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A Buddhist response to climate change

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ABSTRACT

To achieve UN millennium goal 7 of environmental sustainability, the challenge of human-caused climate change needs to be faced and addressed. This problem is severe and urgent. Lifestyle changes are needed, as technology and fiscal mechanisms alone will be insufficient. Lifestyle changes are difficult. The Buddha's teaching can explain why they are so difficult and point to the way forward. This conference could initiate a Buddhist response to climate change.

1. INTRODUCTION TO FIVE BASIC THEMES

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The following five themes run through the whole article.

1. Avoiding climate change and ensuring environmental sustainability (UN millennium goal 7), is a huge challenge facing humanity at this time. Only a spiritual response can be comprehensive enough to tackle it.
2. The quality of life does not depend on burning fossil fuels, (which is one of the major causes of climate change). So it would be possible to avoid climate change AND have people enjoying life more than they do now.
3. Not all the major religions have the emphasis on non-harm (first precept) that Buddhism has. This and other aspects of Buddhism make Buddhists especially well placed to develop a lifestyle that ensures environmental sustainability and avoids climate change.
4. The three most important areas in our lives to concentrate on if we are motivated to enact change are travel, food, and regulating the temperature of our homes and other buildings. Together these account for more than two thirds of our greenhouse gas emissions[1].
5. This conference is well placed to be the launch of something big across the world amongst Buddhists in responding to climate change and implementing UN Millennium Development Goal 7 of ensuring environmental sustainability.

2. ELABORATION OF THE FIVE KEY MESSAGES

Key message 1. Human caused climate change is an urgent problem. If we wish to achieve UN millennium goal 7 of ensuring environmental sustainability, we need to give up using fossil fuels completely. We need to face this issue head on and address it. At the moment we are like a man saying he would like to stop the water flowing out of holes in a bath while continuing to drill more holes in it.

We stand at a moment of choice. We can choose to change to a lifestyle that avoids emitting the greenhouse gases that are causing climate change. If we do so, we can make the change in an orderly and civilised manner.

1. Laurie Michaelis. Working draft document Waking up: Sustainability as Spiritual Awakening. Living Witness Project

Technology can help us, and scenarios of what life could be like, show a simple but comfortable life.

Or we can carry on with our current lifestyle trends, producing ever-increasing amounts of greenhouse gases, and wait for change to be forced upon us. Unfortunately, due to the way greenhouse gases have an increasing impact on the climate for many decades after they have been emitted, to try and change at that point will be too late. It is hard to imagine the large-scale loss of life, the violent conflict, and the destabilisation and collapse of the international system as we know it, that humans would face at that point.

Yet beyond the problems lies potentially the most miraculously life-giving adventure we can engage in. We will face many challenges and difficulties, but we can overcome them. Despite all the challenges, in our process towards sustainability, the practical and spiritual are inseparable. To make the magnitude of change needed, in every sphere it must be a deeply spiritual process.

Key message 2. The advertising industry is constantly plugging the message that consuming more will make us feel happy and successful. This is a myth.

Many reports show this, for example the book, *The Spirit Level*[2] by Richard Wilkinson and Kate Pickett looks at this in detail. It says

"Whether you look at health, happiness or other measures of wellbeing there is a consistent picture. In poorer countries, increases in material living standards result in substantial improvements…. But as nations join the ranks of the affluent developed countries, further rises in income count for less and less."[3]

So if spending more and more does not make us happier, what does improve the quality of life? Surprisingly it can be from deliberately

2. Richard Wilkinson and Kate Pickett. The Spirit Level: Why More Equal Societies Almost Always Do Better. Penguin Books Ltd, 2009. IBSN: 978-1-846-14039-6. The quote comes from page 8.

responding to climate change. A Quaker submission[3] to the British government Department of Trade and Industry Energy Review Consultation reported on Quakers who had reduced their energy consumption to 60% or more below the UK average. The research for the submission found that through making the lifestyle changes to achieve that reduction, they had as a by-product also improved their quality of life and personal health. It is not obvious that this would be so, as many things we need to do to tackle climate change seem to be giving things up or making life more difficult. The submission acknowledged that changing habits can seem daunting, but people found once they had developed new habits "they seem natural". The submission also said "As we engage with others in making conscious choices about our lives and actions, we find that we feel better about ourselves.[4]"

Key message 3. Buddhism is concerned with non-harm. It is the first lay precept. *Pānātipātā veramanī sikkhāpadam samadiyami* [5]. Despite the huge variations in Buddhism across the world, all types of Buddhism agree that non-harm is a core Buddhist idea.

Buddhists' concern for non-harm combined with the Buddha's teaching, which I discuss below, gives us all the tools we need to make the scale of change needed. This puts us in a uniquely propitious position.

For many Western Buddhists the concern for non-harm means trying in practice to avoid accidentally or deliberately killing animals. I am arguing that today we need to look bigger and longer term. To just concern ourselves with avoiding killing individual animals, while ignoring the damage caused by climate change, is to live a very harmful and destructive lifestyle that is not at all in keeping with the first precept.

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3. Laurie Michaelis. Energy Review Consultation by the Department of Trade and Industry (of the British Government): A Quaker Response. 2006 Living Witness Project. The submission to the Energy Review Consultation draws on research of the experience of 32 individual Quakers and 10 Local Quaker Meetings and groups, and from a facilitated workshop in Oxford on 27 March 2006.

4. See reference 4 page 4.

5. This is the first of five precepts, basic training rules, which are observed by all practicing lay Buddhists. The precepts are often recited after reciting the words for taking refuge in the Buddha, Dhamma, and Sangha.

For example, in the Intergovernmental Panel on Climate Change[6], scientists' findings show concentrations of carbon dioxide, methane, and nitrous oxide (the three most significant greenhouse gases) are greater than at any time in at least the last 800,000 years[7]. They document we are already seeing the effects of this as, for example, the last three decades have been the warmest for probably the last 1400 years[8], and the rate of sea level rise in the last 50 years has been faster than at any time in the previous two millennia and has been accelerating[9].

It is vitally important that we stop burning fossil fuels as soon as we can, because most aspects of climate change will persist for many centuries even after net carbon dioxide emissions have stopped[10]. Up to 40% of the human emitted carbon dioxide will remain in the atmosphere for more than 1,000 years[11]. Greenhouse gases, including carbon dioxide, continue to act like a blanket making the planet hotter and hotter as long as they remain in the atmosphere.

Avoiding climate change and living sustainably is such a big challenge, it is tempting to ignore it. But if we do so, the problem will only get worse until we reach a point where it is impossible to avoid catastrophic climate change and an end to life as we now enjoy it. There is still time to act: but it needs our urgent attention. Buddhists' concern for non-harm makes us especially well placed to explore ways to live a lifestyle that ensures environmental sustainability and avoids climate change.

Key message 4. This key message can be stated quite simply: reducing the energy used for travel, food, and heating and cooling our homes and other buildings are the things to focus on, rather than

6. Working Group 1 contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Climate Change 2013: The Physical Science Basis, Summary for Policy Makers. October 2013. World Meteorological Organization and the United Nations Environment Programme. The following citations all refer to page numbers in this Summary for Policy Makers report.

7. Reference 7 Page 9 very high confidence

8. Reference 7 Page 3 medium confidence

9. Reference 7 Page 9 high confidence

10. Reference 7 Page 25

11. Reference 7 Page 25

say recycling or the energy used making toast. I find I have plenty of motivation for responding to climate change and living more sustainably, but I can often get stuck at the 'what to do' or 'how to do it', stage of making changes in my life. In case this is also where you get stuck, I include some brief starting points in appendix 2.

Reducing our dependency on fossil fuels and other greenhouse gas emissions is a process. It is important to start as soon as possible from whatever our starting point is. Turning the Tide[12], the Quaker programme for nonviolent social change, has a five stage model for change, consisting of prophets, pioneers, early majority, late majority, and laggards.

We are at the pioneering stage in relation to climate change. Pioneers make changes, even at some inconvenience or cost to themselves. They explore and find out what alternatives work. They demonstrate or publish their successes. They may help to make it convenient for others to change. In key message 2, I mentioned some Quakers who had reduced their energy consumption to 60% or more below the UK average. They had done this through lifestyle changes, helped by best available technology and being part of supportive communities.

As pioneers, we need to explore what it means for Buddhists to live at a much lower energy consumption. We need to support each other as we start to make changes. We need to demonstrate that it is possible to live sustainably and still have a normal lifestyle. And we need to encourage others to join us.

Key message 5. This conference is well placed to be the launch of something big across the world amongst Buddhists in responding to climate change and implementing UN Millennium Development Goal 7 of ensuring environmental sustainability. At this conference, we have an international gathering of leading Buddhist academics. We are focusing on the UN millennium goals, including goal 7 of ensuring environmental sustainability.

12. Turning the Tide: Turning the Tide is a programme of Quaker Peace and Social Witness (QPSW). QPSW works with and on behalf of the Religious Society of Friends in Britain to translate their faith into action. They work with Quakers and nonviolent activist groups to advance the understanding of active nonviolence and its use for positive social change. http://www.turning-the-tide.org/resources/manual/powerchange

So this conference is ideal in several ways. It is an ideal forum to appeal to Buddhists across the world, the idea of trying to live an environmentally sustainable lifestyle. This conference is also an ideal place for articulating our vision of what a sustainable lifestyle looks like and discussing new ways of living. In the body of my paper I discuss the importance of making changes in connection with others who are also doing so. This conference is also ideal for setting up a mechanism to stay in touch with each other, and to support each other in the challenges that lie ahead, as we come to try and live it out in practice.

One person cannot make much difference to climate change, but together we can change the world.

3. THE REALITIES OF CLIMATE CHANGE AND THE LIMITATIONS OF TECHNOLOGY

The world's leading climate scientists released the first stage of the Intergovernmental Panel on Climate Change Fifth Assessment Report[7] about the current state of scientific knowledge relevant to climate change. This first stage covers an assessment of the physical science basis of climate change. If you would like a refresher in the science of climate change, please see Appendix 1. Scientists are now clear that nearly all (at least 98%) climate change is caused by humans emitting greenhouse gases into the atmosphere. Only up to 2% of the observed changes can be attributed to natural causes (mostly solar variation and variations in volcanic activity). Climate Change is happening, and will continue in the coming decades, with increasingly severe impacts, even if we were to stop all greenhouse gas emissions today. How severe the impacts will be will depend on how much more greenhouse gas emissions humans put into the atmosphere.

We have about 30 years to stop putting greenhouse gases into the atmosphere. Even if we were to achieve this, it would only give us a 50:50 chance of keeping global warming below 2°C. The longer we delay emission cuts, the steeper they must be, so the harder it gets.

So we need to make a huge reduction in our dependence on fossil

fuels. The obvious thing to look at first is technology. Can technology enable us to do everything we do at the moment, but without using oil to do it?

A book that really goes into this deeply is *Sustainable Energy without the Hot Air* by David J.C. MacKay[13]. David McKay is a technology advocate. He would really like technology to enable people to be able to carry on doing all the things that comfortably well off middleclass people are used to doing now, such as driving around in a personal car. Even he reduces energy consumption to 35% or just over a third of his starting point, which still is a very comfortable lifestyle, (though he does not go into any depth about the lifestyle changes that would be needed to live at this level).

He then goes on to produce five energy plans for how this amount of energy could be supplied in Britain. And he acknowledges "there is something unpalatable about every one of them[14]".

The conclusion I draw from David Mackay's research is that we will need to reduce our energy consumption to well below a third of the current level of a developed country such as Britain, but reducing to a third of current energy use could be done relatively easily. This figure of a third of current levels accords with other research, which I mentioned in key message 2, of some Quakers in Britain who are already living on 25% to 40% of the average British energy consumption[3].

One of the main reasons technology alone cannot save us is because even if we use technology to make energy savings there also needs to be an associated change in behaviour, otherwise there is no overall reduction in energy consumption.

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13. David J.C. MacKay. Sustainable Energy Without the Hot Air. UIT Cambridge, 2008. IBSN 978-0-9544529-3-3. Available free online from www.withouthotair.com.

MacKay reduces energy consumption from 195 kWh per person per day to 70 kWh/person/day.

14. Reference 14 page 212.

Economists have long discussed and researched the "rebound effect"[15]. As cars become more fuel-efficient, the cost of motoring falls and drivers increase their mileage. When homes are insulated, householders enjoy the increased comfort levels rather than cut down on their heating. Or people use the savings in one area to consume in another, such as eating more meat or flying abroad more often. So our current lifestyles need to change. Would economic or legal incentives work to change behaviour?

Research groups such as the Stern Review 2006[16] and Intergovernmental Panel on Climate Change Fourth Assessment Report[17] have suggested that using economic methods, whether through carbon taxes or emissions trading systems, combined with market forces, would be the most efficient mechanism to reduce carbon dioxide emissions. But governments all over the world have been very nervous about allowing fuel prices to rise. So encouraging people to substantially reduce their consumption of fossil fuels by pricing mechanisms alone is not politically viable at present.

4. WE NEED TO CHANGE OUR LIFESTYLES

Basically we cannot avoid the fact that we need to live a less energy intensive lifestyle.

What could motivate people to want to make lifestyle changes in relation to climate change and living sustainably? It is beyond the scope

15. Laurie Michaelis. Working draft document Waking up: Sustainability as Spiritual Awakening.

16. Stern Review (2006), The Stern Review on the Economic Effects of Climate Change. Population and Development Review.

17. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Climate Change 2007: Synthesis Report. 2008. World Meteorological Organization and the United Nations Environment Programme.

The timing of the Intergovernmental Panel on Climate Change Fifth Assessment Report in relation to this conference is unfortunate. The Fifth Assessment Report is being released

in stages, with the final report due out on or after 31 October 2014. Only the report of the first working group has been released so far. This covers assessment of the physical science basis of climate change. So at the time of writing this article, the Fourth Assessment Report is the most recent one available discussing pricing mechanisms.

of this article to discuss the research into what motivates people, so I will make a leap in my argument here and make two assumptions.

The best chance for real and substantial reductions in greenhouse gas emissions is by people voluntarily choosing to change their consumption patterns and choosing to live more sustainably.

Secondly, Buddhists concern to avoid harm, and compassion to alleviate suffering, motivates them to want to reduce their greenhouse gas emissions and live more sustainably. I hope Buddhists will take up this cause, and that you are motivated to do what you can.

5. THE BUDDHA'S TEACHING IN RELATION TO CLIMATE CHANGE

Even if we as Buddhists are motivated to make changes to our lives, making the kind of changes that will benefit the environment and reduce climate change is hard. As Buddhists we know about the law of *karma*[18]. We know that actions have consequences. We know that if we continue with our environmentally destructive lifestyle then negative *karma* will catch up with us. Yet we carry on as if we can go on with our present life for ever, as if we can go on having economic growth forever, as if we can all go on increasing our material consumption for ever, in short as if we can defy the Buddha's teaching about impermanence *anitya*[19].

In the first Noble Truth, the Buddha taught dukkha/ difficulties exist. There are all sorts of reasons why responding to climate change is hard, is dukkha. The Buddha taught in response to the difficulties there arises in us a craving, as described in the second Noble Truth, *samudaya dukkha*.

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18. There are many references to karma in the Buddha's teaching, the Mahakammavibhanga Sutta, Majjhima Nikaya 136, emphasises how sooner or later the fruits of karma will be realised.

19. The Buddha talked about impermanence anatta many times. For example his last words were "Impermanent, subject to change, are component things. Strive on with heedfulness!" Maha-parinibbana Sutta: Last Days of the Buddha Digha Nikaya 16 PTS: D ii 72

We do not like dukkha, so our natural tendency is to try and escape from it. We do this by trying to distract and comfort ourselves by craving[20] *taṇhā* the three poisons, the *kleśas* [21] of *lobha*/greed, *doṣa*/ aversion and *moha*/delusion. Our greed *lobha* makes us desire to consume more and more. It makes us act as if more is always better, even if it does not make us happy. I explained in key message two, how although we are consuming more and more resources each year, we don't feel any better for it. Our aversion *doṣa* to change makes us think that responding to climate change by adapting our lifestyle will be difficult and uncomfortable. It makes us think that if we stop doing some of the things we currently enjoy doing, our lives will be diminished and we will feel less happy, (despite the research to show this is not the case). Our delusions *moha* make us act inconsistently. We know about impermanence, but we act as if we can go on forever with an ever increasing rate of oil consumption. We know the harm our environmentally destructive lifestyles is doing, yet we go on as if climate change does not exist. We know about *karma*, yet we act as if the negative consequences of what we are doing will never catch up with us.

Despite our best efforts at *moha* delusion, to hide these disagreeable realities from ourselves, at an unconscious level we know all this, and it makes us feel uncomfortable, feel *dukkha*. The things we use as an escape from *dukkha* are often things that cause more climate change. The *samudaya dukkha,* source of the suffering is caused by the process of attachment as described by the five *skandhas*[22]/ clinging aggregates.

The five *skandhas* describe how in relation to phenomena (*rūpa*)

20. Caroline Brazier. Beyond Consumption. Unpublished paper. Taṇhā is tṛṣṇā in Sanskrit.

21. The three kleshas are referred to as the three poisons (Skt. triviṣa) in the Mahayana tradition and as the three unwholesome roots (Pāli, akusala-mūla; Skt. akuśala-mūla) in the Therevada tradition. See Anguttara Nikaya 3.69 **Akusalamūla** in the Pali Canon and a Mahayana Sutra with them in is The Treatise on the Great Perfection of Wisdom. Greed is lobha in Pali and kāma-rāga in Sanskrit. Aversion is doṣa in Pali and dveṣa in Sanskrit.

22. Maha-hatthipadopama Sutta: The Great Elephant Footprint Simile. See verse 28 in MN 28.

we react (*vedanā*), get hooked (*saṃjñā*) and develop *samskāras* mental constructions[23]. Our mental constructions, *samskāras* form patterns of behaviour. Once we have established a pattern it is much easier and more likely that we carry on with that way of doing things. For example later in this paper I describe a day I cycled from my village into the local city Leicester in the rain. I had already established cycling into Leicester as my normal way of getting there, so although I thought it would be unpleasant due to the cold and rain, I put on suitable clothes and went anyway. Out of *samskāras* arises *vij***ñā***na* consciousness as a clinging aggregate. *Vij***ñā***na* is identity formation, or "self" building, *atman drishti*. We identify with our unsustainable, climate changing lifestyle. The patterns of behaviour that cause climate change, become entrenched as the type of person we are and become part of our identity.

Once it has become entrenched it is very hard to break out, especially as *avidya*[24] means we are not even conscious of the hold *vij***ñā***na* has over us.

However the Buddha taught we don't have to stay stuck in a fixed identity of someone with an unsustainable, climate changing lifestyle. We can form new patterns of behaviour, develop positive cycles and establish new more positive identities such as becoming climate champions. So we have a choice at this point. We can either respond with our normal habitual responses. Or we can respond with a more noble, skilful alternative.

The third Noble Truth is *Dukkha Samudaya Nirodha*. The craving and passions that come up as a result of dukkha can be brought under control. The Buddha was about inspiring and mobilising people to apply their passions and energies in Noble ways. It is noble to face the damage we are causing the environment and the future climate change we are causing, acknowledge what we are doing and try to change, rather than

23. Caroline Brazier *Buddhist Psychology* Constable Robinson 2003

24. Avidya is normally also translated as delusion but it is a different type of delusion to moha. Avidya is fundamental delusion about our whole world view, the state of being unenlightened. Whereas moha is a subcategory of avidya and is our unconscious drives and ignorance of cause and effect.

be daunted by it. The text[25] says we do this by detaching from the object of craving. Then the reactions/ emotions *vedanās* that drive our habitual responses can be brought under control.

The fourth Noble Truth is Mārga, the tracks left by someone forging ahead on the nobler path. The nobler path is to be a pioneer acting on climate change. Each of the eight elements can be used in positive ways:

Right vision: we can develop and articulate visions and models of what life could be like living without producing greenhouse gas emissions.

Right emotion: we can motivate ourselves and others to take action, and to turn "I ought to act" into "I can do no other".

Right speech: we can spread the word and inspire others to start changing their consumption patterns and choosing to live more sustainably.

Right actions: there are many things we can do under this element. For ideas of where to start see appendix 2. I myself started with cycling about 16 years ago. Then I became a vegan 12 years ago. I also decided to avoid flying as far as possible and have not flown anywhere for 7 years. As well as changing our personal lives we need to promote change at all levels, in our communities, our towns and cities, at national, and international level.

Right livelihood: This element could be about living sustainably as a way of life rather than just actions you do, or it could be about making changes in the workplace.

Right effort: this could be about continuing to make changes to your lifestyle even when you have done some of the things that are easier for you.

Right mindfulness: there are many opportunities for mindfulness such as remembering to turn off heaters when you leave a room or only filling a kettle with as much water as you need and so on.

25. Samyutta Nikaya 56.11 Dhammacakkappavattana Sutta: Setting the Wheel of Dhamma in Motion

Right Samadhi: Meditating on climate change can be a powerful way to change our view of how we want to apply ourselves in relation to the other seven elements.

6. THE BENEFITS OF ENGAGING WITH DUKKHA

To recap, acting on climate change is difficult. The four Noble Truths explains how we add to the difficulties, by our reaction to them, and that we have a choice about whether we escape from dukkha or engage with it.

Once we decide to face and grapple with dukkha, often we find it is not as difficult and as uncomfortable as we thought it was going to be. At other times it may still be somewhat uncomfortable, but the fact that it is uncomfortable ceases to matter. An example may help to illustrate what I am saying. I decided one of the things I could do to live more sustainable was to go by bicycle on local journeys. One day I needed to go from my village into the local city, (about 5 miles/ 8km), but the weather was cold and drizzling with rain. I thought it was going to be horrible to cycle on my bicycle. But I put some warm clothes on and then waterproofs on top. Once I got out on the bike I found it was not bad at all. The action of peddling, together with my warm clothes kept me toasty warm. The rain was not heavy enough to go through my waterproofs. And I found an unexpected benefit; the rain means the cycle way is empty, instead of full of people walking their dogs and children hanging around in groups and so on. After a little while I really enjoy it. I still have the rain (the source of dukkha) on my face, but the fact that it is cold and wet ceases to matter. I am enjoying speeding along on the quiet and empty cycleway. If I had got caught up in emotions that arise as a result of dukkha, I could have gone on grumbling to myself about the cold rain and created a lot more dukkha for myself and would have prevented myself from enjoying the experience as it is.

In key message 2, I discussed how making lifestyle changes can improve the quality of life. In my experience this benefit can come at

unexpected times and in unexpected ways. Once I had arrived at my meeting, I was glowing with vitality and energy. I felt fit and healthy from the cycling and I was feeling really positive in myself. If you had suggested before I set out that I would enjoy cycling through the rain more than going by car, I would have considered the suggestion ludicrous, but on that occasion, I had indeed found it to be the case.

There is no guarantee that reducing our carbon footprints (see appendix 1 to have carbon footprint explained) will make us enjoy life more. We have to go forward in faith that if we do the right thing for the climate, the positive karma will come back to us in some way or other.

My experience of cycling in the rain did not involve any other people but often reducing our carbon footprint does involve relating to other people, which is where being part of a spiritual community becomes important.

7. THE ROLE OF A BUDDHIST SPIRITUAL COMMUNITY

There are several ways in which being part of a Buddhist Sangha can help. (I am using Sangha here in the Western Buddhist usage meaning the whole Buddhist spiritual community rather than just the ordained members.)

Making changes in our lifestyle is not easy. If we struggle away, each on our own, to do something difficult, we tend to get discouraged and lose momentum when the going gets tough. We may keep trying for a little while, but then lapse and give up altogether. But if we are in a supportive group who are also trying to make changes to their lives we can find the encouragement and strength to keep going. So I am currently setting up a local group in the village where I live, for people interested in reducing their *carbon footprint* (see appendix 1). Part of my motivation to do this is because in relation to making changes myself, I have done the things that are easy for me, and am feeling a bit stuck. Being part of a group can inspire and support me to take the next step. I think you will find that if you can get your Sangha/community to adopt climate change as an issue and express a desire to move towards lower carbon lifestyles, then

you will find it supportive, even if most of the people in the community/Sangha have not gone as far in making changes as you have, or are doing different things from the areas you are working on in your life.

Secondly who we are and how we see ourselves is defined in relation to our peers[26]. For example if I am the least efficient person I know, I may see myself as an inefficient person. But if all my peers are super-efficient high flyers, I still may be far more competent and efficient than the average person. So in relation to climate change, if a Buddhist community/Sangha has adopted climate change as an issue and other people in my Sangha/community are making changes towards a low carbon lifestyle, I may find I want to start making changes too, even if I had no intention to join them initially. This desire to change, too, is not because anyone is putting pressure on me and saying I ought to, but because of the way I see myself in relation to my peers and the way I want to be seen by them.

Thirdly, members of a Sangha/community have a greater degree of commitment than people in other groups.

Finally to reduce your carbon footprint in the context of your community/Sangha may be spiritually demanding but hugely rewarding.

8. IN CONCLUSION

To live sustainably is an adventure into the unknown. We will face many challenges, especially when environmental goals conflict with other things that we care about. We need to face these challenges, grapple with them and explore new ways of living. We can support each other to overcome our resistance and *samskāras*. To do so will not only benefit our children and grandchildren, but the positive *karma* from doing so will also come back to us. This conference could be the launch of Buddhists across the world adopting a sustainable lifestyle and reducing our carbon footprints. We need to go forward in faith of the deeper richer life awaiting us if we take up this challenge.

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26. Juliet B. Schor. The Overspent American: Why We Want What We Don't Need. Basic Books (Perseus Books), 1998

APPENDIX 1: BASIC CLIMATE SCIENCE

Human-caused climate change is caused by emitting greenhouse gases into the atmosphere. The greenhouse gasses act like a greenhouse in letting short heat waves from the sun through onto the earth, but do not let the long infrared heat waves from the Earth back out into space.

The gas having the biggest impact on our climate is carbon dioxide. This is mainly from humans burning fossil fuels: coal, oil, and natural gas. It is the carbon in the fossil fuels that changes to carbon dioxide. So when you hear people talking about a high carbon or low carbon lifestyle, they are referring to the amount of fossil fuels that kind of lifestyle needs to support it. This is also referred to as a carbon footprint as once you have burnt the fossil fuel the carbon dioxide is left behind like a footprint in gas. Although humans have been burning coal for over 2000 years, the amount of fossil fuels we have been burning has hugely increased since the beginning of the Industrial Revolution. Since about 1900 the amount we have been burning has been growing exponentially. The two other increases in carbon dioxide in the atmosphere are from making cement and changes in land use. We are cutting down more trees than we are planting, we are draining swamps and marshes, and we increasingly have an industrial agriculture that relies on chemical inputs rather than spreading organic matter on the land.

The second most important greenhouse gas, in terms of climate change is methane. Although we do not produce a lot of methane, each cubic metre of methane is 72[27] times more damaging than a cubic metre of carbon dioxide. The major source of methane is from ruminant animals such as cows, sheep, and goats. The rate of methane going into the atmosphere is increasing as humans eat more meat, especially beef, and eat more dairy products.

In terms of climate change, it is more damaging to be vegetarian with a diet based on milk, cheese and other dairy products, than to eat pork and chicken, (as these meats are not from ruminant animals). However, as Buddhists, we probably would not want to eat meat at all, because of the

27. Over a 20 year period. http://en.wikipedia.org/wiki/Greenhouse_gas

harm of killing other sentient beings. Another alternative is to be vegan. A vegan diet is based on foods entirely from plant sources. Vegans get their protein from tofu and other soya products, beans and lentils, nuts and seeds, and grains such as rice. I myself have eaten a vegan diet for about 12 years now, and am very healthy on it.

The third most significant greenhouse gas is nitrous oxide. Nitrous oxide has 310 times more impact than carbon dioxide. It is mainly released through agriculture.

There are a few other less significant greenhouse gases that humans produce. Many of them are compounds containing chlorine such as CFCs (chlorofluorocarbon) and HCFCs (Hydrochlorofluorocarbons), which come from aerosols and refrigerant coolant. When you replace your refrigerator, it is worth looking for one with some other type of coolant such as ammonia or isobutane.

APPENDIX 2: WHERE TO START REDUCING YOUR CARBON FOOTPRINT/ SAVING ENERGY

So what if you would like to reduce your greenhouse gas emissions but don't know where to start?

The three areas of your life to concentrate on are food, travel and heating or cooling of buildings.

Food is perhaps the easiest place to start. The three things to do are eat local and seasonal food, eat organic, and become a vegan, or at least cut out foods from ruminant animals, such as cows, sheep and goats. Eating organic is important because it is a form of carbon capture and storage. The soil can hold more than twice as much carbon as the atmosphere, so a 5% increase in soil carbon across the world would result in a 10% decrease in the atmosphere[28]. Local food that is out of season may have been grown in energy intensive ways such as a heated greenhouse, which is worse than imported food that has come by ship. Cut out food that has been airfreighted.

28. Sam Adams and Poppy Johnson. Low Carbon Farming Handbook. Soil Association. August 2013.

Travel: Cut out flying or at least reduce. When you do go long distance, go for longer and less often. Stay in touch by skype. Make local journeys up to five miles away, by walking and bicycle. Get a cycle trailer and use it for everything you might use the boot of your car for, such as a big supermarket shop. Fit low level pannier racks to your bicycle. Use public transport rather than your car. When you do use your car do several jobs at once or give other people a lift.

Heating buildings. No cost things to do: turn off heating in rooms you are not using/ as you leave a room. Work in a sunny room on cold sunny days. Use a smaller room as a living room in winter. An open plan house can make this difficult, but I have a friend who uses a spare bedroom as a living room in winter. Quicker payback things: insulate your loft/ attic to at least 12 inches/ 30 cm. If you have stuff stored in your attic you can attach little plastic legs see picture, to your rafters, to raise the level of your boarding above the insulation. Make all your doors and windows fit tightly, and stop up any other draughts. If you have cavity walls get them filled. If you are not sure what to do next, get a heat survey. For a given outlay, you can usually save more through energy saving features than you can generate from micro generation such as solar panels or wind power, unless you live in a country where the government subsidises it.

Cooling Buildings: I am not an expert in this area, so you may find local people can give you much better information. I lived in Chicago for a year, about 50 years ago. Back then many people did not have air-conditioning at home, and they would open doors and windows at night and close them and draw the curtains in the day. A ceiling fan would obviously save energy over air-conditioning. Ground and air source heat pumps are widely used in some countries.