



MSSI ISSUES PAPERS SERIES – PAPER NO 1 – AUGUST 2013

# Melbourne Sustainability

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MELBOURNE SUSTAINABLE  
SOCIETY INSTITUTE



## Melbourne Sustainability

Issues Paper No. 1 August 2013

### About MSSI Issues Papers

MSSI strives to inform and stimulate public conversation about key sustainability questions facing our society. MSSI Issues Papers provide information and trigger discussion about these issues. Each paper encapsulates the insights of a thinker or practitioner in sustainability. Although material is often closely informed by peer-reviewed academic research, the papers themselves are presented in a clear, discursive style that appeals to a broad readership. Through this series, MSSI is committed to engaging with communities and fostering deeper debate and wider consultation on sustainability issues that matter.

### Acknowledgements

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# Prologue

This paper has a simple purpose that is nonetheless ambitious in its intent. It is simple because it attempts to address an obvious and important problem. It is ambitious because it is founded on a belief that we can and must develop a new way of thinking about where we are, where we might like to be and how we can get there. In the process it will likely prove that self-interest, while typifying social attitudes in Australia's past, provides little guidance for coping with its future.

People will need to be convinced that their own interests may be better served by taking into account the bigger picture. As a critical friend of the Melbourne Sustainable Society Institute, I offer this paper as a contribution to a debate about Melbourne's future but, more importantly, about the future of urban life in a situation where the capacities of the ecosystems on which we depend now challenges the validity of the trajectory we have hitherto pursued.

# Introduction

The Oxford Dictionary defines *sustainable* as an adjective meaning:

- i) able to be maintained at a certain rate or level: sustainable economic growth
- ii) conserving an ecological balance by avoiding depletion of natural resources: our fundamental commitment to sustainable development
- iii) able to be upheld or defended.

In 1987 the Brundtland Commission of the United Nations defined: 'sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' (WCED 1987).

The articulation of the concept of sustainability occurred at a time when there was increasing concern over the stresses being observed in different areas of the natural environment from economic and social behaviour and recognition that there was a need for a collective response to manage and/or reduce those stresses to avoid irreversible damage.

The word 'sustainability' however is complex and is freighted with a number of meanings. It has been used in a large number of pieces of legislation but has little apparent practical purchase in the way

public affairs are conducted. It appears to mean whatever the speaker/listener wants it to mean and is therefore in danger of being disregarded.

Paradoxically, *sustainability* is a word that should be understood as going to the heart of the survival of the human race or at least to the urban mode of living pursued in Australia. Initiatives to give effect to the concept of sustainability in public policy are often described as being directed to *mitigation* or to *adaptation*, terms of art defined by the Oxford dictionary as:

i) *mitigation*: the action of reducing the severity, seriousness, or painfulness of something.

ii) *adaptation*: the action or process of adapting or being adapted (biology); the process or change by which an organism or species becomes better suited to its environment.

Like 'sustainability' both 'mitigation' and 'adaptation' are in danger of becoming 'cheat words' of politics. They are often used in public debates to convey the impression of action, but neither usually implies a fundamental challenge to the actions and processes that created the stresses on the environment identified as the subject for mitigation or adaptation, or those most critical to sustainable processes.

## Wicked problems for virtual institutes

The creation in 2008 of the Melbourne Sustainable Society Institute (MSSI), as one of six Melbourne Research Institutes (MRIs) at the University of Melbourne, was an imaginative initiative to invest the word sustainability with meaning and see that it was reflected in the work of the University. MSSI, being the only Institute centrally concerned with social sustainability and the viability of society, could be seen to provide an integrative function for the work of the various scholars at the University of Melbourne working on sustainability. In this the term 'sustainable' does not and should not admit to degrees of sustainability. It describes a necessary equilibrium point that must be reached to secure the future of human society not only to enhance the present but to protect the future from the present. A practice is either environmentally sustainable or it is not. Focusing on sustainability of the environment is a transformative project to transform our society, how we behave and who we are.

In foregrounding society, MSSI can be seen as having a uniquely inclusive remit and so could provide national leadership in the field. It was explicitly given a mandate grounded in the social sciences thus providing a strong basis for linking ecological and social justice objectives. This emerged out of an understanding that without changes to social values, social institutions and the behavior of individuals and groups there was little prospect of the changes necessary to secure the future of growth and development in accord with the capacities of the ecosystems on which society depends.

Each of the MRIs at the University can and do bring together scholars from different disciplines to form 'new teams to tackle big, complex, and often wicked problems'.

The originators of the term 'wicked problems', Rittel and Webber (1973), listed 'ten distinguishing properties of planning type problems':

1. There is no definitive formulation of a wicked problem.
2. Wicked problems have no stopping rule.
3. Solutions to wicked problems are not true-or-false, but good-or-bad.
4. There is no immediate and no ultimate test of a solution to a wicked problem.
5. Every solution to a wicked problem is a one-shot operation.
6. Wicked problems do not have an enumerable set of potential solutions.
7. Every wicked problem is essentially unique.
8. Every wicked problem can be considered to be a symptom of another problem.
9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways.
10. The planner has no right to be wrong.

The listing of the properties of wicked problems might be seen as a counsel of despair. It certainly creates the impression that planning is impossible or, according to Wildavsky (1973), 'maybe [planning] is nothing'. It certainly is difficult. But the point is that planning must by its nature be integrative. It must also in some way be pragmatic in defining the challenge that must be met. We can accept that, in the short term, such a conclusion is correct. The challenge, however, is to try to develop the knowledge base and the community's understanding of the consequences of its behaviour to develop a more optimistic approach to the resolution of difficult, complex problems.



While it is acknowledged that many of the problems being faced by modern Melbourne are wicked problems, is enough energy being applied to define exactly what such problems are? In using the term, MSSI was emphasising that wicked problems were at least partly problems of planning. That is, the problems identified were seen to arise out of the pursuit of economic and social objectives and behaviour in many areas of life by agencies that assumed no directive, regulative or critical role in Melbourne. There seems to be recognition by the MRIs that more effective understanding of the concepts or techniques of planning could beneficially affect the sustainability of society. While the research activities and programs of the other MRIs are of high quality and may be seen as contributing to the general well-being of society, they do not normally give high priority to multidisciplinary research on sustainability itself.

MSSI was created on the assumption that the notion of sustainability is more than a rhetorical flourish and differs from the definition used by the *National Sustainability Council* which takes as its starting point that 'Sustainability requires that future generations are able to enjoy at least the same levels of well-being as we do today.' This implicitly poses a serious problem for MSSI – not only because it requires a metric of well-being but also because it appears to assume that the present level of consumption *is*, in fact, somehow sustainable. It seems to assume that the answer to the research question: Is our present form and level of consumption sustainable? is in the affirmative. It assumes what needs to be proved. There seems to be an implicit assumption in contemporary debates that the present size, form and structure of our cities is basically sound, requiring only small changes to make them sustainable. The impression created is a comforting one implying that it needs only some minor changes to the aesthetics of urban design and then all will be right.

The challenge for MSSI may be seen to have two separate, but connected, elements: the challenge implicit in the notion of interdisciplinary research and the challenge to the consequences on sustainability of the pursuit of the current dominant paradigm of our society's organisation and of its economic and social behaviours.

### Interdisciplinarity in the midst of disciplines

The creation of new interdisciplinary research teams across the range of the University's interests is a laudable ambition. The intention in the creation of MSSI was amply rewarded under the leadership first of Professor Ruth Fincher (2008-2009) and then of Professor Craig Pearson (2009-2012), both of whom worked to give meaning to the broad domain of sustainability within those assumptions. MSSI was also conceived and enjoined to focus on a remit larger than the confines of scholarship and inquiry within the University by embarking on a project to inform, educate and help change the society within which it operates.

In this the University was venturing beyond the traditional confines and limited roles of an Australian university. While the MRIs were conceived as separate entities with no explicit instruction to engage with one another, they nonetheless do interact and sometimes collaborate. So the University acknowledges the 'wicked problems' problem and has created the intellectual climate needed to address it. This challenge of integration is the one that now needs attention.

The idea that any research program on the notion of sustainability must be multi-disciplinary was central to the ambitions of the University in creating MSSI. To change the mind set of those charged with the responsibility of achieving those ambitions the researchers must be engaged with one another on a daily basis. It is important to

identify a series (small in number) of projects each designed to focus on one aspect of sustainability while being aware of its general breadth and complexity. The need for continuous or daily interaction on projects is recognition that the benefits of exposure to different disciplinary frameworks in approaching a problem is more likely to produce considered advice on policy questions. Such exposure, usually on an informal basis, is more productive than if their labours are pursued with each researcher remaining in the comfortable cocoon of their home discipline, never troubled by the need to be engaged in the process of identifying priorities for public policies designed to make the society more sustainable.

This is not to ignore or dismiss the specialist knowledge developed within the disciplinary silos reflected in the activities of each of the different disciplines. It is recognition that to retain the specialised knowledge in the consideration or formulation of public policy, scientists and social scientists engaged in trying to address sustainability might need to find ways of accommodating different views in articulating programs to reduce unsustainable activities.

In the process they could be expected to develop the weighting to be applied to the different areas of knowledge to formulate balanced policies and programs. We must also work with the assumption that this weighting will change as our knowledge (experience) develops. That is, we have to work on the assumption that we work in a dynamic or changing world.

MSSI should continue to develop and support a carefully selected set of multidisciplinary projects designed to increase 'sustainability and societal resilience'. This must overcome the difficulties that multi-disciplinary research experiences in an academic environment (both within the University and in national agencies such as the Australian Research Council) in which rewards, recognition and legitimacy, as well as authority, are strongly determined by the disciplinary silos with which most academics are identified.

MSSI must pursue its interdisciplinary purpose even though it might, at times and on some issues, be in an uncomfortable position. It will have to expect that the role of being the burr under the academic saddle or that of an agent of social change carry with them the risk of unpopularity.



*Tram heading to the University of Melbourne with the city behind*



## Interdisciplinary sustainability

MSSI must develop a research capability and strategy that is based on the larger more inclusive notion that sustainability goes to the heart of the question of the survivability of the human species. It would be a disservice to the intellectual community which is the University of Melbourne and its role in the local community, and indeed to the nation, if MSSI had a smaller ambition.

The challenge to MSSI is to explore the way in which the total research effort might lead to a general improvement in the sustainability of society. The creation of MSSI was to ask the question: Is the sum of the research effort of the separate clusters within the University greater in its impact on sustainability than the efforts of their individual researchers and teams?

Given that there is a limit to the resources the community has available to pursue issues of the common good the question is: How do we design a research agenda to produce the greatest effect on our society to make it more sustainable? How do we organise the allocation of resources to illuminate these problems? This is a dilemma that has plagued all those who attempt to shape or plan a course of action to improve the common good.

The creation of the MRIs may well have led to better and more interdisciplinary research and outcomes but, like the outcome of the French Revolution as considered by Chinese leader Zhou Enlai, it is too early to tell whether that has been the case in the pursuit of sustainability.

What is clear is that the notion of sustainability, meaning the ability of the natural systems to sustain a population of humans, deserves a degree of primacy in setting the research agenda. Unless we can secure the future of human society within the limits of the complex suite of natural systems all other concerns are irrelevant.

This does not mean that the research into individual aspects of personal or collective consumption is not important. It does, however, imply that there is a need to establish a research

and education program that identifies priorities in the production of knowledge in the different domains of Australian society and in the development of strategies to increase the probability of community adoption of policies and behaviour to produce a more sustainable outcome. We need better ways of articulating the problems to be addressed: the issue is not one of research capacity but clear articulation of the questions to be researched. We cannot simply assume that improved performance in a domain necessarily translates into greater degree of sustainability of the society as a whole.

## Visions for sustainability

In 2013, MSSI is now at a crucial stage in its development. Its activities to date have provided useful exploratory studies covering ten themes and domains that must be seen as an early exploration of the territory.

The *2020 Vision for a Sustainable Society* book, published by MSSI in 2012, provides a useful review of the state of understanding of the drivers of consumption and begins the identification within each domain of priorities that might be pursued usefully in them to begin the process of making them more sustainable.

It will not be productive to try to respond seriatim to each of the perspectives raised and associated with Twenty Actions by 2020 in the *2020 Vision for a Sustainable Society* book. That summary provides a general shopping list that is commendable but now needs to be translated into a firm research and policy agenda to make advances in achieving a sustainable society. In spite of the features of wicked problems identified by Rittel and Webber (1973) it is important to begin the process of adumbrating what a research program into sustainability problems would look like.

Part of the difficulty in responding to the 2020 Vision list is that there is no priority assigned as to which initiative is more important in the pursuit of overall sustainability. We may believe, for example, that it is socially more desirable to ensure that citizens share the community's resources more

equitably. But little advice is available to determine how we might achieve such an outcome harmoniously, nor are we advised as to how achieving a fairer consumption level will increase the sustainability of our society.

MSSI has established itself as a centre of learning and policy advice but needs to take the next step by consolidating and sharpening its focus. That step, under a new Director, would be to invest the word sustainability with a contemporary meaning related to the impact of our activities, as a community, on the daily activities and approaches adopted in both the social and economic realm. It must move to change the language used in exploring and discussing environmental issues and in evaluating the ways those social and economic activities affect the environment and society at large.

We must still ask whether Australia is a just society. By some accounts it clearly is not.

Equally importantly we are required to ask ourselves whether it is sustainable. That is, whether the present level and kinds of consumption can be sustained without crippling effects on the natural systems that constitute the nation. It seems clear that at present levels of consumption it is not. The question then is transformed to be: 'How can we make it more sustainable yet more just?' This a far harder question to answer because there is a wide disparity between individuals and groups in Australian society in the nature and their levels of consumption. Coming to terms with the total level of consumption is something on which we can expect a high degree of agreement but when we ask about its distribution we raise questions that for some considerable time the answers have been strongly disputed.

The cleavages in our society are grounded in just such contentions. Those that 'have' have not generally been readily open to the view that the community pie should be equitably shared. Often the first response has been to argue that we must increase the size of the pie implying that it will thus be easier for those who have little to then have more. This has generally underpinned the argument supporting growth that itself is a large component

of the pressure on the various ecosystems making them unsustainable. The proponents of growth have for the most part not supported arguments for a fairer or more equitable distribution or access to the good things of contemporary life. Indeed, they may generally be described as being un-attracted to a more equitable society and have always argued for and constructed policies to deliver differential rewards for the contribution of individuals to society. We could be excused for concluding that for some the very notion of growth depends on differential rewards from our economic system.

Translating this to a possible response of MSSI would mean identifying the causes of inequality and its effect on the sustainability of Australian society and producing the arguments, and possibly advice on programs designed to reduce it. The point being that it is important to carry out the research to see if it is possible to produce a more equitable society that also reduces the total stress on the various ecosystems while making society more sustainable. The social science base of MSSI's remit provides an appropriate opportunity for it to collaborate with the new Melbourne Social Equity Institute and the new Melbourne School of Government to research the issues and fashion appropriate policy and advice on governance to enable the broader society to pursue the objective of sustainability.

A problem confronting MSSI in sketching a research and development strategy is that the territory has been partly gridlined by the twin issues of adaptation and mitigation. In adopting such language those who focus on adaptation are implicitly arguing that it is possible for human societies to change so that they are not troubled by changes to the environment. The debate based on adaptation, for example, has not established limits on the extent to which human societies can operate in environments that are hotter and/or have atmospheres that have higher levels of CO<sub>2</sub> than is currently experienced. Some part of the focus on adaptation has explored issues such as rising sea levels and the consequential need to protect specific settlements but does not appear to have given much emphasis to the processes that led to the rising sea levels in the first place. That is

adaptation may itself be a misleading gesture.

The second term, mitigation, may also be misleading. At its best it simply implies putting off the fateful day when the stark reality of the way our behaviour creates unsustainable stresses on the environment. It is most often used as a way of temporising in political debates over alternative courses of action to reduce or eliminate behaviour that is environmentally destructive.

Although adaptation and mitigation are often presented as alternatives to fundamental reviews of social behaviour the reality is that they are not. In both cases the language can be used to obfuscate and to avoid exploration of crucial issues such as equity, or of the way conceptions of property rights might need to be reviewed. So the first step towards formulating a vision of sustainability might be to try to reach agreement on the primary forces that most prejudice the sustainability of society.

### Fixing the vision

MSSI does not have sufficient resources to mount, on its own, all of the research topics listed in the 2020 Vision, certainly not immediately. It is important, however, to begin the process of developing such a research program. MSSI must develop a program that, over a reasonable period, would see progress toward creating a sustainable society.

Each project in such a program should be designed coordinate multidisciplinary staff from and in collaboration with the various MRIs or elsewhere in the University, as well as employ some research staff to be housed at MSSI. Each project would have a defined life of not more than four years and include doctoral candidates and/or post-doctoral fellows.

MSSI would become the neutral agency to bring the considerable sources of knowledge and abilities of the University to bear on exploring what we might think of as the meta question of sustainability, namely, 'sustainability and societal resilience'. We should note here that the current

forecast of likely 2C degree higher temperatures in the near future introduces a sense of urgency in the need for research into how we might best work to slow down or reverse this trend. It also means that a degree of urgency is imported into measures to encourage Australian society to adapt to the prospect of such climate change.

The challenge faced by MSSI is to explore the extent to which the dominant paradigm of a neo-liberal approach to questions of growth and to exploitation of natural resources is a primary cause of the stresses now experienced in our ecosystems. This would mean exploring the notions of economic growth and how the attribution of rights in real property affect the sustainability of society.

As Australia is and has long been an urban society there is thus an urgent need to design a research program to:

- explore the prospects of cessation or mitigation of processes that tend to increase temperatures in the urban areas
- implement adaptation of urban areas better to manage the stresses such temperature increases imply
- explore the prospects of significant reduction in the production of CO<sub>2</sub> as a consequence of the manner in which urban areas operate.

This might lead to a conclusion that there is a need to reduce the scale of urban areas, as well as necessary changes to their structure and form, to make them more sustainable.

One serious impediment to the development of initiatives to address issues of sustainability is the tendency to rely on physical or technological solutions. In many cases the initiatives are limited by path dependencies, cultural, administrative and/or technological, that exist in many of the agencies that provide the services the excessive use of which generates stresses on the environment. We see this in the agencies that provide water services for example in which adherence to inherited

technological approaches to the provision of water services leads to searches for increases in supply. These include the investment in desalination plants or membrane technology to produce potable water from sewage rather than exploration of the behavioural changes that could reduce the demand for and consumption of potable water.

It is also evident in investment in transport services where particular technologies enjoy dominance in the determination of how demand for urban services might best be met. How else can we understand the primacy accorded the accommodation or fostering of the private motor car compared with the development of public transport?

Initiatives to transform urban areas by increasing their density in the hope that doing so will reduce environmental stresses are primitive and not evidence-based. They owe their perceived potency to cultural path dependencies created by critical planning agencies.

The highly centralised structures of many administrative institutions, public and private, also tend to foster and accentuate the inefficiencies that result from highly centralised urban centres. All these processes and institutional arrangements tend to compound the challenges to the environment. They all raise major public policy questions and may contribute to processes of institutional redesign to develop structures more appropriate to the management of sustainability.



Students on the University of Melbourne's Parkville campus

## Government for sustainability

The creation of the Melbourne School of Government and its public policy research agenda provides opportunities for MSSI to develop a program to ensure that space and location as well as behavioural dimensions are integral elements to the policy responses directed at sustainability issues.

MSSI would provide a home base for a suite of collaborative projects. There is no magic size for each project but it is assumed that after two years there might be as many as four projects at any one time each of with a core group of four to five scholars drawn from the different disciplines that constitute the University. Each group would be expected to maintain good working relations with other MRIs and other parts of the University. There is also no magic period over which balanced multi-disciplinary research and policy advice might be developed. Projects generally would be expected to have a life of two to four years.

It will not be sufficient for MSSI to sponsor research projects without being prepared to essay a response to the *So What?* question. That is, it is important to acknowledge that part of the function of MSSI is, in addition to stimulating and supporting research into major questions, to accept as part of its role an educational function. It would need to pursue such a purpose on campus. That is, part of the educational outcomes of projects should be designed to transform the various MRIs and other elements of the University of Melbourne so that they developed sensitivity to the need to think outside the square and ensure that their own work is daring and multidisciplinary in its character.

Probably more importantly, the projects should be designed to develop a conversation with and understanding of and by the larger community. That is, part of each project's resources would be focused on producing advice, including draft policy advice, on how the results of research into sustainability might be important in framing new approaches to the sustainability of environments that might include regulations or legislation to affect change.



Each project would mount a regular series of seminars exploring the issues on which they focus. Attendance at the seminars would be drawn from the general academic community but also from officers of government agencies, citizens and the private sector, as part of MSSl's outreach mission.

It is not the purpose of this paper to propose a list of projects: that must come out of discussions within MSSl and the University, as well as discussions in the community. This paper indicates, through a selection of possible projects, how MSSl should participate in a discussion designed to energise the process of identifying the research priorities to inform the selection of specific research and policy questions focussing on sustainability.

The following discussion is *one* view of the ways in which several preliminary research questions might be identified and form part of an evolving program of research to incrementally provide public advice on the actions that might be needed to improve the sustainability of Australian society. Other views may come into focus as we proceed.

It is important at the outset to acknowledge that the research strategy should be constructed on the assumption that it is an iterative process. That is, it should be acknowledged that it is unlikely that any solution proposed would be the last word on the issue but that it might need to be revisited in the light of new knowledge or understandings of the preparedness of society to act on proposed ameliorative programs.

There appears to be general agreement among scientists that we are reaching levels of CO<sub>2</sub> in the atmosphere and temperatures that prejudice our survival. But short of this, as an urban nation, there is a need to explore how we should adapt to the challenges of mitigation and adaptation to make society more sustainable.

This then introduces a degree of urgency and suggests that it should be the initial focus of MSSl and that it should be seen avowedly as an exploration of our urban futures.

## Directions for urban futures

The following possible projects should be seen as being illustrative of the kinds of projects MSSl might support as a way of giving meaning and focus to the need to explore our urban futures because of the centrality of them in both minimising the stresses we collectively create on the environment and on adapting to the processes of climate change. The overriding task then is to embark on a program to understand the processes we are engaged in that operate in urban areas.

1. We need to give attention to those activities that stress the environment in order to learn how we can reduce them.

2. We need to do so while simultaneously trying to understand how we might, in some areas of social behaviour, learn how to adapt to them.

In taking this approach we must take the community into our confidence not only to see it instrumentally but to learn from it and better understand the options open to us for remedial change.

The larger objective may be to minimise stresses on the environment by changing our behaviour to make it more sustainable while recognising that in some circumstances adapting to it may provide an acceptable, albeit short term, alternative strategy.

## Project 1: Energy production/consumption and the generation of CO<sub>2</sub>

A research project should be framed to explore how the level of CO<sub>2</sub> production in the city could be reduced. This would identify the processes that now lead to CO<sub>2</sub> production resulting from the development and operation of the city and how it could be reduced. Some part of this might explore how society could be expected to operate with lower levels of energy consumption or of ways of transforming the modes of energy production and transmission to those producing less CO<sub>2</sub>. This would include exploring the distributional, behavioural social justice aspects of consumption.



Such a project would not involve MSSl necessarily in recruiting researchers engaged in energy production or transmission but it would involve the recruitment to the project of one or other experts in energy production and usage such as may be found in the Melbourne Energy Institute to work in collaboration with others with expertise in energy consumption behaviour, communication and policy design. The objective would be to produce a policy focussing on the production and use of energy in the city, including a program to phase out those forms of energy the production and consumption of which leads to high levels of CO<sub>2</sub> discharged to the atmosphere.

Another possible early focus for MSSl would be to explore the notion of growth, how it might be measured and how focus on current growth strategies affect sustainability.

### Project 2: Growth and sustainability

A second project might focus on the extent to which different types of growth generation lead to forces that reduce the sustainability of society. It might focus, with the Melbourne Social Equity Institute, on the distributional aspects or outcomes of different modes of growth of and their propensity to affect the natural processes that secure the stability of the earth systems. A major element of this project would focus on the different forms of growth that occur in our cities and their effect on the production of CO<sub>2</sub>. We know that the higher density forms of city growth currently fostered by city administrations have higher per capita energy consumption and that they tend to have higher per capita water consumption suggesting that governments might do well to review their urban growth and development strategies.

### Project 3: Urban water

Nationally we have a large number of projects focussing on water, many of which are centred on the University of Melbourne, but all of them seem to be constrained in their approach due to a path dependency created by the water agencies and by the engineering models that dominate their

consideration. The change in the ways in which urban water services were provided and financed in the last quarter of the 20<sup>th</sup> century not only led to the harvesting of water from distant ecosystems for transport to the urban centres where it was consumed but also introduced a market liberalisation that led to increases in environmental stresses in the ecosystems from which water was extracted and in those into which waste water was discharged.

This project might focus on a collaborative approach to the urban water cycle exploring how it has changed and how much of the change is due to climate change. The impact of different modes of production and consumption on demand for potable water in the city and the management of consequential streams of waterborne waste deserves attention. This might extend to exploring the problems of increasing acidity of near oceans into which water flows are discharged from the city. The fact that waste streams are also now being injected, following different levels of treatment, into aquifers from which water is later extracted for human consumption raises significant ethical issues. The practice also raises issues of sustainability given that the epidemiological consequences of subjecting urban populations to sustained exposure from chemical compounds and nanoparticles now found in sewage also deserves attention. Such a project would include exploration of the distributional, behavioural social justice aspects of production and consumption.

### The grand challenge of sustainability

A significant element of the creation of MSSl and is reflected in the grand challenges that the University of Melbourne has identified and accepted is the imaginative interpretation of the role of the University and of its role in society. Without reducing its commitment to scholarship of the highest order the University has recognised that it should play a more direct role not only in producing knowledge about the society in which it operates but has also set out to help the society to better understand itself so that it may, from the force of argument and evidence, adopt policies designed to make it more sustainable, adaptable and more resilient.

There are clear risks to such endeavours. They could be captured, even corrupted, by special interest groups and the grand objectives of the University distorted to meet the short-term interests of such groups. The risk of damage to the University's reputation would be significant were it not for the fact that the University is able to establish the conditions for appropriate outreach programs and ensure that the University is alive to the potential threat by creating the appropriate framework within which such programs operate. While the risks are high the rewards to both the University and the society are potentially very high. One way of creating for itself the challenge and of benefiting from it is illustrated by the creation in the urban field of the *Carlton Connect Initiative*.

### Connecting researchers, industry, government and community

The University of Melbourne is a large, complex major cultural, educational and research organisation that enjoys a high reputation nationally and internationally. It earned its leading role by making the big decisions and providing leadership in scholarly matters and social policy over a long period. The recognition in the *2012 Research at Melbourne White Paper* of sustainability and societal resilience as one of the University's three *Grand Challenges* was an acknowledgement of the domestic importance of issues of climate change. It must also be seen as typical of the response the University has always had to major international challenges. Climate change is one of the more vexing current issues Australian and other societies must contemplate. It provides the impetus for the University's participation in the process of discovery, discussion and solution necessary for a successful response.

The University has embarked on an ambitious project to undertake research and to demonstrate on the ground, as it were, the relevance for the research to the real world. The Carlton Connect Initiative was designed as a key strategic response to the third Grand Challenge of sustainability so that academic research here is better focused on real world issues. More particularly, research needs to take into account the manner and mechanisms of translating findings to the public while also learning from the public's response. It is an

important large-scale experiment that will take some time to develop. But it is paramount to tackle sustainability challenges in this way if we, as a society, are to understand how the nature of our urban life impacts on the environment.

The initiative is therefore a nationally important demonstration project of the connections between our behaviour and its environmental outcomes. At its best it will teach researchers and the community how to formulate appropriate research questions and how to develop the consultative processes that the community will need to pursue to achieve acceptable changes in behaviour to reduce stresses on the environment. In short it will provide valuable lessons on the resilience of individuals and communities in how they can/must operate together to respond to climate change.

As the Initiative progresses, its success should be judged according to how the academic community has responded, how constructive the industry engagement has been, how the various levels and arms of government have risen to the challenge and how well the community has been engaged. At this early stage in its life not all the answers to these questions may be satisfactory but it is a key part of MSSl's role to be positive, open, constructive and to learn from each stage in the pursuit of the Initiative. It has made a good start.

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### About MSSI:

The Melbourne Sustainable Society Institute (MSSI) is an inter-disciplinary research institute that aims to progress sustainability as a societal goal. MSSI provides a portal to all sustainability-related research at the University of Melbourne and forms a platform for multi-disciplinary, multi-institutional research projects.