental and security factors.

4. Related to this, Pugwashites can contribute to the ongoing research and reflection on alternative economic development, whereby indices such as GDP are replaced by more holistic measures.

5. Examine the negotiation processes of international agreements. This is necessary not only to increase accessibility to these processes but also to indicate in which ways diverse perspectives can be incorporated.

6. Finally, Pugwashites can advocate for a "Blue Revolution" that calls for water conservation, wise management and equitable distribution of our most necessary resource.

The horrific images of Hiroshima and Nagasaki capture our imagination. The mind throbs when it tries to understand how quickly so many lives can just vanish. The repulsion that such cruelty comes at the hands of humans, and the faith that we are wise and compassionate enough to avert it, if only we could get our priorities straight, has inspired Pugwashites for decades. But a torched earth and a scorched earth have the same moribund result. If we are to remember our humanity, we must remember our capacity for change. In the face of the very real threat of global warming and resource exhaustion, Pugwashites can use their expertise to help society to deal with the complex and interconnected nature of our troubles. We are free to imagine the world we want, and in this world, human security depends on environmental sustainability. It is time to define our goals and responsibilities more broadly.