



Recommendations to the Sustainable Cities, House of Representatives Inquiry
Environment Business Australia submission
1 November 2003

Introduction

Environment Business Australia has a number of specialised groups that focus on concerns about the environment and the economy. Our objective is to provide a platform for debate, to encourage stakeholder involvement, and then to analyse issues, develop policy recommendations, and be the advocate for reform which we believe to be in Australia's best long-term interests.

The Sustainable Cities Working Group has been created to help Environment Business Australia member companies provide advice to all levels of Government. It is important that the most up-to-date intelligence about technologies, infrastructure, systems, goods and services be available to decision makers. It is equally important that the private sector be encouraged to continue its investment into R&D, full scale technology and infrastructure demonstration, and thence the commercialisation in domestic and export markets. This can only happen with a public sector tender call approach that it is open to innovation, and new ideas, as well as to adaptive financing that allows for amortisation of costs over a sensible timeframe.

EBA believes that the three levels of Government, society, and business/industry need to look at cities more holistically and with a longer term perspective. The aspects that allow the 'whole' to function efficiently should not be regarded as profit centres but as 'efficiency centres' that support public good and perhaps act as catalysts or enablers to other centres of activity. Public transport is an excellent example of this need for efficiency as it assists quality of life, productivity, and the economic performance of the whole.

EBA recommends a study of direct and indirect subsidies within the 'city' to ascertain how health, quality of life, environmental and economic objectives can best be achieved. For example, referring again to public transport, many believe that the taxpayer subsidises the users of public transport – which is true – but to a far lesser extent than they subsidise each vehicle on the road because of the provision of the entire road transport network and the absorption of costs associated with negative externalities such as air pollution, traffic congestion and traffic accidents.

Energy, water, wastewater, stormwater, construction, transportation, waste and recycling, architecture, land management, goods and services provision – all are critical to the future of healthy and vibrant cities. As populations grow and aging infrastructure creaks under the demand, Australian innovation has never been more in demand. Our cities and communities deserve nothing less than the best. While a number of benchmark technologies are available from overseas and should be adopted where possible, EBA most strongly encourages a culture of Australian technology and infrastructure R&D and its commercialisation.

Government tenders must be able to differentiate between immediate lower cost, and longer term life cycle analysis costs which facilitate better quality and longevity and decreased negative

external impacts. In some cases there is an exponential growth curve of cost associated with these externalities and intervention at an earlier, rather than a later stage, has the potential to prevent harm and avoid a legacy of cost to future generations.

EBA does not believe that Governments should seek to have new infrastructure prepaid. The private sector has developed flexible financing mechanisms and we encourage all levels of Government to take advantage of this. We believe this will allow for more adaptive planning without immediate constraints on consolidated revenue.

A national framework that overcomes short-term/low initial cost, updates the tender process, and encourages innovation, would help to leverage basic funding provided by the public sector by encouraging private sector investment.

In many cases Government tenders (all three levels of Government) are risk averse, focused on prescriptive process over outcome, and rely on outdated technologies and engineering approaches as their benchmark. If this trend were reversed Australian cities would be better served and in the process benchmark demonstration sites would encourage greater uptake of innovation including to export markets.

Security, environmental integrity, population growth, aging infrastructure are other factors that need to be considered in the forward planning of 'sustainable cities'. At present these critical elements are bolted on in a rather piecemeal fashion rather than designed into the basic city plan.

The goal

Ask anyone – in Australia, or any other country – what their ideal city would be like. In all probability most people would come up with the same top ten points (these are not listed in any order and apply equally to the work space, the home and the general environment)

- Clean
- Safe
- Easy to get around
- Economically sound
- Comfortable, attractive, providing a sense of enjoyment of place
- Clean air, good quality water, relatively noise-free
- Urban services that take care of waste, wastewater in an environmentally sound and useful way
- Clean energy, including renewable energy sources
- Green places and biodiversity
- Friendly communities that offer relevant social infrastructure (schools/universities entertainment, shopping, health care, aged care)

Australia is in an enviable position having a stable economy and political regime, high levels of innovation, and a sense of what is fair and right – all these qualities are important in helping to shape our cities of the future.

What makes the 'whole' function?

As mentioned in the introduction, a key element of city functionality is the existence of areas of expertise and service, the social infrastructure, which permits the 'whole' to function. There is an

increasing trend by Governments to turn these catalyst services into profit centres. The strongest point that we wish to make in this submission is our recommendation that they be maintained as 'efficiency centres' that support public good, avoid negative externalities, and perhaps act as enablers so that other centres of activity can be more effective and perhaps profit centres in their own right.

EBA encourages all levels of Government to facilitate greater participation of the private sector in infrastructure planning, construction and operation. However we advise that this does not mean that Government should expect the private sector to absorb risk which it is not equipped to deal with.

Risk should be borne by the party best qualified to assume the management of the risk. Risk assessment should continually evolve to encompass the latest intelligence (market, science, technological, and social acceptability).

We strongly believe that legislation should reflect benchmark performance and that Government should oversee the achievement of benchmark performance through enforcement of contractual obligations.

City planning, development and management should not be allowed to fall into classic GDP measurement – where dollar increases in GDP are applauded without factoring in and extricating the 'negative' GDP such as air pollution, water contamination, oil spills, poor indoor air quality, lower productivity, or traffic jams. For example poor indoor air quality led to 150 million lost working days and \$30 billion lost productivity in the USA last year¹. Yet in GDP terms the cost of temporary replacement staff, health care, hospital admissions, etc. all contributed to a higher 'performance'. A sustainable city must be able to engage the future ramifications of its actions.

It is therefore increasingly necessary that the true costs of all goods and services should be more accurately measured and paid for throughout the supply chain. Negative externalities – such as air pollution – are a significant drain on consolidated revenue and are likely more expensive to 'fix' than to prevent. While prevention may require investment in the short term which has the *perception* of high cost, there are longer term benefits that currently are not being evaluated.

Infrastructure and environmental investment

This study of cities and sustainability provides an exceptional opportunity to draw breath and take a critical look at the path we are on. Even assumptions about basic services supply and security should be questioned.

Built infrastructure

Positioning, construction materials, energy use and generation, the necessity to counterbalance likely changes in the environment such as rising salinity, or more extreme weather events, are aspects which have had little measurement in city planning in years gone by.

Materials science

While attention is increasingly being paid to the energy life-cycle of goods and services, the same cannot yet be said regarding the materials we use in construction and development, or in the manufacture of goods. There is however, some excellent work underway in studying raw materials usage, for example in developing plastics from bio-materials, and in new eco-cements

¹ Maria Atkinson, Green Building Council of Australia

that have the ability to absorb higher levels of carbon. However, the uptake of these materials will rely on the marketplace getting stronger signals regarding safety, longevity, and longer term benefits from healthier materials that decrease the pollution load (see also the section on endocrine disrupters below). EBA intends to prepare a paper on this aspect of sustainable cities.

Landscaping

Much 'low hanging fruit' has been picked without the country or communities realising full value from the asset. A case in point would be the monstrous highrises immediately at harbour or beach frontage. Graded buildings – as seen in some of the older areas around Sydney Harbour – provide much more of a sense of place, better general enjoyment, tourism attraction, and still allow for higher density housing further inland which in turn would have better views. Fortunately planning laws are much stricter nowadays but atrocities are still being developed that detract from the overall aesthetic quality, longer term value of our cities, and indeed general enjoyment.

Better landscapings. Gardens and green spaces in city centres should be encouraged. They add to the variety and interest, help air quality, and provide areas of relative tranquility.

The gradual replacement of overhead powerlines with underground lines would expand the range of possibilities for kerbside planting. This is a particularly important part of urban landscaping as it provides valuable shade, assists with stormwater management and may even reduce the incidence of 'road rage'.

Green buildings

Energy and water efficiency and the air-quality inside buildings are being intensively studied with some excellent initiatives being undertaken. EBA has not provided a full submission here as we believe the Green Building Council and the Sustainable Energy Development Authority are submitting in-depth papers to the Inquiry.

However, we do emphasise that we see the need for a sustainable city to be built with non-toxic, non-emitting materials. It is conceivable that some materials may have the ability to attract and lock up greenhouse gas emissions while others to clad buildings could be net energy capturing agents. Buildings of the future could well be energy generating enterprises being 'grid-neutral'.

Where should our cities be?

Are our cities in the best possible places? Which cities should be encouraged to grow? Should some be scaled back with time? Should new cities be built?

Australia has vast tracts of land that are uninhabited or sparsely inhabited. Some due to climatic constraints or lack of water. Should the Northern Territory and far northern Western Australia be developed – are the cyclone risks too high? What are the likely impacts of global warming – decreased rainfall, hotter temperatures, more extreme weather events – going to mean for Australia? Where should our cities ideally be? Do we want to focus on current city growth or do we want to plan new cities that will for example sit next to sources of geo-thermal energy.

Ecological Footprint

What will be the ecological footprint of our future cities? Can human impact and the demands we place on natural resources be absorbed within Australia? If so, what areas should be strengthened to absorb increasing demands from an increasing population. Do we need to look outside our borders? For example for food or energy sources, and what are likely to be the cost and security implications of this?

Food supplies

Will our food supplies continue to be grown in Australia or will it be more economic to import from overseas? How viable are our soils for the long-term (erosion, poor nutrient quality (for what we demand of them), salinity, acid-sulphate soils). How effective will the National Water Initiative be and how would Australia react to a worst case scenario of climate change decimating agriculture production in the Southern half of Australia?

Population levels

What population level are we looking at for Australia? How will we sustain this level, which cities will bear the brunt?

Regional stability/migration

What are the issues of regional stability that we have to address (water, climate change, rising sea levels, religious intolerance) what does this mean to the security of Australian cities.

Energy supply

Will we continue to focus our efforts on production status quo of fossil fuels, or move to renewable energy sources?

Water and wastewater

There is an urgent need for a more long term and strategic look at urban water supplies. East coast cities still rely on inland river systems delivering 30% of their capacity to serve daily commercial and household needs. There is minimal attention being paid to investment into infrastructure to recycle greywater, collect and use stormwater, or to provide desalinated seawater fuelled by a combination of wind, tidal, wave, solar energy.

If predictions about global warming are correct, then the ability of our river systems to continue to deliver the current volumes of water to multiple users must be urgently questioned. Adelaide is already facing the very real threat of having water that has too high a saline level to be drinkable.

Investment in social and environmental infrastructure (water, sanitation, energy, schools, hospitals, transportation systems) and its increased efficiency should therefore be a top priority of all levels of Government and this for cost, public health, quality of life, and environmental integrity, and resource security reasons. At present 'spend' is high but investment in competitive efficiency is falling behind.

Most cities in Australia have chronically aging infrastructure and there is a need for urgent investment and upgrade/replacement.

Water recycling and stormwater capture and use should be top priorities instead of allowing polluted water to leak into waterways or to be discharged via deep (or not very deep in some cases) ocean outfalls. Much needed soil nutrients are being disposed of instead of being returned to replenish thin and nutrient depleted soils.

All new buildings – commercial and residential – should have mandated 100% greywater recycling to be used in any application where non-potable water is appropriate e.g. toilets, garden irrigation, car washing, building maintenance.

Any paved surface should be counted as part of the building site ratio. This would allow for more natural absorption of water and less run-off. This in turn would improve storm water management.

Public Transport

Public transportation receives a relatively low subsidy in comparison to the subsidy to the road systems and vehicles use of roads. While agreeing with much of the NSW Parry interim report, EBA believes that it is of vital importance to secure and maintain operational viability of rail systems, and in the case of Sydney improving the ferry service rather than scaling it back.

One of the key issues associated with public transport is ensuring that it meets commuter needs (time, safety, comfort, staff efficiency and friendliness, general enjoyment). In many cases 'cost cuts' drive users away as the service becomes unreliable, dirty, and unpleasant. Winning commuters back takes time but if the service level is then maintained the service can become more cost effective.

An interesting study in the UK regarding rail use found one of the major 'turn-offs' was the surliness of British Rail staff. This was a major aspect to be overcome alongside designing new rolling stock, re-aligning routes, adding better refreshment services, increasing safety, and improving punctuality. Adding convenience stores at stations also helped to win back customers.

Given the spend on lotteries in Australia, each validated public transport ticket could be a lottery ticket, encouraging public transportation use and discouraging littering.

An excellent study was undertaken in Vancouver, British Columbia, Canada, known as the 'Clouds of Change' study. Authors included Professor Bill Rees, founder of the Ecological Footprint concept, and Professor Setty Pendakur who demonstrated that public transportation users were subsidised to an amount of approximately \$90 per annum, while individual cars were subsidised to an amount of between \$250 and \$450 per annum depending on their pollution output. A further finding of Dr Pendakur's report was that up to 60% of urban centres are designated to the automobile (roads, parking, driveways, garages).

The benefits of an efficient public transportation system include cleaner air, improved mobility, less gridlock, higher productivity, less traffic accidents, lower hospital admissions, less ill-health. A recent study in Ontario revealed that the cost from air pollution to the Toronto area was in excess of \$1 billion per annum. Developing and maintaining a well-run public transportation system is less costly than allowing it to run down and then realising the mistake – there would be huge costs in rebuilding whether it be new ferries, or trains and rail tracks (assuming that the space for the rail tracks even remained).

A much better public awareness campaign is needed and paramount is the need to make pricing transparent (car registration, fuel, depreciation, parking versus regular commuting costs on public transport plus efficiency gains).

Public transport tickets should be distance rather than chronologically dependent. The same ticket/card should be usable on all forms of transport. The Australia Institute produced a study on public transportation last year authored by Clive Hamilton, EBA strongly recommends that a review of that study be included in this inquiry.

The amenity of public transport could be improved by using heat pump or solar photovoltaic technology so that while buses or trains sat baking in the sun, they could convert the heat and radiation into power to cool themselves down.

Greater use of public transport would be encouraged by enhancing the reliability and the perceived reliability of the services. An example of such an enhancement would be real time information about bus and train location using GPS data sent to a central database. Commuters could use their mobile phones to track the exact location of their desired bus or train, feel more in control of the situation and therefore more likely to take public transport.

No further car parks should be constructed in non-residential buildings in the CBD and secondary CBDs. Parking should be limited to the amount needed to service deliveries, maintenance and the disabled.

Clean fuels, fuel-efficient cars, fuelling infrastructure

Many experts agree that hydrogen fuelled vehicles are likely in the next 10 to 15 years, and this will require a new fuelling infrastructure which no city has begun to develop in a meaningful way yet.

There is an equal likelihood that vehicles will be able to provide excess energy to the grid. Perhaps parking spaces could be designed to download energy?

Certainly a system is needed that encourages hybrid fuel-efficient city cars (incentive of lower parking costs) and consideration is needed of the different fuelling infrastructure that will be needed in the future (e.g. hydrogen, fuel cell, electric cars).

Preferential tax treatment of 4WDs should be abolished when these vehicles are used in cities. A punitive upfront tax applied to cars over a certain weight is recommended or a pay-by-visit to a city centre tax applied. Smart technology designed as part of toll roads for example could measure inner-city visits. Stephen Schneider recently recommended that "people wishing to drive 4WD vehicles should be allowed to do so only if they have a heavy goods vehicle driver licence."

Traffic police should focus on polluting vehicles for a two year period, with initial fines of \$250 rising to \$500, \$1,000 and then confiscation of the vehicle. Demerit points could accompany fines.

A retrofit of all diesel buses to electric or gas electric hybrids would significantly lower the levels of noise pollution and air pollution in inner city areas.

Ferries should likewise be retrofitted to clean fuels. This expertise is readily available in Australia from Solar Sailor who can supply new vessels or retrofit older vessels. Sydney Harbour should be used to promote alternative clean technologies like Solar Sailor.

Fuel wastage in public transport should be studied in greater detail. There may be significant benefits in decreasing the size of the vehicles used on some routes. Outside peak hours on demand stop mini-buses may be far more effective.

Waste and recycling

While there is much debate about the type of preferred waste handling it is recommended that cities take a portfolio approach to investing in new technologies to maximise resource recovery and to minimise virgin material pull-through:

- To provide working demonstration sites for new technology
- To ensure fall-backs if necessary
- To ensure sufficient transition time to proven technologies
- To build safe, healthy, environmentally state of the art facilities with technology/infrastructure export potential
- To develop demonstration sites

In all waste planning EBA recommends that cities rely on reputable companies who are licensed to undertake household, commercial, industrial waste collection. City/State tenders for waste sorting, treatment, resource recycling, and ultimate disposal should be designed to eliminate rogue operators. Responsible companies are investing heavily in long term facilities with many different types of state of the art technologies. This investment is seen as a partnership with the public sector and this should not be undermined by those seeking a quick profit with no regard for workplace, public or environmental safety.

While it is understandable that communities are reluctant to have waste facilities in their midst this NIMBY syndrome means that waste has to be collected, stored and transported vast distances. This increases the risk of accidents and leakage.

The value of the various resources in the waste stream need to be maintained for their highest value, therefore separating at source value resources that can be easily contaminated (such as paper) should continue while that resource has perceived future value.

Likewise items with high contamination risk should be separated from the general waste collection. Those goods with the ability to contaminate in transit, at MRF, in resource recovery processing, or in landfill, need to be removed as early as possible in the chain and this should be a focus of waste design, collection, handling and treatment.

One of the most urgent aspects of waste is to separate hazardous wastes from the general waste stream and this must be an urgent priority.

More research funding should be made available to develop small scale distributed waste treatment technologies that can utilise fuels with low calorific values such as pre-sorted MSW and green waste.

Endocrine disrupters

The issue of endocrine disrupters is not being evaluated as urgently as some scientists are recommending. The impact of phthalates from plastics, phenols from detergents, and synthetic hormones from pharmaceuticals may have a cumulative negative effect on waterways and biodiversity (including human life). At present these chemicals are not removed at water treatment plants and have the same potential for leakage from any ill-maintained landfills as other toxics.

Social infrastructure

Friendly communities that offer relevant social infrastructure (schools/universities entertainment, shopping, health care, aged care).

Cities need to be designed to minimise friction between different cultural and socio-economic groups. Large scale redevelopments like the Everleigh Railyards in Redfern, Sydney, will provide some interesting lessons about how to successfully integrate middle class populations into areas of low, and troubled, socio-economic status.

Denser city centres, such as seen in most of Europe, with combination of commercial, office and residential buildings on main streets, provide a greater sense of community. They are also more practical in some cases with elderly people living above shops or health care centres, and with streetscapes featuring specialised shops (butchers, bakers, greengrocers, etc). This approach, increases affordability, decreases urban sprawl, facilitates access, and adds to the sense of vibrancy of cities. The 1980s trend to supermarkets has stripped some of the sense of community from our cities (while increasing prices, decreasing employment, lowering choice and quality of merchandise).

Libraries, movie theatres, and social function centres that are not focused around 'pokie' machines and gambling, should be a focus in order to provide amenities that put quality back into life.

Noise

One of the most irritating aspects of any city is the level of noise and much of this can be attributed to vehicle traffic. A Government procurement framework that encourages the purchase of low noise cars such as recent lightweight hybrid cars; electric versus diesel buses is encouraged (see attached submission to the Department of Treasury re the Budget).

Decibel restrictions on all machinery for sale after a fixed date with a trade-in for older and noisier machines (lawnmowers, leaf blowers, drills, sanders, electric saws, etc.)

Stricter fines and a local police force much more willing to enforce noise bylaws.

Improved insulation and double/triple glazing (also assists with energy costs of heating/cooling), this should be a mandated design feature of all new buildings and all retrofits.

Curtailling urban sprawl

Provide incentives for interesting and workable architecture in city centres. While some State governments continue to support urban sprawl by investing in short term infrastructure projects such as motorways it will be difficult to curtail sprawl. Greater understanding needs to be gained

about why people choose to live in featureless dormitory suburbs rather than in the vibrant city centres. Is it a need for greater greenspace or a perception that the inner city is more dangerous, dirty etc?

Remove the need for private transport in central areas – buses, minibuses on demand, taxis, pleasant and safe walkways. This would free up space previously needed for parking and driving.

Provide access to more aspects of interest in cities (Sydney's Bridge Climb is a good example which virtually everyone has heard of and many have done - or intend to do, but compare that with the many interesting walks around Sydney that many Sydneysiders do not know about).

Respond to people's needs for access to green space and the countryside by providing easier and more pleasant transportation and access to the coast/mountains/bush for weekends. Increase train service to tourism areas. Encourage flexi-time with mid-week weekends allowing people time off out of the 'rush'

Energy usage

Lease-financing program for energy retrofit/appliances. Program under development by EBA.

Health

Health care centres for all ages should focus on wellness, disease prevention and exercise. Ill health prevention is less costly and less stressful than cure and does not involved the same loss of productivity.

The role that pollution plays in disease needs to be better understood if we are to make our cities healthier places to live and work.

Ratepayers' priorities

Brisbane City Council undertook a study of the ratepayers attitudes to aspects of City work and rated their priorities. A healthy environment was by far the single most important aspect according to the ratepayers.

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See also EBA's submission to the Prime Minister and Cabinet on technology, and EBA's 2003 submission to the Budget process