

Tropical Knowledge as a creative framework

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I am delighted to acknowledge the Larakia peoples as the traditional owners of this place where we are meeting. And this is more than just good manners – the Larakia and other Indigenous peoples in northern Australia are the only ones to have learnt to live here entirely by their tropical knowledge. Because if you look around you, or at yourselves, there is little that is not derived from temperate knowledge. The great thing about the indigenous people of the north is they lived by the tropical knowledge for thousands of years. We newcomers are going to have to learn a great deal if we are to persist here for that long.

Of course this begs the question of what is a definition of tropical knowledge – I have been asked often since I was appointed to this position just what tropical knowledge might be. In fact I do not want to define the discipline explicitly until I have talked more widely, and hope to get some ideas from this forum. However my provisional definition is that tropical knowledge is the knowledge needed to live sustainably in the tropics. This might seem vague, but it does at least place the concept in a temporal and utilitarian framework – it is knowledge that can be used, it is knowledge that aims to achieve change in the future and it is a definition of knowledge that suggests harmonisation between aspirations and capacity.

So how will tropical knowledge be used, particularly in relation to the creative tropical city? What ingredient can tropical knowledge add to life in Darwin that might improve its sustainability?

To answer I shall speak first of visions, and our capacity to realise them. We all have visions – whether a vision of tomorrow or a vision for some distant utopia, whether a vision for ourselves or a vision for a city or a state. Most private visions are necessarily myopic. To do more one has to join with others, either as a business or as part of the social economy. Bigger enterprises can develop more ambitious visions, but these benefit only enterprise partners. For the biggest visions we elect governments since that is the one enterprise in which we all, in our democracy, have a share. And if a government has a vision of which we collectively disapprove, we can replace that government with an alternative.

But that very democratic process is often accused of hampering the scope of government vision. Governments must always achieve short-term objectives to get re-elected. But, almost unwittingly, each government does also have visions of life 50 years or more into the future. And this vision of the Darwin, or the Northern Territory, of our children's children, is manifest in the decisions a government makes, or does not make, about the use of land and, almost more so, what is built on that land - each layer of planning and technology applied to a place fixes in concrete, by default, many decisions on the environment and social policy for a society not yet born. The railway, the gas terminal, Darwin's new waterfront are the skeleton of the million strong Darwin of a century hence just as the roads first planned half a century ago are immutable testament to a city in thrall to the internal combustion engine.

Nor is it just land planning decisions that imply a 50-year vision. Investments in education, health, and human capacity are effectively articulating a policy on the quality of local-born Territory society and leadership in 2050. Investments in conservation and natural resource management are making statements about the persistence of biodiversity or the quality of landscapes not just in 50 years but effectively forever.

In fact there is an inherent bias in the realisation of visions. Not only does infrastructure shape future societies but it can dominate investment. You want a train line, you invest large amounts for a few years, and there it is for 50. However if your vision is to have 95% proficiency in English in 50 years, we need to make sure enough is invested over the next 10 years, or even the three year life of a government, for the long-term vision to be realistic. And how much do we need to invest to maintain a vibrant Indigenous culture over the next half century. By enunciating visions across all sectors, it may be possible to compare different sectors on equal terms. While governments do their best to balance competing demands, only through a conscious process of quantifying the needs of different sectors can all visions become possibilities.

Bearing that in mind, I see an essential precursor to the application of tropical knowledge the articulation of a vision for Darwin, the Northern Territory, tropical Australia perhaps, by government and its agencies. I was excited to learn at lunch yesterday that the Top End Regional Organisation of Councils, TOPROC, have in fact prepared a plan for the next 25 years which does in fact deal with education, the environment and some the other more malleable fields of human endeavour for which there is no railroad to the future. I look forward to reading it. I also hope to examine documents and legislation and talk with society's leaders to identify just where they would like the entire tropical part of the Territory to be in 50 years time. With a vision in place it will be possible to apply tropical knowledge.

Which, to start with, will be as a filter. Some visions are simply unachievable. First resources may be limiting. For all our technological virtuosity we demonstrate a perilous hubris if we think our ingenuity will overcome all environmental restraints - that biodiesel will replace oil or nanotechnology will replace agriculture. I therefore believe our visions must be consistent with models of the stocks and flows of physical resources and a knowledge of their limitations. And, up here, it is particularly tropical knowledge that will shape these models – models derived from temperate analogues must be at best adjusted, and often rewritten, to fit tropical reality.

I hope such analyses will resolve what to me seem great puzzles. Federal Minister Warren Truss and others insist that industrial irrigation will move north from the blighted south. But historically large-scale intensive agriculture has failed time after time in Australia's tropical savannas. There are also policies, such as restrictions on tree clearing and impedance of flows of wild rivers in Queensland, designed specifically to prevent repetition of southern mistakes. So is it only lack of capital and market failure that has prevented the north being developed or am I blind to new technology that will overcome the limitations of previous attempts to develop? It is a question I hope a stocks and flows model would answer.

Nor should we think only of physical resource limitation. Resource-based industries require an understanding of intrinsic biological capacity – the size of the northern fishing fleet and the recreational fishing industry depends, in part, on the capacity of fish to breed. Commercial take of crocodiles or magpie geese will be predicated on understanding their fecundity in the wild. Fortunately this is an area where Territory research is world class, and very much tropically oriented.

The capacity to realise visions will also be limited by human capacity. While the north has a young population, so at least our workforce will not age as fast as the rest of the OECD, it is not very large. Some visions will undoubtedly require larger populations, or populations with greater skills, so will require investment to buy or grow that human capacity if those visions are to be realised. Presumably there will need to be substantial investment in teachers and health workers if the visions for the future include major improvements in standards of education and health across the population. Certainly, for Australia as a whole, some 70,000 more scientists are needed in the next two decades to meet the needs of knowledge-based industries and there is no way that current policy settings will bridge the gap between that estimate and domestic production.

Which brings me to a more prosaic project already under way as part of the tropical knowledge partnership between the NT government and this university. One of the first outputs of the new cooperative agreement between Queensland, the Northern Territory and Western Australia will be a map of research capacity across the three jurisdictions – in institutions like this one, in government and in business. We shall find out just where tropical knowledge resides in the north, and where there is only tropical ignorance.

But there are three other sources of tropical knowledge we will not have tapped. One is the itinerant knowledge, fly-in, fly-out, consultant, dry season knowledge that studies the intemperate tropics from the temperate south, or the north. The second is the vast body of tropical knowledge that resides both in our immediate region and in the broad band around the equator. Much has been learnt over the years in Africa, Asia and the Americas of relevance to living here and but currently we learn of it by accident. To gain access to this sort of knowledge in a systematic way will require an extension of the map of tropical knowledge currently under way. We hope to develop a website that can be interrogated so that, if business, government or the community are looking for specific expertise, it will be readily located.

This approach will not be possible for the third type of knowledge. This is the local knowledge that does not fall easily under the category of research, both the Indigenous knowledge I referred to at the start and the non-Indigenous knowledge built up over the last few centuries. Importantly it is knowledge of the ordinary Territorians, the small and medium-sized businesses which are the stable base of Darwin's boom and bust economy, and the knowledge of Indigenous communities, in fact the basis of the Indigenous traditional and non-traditional economy.

This local knowledge cannot easily be captured onto the web. However much knowledge can be shared among practitioners and this is where I see the tropical knowledge initiative having its most tangible and immediate benefit. In north Queensland, and to a lesser extent here, businesses are forming clusters with common

interests. While they may compete at one level, the businesses are also realising that they gain much by collaboration, both vertically and horizontally. I see an enormous opportunity for these clusters to leverage benefits from tropical knowledge that they would not be able to obtain while operating alone. I also envisage business clusters bidding for research to solve problems that relate across their industry, or for systems analysis to identify where their problems lie. I certainly hope these clusters would be major clients of the website I mentioned above, drawing on tropical knowledge from across the north, or around the globe if we can extend it that far. I am particularly encouraged in this area by discussions I have had in the last week with ATSSIS interested in promoting clusters as part of the business plan it is currently preparing, and interest from Cairns in extending their north Queensland bio-industry cluster west of the border, and wanting to work with us to obtain money to facilitate that process.

These clusters, like government and big business, can also be informed by the stocks and flows models, and can be supported by government where their aspirations are likely to further the long-term visions of government. Which brings me to the next application of tropical knowledge. Besides matching visions to the physical economy, stocks and flows models are more typically used to create scenarios for the future based on a range of existing policy settings. Here again tropical knowledge will be essential if temperate models are to be applied to the north. More importantly the effects of applying new tropical knowledge – tropical innovations – can be tested to see what effect they have on the models. New crops, more efficient air conditioners or new methods of raising literacy rates can all be tested, in principle, to see what effect they have on the predicted probability of meeting various visions.

Importantly it ought to be possible to estimate the economic costs and benefits for any action, or failure to act. For big decisions taken by business or government, even low probabilities of risk can turn into major liabilities. Look at the recent investment into locating approaching asteroids – individuals here have a greater chance of being killed by an asteroid impact than of dying in a car crash – they don't happen often but when they do there are catastrophic consequences. Importantly, unless one consciously examines decisions from a risk assessment point of view, assumptions of low probability remain untested.

An example that comes to mind is the decision to allow some exotic tropical plants into Australia. Because no risk analysis was undertaken the cost of their control now far exceeds benefit to the Australian economy. Perhaps, had their behaviour been modelled and the consequences for all sectors of the economy quantified at the start, a different decision would have been made. At the very least some of the liability might have been shifted to the proponents of introduction rather than all responsibility for managing risk, and their costs, being borne by government. Where tropical knowledge will be useful is in the assessment of risk from a tropical point of view, to validate the model of stocks and flows and ensure accurate estimates of risk across all sectors of the economy, not only those connected to proponents of the action.

Finally I see tropical knowledge contributing to an understanding of resilience in tropical systems, both social and ecological. Change is inevitable, even in the most stable of systems. However when some systems change they collapse to a state far less desirable than the original. Others adapt and are able to re-establish their previous state, or attain one that society considers equally desirable. We know most about

resilience in natural systems – in fact ecology could be described as the study of natural resilience. We know much less about resilience of human societies, which is one reason governance is such an active field of study. The critical time seems to be the period when change is greatest. It is then that systems can take new directions, and then that interventions can, in principle, ensure new directions are beneficial. An understanding of how systems respond to change in the tropics has a major bearing on analysis of risk and the use of resources.

So lets come back to this creative tropical city. I understand that it is hoped this symposium will contribute to creative arts policy in the Northern Territory. I would be sorry if it was confined to the arts. The application of tropical knowledge is about creativity in all its forms. Research into the resources needed to realise a vision for the north, the knowledge needed for local enterprise to prosper, the risks of action or inaction and the resilience of our society and environment to the changes that will occur on our way to those visions will require the highest levels of creativity and imagination, and can only be achieved in a society of creative people.