

Submission by the London Climate Change Partnership to the London Climate Resilience Review

September 2023

The London Climate Change Partnership welcomes this opportunity to submit evidence to the London Climate Resilience Review, which was announced by the Mayor of London on 12 June 2023 and is being led by Emma Howard Boyd. The Partnership was founded in 2001 and currently has 33 member organisations from the public, private and third sectors. The Partnership's mission is to bring together and coordinate public, private and third sector organisations to prepare London for extreme weather today and climate change in the future. The Partnership advances its mission by:

- collecting and sharing high quality information about expected climate change, its impacts on London and examples of suitable actions to adopt, including where appropriate commissioning research;
- raising awareness of the impacts of climate change with organisations and people, equipping them with the information they need to adapt;
- driving forward adaptation in London through member organisations, leading by example, and acting as sector champions;
- informing policy with local evidence;
- exchanging information, experience and examples of adaptation actions with other organisations and cities, nationally and internationally;
- monitoring how prepared London is for climate change; and
- seeking opportunities to improve resilience alongside reducing carbon emissions.

More information about the Partnership and its activities can be found on its website at: <https://climatelondon.org/>. This submission was prepared by Bob Ward, the Chair of the Partnership, based on inputs from member organisations. However, this submission does not necessarily represent the view of any individual member organisation. This submission focuses on those questions considered most relevant to the Partnership's expertise and experience. We have highlighted in bold our key recommendations for the Review.

What challenges have climate impacts in London, like floods, extreme heat, droughts, and storms presented to your organisation/business/community?

London's climate is changing, creating a wide range of direct and indirect impacts and risks, such as increases in the frequency and intensity of extreme weather events. London faces many challenges from these growing impacts of climate change. In many cases it is more exposed and vulnerable than other parts of the UK to these impacts, including estuary flooding, river flooding, surface water flooding, heatwaves and droughts. It also is a major centre for population and economic activity. Hence London is a hotspot for climate risks.

Much of London is built on the floodplain of the River Thames, and is exposed to the risks of estuary flooding, particularly during high spring tides, that result from storms along the south east coast of England, as the major flood event on 31 January 1953 demonstrated. While central London is now relatively well-protected by the Thames Flood Barrier and other flood defences, sea level rise is increasing the threat, and it will require further protections in the future, as the Thames Estuary 2100 project has highlighted.

London is also exposed to a growing risk from heavy rainfall, leading to river and surface water flooding. The age and complexity of London's drainage system, and its abundance of impermeable man-made surfaces, exacerbate the risk. Surface water flooding during summer 2021 again highlighted the threat, as have the experience of other cities around the world, such as New York.

Heat is another growing risk for London, with its abundance of dark man-made surfaces creating an urban heat island effect that results in temperatures that are often several degrees higher than surrounding countryside. Combined with its geographical location in south-east England, this means that London is often the warmest location in the country. And as the record-breaking summer of 2022 clearly showed, parts of London are now at significant risk from wildfires resulting from a combination of heat and dryness.

London's natural environment is being affected as well by the impacts of climate change. Natural habitats and ecological communities are being changed, and are undergoing change. Climate change poses a significant threat to London's trees, and their loss would lead to a reduction in shading that would exacerbate the effects of heat in the capital.

Climate change can exacerbate the spread of pathogens and diseases that benefit from warmer weather. Climate change is extending temporal changes and shifts in the seasons, with differing consequences for a wide variety of species (such as the disconnected emergence of insects and insectivorous birds, pollinating plants and pollinators, etc.). Some of this is complicated by the fact that many fauna and flora have their own fluctuating patterns of emergence, breeding, abundance, etc., so the impacts of the changing climate are difficult to predict.

Some of these direct risks will be acute and occur as discrete extreme weather events. However, some of the impacts of climate change will be extended and chronic, such as subsidence resulting from successive and long periods of dryness.

Many of these direct risks are correlated. For instance, heatwaves elevate the risks of wildfires. In addition, heatwaves often occur during sunny and windless days when air pollution is highest. Many of the individuals who are most vulnerable to poor air quality, for instance due to respiratory illness, are also particularly susceptible to the effects of heat. Heavy rainfall can trigger both surface water and river flooding. These correlated risks pose a particular challenge for London's critical systems and services, such as public health, which could be overwhelmed by simultaneous events.

London is vulnerable to cascading risks – impacts that trigger further impacts. For example, heat can cause electrical failures that interrupt electricity supplies, stopping the operation of air conditioning systems for buildings and transport. Interdependencies and the potential for cascading risks are still poorly understood.

London is also exposed to significant indirect risks from climate change impacts through its reliance on other parts of the UK and other countries for goods and services, including its workforce, food, water and energy. Knowledge and understanding of these indirect risks are lower than for the direct risks, even though the consequences could be just as significant.

London's population is large and heterogeneous, making climate change adaptation and resilience more challenging. It has a high concentration of groups who are disproportionately

vulnerable to the impacts of climate change. London's communities tend to be more diverse, more mobile and more fragmented than in other parts of the UK, making communications about risks and their management more difficult.

A further challenge for climate change adaptation and resilience is the complexity of London's governance, with the Mayor of London, Greater London Authority, 32 boroughs, and the City of London. Coordinating London-wide actions can be exceptionally challenging, and a lack of coordination can mean that risks are transferred and exacerbated between different parts of London. Coordination with central government departments can also be challenging.

The consequences of failing to adapt would be very severe not just for London but also for the rest of the UK. London is a major hub for transport in and out of the UK and around the UK. Climate-related disruptions to London's transport networks can have wide-ranging consequences. And climate-related events that lead to severe and extended business interruption, particularly in London financial services sector, could have global repercussions.

In addition, climate change impacts could make London a less safe place to live and work, undermining its competition against other global cities for talent and investment.

We recommend that the Review recognises London as a hotspot for climate risks, and considers the full range of direct and indirect impacts of climate change in the short-, medium- and long-term, as well as the complications of its governance and the vulnerability and exposure of its populations.

What opportunities does climate adaptation and resilience in London present for the UK economy, businesses or communities? What is already working well? Please share any examples of success.

The wider benefits of climate change adaptation and resilience include: sustainable drainage systems which can reduce flooding but also improve water quality and amenity; and robust ecosystems which contribute to both resilience and greenhouse gas reductions, as well as recreation, leisure and well-being in the capital.

The investment opportunities in climate change adaptation and resilience are currently under-appreciated and under-recognised, particularly compared with those for cutting greenhouse gas emissions. There are significant barriers to these investments that need to be addressed, including combatting the perception that they offer only low returns over long timeframes and are associated with high risks. **The Review should consider how to reduce these barriers, including through new financial mechanisms for taking advantage of the investment opportunities in climate change adaptation and resilience.**

London is a significant centre for the financial services industry, including insurance. This expertise and experience could allow London to become a global centre for managing climate-related financial risks, and for exploiting the investment opportunities in adaptation and resilience. **We recommend that the Review engages extensively with the financial services industry and the rest of the business sector in London about these opportunities.**

The Thames Estuary 2100 (TE2100) project pioneered the development of adaptation pathways, which assists decision-makers with the challenge of addressing the significant uncertainties about future climate change impacts. This expertise has been used to develop adaptation strategies and guidance at home and abroad, including work for organisations in other countries, ranging from Australia to Kyrgyzstan. It also provided the basis for the UK's development of British Standard BS 8631, which is a guide for decision-making and adaptation pathways. The UK has been active in developing international standards for climate change adaptation, including ISO 14090. **We recommend that the Review recognises the tremendous value offered by the adaptation pathways approach, and the associated guidance.**

What more could be done to support your organisation/business/community and/or sector to prepare for more extreme weather in London? What barriers do you face?

Improving London's adaptation and resilience will require action by individuals, communities, companies and government at local and central levels. However, ignorance of these risks is a significant barrier to progress, and awareness of the growing risks of direct and indirect climate change impacts to London is likely to vary greatly across the capital. There needs to be a significant, extended and continuous engagement across the capital to inform adaptation and resilience efforts. **We recommend that the Review considers ways in which awareness can be raised about current and future impacts of climate change, and the options for improving adaption and resilience.**

At present there is no single adaptation strategy for London covering all the direct and indirect impacts. There are no targets for limiting the risks associated with climate change impacts. There are ongoing efforts to develop strategies for managing individual risks, including estuary flooding, surface water flooding and heatwaves.

London would benefit from an overarching adaptation strategy and a strategic implementation plan to ensure that actions are undertaken to address the risks systematically. **We hope that the Review will recommend the creation of such a strategy and strategic implementation plan.**

The impacts of climate change that affect London will continue to increase in frequency and intensity for the next few decades, at least until global annual emissions of greenhouse gases reach net zero. Some impacts, such as sea level rise, will likely carry on after net zero is reached. Hence, London needs to prepare for impacts that will become more severe until at least 2050, and likely longer. The strategy and strategic implementation plan should consider impacts on all timescales and should be wary of maladaptation that may improve resilience in the short-term but lock-in vulnerability and exposure in the future. A London-wide adaptation strategy and strategic implementation plan should be robust and rigorous, and take into account the uncertainties about future impacts. It should be based on adaptation pathways and should prioritise 'no regrets' actions.

A London-wide adaptation strategy and strategic implementation plan should be co-developed with stakeholders across London, including central and local government, companies and communities. It is vitally important that all stakeholders recognise that they have a role to play, and that adaptation and resilience is not just an issue for government.

The strategy and strategic implementation plan should include action to make clearer to those who live and work in London what the direct and indirect risks of climate change are for the capital. To date, there has tended to be an approach to adaptation based on what people think they need. If they are unaware with the full scale of the impacts, they are unlikely to recognise what they need. London's decision-makers, including individual citizens, need to be prepared for the unexpected and for conditions that have not been experienced before. The work the Greater London Authority is carrying out with Communities on Resilience is a good example of the kind of initiative that is needed more broadly.

A key issue will be to identify investment needs to implement the strategy. Investments in infrastructure should explicitly take account of and include climate resilience. A clear funding and financing plan will be needed to provide the additional investment, recognising that many adaptation and resilience measures, such as flood defences, protect economic activities but often do not directly generate revenues.

The strategy should lay out goals for adaptation and resilience in London, and should facilitate the collection of data and monitoring of actions taken by stakeholders so that progress can be measured. **The Review could assist with understanding the current distribution of responsibilities for adaptation and resilience actions between stakeholders, and the relationships between them.** This sort of mapping stakeholders and their relationships could reveal where gaps exist. This could also raise wider awareness between different networks, encouraging further collaboration and the sharing of best practice.

The strategic implementation plan should ensure an alignment and better integration of policies and regulations. For instance, national and local building regulations should explicitly incorporate climate change adaptation and resilience and should promote alignment with local goals. These aspects of policies and regulation should be clear and consistent and should be accompanied by appropriate compliance and enforcement measures.

What more could local and/or national government, or the Mayor, do to support efforts to prepare for more extreme weather in London?

Central and local government, including the Mayor of London, should work collaboratively to promote and support the development of a London-wide strategy for adaptation and resilience and a strategic implementation plan. They should also ensure that other policies and regulations take into account and are aligned with goals to promote climate change adaptation and resilience. And they should work together to help to create a funding and finance plan and to unlock the investments required for implementation. These investments will not only protect lives and livelihoods in London but will also create new jobs and economic opportunities for Londoners, including in the financial services and construction sectors.

Many of the actions required to increase the flow of investment have been outlined in the report published in January 2023 by the Climate Change Committee on 'Investment for a well-adapted UK'. **We recommend that the Review considers how this report can be applied specifically to increase flows of investment for climate change adaptation and resilience in London.**

National policies for climate change adaptation and resilience should explicitly recognise the additional challenges faced by London and other major cities as hotspots of climate risk, with concentrations of population and economic activity. **We hope that the Review will call for the fourth Climate Change Risk Assessment, due to be published in 2027, and the fourth National Adaptation Programme, due to be published in July 2028, to devote explicit attention to the risks faced by London and other cities and the actions they need to take to adapt and to increase their climate resilience.**

A key issue in national and local policies for climate change adaptation and resilience is to ensure that a full range of potential impacts is considered in adaptation assessments and decisions. Current projections do not fully account for climate feedbacks and several other significant uncertainties. There are signs that the increase in extreme temperatures in many parts of the world is accelerating. The use of the ‘High ++’ approach to scenarios, which was pioneered by the TE2100 project, is included in assessments. The High ++ outcome in the TE2100 project indicated that sea level could rise at twice the rate of what was being planned for, and allowed an assessment of how plans might need to be accelerated.

The High ++ report commissioned for the Adaptation Sub Committee of the Committee on Climate Change (now the Adaptation Committee of the Climate Change Committee) in 2015 should be revisited. **We recommend that the Review calls for these type of low-probability high-impact scenarios to be taken into account during all adaptation and resilience planning across London.** This would ensure that London and the rest of the country gain a better understanding of what we might face.

Is there a policy idea, and/or infrastructure investment(s), that will help us prepare for climate impacts in London that you think we should consider as part of the review?

London would benefit from an overarching adaptation strategy and a strategic implementation plan to ensure that actions are undertaken to address the risks. We have outlined in other sections some key elements for the design and implementation. The strategy and strategic implementation plan should be robust and rigorous, and take into account the uncertainties about future impacts. They should be based on adaptation pathways and should prioritise ‘no regrets’ actions.

The Mayor’s Environment Strategy calls for the use of adaptation pathways in ensuring that the key infrastructure and systems that London depends on consider the full range of climate impacts. There needs to be an assessment of progress towards this goal. There has been good work carried out by some stakeholders in the capital, such as Thames Water, The City of London Corporation, and TE2100. Network Rail is actively developing their approach. However, there are key sectors where there has been little or no progress.

Are there any other implications of the physical impacts of climate change that the Review should consider?

London is also exposed to significant indirect risks from climate change impacts through its reliance on other parts of the UK and other countries for goods and services, including its workforce, food, water and energy. Knowledge and understanding of these indirect risks are lower than for the direct risks, even though the consequences could be just as significant.

One significant indirect risk is the displacement and migration of populations from parts of the world that are hardest hit by the impacts of climate change. There is a worrying lack of public discussion and engagement about this issue. Recent discussions with the Adaptation Committee, for example, appear to put this into the 'too difficult' box. London could be in the lead in being proactive in assessing and identifying the significant risks and opportunities associated with this issue.

Climate change may also exacerbate the proliferation of pathogens and pests affecting London's natural environment. This issue is much complicated by the issues of global trade and (insufficient) biosecurity, which mean that whilst some species of fungi, plants, bacteria and invertebrates may benefit from a warmer and wetter climate, it is difficult to know to what extent climate is a significant driver. Current issues affecting the natural environment include invasive aquatic plants, such as floating pennywort, water-fern, and New Zealand stonecrop, which do benefit from warming rivers and lakes (exacerbated by abstraction in London), and pathogens such as ash die-back, Massaria disease of London plane (a warmer climate disease), and various tree root pathogens.