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**CHANGING CLIMATES, CHANGING CITIES?
PLANNING REFORM AND URBAN
SUSTAINABILITY IN NEW SOUTH WALES**

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CHANGING CLIMATES, CHANGING CITIES? PLANNING REFORM AND URBAN SUSTAINABILITY IN NEW SOUTH WALES

AMELIA THORPE* AND MELISSA ANNE HART^α

ABSTRACT: In its White Paper outlining proposed reforms to the legal framework for planning, the NSW government states that the ‘key objective’ of the new planning system will be ‘to promote and enable economic growth and positive development for the benefit of the entire community, while protecting the environment and enhancing people’s way of life. It is about enabling development that is sustainable.’¹

This article discusses the way in which sustainability is treated in the White Paper and the draft planning legislation released with it in 2013. Drawing on the most recent findings from urban climatology, it argues that climate change is critical for sustainability in NSW, and that there is a particular need for both climate change mitigation and adaptation in urban areas. It examines the concept of ‘sustainable development’ put forward in the government’s reform proposals, followed by a consideration of its treatment in the new frameworks proposed for strategic planning and development assessment. It then examines one of the most controversial aspects of the reform proposals: the move to dramatically increase the proportion of development assessed using non-discretionary development codes. Despite the government’s rhetoric, this article finds little in the reform proposals to suggest that the new planning system will indeed foster sustainable development in NSW.

CONTENTS

I	Introduction.....	134
II	Climate Change: An Urban Challenge.....	137
III	Sustainable Development.....	142
	A The ‘New’ Sustainable Development.....	143

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¹ Government of New South Wales, *A New Planning System for NSW – White Paper* (2013) (*A New Planning System for NSW – White Paper*) 15.

	B	Strategic Planning and Sustainability.....	145
	C	Development Assessment and Sustainability.....	147
IV		Code Assessment for a Climate-constrained Future?.....	149
	A	Code-based Planning in NSW.....	149
	B	Code-based Assessment and Climate Change.....	151
V		Conclusion.....	155

I INTRODUCTION

The NSW government is proposing the biggest changes to planning law since the 1970s. The *Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act)*, which has set the framework for planning across the state for over thirty years, is to be replaced with new legislation.

Planning reform was a key plank of the election campaign that led to a change of government in 2011. Allegations of corruption associated with political donations by developers had long plagued the previous Labor government, particularly with respect to the highly discretionary Part 3A process for the approval of major projects.² The Liberal government moved quickly on planning reform, repealing Part 3A within weeks of its election and establishing an Independent Panel to review the planning system a few months later. The report produced by that panel was released in mid-2012, along with a green paper setting out the government's proposals for reform.³ A White Paper, *Planning Bill and Planning (Administration) Bill* were released for comment in April 2013. At the time of writing, the government is reviewing submissions, and has indicated its intention to introduce legislation to Parliament before the end of the year.⁴

The White Paper and draft legislation reinforce and extend most of the proposals outlined in the Green Paper. These include:

- Replacing the current system of State Environmental Planning Policies, Local Environmental Plans and Development Control Plans with NSW Planning Policies, Regional Growth Plans, Subregional Delivery Plans and Local Plans with a strong hierarchy and clear 'lines of sight' between the various levels of planning;

² Independent Commission Against Corruption, *Anti-corruption Safeguards and the NSW Planning System* (2012); Government of New South Wales, *The Way Ahead for Planning in NSW: Recommendations of the NSW Planning System Review, Volume 1 – Major Issues* (2012) ('*The Way Ahead for Planning in NSW: Recommendations Volume 1 – Major Issues*').

³ Government of New South Wales, *The Way Ahead for Planning in NSW: Recommendations Volume 1 – Major Issues*, above n 2; Government of New South Wales, *A New Planning System for NSW – Green Paper* (2012).

⁴ Department of Planning and Infrastructure, Government of New South Wales, Unprecedented Consultation: Balancing Many Views (4 October 2013) <<http://www.planning.nsw.gov.au/PolicyandLegislation/ANewPlanningSystemforNSW/Consultation/tabid/663/language/en-US/Default.aspx>>.

- Greater integration between land use and infrastructure planning, and a new system for infrastructure contribution charges;
- Greater use of evidence in decision-making, including new tools to assess economic feasibility, and an emphasis on targets and performance reporting;
- Collapsing the current range of zones available at the local level into a much shorter list of more flexible zones;
- Emphasising opportunities for community participation earlier in the planning process, at the strategic planning stage;
- Reducing opportunities for community participation at the development assessment stage, with a target of 80 per cent of all projects to be assessed as code or complying development within five years; and
- A dedicated program to deliver cultural change, led by a new Deputy Director-General for People, Culture and Business.

At its outset, the planning reform process attracted broad support. With NSW performing badly on almost all planning indicators, and over 150 amendments made to the *EP&A Act* since its passage, the need for reform is generally accepted.⁵ The promise to return power to communities and local government was widely applauded, as was the repeal of Part 3A. The appointment of the Hon Tim Moore and Hon Ron Dyer to conduct a review of the planning system was popular; the review itself was also generally supported.

However, the reforms have attracted considerable and increasing criticism.⁶ While supportive of the move to abolish Part 3A, critics noted that many of its key provisions remained operative through other measures.⁷ The report of

⁵ Government of NSW, *A New Planning System for NSW – Green Paper*, above n 3; Legislative Council Standing Committee on State Development, Parliament of New South Wales, *The New South Wales Planning Framework* (2009); EDO NSW, *Reconnecting the Community with the Planning System* (2010); EDO NSW, *The State of Planning in NSW with Reference to Social and Environmental Impacts and Public Participation* (2010); Urban Development Institute of Australia (NSW), Submission to the Government of New South Wales, *NSW Planning Review Issues Paper: The Way Forward for Planning in NSW?* March 2012.

⁶ See, eg, Letter to the editor, 'Sloppy and Flawed Planning Laws Disgrace NSW Government', *The Sydney Morning Herald* (Sydney), 14 August 2013; Nicole Hasham, 'Top Official Admits Errors over Draft Planning Laws', *The Sydney Morning Herald* (Sydney), 13 August 2013; Leesha McKenny, 'Scorn from Lawyers on Reforms to Planning', *The Sydney Morning Herald* (Sydney), 13 July 2013; Leesha McKenny, 'Planning Reforms Target for Corruption', *The Sydney Morning Herald* (Sydney), 3 July 2013; Anna Patty, 'Planning Overhaul Could Put Heritage Landmarks at Risk', *The Sydney Morning Herald* (Sydney), 29 June 2013.

⁷ The Hon Michael Daly argued: 'The dragon is dead — or so members opposite would have us believe. I concede that those opposite were very good at convincing the people of New South Wales that part 3A was a dog. But the Government has taken the labrador inside, given it a perm, sent it back out onto the street and told the public it is now a poodle. Nothing much has changed. ... The bill does not scrap part 3A and return planning powers to local communities. The bills scraps part 3A and renames it "part 4" and "part 5.1". Rover becomes Lassie.' See New South Wales, *Parliamentary Debates*, Legislative Assembly, 16 June 2011, 2592 (Michael Daly).

Independent Review was not released for public comment at completion; instead, it was held back for release with the Green Paper. The Green Paper made little reference to the review, departing from many of its recommendations without explanation.⁸ Opposition to the Green Paper was strong; its proposals were widely seen as a move to take control away from local communities and local governments. The timeline for reform was also a subject of complaint. The suggestion that legislation would be introduced by the end of 2012 was criticised as an attempt to ‘ram through’ unpopular changes; the preparation of a new Metropolitan Strategy prior to the completion of the reform process was criticised as counter-productive.

The disquiet has since increased, particularly as the White Paper was released concurrently with controversial proposals for major reforms to local government. The level of concern has been such that a new organisation, the Better Planning Network (BPN), was established in 2012 to lobby for a different kind of reform.⁹ The BPN now brings together over 400 organisations and many more individual members, with a platform focused on community well-being, community engagement at every stage of planning, environmental and heritage protection, compliance with strategic planning, integration of infrastructure planning and minimisation of corruption. The current proposals are widely opposed: the White Paper attracted over 4500 submissions, many from individual members of the public.¹⁰

Critiques of the proposed reforms have been many and varied, and a full discussion of concerns regarding the reforms is beyond the scope of this article. While noting the significant implications for all aspects of sustainability, and particularly the importance of and lack of attention to social sustainability,¹¹ this article will consider only the consequences of the proposals for environmental sustainability. It will focus on the implications of the reforms for the future of

⁸ For example, that the new legislation should have an over-arching objective of providing ‘an ecologically, economically and socially sustainable framework for land use planning and development proposal assessment’. See Government of New South Wales, *The Way Ahead for Planning in NSW: Recommendations Volume 1 – Major Issues*, above n 2, 6.

⁹ Better Planning Network, About Us (2013) <<http://betterplanningnetwork.good.do/nsw/pages/about-us/>>.

¹⁰ Department of Planning and Infrastructure, Government of New South Wales, Unprecedented Consultation: Balancing Many Views (4 October 2013) <<http://www.planning.nsw.gov.au/PolicyandLegislation/ANewPlanningSystemforNSW/Consultation/tabid/663/language/en-US/Default.aspx>>.

¹¹ Organisations including the Productivity Commission and the Council of Australian Governments COAG have highlighted the importance of social inclusion for Australian cities, and particularly for Sydney where housing is among the least affordable in the world. See COAG Reform Council, *Review of Capital City Strategic Planning Systems*, Report to the Council of Australian Governments (2011); Productivity Commission, *Performance Benchmarking of Australian Business Regulation: Planning Zoning and Development Assessments* (2011).

urban development in NSW, with particular reference to climate change at all scales, including the urban heat island (UHI). This is an issue of major and increasing significance. With the effects of climate change already evident in NSW and predicted to increase substantially over the next century, action on both the mitigation of greenhouse gas emissions and adaptation to the consequences of climate change will be vital to the future success of the state.

Drawing on the latest findings from urban climatology, Part II will highlight the critical importance of climate change for sustainability in NSW, and the particular need to plan for climate change in urban areas. Part III will discuss the concept of 'sustainable development' put forward in the reform proposals, followed by a consideration of its treatment in the new frameworks proposed for strategic planning and development assessment. Part IV will then discuss one of the most controversial aspects of the reform proposals: the move to dramatically increase the proportion of development assessed using checklist style, non-discretionary development codes. It will evaluate the proposals for code-based assessment as they relate to climate change, arguing that these fall far short of the response to climate change required in Australia's most populous state.

II CLIMATE CHANGE: AN URBAN CHALLENGE

The suggestion that sustainability is a priority in the planning reforms is not radical: environmental concerns were one of the main drivers for the development of the *EP&A Act* forty years ago.¹² While climate change was rarely discussed in the 1970s, today it is the key issue in discussions on sustainability. In addition to climate specific policies, appropriate choices made at the development stage through ecologically sustainable development are essential for both climate change mitigation and adaptation. Sustainable development may also result in social, economic and energy security benefits, illustrating the importance of consideration of climate change in the planning reform process.

The level of scientific consensus on climate change is now overwhelming. Australian surface temperatures have risen by just under 1°C in the last century¹³ and are projected to continue to rise.¹⁴ Minimum temperatures are increasing more rapidly than maximum temperatures; the number of days with record hot temperatures and the occurrence of severe heat waves is increasing.¹⁵ Most of this

¹² Amelia Thorpe, 'Participation in Planning: Lessons from the Green Bans' 30 *Environmental and Planning Law Journal* 93.

¹³ Helen M Cleugh et al (eds), *Climate Change. Science and Solutions for Australia* (CSIRO, 2011).

¹⁴ Department of Environment, Climate Change and Water, Government of New South Wales, *NSW Climate Impact Profile: The Impacts of Climate Change on the Biophysical Environment of New South Wales* (2010) 168.

¹⁵ Cleugh et al (eds), above n 13.

warming has been attributed to increases in greenhouse gas emissions due to human activities.

Cities play a major role in climate change. Although difficult to quantify due to the lack of a universal definition for a city, over 80 per cent of carbon dioxide emissions have been attributed to urban areas.¹⁶ The United Nations Human Settlement Programme¹⁷ determined that as a conservative estimate, from 40 to 70 per cent of all greenhouse gas emissions, based on source of emissions, were emitted from cities. That figure then shifts to from 60 to 70 per cent when production of goods consumed, irrespective of origin, is taken into account. These are extraordinarily high figures, particularly considering that urban areas house only 52.1 per cent of the global population, and especially given that they cover just 2 to 3 per cent of the Earth's surface.¹⁸ Sources of greenhouse gas emissions from urban areas include: electricity generation, transportation, building energy use, industry and waste.¹⁹ Growth in emissions in the building sector alone increased 75 per cent between 1970 and 2004.²⁰ Urban areas are thus crucial sites for mitigation efforts.

However, regardless of any mitigation efforts, past greenhouse gases emissions will continue to impact global climate for decades — even centuries — to come.²¹ Possible impacts of global warming will increasingly test the resilience of development across NSW, including impacts arising from sea level rise as well as from more intense storm events, flooding, bushfires and heatwaves. The potential for catastrophic damage has been highlighted recently by flooding in Brisbane, bushfires in Melbourne, and the prolonged drought across much of the country.²² In addition to the changes to climate taking place on a global scale due to increased emissions of greenhouse gases, urban areas face an additional burden. Urbanisation can modify local and regional climatic conditions resulting in the UHI effect, whereby urban areas often experience different temperatures than surrounding rural areas.²³ With 89 per cent of Australians living in urban

¹⁶ Galina Chirkina, 'Modeling the Carbon Cycle of Urban Systems' (2008) 216 *Ecological Modelling* 107.

¹⁷ United Nations Human Settlements Programme (UN-Habitat), *Global Report on Human Settlements 2011: Cities and Climate Change* (2011) 300.

¹⁸ Population Division, Population Estimates and Projections Section, *World Urbanization Prospects: The 2011 Revision* (7 October 2013) United Nations Department of Social and Economic Affairs <<http://esa.un.org/unup/>>.

¹⁹ UN-Habitat, above n 17, 300.

²⁰ IPCC 2007, 'IPCC Summary for Policymakers' cited in B Metz et al (eds), *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, 2007) 23.

²¹ Cleugh et al (eds), above n 13.

²² Climate Commission, *The Critical Decade: Extreme Weather* (2013).

²³ The terms 'urban heat island' and 'urban heat island effect' are used interchangeably in this article, as is typical in the urban climatology literature.

areas, adaptation in urban areas is imperative to reduce the social, economic and environmental impacts of climate change.²⁴

Significant UHI effects have been found in both large Australian cities²⁵ and small towns.²⁶ The effect has been found to increase with population. This is an important finding considering greater than 75 per cent of Australian residents live in urban areas with a population greater than 100,000,²⁷ and that Australia's population is one of the most concentrated in the world.²⁸ The consequences of this for NSW could be dramatic. Projections of both global warming and increased urbanisation in the Sydney metropolitan area have found that increased urbanisation may significantly increase minimum temperatures throughout the year, and that by 2050, during winter and spring months, this increase could be double the projected temperature increase due to global warming alone.²⁹ However, adaptation efforts should not be focused on large cities alone, as urban regions outside of capital cities typically have less adaptive capacity and therefore higher vulnerability.³⁰

The scale of urban impacts on climate can range from microclimatic impacts in and around buildings, to regional impacts that can affect climatic conditions across a large metropolitan area. At the smaller scale, shading due to buildings during the daytime can create a cooling effect in surrounding streets;³¹ conversely retained heat release from buildings at night can create warmer temperatures.³² Impacts at these scales have the greatest effect on pedestrian comfort and on the energy consumption required to heat or cool buildings. At the regional scale,

²⁴ Reginald Blake et al, 'Urban Climate: Processes, Trends, and Projections' in Cynthia Rosenzweig et al (eds), *Climate Change and Cities: First Assessment Report of the Urban Climate Change Research Network* (Cambridge University Press, 2011) 43.

²⁵ Daniel Argüeso et al, 'Temperature Response to Future Urbanization and Climate Change' (2013) *Climate Dynamics*; Christopher J G Morris and Ian Simmonds, 'Associations between Varying Magnitudes of the Urban Heat Island and the Synoptic Climatology in Melbourne, Australia' (2000) 20 *International Journal of Climatology* 1931.

²⁶ Simon J Torok et al, 'Urban Heat Island Features of Southeast Australian Towns' (2001) 50 *Australian Meteorological Magazine* 131.

²⁷ Department of Infrastructure and Transport, Cities Unit, Government of Australia (DI&T (Cth)), *State of Australian Cities* (2013) 383.

²⁸ Australia was ranked fifth globally for the proportion of population living in large cities (behind only Hong Kong, Singapore, Kuwait and Puerto Rico). See World Bank, *Population in Urban Agglomerations of More than 1 Million (% of Total Population)* (2012) <<http://search.worldbank.org/data?qterm=population%20agglomeration&language=EN>>.

²⁹ Argüeso et al, above n 25.

³⁰ Department of Climate Change, Government of Australia, *Climate Change Risks to Australia's Coasts: A First Pass National Assessment* (2009) 172.

³¹ R Emmanuel, H Rosenlund and E Johansson, 'Urban Shading – A Design Option for the Tropics? A Study in Colombo, Sri Lanka' (2007) 27 *International Journal of Climatology* 1995.

³² Robert L Wilby, Philip D Jones and David H Lister, 'Decadal Variations in the Nocturnal Heat Island of London' (2011) 66 *Weather* 59.

urban areas also have the ability to alter the formation of secondary air pollutants and therefore affect urban air pollution concentrations.³³ Urban areas have also been shown to initiate or affect the formation of storms.³⁴ A climate modelling simulation of thunder storms over the Sydney metropolitan area found that urban areas in Sydney have the ability to slow down the speed of storms and to even trigger their formation.³⁵

Urbanisation impacts on climate are dependent on a wide range of factors including geographic location and local climatic conditions. However, the majority of impacts are those that are related to urban development such as: population density; building density and building height to width ratio; roads and traffic density; heat emissions due to anthropogenic activities, including emissions from transportation, industry and buildings; and surface conditions, including green cover, and building and surface materials whose thermal properties differ from the surrounding rural environment.³⁶ The relationships between these factors are also critical. The three-dimensional nature of urban areas results in a layer where atmospheric processes between buildings can significantly impact climatic conditions at the street level. However, planning decisions are often made on the two-dimensional scale³⁷ and typically take into account only a narrow range of relevant factors with little consideration of the relationships between them. This creates a disconnect where the knowledge of urbanisation impacts on climatic conditions is not applied at the planning stage, or if it is, this application is often on an individual development basis and final benefits are rarely quantified.

Climatic impacts both on and by an urban environment can have human health and thermal comfort consequences.³⁸ Heat related deaths in Australian cities are predicted to double in the next 40 years.³⁹ Heat related deaths and

³³ James A Voogt, 'Urban Heat Island' in Ian Douglas (ed), *Causes and Consequences of Global Environmental Change* (John Wiley & Sons, 2002), 660–6.

³⁴ Robert Bornstein and Qinglu Lin, 'Urban Heat Islands and Summertime Convective Thunderstorms in Atlanta: Three Case Studies' (2000) 34 *Atmospheric Environment* 507.

³⁵ A F Gero et al, 'The Impact of Land Cover Change on Storms in the Sydney Basin, Australia' (2006) 54 *Global and Planetary Change* 57.

³⁶ Voogt, above n 33, 660; Zsolt Bottyán and János Unger, 'A Multiple Linear Statistical Model for Estimating the Mean Maximum Urban Heat Island' (2003) 75 *Theoretical and Applied Climatology* 233; Brian Stone and John M Norman, 'Land Use Planning and Surface Heat Island Formation: A Parcel-based Radiation Flux Approach' (2006) 40 *Atmospheric Environment* 3561; János Unger, 'Modelling the Annual Mean Maximum Urban Heat Island Using 2D and 3D Surface Parameters' (2006) 30 *Climate Research* 215.

³⁷ Gerald Mills, 'Progress toward Sustainable Settlements: A Role for Urban Climatology' (2006) 84 *Theoretical and Applied Climatology* 69.

³⁸ Voogt, above n 33, 660; Hong Huang, Ryoza Ooka, and Shinsuke Keto, 'Urban Thermal Environment Measurements and Numerical Simulation for an Actual Complex Urban Area Covering a Large District Heating and Cooling System in Summer' (2005) 39 *Atmospheric Environment* 6362.

³⁹ DI&T (Cth), *State of Australian Cities* (2013), above n 27, 383.

illness are most associated with high overnight temperatures, where the body does not have the opportunity to cool down. UHI effects tend to be greatest overnight when urban areas cool at a slower rate than non-urbanised surrounds,⁴⁰ placing an additional burden on those living in urban areas. This is further increased by air pollution exacerbated during heat waves. Energy consumption is also affected: a 1°C increase in temperature can result in a 5 per cent increase in air conditioner usage. With ownership of air conditioner units almost doubling between 1994 and 2004, and continuing to rise, this is a significant increase in residential energy use.⁴¹

There is much that can be done through urban planning, both to reduce greenhouse gas emissions and to adapt to the effects of climate change and the UHI. The field of urban climatology has a long history,⁴² yet it is often neglected in the planning process. Plans to mitigate impacts of climatic change are often limited to particular projects irrespective of any cumulative effect they may have on surrounding properties. For example, an air-conditioning system installed to moderate indoor temperatures may release heat emissions onto neighbouring properties, conversely green roofs or walls could serve the same purpose while also cooling surrounding streets and properties. Appropriately mitigative and adaptive urban climate practices are often confined to specific examples of sustainability, or 'green' buildings, and are not widespread across development plans.

There is a need to include knowledge of climate change in planning processes, and to prioritise the gathering and analysis of climatic information in decision-making. The emphasis given to ecologically sustainable development under the current planning framework needs to be increased considerably. Ecologically sustainable development furthers both adaptation and mitigation, and the benefits are typically much greater when an integrated approach is taken. Ecologically sustainable development when applied to urban planning has the ability not only to mitigate the UHI effect, but also to reduce emissions of both greenhouse gases and ambient air pollutants through decreased building energy consumption and transportation demand.⁴³ It has been calculated that the sustainable design of urban residential and commercial buildings has the ability to reduce greenhouse gas emissions by up to 29 per cent by 2020.⁴⁴ For example, urban greening can

⁴⁰ Voogt, above n 33, 660.

⁴¹ DI&T (Cth), *State of Australian Cities* (2013), above n 27, 383.

⁴² Gerald Mills, 'Luke Howard and the Climate of London' (2008) 63 *Weather* 153.

⁴³ Patricia McCarney et al, 'Cities and Climate Change' in Cynthia Rosenzweig et al (eds), *Climate Change and Cities: First Assessment Report of the Urban Climate Change Research Network* (Cambridge University Press, 2011) 249.

⁴⁴ Mark D Levine et al, 'Residential and Commercial Buildings' in B Metz et al (eds), *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, 2007) 387.

reduce urban temperatures through shading and evapotranspiration⁴⁵ whilst simultaneously removing ambient pollutants⁴⁶ and sequestering carbon from the atmosphere.⁴⁷ In addition to environmental benefits, there are economic benefits to sustainable urban design through reductions in energy costs from increased energy efficiency, reduced human health impacts and associated costs, to the amenity benefits of urban greening increasing property prices. The planning reforms must ensure that strategies to mitigate and adapt to changing climate at all scales are included in urban planning processes.⁴⁸ This is particularly important for new developments where climate impacts could be considered throughout the development process.

With planning laws widely recognised as a key governance mechanism for both mitigating and adapting to climate change,⁴⁹ the degree to which the planning reforms address climate change at all scales will be a key indicator of the success of the new system and the future of the state.

III SUSTAINABLE DEVELOPMENT

Despite the government's claim that ensuring that development is sustainable is the 'key objective' of the new planning system, the proposals to date offer little to suggest that sustainability will indeed be prioritised in the future development of NSW. The White Paper and planning bills move away from the term 'ecologically sustainable development' used in the current planning system, adopting instead the concept of 'sustainable development'. As this section will argue, there is some scope for sustainability in the proposals for reform of both strategic and statutory planning processes, but in both this is overshadowed by a

⁴⁵ Melissa A Hart and David J Sailor, 'Quantifying the Influence of Land-use and Surface Characteristics on Spatial Variability in the Urban Heat Island' (2009) 95 *Theoretical and Applied Climatology* 397.

⁴⁶ David J Nowak et al, 'Air Pollution Removal by Urban Trees and Shrubs in the United States' (2006) 4 *Urban Forestry and Urban Greening* 115.

⁴⁷ David J Nowak and Daniel E Crane, 'Carbon Storage and Sequestration by Urban Trees in the USA' (2002) 116 *Environmental Pollution* 381.

⁴⁸ P McCarney et al, above n 43, 249.

⁴⁹ Australian Local Government Association/Baker & McKenzie, *Local Council Risk of Liability in the Face of Climate Change* (2011); Ron Cox et al, *National Climate Change Adaptation Research Plan: Settlements and Infrastructure – Update Report* (NCCARF, 2012); Thomas G Measham et al, 'Adapting to Climate Change through Local Municipal Planning: Barriers and Challenges' (2011) 16 *Mitigation and Adaptation Strategies for Global Change* 889; Productivity Commission, *Barriers to Effective Climate Change Adaptation*, Draft Report (Australian Government, 2012); Nicole Gurran et al, *Planning for Climate Change Adaptation in Coastal Australia: State of Practice*, Report No 4 for the National Sea Change Taskforce (University of Sydney, 2011); Robert Ghanem and Kirsty Ruddock, 'Are New South Wales' Planning Laws Climate-change Ready?' (2011) 28 *Environmental Planning and Law Journal* 17.

much stronger emphasis on economic growth. Of particular concern is the failure of the planning bills to make any reference to climate change.

A The 'New' Sustainable Development

Rather than ecologically sustainable development (ESD), the term used currently in the *EP&A Act*, the White Paper and planning bills introduce a new term: 'sustainable development'. This is defined as being achieved 'by the integration of economic, environmental and social considerations, having regard to present and future needs, in decision-making about planning and development.'⁵⁰ The White Paper cites the origins of the term in the seminal *Brundtland Report*, and its evolution into a core set of values and principles which have been adopted widely internationally and in Australia.⁵¹

In suggesting that its definition of sustainable development is consistent with international and Australian practice, the White Paper is quite misleading. It does not acknowledge the fact that many organisations and jurisdictions have retained the original Brundtland definition, which was far stronger in defining sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'⁵² Nor does it acknowledge the significant Australian addition of 'ecologically' to the beginning of the term, and the difference between this and its proposed definition.

The principles of ESD have been adopted by all Australian governments since 1992, and incorporated in over 100 laws at both state and national levels.⁵³ In NSW, the encouragement of ecologically sustainable development is expressly provided as one of the objects of the *EP&A Act*.⁵⁴ The principles of ESD are defined in the *EP&A Act* as:

- the precautionary principle (to manage environmental risk),
- inter-generational equity (considering the needs of current and future generations),
- conservation of biological diversity and ecological integrity, and
- improved valuation, pricing and incentive mechanisms (eg, full accounting for

⁵⁰ Planning Bill 2013 (NSW) cl 1.3(2).

⁵¹ Government of NSW, *New Planning System for NSW – White Paper*, above n 1, 16.

⁵² World Commission on Environment and Development (the Brundtland Commission), *Our Common Future* (Oxford University Press, 1987).

⁵³ Over 119 examples are listed in the appendix to Paul Stein, 'Are Decision-makers too Cautious with the Precautionary Principle?' 17 (2000) *Environmental and Planning Law Journal* 3. See, eg, *Protection of the Environment Administration Act 1991* (NSW) s 6(2); *Environmental Planning and Assessment Act 1979* (NSW) ss 4, 5; *Environment Protection and Biodiversity Conservation Act 1999* (Cth) s 3A; *Sustainable Planning Act 2009* (Qld) ss 3–5; *Planning and Development Act 2007* (ACT).

⁵⁴ *Environmental Planning and Assessment Act 1979* (NSW) s 5(a)(vii).

environmental costs).⁵⁵

ESD occupies a pre-eminent place in judicial decision-making in the NSW Land and Environment Court, and has played a significant role in enabling the current planning system to respond to climate change.⁵⁶ Considerable jurisprudence has developed on the way in which ESD is to be applied in planning processes, and this has enabled the courts to consider issues ranging from the taking of endangered fauna to the development of infrastructure for renewable energy.⁵⁷ ESD has been particularly important with respect to climate change. Following a series of cases examining the significance of the inclusion of ESD among the objects of the *EP&A Act*, it is now established that the potential impacts of climate change on planning proposals, and of planning proposals on climate change, are mandatory considerations for planning authorities in NSW.⁵⁸

The definition of sustainable development adopted in the White Paper is weaker than ESD, placing a higher priority on short-term economic development. Despite very strong expressions of support for the retention of ESD in the new legislation, and in fact for its prioritisation as an over-arching objective,⁵⁹ the White Paper neither acknowledges nor explains the rationale for this shift.⁶⁰

The move from ESD to ‘sustainable development’ has serious consequences for the environment in NSW. It is a particular concern as the *Planning Bill* presents the environment in much narrower terms than under the current *EP&A Act*. The objects of the *Planning Bill* include: ‘the protection of the environment, including the conservation of threatened species, populations and ecological communities, and their habitats, and the conservation and sustainable use of built and cultural heritage’, and ‘the effective management of agricultural and water resources’.⁶¹ Issues such as urban sustainability, biodiversity, natural resource

⁵⁵ Ibid s 4, by reference to s 6(2) of the *Protection of the Environment Administration Act 1991* (NSW).

⁵⁶ *BGP Properties Pty Limited v Lake Macquarie City Council* [2004] NSWLEC 399; *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133; *Aldous v Greater Taree City Council* [2009] NSWLEC 217.

⁵⁷ *Leatch v National Parks and Wildlife Services* (2006) 146 LGERA 10; *Taralga Landscape Guardians Inc v Minister for Planning and RES Southern Cross Pty Ltd* [2007] NSWLEC 59.

⁵⁸ *Kennedy v Minister for Planning* [2010] NSWLEC 240 [77]–[79]; *Williams v NSW Minister for Planning (NSW)* [No 3] [2010] NSWLEC 204 [33]; *Aldous v Greater Taree City Council* 167 LGERA 13 [27]–[28]; *Newcastle and Hunter Valley Speleological Society Inc v Upper Hunter Shire Council* [2010] NSWLEC 48 [173], [177]; *Bulga Milbrodale Progress Association v Minister for Planning and Infrastructure* [2013] NSWLEC 48 [57]; *Barrington-Gloucester-Stroud Preservation Alliance Inc v Minister for Planning and Infrastructure* [2012] NSWLEC 197 [170].

⁵⁹ Department of Planning and Infrastructure, Government of New South Wales, *Green Paper Feedback Summary* (2012).

⁶⁰ Government of New South Wales, *The Way Ahead for Planning in NSW: Recommendations Volume 1 – Major Issues*, above n 2; Government of NSW, *A New Planning System for NSW – Green Paper*, above n 3.

⁶¹ Ibid cls 1.3(1)(e),(f).

management, the urban heat island and global climate change are given no mention. In specifying the purposes for which planning control provisions can be made, the *Planning Bill* again presents a very narrow view of sustainability, referring to the protection of trees, native animals and plants, but omitting issues such as biodiversity, urban sustainability, energy efficiency and natural resources.⁶² The shift away from ESD is especially significant for climate change, as the *Planning Bill* makes no reference at all to climate change.

The proposed replacement of ESD with 'sustainable development' raises questions as to whether (and to what extent) the jurisprudence on ESD, and particularly climate change, would be applicable under the new system.

In addition to adopting this weak definition, the proposals for reform do little to give effect to sustainability. Despite being described as a 'key objective' in the White Paper, promoting sustainable development is just one of nine objects proposed in the *Planning Bill*, and there is no hierarchy established among them.⁶³ The scope for this objective to be used to prioritise either climate change adaptation or mitigation under the new planning framework is thus limited.

The title of the proposed legislation also sends a clear message on sustainability: while the Independent Review and the green paper both proposed the introduction of new legislation entitled the *Sustainable Planning Act*, the draft legislation is instead called simply the *Planning Bill*. As the following sections will argue, an examination of the frameworks proposed for strategic planning and for development assessment shows clearly that sustainability would be far from central to planning in NSW.

B *Strategic Planning and Sustainability*

There is some scope for greater attention to sustainability and planning for climate change in the proposals for reform of strategic planning. The increased emphasis on strategic planning could bring considerable benefits in enabling proper consideration of regional, cumulative and long term consequences of planning proposals. Similarly, the proposals for greater collaboration between councils through the formation of new subregional planning bodies could significantly improve the quality of strategic planning in NSW. This could be particularly effective if the new subregions incorporated natural catchment boundaries and Bureau of Meteorology designated climate zones. The proposals for strategic impact assessment (rather than considering impacts only in reaction to specific development proposals) and for monitoring and review of strategic planning outcomes could make a major contribution to planning for sustainability and particularly for mitigation and adaptation to climate change. The use of

⁶² Ibid cl 3.17.

⁶³ Ibid cl 1.3.

evidence in decision-making could dramatically reduce greenhouse gas emissions and build resilience in NSW, particularly if monitoring and triggers for review included environmental indicators such as urban heat island effects, water quality, air quality and biodiversity.

However, the potential for more sustainable outcomes is limited by the very strong economic focus of the reform proposals. The White Paper emphasises commercial viability and better awareness of the property market, and states that strategic plans will be tested for economic viability and that strategic impact assessment is to rely on cost-benefit analysis. No comparable assessments are proposed to consider impacts to local or global climate, or social or environmental sustainability more generally. There is a strong emphasis on development, from the basing of subregions on economic and population catchments to the labelling of regional plans as Regional Growth Plans (suggesting that all areas should always be growing) to the proposals for Strategic Compatibility Certificates (enabling development to proceed prior to the completion of strategic planning). While the White Paper states that they will be limited, the *Planning Bill* continues to enable such certificates to operate indefinitely,⁶⁴ regardless of the content or likely imminence of draft strategic plans, and without third party appeals.

The *Planning Bill* gives little detail on the processes for strategic planning. There is considerable uncertainty with regard to the types of evidence that must be gathered and the way in which this is used to inform strategic planning. While the White Paper suggests that Sectoral Strategies will provide evidence for strategic planning, these are not mentioned in the *Planning Bill*, so there is no guidance as to what these strategies will contain and whether they will actually be prepared before plans are made. Similarly, the *Planning Bill* gives little direction on the timing and triggers for review of strategic plans. No criteria are provided for review, nor guidance on the relationship between reviews and monitoring and reporting on strategic planning. The *Planning Bill* gives the Minister very high levels of discretion in the making of strategic plans as well as significant authority to amend strategic plans, with no requirements to foster sustainability in such modifications or amendments, nor even to justify them with reasons supplied.⁶⁵ The White Paper states that all subregional delivery plans are

⁶⁴ Strategic compatibility certificates can be relied on for the purpose of making a DA for two years after they are issued. If granted, and if the development is physically commenced (even in a minor way), that could last indefinitely.

⁶⁵ The Minister may make plans with modifications the Minister considers ‘appropriate’, or may decide not to proceed with making the plan at all, regardless of any public participation, evidence or other inputs or processes involved in its preparation. See *Planning Bill 2013 (NSW)* cls 3.7, 3.9, 3.12–14, 3.24. While the White Paper suggests Minister can amend local plans only in certain circumstances, the bill gives the Minister very broad power to do so (see *Planning Bill 2013 (NSW)* cl 3.9). Additionally, the gateway process for local plan-making

to be completed within two years of the commencement of the new legislation.⁶⁶ This is incredibly fast, given that State and regional plans have to be made first, and offers little hope for rigorous, comprehensive strategic planning.

C Development Assessment and Sustainability

Similar to the position for strategic planning, there are some elements in the proposals for reform of development assessment that could foster sustainability and better planning for climate change. The statements in the White Paper that cumulative impacts need to be assessed, and that there will be ‘more rigorous’ testing for development that departs from the strategic vision or does not comply with development guides, both suggest that development assessment could support more sustainable outcomes and a better response to climate change at all scales. Similarly, the proposed provisions for a standard template and guidelines for environmental assessment, for monitoring of compliance with environmental conditions for State significant development (SSD) and State significant infrastructure (SSI), and for certification of monitoring, could foster sustainability.⁶⁷ The proposals for stronger penalties for negligent and reckless inaccuracies in environmental assessment and reporting; for a tiered system of criminal offences similar to other legislation in NSW; and for new court orders for criminal enforcement could also contribute to more sustainable outcomes in development assessment.

Again, however, this potential for sustainability is limited. The *Planning Bill* does not require assessment of impacts on or due to climate change, or of cumulative impacts, nor does it mandate ‘more rigorous’ testing for non-compliant applications. Applications for development departing from relevant codes would be subject to just 14 days of public consultation.⁶⁸ The White Paper proposes to update provisions for environmental assessment to reflect a risk based approach, and states that the standard template and guidelines would ensure that environmental assessment concentrate on ‘key’ risks and impacts and reduce costs. The imposition of conditions requiring monitoring as part of the approval of applications for SSD and SSI are also optional.⁶⁹ With proponents and determining authorities frequently being the same organisation for such projects, the imposition of such conditions may be rare in practice.

Again, there is a strong emphasis on development. As Part IV will discuss in more detail, the new system will make much greater use of codes to streamline

gives the Minister very wide discretion to determine the process by which local plans are made (see Planning Bill 2013 (NSW) Div 3.3).

⁶⁶ Government of NSW, *New Planning System for NSW – White Paper*, above n 1, 82.

⁶⁷ Planning (Administration) Bill 2013 (NSW) Pt 9, cl 55(1)(c).

⁶⁸ Planning Bill 2013 (NSW) sch 2, cl 2.8.

⁶⁹ *Ibid* cl 54(1).

approvals and facilitate much faster urban development. For applications meeting predetermined standards, consent authorities would have no option but to grant development consent. The potential to impose conditions on such consent would be limited, and planning authorities would have to follow strict timelines so that approval would usually be granted within just 10 days. If the codes do not address climate change appropriately, there will be no scope for planning authorities to address this through conditions or refusal of approval.

For development not falling within the scope of the codes, the *Planning Bill* mandates an amber light approach in all circumstances, meaning that a planning authority would be unable to refuse approval until after it had given advice on the changes it would require to enable approval to be granted.⁷⁰ There is no threshold of acceptability for this to apply; applicants would not need to demonstrate consistency with sustainable development or to give a justification for departure from the relevant standard. Far from imposing a ‘more rigorous’ approach, this proposal does nothing to encourage compliance with codes or strategic plans, and could be a significant burden on the resources of planning authorities. It is also at odds with recommendations of the Independent Review.⁷¹ The *Planning Bill* also continues part of the controversial Pt 3A in preventing the suspension of consent for major projects that are challenged in court.⁷² Given that the potential impacts of such developments are likely to be significant, this is not consistent with the government’s stated objective of sustainable development.

The proposals do not indicate how (or even whether) the elements in the current system that require consideration of sustainability in the assessment of development proposals — such as the Building Sustainability Index (BASIX), which assesses projected energy use and thus relates at least indirectly to mitigation of greenhouse gas emissions — would be incorporated in the new planning system. Significantly, the proposed list of factors to be considered by planning authorities in evaluating applications for development consent makes no mention of climate change. It also excludes a number of factors contained in the current legislation (planning agreements, regulations, the coastal zone management plan, and the suitability of the site for development).⁷³ The rationale for this is that such issues will be considered at the strategic planning stage. However, this may not be the case, and it seems there are no safeguards provided to address shortcomings in the implementation of strategic planning. The proposed list also adds a qualification to the term ‘public interest’: ‘in particular whether any public benefit outweighs any adverse impact of the development’.⁷⁴

⁷⁰ Ibid cl 4.16

⁷¹ Independent Review, *The Way Ahead for Planning in NSW – Recommendations of the NSW Planning System Review* (2012), Recommendations 68 and 69.

⁷² Planning Bill 2013 (NSW) cl 9.13(1).

⁷³ Ibid cl 4.19(2); cf s 79C *EP&A Act*.

⁷⁴ Planning Bill 2013 (NSW) cl 4.19(2)(c).

The ‘public interest’ is a notoriously vague term, which has been highly contested in practice and in theory.⁷⁵ While greater specificity could be helpful in fostering more sustainable outcomes, this proposal implies a cost-benefit analysis, which could work against proper consideration of climate change and other social and environmental issues, and thus against sustainability in development assessment.

IV CODE ASSESSMENT FOR A CLIMATE-CONSTRAINED FUTURE?

Perhaps the most significant, and certainly the most controversial, of the proposed reforms to the NSW planning system is the dramatic increase proposed for the share of development applications assessed as code or complying development. Within five years of the new legislation coming into effect, the government has set a target of 80 per cent of development applications before councils being assessed in this way. Working toward the government’s policy of ‘making NSW number one’,⁷⁶ this is intended as a means to stimulate activity in the residential construction sector, addressing housing supply and affordability and fostering economic development more broadly. The proposal has been widely and sharply criticised, focusing primarily on the loss of opportunities for councils and communities to participate in the development assessment process, and on the particular risks of code assessment in heritage and environmentally sensitive areas. As this section will argue, an equally and perhaps even greater concern is the failure of the proposals for code assessment to respond to the increasingly pressing issue of climate change.

A Code-based Planning in NSW

Codes have been a part of the planning landscape in NSW for 15 years. Provision for code-based assessment was first introduced into the *EP&A Act* in 1998, allowing councils to specify pre-determined standards as an alternative to the usual development assessment process.⁷⁷ This includes (i) exempt development, whereby proposals meeting the relevant standards could proceed without any planning approval (provided other relevant standards such as the Building Code of Australia were followed), as well as (ii) complying development, whereby proposals are assessed using a tick-box approach. Applications for complying development may be made either to the relevant council or an accredited private certifier, who must determine the application

⁷⁵ Heather Campbell and Robert Marshall, ‘Utilitarianism’s Bad Breath? A Reevaluation of the Public Interest Justification for Planning’ (2002) 1 *Planning Theory* 163.

⁷⁶ Government of New South Wales, *NSW 2021: A Plan to Make NSW Number One* (2011).

⁷⁷ *Environmental Planning and Assessment Amendment Act 1998* (NSW).

within a specified period (currently 10 days, unless both parties agree to an extension). If the proposal meets the standards set in the code, the council or certifier must issue a complying development certificate. The long list of discretionary considerations relevant under the usual development assessment process (including the public interest, the suitability of the site for development and the likely social, economic and environmental impacts of the development) then ceases to apply. Significantly, there is no opportunity for councils to take or consider submissions from members of the public.

Provision for code-based assessment was expanded in 2008.⁷⁸ Rather than waiting for councils to opt-in to the streamlined system, this introduced a set of state-wide codes with mandatory application. Initially, the state-wide code applied only to one and two-storey houses on relatively large lots. A greater range of development types and lot sizes was added over time; the range of codes now comprises a General Exempt Development Code, General Housing Code, Rural Housing Code, Housing Alterations Code, General Development Code, General Commercial and Industrial Development Code, Subdivisions Code, and a Demolition Code.⁷⁹ There are some exclusions: primarily on land that is critical habitat, or located within a wilderness, heritage or environmentally sensitive area. Exclusions for bushfire prone land and flood control lots were initially provided, but have ceased following the introduction of particular standards for development in such areas.⁸⁰

The White Paper proposes to increase the proportion of developments assessed under codes by councils from around 23 per cent at present to 80 per cent within five years. Development assessment codes are to be set out in the development guide provisions of a local plan, and are to describe performance outcomes as well as any acceptable solutions for meeting those outcomes.⁸¹ State-wide codes will continue to be expanded, and will be offered as model guides which councils can either adopt or use as the basis for development of their own local guides. Regional variations to development guides will be allowed where councils can demonstrate that variations will increase the use of exempt and complying development in their areas. The White Paper states that development guides will focus on delivering 'good development', including an emphasis on good design and minimising impacts on neighbours. In determining applications for code assessable developments, the consent authority will not be able to

⁷⁸ *Environmental Planning and Assessment (Amendment) Act 2008* (NSW); Amelia Thorpe and Kristy Graham, 'Are Codes, Standards and Targets Sufficient Drivers of Sustainability in NSW?' (2009) 26 *Environmental and Planning Law Journal* 486.

⁷⁹ *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* (NSW).

⁸⁰ Department of Planning, Government of New South Wales, *A Guide to Complying Development: Housing Code* (2011) 15–18.

⁸¹ *Planning Bill 2013* (NSW) cl 4.17.

impose conditions that are more onerous than the relevant standards contained in the code.⁸²

While greater code assessment is presented in the White Paper as a ‘win-win’ in offering certainty to communities while enabling faster development,⁸³ it has been hugely controversial. Claims that greater community engagement in strategic planning processes constitutes ‘sign off’ on future development have been widely rejected; concerns have instead been raised that such provisions will exacerbate current levels of community disenfranchisement.⁸⁴ Particular concerns have been raised about the potential impacts of code assessment in environmentally sensitive and heritage areas, and the inability of councils to refuse applications for poor quality developments in instances where strategic planning has been inadequate.⁸⁵

The implications of code assessment for sustainability extend well beyond the risks of controversial projects in sensitive areas. The potential for even minor developments to have significant cumulative impacts means that sustainability remains an issue even when strategic planning processes have been relatively comprehensive, where community consultation has been meaningful and where proposals do not encroach on sensitive areas. As the following section will argue, codes can have particularly significant implications for both mitigation of greenhouse gas emissions and the impact of urbanisation on local climate, and adaptation to global climate change and the urban heat island.

B *Code-based Assessment and Climate Change*

The opportunity to foster environmentally sustainable development was highlighted with the introduction of the NSW Housing Code.⁸⁶ This appeared more of an afterthought than a considered objective; however, the primary aim of the Code was to speed up the pace of development that was already commonplace, not to change the nature of development.⁸⁷ As a result, there are several flaws in the current Housing Code which work against sustainable development and planning for mitigation of and adaptation to climate change.

For example, the current specifications for air-conditioners and evaporative cooling units address heights and noise levels. No mention is made of insulation, natural ventilation or energy efficiency, much less passive solar design or

⁸² Ibid cls 4.18(1)(b), 4.18(2)(b).

⁸³ Government of NSW, *New Planning System for NSW – White Paper*, above n 1, 129.

⁸⁴ See, eg, submissions by the Law Society of NSW, the Better Planning Network, the Planning Institute of Australia, Local Government NSW.

⁸⁵ See, eg, submissions by TEC and NCC, EDO NSW, Better Planning Network.

⁸⁶ Department of Planning, Government of New South Wales, *NSW Housing Code Fact Sheet: Sustainability and the NSW Housing Code* (12 December 2008), 1.

⁸⁷ Thorpe and Graham, above n 78.

renewable energy.⁸⁸ The requirements for solar hot water systems are more onerous than for other hot water systems;⁸⁹ and for demolition, the standard makes no mention of reuse or recycling.⁹⁰ For driveways, hardstand spaces, pathways and paving, there are requirements to dispose of water without causing a nuisance to neighbours, but none to consider or mitigate impacts on water management at a broader scale.⁹¹ Similarly, area requirements are set by reference to the associated development, and contain no requirements to maintain permeable or green surfaces. Setback, landscaping and private open space requirements for housing make no reference to orientation,⁹² and renovation of a kitchen or bathroom is exempt, regardless of its impact on passive solar performance.⁹³ A bathroom or kitchen that is reconfigured to improve solar performance, for example by increasing access to northern light in living areas, is subject to more onerous requirements.

Individually, these developments may not have significant impacts on climate change or the urban heat island, or on other aspects of sustainability. However, the cumulative impact of large numbers of poor developments may be considerable. Such impacts may include growth in greenhouse gas emissions and the UHI effect, as well as local level impacts on neighbouring properties. For example a development that overshadows a neighbour could adversely affect building energy consumption.⁹⁴

The proposals for code assessment in the White Paper do nothing to address these shortcomings. In its discussion of the content of the new codes, the White Paper focuses primarily on ensuring that these are developed so as to minimise the potential for impacts on neighbouring properties.⁹⁵ The *Planning Bill* does little to structure the content of development guides, particularly to ensure that these prioritise (or even consider) sustainability or climate change. The White Paper suggests that economic concerns will be the primary consideration, proposing to develop an Urban Feasibility Model against which codes will be tested.⁹⁶ No equivalent testing is proposed for social or environmental issues, much less for climate change. Similarly, in its proposals for monitoring, the White Paper emphasises the number and speed of approvals rather than indicators of environmental or social sustainability.

⁸⁸ *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* (NSW) cls 2.6, 2.30B.

⁸⁹ *Ibid* cl 2.46B.

⁹⁰ *Ibid* cl 2.25.

⁹¹ *Ibid* cls 2.28, 2.42D, 2.56.

⁹² *Ibid* cls 3.13-25.

⁹³ *Ibid* cl 2.52.

⁹⁴ Xiaoshan L Yang et al, 'Evaluation of a Microclimate Model for Predicting the Thermal Behavior of Different Ground Surfaces' (2013) 60 *Building and Environment* 93.

⁹⁵ Government of NSW, *New Planning System for NSW – White Paper*, above n1, 125, 127, 129.

⁹⁶ *Ibid* 99.

The White Paper provides an indicative list of the types of development that could be provided for in the new codes, but gives no details regarding the types of specifications that would be provided for these. It is imperative that comprehensive specifications are provided, and that these consider the full range of factors relevant to urban sustainability and the relationships between them.

Given the potential for minor developments to have significant cumulative impacts, any codes must be designed to ensure high standards in exempt development. For example, hard landscaping should be exempt only in cases where it is balanced with appropriate provision of permeable and green surfaces to facilitate water run-off and temperature moderation. Air-conditioning should be exempt only in cases where it is accompanied by insulation, natural ventilation and energy efficiency measures. Ideally, good passive solar design and on-site renewable energy generation should also be required. Replacing an old bathroom should be exempt only in cases where its location is consistent with good passive performance (that is, it does not block northern light to living areas). In other cases, merits assessment should be required to ensure that more sustainable development options are considered and adopted wherever feasible.

For complying development, the risks of poor standards are significantly higher. The White Paper suggests that codes could include: new houses up to two storeys; residential alterations and additions, including a new first floor, new structures around the house, internal renovations; granny flats; industrial buildings up to 20,000 square metres; and alterations and additions to commercial buildings. The potential for such developments to impact on urban sustainability, climate change and the urban heat island is clearly significant.

Any codes allowing such development must be designed to reduce impacts of urbanisation on the local climate and to mitigate impacts of global climate change. Given the significant potential benefits offered by simple greening strategies, codes must ensure enhanced green cover. This should be required at street level, and where applicable affixed to buildings, to moderate temperatures both in and outside of buildings. Materials can have very significant impacts for sustainability, and codes should be designed to ensure that appropriate materials are used at all times. Embodied energy and the life-cycle of the development needs to be considered to reduce energy use, waste, and pollutants, including both greenhouse and ambient air pollutant emissions. Thermal mass, window location and window shading need to be located and oriented for maximum solar benefit, reducing energy requirements for both summer cooling and winter heating. Building materials with a high albedo (reflectivity) should be encouraged to reduce building energy use/consumption of fossil fuels and to improve overall building efficiency. Codes should discourage the use of energy-intensive equipment such as air-conditioning, and must ensure that there are strict requirements for energy efficiency measures where these are installed. For example, insulation and natural ventilation should be required on buildings where

air-conditioning is to be installed. There should be strong incentives for sustainable energy sources such as photovoltaic installations and solar hot water systems.

Codes can also play an important role in improving sustainability through good urban design. Codes should ensure that pervious surfaces are retained to minimise water run-off and moderate temperatures. There needs to be an awareness and utilisation of local airflow to moderate temperatures. Neighbouring properties have to be considered to reduce negative impacts due to factors like overshadowing, run-off, waste heat emissions and impeding airflow. Codes should also foster sustainable transport by limiting parking requirements in accessible areas.

In addition to more comprehensive specifications, there needs to be comprehensive monitoring of development against sustainability indicators. This should include monitoring of individual building energy consumption, water run-off and water quality from neighbourhoods. There is a specific need for the monitoring of possible UHI impacts in residential neighbourhoods. Bureau of Meteorology meteorological sites follow World Meteorological Organization guidelines⁹⁷ for the siting of weather stations and are located in open areas away from obstructions such as buildings and trees, they do not measure conditions within the most urbanised areas of the city and are not representative of the conditions that most affect residential thermal comfort⁹⁸ and building energy consumption.

The results of such monitoring should be made public, and should feed into strategic planning and particularly development codes. Where the results of monitoring fall below certain standards, this should be a trigger for immediate review of relevant strategic plans and development codes. Conversely, in areas with good sustainability outcomes, efforts should be made to identify elements which could be used to improve developments in other parts of the state.

Supplemental investigations using climate models should also be considered. The implementation of climate modelling allows assessment of cumulative impacts to climate at both the neighbourhood and regional scale. Climate simulations in urban areas also allow for impacts of different development scenarios, and mitigation and adaptation schemes, to be assessed predevelopment. Planning decisions should also be made with an appreciation of

⁹⁷ World Meteorological Organization, '*WMO guide to meteorological instruments and methods of observation*' (2008) 608.

⁹⁸ Leong W Siu and Melissa A Hart, 'Quantifying urban heat island intensity in Hong Kong SAR, China' (2013) 185 *Environmental Monitoring and Assessment* 4383.

projected future climatic conditions in NSW by including consideration of projected future climatic conditions developed from the NARCLiM project.⁹⁹

V CONCLUSION

As was the case for its predecessor, the development of the new planning legislation is being informed by a recognition of the importance of environmental sustainability. However, the *Planning Bill* is less like the *EP&A Act* in the priority it gives to sustainability. The focus today is much more clearly on short-term economic concerns: elements within the processes proposed for both strategic planning and development assessment that could foster sustainability are overshadowed by efforts to encourage development. This is especially clear in the proposal for code assessment. In its emphasis on facilitating rapid approval, the White Paper suggests that the primary role for code assessment will be to minimise impacts on neighbours. The potential for significant cumulative impacts from a large number of relatively minor developments is essentially ignored; the proposals for code assessment do little to foster sustainability in the design of buildings or urban areas, and continue to treat planning as a process that is primarily two-dimensional.

The superficial approach to sustainability is particularly problematic with respect to climate change. Despite the overwhelming scientific consensus on the need to take action, and the widespread recognition of the crucial role of planning laws as a key governance mechanism to achieve this, the reform proposals make almost no mention of either mitigation or adaptation to climate change. In NSW, where the population is both highly urbanised and highly concentrated — exceptionally so, even by global standards — this is a significant shortcoming. A failure to incorporate climate considerations into urban planning will have significant economic, environmental, health and amenity impacts, and these will be felt right across NSW, from large cities like Sydney to much smaller regional centres.

As the survey of urban climatology in Part II has shown, there is much that can be done through urban planning to reduce greenhouse gas emissions and urbanisation impacts on climate, and to adapt to the effects of climate change and urban heat island effects. There is a need to prioritise the gathering and analysis of climatic information at all stages of planning. This is imperative at all scales, not only for high level strategic planning and the assessment of major projects where climate impacts may be relatively direct. Even minor developments may have significant cumulative impacts, particularly on energy consumption and the

⁹⁹ Climate Change Research Centre University of New South Wales, *NARCLiM- NSW/ACT Regional Climate Modelling* (31 July 2012) NSW/ACT Regional Climate Modelling Project <<http://www.ccr.unsw.edu.au/NARCLiM/>>.

urban heat island, and the planning framework must ensure that both adaptation and mitigation are considered at this level. Related to this, there is a need to prioritise the application of ESD to ensure that benefits are maximised by integrating climate change considerations with sustainability more generally.

With planning laws widely recognised as a key governance mechanism for both mitigating and adapting to climate change, the degree to which the planning reforms address climate change at all scales will be a key indicator of the success of the new system. As the planning reforms progress, it is imperative that greater attention be given to planning for climate change and the sustainability of future urban development in NSW.