

Managing Climate Change

Adopting a Macho or a Modest Approach?

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[P I E T E R L E R O Y]

Under the headline 'Macho Plants', a Dutch-Flemish gardening magazine recently published an eye-catching article describing ten garden plants which are not only resistant to exceptionally heavy rainfall but also to long periods of drought. 'Macho' because they can apparently survive the anticipated effects of climate change on our part of the world. As an amateur gardener I have always tried to make sure that our garden plants are well adapted to the soil, humidity and climate of our garden; hence my interest in these climate-proof plants. Yet climate change will create more urgent and pressing problems than those which can be solved by a handful of 'macho' plants. This article will explore the extent to which the idea of adaptation to climate change has penetrated society: might it also reflect the lengths to which we will go to accommodate this self-created problem?

Climate change, mitigation and adaption

The story of climate change is a familiar one. Since the industrial revolution, we have been pumping out ever-increasing quantities of so-called greenhouse gases, of which CO₂ is the best known. They create a kind of blanket around the earth preventing it from losing heat, which leads to global warming: i.e. a gradual rise in the average temperature on Earth. In recent years, record after record has been broken and average temperatures have risen faster than the most probable scenarios had predicted. Global warming leads in turn to a range of regionally specific climate changes: more, as well as less, rainfall, warmer winters, disrupted rainy seasons etc. Furthermore, global warming is causing the ice caps to melt and the seas to become warmer, all of which leads in turn to rising sea levels and changes in the ocean currents.

As an optimist or pessimist, the world seemed to react either quickly or slowly to the effects of climate change. It was the scientists, especially meteorologists, who first fired off early warnings about these changes, and climatology rapidly grew into a large, multi-disciplinary and influential discipline. But it took some time for politicians to heed their warnings and take any action. The setting up of the intergovernmental panel on climate change, IPCC (1988), and



The Blue Marble,
Earth as seen by Apollo 17
in 1972

the signing of the United Nations Framework Convention on Climate Change, UNFCCC, in 1992 marked the start. Since then, more than twenty Conference of the Parties (COPs) sessions have been held, most recently in Paris in December 2015. The frustrations created by the Copenhagen meeting in 2009 gave way to a sense of euphoria in Paris when it was agreed to limit the rise in the average temperature to 2° Celsius and even to aim at 1.5°. However, it is clear from the figures that even if all the promises made in Paris are fulfilled, we shall still see an average temperature rise of 3°C. The scepticism surrounding those promises was well expressed in a cartoon showing a world under water and the caption: 'First there was the Paris agreement, then Trump became president of the United States'.

Sceptical or not, climate change requires a two-fold response: mitigation and adaptation. Mitigation means tackling the root cause: the emission of greenhouse gases. That involves a tiresome process of change in energy production, in agriculture and industry, in our transport systems and so on. Our whole economy will have to be weaned off its addiction to fossil-based energy and switch to low carbon, in a sustained effort over several decades. How difficult this will be can be seen in the Low Countries and elsewhere in Europe. Coal-fired power stations will have to be decommissioned; those burning lignite ought to close immediately; atomic energy is no longer an acceptable alternative; and to introduce wind, sun and other renewable sources will demand a huge effort. The German and Danish transitions in energy production are exemplary, but they are neither straightforward nor easy to copy. In Belgium, the



'In 2015 all countries agreed to fight global warming.
And then President Trump came.'
© Steven Degryse

nuclear option is digging in its heels while the Netherlands is finding it difficult to close down even recently built coal-fired power stations. In both countries, the transition to renewable energy is being frustrated. But in this respect, the Low Countries are little different from many other countries. Traditional technologies and economic practices are backed by powerful lobbies, while energy prices are far too low to encourage restraint and innovation.

Adaptation appeared somewhat later on the international agenda. Initially, the call for action came from the poorer countries, since they suffer the consequences of climate change without having the means to combat them. The hurricane that swept over the low-lying island of Vanuatu in March 2015 revealed the extreme vulnerability of some regions. The progressive desertification of Africa and the more frequent periods of drought in Southern Europe have also highlighted the need for adaptation. Vulnerable countries and regions want financial and technological assistance from richer countries to adapt their water resources, agriculture, and economic development to the rapidly changing circumstances. Meanwhile, even the wealthier countries have seen the need to adapt. After all, climate change is here to stay and adapting to it is essential.

Whereas mitigation imposes similar requirements everywhere, namely the reduction of greenhouse emissions through wide-ranging and difficult changes, adaptation necessarily involves regional variation. There are three reasons for this. In the first place, climate change has widely differing effects on different regions: drier here, warmer there; more rainfall here, earlier monsoons there. In Europe the scenario for climate change in Portugal, for instance, is entirely different from the situation in Finland. In Asia, Africa, America and elsewhere regional differences will be even more obvious. Secondly, not only do the effects of climate change wildly vary, but regions, cities and rural areas also differ in their vulnerability. Some regions in Northern Europe can expect an increase in agricultural land while Spain and Portugal are facing more periods of drought. Coastal towns and coastal regions in general, such as the Low Countries, are vulnerable in the short term, less because of rising sea levels than because the silting up of ground and surface water will make agriculture more difficult. Drought and rising temperatures will increase the danger of forest fires. In mountainous areas, greater precipitation and more rapidly melting snow will require impossibly expensive measures for managing peak flow. The mention of expense links up with the third reason for regional differences in adaptation. Countries and cities differ widely in their resilience and

their capacity to respond or adapt to climate change. Classic examples of this are river deltas such as the Scheldt and Rhine, Danube, Mississippi, Niger, Mekong, Ganges and Brahmaputra, to mention but a few. Although they are all physically and geographically very different, climate change affects each one of them through mechanisms and processes that are broadly comparable. However, it is hardly necessary to point out that some of these regions are far better equipped, financially, technologically and politically, to face the challenge of climate change.

Adaptation: nothing new under the sun?

The concept of adaptation, like climate change itself, has become extremely popular: one now has adaptation research, adaptation strategies, adaptation opportunities, adaptation platforms and so on. We shall return to them shortly. The concept has thereby acquired rather too narrow a meaning, typically associated with climate change, which needs correction from the standpoint of both evolution and history. With regard to the first, Darwin showed convincingly that the whole of biological evolution was the result of continual adaptation by species to their changing environment. Species which failed to adapt sufficiently died out. Human beings themselves are the product of that mechanism of adaptation and selection.

As for history, human beings have through the centuries proved astonishingly good at adapting. Much more than an evolutionary or biological development, this has been primarily a cultural and political process, which similarly produces winners and losers. For example, I have long been an admirer of Cistercian abbeys. Certainly because their simple architecture and their spirituality speak of such moderation and humility. But equally because their location, structure and organisation reveal the ingenuity with which eleventh-century



Philadelphia, USA
© Fabien Dupoux



Above
Cistercian abbey of
Silvacane, France

Above right
Chapter Room of the
Cistercian abbey of
Sénanque, France

monks were able to adapt to the irregularities of relief, landscape, soil, precipitation and so on in order to make full use of available resources such as water, wood and agricultural land. All in harmony, and in consequence with little disruption. Was that dictated by morality? Undoubtedly, but the technology of the time did not allow them to do much more.

Since then, people have become much less modest and less restrained. Adaptation to nature has increasingly turned into the adaptation *of* nature. The combination of science and technology has produced an ever-improving control over natural circumstances: floods and drought, sterile land, lightning damage, diseases affecting plants, animals and humans, all these natural dangers have steadily become easier to manage. Or, as Peter Sloterdijk put it: humanity has exceedingly learned to immunise itself against the vagaries of nature. Think irrigation systems and manure, lightning conductors and vaccinations, and other comparable 'modern' technologies. Modernisation is virtually synonymous with the degree to which we are able to free ourselves, defend ourselves and immunise ourselves from the unpredictability of nature. Historically it is clear that replacing unpredictability by stability has been a precondition for investment, innovation, capitalism and prosperity. Likewise, there has been a progressive shift from adaptation to nature to the adaptation *of* nature. And the power to adapt has been and still is unequally distributed, with winners and losers.

Among the losers, we find not only a large proportion of humanity but also those parts of nature which have been adapted to our wishes: forty percent of the world's surface has been turned into agricultural land at the cost of ruthless deforestation and enormous interference in the natural cycle of phosphates and nitrates. Although water management has admittedly enabled countries such as the Netherlands to exist at all, it has also brought about the destruction of enormous wetland areas and has affected the water cycle to such a degree that we cannot yet foresee its consequences. And our capacity to produce so much extra energy from coal and oil that we no longer have to be either frugal or careful, has brought about climate change.

For stubborn modernisers, climate change primarily represents a challenge by which human adaptability can be developed further. These strange creatures who still doubt that climate change is brought about by human beings, believe that the answer lies in geo-engineering. Geo-engineering embraces a

number of technologies, and ranges from creating artificial clouds, lowering the planet's temperature by injecting sulphur into the atmosphere, to placing gigantic mirrors around the earth in order to reflect sunlight back into space. Such technologies hardly suggest modesty or restraint, rather brazen macho-adaptation of nature – though unfortunately lacking the irony of 'macho plants'.

Adaptation to climate change: the Low Countries' strategies in a European perspective

Fortunately, most discussions on climate adaptation steer clear of such schemes. The European Union has asked its member states to prepare national adaptation plans by 2017. So far, all that is known of them is that they differ widely in procedures and content. Some countries see the plans primarily as an exercise by and for governments and experts, while other countries are involving their populations in order to spread awareness of climate issues. The proposed measures also differ since they naturally reflect the climate scenarios and risks specific to each country. Adaptation around the Mediterranean is not the same as in Scandinavia, or Northwest or Central Europe. Incidentally, it is striking how the emphasis of each country is dictated less by climate as by dramatic experiences from their recent past. Portugal and France, for instance, focus on forest fires; Poland and Germany are concerned about floods; Spain expects to face problems of drought. After the heatwave of 2003 which led to more than 10,000 deaths in France, many measures have been introduced to protect children and the elderly during hot summers and in so-called urban heat islands from the effects of dehydration.



Dacca, Bangladesh © Yusuf Ahmed



Above
Calcutta, India. Young boy studying with
the aid of a potato-powered oil lamp

Right
Garden of the disappeared plants,
designed by Denis Valette and
Olivier Barthélémy, Chaumont,
France, 2011



Furthermore, there are wide differences in how various measures of adaptation are perceived as a whole. For example, a long hot summer can lead to a reduced harvest and to reduced electricity production through a shortage of cooling water; it can make canal navigation impossible; it can bring down ICT systems, cause forest fires and so on. To protect society against such wide-ranging disruption requires the coordination of different sectors and fields and different levels of government. Although politicians tell us that climate change will force us to introduce institutional change, there are as yet few signs of this kind of all-embracing intervention.

In the Netherlands and Belgium, adaptation plans are also being developed though not with any great enthusiasm. In The Hague, the idea prevails that the Delta programme already constitutes an adaptation plan. The Delta Act was put into effect in 2012 and the Delta programme which is updated annually constitutes five packets of 'Delta Decisions' currently relating to flood risk management, fresh water, the river deltas (Rhine and Maas), the IJsselmeer region and spatial adaptation relating to water. Such concern with water is understandable in the Netherlands but can hardly be said to address all the effects of climate change. Even the Dutch Court of Audit considered the exclusive emphasis on water to be too one-sided. So they are now working on an adapta-

tion plan to be presented in 2017 that also includes agriculture, energy supply, the ICT infrastructure, transport, public health and so on. Most likely, this will consist of little more than a risk-assessment and a preliminary summary of the measures to be adopted. After all, 2017 is also election year in the Netherlands. Furthermore, and this applies to both the Netherlands and Belgium, the Paris Agreement mitigation will need full attention, at least in the short term. The Netherlands will certainly have to revise the weak Agreement on Energy of 2013 to meet the Paris conditions. A range of fossil fuel energy sources, in particular its coal-fired power stations, will have to be decommissioned and the contribution of renewable energy, which is currently extremely low, will have to be ramped up rapidly.

In Belgium too, as we have already indicated, there is an urgent need to begin the transition to a low carbon economy in energy, industry, transport, agriculture and households. The division of authority between the regions is an obstacle to both mitigation and adaptation since both will need comprehensive inter-regional agreement. In light of the present over-burdened political agenda, this is unlikely to come about. The most that will happen in 2017 is that Belgium will present three regional adaptation plans to the EU which we can safely predict will be unexceptional in content and not politically binding.

That does not sound optimistic and it is not very positive. But fortunately, more convincing schemes are being planned and carried out elsewhere. Cities in particular, not only in the Netherlands and Belgium but throughout Europe, are very active on the climate front. Many have opted to apply a thematic approach to both mitigation and adaptation: energy, construction, mobility, environmental planning, urban development, urban green and water management, all have led in various imaginative combinations to some attractive projects. In addition, care is taken not to present climate change as negative or threatening but as an opportunity for innovation. Cities like Rotterdam and Ghent, for example, use their climate policies to promote the city itself: city marketing through climate change. In doing so, they have involved not only the general public but also businesses, such as companies involved in construction, tourism, public transport, energy, food and other related industries.

The net effect of all these projects on mitigation of and adaptation to climate change is undoubtedly more limited than one would want. What is needed is support from the top but so far there is little sign of that happening. However, their long-term importance lies elsewhere: in the first place in creating opportunities for innovation, in experimentation, and the exchange of different adaptation strategies. The effect will be that cities and countries alike can expect a diversity of adaptation platforms and the sharing of experience, from which, in the long run and true to Darwin, the most effective projects and strategies will emerge as winners – hopefully without too many losers. Secondly, while undoubtedly certain burgomasters indulge in vanity, are even flashy to the point of megalomania, when it comes to urban planning, there are also many who are deeply conscious that we as human beings must learn to adapt; that we have brought this unpredictability in weather patterns upon ourselves; and that a sober and modest approach to our energy needs, to our housing and to our mobility is the best way forward. Who knows, perhaps adaptation to climate change will lead to a new and improved form of modernisation: a style of management which is modest and restrained. ■