

MDG 7: How Buddhists can prevent a head-on collision with limits

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INTRODUCTION: INCREASING UNEASE ON SPACESHIP EARTH

One of the founders of ecological economics, Professor Kenneth Boulding (1910-1993) is mostly remembered as saying that the only person who believes in perpetual economic growth is either a madman or an economist. I haven't found proof that Boulding ever said this, but a talk of his that was published in an edited book in 1966¹ reflects the spirit of this comment, and his whole chapter in that book deserves celebration. I have drawn from it extensively in this essay for the 2014 UNDV conference.

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1. Boulding KE. The economics of the coming spaceship earth. In: Jarrett H, editor. Environmental Quality in a Growing Economy. Baltimore, MD: Resources for the Future/Johns Hopkins University Press http://scholar.google.com.au/scholar?q=boulding+spaceship+earth&btnG=&hl=en&as_sdt=1%2C5; 1966. p. 3-14.

Boulding's essay covers ground that is familiar for those concerned with ecological economics, for example the confusion between well-being and economic "growth"². Conventionally, economic growth is said to increase even if economic "bads" such as non-fatal car accidents increase, or if the "ecosystem services"³ of a standing forest are lost, converting habitat, shade and regulation of climate, water and soil into construction material, heat and air pollution. Boulding pointed out that we live in a closed system, 118 years after John Stuart Mill, widely regarded as a true genius and one of the leading founders of neoclassical economics, also discussed the futility of perpetual economic growth⁴. Boulding anticipated the exhaustion of non-renewable resources, such as of fossil fuel, ⁵which he calls "a capital stock of stored-up sunshine", foreshadowing the poetic title of Hartman's book "The Last Hours of Ancient Sunlight"⁶.

Although energy from the sun floods Earth every day, material resources in high concentrations are finite, whether of coal, phosphorus, or tantalum, a rare element found mostly in the Democratic Republic of Congo. This metal is vital for the modern economy, such as for mobile phones and laptop computers; however, in conjunction with poverty, lawlessness and greed the hunt for tantalum is also a major factor in the barbarity and seemingly endless war in that nation,⁷ whose casualties in the last decade exceed that from the Civil War in Syria by as much as fortyfold. Humans, now numbering over seven billion, have become experts at extracting,

2. Daly H. *Beyond Growth*. Boston: Beacon Press; 1996. 253 p.

3. Millennium Ecosystem Assessment. *Ecosystems and Human Well-being. Synthesis*. Washington: Island Press; 2005. 137 p.

4. Mill JS. On the stationary state [1848]. *Population and Development Review*. 1986;12(2):317–22.

5. Miller RG, Sorrell SR. The future of oil supply. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*. 2014 January 13, 2014;372(2006):<http://rsta.royalsocietypublishing.org/content/372/2006/20130179>. abstract.

6. Hartmann T. *The Last Hours of Ancient Sunlight*. New York, New York: Three Rivers Press; 2004. 368 p.

7. Montague D. Stolen goods: Coltan and conflict in the Democratic Republic of Congo. *SAIS Review*. 2002;XXII(1):103-18.

concentrating and then disbursing non-living resources. We either burn them (e.g. as fuel) or distribute them to the waste stream. Phosphorus is an essential element (i.e. it cannot be substituted) which is now becoming scarce⁸. Yet we still squander phosphorus, flushing large amounts into the ocean with sewerage.

Our species has also become expert at destroying many renewable resources, some of which are also becoming rare, including many large mammals that once lived in the wild, from tigers to orangutans, and the habitat to support them⁹. The weight of humans and domesticated animals (used largely for our food) exceeds that of all wild terrestrial mammals, combined, by about 25:1¹⁰. Humans are also radically altering the ocean, including by changing its food webs, and by making it significantly more acidic¹¹.

The persistently high price of energy and thus of food reflects the approaching limits to the easy and cheap extraction of sufficient resources to ensure widespread human well-being. These are under-appreciated causes of the current economic gloom and social turmoil. In Europe, more than 1 billion dollars are lost from circulation every day, sent to oil-producing nations in exchange for expensive energy¹². This leakage of funds has contributed to persistent unemployment sowing karmic seeds of a return of fascism in Europe. Nor has this trade ensured prosperity in oil-rich nations, some of which, like the Gulf States, are squandering billions of petrodollars on trophy skyscrapers, artificial resort islands and sports stadia constructed

8. Cordell D, Drangert J-O, White S. The story of phosphorus: global food security and food for thought. *Global Environmental Change*. 2009;19:292–305.

9. Barnosky AD, Matzke N, Tomiya S, U.Wogan GO, Swartz B, Quental TB, et al. Has the Earth's sixth mass extinction already arrived? *Nature*. 2011;471:51-7.

10. Faergeman O. Climate change, food and energy: politics and co-benefits. In: Butler CD, editor. *Climate Change and Global Health*. Wallingford, UK: CABI; 2014 (in press).

11. Butler CD. Towards a Buddhist approach for living in harmony with the oceans and its life In: Dhammasami K, Dhammhaso PH, Dhammaratana T, Somaratna GA, Keown D, Butler CD, et al., editors. *Buddhist Virtues in Socio-Economic Development*. Bangkok: Mahachulalongkornrajavidyalaya University; 2011. p. 441-9.

12. Murray J, King D. Climate policy: oil's tipping point has passed. *Nature*. 2012;481:433-5.

by an overexploited, underpaid imported workforce¹³. Urban populations in developing countries such as Egypt, highly dependent on imported food and imported energy, are also highly vulnerable to associated social instability¹⁴.

The threat of dangerous climate change is steadily increasing,¹⁵⁻¹⁶ including via reinforcing feedbacks that appear already to be melting the tundra. If this continues, it will release vast amounts of greenhouse gases from the Arctic,¹⁷ *additional* to that dumped into the atmosphere, caused by our collective profligacy at burning fossil fuels and clearing forests.

An increasing number of scientific writers openly express concern that civilisation itself is in peril^(18,19,20,21). This scenario is considered plausible due to cascading consequences arising from factors such as sea level rise (from climate change causing the melting of glaciers) and population displacement (e.g. from Bangladesh and the deltas of the Nile and Mekong rivers) and, ultimately, widespread conflict. The drought in Syria, perhaps also worsened by climate change, is

13. Pattison P. Revealed: Qatar's World Cup 'slaves'. The Guardian. 2013; <http://www.theguardian.com/world/2013/sep/25/revealed-qatars-world-cup-slaves>

14. Lagi M, Bertrand KZ, Bar-Yam Y. The Food Crises and Political Instability in North

Africa and the Middle East. necsi.edu/research/social/food_crises.pdf: New England Complex Systems Institute, 2011.

15. Anderson K, Bows A. Beyond 'dangerous' climate change: emission scenarios for a new world. *Philosophical Transactions of the Royal Society A*. 2011;369:20-44.

16. Hansen J, Kharecha P, Sato M, Masson-Delmotte V, Ackerman F, Beerling DJ, et al. Assessing "dangerous climate change": required reduction of carbon emissions to protect young people, future generations and nature. *PLoS ONE*. 2013;8(12):e81648.

17. Whiteman G, Hope C, Wadhams P. Vast costs of Arctic change. *Nature*. 2013;499:401-3.

18. Butler CD. Inequality, global change and the sustainability of civilisation. *Global Change and Human Health*. 2000;1(2):156-72.

19. Butler CD, Weinstein P. The future of global health. Reasons for alarm and a call for action *World Medical Journal* 2013;59(3):82-90.

20. Oreskes N, Conway EM. The collapse of Western civilization: a view from the future. *Daedalus*. 2013 013/01/01;142(1):40-58.

21. Ehrlich PR, Ehrlich AH. Can a collapse of global civilization be avoided? *Proceedings of the Royal Society B: Biological Sciences*. 2013 March 7, 2013;280(1754):doi: 10.1098/rspb.2012.845

an underlying factor in its brutal civil war²². Also predicted - and understandable - is the rise in global food prices observed since 2007. This was contributed to by more expensive energy and extreme weather events, especially since 2010; including two very severe droughts in the US (2011-2012) worsened by extreme heat. An alternative scenario to collapse via conflict is of declining food supplies, increased under-nutrition, falling governance and public health, and the return of large-scale epidemics²³. These scenarios could coincide.

GROWING GLOBAL ENVIRONMENTAL CONCERN: FROM STOCKHOLM TO RIO

The decades immediately following Boulding's appeal saw encouraging progress in the development of a global ecological consciousness, such as the first Earth Day (1970) and the UN conference on the Human Environment held in 1972 in Stockholm. In 1972, a book commissioned by the Club of Rome was published²⁴ called *Limits to Growth*. It forecast the collapse of civilization under a "business as usual" scenario. It became an unexpected best seller, fuelled in part by contemptuous attacks on its forecasts by conservatives. Then, in 1974 the UN commissioned the first of three major conferences on population, held at decadal intervals until 1994.

In 1987 the UN sponsored a report called *Our Common Future*²⁵. Commonly called the Brundtland Report after its chair, a former Norwegian Prime Minister, this popularized the term "sustainable

22. Femia F, Werrell C. Syria: climate change, drought and social unrest. ClimateProgress. 2012;<http://thinkprogress.org/climate/2012/03/03/437051/syria-climate-change-drought-and-social-unrest/>.

23. Butler CD. Infectious disease emergence and global change: thinking systemically in a shrinking world. *Infectious Diseases of Poverty*. 2012;1:5 <http://www.idpjournals.com/content/1/5>.

24. AtKisson A. The brightest star in the sky: a tribute to Donella H. Meadows. *Ecological Economics*. 2001;38(2):171-6.

25. World Commission on Environment and Development, editor. *Our Common Future*. Oxford: Oxford University Press; 1987.

development”. In 1992, the biggest environmental conference of all time was held in Rio de Janeiro, attracting 103 heads of state – the most ever until that time – at what is often called the “Earth Summit”²⁶.

While the Rio conference represented the high tide of environmental concern, it may also have signaled a decline. In 1992, despite the euphoria, US President George Bush stated, “the American way of life is not up for grabs, or not up for negotiation”²⁶. Maurice Strong, the main convenor of the Earth Summit, commented [emphasis added]:

“We did have a situation where the country that is the largest country in the world, the largest economy in the world. *That whose patterns of production and consumption are clearly the most damaging to the world environment was the most resistant to any recognitions.* They were even more resistant to any suggestion that they knew anything about it.... The U.S. had a major impact in the sense that they made, they drove home to the developing countries the degree to which it was going to be very difficult to get the chief offenders.”

Until the Rio conference, some poor countries might have clung to hope that rich countries would finally show genuine leadership, despite their long experience of failed promises acquired over previous decades²⁷. That trajectory has not so far been reversed. This lack of generosity, compassion and sharing remains a major reason for the lack of global progress toward dealing with climate change and resource scarcity.

RIO PLUS 20: A PHONY SUMMIT

Boulding lamented how economists, in particular, had failed to

26. Strong M, Shabecoff P. The 1992 Earth Summit: An inside view. Available from: <http://www.mauricestrong.net/index.php/earth-summit-strong> 29/12/13.

27. Butler CD. The North and South. In: Hedblad A, editor. International Encyclopedia of the Social Sciences. 5. New York: MacMillan Reference; 2007. p. 542-4.

come to grips with the ultimate consequences of the transition from the open to the closed earth. In the lead-up to the 2012 “Rio+20” conference there was much talk of the “Green economy” but it was mostly greenwash. Some leading critics commented that the assumptions about the nature of reality in the dominant discourse in that conference were inconsistent with contemporary science and “the current economic framework ... uses a conceptual framework laid down in the 18th century and tries to apply it to the Anthropocene”²⁸.

Some readers may be unfamiliar with this term, which refers to our current human (“anthro”) -dominated epoch. The concept is not new. In 1873 the Italian geologist Antonio Stoppani wrote of the “anthropozoic era”. He likened human influence to a “new telluric force which in power and universality may be compared to the greater forces of earth”²⁹. This term has become increasingly popular in the last decade, and more scientists assert that our species is altering the fundamental characteristics of the Earth system on a scale previously only possible by enormous natural forces, such as the major changes in the geometry of the Earth’s orbit that determined the length of ice ages³⁰.

THE MILLENNIUM DEVELOPMENT GOALS AND THE ROLE OF LORD MALLOCH BROWN

In 2000, 149 heads of state conferred to commemorate the new Millennium (<http://www.unmillenniumproject.org/goals/>). They announced eight ambitious Millennium Development Goals (MDGs) to be achieved by 2015. Boulding wrote “primitive men, and to a large extent also men of the early civilizations, imagined themselves to be living on a virtually illimitable plane”. Unfortunately, in addition to

28. Kosoy N, Brown PG, Bosselmann K, Duraiappah A, Mackey B, Martinez-Alier J, et al. Pillars for a flourishing Earth: planetary boundaries, economic growth delusion and green economy. *Current Opinion in Environmental Sustainability*. 2012;4(1):74-9.

29. Crutzen PJ. Geology of mankind. *Nature*. 2002;415(6867):23.

30. Berger A. Milankovitch theory and climate. *Reviews of Geophysics*. 1988;26(4):624-

the economists who were largely deaf or indifferent to his message, Boulding could have added a very senior official within the UN system, then head of the United Nation Development Programme called Mark Malloch Brown (now “Lord” Malloch-Brown)³¹.

If the arguments advanced at Rio and by Boulding and many others had had genuine impact then the Millennium Goal on environment, which seeks to “ensure environmental sustainability” would have been fundamental. Of course, it wasn’t. It was listed second last, almost omitted and nearly forgotten. Malloch Brown later explained how he and the small group wrote up the MDGs in the basement of the UN office in New York in “relative casualness”, so much so they almost forgot to include a section on the environment³¹.

“The document had gone to the printing presses as I passed the head of the UN’s environmental programme,” says Malloch-Brown. “I was walking along the corridor, relieved at job done, when I ran into the beaming head of the UN environment programme and a terrible swearword crossed my mind when I realised we’d forgotten an environmental goal ... we raced back to put in the sustainable development goal”³¹.

In 2003 I was invited to a meeting about health and climate change, in New York City, organized by the late Professor Paul Epstein³² and Swiss Re, one of the world’s largest insurance companies³³. Paul had good connections – Malloch Brown spoke to us as we mingled on that first night, in a hotel near the UN building, where our meeting was held the next day. I can’t remember much of his speech, but I do recall I was already unhappy with the timidity of the seventh MDG (see box).

Singling out Malloch Brown for most of the blame would be

31. Tran M. Mark Malloch-Brown: developing the MDGs was a bit like nuclear fusion. *The Guardian*. 2012.

32. Clapp R. Paul Epstein (1943–2011): a life of commitment to health and social justice. *PLoS Biology*. 2012;10(3):e1001284.

33. Butler CD. Dedication. In: Butler CD, editor. *Climate Change and Global Health*. Wallingford, UK: CABI; 2014 (in press).

simplistic to do. He is part of an entire world-system that denies the manifold aspects of Limits to Growth, preferring instead to publicise the stock market price or the latest football score.

Goal 7: Ensure Environmental Sustainability

Target 9. Integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources

Indicators

- 25.** Proportion of land area covered by forest (FAO)
- 26.** Ratio of area protected to maintain biological diversity to surface area (UNEP-WCMC)
- 27.** Energy use (kg oil equivalent) per \$1 GDP (PPP) (IEA, World Bank)
- 28.** Carbon dioxide emissions per capita (UNFCCC, UNSD) and consumption of ozone-depleting CFCs (ODP tons) (UNEP-Ozone Secretariat)
- 29.** Proportion of population using solid fuels (WHO)

Target 10. Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

Indicators

- 30.** Proportion of population with sustainable access to an improved water source, urban and rural (UNICEF-WHO)
- 31.** Proportion of population with access to improved sanitation, urban and rural (UNICEF-WHO)

Target 11. Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers

Indicators

- 32.** Proportion of households with access to secure tenure (UN-HABITAT)

THE TIMIDITY OF MDG 7

There are many problems with the language of the targets and indicators of MDG 7. Although worthwhile, Targets 10 and 11 reflect conceptual confusion about sustainable development; they belong in a separate category, perhaps with MDG 1, which refers to the reduction of poverty. They may have been added here, perhaps unconsciously, to distract attention from Target 9, which is conceptually far more important.

The indicators for Target 9, especially numbers 27 and 28, are especially problematic. Energy use is not necessarily bad; in fact, abundant energy is essential for modern life. Humans have always needed heat, light, and transport. We now need enormous quantities of energy for agriculture, the transport of food and other materials, and for communication. If we can generate this energy with relatively limited environmental impact, such as by solar and wind-generation, then we could slow climate change and help conserve fossil fuels.

The term “energy use (kg oil equivalent) per \$1 GDP (PPP)” is a kind of secret language, acceptable to governments and corporations, allowing them to continue with “business as usual” while suggesting that significant progress is being made; in fact problems are still accruing. As long as gross domestic product (GDP) rises (as conventionally defined, that is with no reference to the critique of Boulding and others), then the target also permits energy use to increase, though at a slower rate. This trend has long been occurring; both technology and society have been becoming more energy efficient per unit of GDP, probably for over a century – the first steam engines were extremely inefficient.

Indicator 27 is intended to be interpreted with the next one, which refers to carbon dioxide (CO₂) emissions per capita. This indicator also has an “escape clause”. If population continues to rise, then so too can total carbon emissions. The target gives no sense of a “carbon budget”. This refers to the idea that cumulative CO₂ emissions must be capped below a certain amount (1 trillion tonnes is often quoted)

³⁴if the planet is to avoid dangerous climate change.

Many other forms of pollution, such as the visible causes of haze, or faecal contamination, aren't cumulative. A river bank may be permanently squalid, caused by people using it as a toilet, but the waste also continues to break down. Within a year of non-use (or perhaps even a month) the bank will be clean. Rain can clear smoggy air in hours. In contrast, the greenhouse gases that cause climate change accumulate for years, and in the case of the most important gas, CO₂, for a century or more ¹⁶.

When the MDGs were framed the concept of a carbon budget (sometimes called “unburnable carbon”) was scarcely known, even to experts. However, the concept of “dangerous” climate change was well known, as was the long atmospheric lifetime of CO₂. The UNDP could have developed much more useful targets and indicators had its framers really understood sustainable development. Today, carbon emissions continue to rise steeply, and the world continues to rush towards extremely dangerous, perhaps catastrophic climate change. The first part of Target 28 has failed dismally; yet, to the novice, it is barely noticeable, buried among so many other goals, targets and indicators.

CATASTROPHIC EVENTS

“One can hope, therefore, that as a succession of mounting crises, especially in pollution, arouse public opinion and mobilize support for the solution of the immediate problems, a learning process will be set in motion which will eventually lead to an appreciation of and perhaps solutions for the larger ones” ¹.

In the early 1990s, when I first started to seriously engage with the

34. Allen MR, Frame DJ, Huntingford C, Jones CD, Lowe JA, Meinshausen M, et al. Warming caused by cumulative carbon emissions towards the trillionth tonne. *Nature*. 2009;458:1163-6.

literature on climate change and other forms of “planetary overload”³⁵ I occasionally heard echoes of Boulding’s hope. But humanity appears to be acclimatizing to disasters. Since 2000 there have been an unusual number. In 2003, the hottest summer in Europe for at least 500 years caused the premature death of up to 70,000 people³⁶. The threshold of “dangerous” climate change has already been crossed³⁷. In 2005 Hurricane Katrina devastated large parts of New Orleans; its population is still substantially lower. In addition to climate change, another contributing factor was the enormous loss of coastal wetlands, which would otherwise have helped to protect the city³⁸. In 2010 another particularly severe heatwave struck Europe, but this time in Russia and Ukraine. In association with severe fires and air pollution, mortality was elevated, perhaps by 50,000³⁹. Drought and heat greatly reduced the Russian and Ukrainian wheat harvest, leading to a significant jump in global food prices⁴⁰.

In late 2012 Superstorm Sandy followed a highly unusual course in the Atlantic Ocean, unexpectedly veering east to flood New Jersey and New York City. Although the death toll from Sandy was modest, its damages bill was over US\$50 billion, ranking behind Hurricane Katrina as the second most costly disaster of all time. Sandy stranded people without electricity for weeks in darkened high-rise apartments, forcing them to use unlit staircases to access the outer world; others relied on volunteers and relatives for food.

35. McMichael AJ. *Planetary Overload. Global Environmental Change and the Health of the Human Species*. Cambridge: Cambridge University Press; 1993.

36. Robine J-M, Cheung SLK, Le Roy S, Van Oyen H, Griffiths C, Michel J-P, et al. Death toll exceeded 70,000 in Europe during the summer of 2003. *Comptes Rendus Biologies*. 2008 2//;331(2):171-8.

37. Poumadère M, Mays C, Le Mer S, Blong R. The 2003 heat wave in France: dangerous climate change here and now. *Risk Analysis*. 2005;25(6):1483-94

38. Costanza R, Pérez-Maqueo O, Martinez ML, Sutton P, Anderson SJ, Mulder K. The value of coastal wetlands for hurricane protection. *Ambio: A Journal of the Human Environment* 2008;37(4):241-8.

39. Barriopedro D, Fischer EM, Luterbacher J, Trigo RM, Garcia-Herrera R. The hot summer of 2010: Redrawing the temperature record map of Europe. *Science*. 2011;459:220-4.

40. Butler CD. *Famine, hunger, society and climate change*. In: Butler CD, editor. *Climate Change and Global Health*. Wallingford, UK: CABI; 2014 (in press).

In November 2013, Typhoon Haiyan devastated part of the Philippines, and may have been the fiercest storm ever recorded by wind speed to cross land. It killed more than 6,000 people; its indirect death toll through reversed development is likely to be much higher. Its destruction was greatly magnified by two factors: poverty, in turn caused by a nexus of high population growth, corruption and inequality⁴¹, and excessive policy deference to the power of ingenuity to overcome scarcity. This is a principle I have called the “cornucopian enchantment”⁴².

Recent years have also seen very severe earthquakes, with consequences including several tsunamis and the Japanese nuclear disaster at Fukushima. The relationship between the intensity and frequency of offshore earthquakes and human-driven environmental change remains speculative, but the relationship is better established for large dams and, at least for minor quakes, for fluid injection to extract natural gas⁴³.

This sequence of catastrophes has had little obvious impact on our collective behavior. I’d like to stress three of the many reasons: ¹ the perceived powerlessness of individuals, ² the separation in time and space between action and effect, and ³ inequality. The survivors of Typhoon Haiyan (called Yolanda in the Philippines) can do much to increase their collective resilience to future storms – at least in theory⁴⁴– but they can do very little to slow sea level rise, or reduce the frequency of severe storms. That requires concerted effort by high-income populations. Yet, more than two decades after President Bush’s declaration, there is no evidence of this, though hope was

41. Kahl CH. *States, Scarcity and Civil Strife in the Developing World*. Princeton: Princeton University Press; 2006.

42. Butler CD. Globalisation, population, ecology and conflict. *Health Promotion Journal of Australia*. 2007;18(2):87-91.

43. Zoback MD, Gorelick SM. Earthquake triggering and large-scale geologic storage of carbon dioxide. *Proceedings of the National Academy of Sciences*. 2012 June 18, 2012;109(26):10164–8.

44. Bryant L, Carver L, Butler CD, Anage A. Climate change and family planning: least developed countries define the agenda. *Bulletin of the World Health Organisation*. 2009;87:852-7.

briefly raised at the 2009 Copenhagen climate summit.

To the contrary, many rich populations remain in denial, including my own. Australia is increasingly addicted to the earnings from coal exports, now known to be a form of “Earth Poison”⁴⁵. Ex-Australian Prime Minister, John Howard, recently claimed that if the West was to act on climate change it would deny economic development to the rest of the world⁴⁶. The reverse seems closer to the truth.

THE BUDDHIST RESPONSE TO THESE CUMULATIVE CRISES

One of the five main Buddhist precepts calls for the avoidance of killing, at least of animal life. Buddhists have not been indifferent to environmental risks, including at previous UNDV meetings⁴⁷, such as in Hanoi in 2008, when Ven Thích Nhất Hạnh was the keynote speaker. However, in comparison to the enormous scale of these risks, could Buddhists have done more?

In Tibet, at the time of Chinese re-occupation, many wild animal species were comparatively protected. Some still are⁴⁸. In Thailand, in 1988, the monk Phrakhru Manas Natheepitak is credited with starting the ordaining of trees in order to protect them⁴⁹. But, although there has long been a tradition of sacred groves and sacred

45. Butler CD. Earth Poison diaries. (<http://globalchangemusingsblogspotcomau/2013/02/earth-poisoning-diary-week-1.html>) 2013.

46. Miller N. ‘The claims are exaggerated’: John Howard rejects predictions of global warming catastrophe. Sydney Morning Herald. 2013; <http://www.smh.com.au/federal-politics/political-news/the-claims-are-exaggerated-john-howard-rejects-predictions-of-global-warming-catastrophe-20131106-2wzza.html#ixzz2kDOPRaZA>.

47. Tỳ TN, editor. Care for Environment; Buddhist Response to Climate Change. Vietnam Buddhist University, Ho Chi Minh City: Culture and Information Press; 2008.

48. Butler CD. Tibetan protest self-immolation in China: reflections on ecology, health and politics. In: Gislason M, editor. Ecological Health: Society, Ecology and Health. Advances in Medical Sociology. Bingley: Emerald Press; 2013. p. 67-89.

49. Morrow A. Tree ordination as invented tradition. Asia Network Exchange 2011;19(1): <http://asianetworkexchange.org/index.php/ane/article/view/11>.

tree species in Thailand (especially of the Bodhi tree) these customs and beliefs were not sufficient to prevent large-scale logging of the Thai forests. However, in 1997, the practice of tree ordination was endorsed by the Thai King, who requested that 50 million trees be ordained to commemorate his Golden Jubilee. This is a very large number, and it seems unlikely so many were ordained. But there is recent evidence, though disputed even by Thai forest officials, that forest cover in Thailand has increased since the late 1990s⁵⁰. Tree ordination has spread to Cambodia, Laos and possibly Burma⁴⁹. On the other hand, Dr Reese Halter, the “Earth Doctor” who writes movingly about the systematic killing of “trophy species” describes the dehorning of rhinoceros, while still alive, in South Africa, for the production of entirely useless, but high-status powdered horn, for gullible consumers especially in Vietnam, China and Thailand⁵¹.

The killing of so many other animals and the loss of their habitat is not simply a change in the scenery or a driver of climate change; it is also a cause of immense emotional loss and suffering to animals. As recently as two decades ago there was a common view, at least in Western science, that animals lacked emotion, despite Darwin’s recognition of this issue⁵². But this is changing – it is now widely accepted that many non-human species experience a wide range of emotions, including empathy⁵³. Perhaps the Buddha also recognised the emotional potential of animals, and that the avoidance of killing minimised not just the deaths of others, but also their suffering.

In recent years, a thesis propounded by Stephen Pinker has gained considerable influence: violence has declined and the trend will continue⁵⁴. But it is irrefutable that human violence towards nature

50. Leblond J-P, Pham TH. Recent forest expansion in Thailand: a methodological artifact? *Journal of Land Use Science*. 2013:1-31.

51. Halter R. Why the war against nature is getting worse. *Ockham’s Razor*. 2013; <http://www.abc.net.au/radionational/programs/ockhamsrazor/why-the-war-against-nature-is-getting-worse/5178596>.

52. Darwin C. *The Expression of the Emotions in Man and Animals*. London: John Murray; 1872.

53. de Waal F. *The Age of Empathy*. New York: Harmony Books; 2009. 291 p.

54. Pinker S. *The Better Angels of our Nature*. New York: Viking; 2011.

has increased, and perhaps also to future generations. As well, recent cases of large-scale human violence, whether in the Central African Republic, the Congo, Darfur (Sudan), Somalia, South Sudan or Syria show that violence is far from abolished. Closer to the Buddhist world, recent violence in Bodoland (western Assam, India), Arakan (Myanmar) and Sri Lanka shows that Asians, including some monks, are capable of individual and group violence^{55,56}. As global resources grow scarcer, these conflicts seem likely to seep into an increasing number of regions.

To date, Buddhist leaders have not been very visible in trying to prevent our descent to catastrophe. Perhaps the most notable exception is Ven Thích Nhất Hạnh, who has increasingly spoken about the danger of climate change⁵⁷. The Dalai Lama and the Karmapa have also spoken on environmental issues, especially about the risk from climate change. An increasing number of Western Buddhists are also speaking out. This UNDV conference is a chance for the world Buddhist community to better understand the severity of these interacting environmental threats and to engage with the world in ways that will lower them, such as by following the middle path, shunning conspicuous consumption, and reducing their consumption of meat. Perhaps too, Buddhists may consider having no more than two children, and even fewer if living in a rich country. Buddhists, where possible, may also consider contributing to causes and groups that seek to reduce poverty and other determinants of unsustainability. Where safe, Buddhists should also speak and act against corruption.

Boulding wrote “It may be complained that the considerations I have been putting forth relate only to the very long run, and

55. Selvadurai SD, Smith MLR. Black tigers, bronze lotus: the evolution and dynamics of Sri Lanka’s strategies of dirty war. *Studies in Conflict & Terrorism*. 2013;36(7):547-72.

56. Butler CD. Environmental change, injustice and sustainability. *Journal of Bioethical Inquiry*. 2008;5(1):11-9.

57. Confino J. Zen and the art of protecting the planet. *The Guardian*. 2010; <http://www.guardian.co.uk/sustainability/environment-zen-buddhism-sustainability>.

they do not much concern our immediate problems.” However, that was in 1966; we are already in 2014. The future Boulding warned of is now much closer.

US President Abraham Lincoln famously said that “public sentiment is everything”⁵⁸. Ordinary people cannot expect political leadership over these environmental crises, but if enough people act with courage, then policies can be changed. With regard to the carbon budget, we still half way to go. It is possible that we may exceed it without triggering catastrophic consequences, but we should not take this risk. If Buddhist leaders and followers treat these warnings seriously then they may yet be able to influence each other, and others, in ways to lower the danger.

58. Zarefsky D. “Public sentiment is everything”: Lincoln’s view of political persuasion. *Journal of the Abraham Lincoln Association*. 1994;15(2):<http://quod.lib.umich.edu/j/jala/2629860.0015.204/--public-sentiment-is-everything-lincolns-view-of-political?rgn=main;view=fulltext>.