

Commission of the European Communities consultation response***Green Paper: Adapting to Climate Change in Europe – Options for EU Action {SEC (2007) 849}*****Response of the Landscape Institute****Introduction**

The Landscape Institute is the Chartered Institute in the UK for landscape architects, incorporating designers, managers and scientists, concerned with enhancing and conserving the environment. The Landscape Institute promotes the highest standards in the practice of landscape planning, design, management and research, representing members in private practice, at all levels of government and government agencies and in academic institutions and commercial organisations.

Landscape architecture is a profession which ranges across environment, design, construction, science and management, addressing the social, cultural and economic purposes and meanings of landscapes, both urban and rural. As such, landscape architects are acutely aware of the importance of tackling the crisis of climate change and the holistic approach of the profession to place-shaping means that landscape architects know how to adapt our towns, cities and countryside to a changing climate. The Landscape Institute therefore welcomes the opportunity to respond formally to the green paper on adapting to climate change in Europe and is encouraged by the European Union's commitment to introducing measures which aim to deal with the effects of what is perhaps one of the biggest challenges of our time.

1. What will be the most severe impacts on Europe's natural environment, economy and society?

The most severe impacts on Europe's natural environment will relate to the changing patterns in rainfall that will result in some areas experiencing prolonged periods of drought and other areas experiencing more extreme rainfall events. The two extremes are linked to a change in the pattern of rainfall as a result of global warming, and higher volumes of air borne water. Fluctuations in surface temperature will lead to longer durations between precipitation events and greater volumes of precipitation over shorter periods.

In both cases the quality and quantity of potable water will be affected. In areas of drought the inability to store sufficient volumes of water between rainfall events will be exacerbated by the damage caused during 'freak' rainfall events that damage storage facilities and wash tons of dust and debris accumulated during dry spells into storage facilities, rendering the collected water unusable.

In areas where increased and irregular precipitation occurs, the lack of ground water storage due to increased surface water runoff will lead to lack of accumulated storage and the flash flooding of infrastructure such as sewage treatment works, waste facilities and urban developments will render any collected water unusable.

The change in precipitation patterns will render certain areas uninhabitable, resulting in changes in population demographics placing further strain on those the water resources of those areas that manage to collect water of potable quality.

The lack of quality drinking water will become a political issue as water resources of entire catchments that transcend political boundaries become hotly contested. The ability of Europe's increasingly urban population to collect and store sufficient drinking water will become even more difficult unless a more sustainable means of dealing with surface water runoff can be found. Existing sewage treatment facilities are over subscribed and too often rainwater is not separated from effluent. The result is that often contaminated water is mixed with clean rainwater and discharged as waste, further depleting the supply of potable water in urban conurbations.

Without a reliable supply of clean water, Europe's inhabitants may be forced to become more self reliant in their collection and storage of water, resulting in a potential dispersal of populations into the rural hinterland of cities. While this may have the potential to place more strain on transport and energy resources, it could lead to the emergence of new sustainable communities.

The Landscape Institute feels it necessary to draw the Commission's attention to research completed in 2006 and led by the University of Manchester's Centre for Urban and Regional Ecology (CURE) entitled *Adaptation Strategies for Climate Change in the Urban Environment (ASCCUE)*. This research aims to develop a better understanding of the impacts of climate change in urban areas, via two case studies, with a focus on three 'exposure units' – building integrity, human comfort and urban greenspace. Conclusions of

project include, amongst others, that via effective greenspace provision, temperatures and surface run-off can be moderated and rain water storage capacity can be increased. Climate conscious strategic planning and urban design is therefore essential in adequately adapting to a changing climate.

2. Which of the adverse effects of climate change identified in the Green Paper concern you most?

Lack of availability of clean water will become the number one issue in all parts of the world. While new technology will enable us to produce and use energy more efficiently, the unpredictability in rainfall will see the most powerful governments in the world moving to monopolise shrinking rainwater resources. Future economies and the ability to invest in sustainable technology will be determined by the availability of water.

3. Should further impacts be added?

Success in dealing with climate change will only be achieved through a coordinated and pan-political approach through innovation, technology and changing lifestyle. If this does not happen, and countries are allowed to continue to consume beyond the means of their own landmass, the future of the human race will be determined by catastrophe rather than by planning.

4. Does the Green Paper place the right urgency and emphasis on the matter of adaptation in Europe?

Yes. The Green Paper sets out a clear rationale for adaptation to climate change rather than a reactive approach which may result in greater cost and respond too late to addressing the effects of climate change. However the European context is much more complex than other areas of the globe due to its political and cultural diversity, and the green paper does not outline how legislation will deal with this.

5. What should be the different roles of EU, national, regional, local authorities and the private sector?

The EU should have an overarching role to set targets and advise government on how to implement targets for the conservation of global resources, using enforcement where necessary. It should have greater powers for prosecuting governments and individual firms for damage or waste of resources. It should develop a 'war chest' of funds, at least in part through ring-fencing of revenue generated through the application of the 'polluter pays' principle, to help cover the cost of rebuilding or repair work for areas that will be hit by future catastrophe as a result of climate change, as well as investing in new technology and innovation in resource management. National organisations should be given the responsibility of developing approaches to national or regional issues such as housing, relocation of industry and infrastructure, and training for resource management. Regional authorities and local authorities should be empowered to review, monitor and police the change in government and EU policy as well as helping to educate local populations in how to implement changes in lifestyle that enable future generations to adapt to climate change. The private sector has a responsibility to invest in new technologies which use fewer resources. The private sector is also a good breeding ground for the skills necessary to develop strategies for climate change since its entrepreneurial approach is accustomed to dealing with change, market fluctuations and problem solving. These skills should be transferred to government organisations through knowledge transfer networks.

6. Which economic, social and environmental impacts of climate change should be addressed at EU level as a matter of priority?

The economic, social and environmental impacts of climate change that should be addressed at EU level as a matter of priority are water shortage, energy production and distribution and management of resources such as timber. Whilst food is an important issue to monitor, it is probably best dealt with at a local level. These issues could be explored further and in a number of ways but the following gives some examples of how the EU could help to lead on key issues:

6.1 Food, food production and adoption of local and seasonally produced items to reduce the distance food is transported and to reduce the consumption of resources in the storage, preservation of food.

6.2 Waste management. The EU should focus on the establishment of a cultural change in the way in which waste is handled. Investment into local recycling facilities, waste transfer stations and processing facilities should be made, and examples used to promote the reduction of land fill as well as the re-use of raw materials.

6.3 Energy. The EU should promote the labelling of goods for energy efficiency, particularly appliances, in order to promote frugal use of resources, and in particular should up-date existing labeling schemes to reflect technological and market progress. The EU should promote a policy of 'local generation for local consumption' as opposed to reliance on imported fossil fuels or mass wind generation that is fed into inefficient national grid systems. The EU should also offer incentives to private enterprise for developing or refurbishing buildings which are energy efficient, and mandatory targets should be set for all government buildings and installations.

7. Apart from the main priority areas identified in the four action approach, are there other areas that have been missed out?

The exploration of old technologies that have been replaced by our increased mechanism of traditional skills needs to be addressed. Man's historic relationship with the land has been lost and perhaps it needs to be re-learned so that in conjunction with technology our ability to live within our means can become a way of life again. The historic pattern of land uses remains largely intact in most European countries, offering a latent infrastructure for progress towards local autonomy from a services and resources perspective. The EU needs to react quickly to ensure the skills of those people who still remember the old ways of living with the land can be taught to future generations and re-introduced into our modern lifestyles in small but meaningful ways. This needs to be more than a mere interest with the past but a step change in the way society and people relate their existence to the land and the ability to live within their means. For example, vernacular architecture has traditionally sought to use local materials to deal with local microclimate such as thatched houses or mud brick buildings. Traditional skills should be adapted and incorporated into modern construction technology to help future proof buildings against climate change.

8. Does section 5.1 correctly and comprehensively identify the needs and policy priorities for early adaptation actions that should either be taken or coordinated at the EU level?

Section 5.1 identifies the main issues that EU policy will have to address for early adaptation actions. However some of these will require further exploration and in particular:

Energy

Not only do new sources of energy need to be identified to replace fossil fuel technology, but further investment is required in ways to better distribute, store and use energy.

Transport

Transport needs to be adapted to go further on less, and societies need to become less car dependant. Current transport and logistics solutions need to be reviewed in order to reduce the amount of waste that is transported in packaging and there should be a review of policy on embodied water in transported food.

Water

The Water Framework Directive (WFD) provides a policy on the protection of water bodies for future generations but does not provide guidance on the storage, attenuation and distribution of water for consumption. The EU should establish guidelines on human right to access clean water and impose heavier (enforceable) penalties on those who compromise water resources including governments. Buildings, communities and regions should all be equipped with the necessary power to implement measures which reduce the impact of flooding and conserve surface water runoff for local consumption either through surface water management or ground water recharge.

Ecosystems and Biodiversity

The importance of biodiversity and the impact of its loss is only just becoming apparent. Nature will also need to adapt to climate change and we must be careful not impose a stringent management of ecosystems in and around human needs. Nature has a way of finding its own balance and given enough time and space will adapt to a changing climate. It will be important for the EU to focus its

attention on establishing the right kind of balance between farming, agriculture, development and nature. Policies should be developed wherever possible to ensure that human activities work in harmony with nature and therefore issues such as crop rotation, set aside, biological pest control, an organic farming methods should be given greater precedence over highest yield approach.

9. (a) How do policy priorities need to change for different sectors?
(b) Which policy approaches should be taken at national, regional or local level?
(c) Where is European action needed?

Taking water as an example, the current EU policy is to recognise that water is under no single ownership and that its preservation is of European and global concern. However the ability to enforce quality control and prosecute polluters is still limited. The EU should work closely with regional water agencies to migrate its authority down to a local level in order to implement changes that have significance at local level. In this way targets can be set for sustainable approaches to water management, including flooding, sewerage, rainwater harvesting and protection of surface and groundwater catchments that engage local partners in the direction and enforcement of EU policies.

10. (a) How can EU agriculture and fisheries policy be adapted to help these sectors adjust to the impacts of climate change?
(b) What will be the likely consequences of climate change for trade in agricultural products?

The Landscape Institute has no comment on this question.

11. How should the EU express its solidarity with regions suffering most heavily from the consequences of climate change?

As in response to question 5, the EU should start to implement policies which review both the preservation of resources and the response to catastrophe in a more global sense, pooling the resources necessary from all member states. An equitable basis should be established that allows all countries to share in the pool of funding and aid. Rich countries will be hit just as hard as poor countries and may often have greater expense and longer recovery times due to the level of infrastructure affected. Therefore it is important that all member states are given equal access to funds and technology for combating the effects of climate change. These funds should be raised through greater penalties for damage to resources and a greater tenacity in tracking down and prosecuting offenders.

12. How could a collective European response help coastal Europe to tackle the effects of rising sea levels?

A collective European response would ensure that issues relating to rising sea levels could be evaluated on a wider level and that a greater sphere of influence and knowledge brought to bear on the problem. However it may be inevitable that rising sea levels will result in the abandonment of low lying towns and a strategy for the decentralisation of resources such as energy, water, waste, transport and communication may need to be accepted if Europe is to continue without a major collapse of order.

13. How should EU policy on public health take the impact of climate change into account?

The Landscape Institute has no comment on this question.

14. What will be the consequences of climate change for Member States' potential energy mix and for European energy policy?

Climate change will result in a shift of the balance between the energy rich and the energy poor. Those countries that are well endowed with fossil fuel resources will be forced to consider alternatives such as wind, tide, solar and geothermal sources of energy. Micro generation will become a more important source of energy as countries begin to abandon the expensive and inefficient national grids of Europe. Greater autonomy of energy generation will require greater flexibility of legislation and policy and steps will need to be taken to ensure the fair and even distribution of energy wealth. Technology should be employed to help all countries either to increase their ability to generate energy more efficiently or to reduce their demand for traditional sources of energy i.e., fossil fuels, hydro electric. It may be that there are further untapped or unexplored options for energy that need to be considered such as fuel cells. They

key for European policy will be in engaging energy providers in installing, adopting and managing the provision of energy services using alternative technology.

15. Please rank the listed options under each of the areas of the four-action approach for EU adaptation into the following three categories:
- (a) Which actions are most urgent and to be implemented by the Commission as a matter of priority?
 - (b) Which actions have a low priority for Commission implementation?
 - (c) Which actions are irrelevant for Commission implementation?

The Landscape Institute has no comment on this question.

16. What are the possible synergies between adaptation and mitigation measures? How can these synergies be strengthened?

There are clear synergies between adaptation and mitigation measures against climate change, but there are also some important tensions. The research that is currently being invested into new building technology to in order to adapt dwellings to climate change will lead to breakthroughs that allow existing buildings to be retrofitted to mitigate the effects of climate change. The key to success of such measures lies in the ability to deliver new technology in an affordable way so that all sectors of society can benefit from it. The synergies between adaptation and mitigation can be further strengthened by encouraging changes in lifestyle habits that encourage people to adopt more sustainable habits such as reduced consumption and increased recycling.

There are some particular conundrums however, in respect of spatial planning approaches. In the UK, for example, a presumption in favour of development on 'brownfield' land remains, which in many instances will increase densities in existing urban areas. This offers advantages from a climate change mitigation perspective through the creation of efficient urban systems that reduce the movement of people, goods and services. From an adaptation perspective though, a further increase in urban densities has the potential to exacerbate problems associated with urban heat island effect, flood risk and building integrity. It is important to recognise and respond to the tensions coherently.

17. In the context of EU policy, how can companies and citizens be encouraged to participate in adaptation actions?

EU policy should be used to encourage education and innovation among private practice and citizens. Europe already leads the way in some areas of sustainable development and its future depends on developing an understanding of issues in future generations. Private enterprise has a responsibility to train nurture talent not just within its own industry, but in the next generation of designers and engineers who will shape the industry.

The EU should offer incentives to businesses either in the form of tax incentives or in the form of grants for the establishment of educational trusts that help private enterprise to invest in the education of children from an early age. The formation of a curriculum that addresses environmental awareness and encourages sustainable principles to be adopted from an early age will help to foster awareness among adults as well. Awards for innovation, participation and successful integration of sustainable practices in both business and community should be used to offer incentives to those who set an example of changing approach to lifestyle and work procedures.

18. How will climate change affect the policy priorities of the EU's external policies?

The Landscape Institute has no comment on this question.

19. Which priorities should the EU set for its cooperation programmes in the different parts of the World with respect to adaptation to climate change?

The Landscape Institute has no comment on this question.

20. Which are the main opportunities and obstacles for adaptation in different parts of the World?

The main opportunities that exist for the EU in other parts of the world are the possibility to learn from countries where mechanisation and consumption have not become a part of life. Such countries offer us and opportunity to discover how low technology solutions and grass roots changes are able to influence a changing approach to development and a more sustainable lifestyle.

The main obstacles in dealing with adaptation in different parts of the world will be in convincing third world countries that deforestation, consumption and increased mechanisation is not the best route to take when all of the wealthy countries of the world have set this style of development as a precedent. The EU and other industrialised nations will have to go a long way to prove through adoption of alternative models for prosperity that developing nations can also prosper from sustainable development.

More specifically, there should be focused attention on protecting and expanding existing networks of green infrastructure, particularly in urban areas where the effects of climate change are likely to be most pronounced. A green infrastructure approach to spatial planning should be advocated by the EU, including recognition and incentivisation for the use of building techniques such as green roofs, as well as planning and management approaches which improve the interconnectivity and multi-functionality of urban greenspaces.

21. What are the best options to make the EU's external action more resilient to climate change?

The Landscape Institute has no comment on this question.

22. What could be the value added for EU action compared to other international initiatives including, for instance, the UNFCCC and multi-lateral funding instruments?

The Landscape Institute has no comment on this question.

23. Do the listed research areas address the most important knowledge gaps?

The Landscape Institute has no comment on this question.

24. Which are the five most important research areas that need to be addressed as a matter of priority?

The most important area of development in research is the feedback of information to practitioners in order to enable positive and decisive measures to be taken in order to reverse the process of climate change. While it is important for the EU to gather information on the pattern and extent of climate change, it is far more important for the EU to address research into areas which help combat climate change and assess how well adaptation measure are meeting the demand for change. Key areas of research should be:

- The changing patterns of rainfall across regions of Europe and the sizing and design of rainwater attenuation and storage facilities to provide sufficient potable water for populations across the regions based on typical and reduced consumption targets.
- The analyses of topsoil across Europe in order to determine the most productive use of land for agriculture, farming and development and the preservation of biodiversity.
- Provide support to practitioners through guidance on existing scientific knowledge and adaptation measures, options and cost-benefit analysis of these options.
- Provide feedback for community leaders from exiting communities where sustainable systems have been implemented so that positive attitudes to change can be propagated into new communities.
- Launch research for development of adaptation technologies and products to stimulate innovation if different sectors.

25. How should research results be communicated and made available to decision makers and a broader public at local, national, EU-level and internationally?

The fastest and easiest way to reach the public, who will ultimately have to be engaged for any step change to occur in our change in lifestyle, is via the internet or electronic media and as such, websites should be designed to be more informative and engaging. Television should also be used and programmes which explore the social, political and economic aspects of climate change should be funded by the EU. However the issue is too urgent to allow it to filter down through word of mouth and knowledge transfer networks (KTN's) will need to be established in order to disseminate technology updates as quickly as possible to industry so that new ideas spread quickly into mainstream practices.

26. Does the Green Paper foresee sufficient participation of the different stakeholders in identifying and implementing EU adaptation actions?

The Green Paper outlines the key stakeholders and decision making groups that should be involved in the process of change to a more sustainable way of life. However it should be stressed that the key objective of the EU is to ensure action within a limited time frame. Therefore a process of rapid cascade of information to those most able to implement change should be of highest priority, and report on progress should be integrated into the EU ability to formulate new policy or respond quickly to changing circumstances.

27. Should stakeholders from the EU's neighbours and other regions be involved?

The complexity of data sets and climate change issues within Europe will make the task of responding to climate change in Europe difficult enough. To try to combine this with larger data sets and the complexity of other regions would make the task extremely difficult and may further divert the EU from being able to focus on action. Dissemination of information and comparison should be drawn between the EU and its neighbours but this should not compromise the ability of the EU to deliver meaningful results in the safeguard of resources and the reduction of carbon emissions.

28. Would the establishment of a European Advisory Group on Adaptation be helpful in further exploring an EU response to the effects of climate change?

Yes. The establishment of a European Advisory Group on Adaptation to Climate Change – linked to the existing EU Committee on Climate Change – would provide a body whose sole function would be able to direct EU sources of funding for research in the right direction and ensure that governments and private sector spending remained focussed on key issues mentioned in the Green Paper.

The Landscape Institute would like to thank the Commission of the European Communities for being given the opportunity to contribute to this query. For any queries relating to this response, or for future consultations, please contact:

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