

## **Transcript of a speech delivered by James Lovelock**

### **International Conference on Nuclear Energy for the 21<sup>st</sup> Century Paris, 21 – 22 March 2005**

Distinguished persons, ladies and gentlemen,

It seems probable that we face huge environmental disturbances as this century evolves. Of course, there are no certainties about the future, only probabilities; there might be a series of large volcanoes interrupting that sequence, or the United States might act by putting up space mounted sunshades in heliocentric orbits. Either way by now the almost irreversible temperature rise might be averted. But to continue with business as usual and expect that something or other will save us is as unwise as it would be for a heavy smoker to assume that good genes or good luck would save him from its consequences.

I speak to you today as a scientist and as the originator of Gaia Theory, the earth's system science which describes a self regulating planet which keeps its temperature and its chemical composition always favourable for life. I care deeply about the natural world, but as a scientist I consider that the earth has now reached a state profoundly dangerous to all of us and to our civilisation. And this view is shared by scientists around the world. Unfortunately, governments, especially in Europe, appear to listen less to scientists than they do to Green political parties and to Green lobbies. Now, I am a green myself, so I know that these greens are well intentioned, but they understand people a lot better than they understand the earth, and consequently they recommend inappropriate remedies and action.

The outcome is almost as bad as if the medieval plague returned in deadly form and we were earnestly being advised to stop it with alternative not scientific medicine. Alternative medicine has its place, and when we are healthy it is good to avoid strong drugs for minor ailments, and many find relief in acupuncture or homeopathy. But, when we are seriously ill, we need something stronger.

Now that we've made the earth sick it won't be cured by alternative Green remedies like wind turbines or biofuels, and this is why I recommend the appropriate medicine of nuclear energy as a part of a sensible portfolio of energy sources.

In the last year, we've increasingly grown aware of the threat from global heating. In the Arctic, climate change is now more than twice as fast as here in the tempered latitudes and in summer time, torrents of melt water plunge down from Greenland's kilometre high glaciers. The complete dissolution of Greenland's icy mountains will of course take time. But by then the sea will have arisen seven metres, enough to make uninhabitable all the low line coastal cities of the world, including London, Venice, Hamburg, Calcutta, New York, Tokyo and many others.

The floating ice of the Arctic Ocean is even more vulnerable to heating, and in 30 years much of its snow-covered white reflecting surface, an area the size of the United States, will become a dark sea that absorbs the summer heat and hastens further the end of Greenland's ice.

North Pole, goal of so many explorers, will then be no more than a point on the ocean surface. Not only the Arctic is changing, the climatologists warn that a four degree rise in temperature is enough to eliminate the vast Amazon forests, in a catastrophe for their people, the biodiversity and for the world, which will lose one of its air conditioners. The scientists who form the Intergovernmental Panel on Climate Change predicted, in 2001, that global temperatures would rise between 2 and 5° Celsius by 2100. To judge from the observations and model forecasts reported at a meeting at Exeter, in the United Kingdom in February, even this grim forecast could be an underestimate. Antarctic ice is now adding to the sea level rise. The ocean is becoming dangerously acid for marine life, and the excessive heat of the 2003 summer in Europe, when over 30 000 died, was no unusually hot spell, but the first taste of overheating to be expected as this century evolves.

There are still sceptics of global heating, and influential among them is that most talented novelist Michael Crichton. His stunningly good novel "State of Fear" denies global heating. The public, unfortunately, are always much more moved by fiction than by scientific papers. So what we badly need is a good pro-nuclear novel and Hollywood film to follow.

What makes me think global warming is so serious and so urgent is that Gaia is trapped now in a vicious cycle of positive feedback. Extra heat from any source, whether from GHG, the disappearance of Arctic ice, the changing structure of the ocean surface or the destruction of tropical forests is amplified and their combined effects are more than additive. It's almost as if we've left a fire to keep warm and failed to notice as we piled on the fuel that the fire was out of control and the furniture ignited. When that happens, there is little time left to put out the fire before it consumes the house itself. Global heating, like a fire, is accelerating and there is almost no time left to act. Climate scientists are sure that when the carbon dioxide rises in the air about 400 to 500 parts per million, the earth crosses a threshold beyond which global heating becomes irreversible. We are now at 380 parts per million and at the present rate of increase it could reach 400 parts per million in a shorter time than 7 years. We have so damaged the atmosphere of the earth and destroyed its natural ecosystems to provide farmlands for our growing numbers, that already the world is diseased and will not recover for thousands of years. Every year we carry on business as usual, increases the harm done. We can hardly claim to be civilised if we think of ourselves alone. It is not the miseries of the first few skirmishes with Gaia through this century that should most concern us. It is the thought that our heedless indulgence now, if unchecked, will leave ruins for future generations.

We will do our best to avoid catastrophe but sadly I cannot see the United States or the emerging economies of China and India cutting back in time, and soon they will be our main sources of emission.

I fear that the worst may happen and our survivors will have to adapt to a hot and uncomfortable world. To retain civilisation then, they will need more than ever a secure and reliable source of energy to power the adaptation and for this there is no sensible alternative to nuclear energy.

As the earth changes to its new hot state there will be fast geographic and demographic changes. Civilisation is energy intensive and we cannot turn it off without crashing. Though we need something much more effective than the Green ideology of the Kyoto agreement, I suspect that we will do little until the catastrophes of the intensifying greenhouse becomes frequent enough to make us pull together as a global unit with a self restraint to stop burning fossil fuel and abusing Gaia. I believe that meanwhile the world nuclear industry will continue to supply electricity in a safe and reliable manner and that this supply will give civilisation the chance to survive through the difficult time soon to come.

We have to stop thinking of human needs and rights alone. Let us be brave and see that the real threat comes from the living earth, which we have harmed and is now at war with us. We have to make our peace with Gaia and remember we are part of it. And it is indeed our home.

Thank you.