



Department of Geography
Professor John Sweeney

Joe Noonan,
Noonan Linehan Carroll Coffey (Solcers),
North Main Street,
Cork.

Thursday, January 29, 2009

Re: Siting of Proposed Incinerator

Dear Mr. Noonan,

Further to our telephone conversation and the receipt of the material relating to the proposed application for an Incinerator at Ringaskiddy, I wish to make a number of observations.

1. In their 4th Assessment Report the Intergovernmental Panel on Climate Change project a range of 0.26-0.59m for sea-level rise by 2090-99 relative to the present. In making this estimate they used the AIF1 emissions scenario which is a pessimistic scenario. However recent global emissions data suggests that the presently observed trend in global emissions is on a trajectory significantly above this value. I make this point to emphasize that the 2007 estimates may ultimately be considered very conservative. Indeed the IPCC themselves emphasise that they also do not include uncertainties in climate-carbon cycle feedbacks nor the full effects of changes in ice sheet flow, and that therefore the upper values of the ranges are not to be considered upper bounds for sea level rise. They also do not build in recently observed changes in Greenland and Antarctic ice flow. All the risk is therefore on the upside and values in excess of 1 metre rise by 2090 would not be a surprise.
2. The chief coastal flooding hazard for the Ringaskiddy area comes from the combination of sea-level rise, storm surge and high tide events. A clear picture of the probability of such events is not available. However, recent modelling work by Met Eireann (Wang et al, 2008) indicates that storm surge heights are likely to increase significantly along much of the Irish coast, although no significant increases were projected for the south coast in this particular exercise. Notwithstanding this, under present climatic conditions the 1 in 100 year maximum water level for much of the south coast is presently between 2.5 and 3 metres (Orford, 1989), and this is in the absence of a sea level rise contribution. In these circumstances the design platform level of 4.55m O.D. is, while probably sufficient to accommodate most extreme events, not unduly conservative for example for the 1 in 200 year event. I understand in October 2004 flood water levels occurred which would have come up to within 5cm of the intended ground level of the tank farm.

3. I wish to concur with the Planning Inspector that the extent to which dispersion modelling of the plume based on observational data from Cork Airport is, in my opinion, unwise. Cork Airport is distant, situated on a well elevated well ventilated inland site. The proposed site is low lying and subject to local coastal circulations. Most importantly it is a hollow which may be subject to more frequent temperature inversions capable of trapping and concentrating the plume locally. Dispersion models frequently do not consider adequately the localised impact of temperature inversions which have the potential to more than double projected ground level concentrations at particular locations adjacent to the source. In addition marine-land circulations will exist at this location which are less prevalent at Cork Airport and do not appear in the wind regime data to a satisfactory extent. I consider it important that a local source of wind data appropriate to the location would be used for any satisfactory EIS to emerge.
4. There appears to have been a history of erosion at the proposed site and in these circumstances coastal protection measures will most likely be envisaged for the development. The comments of the Planning Officer that the EIS is 'legally inadequate' in its treatment of the local erosion history is of concern. Any coastal protection measures would be likely to have significant effects at locations adjacent to the site, and at other locations which might be affected by sediment movement/increased wave energy exposure.

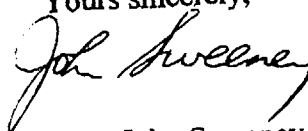
IPCC (2007): Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A.(eds.)]. IPCC, Geneva, Switzerland, 104pp.

Orford, J. (1989) A review of Tides, Currents and Waves in the Irish Sea, in, Sweeney, J. (ed) *The Irish Sea: a Resource at Risk*. Geographical Society of Ireland, Special Publications No. 3.18-46.

Wang, S. et al (2008) The impact of climate change on storm surges over Irish waters, *Ocean Modelling* 25, 83-94.

I trust these observations, will be of assistance in the consideration of this proposal.

Yours sincerely,



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