

TAKEN AT THE FLOOD

Global Warming and Planning for Sea Level Rise: The case of Ho Chi Minh City, Vietnam

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by

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That atmospheric carbon dioxide levels are rising and that this might lead to rises in sea level was known as early as the 1960s. The US government funded detailed studies of what it might mean for US coastal cities, taking the example of Charleston, South Carolina. No notice was taken of this and indeed the issue remained in the realm of academic debate until very recently, reaching a wide public audience partly through the efforts of private citizen Al Gore.

Meanwhile, however, the Intergovernmental Panel on Climate Change (IPCC) created in the 1990s has been coordinating the efforts of scientists working on all aspects of the potential and actual impacts of anthropogenic (human-induced) atmospheric change. The IPCC's [fourth assessment report](#), currently appearing in stages, indicates more clearly than ever that atmospheric changes are leading to climatic changes, that this involves a warming of the earth and that this is leading and will continue to lead to rises in sea level.

Prof. Atkinson presented information and estimates so far available on global warming and sea level rises, deriving from the work of the IPCC and the World Bank report "[Global Economic Prospects 2007](#)". Sea levels, which have been stable for the last 8 thousand years, are now beginning to rise, first because water already in the oceans takes up more space as it heats ("thermal expansion"), then because higher air and water temperatures melt ice in the polar ice-caps. The World Bank Report uses the word "catastrophic" eight times in connection with the possible impact of climate change, and (in Chapter 5) sets out the likely consequences of rises in average global temperatures of 1°, 2° or 3° Celsius.

Adrian Atkinson turned his attention to Vietnam and specifically Ho Chi Minh City which stands to be largely inundated as the sea rises. A significant area of Vietnam – namely the deltas of the Mekong and Red River – are very low lying in the former case much of it below 1m above sea level. The major cities are all in low-lying areas as is much of the agricultural land and more recent industrial infrastructure. Bangladesh is often thought to be the Asian country that will be most heavily affected by sea level rises but in fact as a percentage of population and economic activity affected this is likely to be substantially less than Vietnam. The speaker had recently returned from work with a Vietnamese Ministry of Construction planning team putting together a regional plan for Ho Chi Minh City and the surrounding area up to the edge of Mekong Delta. An early draft of the plan had as yet taken no account of the possible consequences of sea level rises.

Locally a crucial impact of rising sea levels is that inland water is becoming saltier, making it unsuitable for growing rice. Farmers may switch first to fish then shellfish production, but ultimately that too is abandoned. As most of the land is flat land and badly drained, flood water persists ever longer. At first, people just live with it but later, when river levels are permanently higher and there is greater danger of flash floods, we can expect people to move out and economic activities cease.

Adrian Atkinson helped local planners consider what action should be taken and put together what the World Bank calls 'Adaptation Plans'. That job is made harder by a frustrating mixture of problems:

- Lack of knowledge even amongst planners
- Lack of imagination about what is involved in achieving change
- Vested short-term political and economic interests in not divulging the scale of the problem
- Current plans cover urban areas but not the rural area around them
- Lack of planning tools to steer development
- Inadequate infrastructure to support decentralisation
- Lack of means to build defensive infrastructure

Prof Atkinson ended by considering a more fundamental problem: how to curb the release of greenhouse gas – three quarters of the 'forcing effect' of which derives from the burning of fossil fuels. There is a high probability of a "double whammy": if our society continues to exploit fossil fuel along the current trajectory (e.g. as set out in the predictions of the [International Energy Agency](#) "Reference Scenario", rather than the "Alternative Policy Scenario", which assumes a significant shift away from fossil fuel usage), the dire effect of global warming will coincide with energy shortages. As fossil fuels are progressively depleted as the century progresses, we will not have the energy necessary to take effective evasive action ...in which case, Prof. Atkinson said, "the party will be over".

In questions and discussion at the end of this presentation, members of the audience asked about ways of bringing the potential impact of climate change and sea level rises home to people wherever they live, and planning to accommodate the impacts. Adaptive planning, as applied in the Ho Chi Minh City work, was the key whether in London, the Netherlands or Bangladesh. Planners should take the information in reports already mentioned (not disdaining scenarios set out in "[An Inconvenient Truth](#)" and "[The End of Suburbia](#)") then translate, map, chart and calculate its impact on a particular community, working up from the most cautious to the more apocalyptic estimates.

The message was that planning is a vital part of managing climate change and that planners can and should play their part.