

The Chernobyl+20 conference Kiev May 22 - 25 2006

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First of all, thanks to the organisers for inviting me to speak at this important conference in remembrance of the Chernobyl catastrophe now 20 years ago. We who are old enough to remember it can recall precisely when and where we first heard about it - the moment when Chernobyl became a name never to be forgotten.

Among the thousands of victims, in particular those who worked desperately to prevent a total melt-down deserve our remembrance. Somehow, the worst case scenario did not materialise.

Slide 1.

Today global problems foreseen by a few 20 years ago have become realities which determine the prospects for global development in the next decades.

Slide 2.

In 1972 a MIT project team lead by Dennis Meadows presented the book *Limits to Growth* to the Club of Rome. In the 1980s and 1990s the book's warnings were widely dismissed. There were no signs of any limits to growth.

The absence a warning signals before it is too late is, however, is the essence of exponential growth: the limits seem far away right until they come close at a dramatically accelerating speed.

In fact *Limits to Growth* was too optimistic. It did not anticipate that the inequality in wealth and resource consumption among the peoples of this world would grow. It expected, optimistically, inequalities to diminish.

The terrible fact is, that had inequality diminished substantially, then the *Limits to Growth* had been reached years ago.

Slide 3.

In 1976 the famous oil geologist M. King Hubbert, who correctly predicted the peak in 1970 of oil production in the USA, clearly stated the exponential growth problem.

Exponential growth cannot go on. With or without nuclear power. Nuclear power is not the solution. Even if all the nuclear hazards were eliminated, nuclear power could not in time contribute substantially neither to the reduction of CO₂ emission nor to the security of sufficient energy supplies.

Consider for example the following thought experiment: If the present growth in global oil consumption of about 2% per year were to be avoided by the substitution of nuclear power for oil - replacing oil-fired power stations by nuclear and using electric power to produce hydrogen for fuel cells in cars and to heat buildings by means of electric heat pumps instead of oil boilers - then new nuclear power stations would have to be commissioned at a rate of about one 1000 MW new station every 6 days, in addition to the replacement of the old nuclear stations being de-commissioned along the way.

In other words, the rate of global oil consumption, now at 84 million barrels/day, is so high that were it to be kept constant by means of nuclear power at the present rate of global economic growth, nuclear capacity would have to grow at an exorbitant rate.

And uranium production would peak soon after oil production has peaked. We must take a very different approach to the serious problems facing us because of the foreseeable decline in oil and gas production and the CO₂ problem.

The problem is that the present technological basis for the world economy is founded on cheap fossil fuels. Our buildings, hundreds of millions of motorcars, huge fleets of airplanes, our industries and agricultural production machinery - everything around us is made the way it is because for 20 years oil, gas and coal has been available in abundant amounts at extremely low prices.

Had fossil fuels been less abundant or had climate change been recognised as a problem at an earlier stage, our world today

would have been very different - probably a better world to live in.

The world is finite, like life on an island far at sea. It's like this:

*A flock of hens and a cock live on an island far out at sea.
The flock is no bigger than it can live very well from the grass
and other weeds growing on the island and the worms in the
soil.*

*But one day the hens find a hundred barrels of grain drifted
ashore from a wrecked ship.*

Now abundant amounts of food is easily available.

They multiply. The chickens grow up and have more chickens.

They become fat from all the grain they eat.

*Soon there is not room for any more. And what is left of the
grain has been treaded down into the ground.*

*Moreover, the many hens and chickens have destroyed the
natural vegetation.*

Crisis is looming.

*Had they found only ten barrels of grain instead of a hundred
they had been better off.*

Human economics work the same way.

The party is over. We can't go on wasting energy in exorbitant amounts. And we can't rely on energy markets which make us behave like the hens on the island. But the window of opportunity is closing. It's time to look out and face the realities of our final world.

Few studies of technological opportunities for change in particular countries or regions have been made at the concrete level, i.e. in terms of fossil fuel consumption and CO₂ emission reductions obtainable by the implementation of specific, feasible investment programmes.

Slide 4.

However, such a comprehensive study, commissioned by Greenpeace Nordic, has been carried out for the region comprising the four Nordic countries, Norway, Sweden, Finland, and Denmark. The study examines the opportunities for the phasing out of nuclear power while at the same time reducing the CO₂ emission.

The four Nordic countries make up a region which is endowed with more hydropower per capita than any other region in the world. Therefore the study covers a special case. However, the results of the study do show trends of general interest.

Slides.

In conclusion: the dogma that it is costly to achieve significant reductions in CO₂ emission does not necessarily hold.

And should it be true that it is too costly to prevent climate change the logical conclusion must be that life is too costly.

The proliferation of nuclear power would draw large economic resources and technological capabilities away from the necessary reconstruction of the energy systems which constitute the basis of the global economy. It is nothing but a futile attempt to keep the party going a few more hours. To land an additional couple of barrels of grain on the shore of the hens' island.