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Our Environmental Crisis: A Christian Response

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For a long time, Christianity has given, at the best, lip service to the idea of caring for creation. The manifesto of the Anglican Church of New Zealand does mention it, but rather well down the list. The church's job is to care for souls, and care of the environment has been seen as a secular activity, very largely.

Yet the Bible is quite clear that care for creation is part of our function on Earth. The verse I specially like is the one from Leviticus 25: the land belongs to God and you are allowed to use it, like a leaseholder. It reinforces the Genesis statement that we are to be stewards of the Earth, not owners of it.

So why is caring for the Environment suddenly so important? Well, I believe that the Earth really is in an environmental crisis. We in New Zealand are somewhat cushioned from it, but from a global point of view the crisis is already here.

The last 250 years have been completely atypical in the World's history. Medical advances, wonderful as they are, have led to a massive drop in infant mortality, so that world population has increased from about 600 million to 6000 million, an increase of 900%. And it is still going up fast. Experts assure us that, as education and prosperity spread, it will eventually level off at about 10 billion, in about 50 years time, when people will choose to have smaller

families. That is all very well, but it does depend on development, so that people get a higher standard of living. The trouble with development is twofold: (1) it causes pollution, (2) it uses resources.

There are many kinds of pollution, but at the moment the most serious appears to be the increase in carbon dioxide levels in the atmosphere, caused by the burning of oil, gas and coal. The result is global warming, because carbon dioxide acts like a blanket, keeping in the sun's heat. That may not sound serious, but it is. A warmer Earth means more variable weather, more cyclones, more flooding, more droughts, more wind storms. Many crops may have to move to totally new locations. Ice at the poles will melt, raising sea level between 1 and 5 metres, which will flood most major cities. George Bush refuses to sign the Kyoto protocol, which seeks to limit carbon dioxide production. John Kerry said that if he won, he would also refuse to sign it. The result will be warfare.

That is only one kind of pollution. We are also polluting our rivers and lakes with nitrogenous fertilizers, and our atmosphere with ozone-destroying chemicals which is increasing the rates of skin cancer. No – that is wrong. I should have said we are polluting God's rivers, God's lakes and God's atmosphere.

Now to turn to the other problem of resources. It is claimed that at present one third of the world – the developed world, including us – uses two thirds of the world's resources. So what happens when the other two thirds of the world is developed? There just will not be enough resources to go round. Some resources will not run out. There is enough iron, and even enough coal, for centuries. But what about fresh water for arid countries? We are already using up groundwater at well beyond the rate of its replacement. And what about the soil, which is already losing its carbon content, through reliance on chemical fertilisers, with a consequent deterioration in its microstructure? What about the sea, which is overfished almost everywhere? What about deforestation, which is causing the loss of perhaps 30 hectares of forest every minute, and a rapid rise in the rate of extinctions also?

But surely, you may say, these problems will be resolved. Science will find the answer. Recycling, and more efficient usage, will solve the resource problem. Surely people would not be so stupid as to run out of resources.

If only we could test out that idea with an experiment. If we could put some people – intelligent people – on an island with abundant resources and leave them for a while, rather like that survivor programme on TV.

Actually, we can. Nature has carried out this experiment for us on Easter Island in the East Pacific Ocean. It is the most isolated piece of inhabited land on the Globe, and was isolated for about 1000 years after its colonization by people (Flenley and Bahn, 2002). The island is famous for its giant statues or moai weighing up to 80 tons. There are over 600 of them. Most are found on specially constructed platforms called ahu.

In fact these moai are not the only peculiar feature of Easter Island. Its isolation is also remarkable. The next nearest place is Pitcairn Island, over 2000 km away. South America is over 3000 km away. Another strange feature of the island is the lack of trees. Western visitors to the island have always commented on this, ever since its discovery by the Dutch mariner Jacob Roggeveen on Easter Day 1722. This treelessness is very strange. The island is volcanic and has rich soils. Introduced trees grow well.

But the giant statues have always been the great mystery of Easter Island, and there have been many attempts to explain them. Erik von Danniken thought they were carved by people from outer space. To find out what really happened, we must delve into the prehistory of the island. Archaeologists are agreed that the people arrived from Polynesia (not South America as Thor Heyerdahl believed), and probably around AD 700, though the exact date is uncertain. By AD 900 they were already making statues about 2 m tall out of the lava in various places.

But all the later statues were carved at a place called Rano Raraku, a cone made of volcanic tuff, which is much easier to carve than lava. The statues were then transported distances of up to 10 km or more to be set up on the ahu platforms. Exactly how all this was done is still uncertain, but it must have required enormous effort and social organization. Also, it is difficult to imagine it being done without timber for use as rollers and levers, and without rope. **Problem:** there was no timber; there was no rope.

Eventually the ahu would be complete, set up along the shoreline, overlooking the village, with numerous statues (up to 15 in the largest one). Legends make it clear that the statues were ancestor figures, who were guarding the village and making it prosper. Legends also suggest that this belief had largely replaced an earlier belief in Make-make, a universal creator God, whose face appears on early rock carvings. Some of the statues also had topknots of red scoria, brought from another part of the island. We also know that they had eyes, made of coral and lava, inserted for special occasions. The result must have been spectacular.

As a final achievement, the people developed a form of writing, the rongorongo script, carved on wooden tablets. This has recently been deciphered by Stephen Fischer, and appears to be a record of the islanders' beliefs regarding the creation of the world: the Easter Islanders' book of Genesis. Some believe the rongorongo was a late development, after European contact, but this is uncertain. I prefer to think of it as the apotheosis of the Easter Island civilization. By AD 1650, the civilization was complete. Population, perhaps starting from an original canoe-load of about 50, had grown to an estimated 7,000 to 10,000 people.

And then something went wrong. Legends speak of famine and warfare. Many of the statues were thrown down. Agriculture was neglected, tribe fought tribe, and there was even cannibalism. The population was halved. If only we could find out what went wrong. If only there was a written record.

Well, we can, because there is. There are three crater swamps on the island. Each year a new layer of sediment is added to each swamp. These annual records are like the pages of a book – if only we can learn to read it. The way to read it is to extract the pollen grains preserved in different layers, to identify them and count them. This way we get a history of the environment on the island.

The top layers of sediment (the most recent) turn out to be full of grass pollen, as one might expect. But further down there is very little grass and instead we find pollen of various trees, including a lot of palm tree pollen. Also, palm nuts have been found in caves on the island and radiocarbon dated to over 800 years old. The fruits are similar to those of the Chilean

wine palm, which is a very large tree. The decline of the palm pollen can be similarly dated to between 1000 and 500 years ago.

It seems likely that what happened on the island was an ecological disaster caused by over-use of what should have been renewable resources – timber, seabirds and shellfish. There is good evidence from caves that seabirds were once superabundant on the island, and they are now rarely seen. Likewise, the size of shellfish in archaeological sites progressively reduces, suggesting they were taken at an ever earlier age. Fish-hooks also decline in size, perhaps because there were no more large canoes for deep-sea fishing.

We know that the people introduced the kiore (the Pacific rat) to the island as a source of food. The rat probably contributed to the extirpation of the birds (by eating eggs) and the palm tree (whose nuts are a favourite rat food). The people also were growing sweet potato, taro, bananas, sugar cane and several other crops. As the population expanded, they had to clear ever more forest for agriculture. Meanwhile, the statue cult required ever more resources of timber for levers and possibly rollers, while rope was obtained from the bark of another tree, the hau-hau.

It seems that a crisis was reached around AD 1650, leading to about 30 years of war and famine. A minor climatic change, leading to droughts, may have contributed to this disaster, but was probably not its fundamental cause. When we compare what happened on Easter Island with the Club of Rome's computer model for Planet Earth, you can see the resemblance. So is Easter Island a microcosm, a model for planet Earth?

We now know, from further modelling, that the Earth has a choice. Depending on what we let population do – and on other factors – our future standard of living may drop disastrously – or we could achieve sustainability.

But if we continue to over-use resources as we are doing, the result is inevitable. In fact the Earth is even more at risk than Easter Island. The island was small and simple. The person who cut down the last tree could see that it was the last tree, but they still cut it down – human selfishness at its worst. The Earth, by contrast, is complex. One might do something

which seems harmless – like inventing CFCs for refrigerators – but which is actually very damaging – the CFCs destroy the ozone layer, which leads to skin cancer.

So what did the Easter Islanders do? They gave up their cult of ancestor worship and turned back to belief in Make-make, their great creator-God. The sooner we give up our cult of the worship of personal possessions, and turn back to the creator God, the more chance we have of the survival of our civilization. On Easter Island you can see the face of Make-make carved on the wall of a cave. People took to living in the caves when the civilization collapsed. Will we do the same? As Jared Diamond says in his new book (Diamond, 2005), societies choose whether to survive or to fail. If we continue as we are doing, we shall have chosen for western civilization to collapse, just as the Easter Islanders' civilization collapsed.

References

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