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# Time to embrace new technologies

Global warming is not going to pass us by so it is time to rethink our impact on the environment, one scientist tells ZOE CHRISTODOULIDES



**We can't ignore that temperatures rose dramatically through most of the 90s and anyone who says otherwise isn't well informed**



**G**lobal warming disasters? Things that could eventually turn our world upside down in environmental havoc? Sometimes it's hard to take it all in when you're bombarded with images of the freezing Arctic that have so little to do with our daily life. "When I think of global warming it's all those things you see on TV," says one colleague. "Disasters, floods, deserts." But does Cyprus come to mind? "No not really," he replies nonchalantly. "I think of giant melting ice caps," says another. "Not much to do with home."

But we all know very well that our sunny isle isn't exempt from the world phenomenon. And with the sweltering heat we experienced as August set in this year, one has to wonder what our future is going to be like.

Professor Jos Lelieveld has succeeded in bringing the issues a little closer to home, with his Cyprus based research now painting images of an even hotter future here combined with decreasing rain levels. "People wrongly think that things will be just fine if they continue living like they always have but they're forgetting that mankind inevitably influences the global environment," he points out.

Now a professor at the Cyprus Institute, leading the Atmospheric and Climate Modelling group of the EE-WRC (Energy, Environment and Water Research Centre), Lelieveld started off his career when he received a PhD from the Faculty of Physics and Astronomy at Utrecht University in 1990. From that point onwards he

moved from post to post teaching at various universities in America and Europe, after which, in 2000, he was appointed as a Director of the Max Planck Institute for Chemistry in Mainz.

Walking into his new Nicosia office I'm greeted by no end of books with intriguing titles; *Aerosol Technology* and *Atmospheric Aerodynamics*.

With his research here in Cyprus focusing on atmospheric and climate change in the Mediterranean and the Middle East, I wonder how he developed his interest in the field? "I'm a physicist but the kind that would like to do something relevant," says the polite Dutch man peering over his thin-rimmed glasses. "So I use my personal enthusiasm for physics in relation to the environment."

His move to Cyprus came about in 2008 through a contact at the Institute and interest in the research conducted at the centre. "The environment we live in here in the Mediterranean is warm enough; our role through research is to figure out exactly how it will affect us."

So is the future really all doom and gloom? "Let's say things will get hotter and dryer in the next 50 years. But we are still trying to look into the answers people really want that we can't yet give. Will we just get more striking heatwaves or will there be an overall temperature rise? We can't yet say," he explains. "But we are now setting up modelling systems to give people answers about what's to come. Farmers, the government, the water

board; they all want to know precisely what effects to expect."

And while heat and drought is one issue, we are faced with another problem as sea levels continually rise, with most scientific research pointing to a minimum half a metre increase by the end of the century and then a rather astonishing 25 metres in the next two to five centuries. That means we can wave goodbye to any low-lying lands, something which we are now being told over and over again by international scientists and researchers.

But what Lelieveld is keen on pointing out are the repercussions on Cyprus. "It will definitely lead to beach erosion and flooding in certain low-lying areas such as that east of Larnaca," he explains. "It's not an immediate threat, but a threat nonetheless."

Bombarded with the idea of floods in some places, droughts in others, and changes in rain patterns, it can

only make one wonder if there isn't even a little 'shock factor' added to all the talk. There are, after all, counter arguments that point towards the extensive discussions around global warming being hyped up, with climate change sceptics stating that changes so far have been brought about not by human activity, but normal climatic fluctuations. Then there's another undisputed fact: the temperature of the earth hasn't actually risen since 1998.

"It's true that there has been no real increase compared to the great escalation in the 90s, but that's not made the problems go away and is down to natural swings of the cli-

mate," Lelieveld replies. "The point is that there is far more evidence pointing towards changes than arguments against it. We're certainly not looking for problems, there are lots of other ones around we could be dealing with. We can't ignore that temperatures rose dramatically through most of the 90s and anyone who says otherwise isn't well-informed. Just look at the Arctic ice coverage - it's at the lowest it has ever been. Of course, part of our research includes looking at how much is caused by natural activity and how much is from mankind. But I can say this - unless we stop emitting carbon dioxide the trend will continue."

It's all well and good to make predictions but what most people no doubt want to know is what exactly Cyprus should be doing in the face of change?

"We must embrace more sustainable methods," he replies matter of factly. "At this point in time we're very dependant on fossil fuels but they are just going to get more and more expensive until they completely run out. We simply have to embrace new technologies with solar power being something we should be using far more. It's unavoidable; there is no feasible alternative."

Then, of course, there's also the issue of rain with the serious drought

experienced a short time ago indicating that we just can't sit around and wait for the skies to open. "Desalination should have been investigated a long time ago. Buying water from other countries is an undesirable possibility," says the professor. "Here at the institute we are now developing a method and test plant - ready within the next year - to desalinate sea water with the use of solar power." Although we may have enjoyed a great amount of rain this past winter, Lelieveld is keen to stress that rain levels have on the whole decreased over the past 20 years on the island. "Now it's a question of the governments making the right choices."

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