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Efficient and Effective Urban Policies for Climate Variability and Climate Change Adaptation

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Whilst the concept of climate change risk is generally acknowledged within current urban policy-making, there is little apparent distinction made between true (long term) climate change (CC) and the short term imperative of responding to climate variability (CV). Election-based governance systems tend to focus on relatively short-term responses, addressing CV.

The risk is that the “quick-fix”, vote-earning, policy responses to CV make future adaptation to CC much harder, less likely, and perhaps even unlikely. For instance, a short-term response to flooding is to provide efficient and effective emergency response and post-disaster support, yet the longer term response should be to reduce the risk through, say, re-location. There has been some policy movement in this direction, for instance managed regression of land on the less populated areas of east coast of the UK but it has yet to be accomplished within an urban context.

There would seem to be a need for two, yet integrated policy adaptation sets; one for CV and one for CC which will need different, yet parallel, decision-making processes to be operative, with clear links between the two, and probably involving different persons. There is also a need for more accurate use of the term “climate change”. Politicians throughout the European Union use “climate change” when in many (perhaps most) cases they would be better served by being more accurate and using the term “climate variability”.

To be effective, adaptation generally should be part of any urban economic policy and in any related sectoral plans and budgets. So, the questions become:

- What are those policy sets;
- How should they be linked; and,
- What contextualisation will be necessary in order to put such policies into effect?

When considering the questions above, several potential aspects that need to be considered begin to emerge:

What are those policy sets?

- CV ~ short term projections of climate change risk
- CC ~ medium and long term projections of climate change risk

How should they be linked?

- Relationship between climatic patterns, fundamental socioeconomic indicators and resource management
- Clear linkages with the budgetary process

What contextualisation will be necessary in order to put such policies into effect?

- Increased understanding of CV and CC at the highest political levels;
- Direct opportunities for control and influence (rather than the dissipation of effort in attempting to manage behaviour associated with organisations over which decision-makers have little or no effective control)
- Consideration of issues identified under business continuity which may link with CC, e.g. epidemics
- Consideration of practical day-to-day issues such as ensuring that tarmac on roads is resistant to higher/colder temperatures likely to arise if the climate change scenarios are realised.

CV ~ short term projections of climate change risk

Climate variability may cause abrupt disruptions, such as floods, droughts, or intense rainfall/storms. These disruptions could have a greater effect on urban economies if a significant part of economic activity is sensitive to the weather and climate. Policies need to be designed to take these into account and largely this is already the case since these policies can be seamlessly incorporated into a business continuity mindset of existing urban governance systems and bureaucracies.

CC ~ medium and long term projections of climate change risk

Climate change is on a decadal scale. Very few urban policies are able to operate on that timescale partly because the objective is not as clear for CV and partly because there is a reluctance to commit resources for which there is no political or tangible (near term) return. The return accrues to a future generation. Whilst individuals are able to plan into the future, to a certain extent e.g. saving a pension, that is only because the individual does realise and understand the implications of trying to live without a source of income. There is no collective equivalent. So, an entirely new set of policies must be formulated which have no immediate tangible benefit. In essence, the policies are a gift (a bequest) to the future. So, for each CV policy there must be a CC policy. That would be in keeping with sustainable development whereby actions taken today do not compromise the ability of future generations to take an equivalent and meaningfully beneficial action.

Relationship between climatic patterns, fundamental socioeconomic indicators and resource management

The climate and the economic growth communities are often distinct and do not necessarily “speak the same language.” At a minimum, an understanding should be advanced between these two constituencies and begin to establish a common platform for action in areas where the two sets of policy objectives intersect. An example of where progress seems likely is in the acknowledgement by both communities of the importance of factoring in climate change impacts and vulnerabilities when planning for growth, with applications ranging from building institutions for better governance to re-orienting specific investments in physical infrastructure.

A number of key questions must be answered:

- How to enhance CC adaptation or adaptive capacity through “business as usual” programmes and plans?
- What are the priorities for investment in adaptation or adaptive capacity?
- How should such priorities be determined?

Adaptive capacity is the ability to implement adaptations and is a function of such factors as wealth, access to technology, institutional capacity and ability to change.

Clear linkages with the budgetary process

In order to engage on climate risk management and adaptation, presenting medium-long term projections of climate change impacts might not always be the best strategy. Indeed, this may cause a false sense of the lack of urgency in tackling important vulnerabilities to climate risk. Instead, a more meaningful way to convey the urgency of taking immediate action to respond to current risks and prepare for future ones could be better communicated by showing how current climatic patterns are influencing fundamental socioeconomic indicators, and suggesting how long-term climate change will materialise through changes in variability and extremes.

For example, by assisting the urban governance system in determining the extent of vulnerability of the economies to natural hazards, especially drought and flood risks and conditions of chronic hydrological variability; by assessing the possible impacts of climate change on the determination of risk both at the macro and sectoral level; and by, identifying priority mitigation measures to be incorporated in economic planning and sectoral development strategies. Interestingly, business plays little role in local urban management, yet pays significant contributions and ‘falls back’ on local government when things go wrong. We should also not forget the potential role of voluntary agencies.

Increased understanding of CV and CC at the highest political levels

Strategy papers, policy notes, and sector-wide assessments could be used to raise the importance of climate risk management, in order to prepare the ground for mainstreaming CV and CC adaptation in the urban governance agenda. Within any urban governance system it is usual to have those who advise and those who decide. The latter are usually elected and are not usually expert in climate issues and will rely on the advisors. Thus, there are two separate cohorts who need appropriate training and insight. The technical advisors should be up-to-date in the latest thinking and be able to understand cross-sector linkages whilst the elected decision-makers need to be able to understand the bigger picture and make reasoned decisions. This can be a challenge, particularly at local level where the professional understanding is often small or none at all. Mapped onto their view of the world is a often a party-political dimension which may override technical soundness. Is it even possible for decision-makers elected for short periods of time to make the kind of big picture decisions that would in the shorter term run counter to future political aspiration? It is possible but not usual. Those kinds of decision can only be taken under extreme situations such a threat of war, pandemic or more recently in the face of financial ruin.

Climate change is also understood by technical advisors to be of significant seriousness yet they do not usually have the positional power to persuade the decision-makers that climate change is as serious as a war or pandemic because the true enormity of the challenge cannot be comprehended by those without specialist training. In practice, technical advisors simply contribute to future maladaptation by posing CV solutions that should rather be addressed by CC responses. To overcome this it necessary to have two policy sets: short term ~ that is most usually the case at present and a longer term set which may need a wider constituency than just the decision-makers upon which to deliberate.

Direct opportunities for control and influence and the dissipation of effort in attempting to manage behaviour associated with organisations that the decision-makers do not control

Many urban communities depend on a single sector or large industrial organisations for their economic well-being. The movement of large numbers of employees to and from work, the movement of materials in and the despatch of finished goods are heavily dependent on local infrastructure and a variety of privately and publicly-owned services. Coherent co-operation among these groups is rare, with local government-led emergency planning poorly-funded and limited in capacity. The extent to which business is able to respond to CV and be preparing for CC is unregulated, and therefore variably paced.

It is not clear as to the extent to which emergency services – e.g. fire, police and ambulance, civil defence - have been instructed to embrace potential climate change impacts, considering procedural and equipment issues. The role of voluntary services has, traditionally, been vital in supporting, feeding and housing displaced residents but it is not clear as to the extent to which they have been ‘factored in’ to CV and CC policies.

Consideration of issues identified under business continuity which may link with climate change, e.g. epidemic

Business continuity management is the development, implementation and maintenance of policies, frameworks and programmes to assist an entity manage a business disruption, as well as build entity resilience. It is the capability that assists in preventing, preparing for, responding to, managing and recovering from the impacts of a disruptive event. Risk professionals can easily see that there is a significant general threat from climate change. There are various possible scenarios each having a higher or lower probability of occurring. But does the general threat also pose a specific business continuity threat to the process of governance? The level of risk faced by individual bureaucracies will vary and they will prefer to deal with CV rather than CC.

Business continuity management prepares the steps the entity will take to recover and return to normality. It involves designing business processes and information architecture to limit single points of failure, and developing support area and business unit contingency plans and business resumption plans. It also includes defining escalation procedures, and obtaining contact details for key personnel and for other entities where an important interdependency exists. The business continuity management process includes establishing the maximum periods for which critical processes can be disrupted or lost altogether, before it threatens the achievement of entity objectives. The resurrection of Japanese industry in the aftermath of the 2011 tsunami and the subsequent effects upon Japan’s nuclear generating capacity are lessons in how processes have to change.

Resilience comes from tackling the likelihood as well as the consequences of disruptive events. Therefore it is important to have both effective risk management and business continuity management frameworks in place.

Urban contingent liabilities are potential obligations whose budgetary impact is dependent on uncertain future events. These obligations are hard to estimate because future events are hard to predict and because the amount associated with the obligation cannot be reliably forecast. Projections should cover between 10 and 40 years (with a dependence upon medium term of 10-15 years planning for substantive direction on these issues) and be prepared or updated at least every five years or when major changes are made in revenue and expenditure programmes. In addition, all key assumptions underlying the long-term projections should be made explicit, together with a range of plausible scenarios.

While projections are one way of promoting resilience, they are projections and not predictions. Nor do projections automatically restore or strengthen the governance system. Projections should complement – and themselves be complemented by – a governance system’s policies. Effective communication and the linkage of projections to decision-making practices and procedures and subsequent political action are important to manage the short-term political incentives that shape government spending.

Below, some policy areas are enumerated for climate variability and for climate change:

Policy	Example Response to Climate Variability	Example Response to Climate Change
Transport	Promoting public transport	Development of mass transit
Housing	New builds to be to the latest building standards or codes	New builds to be self sufficient in energy, water, waste and connected to mass transit
Waste	Emphasis on recycling and composting	Zero waste ~ no disposal or design for recyclability
Energy	Focus on insulation and efficiency	Urban centres to be net energy producers with emphasis on renewables at source of need
Water	Focus on reduction in usage	Only enlarge towns and cities with adequate water. Distribution infrastructure to be leak free.
Low Carbon	Emphasis on efficiency and some renewable	All buildings to be net producers; energy, water,
Infrastructure	Focus tends to be on construction based on non-CC compliant energy, water, food and waste water transmission networks	Research into CC-compliant construction. Emphasis on 'green space' and other design measures within urban areas to encourage cooling, rainwater management and re-use of sewage and wastewater More rigour in urban design to ensure connectivity between centres of employment and mass transit Emphasis on inter-modal connections
Agriculture	Agriculture and other resource flows not considered	Integration of agriculture and resource flows with urban design

Conclusion and Way Forward

Whilst our current decision arrangements may be able to deal with short term risk, we need a wider cohort of decision-makers for the medium – and long term risk decisions. This cohort cannot be elected since the decisions cannot be influenced by re-election. We need a broad-based professional panel who are able to apply a set of rules-based triggers to make certain decisions. The triggers may act on assumptions about population, economic growth, food, water and energy security, and appropriate land-use to sustain critical environmental, economic and social indicators over an extended period.

The panel would need to be able to integrate demographic change, global climate change, and contingent urban liabilities. Demographic change includes changes in fertility, longevity, and the age structure of the population. These changes affect spending through mandatory age-related outlays, such as public pensions, health spending and care for the aged, and government revenues, such as when the tax base shrinks as the old-age dependency ratio increases. Long term climate change will require new public spending and investment to ensure that urban landscapes are adapted to extreme weather and low probability/high impact climatic events, many of which are likely to be national in scope. The uncertainty and irreversibility of climate change require balancing the need for precautionary spending against the risk of undertaking costly expenditures that may eventually prove unnecessary. The panel will be fair and transparent and have the ability to provide net sustainability benefits to future generations that are not less than the net benefits provided to current generations.