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Australian Academy of Technological Sciences and Engineering (ATSE)

Australian Government
Infrastructure Australia

INFRASTRUCTURE PLANNING: TOWARDS BEST PRACTICE

ATSE-IA WORKSHOP COMMUNIQUÉ

VICTORIAN DEPARTMENT OF TRANSPORT
MELBOURNE
9 – 10 APRIL 2013

INFRASTRUCTURE PLANNING: TOWARDS BEST PRACTICE

SUMMARY

Infrastructure planning is a critical issue for Australia. There is a clear need for improvements in current processes to provide outcomes that are more effective and efficient and which are delivered with greater certainty and transparency[1].

The following key changes need to be made to infrastructure planning in Australia:

A. More robust and soundly – based long-term plans founded on well-understood national and local aspirations

B. Medium term budgets to support the development of a pipeline of well-conceived projects

C. More focus on maintenance and service improvements through high-value/low-cost projects

D. Early customer and community engagement and greater transparency in decision-making

E. Earliest possible definition of land-use needs for new infrastructure corridors, followed by adequate land use control and acquisition

F. Reforms to the way that infrastructure is assessed, funded and operated

EFFECTIVE INFRASTRUCTURE PLANNING IS CRITICAL FOR AUSTRALIA'S PROSPERITY AND WELL-BEING

Effective infrastructure planning is a critical issue for Australia, particularly as our population continues to grow. Infrastructure - notably transport, water, energy and communications - is vital for driving productivity, underpinning prosperity and our way of life. It impacts on all aspects of our society.

Establishing robust infrastructure plans is critical. Weaknesses in those plans impose economic costs that are usually difficult and expensive to correct.

Recognising the importance of these issues, a joint ATSE-Infrastructure Australia workshop was held on 9-10 April 2013, in Melbourne to discuss leading practice in infrastructure planning and development in growing communities around the world.

Improving infrastructure planning and investment was seen as a major challenge facing Australia, as well as other countries. Meeting this challenge will better equip Australia to address other demands such as raising productivity growth, dealing with demographic change, and maintaining our competitive advantage. It was noted that Australia must also grasp the challenge of climate change adaptation in order to drive the development of infrastructure solutions that have demonstrated resilience.

Increasingly, infrastructure projects cost billions of dollars. They are long term activities, often taking a decade or more between the first decision to go forward with a project and the operation of that project. Clearly, such decisions need to be taken with great political and technical foresight and with goodwill on all sides. Critically, they must span many electoral cycles.

The workshop took the view that building better infrastructure outcomes for Australia requires long-term rigorous planning, and the application of improved models for governance, project evaluation, long-term asset management and technological innovation. These reforms could deliver productivity improvements and prosperity and offer cost-effective solutions to the key challenges facing infrastructure in Australia.

1 This workshop communiqué was developed at a joint ATSE-Infrastructure Australia workshop, held on 9-10 April 2013, in Melbourne and is based on discussions and views expressed by the workshop delegates, the communiqué does not necessarily reflect the views of all workshop delegates.

2 For workshop details see rear

IMPROVING INFRASTRUCTURE PLANNING IN AUSTRALIA

Urgent change is required to improve infrastructure planning processes in Australia. The key reforms proposed are discussed below. They are then developed into a set of leading practice principles for infrastructure planning in the following section.

A. Better long term plans

Governments need to follow through on their own commitment to the development of robust and integrated long term (15-30 year) strategic plans for our cities, as agreed by the Council of Australian Governments (COAG) in December 2009.

They also need to deliver on their commitments to develop medium-term (5-15 years) prioritised infrastructure and land use plans, so that industry has greater confidence to invest and the community has greater certainty.

There is a need to improve the quality and consistency of project proposals that are aligned with the strategic plans and that robustly demonstrate net economic, social and environmental benefits.

B. Medium term budgets to support development of a project pipeline

Current government budget processes, involving a one year budget and three years of forward estimates, are part of the reason why the country has struggled to establish an effective infrastructure pipeline. A coherent pipeline of projects is required that allows industry to develop effective delivery plans and better workforce management, particularly in engineering. Defined planning horizons linked to medium-term budgets would support the development of appropriate project pipelines.

Like governments in Canada and the United States, governments in Australia need to be presenting 10 year budgets and estimates of their prospective infrastructure outlays. As part of its 2013 budget, the Canadian Government has committed to maintain funding for 10 years to the Building Canada Fund.

Infrastructure outlays should be related to a minimum, fixed percentage of Gross Domestic Product or State Product.

C. More focus on maintenance and high value/low cost projects

At present, the pros and cons of various major projects dominate much of Australia's infrastructure debate.

Tight fiscal circumstances will increase the pressure on governments to justify committing large sums to such projects. Rather than only focussing on mega-projects, rebalancing investment priorities to give greater attention to the maintenance of existing assets, managing demand on existing networks and targeted, comparatively inexpensive investments at pinch points, are more likely to provide a durable long-term set of solutions to Australia's infrastructure needs. This approach has been advocated in the UK National Infrastructure Plan.

D. Raising transparency

To some degree, infrastructure decision-making will always be a political task in a democracy. Australia's lack of transparency in infrastructure decision making leads to inefficiency, community distrust and limits informed debate about the trade-offs (e.g. which projects, service outcomes, prioritisation, funding, and so on) that are implicit in infrastructure decision-making. Publishing the technical underpinnings of strategic plans and project business cases (or at least their key findings and assumptions) will place a discipline on governments and oppositions and improve the public's ability to scrutinise political promises.

E. Land-use management

The problems associated with poor land-use planning are obvious to most observers. Efforts to improve the integration of land use and transport planning (especially) need on-going support and drive from governments, industry and the community. Reserving corridors for future infrastructure networks is vital if we are to maintain a capacity to deliver affordable infrastructure in the future.

The workshop noted the Western Australian system where a largely independent planning body sets aside land at the earliest possible stage for future infrastructure corridors and sites and then has an assured funding stream to permit it to acquire that land in a timely manner, often when it is still undeveloped.

F. Reforms to the way that infrastructure is assessed, funded and operated

New ways of approaching infrastructure funding are required, such as user charging, beneficiary charging such as value capture and levies. Recycling capital through the sale of existing assets and investing the proceeds in new projects needs to be pursued to provide 'deal flow' for investors.

LEADING PRACTICE PRINCIPLES FOR INFRASTRUCTURE PLANNING

A set of leading practice principles for infrastructure planning in Australia are recommended:

1. The major **prerequisites** for a successful infrastructure plan for a region are:

a. Establishing shared social, environmental and economic aspirations for the region and its country and city components.

b. Basing planning on a range of plausible future scenarios, whilst recognising the uncertainties and risks associated with any prediction of future conditions.

c. Defining over-arching restraints such as resource availability, sustainability, and the need for resilience and robustness in the face of climate change, natural disasters and external shocks.

d. Addressing current community issues (e.g. concerns about budget deficits, population changes, national competitiveness, and impact of smart infrastructure).

e. Employing local skills and resources to the maximum feasible extent.

f. Using an agreed planning horizon, which experience shows must span a number of electoral cycles.
COAG has reasonably recommended 15 to 30 years for long term plans and medium term plans might be about 10 years.

2. Within this broad **framework** there would be:

a. A clear vision of any planned social development of the region.

b. A clear vision of any planned economic development of the region.

c. A recognition of the transformational role that major projects can play.

d. Relevant specific criteria, such as the "20 minute city".

e. An adequate inventory of the physical resources and land uses of the region.

f. A catalogue of current infrastructure service levels and constraints within the region.

g. Measures such as demand management to ensure that existing infrastructure is appropriately used.

h. An understanding of the physical and financial resources available to fund any developments.

i. An understanding of infrastructure governance for the region – who owns what, who manages what, who funds what, who decides what?

j. Agreed principles for the assessment of social, environmental and economic impacts and benefits.

3. Given the aspirations in 1 and the specifics in 2, and as a consequence of interactive planning, for the **planning horizon** there would have to be:

a. Proposed "pipelines" of projects which would meet the agreed needs.

b. Estimates of the economic inputs to and outputs from a region as a consequence of proposed projects.

c. Estimates of the social and environmental impacts and risks associated with the proposed projects.

d. Agreed measures for selecting potential project pipelines in an open, consistent and transparent way.
In a similar open and transparent way, the process would be repeated for a range of scenarios and project pipelines to select the project pipeline which would:

e. Complement the overall strategic plan, covering both long-term and short-term planning horizons.

f. Meet the selection criteria in (3.d)

g. Most effectively and efficiently meet the community's established aspirations and available resources, whilst also providing the best value for money.

h. Within the shorter term plans, clearly define the specific projects needed to deliver all agreed plans, and the associated specific project deliverables and outcomes.

i. Be supported by specific project proposals and business cases (and risk management plans) which are each aligned with the strategic plans and robustly show how they will provide the claimed project benefits, deliverables and outcomes in a cost-effective and affordable manner.

j. Provide "line-of-sight" checks showing that the specific outcomes of a project will satisfy the intent of the strategic plan.

k. Develop and enhance an associated supply chain of goods and services.

l. Optimise the life-cycle cost of the infrastructure.

m. Define future land-use needs.

4. To manage **land-use**, as schemes, project pipelines and projects develop during the above stages it is essential that, at the earliest possible time, there be:

a. Detailed land-use plans for the region.

b. Estimates of the infrastructure needs of the region.

c. Optimisation of the land-use – infrastructure mix.

d. Institutional arrangements and policy positions to ensure effective integration of land-use planning and the current state of infrastructure planning

e. Measures for setting aside land today to meet the needs of the planned future infrastructure.

5. Any new infrastructure provided in accordance with the above process could be **funded** in part by:

a. User-pays charges based on at least marginal operating costs and on any external costs that can be attributed to the operation of the new infrastructure.

b. For the road system, new technology which is making distance-based charging increasingly feasible (a system which might initially be applied to the freight sector).

c. Capture of the land-value increases created by the provision of the new infrastructure.

d. Private sector financing of commercially attractive components, at both developmental and mature operating stages.

e. Given the typical times needed to create infrastructure, any associated funding arrangements for at least the next 10 years need to be identified in forward planning and included in future budgets.

f. The need for a pipeline of projects and the associated forward construction and operating budgets must be incorporated into rolling budgets, advanced every year.

6. The planning and development of infrastructure must include provisions for the **operation** of the infrastructure, including:

a. A firm governance system, including accountability traces.

b. An appropriate asset management philosophy and a whole-of-life budget, supported by a specific and quantitative maintenance regime.

c. Regular reporting of performance relative to the predicted deliverables and outcomes (3.i).

d. Measures to achieve the planned benefits of the project and to help balance revenues and expenditures within the operating system.

e. Indicators of how the project's actual performance might impact on current and future plans, on other related networks, and on the public acceptance of future infrastructure proposals.

NEXT STEPS

We call on all practitioners to engage with best practice principles and a possible next step in the process begun by the workshop would be to catalogue how well the current infrastructure planning processes in the various jurisdictions align to the leading practice principles for infrastructure planning in Australia proposed above.

WORKSHOP DETAILS

The two-day workshop, organised by the Australian Academy of Technological Sciences and Engineering (ATSE) and Infrastructure Australia, was held at the Victorian Department of Transport on 9-10 April 2013. The workshop involved more than 50 invited participants, including senior representatives from government, industry and academia, from both Australia and overseas.

Issues explored included: making infrastructure planning consistent with Australia's long term national vision and aspirations; land use, regional needs, population growth; issues of transparency, planning horizons, project prioritisation and evaluation, selection processes and governance frameworks as well as models for the assessment of social, environmental and economic impacts and benefits.

The workshop involved presentations and discussions on Australian and international approaches to infrastructure planning, with particular reference to Canada, Japan and Asian mega cities, best practice approaches and the planning environment in Australia. Speakers included:

- Mr Jose Luis Irigoyen, Director Transport, Water, Information and Communication Technologies, World Bank, Washington;
- Dr Guy Felio, President, Infrastructure Strategies & Research Inc, Ottawa;
- Mr Michael Deegan, National Infrastructure Coordinator, Infrastructure Australia;
- Dr Surya Raj Acharya, Senior Research Fellow, Institute for Transport Policy Studies, Tokyo;
- Mr Jordan Schwartz, Manager Infrastructure Policy, World Bank, Singapore;
- Ms Megan Motto, CEO, Consult Australia; and
- Dr Kerry Schott, Board Member, Infrastructure Australia.

Details of the Workshop programme, copies of presentations and a list of participants, can be accessed at the ATSE website.

ACKNOWLEDGEMENTS

ATSE gratefully acknowledges the contributions of the workshop speakers and participants, and the assistance and guidance of the Workshop Steering Committee: Dr Max Lay AM FTSE (Chair), Mr Steve Alchin (Infrastructure Australia), Dr Vaughan Beck FTSE, Mr Menno Henneveld FTSE, Mr Dick Kell AM FTSE, Mr John Laurie AC FTSE, Mr David Singleton FTSE, Mr Clive Weeks AO FTSE, Professor Mike Xie FTSE.

ATSE acknowledges the principal sponsorship of Infrastructure Australia, and additional sponsorship from Roads Australia; Queensland Government Department of Transport and Main Roads; RACV Club; Tasmanian Government Department of Infrastructure Planning and Resources; and Victorian Government Department of Transport.

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ABOUT ATSE

The Academy of Technological Sciences and Engineering (ATSE) is an independent not-for-profit organisation. Its Fellowship, composed of more than 800 outstanding scientists, technologists and engineers, drives its mission – to foster excellence in technological sciences and engineering to enhance Australia's competitiveness, economic and social wellbeing and environmental sustainability. The Academy provides robust, independent, evidence-based policy advice on science and technology issues to government, industry and the community. More information on the Academy can be found at www.atse.org.au.

ABOUT INFRASTRUCTURE AUSTRALIA

Infrastructure Australia advises governments, investors and infrastructure owners on a wide range of issues. These include:

- Australia's current and future infrastructure needs
- mechanisms for financing infrastructure investments, and
- policy, pricing and regulation and their impacts on investment and on the efficiency of the delivery, operation and use of national infrastructure networks.

Infrastructure Australia's focus is on assisting Australian governments to develop a strategic blueprint for unlocking infrastructure bottlenecks and to modernise the nation's economic infrastructure. More information on Infrastructure Australia can be found at www.infrastructureaustralia.gov.au .

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