

Municipal natural asset management as a means to ensure the viability of natural systems

Contribution from the Municipal Natural Assets Initiative (MNAI)

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Context and rationale

Ecosystem decline. Policy and scientific focus on preserving life-sustaining natural capital and ecosystem services has grown substantially since the 2005 Millennium Ecosystem Assessment signaled dramatic declines in Earth's vital natural systems. However, only limited changes have been made in government and business operations to halt this decline. MNAI's research and experience shows that many local governments understand, measure and manage natural assets only for a narrow range of 'green', aesthetic or social amenities. This narrow understanding overlooks opportunities to consider nature as a vital asset and manage it accordingly.

Infrastructure decline. Across Canada, the US and globally, infrastructure is failing and costly, as documented by the Federation of Canadian Municipalities, the American Civil Society of Engineers & others. Climate change is increasing the pressure on existing infrastructure. At the same time, many local governments are increasingly adopting modern, structured asset management processes that have as their central principle the cost-effective and reliable delivery of service, rather than a focus on a specific asset type to deliver that service. This means that to the extent healthy natural assets can provide - for example - flood and stormwater management services as effectively as engineered assets, they provide a cost-effective option with many co-benefits to address infrastructure decline, thus contributing to more resilient communities.

Climate change is increasing pressure on infrastructure systems and underscoring needs for complementary strategies to deliver service while containing costs. Natural assets (e.g. floodplains, riparian areas) can, with appropriate support and tools, support stormwater management service delivery and fit into the asset management framework. While engineered solutions are an essential ingredient in stormwater management, natural asset solutions hold great potential to reduce and mitigate risks from extreme stormwater, drought, and floods on a cost effective basis, compared to traditional engineered infrastructure.

Concurrently, natural asset solutions can be managed to provide multi-functional services under a variety of circumstances, for example drought mitigation, urban cooling, biodiversity enhancement and recreation alongside stormwater management. This can aid communities to adapt to climate change and is at the core of MNAI.

An overview of the contribution

Municipalities play a vital role both in protecting and preserving natural assets and ecosystem services and in providing citizens with core services.

The MNAI team provides scientific, economic and municipal expertise to support local governments in identifying, valuing and accounting for natural assets in their financial planning and asset management programs, and in developing leading-edge, sustainable and climate resilient infrastructure.

More specifically, MNAI supports municipalities to integrate natural assets (e.g. floodplain, riparian area) into core asset management and financial processes. This means that natural assets are understood, managed and valued by municipalities in terms of the services that they can provide (e.g. localized or downstream flood management). The small town of Gibsons, Canada was the pioneer of the approach. MNAI refined and scaled up their approach in the City of Nanaimo, City of Grand Forks, District of West Vancouver, Region of Peel and Town of Oakville; is now working on a second national cohort; 2 watershed level projects; and is conducting diverse 'enabling research' projects. Our goal is to make the approach mainstream across Canada, although there is certainly applicability well beyond this country.

To date, the evidence is that at a minimum, this approach helps municipalities manage risk by better understanding what services come from natural assets yet are not accounted for. There is also evidence that shows that natural assets can provide the same service as engineered alternatives but with no capital cost and lower operating costs.

How the contribution leverages living natural systems as a solution to avert climate change?

We would not say that we 'leverage' natural systems. Rather, we give local governments the tools to understand the biophysical services provided by natural assets and the value of those services if they had to be replaced by an engineered alternative, and, the tools to manage natural assets such that they continue to provide cost-effective and reliable service for the long-term.

How might the contribution support both climate, mitigation and adaptation as well as other important co-benefits and social, economic and environmental outcomes in coming years.

Increasing climate resilience

As noted above, climate resilience is at the heart of MNAI's value proposition.

Mitigation

In those scenarios where local governments opt for nature-based solutions over engineered solutions there is a GHG saving from avoided new construction (e.g. a concrete sea wall), and from the sink provided by preserved or enhanced natural assets (forest, creek).

Risk management

There is a risk to local governments in not inventorying, valuing and managing nature as an asset:

- First, if local governments have not inventoried or valued their natural areas, they simply have no sense of the extent to which they rely on them, or the extent of their exposure if the assets were to fail.
- Second, the reality is that if local governments do not value the services from natural assets then they don't protect them. In many urban areas there is pressure to develop, and this often means destroying natural assets unless we understand their value. And once nature is gone, it can be hard to get back.
- Third are opportunity costs. If local governments do not manage nature assets to provide a stream of cost-effective and reliable services then they may be missing opportunities to save capital and operating costs — money that could be used on other priorities.

To state this in the positive, measuring and managing natural assets can be a way to deliver core services to taxpayers less expensively than through engineered means, and through an asset that will appreciate over time.

Social impact (job increase; poverty reduction; Just transition, etc.)

We have not yet started tracking these metrics but are developing a framework to do so

Minimising species extinction and ecological losses and fostering an increase of biodiversity.

Practical outcomes of municipal natural asset management can include land acquisition, improved environmental governance practices, restoration, and rehabilitation. In a generic sense, all of these activities may help species at risk.

MNAI is currently working with Environment and Climate Change Canada to develop a methodology to 'stack' on the core MNAI methods information about species at risk and their habitat. We will then be able to optimize standard asset management processes such that they take into account critical habitat. The project should launch in September 2019.

More information available upon request.

Which countries and organisations are involved in the contribution?

Canada is the primary country leading on municipal natural asset management.

A list of sub-national organizations can be provided.

How have stakeholders (for example local communities, youth and indigenous peoples, where applicable) been consulted in developing the contribution?

Municipal natural asset management is delivered with and through local communities. Indigenous peoples are increasingly important in MNAI's work and, for example, Vancouver Island's K'omoks First Nation is a core project partner in our first watershed-scale initiative.

Where can the contribution be put into action?

MNAI has the potential for widespread global uptake because of (a) its universally relevant theme and (b) the platform upon which it is developed, as follows.

First, the project addresses a climate change theme of national relevance: the vital role that healthy natural assets and ecosystems play in supporting adaptation to climate change effects. MNAI extends the application of existing municipal systems for asset management to municipally-valuable services from nature, and incorporates that value into asset management. This, in turn, enables maintenance, monitoring, land acquisition, restoration, rehabilitation, and environmental management of natural assets and ecosystems that support climate adaptation to be elevated to the same comparatively-privileged stature as engineered infrastructure in municipal asset management frameworks. The fact that risk reduction and cost savings are emphasized in the project further increases its salience.

Second, many local governments use asset management to deliver core services in a financially sustainable manner. Indeed, in Canada, municipalities are now required to adopt modern asset management approaches as a result of measures including Public Sector Accounting Board standards. MNAI is deliberately based on the asset management platform, and uses similar tools & approaches, giving it high potential for application across any municipality with a reasonably deliberate approach towards asset management.

More specifically:

- **Applicability in a developing country context.** All municipalities have natural assets that provide, or could be restored or rehabilitated to a point where they could provide, vital services on a cost-effective basis. It could be fitting and appropriate to explore the potential for municipal natural asset management in developing country contexts given that human well-being can be more closely linked to natural resources, agriculture and environmental factors than in developed countries.
- **Applicability in a post-conflict peacebuilding context.** Related to the above point, natural resources can be both a liability or asset in post-conflict contexts. For example, post-conflict natural resource management can help re-establish social and political relationships. As municipal natural asset management evolves, it could potentially be considered as a possible confidence-building and peacebuilding tool in certain peacebuilding / post-conflict contexts (see Bruch et al. (2016) for extensive discussion on natural resources and post-conflict peacebuilding).

- Furthermore, while MNAI is focussed on local governments, the approach can be modified for use by any entity that manages assets and has access to or control of or benefits from land: airports, universities, ports, federal and regional governments and so on.

How the contribution will be delivered? How will different stakeholders be engaged in its implementation? What are the potential transformational impacts?

MNAI is a not-for-profit and is shifting its model towards delivery through an 'advisory services' approach.

*** Is this initiative contributing to other Climate Action Summit workstreams (industry transition; energy transition; climate finance and carbon pricing; infrastructure, cities and local action; resilience and adaptation; youth and citizen mobilization; social and political drivers; mitigation strategy)?**

Not contemplated yet.

*** How does this contribution build upon examples of experience to date? How does the contribution link with different ongoing initiatives?**

MNAI is a first mover in the field of municipal natural asset management. However, our work draws on several very well defined fields and sets of tools including:

- Ecological accounting
- Asset management [for which there are corresponding ISO standards]
- Measurement of biophysical functions of natural assets
- Modelling of stormwater (for example)

What are the mechanisms for funding (with specific emphasis on potential for partnerships)?

MNAI has drawn on a wide array of funders in its start-up. Local governments, as a matter of principle, always make a contribution to the services we provide.

Need clarification to avoid a generic response.

What are the means of stewardship, metrics for monitoring?

All of our projects have corresponding evaluation plans and monitoring but these are not sufficiently comprehensive. Accordingly, we are developing a long-term monitoring framework in concern with a Canadian university.

We also do technical reports from all of our projects – see for example this link:
<https://mnai.ca/results-from-first-national-mnai-cohort/>

What is the communication strategy?

We have a full communications strategy available on request.

Recent decision-maker summaries [at this link](#).

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