

NUI Maynooth, MSc Climate Change Class 2010-2011, Adapting to Climate Change:
The urgency and some challenges to begin



Our response to the challenge of climate change will shape our future in many different and crucial ways. Adaptation is about realizing the impacts of climate change and acting in such a way to limit negative impacts and embrace positive outcomes in order to reduce our vulnerability from the effects of climate change.

Adaptation is a process. It can be one change made by an individual, such as a farmer changing the planting time of his crops, or a national or global action supported by legislation. We can identify two primary types of adaptation based on how the process takes place: reactive and anticipatory. Reactive adaptation is prompted by an extreme event, such as hurricane Katrina, while anticipatory adaptation is a planned approach to adapting to anticipated climatic changes. Reactive approaches are much less cost effective than anticipatory approaches, as we all know a stitch in time saves nine.

Adaptation is distinct from mitigation actions that lower our greenhouse gas emissions. Adaptation and mitigation ideally go hand in hand but this is not always the case and this can lead to what is known as mal-adaptation. An example of this is the increased demand for air conditioning units in the summer months which although tackling the heat increase leads to an increase in emissions. Adaptation should be appropriate, feasible and effective. It needs to be appropriate to the place that it is in and the conditions, it needs to be feasible with appropriate funding, and it needs to be cost effective.

Why the urgency?

Prevention is undoubtedly better than cure; it's preferable to tackle a problem at source rather than trying to deal with the consequences. This idea is wholly applicable in the case of climate change adaptation. Recently international bodies have failed to address and mitigate anthropogenic emissions of greenhouse gases and this has led to a global mean temperature rise of on average 0.76°C. Furthermore, the rising trend is accelerating and we are now urgently in need of a cure. It must be highlighted that adaptation is not a Plan B or an alternative to the reduction of greenhouse gasses. Adaptation should be viewed as a vital component of the effort to address the wider issue of climate change. Thus adaptation and mitigation should be pursued urgently and in parallel with each other, in a complementary and timely way.

One of the biggest arguments put forward for attempting to adapt now is that climate change has already built significant momentum. Even if we could switch off all emissions now, we would not stop or reverse the effects of climate change over the next 50 years due to inertia in the climate system. This means that some climate change is inevitable due to historic and current emissions of greenhouse gases. In essence the different rates of response of the climate system mean that the effects of greenhouse gases emitted today will not be felt for years to come. We as a society then have to come to terms with the fact that we must urgently adapt to climate change, irrespective of how greenhouse gas emissions are presumed to change over the coming decades. We have seen that the establishment of reduction targets and agreements is highly politicised and can become badly side-lined.

The calls from experts are clear. In Ireland the Irish Academy of Engineers has highlighted the risks posed by climate change to critical infrastructure. Over the coming century we can expect higher sea levels which will threaten Ireland's cities and major towns. We as a nation can also expect more intense storms, warmer temperatures and warmer waters, more flooding, summer droughts and changing rainfall patterns. By 2050 we expect to see a 25% reduction on the amount of surface water available and a population increase of 2.5 million; both factors will have a severe impacts for Ireland and in particular on Dublin which relies heavily surface based resources. It would not take a great leap of the imagination then to come to the conclusion that if current climatic conditions test our infrastructure, such changes will only serve to cause further hardship. Look at the lessons from the November 2009 floods.

The impacts and risks associated with these changes are real, are already happening and will have consequences for us all, including many systems and sectors that are necessary for human livelihood, including water resources, flood protection and energy supply. Reactive adaptation is an expensive and risky option. Academics have noted that in the absence of planned and anticipatory adaptation, autonomous adaptation will inevitably occur, but the residual costs associated with this strategy, and potential losses associated with the wait and see policy, severely outweigh the cost of building a more robust society now. By avoiding the costs of adapting now we only place a larger burden on future populations. Uncertainties in the models of the climate system and gaps in knowledge need not be a limit to pursuing adaptation through identifying win-win options, those which are designed to be effectual today, tomorrow and under a wide range of climatic conditions.

The maintenance of Ireland's society, economy and ecology can be climate proofed through robust anticipatory adaptation strategies. This is an issue that cannot be put on the long finger. The proof of what is happening is before us and many systems are already at the limit of their capacity to absorb shocks. The Dublin water supply

system, Cork flood defences and our unique wetlands are just some of the examples. To ensure a secure and prosperous future we must be proactive now, and not shy away from our responsibility to future generations

Some Challenges to Begin

As adaptation requires action on the part of society, it poses a great challenge, as factors such as personal ethics, goals and values, awareness/knowledge, understanding the risk posed and ingrained cultural behaviours influence how and why people act or do not as the case may be.

People's ethics and values greatly control how and why they act, as it is what motivates them. If there is no value or benefit to changing one's actions to adapt, or the current lifestyle is valued more, goals will never be set and action will never be intentionally taken. In Ireland, our capacity to adapt to climate change is large relative to that of other nations, even if the current financial crisis has dented substantially our ability to mobilise capital resources to address these problems.

In terms of adaptation, knowledge can affect adaptation in very different ways and can either aid our ability to adapt or hinder it. At the personal level, knowledge is often derived from past experiences which shape our opinions or understanding of issues and events. In the case of climate change adaptation, people who have experienced natural hazards or climate extremes will be more aware of the importance and need for adaptation to occur and may have some idea of how this would be done. These people have developed a local knowledge that facilitates their adaptive capacity. For people with no experience of these types of events it may not be quite so easy to see the necessity or urgency of adaptation to climate change and therefore they may be unable or unwilling to adapt. However, this is not the only way that knowledge will challenge adaptation. On the wider scale, where people have considerable knowledge about future climate trends there may be questions raised as to whether this knowledge is "trustworthy". Climate scenarios are based on modelled projections and are therefore inherently uncertain. Although this uncertainty can be accounted for and quantified, it can never be eliminated. For this reason climate model outputs and future climate scenarios are often viewed as untrustworthy knowledge by the public and lead people to wonder if there is a point in adapting to changes that we are unsure about.

What we perceive as a risk and whether it should be acted upon can reduce adaptation actions on an individual and societal level. Perception of risk can interact with underlying values and factors such as social status and as a result can form limits to adaptation. The perception of vulnerability is linked to the perception of risk. A population can either see themselves as vulnerable to a particular risk or see

themselves as not threatened or vulnerable. When a population does not see themselves as vulnerable they do not see the need to adapt. Many populations do not see themselves as vulnerable or at risk due to a lack of knowledge about local impacts. People see climate change impacts as removed from them in space and time (not here, not yet).

The most immediate challenge for adaptation then is to make the threat of climate change, and the imperative of adaptation, here and now.

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