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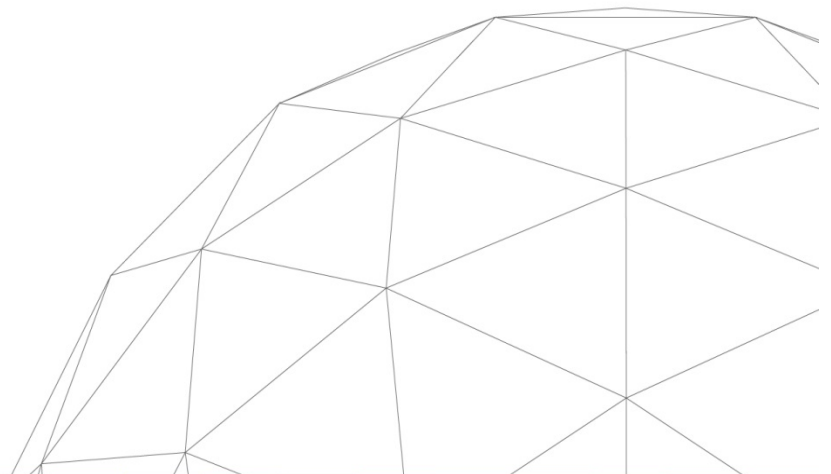
DNC 2015 | GLOBAL CHANGE
SDGs NEXUS APPROACH

POSITION PAPER – Extended Summary

Climate Change, Profligacy, Poverty and Destruction: All Things Are Connected

Brian Moss

Day 1 | Climate Change



Climate change, profligacy, poverty and destruction: all things are connected

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Summary

In 1987, the Brundtland Report, *Our Common Future*, catalysed a more comprehensive approach to problems of increased populations, poverty, social injustice and environmental decline. It was among the first to recognise that the problems are all linked and that a comprehensive approach (a Nexus approach) was necessary if they were to be solved. The Report recognised environmental, social and economic aspects to the problems and advocated an even-handed approach to these three aspects.

That was probably a bias arising from the composition of the Commission, which included mostly economists and politicians, albeit with strongly sympathetic attitudes to the human plight. What the Commission lacked was a really strong voice for the environment. Subsequent tackling of the problems through sociology and economics by politicians and administrators, with little experience or training in the workings of the natural environment, is one reason why progress has been slow. This is particularly apparent in tackling the issue of rapid climate change, which has come to the fore in the decades following *Our Common Future* and now enfolds the other problems.

Natural scientists have a powerful understanding of the nature of our planet. It is chemically a non-equilibrium system, which means that a great deal of energy needs to be invested to maintain the composition of the atmosphere, oceans and soils in a state that allows equable temperatures to be maintained, and in particular, liquid water to persist. Liquid water is the *sine qua non* for life, and we are living organisms with exactly the same biological needs as all others. These conditions are maintained by natural living systems, manipulating colossal amounts of solar energy and geological materials. Our fundamental problem is that we have interfered with this system by destroying about 70% of these systems on land, and replacing them with agricultural systems, which do not provide these ecosystem services. We are also changing the composition of the oceans by acidifying them with carbon dioxide produced from burning fossil fuels. The issue of rapid climate change (thirty times more rapid than experienced as natural climate change in the past) is intimately linked with this destruction, occasioned largely by our exploitation of fossil fuels and land, to support a relatively profligate life style for the developed world, and resulting in exploitation of the poor in the developing world.

Realisation of our fundamental nature, not only with respect to our absolute and irreplaceable dependence on natural systems, but also in recognising our own basic biology, is fundamental to solving our problems. We cannot exist in a self-protected bubble of human-controlled systems; our current misperception that we can control our future independent of the natural environment rests on our current isolation from it and our consumption of non-renewable resources. That is not sustainable and there are hints that tipping points may exist where precipitous changes in climate may follow unexpectedly from our current steady trends of increasing damage.

We also fail to recognise that there are two sides to our natures; one is cultural and depends on our large brain to body mass ratio. It allows us degrees of altruism and abilities to foresee problems and consequences. The other is biological. The many genes that we share with other animals control us and this realisation has led one author to describe us as 'deceptive and scheming apes'. This aspect of our make up currently biases our negotiations concerning world problems and is manifested in

concerns for national status and wealth irrespective of the consequences for others. Recognition of this duality in our natures is needed to help us to achieve solutions to our burgeoning problems.

Presently we see climate change as a simple problem of agreeing to reduce carbon emissions. Even were this to be done to high levels it would not of itself stop the current increase in temperature, with its consequences for storminess, floods and droughts as the atmosphere adjusts to the impacts of huge additional amounts of energy. Temperature will not cease to rise until annual carbon emissions are balanced by storages of carbon in lake and ocean sediments, peats and soils, processes that are provided by natural systems but not agricultural ones. We have lost substantial carbon sinks and will need to recreate them by restoring large areas that are now agricultural to renaturalised systems. In turn this will involve a grand strategy to release large areas of land (up to one third of current agricultural areas) and will mean integrating policies for urbanisation, food production, distribution and storage; it will also mean adoption of more representative indices for human welfare than the present deeply flawed gross domestic product. An essential first step will have to be inclusion in governments and administrations of a large number of people trained profoundly in the natural biological sciences. Among current world leaders there are almost none that have such qualifications.



Brian Moss was Holbrook Gaskell Professor of Botany at the University of Liverpool since 1989 and theoretically retired in 2008. In practice he works just as hard as he always did but on less than half of the income. He has taught or carried out research or both on six continents over fifty years. His interests are catholic but include eutrophication, lake restoration and climate change and in addition to the conventional long list of papers in learned journals, he has published a well-known textbook on the *Ecology of Freshwaters* (Fourth edition, 2010), a New Naturalist book on ‘*The Broads*’, and a manual for shallow lake restoration.

He is much concerned with global environmental problems, the use of the arts to convey messages about the environment to the wider public, and the problems that scientists have in the way they write. He also plays the contrabass (inexpertly) and is Chairman of the Southport Orchestra. He has been President of the British Phycological Society, Vice-president of the British Ecological Society and President of the International Association for Limnology (2007-2013). He was awarded the Association’s Naumann-Thienemann Medal in 2007 and the 2009 International Institute of Ecology Prize for excellence in ecology, the outcome of which is a book entitled ‘*Liberation Ecology*’ (2012). In 2010 he was awarded the annual medal of the UK Institute for Ecology and Environmental Management. ‘*Liberation Ecology*’ was awarded the British Ecological Society/Marsh Christian Trust prize for the most influential book on Ecology published in the last two years at INTECOL in London in 2013. A new book, *Lakes, Loughs and Lochs*, in the New Naturalist series, will appear in May 2015.