Non-Stealing: A talk given at the Cambridge Buddhist Centre
March 25, 2022

200 years ago, vast herds of bison roamed the plains of North America, elephants ruled Africa, and tigers filled India.

150 years ago, the skies over America held swarms of passenger pigeons so dense that they blotted out the sun.

100 years ago, the schools of cod in the Atlantic were so unimaginably rich that the fish practically jumped out of the sea.

50 years ago, in living memory, bees, bats, and songbirds were plentiful in England.

Today, many of these iconic images live on only as memories.

Children born today cannot see the herds, hear the birds, or feel the sun dim on their face as the pigeons flew past. Children born 50 years from now in the UK may never know snow. These experiences will have been taken from them, *stolen* from them. just as the experience of bird swarms and bison herds have been stolen from us. Stolen by the thoughtless actions of our forefathers, who shot and killed millions of animals for profit, for pleasure, and sometimes simply because they could.

The Buddhist precept of non-stealing says to not take anything that is not freely given. Did we give our ancestors the right to overfish, to kill indiscriminately, and to deforest the world? We certainly did not! Is this not stealing?

But let's pause for a moment. What are we stealing from our children and grandchildren from our own thoughtless actions? What are we doing today that breaks the precept of non-stealing?

I don't think anyone can categorize all of our harmful actions of today, but I do know that our ever-growing carbon footprint is destined to cause a great deal of harm in the future. Harm that steals life and livelihoods from the citizens of the future. If we truly believe in non-stealing, we need to reduce our carbon footprint in any way we can.

I suspect more than most of us don't think of our carbon footprint as stealing, and even if we do, we may feel that there is little we can do about it. But there is. Besides the obvious things like flying less and eating little or no meat, we need to think about how *right livelihood* can lead to non-stealing. This, in short, is the key motivation for my research.

The entire purpose of my research these days is to reduce the rate at which we inject carbon dioxide into the atmosphere and to incentivize actions that remove carbon dioxide and sequester it. To repeat, two things: reducing carbon being released is one, and removing carbon from the atmosphere is the other.

To do the first, we need to know where carbon dioxide is coming from. The biggest sources today are electricity generation, building heating and cooling, transportation, cement and steel, and agriculture, including beef and dairy farming. To reduce the carbon footprint of the world, we need to tackle these sources.

Over the past decade, I have stopped working in the field I was trained in and working for two decades – computer networking – and have switched to working on decarbonizing these sectors. My collaborators, students, and I have devoted our energy to ideas that can directly impact these complex systems.

Here are some examples.

We are fortunate that with solar panels we have an increasingly affordable technology for clean energy generation. However, it turns out that we have rather poor decision-making tools to compute the optimal number of solar panels should be put on a roof, and the least amount of storage needed to deal with night-time loads. In our work, we have come up with algorithms that help make these complex decisions. We have made our work completely open source and no patents, so that it can be used by anyone for free.

Another example: every part of an office building is usually heated in winter and cooled in summer even if it is mostly unoccupied. This is a shame, since buildings are responsible for nearly 40% of energy use in many countries. In our work, we came up with personal comfort systems that keep an office worker comfortable when they are at their desk, even if the rest of the building is slightly cooler or warmer than normal. By doing so, we can reduce the energy footprint, and thus the carbon footprint, by 15-30% and also save building owners money.

 We've also studied efficient, lower cost alternative to electric vehicle, such as electric bicycles. By instrumenting 30 bikes and studying them over a period of 3 years, we developed insights into their usage that can help with personalized recommendations, for example, for distance-to-empty, which depends on personal riding behaviour.

I will now turn to the issue of reducing carbon dioxide that is already in the atmosphere. The best way to do this is to stop deforestation. As simple as that. But one then has to understand why deforestation happens. This is usually an economic problem: someone, somewhere finds that it makes more economic sense for them to cut a tree than to save it. We think that the way around this is to pay people, especially those who live next to highly biodiverse tropical rainforests, to change their behaviour and stop their deforestation. Essentially, we want to fund them to become forest protectors instead of forest destroyers. The way to do so is to grant them carbon credits for their actions, and allow richer people to buy these credits to initially offset their carbon, and later to go carbon negative.

For this to work well, there has to be trust in the forest protectors, that they will do their job, and there has to be trust in the credit purchasers, that they are only buying credits when they simply cannot reduce their carbon footprint in any other way. This is a complex endeavour, and to tackle this, I've helped to co-found the Cambridge Centre for Carbon Credits.

 I don't have the time to go into more details of any of these, and I suspect most of you may not be interested in the details in the first place. But I hope to convey the path that I, at least, have taken to obey the precept to not steal.

Thank you for your attention. I would be happy to answer any questions that may arise.