

Thursday 30th October 2003

James Lillis

Environment and Heritage Committee
House of Representatives
Parliament House
Canberra ACT 2600

Dear Sir/Madam,

**RE: Submission to Federal House of Representatives Standing Committee on
Environment and Heritage 'Inquiry into Sustainable Cities 2025'**

Please find my submission to the Federal House of Representatives Standing Committee on Environment and Heritage 'Inquiry into Sustainable Cities 2025' attached.

The views presented below include a synthesis of student and professional research into planning and sustainability, but are based primarily on practical experience working within the planning offices of local government and private sector consultancies. Sources are referenced where appropriate, however the references and recommended reading to the rear of this submission provides more definitive guidance to the sources that have influenced the submission.

The contents of this submission reflect the views of the author only. This submission is not connected with or necessarily reflective of the views of any companies, government authorities, professional organizations or community groups with which the author has been or is associated with. Given this, it seemed appropriate that much of the commentary should be provided from a first person perspective.

To the reviewer of this submission, I have the following to say. What the planners and other members of the community have to say at this inquiry deserves a fair hearing. I have sat in the same position as you, the reviewer(s), so I can sympathise with some of your concerns. I myself have reviewed over 1000 public submissions for a public

authority on a particular land use planning project, doing little else but reading and reporting on public submissions day and night for months on end. These submissions ranged from well-prepared reports, letters and arguments, to near-indecipherable bellyaching. I realise what a tiring, tedious and thankless task the review of submissions can be at times. It is likely that you have reviewed many submissions before coming across this one. All I ask is that the submission be taken seriously and that it be properly represented in the process of this inquiry. This is something that I have held myself responsible for doing before, despite personal or professional objections to the absurdities I was sometimes confronted with. This task is sometimes difficult, but I trust that both you and your office will be able to maintain a fair and open mind.

I thank the inquiry for its time and wish its participants all the best.

Yours faithfully,

James Lillis
BRTP (Hons.)

Enc: 1 x Submission to Federal House of Representatives Standing Committee on Environment and Heritage 'Inquiry into Sustainable Cities 2025'

Thursday 30th October, 2003

Submission to Federal House of Representatives Standing Committee on Environment and Heritage 'Inquiry into Sustainable Cities 2025' by James Lillis

Summary

The essential argument put forth in this submission is that the issue of sustainability in the modern world is both a human and technological crisis, and that the changes required to achieve truly sustainable communities may be more profound than simple changes in technology.

It is my opinion that the following overall strategies provide stronger guidance on the achievement of sustainability than stand-alone technical solutions as they are structured around the needs of people. These overall strategies are:

- reconnecting people to the ecology and to an awareness and responsibility for their impact on it;
- providing opportunities for meaningful work and sustainable workplaces;
- providing a basic measure of cradle-to-grave security for all members of the community (or teaching them how to achieve this without undue outlay);
- reconnecting people to the community, the community to decision-making and rewarding the community for achievements in this field;
- providing the opportunity for people to reconnect with themselves and their real intrinsic needs; and
- within the above framework, providing for as wide a degree of lifestyle choice as possible.

This submission is structured as follows:

- **'The Case for Change'** presents a strategic level argument that provides a new context for modern urban areas as they exist today. It discusses the modern history of cities; the impacts of the Industrial and Information Ages on the abilities and consumption pattern of urban dwellers; the impact of a burgeoning service sector in cities; impacts of urban living on the Australian identity; planning responses to livability and human scale issues in Australian cities; challenges to the modern city as the 'natural' environment for people to live in; the history of 'sustainable' living; the place of common sense alongside technology and reason; the race between food supply and population; strategic actions required to and beyond 2025 in order to achieve sustainability; the fallacy of technical sustainability and wealth creation as a natural system; and viewing the city from an ecological perspective.

The aim of this section is to establish an alternative truth regarding the history, functioning and efficiency of modern thinking and cities in meeting the needs of people, in order that we may address the issue of sustainability from a position informed by human history and needs. This section argues against an examination of sustainability from a purely technical perspective, as such a perspective fails to recognise many of the important human sustainability issues, and thus will not lead to a truly sustainable outcome.

- **'The Question of a Future Model'** presents a discussion on the nature of future influences on planning for urban areas in response to this inquiry's search for a future 'blueprint' or 'model'. This section argues for an evolutionary leap in our approach based on a design methodology supported by a wide variety of approaches that advance general principles. From this, we would be establishing fertile ground for the development of a wide variety of sustainable prototypes for different urban applications and lifestyle choices. This section argues for improved training in sustainability for urban planners and civil engineers and the need to question the current influences underlying our planning outcomes. This section concludes with a discussion of the

changing of our influences and the need to reward a number of different lifestyles as opposed to a single lifestyle.

- **‘Urban People and their Work’** provides a discussion on this dominant activity in urban areas and how this influences urban lifestyles. This section argues that work in urban areas is increasingly ill-suited and stressful to most of the people performing the work. This work is becoming tougher on its participants, to the expense of all other facets of life. A link has been drawn between this lifestyle and urban patterns of high consumption. The solution to this issue is seen as lying within our education system, principally the idea that people need to be focused primarily on making a positive difference (and using careers & other work as a vehicle) rather than emphasis on being oriented towards fitting into a career type. Other potential solutions to this issue are also raised in the section ‘Foundation for Change 2003 – 2025’.
- **‘Where is it all heading?’** poses this very strategic question, looking at the very motivations for organizing societies as we do. This section also provides further justification for the improvement of our urban areas, in order that they may provide safe benchmarks for urban areas in developing countries. In making a change, urban planners should not be looked to as the sole source of this change, as much of the power in the area of development comes from developers, business interests and politicians.
- **‘Foundations of Change 2003 – 2025’** argues that it is not personal freedom that stands in the way of sustainability, but our allocation of ‘resources’, use of technology and education. Many of the models for sustainable living lack common recognition, due to conservative attitudes in politics and society generally. There is a need to plan for a variety of lifestyles in a sustainable future. The linkage between the current inquiry into housing affordability and this inquiry should be recognised, forming recommendations which are mutually supportive. There is a need for further investment into sustainable land use and development projects so that these are widely accessible. The need for examples of retrofitting existing urban development for sustainability is particularly pronounced. The urban greening/urban permaculture movement

is worthy of attention in this respect. The possibilities of integrating food production into urban areas and of promoting community supported agriculture should be investigated in this inquiry. A case study in the area of urban permaculture is presented. Arguments for rebuilding community life based on greater personal time for full-time workers and nurturing of the baby boomer generation for social participation in its retirement is also added.

- **'2025 and Beyond'** is a brief synopsis of the sort of course we should be on at year 2025 in order to ensure a sustainable future for our cities and their regions.

These sections conclude the first part of this submission. The second part of this submission is focused on **answering selected focus questions** listed in the discussion paper. Questions from all sections of the discussion paper are included. These questions are technical in nature, and while technical solutions are recommended for the most part, these are not deemed to be sustainable without some shifting in awareness among decision makers and action towards the remedying of issues affecting human sustainability.

This submission ends with a brief **concluding statement** and an **annotated reference and reading list** that provides detail on a range of sources influencing this submission. It is recommended that these should be sought out by the leaders of this inquiry.

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The Case for Change

“Do we really want washing machines, computers, tools and workshops, books, CDs, and a million gadgets? Or do we want convenient ways to wash clothes, write letters or surf the net, make furniture or fix the car, get information or amuse ourselves? Do we really want a large house with guest rooms, games rooms, play rooms, exercise rooms, and party-sized living rooms to clean? Or do we want to be able to accommodate guests, pay games or exercise when we wish, have somewhere for the children to make a noise and a mess, and a convenient place to throw a party? Do we really want a kitchen full of gadgets, or have delicious meals as easily as possible? Do we really want an electronic security system and deadlatches on every aperture, or do we want a safe environment in which to live? Do we really want our homes to be our castles, or do we want loving human relationships? Do we really want an automobile, or do we want easy and convenient access to jobs, shops, leisure and cultural activities and friends? Do we really want exotic vacations in distant lands, or a satisfying, stress-free life in beautiful surroundings? How many of our wants arise from fear of our own inadequacies, fear of what others may think or say, fear of the uncontrollable future and regrets for the unchangeable past?” (Hollick and Connelly, *Sustainable Communities: Lessons from aspiring Eco-Villages*, 1998, p59-60)

These are important words from those with extensive knowledge in the quest for sustainability. While many of us would like to think that we are learning from the struggles of our forebears, I daresay most of us are hardly even aware of the paradigms and systems we continue to perpetuate. Many of these belief systems form part of the source of resistance to moves towards sustainability, still more actually confine and cloister our ideas on what sustainability actually is.

The debate on sustainability is often limited to the technical details, featuring discussions on technology, carrying capacities and the ideas related to the physical world. These issues are critical to the achievement of sustainability; however, it is my contention that the issue of sustainability is the most personal issue we have ever tried to deal with as a community and has near unfathomable roots in the way that people understand their world and their role in it.

If sustainability means to exist in harmony with the natural systems of the world, an evolutionary leap must be made in our use and development of technology – technology must be designed to function as well as the systems in nature. All technology and human systems will need to be designed with the principles of nature in mind. The more famous exponents of this idea today realise that this is an impressive, but not impossible leap. I believe that such a leap will not be possible until people are reconnected to their place in nature. The perfect monarch does not *rule*, but instead *reigns*. If we continue to rule the land like kings, seeing the physical and human worlds as a *resource* to be utilized for our immediate purposes, then we, like many of the kings of old, are destined to lose control, failing ourselves and the world we live in. This does not have to be our fate, but a shift in our whole approach is required.

If we came to see ourselves as intelligent benefactors, responsible for tending to and existing as an undifferentiated part of the life supporting systems of our country and planet, then it just might be possible that humans will live to see the rich diversity of the planet's organisms evolve into forms of intelligent life that we cannot even comprehend. Humans may have no need to scour the stars for other forms of intelligent life: it may just be waiting in the wings right on our doorstep. What levels of enlightened intelligence await our own species if we were only to take action to give ourselves this opportunity? I am convinced that we have much to learn from the earth, and a great deal to rediscover. Many of us currently do not have the time or inclination and nowhere is this challenge more evident than in our urban areas, where the majority of the Australian and global population reside.

I am a practicing urban planner, and I have worked both within local government and private enterprise. My values as a planner have developed based these experiences. I currently believe that each of the following strategies are critical to the achievement of sustainability in urban areas:

- reconnecting people to the ecology and to an awareness and responsibility for their impact on it;
- providing opportunities for meaningful work and sustainable workplaces;

- providing a basic measure of cradle-to-grave security for all members of the community (or teaching them how to achieve this without undue outlay);
- reconnecting people to the community, the community to decision-making and rewarding the community for achievements in this field;
- providing the opportunity for people to reconnect with themselves and their real intrinsic needs; and
- within the above framework, providing for as wide a degree of lifestyle choice as possible.

These strategies are all to do with people, as I identify people's needs as being the key issue in the discussion of sustainability.

These strategies are based on my belief that people in modern societies are currently 'missing out' on things that are not even aware of. "Is this all there is?" is a question that more people seem to be posing in their various ways these days. Important parts of the authentic human experience, our inherent birthright, have become a dream to far too many people. This loss appears to be accelerating in tandem with the rise of urban lifestyles worldwide.

I believe that the emergence and subsequent prosperity of cities is related to a way of living that is, in some cases, inherently unsustainable. As a generalisation, urban settlements have arisen through the specialisation (or division) of labour (or as we would put it more commonly, places where you can find a wide variety of goods and services). Indeed, the division of labour, as advocated by some industrial economists (most famously by Adam Smith in *The Wealth of Nations*) was a driving force behind the Industrial Revolution, a worldwide revolution that continues to draw people to cities in unprecedented numbers. Task specialisation is a device to attain greater levels of efficiency with the end result of higher production quantities. In short, it helps us make more, but is it really more?

Two hundred years of task specialisation have culminated in the next revolution, commonly referred to as the Information Age. Knowledge is increasing at exponential rates. Our knowledge bank on the world and its people is piled high. Industries with unprecedented amounts of value adding have emerged, continuously creating new

information. However, I daresay the knowledge bank within each person in this system is diminishing dramatically. While we have far more knowledge, we are less able to cope with it and less able to use this knowledge to take immediate positive action. Common sense, and its higher counterpart, self-sufficiency are missing on the ground in our specialised society. With a decreased breadth of knowledge than those who preceded them, each generation is held at the whim of a wide range of service personnel that need to be paid for in order to maintain our life support systems. It is a market victory of sorts, but a nightmare for sustainability.

We have been caught in a nightmare game of limited supply versus limitless desire. The average person is consuming more to survive under conditions of high specialisation, becoming more heavily engaged in a competition to ensure the continuity of supply. With higher levels of resource consumption and lower levels of common sense, the result becomes inevitable – chronic levels of waste and a 'disposable society'. The irony of the Information Age is that while knowledge and knowledge industries are becoming the new titans, the knowledge bank within its individuals, while excellent within a narrow specialisation, can be disturbingly deficient in general terms. In the space of 10,000 years between our transition from 'primitive' hunter gathers to 'sophisticated' urban dwellers, we have gone from being the most leisured, practical and communal people in history to being the most dependent, fearful and self-oriented.

In regard to our own national identity, I find it quite unsurprising that our urban environments have not produced many heroic figures of national icon status. This is not to say that there are no heroic deeds performed in urban areas (far, far from it!). I believe the reason that they are not is that it is often not the heroic deeds which make these figures, but certain qualities of character which can be related to by all Australians, including a sense of connection and common sense. When we look at our own national 'icons', the convicts, the explorers, Ned Kelly, the ANZAC troops of World War I, and more recently, 'Crocodile Hunter' Steve Irwin, by and large we are looking at 'rural' or 'wilderness' people – people with diverse skills and a connection to the land. Urban heroes and icons, though they do exist in real life, are more easily found in cult comic books or television advertisements. Our rural heritage is a critical part of our national identity which needs to be preserved simply in order to preserve

the national trust of common sense and connection to the land. Continued migration to urban areas as a result of the declining economic viability of rural areas places this heritage at risk.

It is becoming plain that urban areas and lifestyles tend not to be inspiring enough for many people. The planning response towards this, through New Urbanism and other design ideologies, has been important in reminding those involved in urban development that they are creating the physical framework for a whole way of life. Exotic, inappropriate, mass produced solutions which weaken the banner of New Urbanism are still commonplace, but at least we now have a better idea of what is acceptable in urban form, if only from an aesthetic viewpoint. There is a common lament in urban design circles that the ancient, unspoken 'common' values which allowed European and early Australian villages (e.g. the Rocks in Sydney) to develop a unique, decidedly natural form of their own are now missing. These human scaled 'urban idyll' forms were commonplace up until the dawn of the industrial era, where human scale began to give way to economies of scale. The urban idyll is missing from many of our modern urban areas and as a result this issue is now policed heavily in many planning schemes with varying levels of success. But it seems that no amount of regulation can replace the 'common' understanding of old.

The typical modern suburban area reflects the human crisis in which modern people are now only beginning to wake up to. Its loneliness, superficiality, bald functionality, orientation towards competitive behaviour, and undercurrent of fear represent a self-made departure from the natural environment of our species. Desmond Morris argues in *The Human Zoo* (1969) that modern people, far from living in a concrete jungle, are trapped within a human zoo. Rather than behaving like animals in their element, we exhibit many of the traits of zoo animals:

“Under normal conditions, in their natural habitats, wild animals do not mutilate themselves, masturbate, attack their offspring, develop stomach ulcers, become fetishists, suffer from obesity, form homosexual pair-bonds or commit murder. Among human city-dwellers, needless to say, all of these things occur. Does this, then reveal a basic difference between the human species and other animals? At first glance it seems to do so. But this is deceptive. Other animals do behave in these ways

under certain circumstances, namely when they are confined in the unnatural circumstances of captivity. The zoo animal in a cage exhibits all of these abnormalities that we know so well from our human companions. Clearly, then, the city is not a concrete jungle, it is a human zoo.” (Morris, *The Human Zoo*, 1969, p9)

While the exact details of our ‘departure’ from our ‘natural’ behaviours (as described above) is subject to some question, it appears to me beyond any reasonable doubt that urban areas are not the natural environment of humans. What then can we do in our planning if we accept this bold assumption? This seems to be the real question of human sustainability in urban areas and it is this question that I have been trying to answer as an urban planner.

As we head further toward economies based on services (hence specialisation and urbanisation) and the conversion of nature into an inventory of ‘resources’ at our disposal, our long term impact on our environment is likely to be magnified. In order to understand sustainability, perhaps a first step would be to look at the activities of ‘sustainable’ groups of people. The existence of these people is not a myth, as the struggle we face may lead us to assume. These people live outside of the activities of modern peoples; they are of course tribal people (and in addition to rural dwellers, are a critical part of our national identity today). An important thing to remember is that a sustainable way of living is in our history – we have done this in the past. Humans have existed on this planet, at least in evolutionary terms, for 2 million years or so, generally as part of a harmonious balance with the environment. It is only in the last 10,000 years that we have exhibited a tendency to break our connection with the ecology and rule it like kings. This very attitude is unsustainable, and will invariably produce unsustainable results, no matter what technical solutions are found to help us out of our current difficulties.

It seems to me that in our society devices established to be the servant of people have attained an unexplained mastery over our actions. The move towards economic rationalism is symptomatic of this trend – which seems to be a belief that crude numerical measures provide the best indication of a real world situation. The real factor with which we should be concerned has never changed - this is *quality*, and its lack across many areas of our society is sorely felt. There is a need for precise

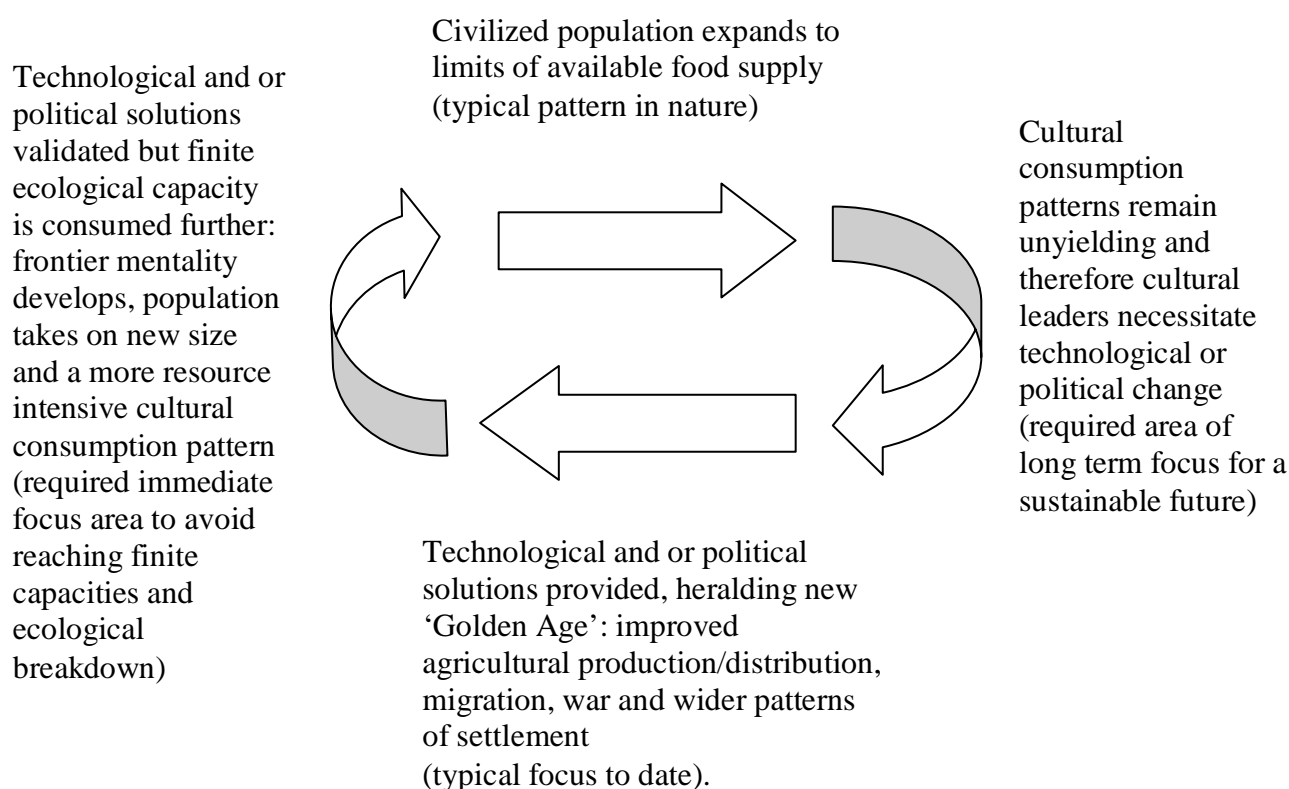
mathematical work, but we should remember its place alongside common sense, deductive reasoning, social/ecological responsibility and imagination. I would not have raised this point but for the fact that this inclination towards procedural detail at the expense of sustainable outcomes is now readily evident in parts of my own discipline of town planning.

While not being an expert in planning legislation in my home state (itself an indication of the stage we have reached) I cannot help but to take a somewhat critical line on recent events. Following the introduction of Queensland's Integrated Planning Act 1997, I have witnessed the widespread revision of planning process and the introduction of 'sustainability' into planning legislation. A seemingly welcome development, but what I have not seen is a positive change in our urban areas or even *destined* for them. This legislation was hailed by the sitting Minister of the time as a great assault on red tape, however the result appears to have been the opposite – a more complex system which in practice has created new concerns in the area of strategic land use planning by removing 'prohibited' uses from planning schemes. With the rollout of this Act came a new exercise in bureaucratic impotence – every local government had to draft a new planning scheme based on the legislation! What a 'smart' way to occupy our town planners and lawyers!

I may appear to be overly skeptical, but when I witness local governments spending hundreds of thousands of dollars interpreting the new legislation and multitude of guidelines only to *rewrite* existing planning schemes that do not appear to fully grasp the challenge of sustainability, my trust in my superiors tends to waver. What untold thousands that could have been spent on practical sustainability projects (including teaching our planners and public administrators about sustainability) has been lost and will continue to be lost through this exercise in the refinement of legalese?

The last 10,000 years of human history has demonstrated to us a cycle of events – this cycle is central to the struggle that has been undergone, it is essentially what has been discussed by academics like Thomas Malthus, Garrett Hardin, and Julian Simon. This cycle, unsurprisingly, has produced the same challenges and the same results. It is the race between food supply and population. As long as we perpetuate this cycle, we will run into the same struggles and our descendants will be enacting a historical *deja vu*.

This repeat of history would not be such a great concern, except for the fact that we are dealing with finite boundaries. Our continent is a particularly good example of this, and has only been able to withstand intensive land use for a relatively short time in comparison with other ecosystems across the world. Hence, if we are to discuss sustainability, it is a question of where to 'break the cycle' rather than developing solutions to perpetuate it. Sustainability will not come without sacrifice, but as I attempted to explain previously, we are 'missing out' on things anyway.



To head towards real sustainability is to take action to *reverse or break this cycle*. How could this be achieved in our urban areas here in Australia? Perhaps it would be appropriate if we expressed this in terms of the inquiry timeframe.

<p>To 2025 – We must question the validity of past solutions and their long term sustainability. We must develop a compelling vision based on a sustainable end state. We must build the desire to reinvent ourselves and create a lifestyle that is genuinely enjoyable and equitable. We must develop/implement prototypes for sustainability at all scales (and commence them everywhere if possible). We must conceptualise a cycle based on repair of our urban, rural and wilderness land.</p>	<p>Beyond 2025 – We must abandon past solutions. We must begin to materially realise the vision developed for a sustainable end state. We must witness the reinvention of our urban identity and ensure that we organize our work towards meeting the needs of people. Successful prototypes for sustainable development become the primary influence of standard development practice. We must do what we know on a wide scale.</p>
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A common fallacy that has been propagated since the dawn of the industrial revolution is that our way of living and our desire to create wealth form part of a 'natural' system. I have even witnessed people claim that urban environments are the natural environment of people. People who subscribe to these beliefs (knowingly or unknowingly) may argue for technical sustainability, because changing societal consumption patterns or values is unnatural and undesirable. This narrow view falls over quickly when one considers the workings of a natural system. Natural systems produce no waste, natural systems do not have an overwhelming production ethic, natural systems are self-managing and are capable of continuing in perpetuity without deliberate intervention. In light of this, the status quo emerges as a profoundly unnatural system. It is only *made* to work through sheer effort, because the exhaustive training of our people teaches us that it should work. Indeed is only able to work at the current rate because we do not really question this belief. For a system which did not result from the ideological design of a few people, it is not a poorly designed system, and indeed pays homage to an ancient natural instinct, namely that of self-preservation. However, the fear that has attached itself to our cultural consumption pattern has built this natural instinct up to the point that it has become an obstacle to sustainability.

Over time, human interpretations of modern ways of living have brought about the development of a number of pernicious myths. Chief among these is the conviction that everything would actually 'work' if we all tried just that little bit harder or if we had that little bit more. If only we were more intelligent, strong, patient, or had that computer program, or if department X or nation Y would only comply! If only! It is clear that this belief perpetuates itself by exploiting a powerful human emotion: hope. Only when we let go of the hope that this way of living is capable of working will be equipped to design a system and models that are capable of really meeting human needs. By retrieving aspects of what has worked well in various ages of our past, a truly sustainable future is likely to be a mix of both future and past.

Recent calls in the sustainability debate (namely from the urban ecology sector) have called for the city to be viewed in an ecological sense. This is a welcome innovation.

Given that the 'web of life' is critical to human survival, this viewpoint makes eminent sense.

In accordance with taking an ecological viewpoint, I propose that we take an ecological management approach. What is required is a 'natural competitor': a way of living that poses some serious competition to the conventional, high impact urban model of living. Remodelling urban areas for a lower ecological impact is one thing (this appears to be the general underlying approach of this inquiry) and is a necessary step. However, what I am talking about is a new way of living in developed urban areas, with new values and a new purpose. In order to compete, this way must respond to human needs and feelings. I believe that this is the key underlying challenge facing this inquiry, and THIS is why the debate cannot be restricted to a technical discussion of sustainability.

Sustainability is not just a technical problem – it is very much an emotional problem within society. The less fulfilled we are on the inside, the more we will seek external fulfillments. Hence, any sustainable solution needs to respond to the way people feel about their environment. In looking at sustainability, the personal has become well and truly political, whether we wish to admit it or not.

The Question of a Future Model

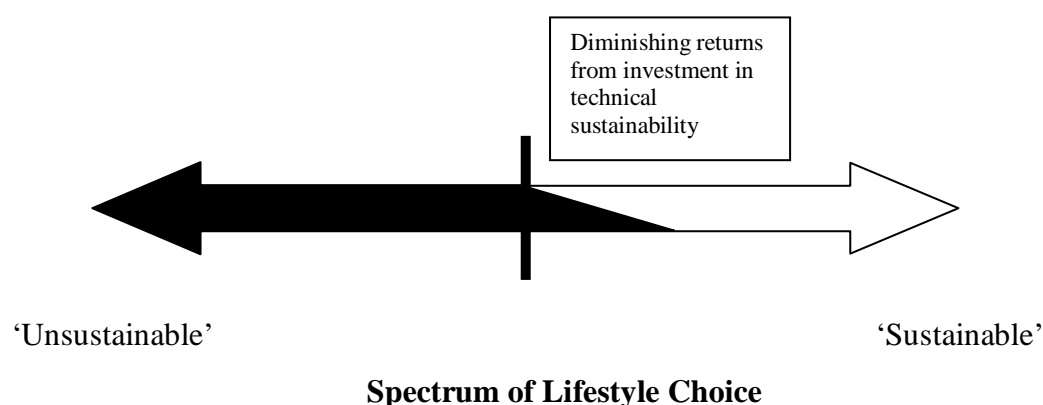
We need ideas that will test how much we can do with less, rather than one that is testing how much we can take.

This inquiry has posed the question of future model. We do not need a perfect incremental model, which will end up being a sterile model. An *evolutionary* leap is required – if any policy or guidelines stemming from this inquiry shock or scare some people or create some controversy then we will know that we have done a satisfactory job: for this is the first step towards a paradigm shift, and if we do not shift in some way, then sustainability for urban areas is not something that anyone should expect in the next twenty-two years or beyond.

Our model should not aim to be based on a physical pattern, but more on a design methodology. We should produce a wide variety of approaches to urban areas, which advance general principles.

In practical terms, the best thing that could be done for development of the planning and civil engineering professions would be to find some way to add a Permaculture Design Certificate (PDC) or qualifications in ecology or environmental management to that necessary for recognition as a planner or civil engineer. Such training does not take a long time to do (72 hours for a PDC) and if nothing else, something like a PDC would get many of us outdoors! At best, it would equip Australian professionals with an indigenous design methodology that aims for true sustainability in all human endeavours as well as a more holistic understanding of the physical world.

The future sustainable world is comprised of a variety of lifestyles – and we need to plan for them in the future: the unsustainable, the baseline eco-friendly, right through to the perpetually sustainable. Lifestyle choice can be viewed within this spectrum.



On the question of models and outcomes of this inquiry, we should not overlook the destructive aspects of current influences. The shift in foreign policy dependence in World War II from the United Kingdom to the United States of America brought with it a shift in cultural consumption patterns and hence in the planning for them. We now seem to be at the point where our cultural consumption pattern is approaching that of Northern Americans. Continually idolizing this pattern will be both externally destructive and self-destructive. We are modeling arguably the world's most unsustainable nation, also a nation that seems to see the planet not only as a resource, but also as *its exclusive* resource. What a surprise it was for me to discover that if the

United States were to exist and consume at current rates in perpetuity, then the world would only be able to support the people of the United States! From the vastness of North America comes many admirable ideas and developments in planning, but they are a minority in their home nations and so too in ours. We would do much better to model the patterns of nations that share common geographical aspects (e.g. Scandinavian nations) rather than common historical or cultural ties. Or better yet, listen to our own thinkers and designers? If we don't build from a different ideas base then it follows that we will become more like our current model.

On the discussion of influences, it is a strange irony that we refuse the entrance of many refugees into this country – people who have shown the enterprise and determination to escape from brutal dictatorships and travel across the globe in squalid and treacherous conditions. These people exhibit many of the values that our own rural legends had displayed, indeed Australia has a history of immigrants seeking to preserve a culture (note, not nationality) by settling in rural areas. People of such an enterprising and tenacious character may contribute to a seemingly 'impossible' rural restoration. I am unsure as to exactly why refugees are made to feel so unwelcome (even those from nations with which we are at war!), but if it has anything to do with 'cultural cringe' then the masters of our gatekeepers need a wake up call. Most television shows, watched avidly by urban dwellers nationwide, are either of North American manufacture or based on a North American model. Our culture is undergoing change anyway! Why not select our models more carefully? I wonder how we can call ourselves a true multi-cultural nation. I don't doubt that we have a wide cultural *representation* in this country, but this does not influence the culture. The culture is distinctly Anglo-American and would appear to becoming increasingly based on these models. Perhaps this is something that may never change, however it would be interesting to see how much this could change if we had the power to change our influences.

Before it occurs to the reader that changing our influences is impossible, it is instructive to remember how our influences have changed in the past. In most circumstances I can think of, it has occurred in more desperate hours of our history. If the source of our latest and most significant change, World War II, is examined, we see an old line of dependence (with the United Kingdom) perish, replaced deliberately

(by a declaration of Prime Minister John Curtin) to a new surrogate, the United States. The current situation in urban areas is not perceived as being this desperate. It is more of a creeping problem, which if left unchecked, could reach unmanageable proportions. Cultural change *will* occur when the current situation becomes untenable or downright painful – but what will it take for us to reach that point in our cities?

We must provide guidance on living and rewarding people in a number of different lifestyles, rather than planning for and rewarding just one. The planning and development industry needs to facilitate moves to sustainability that I perceive many people would like to make but do not know how or do not have the courage to try (due to perceived risk).

Urban People and their Work

The time spent by urban dwellers at work in order to fulfill their basic needs has been on the increase in recent times. A look at this dominant activity is likely to tell us a lot about the people living in our cities. Many urban people, like their country counterparts, have a strong work ethic, but not a romanticized one. The modern retail-office-construction worker of our cities is not such a romantically inspiring figure. It cannot be denied that the modern competitive workplace is marvelous for a limited number of people at all levels of the hierarchy - some people do *thrive* on it. However, I daresay the majority of people I have seen merely survive through it.

The stereotypical figure in these industries is facing increasingly more complex patterns of organization, increasingly higher educational demands, strained budgets, temporary employment, workplaces without a sense of permanence (and workplace policies which do lend themselves to the development of organizational knowledge through staff retention, despite the widely lamented lack of organizational knowledge) and increasing net workloads. Fulfillment of this difficult role is not without a high cost – longer work hours, work out of business hours, and overtime (sometimes unpaid). The 'eight hours work, eight hours leisure and eight hours sleep' per day, won with great effort by the union movement, is again under serious threat. Due to

patterns of settlement and transport in urban areas, travel time to and from work is beginning to crowd out all important leisure and family time.

Without the important ingredient of leisure and family time in people's everyday life, a culture of prison humour, superficiality, and mindless competition is becoming more pervasive in modern workplaces. This may already be leading to increasing levels of mental illness. The popularity of internet sites like depressionet, while not surprising, should be a major cause of concern.

This may not seem like such a great problem to some until we remember that the environment shapes the people, and the mood of the people shapes the national character. These artificial environments are proceeding to produce artificial people. Our ways of living and working may end up producing lonely hapless serfs! This cannot be the destiny that any historic inhabitants of our country had in mind for our future!

It might be claimed that a number of people in this position get paid quite handsomely for working in this situation and therefore are not a cause of concern. I disagree with such a view. I believe that it is these oppressive contortions that people find their way into which lie close to the crux of our problem. I believe that many people in this situation are caught trying hard to meet the expectations of others while running out of energy for their own personal lives. An otherwise unfulfilling life tends to be balanced by consumption in another area e.g. poor diet, drug dependence, TV/computer addiction etc. Such unnatural gratifications are merely the result of another natural, if evanescent human inclination, the search for balance. Any worldly person will know that increasing one's personal consumption in such a way is not likely to lead to the creation of real wealth or real fulfillment. I recently read that one of the most ironic things about human beings in our society is that they lose their health to make money, and then lose their money restoring their health. Unfortunately, this is an idea that seems to ring true, but I believe that what we may really be seeking need not come at such a high price.

The antidote to these problems is to make a subtle difference to the way students are educated in schools. When I went through school, I was conditioned to search for a

career (preferably accompanied by a large salary), as though this would be the vehicle for the realization of the highest works I could perform. This is a baffling and antiquated approach. I have since found that real satisfaction in life comes from the triumph of principles, from the search and realization of one's purpose, from connecting with other people, from preserving a worthwhile tradition, and from striving to make a difference of your own choosing. If you can take care of these things then you should be a sufficiently developed person to take care of your own needs in some way. Yet this was never taught to me. Why? Most people need some sort of training and career, but why must it become the be all and end all, instead of merely a vehicle that is likely to change as one works towards an infinitely higher goal? Would this not be a more sustainable and inspiring model in an age of high workplace mobility and increasing impermanence in the workplace? I see it as an important step towards ensuring that motivated people are performing the tasks important to our society.

Where is it all heading?

What are we currently trying to prove in our cities across the globe, and to whom? The ironic side of alien conspiracy theories is that, while they are absurd (?), to the isolated objective observer, it would appear as though the nations of the world were building a regimented, hoarding, aggressive society that was designed to expand, to compete for universal domination. If there really is some known threat 'out there', it would be nice to just be told, otherwise we should focus on developing Earth into the safest long term option we can think of: a paradise in which the human race simply grazes and takes care of life and the land. If indeed this is a valid dream, there is no question in my mind that the consequent struggle for that reality would be fought and decided in cities. We have become so bogged down in our thinking and in our fears that we are forgetting things that are universally important and worth reaching for. Even many people who realise this are so well trained that they, through conditioning and continual pressure, continue to reach away from it. It is clear that we have a long way to go.

The narrow minded would try and silence this argument by goading me to be thankful for what I already have. I argue against this point emphatically. I am deeply grateful

for what I have, but not without a sense of guilt and doubt when acknowledging the origins of what we own. Are we being selfish for wanting better cities? Is that not what this inquiry is about? We should be thankful for what we have, and we should remember that a large number of those people who are without the material wealth that we claim have set their sites on creating lifestyles just like ours. I believe we have a responsibility to set the goal posts for these nations, who are unlikely to sway from their desire to enjoy what most of us take for granted. *Our cities must be models for what we want to see in developing countries.* The developing world is currently in varying stages of agrarian or industrial revolution. Should we wait for them to reach the heights of their industrial revolution, or post-industrial stages, when the toll on the earth's ecosystems may be too intense to bear?

One of my friends and mentors once said to me of my work that "the worst thing that you can do when you are doing something wrong is to continue to do it". Within the next twenty-two years to 2025 we must make an honest record of our mistakes and do something different, rather than choose to continue them.

We must not look only to our planners to make the necessary changes in urban areas. I have discovered from work in urban planning that it is not us controlling the moves, it is the interpretation of societal needs by developers, big business, politicians and senior bureaucrats – people who know that *opinion is shaped*. The current situation is not the 'fault' of any one person, ideology, religion, institution or empire. It is simply the sum of thoughts which have occurred in our drive to modernity. The only way to address the sum of thoughts in the future is to address the core of the problem, our culture and its accompanying consumption pattern.

Foundations of Change 2003-2025

To 2025 – We must question the validity of past solutions and their long term sustainability. We must develop a compelling vision based on a sustainable end state. We must build the desire to reinvent ourselves and create a lifestyle that is genuinely enjoyable and equitable. We must develop/implement prototypes for sustainability at all scales (and commence them everywhere if possible). We must conceptualise a way based on repair of our urban, rural and wilderness land.

It is not the freedoms we enjoy as members of this society that stand in the way of sustainability. It is our allocation of 'resources', use of technology and education that we provide or follow with these freedoms. Many models for sustainable living already exist, but are not well known or officially recognised. The knowledge we have required to make this shift is not difficult to find, in fact Australians have devised a great deal of it. What is required is an evolutionary shift in our decision making which will allow us to take on these ideas.

Conservative government is popular in Australia at the present time, on both sides of our native political spectrum. There is nothing wrong with conservative government if nothing is going wrong i.e. the status quo works. However, we are facing critical problems and need to change what we are doing in order to survive. No one factor is to blame for the current predicament and the tenuous positions it places people in – however, those who revel in and rely on the hardship of others are particularly distasteful. The next 50 years will be the ultimate test of our intelligence and practicality as a society, whether we are aware of this test or not.

Change is not for everyone, however, neither is the status quo. As stated earlier, there is a need to plan a future that can cater for number of different lifestyles as part of a sustainable balance. For a large number, it will come down to the choice of having less money and material wealth, but more time and personal freedom, or vice versa. Some may find the initiative to balance both. I am not under the illusion that we will be able to please everyone in a sustainable society, but I believe that the necessary prerequisites for sustainability may require such a society to have, by definition, higher levels of public contentment than the status quo.

In planning for a variety of lifestyles, the linkage between sustainability and housing affordability deserves special attention. The Productivity Commission's current inquiry into First Home Buying needs to be informed by the outcomes of this study. A sustainable future is one that provides affordable housing as an investment rather than a subsidy. There is little point in undertaking physical planning for sustainability without considering the human implications in the form of housing and other social issues. Urban containment boundaries (like those adopted in Portland, U.S.A.), while they contribute to local ecological sustainability by preserving agricultural and

conservation land, represent an inequitable outcome if affordable housing has not been adequately planned for. I assume that we do not wish to see the situation of some U.S. towns in Australia, where a lack of local affordable housing provision has caused lower income workers to be ferried hundreds of kilometers to their places of work each day. The inefficiency and social dislocation caused by such outcomes make lower income people victims of economic geography. Unless everyone wins, no one wins.

There is a pressing need for further investment in readily accessible sustainable land use and development projects. The development industry and government require a feasible vision of future urban development. There is no shortage of examples in this area – our task is to make such examples as accessible as possible. The need for examples of retrofitting existing urban development for sustainability is particularly pronounced.

A movement that captures the imagination of some visionary planners and designers is the urban greening/urban permaculture movement.

The last century, with the exception of the World Wars and the Great Depression, has seen the decline of food production within urban areas. With it, a vital component of local sustainability and community life has been in regression. Local agricultural enterprises must compete in a global food marketplace struggle to secure stable markets. The close nexus between urban settlements and their hinterland for food supply is disappearing. This ominous trend of extra-regional supply is even being echoed in the area of water supply across some parts of Queensland. The achievement of sustainability at a regional level calls for the reversal of these trends.

The use of land in urban areas for the purposes of community gardens can play a significant part in reinstating the ecological and community awareness of people living in urban areas. I believe that the reinstatement of this awareness is important if greater ecological problems facing the region are to be resolved successfully.

Experiences gained in cities across the world and in Western cities during war time suggest that the cultivation of food in urban areas, if properly managed, can contribute

significantly to the total food supply. Although this is a high ideal, I do not believe that it is unreasonable to expect that opportunities be provided for food to be grown locally in urban areas and made available at minimum cost. This need is especially pronounced for people living in rental properties, high density housing or those on low incomes.

A case study of urban permaculture is included below.

The Maroochy Community Permaculture Group and the Yandina Community Garden - a case study of a community working for urban sustainability

In most urban regions, a number of examples of visionary practice can usually be found. One example which I recently encountered upon arriving to the Sunshine Coast is the Yandina Community Garden, run by the Maroochy Community Permaculture Group.

The Maroochy Community Permaculture Group was formed by a number of recently graduated permaculture students in 1999. The aim of this group is to actively encourage the growth of community farms and gardens across Maroochy Shire. With limited assistance/endorsement from governmental agencies, this volunteer group has invested enormous time and energy over the last 18 months to establish a community market garden in the township of Yandina.

The farm has been established atop of a derelict local tennis facility. Amenities at the facility have been restored (including the reopening of a public toilet), with the establishment of the no-dig organic garden on top of the old clay court surface. Thanks to thoughtful consultation activities at the establishment of the farm, partnerships have been formed with adjacent facilities (e.g. collection of grass clippings from adjacent sports ovals) and incidences of theft and vandalism on the farm have been limited.

Due to the dedication of a small number of community volunteers, the farm stays open to the public six days a week. Members of the community are free to attend the

farm and participate in the various tasks required to maintain and improve the farm. The farm holds regular training events for the community, sometimes culminating in the construction of an improvement for the farm (e.g. an outdoor mud brick cob oven).

The farm contributes to local biodiversity by conserving heritage seeds, which are available for sale to the public. Food produced by the farm is available to those who volunteer work on the farm.

The farm has provided a stage for the actions of dedicated volunteers and training of unemployed people and the wider community. The positive environmental ethic and beneficial community outcomes achieved by the farm are receiving further recognition and support from governmental agencies.

As I see it, the farm takes an important step within the region to restore food production to urban areas. In addition, thanks to the open, consultative approach taken by the farm founders, the farm provides an example of where the line between community organisation and wider community becomes blurred.

The benefits of fulfilling our everyday needs locally cannot be understated in terms of contributing to ecological sustainability. The energy expenditure and costs of transport, storage, packaging and marketing are dramatically reduced or eliminated altogether. We are also investing in ourselves and/or our peers. An example of these ideas in action includes the concept of 'community supported agriculture'. For many without the time, inclination or space to produce food, this concept presents an appealing option. Under such an arrangement, local people enter into an arrangement with a local farmer for the purchase of produce over a season or greater. At peak work times on the local farm, those who receive produce from the farm may be enlisted to help lighten the workload. In this way, the local farmer benefits from greater security of markets, while consumers know the produce, the land and the farmer who produced it, as well as gaining a greater connection with the food production process.

A key ingredient in achieving significant change will be affording urban people in full-time work greater leisure time to commit to such community activities. I am

aware of the difficulty of this, however, I also believe it would also be surprising to see the number of people who would make a salary sacrifice or readjust their working hours in exchange for such additional time. This would be possibly the best strategy I have heard yet in response to the Federal Treasurer's recent call for greater community participation.

The next twenty-two years will see a key demographic shift in Australian society – namely, the retirement of the hardworking 'baby boomer' generation from work. This is a really great challenge for our society, as these people need to not only be taken care of and respected, but be given the opportunity to take care of themselves and take on active roles in society which will foster continuing self-respect. This generation offers the greatest chance yet of rebuilding community life in Australian cities and the Federal Government should take an active role in nurturing this, lest we end up with a large number of 'isolated' retirees.

I see these strategies and ideas only as the beginning, not the end. Many of the better known innovations we possess now are only the first. If we can begin a commitment to real change, then we will have the basis for the productive improvement of the human condition in cities, in some cases for the first time in history. The answers to the selected focus questions provided in this submission expand on the sorts of actions that will need to be taken between now and 2025 (and beyond) in order to progress towards sustainability.

2025 and beyond

Beyond 2025 – We must abandon past solutions. We must begin to materially realise the vision developed for a sustainable end state. We must witness the reinvention of our urban identity and ensure that we organize our work towards meeting the needs of people. Successful prototypes for sustainable development become the primary influence of standard development practice. We must do what we know on a wide scale.

Despite all that I have said, I am not convinced that urban living is, by itself, unsustainable. Our task is to ensure that by this stage, we are thinking and acting in the following ways:

- we are conserving pristine landscapes and rehabilitating degraded landscapes on a wide scale;
- we enhance the ecological sustainability, self-sufficiency of city regions and that of the people who live within them. In designing our surrounds, we should aim not only for a livable environment, but as close as we can get to a *living* environment;
- we recognise the population limits of our city regions and our nation as a whole (consistent with our international humanitarian obligations);
- we allowing the community to take on increasing roles in the administration of city regions;
- we produce technology that aids these causes rather than that which results in the delay of necessary action; and
- that we carry out the strategies relating to human needs listed on page 7-8 of this submission.

Ultimately, we need to create forms of living which produce the greatest quality of life for people, something that should not be measured exclusively in economic terms, but especially in terms of mental health.

Once we have learnt to manage our cities in a sustainable manner, the Australian knack for invention and ingenuity that we pride so much could become even more valuable overseas. Our role is to take the lessons that our land is teaching us and show people how to have more with less. Our European ancestors came with arms and a 'frontier' mentality. If we do the right thing, our planners, developers and engineers will come as equals and welcome friends to all people, following the example of the successful Australian aid workers and service personnel of the past.

Answers to selected focus questions

Future sustainability is going to require no small degree of technical input, in fact it may be more knowledge intensive than our current way of life. This section provides

a discussion of challenges and possible solutions to a number of the focus questions listed in the discussion paper. It needs to be added here for clarity that I have diminished faith in these or any other range of technical solutions that do not aim for or occur in tandem with improvements in the human aspect of sustainability discussed previously. It is high time to put technology back in its place as the servant, rather than the master of our destiny.

Nor might I add should the technical solutions of this study be seen and pursued in isolation from those solutions reached in the Production Commission inquiry into first home buying. These issues are heavily interlinked, and I trust that they will be treated as such.

Urban Greening and Bushland

Does the inclusion of green zones within city planning result in further urban sprawl, which has a greater detrimental effect for the environment by encroaching on more surrounding bushland?

It can, but by no means does it have to. Conversely, I have seen places that have low amounts of green space and are still regarded as sprawling. I think the correlation between green spaces and sprawl is much less distinct than the correlation between low density housing, automobile dependence and sprawl. I think the need for quality green spaces of many kinds within city planning is not in question. They are fundamental to quality of life and scenic amenity for urban dwellers. Planned well, they can facilitate the development of a community.

Sound open space provision is not responsible for sprawl. Today's best practice seems to encourage open space provision based on recognised land area and facility benchmarks for different kinds of open space. I follow this approach in my work and see little wrong with it. A proper open space network composed of a variety of different open spaces must be included in new developments, as opposed to providing leftover green entrails, insufficient to protect the creek lines or hillslopes on which

they have been drawn around. This is one of the key issues in planning for open space.

What are the possible impacts of either increasing or limiting the proportion of bushland and urban green zones?

I believe that a city that preserves a healthy variety of open spaces is making a significant contribution to the mental health and ecological connectedness of its people. The demand placed on land for other uses has made this something of a high ideal, however most authorities still recognise the importance of open space in city planning and protect it in their planning schemes.

A pragmatic approach to this issue would try and see some sort of community recognised benchmark being met. Network planning as its end goal should aim for an open space network that meets benchmarks and one that can be maintained without straining the city's purse.

In principle, limiting open space is hardly a desirable option, unless an obvious and pressing community need demands that an already abundant reserve of open space give way for a more urgently required land use.

The land costs associated with open space provision in urban areas make it an expensive, even burdensome cost to development. The best strategy under a scenario of limited resources for open space asset would be to hold new development to a community recognised benchmark for open space provision, whilst using funds provided from inner city developments in lieu of open space as the basis for the strategic buyback of key sites in established areas. Admittedly, a significant proportion of open space funding may need to come from general revenues rather than contributions in order to meet accepted benchmarks in existing developed areas.

A key function of open spaces within cities which has almost become extinct in the Western world is their ability to support localised food production. Cities used to produce much of their own food supply, and I would argue that one measure of open space provision in a city would be its ability to successfully revert to *localised* food

production in emergency circumstances. The history of this century, especially the Dig for Victory campaigns of World War II, has shown that this is not a ridiculous idea. While one may argue that the nature of war and need for urban food production have changed, I believe that food production within the city is a critical component of the kind of sustainability I have been discussing in this submission.

Thankfully, there are still fine examples of this urban sustainability/self-sufficiency ethic still around for those who have not had it thrust upon them as a result of the stark necessities imposed by an industrial-era war. Please refer to the case study of the Maroochy Community Permaculture Farm on pages 24 and 25 of this submission for one example of this.

Can green zones be multi-purpose – serving the recreational and social needs of city dwellers while also providing habitat and environmental benefits for native flora and fauna?

Yes, but this takes a fairly high degree of skill to plan for. An important key to successful solutions on this issue is community consultation. The local community in the area of the open space need to be asked to nominate a successful mix of functions. More intensive human recreation use of a site is likely to result in reduced ability for conservation uses, and vice versa. Ultimately, a single locale on an open space site is likely to have a bias one way or the other. However, over a larger reserve, provided the existence of understood boundaries, both conservation and human recreation functions can exist side by side. Careful site planning and community consultation are the keys to multi purpose use within a single space.

Multi-purpose open space areas with a bias towards conservation of the riparian environment have an important role in cities, helping local people and visitors to recognise the living natural history of their area. They are important in developing ecological awareness and connectedness. Community stewardship of these areas greatly improves the chance of their success. Often it is a volunteer conservation organisation that takes responsibility for such areas, helping to preserve the natural environment which accommodating and educating the general public. There is no shortage of examples of this across Australia. These groups play a vital role in lifting

the burden of maintenance from local governments and deterring the desecration of these areas.

Is it appropriate to provide incentives to encourage partnership arrangements with land holders and developers to preserve remnant vegetation on private lands?

Yes it is appropriate, but it is difficult. There are some landholders who will volunteer land for such purposes. However, many understandably will not. Put simply, the key to this issue, as with the financing of other kinds of open space, is an issue of land value. As I understand it, the first National Park dedicated in Queensland was on account of the fact that it had *no higher purpose*. While we have come a long way in determining the basis for a National Park or World Heritage Area, the problem which this first national park put forward still remains. That is, these lands have no identifiable *comparative* value. We do not know how much value in *dollar terms* that remnant vegetation contributes to the value of other existing uses. We do not know where our cities would be without it, or more precisely, what they would be worth. As long as different land uses are pitted against each other in an environment of competition (and this is likely to be for a long time), it would appear necessary to find out exactly what remnant vegetation is worth to us, in terms of some meaningful capital or other value, so at least its worth is recognised on more than an ecological level.

Energy

How might we implement a shift from the existing large-scale energy generation and distribution infrastructure towards an alternative model?

This is a difficult issue. A small number of power plants can now power whole urban regions. Abundant electricity is passed on to the end user at reasonable cost. Further economies of scale allow for the widespread exploitation of non-renewable resources and development of relatively large, professional staff compliments tasked with ensuring the continuity and safety of the electricity supply. Despite some of the imperceptible inefficiencies of this system (like the vast amounts of power lost over

long range reticulation), electricity reticulation would appear to be a triumph in modern infrastructure provision. Unlike urban transportation or stormwater management, reticulated electricity delivers a very high, innately predictable level of service.

The perfection of this system may eventually become the seed of its own downfall. Urban areas have come to rely on this system instinctively. This system, like all human systems, has some potential for failure. When this system fails, whole urbanised regions come to a standstill. Had this viewpoint been stated a couple of years previously, it may have been thought immature or nonsensical. However, no more evidence than the recent North American (New York) blackouts is required to demonstrate the fatal fallibility of this arrangement. The failure of a single power plant brought one of the world's economic 'powerhouses' (pardon the pun) to an abrupt halt.

Where nature, Acts of God or human error cannot fully exploit the weaknesses in our more solid infrastructure networks, an intelligent aggressor might. It would appear at the moment that the only things that would stop modern cities from building large dams or power plants would be the prospect of them turning into a primary target for enemies of our nation, in particular terrorists.

A sustainable answer to this may be to encourage individual landowners to generate power on site using solar/photovoltaic cells. I have less faith in the alternative of providing a series of smaller power plants (except in the case of industrial or commercial complexes), compared to the benefits that might be accrued by lessening the demand on centralised power networks through encouraging on-site provision.

How can the uptake of renewable energy for residential and commercial properties be promoted? What are the impediments to utilising renewable energy sources in residential, commercial and industrial areas and how might these be addressed?

For the majority of people in residential areas, on site solar/photovoltaic systems would need to be seen as reliable (even fail-safe), safe, ecologically friendly, low

maintenance and cheaper than the status quo. The option of selling excess power back to the grid may be a helpful but not decisive incentive.

For commercial or industrial areas, the prospect of a small scale power plant may be attractive, provided it presents all of the fundamental advantages sought by people in residential areas. A key advantage presented by a commercial or industrial area is that the structure for such an energy generation enterprise may already exist either through centre/estate management. The advantages of adopting a small power plant become even more apparent within an industrial area organised along the lines of an industrial ecology, where waste products (including heat, water and solid waste) are seen as useful inputs to other enterprises (including a power plant supplying a local catchment). Such enterprises still appear to be highly risky, they must compete against regional power authorities and the law of entropy. They also need to be able to secure continuity and quality of inputs from their user catchment (who would undoubtedly expect a fair price on their waste). Yet such enterprises have proved to be successful in a number of industrial estates around the world. Perhaps a combination of good planning, innovative engineering, sound economic planning and regulation may see more of these enterprises emerge in this country.

Planning for Sustainable Industry (2001), edited by Roberts and Wadley and published by RAPI/PIA provides insightful examples of industrial ecologies and other industrial parks utilising small scale power generation.

Should higher efficiency standards be mandated for all new dwellings, appliances and business operations?

The move towards higher standards for new dwellings and commercial buildings is important. It is necessary to acknowledge that the construction of a building establishes a pattern of operational energy use. Maroochy Shire led the state of Queensland with the introduction of a Design for Climate Code into its Planning Scheme, specifying minimum standards for energy efficiency. The issue of energy efficiency in buildings has received further emphasis recently with the introduction of national standards.

There are a number of brief points that I wish to add to this debate. Firstly, embodied energy in construction is a key issue for sustainable buildings. Attention must be paid to the efficiency of building materials and their source location if we are to talk seriously about energy efficiency. Secondly, an important measure of a building is how it interacts with its environment. Accepting this, we need to expand on the important issue of building orientation to include orientation and interface with the existing natural environment of a site.

Obtaining real efficiency from household appliances is a little more difficult, particularly whitegoods. Efficient items always tend to be those with the largest capacity, i.e. those built for workplaces or large families, reflecting the greater efficiency obtained from goods held in common (provided they are reasonably durable). This is particularly true of an item like the average lawnmower, which in most suburban applications would be heavily underutilised given its design capacity (as compared with a similar item utilised frequently by a professional lawnmower).

The living arrangement of most people in cities is oriented towards personal consumption rather than efficiency. We are oriented to the personal rather than the communal. Household sizes appear to be getting smaller, therefore people do not require a large (and thus 'energy efficient') washing machine or fridge. It would appear to the isolated observer that we have forgotten how to administer common property. I believe that this is the real wider issue when we discuss energy efficiency in appliances and other consumer goods, rather than the relative efficiency of the item itself.

The transition from private property to common property in urban areas without a pay-per-use system in place would be no small feat. It would call on great trust from all those with an interest and clear rules on how the common property is to be used, maintained and liquidated. Ecovillages in urban and rural areas are based around a generally high degree of common ownership, but the application of this model becomes more difficult within our urban areas which are generally designed for private ownership and consumption.

A turn towards common ownership is generally something that tends to occur in times of shortage or economic recession/depression. An accompanying trend is that towards production of goods by households e.g. the Depression of the 30's saw a massive rise in home brewing (illegal at the time). It would appear that what is often 'bad' for the mainstream economy is generally 'good' for the alternative economy and self-sufficiency. The exception to this of course is the irreparable damage of that which is shared by all in common, namely the air, land, and water. This is bad for everyone in the long run: it is the Tragedy of the Commons as described by Hardin, where a commons exists without responsibility for personal impact. The successful commons of the future is one that exists with personal responsibility for impacts rather than public responsibility.

How can residential and commercial developments incorporate renewable energy generation into planning and construction?

For an example of how residential buildings can incorporate renewable energy generation refer to *Sustainable House* by Michael Mobbs. Mobbs provides electricity back to the grid from solar panels on the roof of his urban tenement building in Sydney. This title can provide much better information on renewable energy for residential buildings than I will be able to provide here.

Commercial developments can incorporate renewable energy generation in various ways. The recently opened Hall Chadwick Building in Brisbane is the city's first 4 ½ energy star commercial office building, incorporating photovoltaic cells for production of solar power, which as I understand it, is supplied back to the grid. Energex in Queensland would be the best contact agency for further information regarding this.

To what extent should public transport systems seek to change to renewable energy sources?

This is an important change because it provides good advertising for renewables and adds legitimacy to the use of renewable fuels for transport. The Brisbane City Bus

Fleet makes a big deal of being the 'clean air force', by converting to lower-emission fuels like natural gas.

The bottom line with public transport is that public authorities, if they actively seek better quality environmental outcomes, need to practice what they preach starting with upgrades to public transport as soon as practicable. Public transport systems in our cities face a tough battle for patronage as it is. Inviting the potential for criticisms levelled at the ecological impacts of *these* systems would be the ultimate exercise in self-defeat.

Urban Water Cycle

Should cities of the future be looking to develop more localised small scale systems of urban water management?

Like electrical power reticulation, the issue of developing 'local' level systems in the area of urban water cycle management is a difficult one. Key tasks of modern local governments has been to ensure the sourcing and transport of a potable water supply, ensuring that grey water is transported, treated and disposed of, and that stormwater is adequately discharged from urban areas before it presents a danger to people or property. These closed systems must be designed for peak demand, even if this occurs only during a small part of the day. Local governments retain sizeable professional staffs to maintain the expensive infrastructure required for this task.

I see these systems heading in two ways – either towards a high technology version of the current centralised systems that minimise water usage and maximises reuse; or a more decentralised system of urban water cycle management. Both have an opportunity to make a major contribution to the sustainability of urban areas if the programme is tailored to the needs of the population and the characteristics of the catchment.

How do we transform existing developed city areas into more sustainable water management systems?

The scarcity of water on our continent calls for new approaches to the management of water. It is a sad fact of human nature that we must learn so many fundamentals the hard way (and that we must continually relearn them), but this is what appears to be happening in our agricultural and urban areas in relation to water. As a result, municipalities in drought tend to lead the way in their management of water. One such municipality in Queensland is the Gold Coast City Council, who controlled an urbanised area of 425,418 residents (2001), making it the sixth largest city in Australia. The Gold Coast has been in drought for several years, prompting an urgent response to urban water cycle management, known as integrated urban water management (developed in conjunction with consultants GHD). This approach includes dual reticulation of water and grey water (the latter for use in outdoor areas and fire fighting), incentives for strong demand management performance, introduction of efficient high tech systems (including closed circuit TV and robotics for sewers) and rainwater tanks to reduce demand on stormwater systems.

For further details on this system, the inquiry leaders are encouraged to contact Gold Coast City Council (including their website: www.goldcoast.qld.gov.au).

The introduction of technological solutions at the Gold Coast is made feasible partly due to the affluence of its people and also the sheer economies of scale obtained from dealing with almost half a million people in one system. However, such a solution may not be suitable for other smaller or less affluent urban areas. Provided development densities permit, the introduction of on-site or small scale urban water cycle solutions may be possible. As technology improves in the area of septic tanks/composting toilets, it may be possible to integrate these successfully on a wide scale in existing urban areas. Such a move would represent a significant departure from existing systems, placing the responsibility for sewerage disposal/reuse directly on the user. Successful examples of this do exist in urban residential areas, however these are often run by people who are motivated to ensure the successful functioning of such systems. It is uncertain whether the wider public would be willing to take on such responsibility for their waste.

New urban developments, rather than existing urban areas, may provide a better opportunity for the introduction of small scale on-site systems. The management of the urban water cycle can be integrated into site planning, with a full regime planned and approved by the local authority prior to construction. In this way, people considering the purchase of a dwelling can be made aware up-front of requirements for the management of water on-site, thus ensuring the voluntary acceptance of such standards beforehand. Such standards may be upheld by covenant or a body corporate.

What incentives or market-based instruments might be appropriate for residential and commercial enterprises to encourage responsible water consumption and re-use?

An example is provided below of new incentives provided by the Gold Coast City Council for installation of water efficient home devices. These incentives appear to be effective because they directly target the hip pocket nerve.

Product	Saving per household	Rebate
Shower roses (minimum AAA rating)	43,000 litres per year	\$10 per shower rose (maximum of 3)
Water efficient garden products: Garden Mulch, Tap timers, Water crystals and wetting agents	24,000 litres per year	\$50 (minimum \$100 total spend)
Dual flush toilets (minimum AAA rating)	29,000 litres per year	\$50 (maximum of 3)
Rainwater tanks *	Depends on size	\$200
Pool covers	66,000 litres per year	\$200 (minimum \$350 spend)

Outdoor spa covers		\$50 (minimum \$150 spend)
Clothes Washing Machines (minimum AAAA rating)	40,500 litres per year	\$100

Source (GCCC website, 27/10/03)

Brisbane City Council also recently introduced a programme that addressed wider sustainability concerns. A limited offer was declared for heavily discounted sustainable household technologies under the proviso that Council could monitor the usage of these items for a limited time.

Waste

How does a sustainable city bring about attitudinal change and encourage its inhabitants to accept greater responsibility for waste minimisation and management? What strategies are appropriate to encourage eco-efficiency and the reduction of domestic waste?

The problem with waste in the discussion of sustainable cities is the very idea itself. If we take an ecological view of cities, then we would need to look at applications for all of our waste – in essence, a cleaner production approach to the city. This is a leap in awareness that we would need to realise in order to live in truly sustainable settlements. Many municipalities have already undertaken the first step of introducing a recycling programme. The next step is in essence to realise the full economic value of waste, both in its potential reuse and of its disposal. While some will always see a value and find a use for 'waste', in conditions of general affluence there is a lower imperative among the general population to actually utilize waste products.

We need not wait for our current affluence to fade before taking moves to encourage recycling and reuse. Such programmes need to have common appeal, and this can be achieved by building it into lifestyles. The architecture of Ken Yeang, in particular his sustainable residential skyscrapers, provides us with the example of separate recycling

chutes for different recyclables. This 'automatic' separation at the source is an important innovation in recycling. It appears that attitude change in this case (and potentially others) is achieved through conditioning by design rather than active persuasion.

What types of industry are appropriately located within cities, and how do sustainable cities respond to production processes and waste treatments that exist to meet city consumption patterns but occur outside of city limits?

Acceptance of industry within urban areas depends on the sum of impacts of the particular industry and the tolerance of the local population to these impacts. Urban settlements in Australia which have appeared based on the presence of a single industry e.g. mining, mineral refining, sugar milling are subject to the impacts of the resident industry, and for the most part, these impacts are tolerated on account of the critical economic impact these industries have in supporting the urban dwellers.

Pathways for industry seeking a location within established urban areas are no longer paved in gold. Even if regulatory authorities are highly cooperative, increasing environmental awareness among urban dwellers is lifting the benchmark for what is acceptable. People living in urban areas wish to live free of nuisance impacts caused by industry or its transport activities and seek to ensure this when industry comes knocking. Two models appear to hold some sway in integrating industry within urban areas – that is the Mixed Industry Business Area (MIBA) and the Industrial Ecology (including industrial areas that are both of these).

The essential idea behind the MIBA concept is that value can be added by developing industries with a low impact profile in a business park environment. Structures in MIBA areas have a high standard of visual presentation, with operational impacts typically isolated within the building. Hence, such operations can be co-located with office complexes and other uses which benefit from adjacency to industry. Traditional industries that may be found in these areas include some food processing, warehousing and light manufacturing. These may be found next to buildings dedicated to back office functions of major service providers or financial institutions. This combining of uses represents a departure from conventional land zoning

practices. A concept attached to the idea of a MIBA is that of an 'anchor' business, a major industry which attracts other activities through its presence. Such an 'anchor' need not be restricted to a business, it may also be a design concept, a local facility e.g. seaport, or plans for an industrial ecology (discussed below). The MIBA concept comes with high standards for environmental performance in terms of impact, however, little has been said of the actual sustainability of such complexes i.e regarding the management of inputs. Despite this, the MIBA concept is one that appeals to communities anxious about the introduction of industry.

The ideas of industrial ecology respond to some of the gaps in the MIBA concept. In short, the focus of industrial ecologies is the elimination of waste and environmental impact through the utilisation of waste material and energy by resident industries in the ecology as part of their production processes. While the law of entropy demands that outside inputs will be regularly required, such complexes have the potential for high levels of self containment. Such a concept demands careful planning on behalf of the developer or regulating authority, which would appear to increase risk for the developer and demand higher levels of government facilitation and support.

Industrial ecologies are discussed further on page 33 of this submission.

An industry which should not be forgotten in planning for urban areas is that of the home business. These make up a significant sector of the economy (reportedly as much as 30% of the local economy in some Queensland municipalities) and reflect an encouraging trend towards personal enterprise and local production. They have a welcome place in a sustainable city that calls for the local production of goods. However, the sustainable management of these activities within urban areas requires attention. In this matter, local governments must tread a thin line between active management and proscriptive regulation. Home businesses vary widely and therefore have different impact profiles. Some have the potential to cause nuisance or danger to surrounding residential uses, due to customer/service parking, production processes, or storage of volatile goods. Home businesses also pose an added difficulty in terms of their transport requirements – by providing services outside of established centres, they contribute to a car-based transport network. The 'dominant' residential component of a home business, so often overthrown by the successful business

expanding within the dwelling, poses added difficulties for local authorities. How do we manage this contradiction in sustainable development? Through practical experience, I have come to the somewhat compromising conclusion that the need to promote local enterprise outweighs other sustainability concerns. On this basis, local government should champion home business, but under the following proviso: that impacts of production processes are confined indoors and that infrastructure demand is consistent with residential scale usage. Inevitably, successful home businesses will attempt to expand their activities on site. Where this occurs on a large scale in an identifiable area, it should be accepted as a natural transition in land use and local planning instruments should be updated accordingly.

Finally, what of the 'necessary evils' that occur outside of our city or national limits? The uses on which we have some dependence on but would rather not acknowledge as part of our impact? Acknowledging these activities as part of the footprint of a city is an important but difficult step towards real sustainability. I see a passive and active response to these activities that may be combined for maximum effect.

The first approach is one of balancing, of paying a penance for the impacts of these activities. Examples of such an approach include planting trees to absorb carbon emissions, or driving up the price of the service/commodity in order to include the costs of environmental remediation. Such a solution does not exemplify sustainability, but serves to promote its realisation and moves towards an active approach. This second approach looks beyond the tag of 'necessary evil' to pose the questions "What makes this activity evil?" and "What makes this activity necessary?" We cannot continue to brand activities as being evil, especially if we benefit directly from their occurrence. This is akin to those who whine about automobile dependence and foreign oil wars yet see fit to drive to the corner store instead of walk or cycle. It is obvious that these outside activities help satisfy a real need we have developed, therefore there is a requirement to find a new way to meet the need, or develop a new need in place of the old one. Given that many of these activities employ high levels of technology, a historical perspective on the need and activity may be useful in planning for the future. Meeting the need in a new way or replacing the need altogether may involve degrees of sacrifice or cultural change. If we have not the strength to do this, we must take future responsibility for the activity. Such is the inner dilemma of

sustainability: in some ways it is forcing us to acknowledge that many modern systems have provided levels of service expectations which we may not be able to uphold in the future.

Are there economic impacts for a sustainable city in dictating higher environmental standards and waste treatment?

Not only are there extensive economic impacts arising from environmental standards, there are social and ecological impacts as well. In the end, the key question is not about economic impact, but the value we place on a clean and 'natural' environment. Any serious economic appraisal of the introduction of a significant activity will look at the life cycle impacts of that activity. These will include the lasting impacts (e.g. the reputation an activity will bring to the community, follow-on effects from the potential attraction of similar activities, environmental risk etc.). I am convinced that the health costs associated with polluted cities are themselves unsustainable and unwarranted. We must remember that the economy exists within society, which exists within the ecology. Cities exist as a structure to meet the needs of its people, its people do not exist to meet the needs of industries, the government or any other body. They exist for themselves and presumably do not wish to see the products of their labour become the bane of their existence.

In this case I argue for high standards out of principle without getting into the technical details. Other cities have dared to care about their environment, including Portland, which has been rated as one of the most desirable places to live in the world. The introduction of urban containment boundaries, an incredibly high standard in environmental management, was branded as a poor move by real estate interests at the time. However, the environment created by the city and State administration has attracted knowledge industries and the city is now rated as one of the most livable in the United States.

The bottom line is that in Australia we have a country and cities that compel people to risk their lives and livelihoods simply for a chance to live and prosper here. We cannot afford to sacrifice the reputation of our cities for the sake of development proposals not consistent with either our good reputation or a pressing community need.

Transport

What are the transport logistic needs of industry and how can these be managed in a sustainable city?

As I understand it, the transport needs of industry within urban areas these days are for a seamless transport system within urban areas. In essence, the ideal appears to be a system that exists in isolation from the residential areas of a city, which are heavily impacted by road and rail freight. This system appears to be composed of a series of key elements:

- high speed limited access roads and dedicated national gauge railroads providing excellent connections to seaports, rail/road terminals and industrial areas;
- deep water seaports (and increasingly, international airports) located adjacent to industrial and warehouse areas, well connected by rail and road;
- industrial areas located adjacent to road/rail/sea terminals which provide opportunities to serve retail centres conveniently along local arterial roads; and
- location of all of the above to enable 24 operation without impact on residential areas or other sensitive uses.

Of course, this is rarely the case. In Brisbane, one is more likely to see the characteristics below:

- some high speed limited access roads servicing the industrial transport and production apparatus, let down by slower urban arterial roads that provide critical connections across the urban areas of the city. Use of these urban arterials by industrial traffic seriously impedes the other functions of these routes and inflicts unwarranted impacts on urban residential and commercial uses;
- national gauge railroads which stop short of the deep water seaport, thereby enlisting reliance on inadequate inter-urban railway connections which are shared with passenger rail traffic or the road network. These railways run through large residential areas, impeding 24 hour operation.

To its credit, the city has a well connected (though high impact) deep water port and international airport. Nether the less, in Brisbane and many other cities, there is quite clearly a gulf between the ideal and the reality.

Questions over the role of such a system in a sustainable city are important. This system appears to require such a high level of detachment from other uses in order to operate successfully. In addition, it is driven by what appear to be ever increasing economies of scale. These systems employ a large number of people across cities in a variety of sectors. This sector underpins the agricultural, mining, building and retail sectors. It is critical to our exporting and importing capacity. Clearly, the outcomes achieved by this system would need to be achieved in a sustainable city also.

The future of this system relates to the needs of people in a settlement and their ability and willingness to meet a range of their needs from within the city catchment. This practice appears to be a hallmark of a sustainable city, as it reduces energy consumed in transport and maintains local enterprises. But there is still a need to maintain an exporting and importing capacity, to supply other regions in need and to be supplied in turn. Globalisation is fuelling the development of the current system, the latest evidence of this being the international transfer of high value perishable items by air freight. It is difficult to fully encapsulate the impacts of this pattern of global trade and agribusiness, but almost by default it must serve to weaken the initiative to source our needs locally.

The example of the Sunshine Coast and the recent sugar crisis appears to be one example of this. With the sugar industry in crisis since the announcement of the closure of the Moreton Mill in Nambour, the destiny of caneland within the Shire is uncertain. It is no longer the dominant sector of the local economy, and with sugar as the highest value cash crop gone, the caneland would appear to be economically 'unviable' in terms of agricultural uses. The Council has maintained that the land will not be developed as an urban area, while parts of the development industry are investigating strategically located land parcels for urban development in spite of this. A solid future for this land is yet to emerge. Aside from the need here to assess the inherent economic value of green space (and what it really adds to the existing/planned urban areas), is the need to realise the local production potential of this land. While the future of this high quality agricultural land hangs in the balance, the residents of the local area shop at supermarkets and purchase imported produce

from outside the locality or even the country. Some produce purchased would be of local origin, but established agreements between agribusinesses and supermarkets appear to have won the day over local production without a fight. I do not know enough about the industry to provide qualified comment on the production potential of these canelands. I doubt that they have 'fruit bowl' potential, but what disturbs me is that I have not even heard discussions of local production supporting the local population's needs, through a system of community or supermarket supported farms or otherwise (further details on community supported agriculture are provided on page 25 of this submission. If we do not look at the feasibility of these approaches to the issues, we validate the need for a high cost, energy intensive, globalised food industry. Such validation appears to be common trend in a number of important industries.

In short, the need for a modern industrial transport apparatus would appear to revolve around the needs of households. For now it is difficult to imagine modern cities without this infrastructure. I have difficulty predicting the future of this apparatus outside of the current trend, and only with the reinvention and resurgence of local production and initiative on a significant scale may we begin to define a more sustainable place for this transport apparatus.

What initiatives can assist in the reduction of automobile dependence? What are the features needed in new settlement areas to encourage more diverse and sustainable transport networks?

Our current difficulties in the area of urban transport pose one of the most significant and greatly lamented difficulties in urban planning. Breaking the back of this problem may open the door to solutions in other urban planning difficulties almost by default.

Having a sound strategic transport infrastructure based rationale to future greenfield urban development is a first step that has been generally acknowledged in most town planning documents. At its extreme, this involves the introduction of strict urban containment boundaries or criteria regarding public transport for existing cities. One example of such strictness that comes to mind includes the 10 minute rail transport rule in Stockholm – that is that no home should be greater than 10 minutes walk from a railway station, and that trains will run at no greater than 10 minute intervals. This

sort of strategy was introduced early in the city's development, and thus succeeds. It may be of lesser use to Australian cities however, where in some cases it appears that the "horse has bolted".

A variety of examples exist for 21st Century sustainable urban areas, whether we wish to follow them or not. These include car free cities to those that can produce food in their green spaces. The essential issue to recognise here is that there have not been many 'new towns' created since the Federal Government got itself out of metropolitan planning – new settlement appends itself to existing cities and towns. Due to the specialised labour force that a city attracts, each new greenfield settlement brings with it a diverse transport demand. Thus even within the most well conceived new appendage to the city, expecting levels of self-containment that will promote anything like a car free pattern would appear to be wishful thinking. The approach to new greenfield settlements which I have seen appears to be based on the 'Green Street' design methodology, which appears to result in smaller standard lot sizes accommodating standard size detached dwellings fronting smaller suburban streets. I have trouble determining the transport merits of this form of development, but the merits to the developer appear to be apparent: greater yield and (potentially) lower cost roads. Planning for employment within these new settlements is important, but given the diverse transport demand which incoming residents are bound to have, planning rapid line-haul public transport and feeder bus services running from the new town centre to other centres also appears to be a worthwhile strategy.

Our historical pattern of land use and transport works against the objectives of many involved in the development industry. One of the great problems in the area of urban transport is that the transport pattern is *designed into* any urban area, and once established, is difficult to change. Hope for change in this area increases as urban consolidation occurs and higher density housing replaces traditional detached dwelling housing. With greater densities in urban areas, the provision of public transport becomes more feasible. In addition, it is more likely that the same amenities previously provided across a suburb will be able to be provided across areas half or a quarter of that size – hence, within a walkable scale. In searching for a sustainable transport pattern, we must focus on taking the locations to the people, rather than the other way around.

Being an avid walker, cyclist or public transport patron in outer suburbia requires real determination. I should know, I have been walking and using public transport since I was in primary school, that is, when my parents did not ferry me to school out of safety concerns or convenience. I have never owned a car, although by normal standards I could probably afford to run one. This has been a lifestyle choice that has differentiated me from many of my peers. Relying on your own feet and public transport to get around to various destinations in a car-oriented city region requires solid forward planning, as well as a predictable pattern of trip making. But that said, I personally gain numerous benefits:

- *I get daily exercise* – by walking to and from work everyday I get time to reflect on my daily tasks and arrive at work feeling good rather than feeling like I've survived the transport trip;
- *I feel safe and save money* – there are things that you need to watch when you are walking or travelling by public transport, there are security risks in streets with no activity and public transport stations that are infrequently serviced. People driving cars, while most of the time considerate, also pose a real risk. It is difficult to recommend what I do to everyone, especially given the current situation on our streets and in public transport. But I still feel safer and more in control than when driving a car, where a small lapse in concentration can place yourself or someone else in mortal danger. At least I will never have to bear the responsibility for damage to someone else if I walk or commute by train/bus. Nor would I have to bear the maintenance and running costs of a vehicle;
- *I get time to think to myself and read* – walking and public transport is seen as 'dead time' to most of its critics. "It takes a long time and is therefore inefficient", some may say. No time is dead time unless you allow it to be, and what is said about public transport in this vein is only said by the pressured or impatient. My town is around two hours train ride to the centre of Brisbane City. The equivalent car journey is around 90 minutes (although this is unpredictable). Some people berate the train service and I do not understand why. They would prefer to spend 90 minutes concentrating on the road, while I spend 2 hours concentrating on a favourite book or research. I don't need people to tell me what is more inefficient, and I never ask for the outspoken

advice I receive either... One fact that does explain this opinion regarding the Brisbane-Nambour train is the fact that connecting services from the centre of Brisbane may not meet these people's needs (even though it connects to all urban train services and express buses). I still say that the price of this trip is a small price to pay for what can be achieved with this time.

Transport was the first aspect of sustainability I came to discover and understand. My patterns now were deliberately planned in advance, as part of choices for a better lifestyle. I have selected a location that allows me to fulfil my transport needs, at the expense of other factors deemed more important to other people. All of my key destinations are in easy walking distance.

In planning for more walking, cycling and public transport trips, transport planners need to pick their battles. The first battle is to provide help to those who seek it. A recent pilot programme developed by the Western Australian government has focused on providing information and practical assistance to those who wish to change their transport pattern. This includes personnel to provide assistance with everything to public transport and ticketing, through to free bicycle rehabilitation. This programme has claimed some significant victories so far.

The second battle to pick is those areas that, by virtue of their planning, naturally lend themselves to more sustainable transport patterns. Key among these are inner city areas or urban towns of around 5,000 to 20,000 people where a large proportion of dwellings are within close walking distance to centre areas. A trademark characteristic to look for is abandoned shopping trolleys in open space areas. This is a practice deplored by people who do not understand what it means. It is a sign that people are making their shopping trips by foot instead of by car. In my own community, this is a common 'problem', but is easily overcome by sending a trolley tractor on a weekly patrol of the suburbs. One elongated trip is made instead of tens or even hundreds. Could we see trolley bays in public parks located on walking routes? Sounds absurd, but give it a second thought.

Another important battle is to combat the impediments to walking and cycling in the local area. This could be a number of things, including unsupportive topography, long distances to centres, lack of paved routes, busy 'threatening' roads, lack of security lighting or lack of end-of-trip facilities.

What I have detailed so far are the easy battles, they can be fought and won without great expense. Other questions are more difficult.

Most governments have moved on from giving their road planners an open cheque. These days a dose of realism is bringing things closer to the ground, with design levels of service for roads being pushed downward due to budgetary or physical necessity. However, there is no doubt that vehicle travel is still an expensive mode in terms of its impacts on the wider community. In some regions, free public transport has been mooted as an alternative to continual high level upgrading and expansion of road routes. Perhaps this should be tried?

The bottom line in this question appears to be whether people will willingly convert to more sustainable modes of transport if they provide a high standard of service at reasonable cost, or whether a coercive technocratic planning solution is required. I believe that we should try the carrot first and let the stick emerge over time. We must plan for a variety of lifestyles in the future and urban transport will reflect this. There are some people who will never sacrifice their right to drive inappropriately designed vehicles around our urban areas. However, I think that a coordinated approach which paints the benefits of a sustainable transport lifestyle (as described above) will find ways to win over the practical minded for at least some of their trips.

A key source for this, also listed in the references is Newman and Kenworthy *Cities and Sustainability: Overcoming Automobile Dependence* (2000). The work of these Australian researchers is well known in transport planning circles and should be sought out.

As a footnote to this response, an important consideration in looking at urban transport in the wider picture of sustainability is the impact of higher density housing on the receiving ecology. Troy, in *The Perils of Urban Consolidation* (1996) points out the deficiencies of high density residential development in an argument that provides an interesting counterpoint to Newman and Kenworthy. One standout point in this argument is the impact of such development on the urban water cycle. With increased hard stand and impervious areas, natural drainage patterns may be seriously affected. In addition, Troy raises concerns that garden sizes will be reduced and more dwellings will have no garden whatsoever. Clearly, these and other concerns

discussed in this title need to be addressed in the consideration of future urban consolidations.

Should new transport technologies, such as electric cars and buses, be promoted as alternative to conventional fuels?

The answer to this question would appear to be yes – there is a need to divert significant resources to find ways of powering vehicles with fuels not derived from oil, or even non-renewable resources. Groups within the fuel industry have seen this need and are already arguing within the industry for change in this direction. As part of a global effort, we need to work towards a *sustainable transition* away from oil-derived fuel, lest we should witness the inevitable demise of Middle Eastern, North American and Siberian reserves, forcing opportunistic, desperate prospectors farther afield, even to Antarctica. The consequences of such a move would be the final and decisive impact of a high impact but historically short-lived industry. People will continue to power their vehicles using oil-based fuel in the short term, but a sustainable transition in our cities and across the globe is something we can be working on positively ahead of the potential forthcoming crisis.

What is the role of federal government in assisting metropolitan areas to restructure transport networks in line with more sustainable settlement patterns?

I have worked as part of a consultant project team on a Federally-funded study into transport in a metropolitan area. I found the approach and scope of the study most encouraging, particularly the emphasis on community consultation. A key word in this focus question is “assist”: the Federal Government should provide finance and a clear line regarding its baseline requirements for the planning of the National Highway network or whichever transport network is of concern. Other than this, I place a lot of faith in local communities to find ways to meet their needs while satisfying the needs of the Federal Government. Local and State authorities in urban areas are likely to have a better idea on what is locally sustainable. They are likely to understand the wide range of interests affected in their municipality and how they may be best balanced. The solutions to these issues facing the Federal Government are more likely to be solved by local and State initiative (particularly land use

planning issues). In solving issues dealing with nationally significant transport infrastructure, a series of small steps may need to be taken over time rather than a great leap in restructuring transport networks.

Most important for the Federal Government on this question is the need to learn from past mistakes. Don't plan the National Highway network retrospectively. Don't put new flight paths over densely populated residential areas. Work with State governments to get new industrial areas located adjacent to seaports and airports where appropriate. I realise that this may be seen as a difficult request but if sustainable settlement patterns really matter to the Federal Government then these requests should be considered in future.

What are the needs of transport systems for them to be equitable, accessible and economically viable?

Equity and equitable levels of service in the transport system is an elusive concept. If it implies the ability to reach all areas of an urban settlement within a comparable timeframe, then contemporary Australian cities are unlikely to perform well.

However, if we restrict this high requirement only to the major transport 'arteries' of a settlement and settle only for *accessibility* as far as the non-arterial parts of the settlement are concerned, then we may have a more useful objective to work with.

Ideally, public transport should perform as well as, if not better than private transport along the key arterial transport routes of a settlement. This reality is already being realised in Brisbane with the South East Busway proving to be a success, not only in funnelling bus trips into the inner city, but also in demonstrating the power of line-haul public transport to onlookers in private vehicles located adjacent to the route.

This infrastructure delivers a high level of service to patrons, with an acceptable (but increasing) cost for regular commuters.

In order for public transport to be physically accessible, I should think that 10 minutes walking distance from doorstep to station should be the benchmark, perhaps less for high density residential areas. Economic accessibility is as equally troublesome as equity – in order to measure this, we must look at where the tax and ratepayers transport dollar goes. In most settlements, subsidisation of private vehicle transport is costly and dominates the transport budget. Hence, even those who do not operate a private vehicle still pay for the opportunity. Based on this, and the environmental

health benefits of public transport I think that regular patrons should be recognised for their 'disproportionate' contributions to the road network and rewarded with generously subsidised transport fees. It is also important to remember in the discussion of fees that whole groups of people, particularly students and the infirm, are unable to operate an automobile. These people deserve some level of transport independence, hence the justification for a public transport system of reasonable cost and service standard.

It is my presumption that economically viable public transport services require a significant degree of government subsidy, unless they also function as scenic routes supported by tourist traffic. In requiring subsidy, they are scarcely different from private vehicle travel, which is also subsidised by tax and rate payers. Viable public transport services also require security of tenure as the sanctioned transport provider (for private companies), adequate supporting infrastructure, a dedicated (even 'captive') patronage, 'fair' pricing, and a land use pattern which facilitates efficient services. All of this combined makes for a tall order in many existing urban areas.

Is a more decentralised nodal type of transport network appropriate for commuter and traveller needs?

There are different viewpoints on this question. Tokyo, now the largest city in the world, is said to be held together in scale only by its many villages. It would appear to be based around a decentralised nodal type of transport network. Although a decentralised nodal system sounds appealing, I am unsure of how appropriate such a network is in the Australian urban context, especially given the specialisation of labour. If our labour force and daily needs were less diverse, a decentralised nodal pattern may work marvellously. Unfortunately, this does not appear to be a reality. Such a pattern would have difficulty fulfilling our current needs, wreaking havoc on commuters and proving illegible for travellers.

It appears that in existing cities, at least for now, the best pattern is to centralise activities and then develop economies of scale in public transport trying to get people to and from the major centres. On a regional level, and in cities where there are established congestion problems, decentralisation may be the order of the day. As

noted earlier, decentralised cities exist overseas, and it would be interesting to see one planned along these lines in response to Australian conditions.

Building and Construction

How can green construction and refurbishment techniques be integrated into standard building practices? How can eco-efficiency innovations be promoted to achieve a market value in both commercial and residential buildings?

Integration of green approaches into standard building practices will be achieved through a combination of regulation and fashion. Regulation will provide a blunt instrument to ensure that homes achieve some sort of energy standards. Examples of this include the National Energy Efficiency Standards. However, such standards represent top-down solutions to achieve such goals. To allow the market to lead the push for eco-efficiency innovations these methods and materials will need to become fashionable. This means that architects and designers will need to be able to sell them convincingly, and it follows that students of architecture, building and design should be educated on the ecological impacts of building activities and the advantages of following green methods. As we continue to publicly reward innovative green architecture that meets client needs, and embrace it as standard practice in our universities, the closer this approach to building will move towards the mainstream.

What are the impediments to eco-efficiency principles being taken up across new housing developments and commercial areas?

If regulation and fashion are the methods by which we would shape a greener building ethic, it follows that lack of effective regulation and lack of fashion are the key impediments to such an ethic. While this first issue is being addressed, building materials with low embodied energy (e.g. wood, straw, mud) are seen as being flimsy or subject to unacceptable natural stress (e.g. termites). Ways must be figured out to combat this perception, without drastically adding to the energy required to produce these building materials. On-site water cycle management, including management of grey and black water is seen as being a potential inconvenience and nuisance. We live in an 'automatic' society, where people who have been working hard in their

workplace all day do not necessarily have the energy or motivation to persevere with the perceived drudgeries of maintaining eco-efficient household systems. Once again, this represents a fine area for pilot projects and designers to lead the way in showing how eco-efficiency can be applied successfully in conventional households.

What type of incentives or standards for new developments might be appropriate to encourage more sustainable residential complexes?

Standards to promote the construction of more sustainable residential complexes could be administered through a local government planning scheme or local planning instrument. This would need to be supported through local government staff knowledge, active support and follow through. Local governments in this situation would ideally have planners and engineers knowledgeable in sustainable design. Inclusion of such standards in a planning scheme is no small commitment.

In terms of financial incentives for sustainable development, this may not be something that a local government may be able to supply readily. This does not mean that local municipalities are not interested in ecologically sustainable development proposals – indeed, they appear to be regarded as anything from a major progressive step to an interesting curiosity. Incentives at the local level are more likely to come in the form of trade-offs e.g. high plot ratios in exchange for low embodied energy construction or dedication of a conservation reserve on site. Financial incentives and general guidelines should be provided by State and Federal authorities, thus ensuring greater opportunities for sustainable proposals across a wider base.

Urban Plans for Lifestyle and Business

What planning models and zones can we use to accommodate the different lifestyle needs and preferences of Australians in cities?

Refer to 'The Question of a Future Model' on page 15.

Are urban hubs and communities concentrated around public transit nodes an appropriate future model to suit Australian lifestyle needs?

Such a pattern would certainly be an improvement on what we have. I personally do not believe that there is something endemic within the Australian psyche that demands two cars per household and unabated freedom to travel wherever a vehicle

can go. This is an expectation which people in auto-oriented cities have been raised with, right alongside a parallel belief that public transport was, in general, slow, unreliable and for people unable to drive or afford better e.g. students, drunken revellers, and the urban underclass. The inefficiency of these 'pioneer' beliefs has contributed to an inefficient land use/transport pattern and arguably an inefficient people.

These beliefs need to be supplanted with the expectation that the public transport system will provide a high quality, predictable level of service and that by travelling to work by car, one runs the risk of being caught in traffic congestion. The reality of induced capacity in urban motorway building is suggesting that the latter will become a reality, however it is only good forward planning in greenfield and existing developed areas which will allow the old beliefs to be successfully overthrown.

My underlying assumption behind the concept of a public transport node is that a line-haul public transport route serves such areas. However, 'punching through' a new line haul transport route to existing and future urban areas is clearly a difficult and highly expensive exercise. There is no easy answer to this in the short term, however a number of cities have benefited by running such line-haul public transport routes alongside or within existing urban motorways. Particularly praiseworthy is Brisbane's South East Busway. This line-haul bus route, which runs alongside the Pacific Motorway, has contributed to the further development of existing nodes (Upper Mt. Gravatt/Garden City, Mater Hospital Precinct, South Bank). The Busway also contributes to greater levels of efficiency in existing bus services. Because buses (and emergency vehicles) can access it at many points along its length, the Busway can act as a 'funnel' for existing bus services, providing a high quality, predictable level of service to all its traffic.

A key obstacle to the success of public transport hubs as commercial centres is simply the diversification of the labour market. The range of occupations appears to be increasing in response to the introduction of new technologies and the diversification of existing markets. A key side effect for the increasing number of specialised workers is the inability to find local employment – hence the need to travel greater distances to and from work. I believe that the average travel time from home to work will eventually surpass the traditional half hour timeframe if this trend continues. While a high performance public transport network can contribute to greater general

accessibility, it is only the sophisticated transport systems of the world's mega cities (London, Paris, New York, Tokyo) that I believe could successfully resolve this problem on a wide scale.

How do we ensure that further urban expansion occurs as planned community developments?

One method which I have seen employed with some success in Queensland is a land use zoning which specifies the development of a structure plan for an entire area covered by a contiguous zoning designation. Such areas have been called 'Emerging Community' or, more overtly, 'Master Planned Community'. The requirement for a structure plan in these areas is usually supported by a planning scheme code that specifies the matters that must be addressed in preparing a structure plan. This approach appears to be sound.

The only obvious problem with the approach is that such land use designations tend only to be applied to large land parcels. Typically, development applications involving structure plans receive extensive attention from assessing authorities, however, such developments do not constitute all residential subdivision. Less conspicuous urban and rural residential subdivisions do not receive such scrutiny. This appears to be pronounced in peripheral local government areas that already possess large land areas supporting 'dormitory' suburbs.

At least in the short term, expecting that all urban expansions (from the very large to those under twenty lots) will be designed for successful integration appears to be somewhat unrealistic. However, what local governments can do is to ensure that areas zoned for residential use have sufficient critical support infrastructure planned ahead for them. In looking at the 'community' nature of a development, prescribed social infrastructure may include land designated for parks and community facilities (e.g. libraries, community halls). In this way, new development can be required to contribute to the development of community infrastructure in the local area.

Concluding statement

I believe that it was Norman Cousins who said that the real tragedy in life is not death, but what dies within us each day. As a member of the planning profession, I feel the profound magnitude of the problems with which we are confronted in this arena every day. Whilst maintaining the systems that prevent new development from contributing further to the existing problems, we are faced with the interlinked challenges of employing sustainable technologies in our cities, and resolving a surreptitious dissatisfaction and search for deeper meaning among those living in modern urban areas. We must not let the issue of sustainability continue to become a stage for an emerging tragedy in our urban regions or elsewhere.

In addressing these issues, we must avoid any preconception that we will be able to skirt around the edges in order to preserve political sensibilities, and satisfy the 'inherent' conservatism of Australian society. I have a more optimistic view of the Australian people: I think that they have a skepticism bred from being treated as conservative, I think they are intelligent and from my experience of public consultation have solid ideas on what constitutes good governance and urban quality. In addition, the local knowledge that they have often exceeds that of the experts. Sustainability is knowledge intensive and sustainable solutions tend to be based on local knowledge. Importing knowledge without interpretation is a fatal error: the human measure of a technically 'sustainable' system is how well the people who live within it can understand and support it.

The positive ramifications for combined action in the areas of technical and human sustainability are likely to be vast. That we have the ability to survive this challenge in my mind is not in question. As stated earlier this problem is not a question of 'resources': in terms of what would be required to make such a shift we are living in a rich country. It is a question of human motivation and political will. It is a willingness to learn from our mistakes instead of denying them, it is a question of listening to people and not being afraid of what is different or unfamiliar. This is an issue of taking a hard look within and working out where we really want to be. It is about planting seeds instead of planting the seeds of our own destruction. It is about

accepting that truth comes in many directions and in many forms. It is about the things that people know and want but aren't about to talk about.

To stick to the technical questions in this inquiry is to stay to the tried and true formula, 'develop a policy position, and then validate it with an inquiry'. We are talking about the future of our lifestyle - this is not a question only for the technocrats. It is fundamental question about what we expect out of life in our urban areas and the things we need to do to ensure the survival of life in Australia and around the world.

What a great legacy it would be to set an example for the world in our urban areas. The new playing field of sustainability has presented us with an opportunity that is right in the pocket of what we have learnt from this continent, the quest to create human systems that work as well as natural systems. We have the opportunity to become what will be regarded as an advanced culture, something that we have not dared in living memory.

Annotated Reference and Recommended Reading List

These listings aim to provide an overview of the references and influences shaping the submission. A number of obscure but highly valuable references on sustainability issues are also included.

Print Material

Friends of the Earth Brisbane *Towards a Community Supported Agriculture*.

Brisbane: Friends of the Earth Brisbane

This title presents a strong argument for community supported organic farming. It provides details on the industrialization of food production and the benefits of local organic produce as an alternative to 'fast' genetically modified food. Paints a vision for a community supported agriculture and guidelines/case studies on the establishment of such arrangements.

Hardin, G. "The Tragedy of the Commons" in *Science*, 162(1968):1243-1248.

Garrett Hardin's landmark essay exposes the theoretical shortfalls of technical solutions to issues of food supply and population. He details the problems with regarding the planet as a commons, dismissing the notion of infinite resources and the maximization of individual utility leading to the greater good. The key message as I understand it is the need to curb individual misuse of the environment.

Hollick, M. and Connelly, C. (1998) *Sustainable Communities: Lessons from aspiring Eco-Villages*. Quinn's Rocks, W.A.: Praxis Education (ISBN 1-876394-02-1)

Not widely available, this is the best title I have been able to find on the development of eco-villages. Based on a world tour of successful rural eco-villages, this title provides a unique insight into their functioning. This book is well structured and researched, providing a solid example of the synthesis of technical and human sustainability concerns.

Howden, P.F. (2002) *How to Live – Free at Last!* Macleay Is.: Zeus Publications (ISBN 1-876882-93-X)

An unorthodox but highly intriguing look at the farther reaches of sustainable living in what is reputedly Queensland's most sustainable house. The author claims to live on approximately \$28 per week, from a sustainable house geared for low voltage appliances and supported by sustainable on-site water cycle management and a food jungle on his urban residential block in Moreton Bay. This is an extensive work that touches on many aspects of sustainability not examined by other titles. Available online.

Kanaley, D. (2000) *Eco-villages – A sustainable lifestyle: European comparisons for application in Byron Shire and New South Wales*. Mullumbimby: Byron Shire Council

A useful guideline to local governments on the idea of an eco-village and the implications of this for local government. Provides guidelines for eco-village establishment and case studies of successful European ecovillages.

Maroochy Shire Council *Sustainable Housing: Zero Greenhouse Gas Emissions*.

Nambour: Maroochy Shire Council

As part of seeking residential dwelling designs that conformed with the Design for Climate Code in the Maroochy Shire Planning Scheme, Maroochy Shire Council funded a demonstration home that would provide an example of how the new standards could be met. This was known as Braminy House, and this title provides the details of its design and costings. In addition, it provides useful hints on eco-efficiency around the house.

Mobbs, M. *Sustainable House: Living for our Future*. Marrickville, N.S.W.: Choice Publications

An important guide on the improvements for sustainable living that can be made to inner urban dwellings in Australian cities. Based on the inner urban Sydney tenement house retrofitted for sustainability by Michael Mobbs. A well-known title.

Mollison, B. (1988) *Permaculture: A Designer's Manual*. Sisters Creek, Tas.: Tagari Publications

Regarded as the 'bible' of sustainable design by many, this is the seminal work on the design approach of permaculture developed by Australian Bill Mollison. Permaculture offers a comprehensive approach towards the design of technology and human development for integration with the natural environment. This work has had a profound international influence since its release and its discussion. Its design techniques for urban areas and urban policy are highly recommended to the leaders of this inquiry.

There are many titles regarding permaculture available in print these days. A useful introductory text is *Introduction to Permaculture* by Mollison and Slay. David Holmgren, the co-founder of the permaculture concept, has also recently released a book *Permaculture: Principles and Pathways beyond Sustainability* which is reputed to provide thought-provoking discussion on environmental policy and permaculture.

Morris, D. (1969) *The Human Zoo*. St. Albans, U.K.:Triad/Panther

An absorbing study of the lifestyles and power relationships of humans within modern cities. A must-read for those interested in the modern human condition and issues of human wants and needs. It provides a disturbing account on the progression of human actions and lifestyles since the Agricultural revolution. Optimistic conclusions drawn by the author, while laudable, are not convincing.

Newman, P.W.G. and Kenworthy, J.R. (1999) *Cities and Sustainability: Overcoming Automobile Dependence*. Washington D.C.: Island Press

A relentless technical and moral critique of modern transport planning and land use patterns in Australian cities and those abroad. Rich with examples of sustainable practice. Details models of future sustainable cities.

Queensland Transport (1999) *Shaping Up: a guide to the better practice and integration of transport, land use and urban design techniques*. Brisbane: Queensland Transport

This guide is fairly well known among Queensland planners, but not so among those from other states. It provides guidelines on the successful resolution of integrated land use-transport problems, ranging from the regional to the traffic intersection level. Original versions also included a useful guide to medium and high density residential development in Brisbane. Available free online from the Queensland Transport website.

Quinn, D. (1995) *Ishmael: An Adventure of Mind and Spirit*. Bantam

Quinn, D. (2000) *Beyond Civilization: Humanity's Next Great Adventure*. New York: Three Rivers Press

These titles present perhaps the most interesting approach I have ever found to issues of sustainability. *Ishmael* (the first title in a 3 part series) is a fictional narrative tale of the relationship that builds between a disillusioned writer and a super-intelligent gorilla which communicates with the writer subliminally. While hardly a conventional approach, the powerful message of this title commands attention: the recent history of humans is wreaking unprecedented damage on the environment, and in order to change this, we must take on new beliefs about our role on the planet. *Beyond Civilization* is a non-fiction title which provides a discussion of the issues raised in the *Ishmael* series. Both are powerful, thought-provoking and somewhat controversial titles which should be read by those who seek to understand the human historical dimension of sustainability.

Roberts, B.H. and Wadley, D.A. (eds.) (2001) *Planning for Sustainable Industry*. Brisbane: Royal Australian Planning Institute

A recent compilation of papers prepared by professionals working in the planning of industry, with a particular orientation towards the discussion of the technical and economic aspects of planning sustainable industrial areas. Useful in exploring the issues and providing examples of best practice (and the theories behind them).

Troy, P.N. (1996) *The Perils of Urban Consolidation: A discussion of Australian housing and urban development policies*. Sydney: The Federation Press

An important title which details the ecological dilemmas of urban consolidation and future approaches to Australian cities. This title takes a counterpoint to the emerging orthodoxy and thus makes important reading.

Westerman, H (1999). *Cities for tomorrow*. Sydney, Austroads.

An exhaustive guideline on the planning of land use and transport within Australian and New Zealand urban areas. Well known and highly recommended for urban designers, planners and civil engineers seeking advice on the planning of urban transport and land use systems.

Internet

CERES – Centre for Education and Research in Environmental Strategies

(www.ceres.org.au), a major centre of sustainable gardens and lifestyle in Melbourne, CERES aims to be a world-class model for Environmental Sustainability, Social Equity, Cultural Richness and Community Participation.

Global Ecovillage Network Australia and Oceania (genoa.ecovillage.org/index.html), provides details of eco-villages in our region and links to those around the globe, as well as eco-village resources.

Gold Coast City Council (www.goldcoast.qld.gov.au), in particular for their urban water cycle management programmes

Green Guerillas (www.greenguerillas.org), founded by Liz Christy 30 years ago, this group has gained worldwide prominence in urban greening circles. Their primary activities are the establishment and maintenance of a network of community gardens across New York.

Los Angeles Eco-Village (www.ic.org/laev/Index.html), the website of the Los Angeles Urban Eco-Village, a remarkable long standing project in which a couple of city blocks combined to form an eco-village within the city.

Northey Street City Farm (www.northeystreetcityfarm.org.au), the website of an influential inner city permaculture farm in Brisbane. The farm is located on public parkland and provides a community meeting and education place whilst maintaining its parkland function.

OZ Green (www.ozgreen.org.au), the website of an important organisation dedicated to the improvement of Australian and world waterways. This organisation is also running a programme aimed at developing youth leadership in environmental issues. In my experiences with this programme (known as YouthLEAD) I have found it to be remarkably effective.

Rocky Mountain Institute webpage on Village Homes, Davis, California

(www.rmi.org/sitepages/pid209.php), Village Homes is regarded as a landmark in sustainable residential developments by many. Significant innovations include an

unprecedented bias towards pedestrian travel and the reduction of private open space in favour of common areas for the production of food.

Social Entrepreneurs Network (www.sen.org.au), a portal for those individuals and organizations involved in addressing social issues related to sustainability.