

# HEADLINE T/K

With growth its top priority, China sees the task of curbing climate change differently from the west – but there is a way through, says **Julian Hunt**

IN DISCUSSIONS over how to avoid dangerous climate change, two numbers are especially prominent: 450 parts per million and 2°C. These are, respectively, the upper “safe” concentration of carbon dioxide in the atmosphere, and the upper “safe” limit of average global temperature increase. The fear is that if we exceed either, the climate will pass an irreversible tipping point.

The world’s biggest emitter of CO<sub>2</sub> sees the future rather differently. I recently visited several institutions in China and heard some very different numbers – numbers that are not being aired in the west. They certainly don’t appear to be part of the discussions in the lead-up to the UN Climate Change Conference in Copenhagen in December, where a framework for dealing with climate change beyond 2012 will be discussed.



China is absolutely committed to political stability, and that stability depends on economic growth. Over the next 40 years it forecasts that its GDP will increase by a factor of 6. The driving force of this massive growth will be fossil fuels, in particular coal.

China’s stated policy is to increase the total output of its coal-fired electricity generation while improving efficiency. This is its only significant target in relation to energy and climate change, and even if the target is met, the country’s emissions are likely to at least double by 2050. China, in other words, is not committed to limiting emissions so as not to exceed any particular target for the global CO<sub>2</sub> concentration.

China’s booming emissions will contribute significantly to atmospheric CO<sub>2</sub>. With this in mind, the latest annual report of the Beijing Climate Centre considers two future scenarios for greenhouse gas concentrations in 2100. One puts CO<sub>2</sub> at 550ppm, which is double pre-industrial levels. The other is even higher, at 750 ppm, with average temperature rise over China exceeding 4°C.

Is there anything the rest of the world can do to avoid the

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AT INDIA’S largest burns centre in Victoria Hospital, Bangalore, ten macabre scene is played out with horrifying regularity. A twenty burnt woman is brought in by her husband and thirty. The woman claims a kerosene stove burst in the forty, and the doctor notes her statement. Hours or days fifty she dies, and the police dismiss the

case as sixty accident.

A new study, the first of its kind, seventy appalling proof of what many in India already acknowledge eighty many of these “accidents” are in fact dowry-related murders ninety forced suicides, acts of unimaginable violence against wives who one hundred meet

their husbands’ and in-laws’ demands for yet one hundred and ten money. The study suggests that in one hundred and twenty of India’s strict anti-dowry laws and one hundred and thirty campaigns by women’s groups, incidents like one hundred and forty are on the rise across India.

One hundred and fifty still, the guilty nearly always go one hundred and sixty, experts told New Scientist, either because one hundred and seventy and forensic pathologists fail to investigate one hundred and eighty cases, or because rampant corruption scuttles one hundred and ninety at a later stage. Women’s rights

two hundred, doctors, lawyers and judges are demanding strict enforcement two hundred and ten the existing laws. Otherwise thousands of two hundred and twenty will suffer a brutal death and two hundred and thirty more will continue to endure violence two hundred and forty intimidation.

The study was carried out two hundred and fifty Baldev Raj Sharma, a medical-legal expert two hundred and sixty the

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risk of dangerous climate change that this implies? The main way that China can limit its emissions will be to improve the efficiency of its coal-fired power stations, adopt carbon capture and storage, and expand nuclear power. Developed countries can encourage and facilitate this transition by providing China with substantial technological assistance.

But first the western nations must commit to making deep cuts in their own emissions – in the order of at least 80 per cent – before 2050, conditional on China doing so after 2050 as its energy-efficiency, renewable and nuclear programmes become effective. As ambitious as it may seem, an international agreement along these lines in Copenhagen is a credible goal, for two reasons. First, because China has a long-term financial interest in collaborating with the US. And secondly because – as I have seen in meteorology and in plasma physics – China has a good track record in delivering on advanced technology projects and sticking to international agreements. ■

Julian Hunt is professor of climate modelling at University College London and a former director general of the UK Meteorological Office

Government Medical College Hospital's department two hundred and seventy forensic medicine in Chandigarh, Punjab, and two hundred and eighty colleagues. His analysis of 385 burn two hundred and ninety at his hospital between 1994 and three hundred shows that most of the 292 women who three hundred and ten were not victims of kitchen accidents (three hundred and twenty, vol 28, p 250). What's more, three hundred and thirty numbers are rising. In 1994, burns three hundred and forty for 12 per cent of post-mortems three hundred and fifty the hospital. In 2001, the figure

## One-minute interview

# Headline here

40 years ago Baruch Blumberg invented a vaccine that has prevented millions of deaths from hepatitis and liver cancer

### How effective has vaccination been?

In regions where national vaccination programs have been introduced it has been remarkably successful. For example, in China the drop in prevalence has been dramatic, from around 15 per cent to fewer than one per cent in less than a decade. There's a similar pattern in other regions. But there are places where campaigns are not effective, such as some regions of Africa.

### What are we to make of studies that suggest that after the vaccine is introduced, liver cancer rates decline?

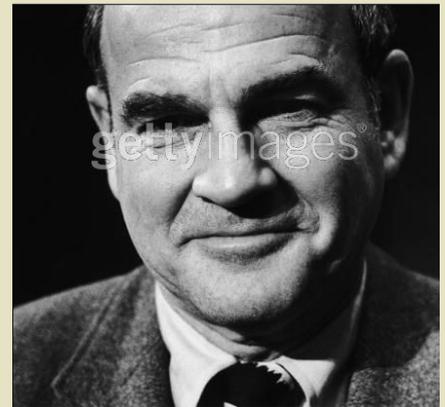
The hepatitis B vaccine is the first cancer prevention vaccine. In Taiwan, for example, the incidence of the cancer fell by about two thirds after vaccination was introduced in the early 1980s. Based on the available data the vaccine has been very effective. It was our hope that there would be more cancer prevention vaccines and now the human papilloma virus vaccine against cervical and other cancers has been introduced. My guess is that there will be more.

### Given chronic Hepatitis B infection is so common, do you think it might confer some benefit in the same way as sickle cell anemia helps to protect against malaria?

There is some data to support this but much more is required. Those who became chronic carriers of the virus have a much lower life expectancy. But there is some evidence that people who developed antibodies against the virus have a longer life expectancy than people who have not been infected at all.

### Is it true that men and women respond differently to infection with Hepatitis B?

When infected, males are more likely to become carriers and females more likely to develop protective antibodies. As a consequence, more males are likely to develop chronic liver disease and to develop primary cancer of the liver. The ratio of males to females among those with primary cancer of the liver is of the order of eight to one.



### PROFILE

Baruch Blumberg invented the hepatitis B vaccine in 1969, for which he won a share of the 1976 Nobel Prize. He is now senior advisor to the president of Fox Chase Cancer Center

### Does the virus have any other effects related to gender?

There is a curious observation which we have made in several studies is that the virus affects the gender ratio of offspring. If one or other of the parents is a carrier, they have a higher ratio of boys to girls in their offspring than they do if one of the parents, particularly the mother, has antibodies against the surface antigen. One prediction is that if you have a successful vaccination programme, the number of carriers drops and you would expect a change in gender ratio.

### The Hepatitis genome was sequenced in 1979. What has genomics found since?

This is a DNA virus and so relatively unchanging, unlike RNA viruses such as HIV. Because it does not mutate so much, it makes vaccine development more feasible. But there is variation in the genome worldwide, and a particular strain is often associated with a population group, so you can examine migration history by looking at the genomics of the hepatitis virus.