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Dear Professor Bradley,
I write in response to the Discussion paper arising from the Review of Australian Higher Education that you are leading.

We are faced with two major threats to our way of life, to the way we produce and consume, to the way we live, to the structure and form of our cities and, some would claim, to our very existence.

These threats come from two different but in many ways related processes.

The first and most fundamental is climate change and the second is the problem of peak oil.

Both of these issues and processes have profound implications for the higher education system in Australia.

Climate Change

In the case of climate change we are facing processes and situations that have not faced humankind before and for which we are ill prepared. Many of the lessons we have learned from our human history are simply irrelevant to the resolution of the challenges before us. In short we must develop new understandings, new paradigms to help us shape our response to climate change.

We can say that there are four aspects of climate change that we can identify and which allows us to marshal our resources systematically to understand the processes and to begin to shape critical responses to the phenomenon.

The four aspects are:

1. the drivers of climate change,
2. ways of reducing the pressures on drivers of climate change
3. the mitigation of the effects of climate change
4. adaptation to climate change.

In respect of the first aspect we can say that our understanding of the basic science that underlies the processes producing the change is rapidly improving although much remains to be done. That is, we cannot assume that our science is sufficiently advanced to allow us to relax our efforts to fully understand the complexities of the processes of change or the way human agency intensifies the drivers of those processes. It is clear that we must give high priority to the research into climate change.

In respect of the other aspects of climate change we enter territory where issues of individual and social attitudes and behaviour, economic activity, political processes and institutional arrangements are of increasing importance. Many of the models we use to construct arguments for policy initiatives to reduce the drivers of change, to mitigate the effect of change or to adapt to it are simply inappropriate or inadequate in dealing with the challenges that change raises. Although science and applied technology are important in considering these aspects we need approaches that draw on the political, social sciences and humanities to help us shape policies and programs to reduce the drivers of climate change, to shape mitigation of the effects of climate change and where necessary to adapt to it.

Peak Oil

It is widely accepted now that we have reached the point where petroleum resources are being rapidly depleted because the rate of discovery of new oil reserves is exceeded by the rate of consumption. In the long run this may be seen by some as a blessing because it will ultimately lead to reduction in one of the present major drivers of climate change.

This view, however, does not take into account the way the development and operation of the world economy has been based on readily available supplies of cheap easily transported petroleum. Reduced availability of oil products will directly affect production and distribution of our food supplies, the operation of industry, the lifestyle of our citizens and the operation, structure and form of our cities.

Although we have known of the phenomenon of 'peak oil' for some time we have collectively assumed that 'something will turn up' to enable us to continue with our present behaviour.

In both climate change and peak oil we have sufficient insight now to understand that we do not have the luxury of doing nothing unless we wish to be complicit in our own decline.

Climate change and peak oil raise many similar issues. They each affect the way we produce our food, develop our shelter, organise our industry, shape our personal and social life and activities and manage our civic affairs.

Our cities and regional centres will be the sites of the greatest attempts to reduce the drivers of climate change, to mitigate its effects and to adapt to these pressures, even as they must face other ongoing and profound changes such as in their demographic character and economic activity. They will also bear the brunt of the adaptations forced on them by massive increase in the cost of oil.

We need as a nation a concerted effort by our research community to develop the evidence base and to explore the new institutional and planning bases needed to make our cities and regions sustainable – environmentally, socially and economically.

This will take us into new territory. It will require our universities to develop new paradigms. It will require them to train new generations of researchers and future administrators. Importantly, it will require universities to foster multi-disciplinary research and to 'produce' people with a greater understanding of what we might call

an urban ecological approach to policy and program design and administration. It will require us to develop new ways of using existing data sets and it will require us to develop new data sets and to distil from them the knowledge we need better to understand and respond to the challenges we face .

Our universities are of a high quality and we can expect that they can rise to the challenges. They are, however, under huge stresses having been starved for the last decade or so and lack the resources to rapidly change direction or to increase their output.

The challenges of climate change and of 'peak oil' are so fundamental to whether our society and economy can adapt that we must take a new direction.

Taking the appropriate initiatives in this area will require a major commitment by the Commonwealth to provide the resources needed by the universities to reshape their teaching, training and research efforts.

Two major benefits would flow from such an initiative.

1. The first is that it would signal to the research community, State Governments and the cities and regional centres that the Government is serious about its intention to increase the national competency and capacity in these fields in reducing the drivers of climate change, mitigating its effects and adapting to it.
2. The second is that the Government could expect that the universities that currently support research in this field would continue to give it high priority. That is, it would encourage them to maintain and increase their research, teaching and training efforts in this area. The training and professional development needs in city and regional centre management are particularly important and will become more so in future. This becomes increasingly important because our adaptation to climate change and to peak oil will necessarily involve major changes to the form and structure of our cities and regional centres. Such changes will affect the nature and scale of infrastructure investment.

So far much of the discussion of climate change issues has focused on measures to reduce the production of greenhouse gases. While this is important it is even more important to prepare our cities and regions both to mitigate the effects of climate change and to adapt to cope with it.

This will require measures to change the behaviour of individuals and households. It will require government agencies and private corporations to change their behaviour as well. It will lead to changes in the way we build and operate our cities, the materials we use in their built form and the way we locate activities within the cities and regional centres as well as the way they connect with one another in the national urban system.

There are two major difficulties facing us is in adapting our education systems, including our universities, to these new challenges:

1. We have increasingly emphasised narrow considerations of productivity, growth, jobs and social inclusion in much of our public life (including in our teaching and research priorities) at the expense of the consideration of the

public realm, and with no acknowledgment of the resource constraints our society faces.

2. We are faced with the impact of path dependencies in our public and private investment, including in much of our infrastructure, that inhibit our consideration of new more apposite approaches to the delivery of various services (some of this is because of the concern over how we manage what might be seen as 'stranded assets' that might accompany alternative approaches to service delivery).

A more appropriate view might require approaches to retrofit existing areas to improve their energy efficiency and to make them more sustainable. It will require a new planning system that is at once more open, consultative and inclusive than the present systems.

While the science of climate change is well understood unfortunately, the evidence base to develop the policies and programs to adapt to it and to 'peak oil' is far less robust and the institutional arrangements that will be needed to give us the greatest chance of adaptation are even less clearly thought out.

So far much of the discussion of climate change issues has focused on measures to mitigate the production of greenhouse gases. While this is important it is even more important to prepare our cities and regions to adapt to cope with climate change.

This will require measures to change the behaviour of individuals and households. It will require government agencies and corporations to change their behaviour as well. It will lead to changes in the way we build and operate our cities, the materials we use in their built form and the way we locate the activities within the cities and regional centres as well as the way they connect with one another in the national urban system. It may require approaches to retrofit existing areas to improve their energy efficiency and to make them more sustainable.

All these aspects of our approach to climate change and peak oil challenges need to be buttressed by a better research effort than we are currently making to understand the behavioural, cultural, political, institutional and economic determinants of consumption – especially of energy and water but of all aspects of our society and economy that creates stresses in our ecosystems.

The climate change and peak oil challenges are of a magnitude and complexity that will require us to reform our systems of governance. As part of this, we will need public servants and private sector employees better educated and trained to understand and respond to these challenges within a reforming governance system.

The Review of Australian Higher Education Discussion paper of June 2008 is a discussion which is innocent of any serious consideration of the consequences for the higher education system of the way Australian society must change to mitigate and adapt to the process of climate change and in particular to the constraints on resources associated with those changes. In this respect the Discussion paper appears to miss an important opportunity to explore the consequences for the teaching, training and research functions of the higher education system that the challenges these changes present.

The present structures and financing arrangements inhibit the higher education sector in the development of innovative courses and programs to respond to the climate change challenges.

Because many of the climate change impacts are location specific and because the most efficacious responses are likely to be location and culture specific it is important to encourage greater cooperation between universities and State and local governments in the way they teach, train and conduct their research. Much of the information about individual and household behaviour and consumption is held at a local level and access to it may be facilitated by State and local governments. Many of the adaptation needs are location specific and will be mediated by local cultural factors. Higher education institutions will need to tailor their education and training as well as their research efforts to meet the needs of State and local communities if they are to be successful in contributing to the efforts to adapt to the climate challenges and to be seen as part of the solution rather than part of the problem.

The Commonwealth government can provide the framework for a national approach to the way in which we can overcome the shortages of people educated and trained to deal with problems arising from the mitigation and adaptation of climate change but the framework needs to be flexible enough for higher education institutions to respond to the challenges they face in the regions in which they are located.

No one discipline or area of professional training has a monopoly of knowledge or ideas in responding to climate change challenges. Most of the climate change challenges issues we will confront are multi-disciplinary in character and require a more nuanced response than we typically receive from the present vocational education and training programs offered by higher educational institutions. Such institutions should be encouraged to develop such wider approaches and they should be financially supported to do so. The present strong hold of disciplines over the teaching, training and research in their areas needs to be examined so that those pursuing multi-disciplinary approaches to teaching, training and research are not discourage and penalised. This is especially important in approaching problems of mitigation and adaptation to climate change. One practical way of exploring this issue would be to improve the movement of students between sectors in the higher education system.

The present ARC system of supporting research in Australia has some strengths but its influence in reshaping the priorities and the agenda is slow and at time sclerotic. The resources available to universities for them to sponsor research activity needs to be significantly increased – they are active in the areas most in need of support and the present cumbersome system of allocation is inefficient. In many cases promising students (and staff) simply do not pursue research ideas because of the high cost of making applications, the low probability of success, the low levels of funding and the long periods of uncertainty about whether funding will ‘come through’. This is not a productive environment and is made less attractive because of the pressure to find ‘industry partners’ for proposals. This latter point is especially important in areas or on issues where the public interest or concern over the public realm is the most important consideration. The present emphasis in the majority of research funding on

issues related to ‘productivity’ and investment opportunities does not necessarily lead to the most important research.

One of the ‘tragedies in the making’ that we are now witnessing comes from this myopic approach to the research needs and therefore agenda and allocation of research funding.

As I have argued above we must revive and restore our teaching, training and research to enable us to respond to the challenges of climate change and peak oil.

We are witnessing a major initiative by the Commonwealth to invest in ‘infrastructure’. This will lead to billions of dollars being invested in a variety of network services in our cities much of it driven by simple notions of increased efficiency or productivity. There is little evidence that the opportunity is being taken to explore the way this investment will enable us to mitigate or adapt to climate change or peak oil challenges. The research culture surrounding this initiative leads us into simple solutions. The engineering research behind the initiative is undoubtedly of the highest quality but it is not informed by understanding of the ways in which we must change to respond to new challenges. It is not informed by understanding of the ways in which we might make fewer demands on the ecosystems in which we live. We might understand the political and industrial imperatives that have led to this situation but it is highly likely that the approach being taken will lead to intensification of the problems we face and to an increase in climate change pressures. In an important sense this is as much an outcome of the present approach of our higher education institutions to teaching, training and research as to any other factors. A more critical environment in our higher education institutions might have led to more nuanced approaches to these issues. At the very least we could have expected that there would have been a debate about the proposed infrastructure investments that was more constructive than the applause it received for more of the same that has created many of the present problems.

Our higher education institutions, particularly our universities should not be pushed into pursuit of narrowly conceived objectives such as ‘productivity, growth, jobs and social inclusion’. Their teaching, training and research should not be seen as simply responding to the short term needs of perceived economic pressures. They clearly must have some concern for social issues of the day but they should be supported and expected to pursue issues that transcend them. They must be given the resources and independence to enable them to operate beyond the political imperatives of the moment.

I suggest that the universities in Australia need a new teaching, training, research and policy advice capability in relation to the sustainable development of cities and regions, located in the university system but capable of working with all relevant sectors.

The universities should be charged with the responsibility to conduct teaching, training and research into issues related to the sustainability of cities and regional centres including but not limited to:

1. national settlement policy,
2. social inclusion and community cohesion,

3. healthy and child friendly cities and regional centres,
4. the social and equity aspects of urban labour markets,
5. housing supply and affordability,
6. infrastructure provision and maintenance,
7. transport services and urban accessibility,
8. the governance of cities and regional centres,
9. the development of open, transparent and participatory planning, and
10. the development of accessible, nationally consistent data sets relating to the development and management of city and regional centres.

In this way the higher education sector would have a major role to play in conducting research into all aspects of life in city and regional centres. It would especially focus on the ways in which the form and structure of these centres, and the infrastructure services provided in them, will need to adapt to meet the challenges of climate change and peak oil.

The governing themes of research would be equity and sustainability but it should also explore issues of the vulnerability and resilience of communities in the cities and regional centres. Equity considerations will be of special importance in shaping policy advice in relation to both climate change and peak oil because the adaptations required will likely bear more heavily on the lower income groups in our society.

The universities would have a major responsibility for developing a national research capacity in this area. Developing such capability would also lead to improving the evidence base for policy related to the sustainable development of cities and regions.

The higher education sector would have the capacity to undertake or sponsor relevant training of Commonwealth, State and local government officials in developing and managing sustainable cities and regions, and to provide – on a cost recovery basis – similar training to the private sector.

Policy

Although the research would be developed independently of government its focus would be on research with policy relevance. That is, the research agenda would be developed independent of government but with a clear awareness of governance processes, ensuring that the policy priorities for cities and regional centres are taken fully into account. The research would be multi-disciplinary in its composition and in character.

The primary focus of these activities would be on Australian cities and regions although always with attention to those areas in which a comparative perspective is relevant to enhanced understanding of processes and policy options.

Such an approach to teaching, training and research could be managed by taking a networked approach embracing all universities with an interest in research in these core areas. Such a network would have a presence in each capital city. The network's nodes in Brisbane, Sydney, Canberra, Melbourne, Adelaide and Perth should be of approximately equal size with those focused on Hobart and Darwin sensibly smaller.

Not all nodes would develop expertise in all areas. Some may be expected to develop specialization reflecting their intellectual history and traditions. Others would develop a different profile depending on the interests, competencies, contributions and demands made by the scholars in them or the particular challenges facing that centre.

Each node would also develop a program for training early career researchers and for developing the capacities of administrators and planners in developing and managing programs directed at adapting cities and regional centres to meet challenges of climate change and peak oil. All research carried out would be subjected to the normal review processes under which academics operate.

An important aspect of this approach is that it would provide stimulus for cooperative approaches to teaching, training and research as well as sustaining a healthy competition between the universities.

Administration

The administration of each node would be the responsibility of one university in each city although all universities in each State or Territory would be encouraged to become members of the node in their respective State or Territory.

Each node would have its own advisory body, the membership of which would be chosen to represent the academic interests of the universities participating in it.

Budget

The research and training agenda in each node would have different characteristics. Much of the research would be undertaken by scholars in the participating universities 'buying' out their teaching commitments to undertake specific projects within the research agenda developed for their nodes.

One quarter of the funds available to each node would be set aside for early career researchers working on the research agenda for that node.

Funding

The Commonwealth would accept the responsibility for providing the base funding of such a network and seek support from the States and Territories to provide matching funding, proportional to the population in each State or Territory.

Each node could be expected to generate some income from programs in postgraduate education, or other forms of specialised training, that might be developed in areas relevant to, and appropriate for, each node

Yours faithfully

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8 August 2008