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Infrastructure Asset Management: How does Canada compare to AU and NZ?

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Infrastructure has become a major preoccupation for many countries around the world. Developed countries, such as Canada, face the challenge of maintaining their existing stocks of water, wastewater, roads, bridges, and other systems that support economic growth and help maintain the quality of life of their citizens. Meanwhile, developing countries are in the process of building their infrastructure systems to provide basic services to their people.

In view of the massive investments needed in infrastructure worldwide, many countries are turning to asset management (AM) systems to ensure the highest possible returns. There are many definitions of this concept but they all point to an integrated (across types of infrastructure) and rigorous process of gathering knowledge about assets (inventory, condition assessment), predicting their value and performance, determining the needs (maintenance, rehabilitation, renewal) and associated costs over the life-cycle, and choosing the best available technologies for construction and monitoring.

Asset management is not new to infrastructure, having been first applied with pavement management systems more than 20 years ago. Today, the principles of asset management have been expanded and applied to all municipal infrastructure assets.

Although many countries have identified the need for asset management for their infrastructure, only a few have developed tools and implemented policies to address that. Australia and New Zealand are front-runners in the development of infrastructure asset management tools. While New Zealand offers valuable lessons in terms of implementation, Australia – because of greater similarities with Canada offers a better comparison, as shown in the table below.

Canada and Australia have other common elements. For example, the population in the two countries is concentrated in certain geographical zones (in Canada, along the southern perimeter, within 150 km of the US border; in Australia, along the south and east coasts). Both countries are greatly influenced by neighbouring economic superpowers (Canada by the US economy, Australia by that of China and Asia in general). Both have native/aboriginal (i.e., First Nations) peoples who live in remote areas that are difficult to access and exposed to harsh climatic conditions.

	Canada	Australia	New Zealand
Approximate Surface Area (sq. km.)	9,000,000	7,700,000	270,000
Approximate population	30 million	20 million	4 million
Type of Government	Federal Government with Provinces/Territories responsible for local government (Municipalities) entities	Federal Government with States/Territories responsible for local government (Local Councils)	Central Government responsible for Local Authorities
Approx. number of "local Government" entities	3700 +	700	70

These common factors result in Australia and Canada sharing similar challenges in terms of their infrastructure, and its management, including: extensive infrastructure networks, ageing urban systems under increasing demand, and servicing remote areas.

In a recent (August 2005) study tour to the region, I was fortunate to attend an infrastructure conference and meet a large number of practitioners and policy makers from both Australia and New Zealand. Here are some of the highlights.

Engineers Australia (equivalent to the Canadian Council of Professional Engineers - CCPE) released infrastructure report cards for the country (2005) and for AU States (they can be downloaded from <http://www.engineersaustralia.org.au>). These report cards look at roads, rail, electricity, gas, airports, potable water, storm and wastewater and telecommunications. The report identifies primary challenges related to the maintenance and improvement of infrastructure services such as funding (including mechanisms for the private sector to participate in the provision of these services) and skilled labour shortages (for example, AU will need 30,000 more civil engineers in the next 10 years). Amongst its recommendations, Engineers Australia proposes:

- The creation of a National Infrastructure Advisory Council to bring stakeholders together and devise strategies/policies related to infrastructure (this is similar to the Canadian concept of a National Round Table for Sustainable Infrastructure which is being explored by national partners under the leadership of CCPE); and
- Infrastructure planning that is long-term, integrates all elements of infrastructure, and that includes more efficiently sustainability considerations (i.e., social, environmental and economic factors).

An asset management culture has not yet been embedded within public organizations (municipalities or local councils). Even if AU and NZ have done well in producing the International Infrastructure Management Manual, it is not enough. There still exist issues

related to the culture and structure (silo) of organizations, people, and the connection to the customer (which is generally poorly addressed).

The main promoters of asset management are the Institute of Public Works Engineers Australia, and its counterpart, Ingenium in New Zealand. In AU, efforts such as training and mentoring are being put in place to inform and educate non-technical staff of cities and communities of the value of asset management implementation. The expected results are more informed elected official and administrations in the benefits of asset management systems for their communities.

In New Zealand, the situation is quite different, primarily because of the size of the country and the type of government. The Central Government passed the revised Local Government Act in 2002, which, among others, requires Local Authorities to produce Long Term Council Community Plans (LTCCP's) by 2006 and contains comprehensive provisions for asset management (the earlier Act of 2000 required all municipalities in NZ to develop and implement asset management plans). Most of these plans are public and can be found on the communities' web sites. Lessons learned (specially from small councils) include:

- Culture change needed (thinking beyond minimum compliance, need for a long term approach that is supported by senior levels of management and elected officials within the organization),
- Organizational structure changes needed (silos still exist that place barriers to an integrated approach and result in sub-optimal decision making),
- Lack of resources (human, material, financial to fully implement asset management systems and achieve highest returns), and
- Commitment at all levels is necessary to the successful implementation of asset management systems.

AU and NZ have developed solid practices and documentation to support the development and implementation of municipal asset management plans (e.g., the International Infrastructure Management Manual). However, in Australia, there still is a need for widespread implementation of asset management practices. Changes are however likely to come as various states implement requirements for municipalities to have asset management plans and with the growing interest of State Auditor Generals in how infrastructure investment decisions are planned and implemented.

So, how does Canada fare in comparison to our commonwealth cousins down-under?

Canada's approach to financing infrastructure (e.g., Government of Canada partnerships with Provinces and Territories for infrastructure programs such as Canada Strategic Infrastructure Fund - CSIF, Municipal Rural Infrastructure Fund - MRIF and the Gas Tax agreements) is unique. For example, the fact that MRIF contains provisions to support asset management plans should increase the awareness and use of asset management systems in municipalities across the country. Canada is certainly the leader in bringing

together multi-discipline, multi-stakeholder groups to arrive at a consensus on these issues. The National Round Table on Sustainable Infrastructure concept lead by the CCPE, or the National Asset Management (NAM) working group, composed of engineers, planners, accountants, academics, and municipal elected officials, are but examples of the unique and inclusive approach Canada has taken.

In terms of asset management guidance, Canada has a number of activities to generate asset management knowledge (e.g., the National Research Council's Municipal Infrastructure Investment Planning project) or to disseminate knowledge (e.g., the National Guide to Sustainable Municipal Infrastructure, or InfraGuide).

Overall, none of the three aforementioned countries has created the "silver asset management bullet". Close collaboration between Canada, Australia, New Zealand and other countries that are seriously looking at "managing the infrastructure gap" such as the USA, UK, and South Africa, will help improve our methods and approaches, avoid costly mistakes, and provide the public with the best infrastructure services at a reasonable price.