

An Historical Review of Australian Infrastructure and Opportunities for Sustainability

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Abstract

This paper explores urban infrastructure and theory via pertinent Australian experiences and focuses on sociological processes rather than historical perspectives.

Urban change involves complex behavioural adaptation and social tool-making, not mere technological evolution. Few precedents exist for achieving changed social behaviour essential for environmentally sustainable cities.

Any review involves selection and rejection of materials as an iterative process. Historical analysis of urban infrastructural development contributes to understanding present and future concerns. Exploring infrastructure governance reveals ecological constraints to the politico-social dimension of the continuing transition.

Urban competitiveness is determined by long-term historic cultural change. Urban societies continue to compete by

- *Creating stable legislative environments*
- *Focus on quality, speed and transparency in governance*
- *Develop flexible, resilient economic structures*
- *Invest in traditional and technological infrastructure*
- *Develop export markets whilst opening up markets to foreign direct investment.*
- *Maintain a relationship between wage levels, productivity and taxation*
- *Preserve social fabric by reducing wage disparity*
- *Invest heavily in education and lifelong workforce training*
- *Balance economies of proximity and globality to ensure substantial wealth creation, while preserving the value systems citizens “desire.”*
- *Identify determinants of desirable sustainable development for cities.*
- *Define reduction measures for environmental, social and economic costs of urbanism*
- *Reform mechanisms for governments and private bodies to promote sustainable settlement patterns¹*
- *Actively embed eco-efficiency and equity in provision of infrastructure and infrastructural design services*

Human societies must eutrophically maintain equilibrium with least energy systems: these are urban ecological infrastructure realities.

Historical Infrastructure Experiences

“Utopias can exist as realities only if they die shortly after being born, to be reborn with new shapes....they act as catalysts converting the crude materials of reality, the tools, and products of experience and of science, into civilizations which take the shape developed first as an image in the mind of man.”²²

“Nations manage their competitive environments by relying ...on assets or on processes. Some nations can be rich in assets – land, people, and natural resources –... Other nations ... are poor in resources and rely on transformation processes. In general the latter nations are more competitive than the former”²³

Understanding past infrastructure decisions requires comprehending the cultural and political norms that informed those decisions. Consider Acquisition and transportation of seafood.

Fishing a traditional activity is now declining due to aggressive competition, which defied ecological constraints.

Fishing activities includes boat-building, marine infrastructure of harbours, lighthouses, etcetera. Related are manufacturing, ware-housing and component manufacturing. Ancillary urban industries include maritime safety, cartography, communications, food-preservation, marketing, and logistical transport networks.

Myriad small-scale service industries interweave with provisioning, record keeping, net making, repairs.

Seafood products are predominantly for urban consumption. This necessitates built infrastructure of fish wholesaling, refrigeration and an entrepreneurial provider network.

Salt-fish traded widely in Hanseatic Europe and was staple fieldfare for European armies, since the sixteenth Century.⁴ Land-based fish-farming and industrialized growth of fish-stocks is reemerging as an industry competitive with traditional agriculture. Traditional Chinese fish-farming continues, ancient Romans used huge sea-connected fishponds.^{5,6}

In 1870⁷-80's annual North Sea fishing losses were 400 to 600 persons per annum for Scotland alone. Losses 3 to 4 times this were the norm when national & regional fishing fleets are considered.⁷

From 1830 – 1882 as many as 125, 000 fishermen drowned. Repeated loss of shipping, especially fishing boats and human life occurred regularly until the 1890's.⁸ Regrettably, society was aware of these losses but failed to respond fully. A protracted delay occurred before “global” fishing rules emerged.

The scientific response was a sustained, orderly study of tides and weather. In Britain studies by Lord Thompson and the British Board of Trade and other parliamentary inquiries⁹ led to significant improvements. Admiral Fitzroy undertook work on weather record keeping. Over 50 years of detailed process resulted in international standards on mandatory reporting loss of ships at sea, mandated safety equipment , improved communications and sea-rescue.

Perceptions of “acceptable risk,” lack of clarity about social responsibility for an “ungovernable area” {fishing international waters} saw protracted human suffering: Many factors interacted in a rapidly evolving, but confused technological context.

Small boat propulsion changed from sail to steam/diesel from 1870 to 1920. Locally manufactured cooperatively owned boats had evolved in specific, almost iconic forms¹⁰ designed for inshore to mid-range fishing. By 1940 these had become industrialized steel hulled fleets. These had increased tonnages, greater

deep- trawl capacity, and extended range .By 1980 competition depleted almost all fish stocks, with fierce conflict amongst fisherman involving conflictual issues of national sovereignty .

This experience provides useful historical insights for these reasons

1. Fishing had ecological aspects which triggered complex governance issues.
2. Governance failed to address behavioural change namely maintaining sustainable fish-stocks and catch methods.
3. Technology did not prevent self-destruction of fishing.
4. Delay in standardisation of catch limits, and limited governance created monopolies and resultant resource loss.
5. Migration, unemployment and new technological infrastructure were direct consequences

Any review involves acceptance and rejection of materials as an iterative process: This involves behavioural adaptation not mere technological evolution. Ecologically waste products, even historically redundant technological infrastructure represent conversion material for new creations apropos Dubos. Leaf-litter and plant-nutrients are recycled in forests eutrophically to maintain equilibrium of least energy systems: human societies are shaped by the same realities.

A Brief Eurocentric Technological History

18th century European enlightenment continued previous voyages of discovery and conquest (of other countries, cities and infrastructures) and later, colonialism and pre-eminent nation states as fixed at the Treaty of Paris, May 13th, 1814.

19th Century led to rule of law, majority political emancipation, State Education, nationalism and competitive dominant industrial complexes. Linked were advanced “Imperial-colonial expansionism”, an armaments race including railways, shipping, manufacturing infrastructure. Urbanization arising from agrarian and population demographic change (aided by medical and public health reforms) colonial interest and trade led to formalization of finance banking and shipping.

20th century saw specialisation, market reforms, combative geo-political ideologies and accelerated technological development. Public & private infrastructural evolution of rail, shipping, road and air transport networks. Complex interactive, competitive economies saw the onset of multi-national companies, standardised fiscal controls and growth of security instruments. The latter 20 years saw per digitalisation , computer based trading, marketing and data exchange. This has transformed perceptions and methods of business, scholarship, culture and society worldwide.

A culture of scientific paradigm and profit motive prevails, often disconnected from concomitant social responsibilities Globalisation unifies “cultures” by deepening exchanges but its intrusive transformation has capacity for fraud, excessive control, loss of privacy, and forcing exclusion of alternatives.

This context means choice- making with crisis, an endless tension between individualistic freedom and collective responsibility. One reviews the past to define future risk for an uncertain present

“... there is a relationship between the essential components of our present urban environments (inhabited places) – the flows (transportation) and containers. The settlements of urban man, “container” subsystems, depend on all sorts of life-lines, “flow” subsystems..... This will probably be true in the foreseeable future: any substantial autonomy appears farfetched at this moment (1971) Technical services in general and communication and flow systems in particular are becoming a large part of the public

economic overhead and must be equated with the number of people able to use them. The measure... of intensity and frequency of use and density and variety of facilities becomes part of the equation that assesses an urban systems efficiency urban man is invariably committed to subsidizing technological advance while keeping an eye on the sociological effects of its misuse. High costs of sophisticated technology can only be fairly distributed and its conveniences widely enjoyed if cost and convenience are placed at the disposal of many.”¹¹

High technology as a product of urban community becomes a cultural development tool. Increasingly complex urban problems are transformed by man’s thinking tools. The city and its services consists of all tools used to control the natural environment: altering environmental forces to be more man - supportive.¹²

Economic Advantage of Urban Location

Urban concentrations and forms do not occur randomly

Industrialized development occurred in “temperate climates” because that was the optimal zone for least - energy comfort requiring least energy augmentation. Urbanization occurred in locations where agricultural food surpluses were achievable, initially at trade and shipping/ navigable river points or where favourable geography gave advantage. Successful strategies were quickly adopted by other “travellers”.¹³

Western dominance utilized technological advantage to achieve short -term colonial gains.

Today’s society witnesses the cost of past belligerent infrastructural destruction of other indigenous “authorities” : this has destabilised the polity in many countries severely constraining self growth: a “sustainable” polity may necessarily have to be democratic, but community building processes are very tardy.

There is ample data on urban change, social development and sustainability practiced in diverse forms.¹⁴ This paper cannot significantly expand this opus. Core issues are not technical or economic constraints but rather dealing with legislative, market reform and social behaviour obstacles.¹⁵ Consideration of how these impact technological infrastructural development informs this paper.

Australia’s Historical Infrastructure and Sustainability

Australia’s history embraces rapid take up of technological development with special niche roles.

The “Overland Telegraph”¹⁶, the proliferation of railways, the development of pedal radio and the Flying Doctor service are but a few past examples. Aviation services, remote “distance engineering ” of wind-mills, railways and water storages, spun reinforced concrete piping, agricultural research and implementation all contributed to national development.

More recent rapid take up of computers, creation of high efficiency in-expensive solar water heaters and photo-voltaic collectors using laser etched, incised wafer technologies provide optimism. (world’s highest at 35+% efficiency)

Substantial investment in social infrastructure, “Medicare”, transportation, road safety, and aged care support has occurred.

Non- intervention by the military in constitutional life, absence of civil war evidences healthy political development . Canberra was a an ecologically planned city based on the best-practice planning expertise .

Australia now engages actively with Asia, with resultant multi-cultural pluralism a dominant, feature, including substantial trans-European migration.

City Structures

Australia's highly urbanized society is explained by

- geography of a large, un-elevated, arid country of fragile, fire-determined ecology,
- few natural barriers, few navigable rivers,
- Difficult coast with unpredictable weather, large inter-city distances
- Remote trading markets by sea or air
- colonial establishment by Britain to maintain politically controlled settlement
- isolated urban concentrations with differing political arrangements : only loosely associated
- early universal suffrage(to all colonies by 1894)
- British control of entrepreneurial capital regulated banking , British banks acting like the World Bank.
- constrained access to land concentrated labour in cities formed volatile electorates (with agitation creating effective trade unionism
- Market economy oriented to export of agricultural and mining exports
- constrained manufacturing , obstructed by overseas protectionist markets, supported by substantial interstate coastal and rail trade.

Australian cities are centralized, market focussed, of low density, with fragmented political administrative systems.

Land-use imbalances exist because city growth occurred in a period of cheap energy prices, , significant car-use and sizeable home building during sustained economic booms; electrical water waste and sewer are all centralized, but often hybrid: 6% of Australians use septic tank services, compared with 30% of US and 40% of Japan.

Limited capital access retarded business formation hence house-dominated cities isolated from workplaces emerged .

Two major cities of Sydney and Melbourne achieved predominance over Perth, Adelaide, Hobart and Brisbane, from natural geographical advantages, as well as political chicanery.

Melbourne is central to large agricultural hinterland with permanent water, agreeable climate, abundant cheap flat land and plentiful (If CO2 dirty) brown coal. These factors promoted industry and development of a major rail / road transport hub.¹⁷

Sydney, had natural advantages of timber, a secure natural harbour, but had the significant barriers of the Blue Mountains. It serves as mercantile and administrative centre to the hinterland and now dominates finance and culture.

Development of gold impelled development of intra-city infrastructure radially from urban "beachheads".¹⁸ As entry ports this consolidated the Melbourne- Sydney stranglehold from 1860's onwards. Centralization of political power and devolution from agrarian to urban based industry cemented Melbourne- Sydney pre-eminence.

Perth's remoteness ensured it retained independent economic and manufacturing self sufficiency.

Brisbane was retarded by oppressive tropical summers.

Adelaide suffers sparse rainfall limiting agricultural output, but favouring wine production and dry goods.

Peddling Influence

Worldwide city formation and growth accelerates inexorably. How political power is exercised in dominant cities is critical to development processes adopted for governance and equity for all.

Such influence includes

- location of major offices and headquarters, and stock exchanges,
- banking HQ's,
- majority of universities, and education centres of cultural research/ learning
- Numerically dominant electorates peddling political influence and fundraising
- major media organizations
- Voluntary and charitable organizations
- Religious centres and specialist medical and hospital services
- Market research and economic think-tanks

For Australia almost all influence is exclusively concentrated in Melbourne or Sydney

Canberra's though the federal seat of political power and diplomacy has many cultural and governmental institutions : Federal Parliament, national library, Museum, War memorial, ANU it is not culturally dominant.

Decentralized non-urban activities occur such as manufacturing ,defence, mining, power and resource generation.

But 1/3rd of the population lies in the two largest cities, 4/5ths lives in the top 10 cities, only about 4 percent of the land mass is directly occupied. Reach of the cities is far greater: 80% of the GDP is absorbed in or by resources used to service cities over 100, 000.people

A recent Australian Parliamentary enquiry reviewing sustainable cities noted city footprints well exceed the land occupied. Vales¹⁹ suggest the mean use is ten to twenty fold the summed suburban areas. Australia average of 7.6 hectares per person compared to a world average 1.9 Ha per person for resources used: not at all sustainable.²⁰

Melbourne has 16-19 persons per ha, a population, one half of Berlin, occupying 5 times Berlin's built area. Prodigious resource use remains a long-term scandal. Other Australian cities fare little better .This exacerbates when one factors in the large intra-city distances. Travel across Melbourne takes 1.5 to 2 hours

Ecological urban "foot-printing" is still developing.²¹ Life cycle Analysis on specific materials confirms cities "reach " many hundreds of kilometres.

A globalized, interactive world reacts rapidly to technocratic, economic and political changes. This approach is embedded in present- urban development theory and other disciplines.

How does politics alter greening of cities? Urban reform / infrastructure goals are generally unachievable without significant political overhaul which requires shifting allegiances and priorities, This will always be opposed by some. . The increasingly urbanised electorate has become universally anarchic and sceptical

Economizing scarce resources requires effective, engaged political participation. This presumes articulate, well informed political leaderships and electorates. History is strongly tilted against such radical shifts.

Reflect on the transition in political (and sociological) values which has transpired since Aron noted the main sociological schools in 1964

Arons' Schools

Raymond Aron²².

“To the extent there is state autonomy ...to classes and class conflicts, one element in the evolution of societies not reducible to the struggle of social classes: What decisions are made depends on who takes possession of the state.”

Aron outlined 3 main schools of political sociology. (these are very condensed)

- “The French school” of Liberalism stressing the political order
- Comptist positivist-industrial school optimistic emphasizing on social unity , with consensus
- Marxist stressing economic organisation and social infrastructure with a schema of “evolution that is long term optimistic and short-term catastrophist

These three schools with differing values and world historical views are all modern social interpretations Each reconstructs the social entity with self- explanatory theory of social diversity, each inspired by moral conviction and scientific hypotheses:

Aron prophetically warned

”When we attempt to distinguish between moral convictions and scientific hypotheses, we do so with our own convictions.”

ESD transition does not correlate with any specific schools . But without substantial multi-party approach, any partial agreement on ESD agenda process is captive of party ideological rhetoric.

Infrastructure is integral to competitive economic efficiency. Once “improvements” are paid for , money is available to government for expenditure on “other “ market choices. Expenditure on infrastructure improvement spurs to further research and investment.: this applies whether for public or private goods / service. Private goods and services tend to be short-run, dedicated to specific market sectors : often exacerbating social tensions.

Public infrastructure having long time-lines struggle to gain the political support unless well marketed.

Market Adaptation and Behaviour Change

Improved infrastructure can trigger “rebound” effects whereby consumers reset thermostats, turn on their taps or amend lifestyles. This reduces “capture” rates: air-conditioning was initially used for hospitals, improving comfort of stressed patients²³ soon economics determined its application to business and the wealthy.²⁴

Inappropriate “market signals” distort a public’s view of “ Business-as-usual “. These cultural habits” apply to many infrastructural issues. Response to “planned demand” indicates predicted “take-up “can be elusive. Ecologically determined infrastructure cannot provide absolute certainty.

Equity and Access

That Public housing tenants actively resist using energy efficient lights attests some users resist change despite demonstrable evidence of benefits.²⁵

Daily stoicism by many Queenslanders is exercised by; many do not use any heating or cooling appliances note while living in a tropical climate between latitudes 12 and 28 degrees South where one expects “mechanical aids” to be used.

Research²⁶ indicates major building comfort improvements are achievable without mechanical aids; this is “negative infrastructure” because of avoided infrastructure. Ergo Human adaptation can alter infrastructure demand: Public compliance during drought, wartime, or power shortages confirm this.²⁷ Regulatory planning often invokes excessive scenarios as worst case, then discovers failed expectation, to avoid criticism and avoid any political repercussions.²⁸

Governance and Economics of Infrastructural Design

How data is assessed, reliability of simulations and potential error sources should be adequately explained to stakeholders. Feedback usually strengthens support for initiatives.²⁹ Failure to explain creates doubt, discrediting new technology uptake. Cost can deter uptake of substitutional technologies: Costs are not borne by infrastructure developers but quickly transferred to consumers.

Research in low risk projects is easily proven as development costs are dissipated over many projects. “one-off “design for specialist use owner occupier /BOOT scheme compare more poorly.

Consumers obtaining economic improvement may choose to pay more for mortgages : reducing infrastructural demand. Demand management reduces public utility investment thereby “freeing “ some future public expenditure for other fiscal applications.

Regulations

Regulations attempt consensus in difficult- to-police areas or codify existing practices, where voluntary attempts have failed.

Many Australian infrastructural improvements are “lost“ to national approaches because of constitutional powers. As Infrastructure governance bridges all tiers of government ,this maintains fragmented approaches to solving complex issues such as water, industrial ecology and waste. Infrastructure planners must balance different, conflicting regulatory needs.

Infrastructure Heritage and Cultural Responses

Upgrade of heritage buildings requires carefully considered decisions. Whether refits are historic,or whether concessions are made to “modernize” service parts of construction.

If original services are to be preserved intact, or whether social utility of the building demands the obsolescing previous infrastructure. Past well-intended decisions to improve cities transportation congestion by removal of public transport constitutes serious loss of unique heritage.

Projects such as large hydro-electric installations are national icons and cannot be preserved “as made”. Often dam tops were raised to increase capacity. Australian dams such as Canberra’s Burrinjuck, Warrangamba in Sydney, Hume Reservoir at Albury- Wodonga have all been raised 3 times.

Existing historical infrastructure forming an integral network cannot be easily isolated, unlike redundant coal-mines. Metal tracks` pipes and wires are often scrapped as in wartime.

Original remnants may obtain preservation because of unique research by technological historians: often it is merely convenient happenstance. In Melbourne (1993) at Spotswood a relatively new Science and Technology Museum successfully developed around an existing, functioning Victorian sewerage pumping-station established 1890.

Conversion of defunct utilities can be successfully reincorporated into urban building stock (yet preserving remnant distinctive fabric). Some technologies like steam trains generate self preservation for resurrection as “tourist” activities. But pipes and wires are not sexy. In 1995 Sydney converted a defunct power station to a lively community arts centre. A defunct lead shot tower is the centre-piece of a major Melbourne city centre, and a former malt-house is now a theatre.

History demonstrates infrastructure designers and their cultures formulate diverse appropriate design-forms according to resources.

The rich western Fine Arts and popular culture has frequent association with infrastructure technologies. French Realists Pre-Raphaelites and Turner made painterly images of “Wind, Smoke & Steam”, Futurists clamoured for experimental music of industrial plant, speed and movement . Russian Constructivists and Vuktemas, and Melnikov sought movement, colour and dynamic form³⁰. Aesthetic critics like Walter Benjamin and Architects like Gropius , Behrens and Poelzig and many other designers created industrial prototypes including power stations, trains and programmatic urbanism. This continues in environmental art and urban revitalization- labour market programs. City making/remaking is a cultural art form.³¹

Planning Conflicts

Many planning jurisdictions stipulate particular land uses to preserve existing districts and “perceived character”. These determine location and dispersion of infrastructure. Prevailing local political opinion may devalue heritage infrastructure:

As Chermayeff & Tzonis indicated³²

“An insatiable appetite for more material things is not matched by aspiration towards better human conditions. Technologically sophisticated societies appear to be sociologically similar. The goals, which are generally understood and shared are for the most part high and pious abstractions. Consequently popular judgments of the success or failure of various technological enterprises are usually hazy or contradictory. Reasonable judgments are not possible if human purpose is not clearly stated. Technologically excellent means may be applied to the achievement of contemptible social ends, because an exaggerated preoccupation with means at the expense of ends makes any viable planning impossible. Therefore the first step in any planning purpose must be the declaration of social purpose followed by a firm commitment; a deliberate choice of priorities. “

Infrastructural research provides useful public service by exploring new “ ESD best practice”, prototypes for the urban fabric..

Reporting such work is the task of technological and popular media, to inform mass public perceptions.

Consistent political and economic opposition to sustainability of cities continues. Why?

Without cross party approach any agreement on ESD transition process is captive of specific party ideology. Sustainability³³ remains a development concept with 3 key elements: environmental social and political sustainability.

Three Key Concepts

1. Environmental sustainability: maintaining planetary systems and human life.
 - Protection of life systems and physical systems to maintain planetary functions
 - Sustainable use of nature and ecosystems.
 - Satisfaction of present human and other species needs, and of future generations.
 - Legal and economic rules and instruments
2. Social sustainability : Equity
 - Solution for poverty
 - Improved income distribution
 - Satisfaction of human needs (not only traditional social expenditures or social policies)
 - Gender equality
 - Equality between regions within each country.
 - Equality between northern and southern hemispheres.
3. Political sustainability: Citizens Participation and Democracy
 - Public participation and governance (every citizen as protagonist in deciding and implementing development)
 - Human rights
 - Democratic participation in political systems.
 - Decentralization
 - Legal rules and institutions for political sustainability

Environmental - social impacts of urban development.

Engwicht 1997 cites (Whitelegg 1993b) where “before getting on the road” the car has already produced 26.5 tonnes of waste and polluted 928 cubic metres of air). Appleyard’ (1981) observed “people with light traffic in their street have three times as many friends and twice as many acquaintances as those with heavy traffic in their streets.”³⁴

Moving a person by car requires 27 times more space than by metro or light rail and 75 more times than if they walked.

Typical Melbourne suburban land-sites planning require garage setbacks greater than “normal “ between 5 and 9 m. long drive, 3.6 to 5.0m width, plus a double garage of 6 x 6.5 m. This consumes 40 to 75 sq. m. of a typical site or 25 % of a small inner urban site 160 sq.m and 15% of a 500 sq.m. site.

Multi-unit developments generate efficient yields, but have invasive site excavation, basements and engineered retaining walls and drainage. Other effects include soil-dumping, loss of existing major tree and bio-diversity; effects to neighbours such as lowered water tables , subsidence and noise

Car dispersed cities, require longer journeys, more road space and greater investment on infrastructural policing and social control. Change of urban scale and traffic calming can enhance lifestyles. Reduced

private vehicular transport reduces trip times, and loss of ground-space. It increases recreational / pedestrian activities and community fraternisation without loss of amenity.³⁵

Desirable growth options range from dealing with urban fringe and Decentralization, through promotion of regional growth, to revitalization and rebuilding of cores.

Rodger and Fay³⁶ developed a neighbourhood self improvement strategy showing self developed changes from 1991 to 2010 including house improvements, food production, similar to studies by “Street Farmers” in London of the 1970’s.

Successful field models have been developed in Davis, California, the Barriadas of Peru and in Curitiba, Brazil.³⁷ Failures are also well reported³⁸. Computers provide simplified tools to indicate thermal effectiveness of design, allowing informed consent be easily granted³⁹ including contextual shading.

Sociology or Planning?

There is discontent amongst professional town planners and municipal staff as to what constitutes reasonable rates of change.

A useful Adelaide urban program⁴⁰ includes a community support mechanism “Urban Ecology”. Others include Sydney Olympic Village, and numerous solar estates developed in Victoria, W.A., Canberra and Sydney. Detailed measurement of Solar improved and standard dwellings was undertaken in Sydney in 1982-1987 by Solarch.⁴¹

The Urban Land Authority, with SEAV developed a detailed paper⁴² comparing traditional neighbourhood with cluster and other suburban design forms. It found an optimum approach emerged (Green Neighbourhood). This offered significant improvements including some co-location of employment near homes. It focussed on low- medium densities (defined as less than 65 persons per hectare)

Density changes promote medium density housing. By, utilizing shared common walls of at least 10 square metres per unit and common floors of at least 40 square metres / unit and adequate inter-unit spacing 35% plus energy savings accrued.

Mechanisms to create reform and promote sustainable settlement patterns

Contributory growth factors are described in Garelli²⁴³

Opportunities that can promote ESD development include⁴⁴

- Long term financial viability
- Concern for user needs, comfort and health within the workplace
- Public Interest in environmental issues, need to set participatory green examples
- Long-term flexibility in use and provision of buildings, especially energy costs and affordable office space
- Improved market positioning through environmentally friendly design

A Possible Quango Approach: FUSA Federal Urban Sustainability Authority

- an independent semi government authority formed by legislation
- not subject to Ministerial approval except in terms of financial / audit and prudential requirements in keeping with general requirements of government Fiscal responsibility.

It would have a useful public role, drawing on the experiences of bodies like NCDC authority. FUSA should co-operate with the AGO and fully integrate different State and federal agency interests in a project of national significance. Independence by charter is essential for full transparency..

FUSA would require intellectual and economic leadership with rigour. It needs significant long-term funding without political strings attached.

Funding to be

- triennial, scrutiny by the Senate and the Standing Committee on Heritage & Environment, Interim quarterly reports or exceptional reports might be additionally needed
- from general revenue or specific development imposts/ levies
- longer-term by demand management savings in offset greenhouse gases , in deferred energy and water infrastructure investments.

This requires effective reporting with respective state Energy authorities/ providers

Structure be corporate-like board of directors including staff & ministerial representation

- Representation from state and regional planning bodies and peak professional bodies
- Referring bodies , funding agencies including Insurance / banking sector ,
- a separate audit body.

FUSA would

- Manage & commission ESD research on issues through private and public sector
- Allocate grants through a transparent, competitive forum
- use 5 % of funds earmarked for specific community development projects
- develop and monitor ESD development funding /reporting
- develop and maintain an annual reporting structure
- manage a discrete promotions arm with digital/ press output for marketing research.
- separate audit review assessing effectiveness,
- Joint partnerships with State stakeholders

FUSA requires a clear definition of powers to distinguish it from other existing Federal powers.

Any demarcations need to be resolved before legislation be prepared, including

- intervention and purchase/ acquisition powers where “ national interests” may outweigh local considerations.
- Briefing and monitoring “Major Projects”
- developings joint development models with states
- individual negotiations, state by state because of differing governmental arrangements
- Longerterm constitutional amendments to state federal powers Re ESD
- a constitutional convention is probably the preferred long-term change model to pursue

Other matters involve linkage between area improvement and community development .

Work be collocated close to living as in the Nederlands International Bank (NMB) in Amsterdam⁴⁵ and GLC London offices by Fosters & partners.⁴⁶ UN Best practice Guidelines outline useful program approaches⁴⁷

Australian Town Planning is largely a States matter constitutionally

- Regional Planning as at Albury / Wodonga , and the amalgamation of local government districts are opportunities for Federal/State's co-operation.
- ecological co-operation re water use as in the Murray-Darling basin, improving Snowy river flows:
- FUSA might act as a marriage broker to any cross border authorities.Input at annual Federal / State premier's conference.

Other approaches include Victor Sposito⁴⁸, and Rob McGauran et al (2002).⁴⁹

The AGO studies published 2001 suggest the uptake of emergent technologies is rather slow perhaps 2 to 3% per annum. Detailed modelling of building allied technology is found at the ABCB website.⁵⁰

Conclusion

Tools and commitment for change exist: innumerable persons in government, industry, business, the media, private & public infrastructure practice and the wider public seek qualitative change. This can best emerge from responsible political leadership.

Co-operative creative dialogue can celebrate past infrastructure achievement and facilitate new hybrid technological and organisational capacity for community building and growth.

These are poignantly expressed in city making/remaking.

Notes

¹ Enquiry into Sustainable Cities, Australian Parliament, House of Representatives.

² Dubos, R.1964.

³ Garelli, S., Dec 2003.

⁴ C.M. Breder and C.W. Coates. 1962 Edn , Vol 2 , pp 156A, "Aquarium" entry.

⁵ C.M. Breder and C.W. Coates,(1962) op cit.

⁶ By 10,000 BC. Lake Condah in western Victoria the Gunditjmarra Aboriginal people built stone fish traps to trap migratory eels. See Bulilth, H. 2000.

⁷ Barlow D. 1994. Fitzroy cut his throat in 1872, aged 60 after criticism of his weather forecasting. Having created an effective barometer in 1850 he commenced daily published forecasts in 1860, as head of the Meteorological Office, British Board of Trade. Extensive loss records exist, data on fishing deaths is irregular .in numerous British parliamentary inquiries and newspaper reports 1790 to 1890.

⁸ Similar l annual losses occur in coastal areas of Thailand, Bangladesh, Phillipines, India and Africa.

⁹ Useful is Warrington Smythe, H., 1908.

¹⁰ H. Warrington Smythe (1908). ChV, p20-29.

¹¹ Chermayeff and Tsonis pp 97.

- ¹² Chermayeff and Tsonis pp 60.
- ¹³ Webster' (2002) pp 853-855.
- ¹⁴ Extremely useful is the ENVIRONMENT DESIGN GUIDE (EDG) 1996-2004+.
- ¹⁵ McKenzie Mohr, D. & Smith W. 1999 pp32.
- ¹⁶ Blainey pp 222.
- ¹⁷ As in Geoffrey Blainey's "Tyranny of Distance" 1967 Tellingly Melbourne , tried some of the earliest chilled beef technology in the world to expand export markets.p 272 McEarchen & McIlwraith.
- ¹⁸ Jackson 1990.
- ¹⁹ Vale B. & R., 1999.
- ²⁰ Online data can be obtained for all nations.
- ²¹ PLACE3S (PLA nning Community Energy Education Environment and 3Sustainability) outlines a co-operative planning method to integrate decision makers and constituents so decisions are better informed.
- ²² Raymond Aron 1965, pp 258 h.
- ²³ Reyner Banham 1976.
- ²⁴ Reyner Banham 1976.
- ²⁵ A senior field officer's voluntary account . The first cost of EE replacements being expensive for public tenants, plus perception of having low cost choice removed (incandescents).
- ²⁶ ABCB and EDG research.
- ²⁷ Melbourne, Australia, has sustained drought since 2002, storages at 47% of capacity, with staged restrictions . In 1998 Victorians endured eight weeks of limited hot water when major private gas plant was destroyed accidentally Other examples can be cited.
- ²⁸ Sir Humphrey of BBC TV "Yes Minister" satirized this perfectly.
- ²⁹ McKenzie Mohr, D. & Smith W. pp 215.
- ³⁰ Kopp, 1970 , Ch 8 Urbanist- Deurbanist debate.
- ³¹ See Oliver, P. Op cit J.M.W.Turners' "Harbours of England" 1832.
- ³² Chermayeff, S. & Tzonis, A. 1971.
- ³³ Larrain S. 2000.
- ³⁴ Engwicht 1997.
- ³⁵ Newman, 1992.
- ³⁶ Rodger, A. and Fay, R. 1992.
- ³⁷ Mangin , William P. & Turner John C. 1974.
- ³⁸ Rein, M 1974.
- ³⁹ SEAV 1997-2004.
- ⁴⁰ Downton, 1997.
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