

2. A sustainable cities framework for housing

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Introduction

Sustainability has become a key concept for how any city plans for its future. All Australian cities now have metropolitan planning strategies which are framed around sustainability. This chapter takes the sustainability framework developed in the Western Australian *State Sustainability Strategy* (WA Government 2003) and applies it to cities, with an emphasis on housing policy. The WA Framework for Sustainability included a definition and a set of principles (as set out in Box 1) which can be universally applied to demonstrate how we can think about sustainability. The principles can be applied to any area of human activity. This chapter will use these principles as the framework of an approach to housing for a sustainable city.

1. Long term economic health

Sustainability recognises the needs of current and future generations for long term economic health, innovation, diversity and productivity of the earth.

Humans can live in many different habitats but cities have become the preferred habitation for half the world. The 8000 years of experimentation in cities, since agricultural surpluses were found to be tradable for various urban services, has created *homo urbanus*. Globalisation of the economy has accelerated the growth of cities as the places where opportunities exist to participate in global economic and cultural activity. By the mid 1990s cities were growing at 2.3 per cent per year and rural areas at only 0.5 per cent per year based on economic opportunities (UNEP 1996).

Cities and parts of cities can also collapse and die (Diamond 2005). If this economic dimension is not firmly rooted in the reality of the city's bioregion, its use of resources, and its ability to adapt to change, then a city is unsustainable. The continued growth of cities everywhere seems to be inevitable and all Australian cities have firm strategies to accommodate that growth. Decline or collapse is not on the agenda. However, any long term view of history should be quite sanguine about this possibility of collapse. The dark clouds on the horizon of cities include climate change, and its associated threat to water supplies, and the peaking of world oil production which has fed the past century of urban economic growth (Campbell 1991; Deffeyes 2005; Kunstler 2005). These and other threats, with their potential to undermine future urban growth, should be taken seriously.

Some commentators on such apocalyptic possibilities suggest that cities are likely to be abandoned in favour of a new kind of ruralised urban area where everyone produces their own food and only local economies exist (Trainer 1995). Whilst recognizing the important role of local food and the bioregion, this option is unlikely. The history of cities shows that the sharing of services and the division of labour creates far more opportunities. A return to Eden is not going to happen (Newman 2006). The forced ruralisation programs of Pol Pot and Mao were economic and environmental disasters, apart from their social destruction, and their cities were soon rebuilt and refocused as the basis of their future.

Box 1. Sustainability Framework

Source: WA Government (2003) *Hope for the Future: the WA state sustainability strategy*

Definition of sustainability

Sustainability is meeting the needs of current and future generations through an integration of environmental protection, social advancement and economic prosperity.

Sustainability Principles

FOUNDATION PRINCIPLES

1. LONG TERM ECONOMIC HEALTH

Sustainability recognises the needs of current and future generations for long term economic health, innovation, diversity and productivity of the earth.

2. EQUITY AND HUMAN RIGHTS

Sustainability recognises that an environment needs to be created where all people can express their full potential and lead productive lives, and significant gaps in sufficiency, safety and opportunity endanger the earth.

3. BIODIVERSITY AND ECOLOGICAL INTEGRITY

Sustainability recognises that all life has intrinsic value and is interconnected, and biodiversity and ecological integrity are part of the irreplaceable life support systems upon which the earth depends.

4. SETTLEMENT EFFICIENCY AND QUALITY OF LIFE

Sustainability recognises that settlements need to reduce their ecological footprint (i.e. less material and energy demands and reductions in waste), whilst they simultaneously improve their quality of life (health, housing, employment, community...).

5. COMMUNITY, REGIONS, 'SENSE OF PLACE' AND HERITAGE

Sustainability recognises the reality and diversity of community and regions for the management of the earth, and the critical importance of 'sense of place' and heritage (buildings, townscapes, landscapes and culture) in any plans for the future.

6. NET BENEFIT FROM DEVELOPMENT

Sustainability means that all development, and particularly development involving extraction of non-renewable resources, should provide a legacy of enduring value and thus should strive to provide net environmental, social and economic benefit for future generations.

7. COMMON GOOD FROM PLANNING

Sustainability recognises that planning for the common good requires acceptance of limits to consumption of public resources (like air, water and open space) so that a shared resource is available to all.

PROCESS PRINCIPLES

8. INTEGRATION

Sustainability requires that economic, social and environmental factors be integrated into planning, assessment and decision-making by applying all the principles of sustainability at once, and seeking mutually supportive benefits with minimal trade offs.

9. ACCOUNTABILITY, TRANSPARENCY AND ENGAGEMENT

Sustainability recognises that:

- a) people should have access to information on sustainability issues;
- b) institutions should have triple bottom line accountability on an annual basis;
- c) regular sustainability audits of programs and policies should be conducted;
- d) public engagement lies at the heart of all sustainability principles.

10. PRECAUTION

Sustainability requires caution, avoiding poorly understood risks of serious or irreversible damage to environmental, social and economic capital, designing for surprise and managing for adaptation.

11. HOPE, VISION, SYMBOLIC AND ITERATIVE CHANGE

Sustainability recognises that applying these sustainability principles as part of a broad strategic vision for the earth can generate hope in the future, and thus it will involve symbolic change that is part of many successive steps over generations.

However, the core message is that economies must adapt to the reality of the new challenges in sustainability. Long term strategies are required that go beyond the market's ability to respond. We are building housing that will last for 50 to 100 years, but markets only see six months or so ahead. The need for long term planning and housing strategies that can be built into a new sustainability agenda is paramount.

Critical to the new sustainability agenda in cities is how to manage car dependence; increasingly this has become a feature of planning strategies as now it is seen as a major factor in the economics of managing a city. All Australian cities now have metropolitan strategies that attack the issue of car dependence through an emphasis on alternative transport infrastructure and an allied strategy of building more densely in centres and corridors based around public transport. What is the basis for this?

Cities are shaped by transport priorities, increasingly understood in terms of peoples' travel time budget of around 1 hour on average per person per day (Marchetti 1994). This 'Marchetti constant' means that people in cities on average travel no more than half an hour to work and half an hour home again. It has been found to apply in every city (Newman & Kenworthy 1999) and in data on United Kingdom cities for 600 years (SACTRA 1994). Historically this has meant that:

- Walking Cities were (and still are) dense, mixed use areas, no more than 5 km across. This was the major urban form for 8000 years. The centres of Australian cities were formed and continue to function as Walking Cities.
- Transit Cities, which developed 1850-1950, were based on trams and trains which allowed them to spread 20-30 km with dense clusters of corridors following rail lines and stations. Most Australian cities, especially Melbourne and Sydney, grew rapidly in this era and retain their Transit City corridors.
- Automobile Cities, from the 1950s on, could spread 50 km in all directions and at low density. Australian urban development since 1950 has been dominated by this form of development.

Housing in Australia can be classified in terms of these three different urban forms. They shape our housing, how we use transport, and they create structures around which most urban issues are defined in this book. For example, residents in the high density Walking Cities of Sydney and Melbourne use just 3-5 GJ of transport fuel per capita, the inner area Transit City residents use around 15-20 GJ per capita, and the outer area Automobile City residents use 30-50 GJ per capita (Newman & Kenworthy 2006).

There are two long term economic issues associated with these distinct urban forms. Firstly, the Walking City and the Transit City are increasingly the centre of wealth in the new economy and have most of the urban services including a diversity of transport options. Secondly, the Automobile City is finally reaching its Marchetti limits based on car dependent sprawl as well as other ecological limits discussed in other chapters.

Different economies tend to be emerging around the different urban forms. The dense Walking City and the medium density Transit City have higher concentrations of service jobs partly due to the economies of scale and density required to ensure services can be provided but also due to different urban lifestyle preferences. Those with smaller houses and apartments spend less generally on maintaining their house and block and thus have more opportunity to spend on local services. Automobile City areas are more

consumption oriented and less oriented to personal services such as restaurants, health clubs, book shops and cinemas. The differences in urban service provision can be looked on as part of the diversity of the city and the inherent resilience due to different functions. However, there are also equity issues related to access to public transport in the outer suburbs.

Serious long term economic problems are linked to car dependence. Not only will cities that are heavily dependent on cars be vulnerable to peak oil, they are already showing vulnerability to global economic competition due to the kind of economic outcomes they are producing. Car dependence does not appear to be good for the economy of cities. Cities that are heavily car dependent have the highest proportion of total transport costs as a proportion of city wealth, 12-15 per cent of a city's wealth compared with 5-8 per cent of wealth in rail-based cities (see Newman & Kenworthy 1999). In a sample of 100 cities, rail-oriented cities were 43 per cent wealthier than car-oriented cities (Kenworthy & Laube 1999). This is understandable in terms of the sheer space taken up by cars (around 20 times more space compared to rail), the cost of road building, and the cost of driving.

The future economic health of cities demands that they respond to a more sustainable balance between the different forms of transport. The over emphasis on car-based development must be replaced by a greater emphasis on transit-oriented centres in suburbs and walking-centres in the city business district (CBD) and sub-regional centres. This will change the nature of the city form and will inevitably require greater emphasis on housing built into these centres. This will change the economies of these cities but the provision of more Walking City centres and transit corridors need not be at the expense of economic health. In the City of Vancouver the emphasis on high density Walking City redevelopment has been an economic success. Over 50,000 people have moved into the area. There have been significant reductions in car use (31,000 less trips per day) and increases in walking and biking (107,000 more trips per day) (City of Vancouver, 2006).

2. Equity and human rights

Sustainability recognises that an environment needs to be created where all people can express their full potential and lead productive lives, and that significant gaps in sufficiency, safety and opportunity endanger the earth.

Equity considerations drive a lot of public policy, especially in housing. Affordable housing has been a major driver in shaping Australian cities in the past 50 years. Subsidized suburban infrastructure and assisted mortgages have been major factors supporting the sprawl of Australian cities and car dependence. The assumption of car dependence in housing policy has not been challenged until recently. Now Australian cities face an equity problem, as outlined above. The lower income proportion of our society is increasingly located in outer, fringe and coastal peri-urban areas, with very few options for travel other than car use to link them to jobs and urban services. The wealthy have taken over the inner suburbs where there are the most options available in transport and urban services. The residents in these areas spend a very low proportion of their incomes on transport (less than 5 per cent) while in outer suburbs it rises to as high as 30-40 per cent in some households.

Affordable housing strategies need to develop around models that are not car dependent. This might mean building social housing in central and inner areas. Vancouver has policies to ensure social housing is part of all such development. However social housing is especially necessary in new centres designated for middle and outer areas. This might mean the provision of affordable houses through the development of density and scale in projects where a larger proportion of low cost, small units can be provided than in standard suburbs. This approach to affordability is discounted by housing lobbyists who see the provision of cheap housing on cheap land at the urban fringe as the only way to create affordability. However, that traditional route to making housing affordable is no longer sustainable (Newman 2004).

It is entirely feasible to build attractive housing in apartments for less than A\$100,000 whereas many of the over-sized standard houses being built on Australia's urban fringe are two to three times this price. Affordability can no longer be used as the main reason for pushing housing further and further out. Using density to create affordability includes the critical transport dimension, assuming that denser housing is built in the centres which are well served by public transport or where a large proportion of services are provided within walking distance. Such well-placed development needs to be managed to achieve affordable housing gains as the market for well-located housing units is so high that developers can sell them for very high prices. Institutional responses are needed which can ensure a certain proportion of well-located units are provided for by the social housing market. Achieving a balance between fringe-based affordability and density-based affordability is the new challenge for housing policy.

Affordability in housing must also include the sustainability agenda for water and power. Building houses that leak energy and are poorly engineered for water, will harm the poorest in our community most, as well as endangering the earth. The role of sustainability assessment in the development approvals system is critical now so that ways of saving water and energy (e.g. the BASIX process in NSW – see Chapters 11 and 18) need to be mandatory (see Chapters 6 and 9).

3. Biodiversity and ecological integrity

Sustainability recognises that all life has intrinsic value and is interconnected and that biodiversity and ecological integrity are part of the irreplaceable life support systems upon which the earth depends.

The third part of the triple bottom line is to recognize that the earth cannot be neglected in our housing deliberations. The Melbourne Principles developed by UNEP to demonstrate Cities As Sustainable Ecosystems (Newman & Jennings 2006) are being adopted by cities around the world as they attempt to adapt their development to their bioregion and especially to their biodiversity.

The recent metropolitan strategies for Australian cities all stress this ecological factor in their planning. Perth and Sydney, in particular, have found in recent years that their metropolitan areas are very high in biodiversity. In recent studies, Steve Hopper (an ecologist) has suggested Perth may be the city highest in biodiversity in the world. The Sydney Basin was recently discovered to be the fifth most biologically diverse area in Australia, out of 85 bioregions. Nevertheless there are real challenges ahead. Sydney, for example, has 267 species of plants and animals within its bioregion that are listed as

‘threatened’. This is 35 per cent of all the species listed in NSW, despite the fact that Sydney covers only 5 per cent of the state (NSW Government 2005).

Both Perth and Sydney have well established programs to protect key environmental areas. Perth has a mechanism for purchasing open space, especially Bush Forever sites, from a special Metropolitan Improvement Fund that buys up land ahead of the urban front or in areas discovered later. Sydney has almost half of its area set aside as National Parks, State Forests, regional and local open space, water catchments, wetlands and beaches. The New Land Release areas have borrowed Perth’s approach to purchasing new biodiversity and open space areas through a land development levy managed by the Growth Centres Commission.

However, the threats to biodiversity and ecological integrity are overwhelming. The global situation set out in the 2005 Millenium Ecosystem Assessment (<<http://www.MAweb.org>>) makes grim reading. The loss of ecosystem function, which is the biggest threat to biodiversity, is clearly observable in 60 per cent of the 24 global ecosystems assessed by the Millenium Assessment report. Ecosystem functioning (or ecological integrity as set out in this principle) provides any city with provisioning services (food, freshwater, fuel wood and genetic resources), regulating services (climate regulation, disease regulation and flood regulation) and cultural services (spiritual, recreational, aesthetic, inspirational, and educational resources). However, like many global environmental assessments, this approach by the Millenium Assessment report does not focus on cities. Yet it is in the cities that many of the key policy levers for changing the problems exist. Ways of regenerating bush and renewing waterways degraded by previous development are being created, especially in Sydney (Dixon 2006).

Clearly there is a need to integrate housing responses to the future bioregions of all cities, including Australian cities. Adelaide’s Christie Walk is one example (see Chapter 4). Another example is the Perth ecovillage at Chidlow (see <<http://www.somervilleecovillage.com.au>>, which includes a review of ecovillages from around the world). These ecovillages are developing as laboratories of sustainability innovation, often arising from the base of ecological integrity and involving a range of new small scale technology. There is a need to direct these experiments, as they develop, into the mainstream of the city.

However, eco-village experiments where people essentially become rural-based food-producers whilst commuting to the city for work, are not sustainable. The loss of good agricultural soils to fringe urban suburbs and hobby farms are generally very unproductive as well as being highly car dependent. Australian residents in the fringe urban areas, such as the Central Coast in Sydney and the Mornington Peninsular in Melbourne, use 3 to 4 times the average fuel consumption and 8 times that of the inner city resident. If we are serious about oil depletion and sustainability in general we need to ensure that the countryside is more rural as well as the city being more urban.

Bioregional food production needs to be facilitated by the Australian city through mechanisms such as Local Food Policy Councils ([reference](#)) and community-supported agriculture. One of the ways Australian cities can achieve this is to establish horticultural precincts immediately adjacent to our cities. Such areas need to be set aside in good soils and retained in perpetuity for horticulture rather than being seen as ‘market garden superannuation’ for the next suburb. In these areas, then, we can get

serious about recycling wastewater as water agencies cannot invest in pipes and technology unless they have certainty about the future for the area. This is a practical and important way for cities to protect the ecological integrity of their bioregions into the future whilst dealing with a central resource issue.

4. Settlement efficiency and quality of life

Sustainability recognises that settlements need to reduce their ecological footprint (i.e. less material and energy demands and reductions in waste), whilst they simultaneously improve their quality of life (health, housing, employment...).

The best way to simply state the sustainability agenda for cities is summarized in this Principle 4. It is based on the Extended Metabolism Model (Newman & Kenworthy 1999) which is being applied in the Australian *State of the Environment Report* and in the Sydney and Perth metropolitan strategies. This is a simple idea, but radical in implementation, because in the past cities have always improved quality of life by increasing their ecological footprint. Thus the only way to change is at a fundamental structural level as well as through real innovations in technology.

The most likely fundamental change will be for cities to become more and more local-scale in their infrastructure solutions. The modernist solution to infrastructure has been to seek 'the one best way' and apply it at the biggest scale. Thus our energy, water, waste and transport systems are very large scale and often at odds with the ecological and renewable options that are now imaginable. Water systems are perhaps the first to begin to emerge at a smaller scale, as it is seen how possible it is to re-use grey water locally, to recycle sewage back into horticultural precincts, to trap storm water and re-use it. Similar local scale systems are emerging for energy with mini grids that can utilize renewables and co-generation. The Japanese are the most advanced in these systems (NEDO 2006). What is likely to happen is that these small scale systems will be grafted onto the larger regional scale technologies and integrated through clever electronic control systems. Thus local scale diversity can fit into a regional scale system.

This is also the model for how we can re-build our public transport infrastructure – regional scale 'backbones' of fast rail with a myriad of small scale local systems feeding into local centres along the backbones. Thus the transport solution will be a combination of transport infrastructure and land use policy as well as household education programs, such as TravelSmart, which have successfully reduced car use. This approach, which reduces ecological footprint whilst improving urban services, has been recognized by all the recent metropolitan strategies in Australian cities. They are all committed to policies that reduce car dependence. The major problems are not in the inner areas because they have similar fuel consumption per person to European cities and are comparatively well off in terms of public transport infrastructure, and are dense and mixed in their land use. However, the newer suburbs in the outer areas built in the past four or five decades are heavily car dependent, with fuel consumption similar to US cities and unfortunately these are the areas where poverty is concentrating.

The looming problem of 'peak oil' makes this policy issue an even higher priority. Global oil production is near to or has already peaked leaving the world with the need to reduce oil consumption each year rather than growing as we have been accustomed. The need for a more sustainable city includes the need to be a more resilient city that is not

so vulnerable to oil. This will require fast transit and viable centres throughout the suburbs.

The *Sustainable Cities* report of the House of Representatives (2005) recommends that infrastructure funds be provided for our cities, especially for rail, and particularly in the middle and outer suburbs. Most national governments provide such funds, even in US cities, and we need to see this critical shift in Federal policy in Australia. The money for such infrastructure exists in Canberra, where substantial capital funds can now be invested due to the state of the deficit. Also superannuation funds are ready to invest in our cities, if a suitable mechanism can be found. Partnership funding of the required rail systems and integrated transport programs would follow if an urban infrastructure program was begun. Perth's new rail system, which has cost A\$2 billion and has given the city a 180 km modern electric rail system with 72 stations, was built without a cent of Federal funds, though the Freeway it passes down was funded almost entirely from Federal coffers. This railway has been justified over many elections as a way of oil-proofing the city (Newman 2001). There are many new developments planned around its stations, to take advantage of this accessibility and its obvious amenity. However, much of Perth is like all Australian cities and remains highly vulnerable to peak oil.

5. Community, regions, 'sense of place' and heritage

Sustainability recognises the reality and diversity of community and regions for the management of the earth, and the critical importance of 'sense of place' and heritage (buildings, townscapes, landscapes and culture) in any plans for the future.

Sustainability in cities is finding new synergies with those who have in the past emphasized place and local identity. A sense of place can make a city far more oriented to its basic ecology but, as Seddon (1968; 2005) has shown, it is also an intensely human thing to belong, to relate to a local place through its history and architecture, its culture, its food, its music, even its football! The local food movement is adding to this an ability to control the quality and environmental acceptability of food consumed. But now the peak oil situation makes us see that we will need to be even more locally oriented in the future city. James H Kunstler (2005) in the 'Long Emergency' says that in response to peak oil 'Our lives will become profoundly and intensely local.' Localism is the required modus operandi for the post oil peak world, just as globalism was for the cheap oil era.

Globalization of the economy began with the first cities that began to trade beyond their immediate region – probably 4000 years ago – and it will continue under a post peak oil world. But its character will alter as the extent of trade and movement has become unsustainable. Peak oil will ensure that we are cleverer in our global movement of goods. As mentioned above, there are social movements that are beginning to push us more towards localism anyway: the need for local identity and sense of place; the slow food movement and its base in local foods; the ecocity movement with its desire to enable local community to be the basis for managing local resources and local infrastructure.

The value of the internet and video conference facilities on our phones and computers will become even more obvious to maintain the global interaction that we have tasted and will not easily give up. But, in the same way that governments have facilitated

businesses to export globally and have pushed international tourism, they need to facilitate localism now. This means that we need to fund demonstration models: where there is a need to create industrial ecology of businesses that can share their wastes as resources or work together to ensure local resources are used and re-used; where local food linkages need to be linked up between peri-urban growers and urban communities to take direct supply of whatever is fresh; where local enterprises can be facilitated based on local resources and talents; where local tourism can be marketed to local people – all helping create a deeper sense of place whilst simultaneously reducing ecological footprint.

6. Net benefit from development

Sustainability means that all development, particularly development involving extraction of non-renewable resources, should provide a legacy of enduring value and thus net environmental, social and economic benefit for future generations.

Finding ‘net benefit’ from all development so that it can provide a legacy of ‘enduring value’ is the most practical way of demonstrating sustainability (Newman *et al.* 2006). Sustainability assessment is now becoming the way governments need to address development approvals (Pope *et al.* 2005). This approach has grown out of major resource projects in WA but has application in cities where sustainability assessment can be used on strategic plans and through the statutory development assessment process (Newman 2005). Many local governments have sustainability scorecards and the NSW BASIX system has begun by requiring all new development has 40 per cent less water and 25 per cent less greenhouse gases than average homes. Victoria has similar requirements. More complete sustainability assessments have begun to be done on new projects such as that on the New Land Release areas in Sydney (<<http://www.planning.nsw.gov.au/>>). This approach brings into planning a kind of Policy Gateway similar to that used in some European governments (<<http://www.wales.gov.uk/>>).

7. Common good from planning

Sustainability recognises that planning for the common good requires acceptance of limits to consumption of public resources (like air, water and open space) so that a shared resource is available to all.

The fundamentals of town planning began by attempting to achieve the common good from development. This needs to be reinvented for each new age. For us it means being reinterpreted for an age of sustainability (Newman 2003; Newman 2005). The new metropolitan strategies will probably be seen as having attempted to do this, in retrospect. In the end, to achieve common good outcomes, mechanisms to buy public space and build infrastructure are required.

The biggest threat to achieving common good outcomes in our cities is the current process of Public-Private Partnerships (PPPs) for infrastructure. PPPs in the transport sector have been recently thrust into the public policy spotlight due to the Cross City Tunnel controversy in Sydney. This has demonstrated how an infrastructure project funded entirely by the private sector can undermine local accessibility and public

transport in order to ensure the necessary profits. They totally undermine the basic approach of sustainability which seeks to achieve common good outcomes.

Australian cities are in a critical state of need for infrastructure that can support more sustainable outcomes, in particular, with respect to water and transport. Rail systems, with the exception of Perth, are not fit for purpose, whilst traffic growth is out of hand and the problems of car dependence continue to proliferate. Funding such infrastructure has reached a fork in the road – or the tracks. Australia can either go for a more traditional PPP that involves governments finding most of the capital or for a more experimental PPP where the private sector finds most of the capital. There are problems with either approach, but the reality is that cities cannot wait for a perfect model – they desperately need help right now.

My preference is for the public-funded infrastructure model because there is already a lot of experience in state government planning and assessment processes to achieve common good outcomes. The Perth rail system is adequate testament that a modern Australian city can build a competitive and efficient rail option using public funds. All Australian cities have plans that will direct priorities towards new and revamped public transport systems with centres and corridors that reduce car dependence. However, this option must be supported by the Federal Government. It cannot work realistically in a world where state governments always favour health and education, unless designated capital funds can be unlocked from Canberra. If they are not, then we must head down the path of the private-based PPP, with all its risks and questions about the common good.

8. Integration

Sustainability requires integration of economic, social and environmental factors into planning, assessment and decision-making by applying the principles of sustainability all at once and by seeking mutually supportive benefits with minimal trade offs.

Planners often talk about a ‘balance’ that has to be achieved in making decisions. Balance is often code for ‘trade-offs’. Sustainability tries to wrestle with problems so that trade-offs are not necessary, or at least can be minimized (Gibson 2006). To achieve this, it is necessary to make space in the system of decision-making for ‘policy learning’ to occur. This is where inherent conflicts that arise when traditional approaches and disciplines reach their limits must be resolved through new kinds of dialogue. My experience with the past five years of wrestling with sustainability in governments across Australia is that when opportunities for creating sustainable solutions are facilitated that a kind of ‘magic’ can happen as innovative solutions emerge from the dialogue (Newman 2006).

9. Accountability, transparency and engagement

Sustainability recognises that:

- a) people should have access to information on sustainability issues;*
- b) institutions should have triple bottom line accountability on an annual basis;*
- c) regular sustainability audits of programs and policies should be conducted;*
- d) public engagement lies at the heart of all sustainability principles.*

The 'magic' of sustainability referred to in the immediately preceding section does not occur unless part of the 'policy learning' process involves community engagement. Therefore, deliberative democracy processes have become totally enmeshed in what sustainability means for cities and regions. The approach taken in Perth to develop a Dialogue for the City was the core thrust behind the Network City Plan (Hartz-Karp & Newman 2006). A similar process involving citizens randomly invited from the electoral role to be a 'citizen for the day' was attempted in Sydney at over 20 small public engagement sessions that led to Sydney's Metropolitan Strategy. All Australian cities have similar projects. Politics will always be part of planning in cities, but the processes of community engagement will enable much of the learning that needs to be done as the basis for any public debate (see Chapter 13). Sustainability can only be a legitimate approach to the city if it is encompassing the values of its citizens about their long term visions for the city.

10. Precaution

Sustainability requires caution, avoiding poorly understood risks of serious or irreversible damage to environmental, social and economic capital, designing for surprise and managing for adaptation.

The precautionary principle is sometimes seen as the basis for stopping things that are not well understood. However, it can also force us to recognise where we need to do a lot more work. In planning it is quite clear that we should not build on flood plains or on coastal dunes where the hazards of water can create havoc with artificial constructions. However, it is not very clear what risks are associated with climate change or peak oil. Adaptation strategies are only beginning to be discussed now and research to ascertain the best strategies are not nearly as well funded as the detailed scenarios of potential terrorist attacks. Strategic research on how our cities need to adapt to these inevitable physical limits must become a much higher priority.

The precautionary principle in a sustainability context should also mean that we do not risk social and economic capital in irreversible ways. The rebuilding of our cities to reduce car dependence is an example of one policy that can enhance natural, social and financial capital.

11. Hope, vision, symbolic and iterative change

Sustainability recognises that applying these sustainability principles as part of a broad strategic vision for the earth can generate hope in the future, and thus will involve symbolic change that is part of many successive steps over generations.

Demonstrations are the core of sustainability in cities up to this point in history. Every city in Australia now has its icon commercial buildings, its eco-houses for display, and its range of other demonstrations, such as the Perth hydrogen fuel cell buses. The next stage is to see how these demonstrations can begin to be mainstreamed in policy packages. We have some examples, now we need a strategic vision that can feed these into a series of successive steps over generations. This is how we can create hope in our cities based on sustainability.

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