

MOVING TO NATURAL ASSET MANAGEMENT IMPLEMENTATION OPTIONS FINAL REPORT

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1. CONTEXT

Over the past 6 years, the Municipal Natural Assets Initiative (MNAI) has worked with nearly 100 local governments across Canada - identifying, valuing, and accounting for natural assets in local government financial planning and asset management programs.

A growing number of these local governments are now entering the implementation phase of municipal natural asset management (NAM). This is the third part of the natural asset management adaptive cycle, as illustrated in Figure 1.

Figure 1: Natural Asset Adaptive Management Cycle.



Source: Adapted from Asset Management BC, 2014.

As local governments move from planning to implementation phases, potential areas in which they can take action include:

- Education and capacity building (internal and external)

- Strategy, policy, and bylaw development
- New programs and changes to operations
- Building third party support for NAM

Examples for each of these implementation action areas are provided in **Appendix A**.

MNAI is now exploring ways in which its services, resources and tools can be evolved to support local governments as many more of them enter this implementation phase. As part of this exploration, MNAI sought input from representatives of project communities and other stakeholders, to ensure program development best meets the needs of these local governments.

Research and Consultation Overview

MNAI consulted key stakeholders to gain an understanding of their needs with respect to implementation support and mapped these against MNAI skills and organizational capacity to identify priorities for new program lines/service offerings. This included:

- Interviews and a survey of representatives of five local governments involved in MNAI’s “Cohort 2” group to explore initiatives underway, interests, and barriers to action. (Included: Courtenay, Florenceville-Bristol, Riverview & Riverside-Albert, Oshawa, and Sparwood; completed December 2020.)
- A Monitoring Report prepared by a University of Waterloo research team to analyze progress on municipal NAM programs,¹ focusing on five local governments involved in MNAI’s “Cohort 1” group. (Included: Gibsons, Grand Forks, District of West Vancouver, Nanaimo, and Oakville; completed September 2021.)
- Convening a workshop with representatives of project communities and NAM supporters (e.g., other levels of government, NGOs, and academia), to review the results of the foregoing steps and together explore priority opportunity areas for MNAI to support implementation-level action amongst MNAI communities. (Held November 24, 2021)

This final report represents a synthesis of findings from the above research and consultation.

2. APPROACH

To determine priorities for new areas of support that MNAI could provide to advance NAM implementation, the research and consultation focused on identifying and prioritizing:

¹ This study included a survey and interviews of five MNAI project communities, combined with desktop research. It evaluated progress on NAM programs at these communities with respect to the following outcomes: Awareness, Capacity, and Education; Implementation (integration into municipal strategy); Ecosystem Rehabilitation/Restoration; and provision of Service Delivery through NAM.

- High impact **needs** of local governments that, if met, would have the greatest potential for accelerating NAM implementation over the next five years;
- Implementation **strategies** that could best support these priority needs; and,
- The types of **services, resources, and tools** that MNAI can provide to support each of these implementation strategies.

3. CHALLENGES AND NEEDS IN MOVING TO IMPLEMENTATION

The monitoring research conducted by the University of Waterloo team found that most local governments in Cohort 1 are progressing well in education, awareness, and capacity outcomes as well as implementation outcomes, but much slower towards ecosystem rehabilitation and restoration outcomes and service delivery outcomes. The key challenges noted were: slow uptake of a municipal natural asset management approach from managerial staff in these municipalities, limited natural asset management policies, and a lack of ecosystem services monitoring metrics.²

The survey and interviewing of Cohort 2 communities was focused specifically on uncovering challenges to implementation and desired supports. Results were consistent with those noted in the Waterloo study, and the understanding of MNAI staff and Board.

² Mollame, L & Drescher, M. (2021). MNAI Monitoring Report. *Municipal Natural Assets Initiative*. Victoria, British Columbia, Canada



Table 1 summarizes key needs with respect to progressing to NAM implementation, based on the above-noted research and consultation.

TABLE 1: SUMMARY OF KEY NEEDS IDENTIFIED FOR IMPLEMENTATION ACTION

KEY LOCAL GOVERNMENT NEEDS IDENTIFIED	CHALLENGES
<p>(A) Internal buy-in amongst key decision makers, particularly amongst traditional asset management staff</p> <p>(B) Overcoming silos within the local government</p>	<ul style="list-style-type: none"> Key decision makers are not always effectively engaged NAM practices are not aligned with traditional asset management (AM) AM teams are accustomed to working with proven systems, with clear inputs/outputs, with quantified/established metrics (while practice of NAM is still developing) Need for collaboration internally between departments
<p>(C) Strong external relationships with neighbouring jurisdictions, other levels of government and other stakeholders</p>	<ul style="list-style-type: none"> Collaboration amongst neighbouring municipalities and other levels of government is necessary and there is often no mechanism for this No shared/common language/goal around NAM Tiered municipalities pose unique challenges as roles are split amongst different organizations Provincial/federal government engagement and support is critical to enable this work Effective strategies to engage private landowners is needed
<p>(D) Institutionalize and operationalize NAM</p>	<ul style="list-style-type: none"> Lack of integration into overarching policy (e.g., OCP, OP, etc.) and plans (e.g., Operational plans) Poses a particular challenge with staff and council turnover / Council turnover
<p>(E) Staff capacity (time, in particular)</p>	<ul style="list-style-type: none"> Most municipalities do not have a dedicated staff person for this role Competing interests on time Many consultants do not have training on NAM approaches/practices, further draining local government staff time
<p>(F) Financing/Funding</p>	<ul style="list-style-type: none"> Lack of access to sufficient funding for program development and project implementation Funding for a full range of NAM options, including rehabilitation, restoration

KEY LOCAL GOVERNMENT NEEDS IDENTIFIED	CHALLENGES
(G) NAM Standards and a Common Language	<ul style="list-style-type: none"> Many plans/objectives/functions touch on NAM but are using different language (e.g., climate change, asset management, sustainability), a common language would help align these efforts and engage broadly (e.g., finance and senior leadership) Language is not broadly accessible Have not clearly demonstrated connection between intersecting frameworks (NAM; Nature-based climate solutions; ecosystem services)
(H) Regulatory framework to drive NAM agenda (provincially and federally)	<ul style="list-style-type: none"> Senior governments have a large role in influencing progress on NAM, in particular through policy, regulation and supports, without this, progress is slowed
(I) Risk identification / methodology	<ul style="list-style-type: none"> Various forms of risk: legal, financial, liability, engineering Understanding/addressing risk is a key challenge for those involved in the practicalities of implementation

Prioritizing Needs

Participants in the November 24, 2021 workshop provided input through discussion and polling to assist in prioritizing the most significant of the needs noted in Table 1 for accelerating progress on implementation over the next 5 years. The following guiding criteria were provided:

- (a) The need could be considered as having **high impact** on NAM implementation if it unlocks or strengthens critical progress through, e.g.:
 - Influencing or changing business-as-usual practices and processes
 - Regulation and policies
 - Enabling innovation/pilot projects
 - Otherwise supporting the progress from assessment and planning to implementation stages
- (b) The need could be considered **addressable** by MNAI if it:
 - Is a logical next stage of evolution of NAM practice; and
 - Can be supported by new services, resources, or tools.

Based on workshop discussions and polling, and applying the criteria of 'high impact' and 'addressability', participant input helped to clarify priorities for action. Results identified two needs as

particular priorities, with both having potential for **high impact** and high **addressability**. These are referred to hereafter as Tier 1 priorities and are:

(1) *Institutionalize/Operationalize NAM* and

(2) *NAM standards/common language*.

A second tier of needs ('Tier 2') was found by the workshop group to have mixed addressability and impact:

- *Risk identification/methodology* was seen to be highly addressable and but with moderate impact.
- *Regulatory frameworks* was seen to have high impact but only moderate addressability.
- *Internal buy-in and financing/funding* were both seen to have high impact but lower addressability.

A third tier of needs ('Tier 3') had lower addressability and impact: *overcoming silos, strong relationships, and staff capacity*.

Results are summarized in Table 2 below, and further detail on the input received during the workshop is provided in Appendix B.

TABLE 2: PRIORITIZATION OF HIGH IMPACT, HIGHLY ADDRESSABLE KEY NEEDS FOR IMPLEMENTATION ACTION

TIER 1: High impact and high addressability	<ul style="list-style-type: none"> · Institutionalize/Operationalize NAM · NAM standards/common language
TIER 2 High impact OR high addressability	<ul style="list-style-type: none"> · Risk identification/ methodology · Regulatory framework · Internal buy-in · Financing/ funding
TIER 3: Lower impact and lower addressability	<ul style="list-style-type: none"> · Overcoming silos · Strong relationships · Staff capacity

4. SUPPORT STRATEGIES FOR IMPLEMENTATION ACTION

This section outlines potential support strategies for implementation action, mapped against key needs. The list of strategies and ideas for services, resources, and tools were gleaned from the above noted interviews and surveys, and further refined at the November 24th workshop. Table 3 summarizes a list of potential support strategies, in order of significance, in terms of their capacity to address prioritized needs.

As illustrated in Table 3, four potential MNAI strategies have been prioritized as being best suited to address Tier 1 local government needs. These potential MNAI strategies also have high potential to have impact on Tier 2 and Tier 3 needs:

- **Expand resources:** Sample policies, plans, programs, metrics
- **Broaden the community of practice:** Engagement support
- **Deepen knowledge:** training on implementation
- **Influence senior government policy:** Advocate for needed policy changes and funding

TABLE 3: SUMMARY OF POTENTIAL SUPPORT STRATEGIES FOR IMPLEMENTATION, BY KEY NEEDS IDENTIFIED

Key Needs Identified	ABILITY TO ADDRESS THE NEEDS							
	TIER 1		TIER 2			TIER 3		
	Institutionalize/operationalize	NAM standards and common language	Regulatory framework (Prov/Fed)	Risk identification/methodology	Internal buy-in	Overcoming silos	Strong relationships	Staff capacity
Potential Support Implementation Strategies								
Expand resources: Sample policies, plans, programs, metrics	H	H		H	M	H		H
Broaden the community of practice: Engagement support	M	H		M	H	H	H	M
Deepen knowledge: training on implementation	M	H		H	H	H		M
Influence senior government policy: Advocate for needed policy changes and funding	H	H	H				H	
Expand capacity: External supports for staff engaged in NAM	L	L		M	M			H
Advance collaboration: Guidance and support on partnerships	L	L					H	M

Following is a more detailed description and examples of services, resources, and tools associated with each of the potential MNAI strategy areas, grouped into higher and lower priority strategies.

High Priority Strategies

Strategy 1: Expand resources: Sample policies, plans, programs, metrics

- **Objective:** Expand resources to help institutionalize and operationalize NAM across all local government departments, e.g., guidance documents, tools, etc.
- **Needs that can be addressed:** Institutionalizing/operationalizing NAM; NAM standards/common language; risk identification; internal buy-in; overcoming silos, staff capacity
- **Key points:**
 - In some cases the resources required by local government already exist, and an MNAI role can be to compile, reconcile, and curate these.
 - Peer-to-peer validation is critical, for example through providing success stories, and validation through endorsements.
 - More valuation resources are needed, including baseline data from studies or other projects on impact of NA improvements/enhancements/protection (this could include access to a tool – such as INVEST, or guidance on specific methods and approaches).
 - There is also a need to support municipalities in accessing data that is not readily shared or available. One of the cross-jurisdictional challenges that local governments face is that some of the available data is held by a neighbouring jurisdiction, other level of government, or other entity. Creating systems/agreements to access/share data to inform key metrics would be beneficial for NAM programs.
 - MNAI needs to determine if, when, and how to provide resources that are generalized, province-specific, or institution-specific. In Ontario, there is an additional need for resources related to Conservation Authorities.
 - It is important for MNAI to help create a common language that is understood across disciplines and application:
 - Many plans/objectives/functions that touch on NAM but many are using different language (e.g., climate change, asset management, sustainability); need common language to engage more broadly and inclusively (e.g., finance) – language needs to be broadly accessible.
 - Many intersecting frameworks (NAM; Nature-based climate solutions; ecosystem services), for which it would be helpful to demonstrate connections or merge them.
 - Consider a mapping of terminologies and approaches to NA across disciplines.
- **Examples of potential resources that MNAI could consider:**
 - A standardized framework/manual/guidelines that lays out how to approach NAM from a standard asset management approach (see Appendix C for further detail)
 - General guidance documents, templates, manuals, guidelines, case studies, webinars: e.g., mapping out how existing efforts (policies) align with NAM/framework to articulate linkages between policies and NAM

- Templates on how to incorporate NAM into zoning bylaws
- Sample integrative policies and operational policies
- Sample policy language to embed in existing policies and plans, particularly Asset Management Plans, Operational Plans, OCP/OP
- Metrics from long-term monitoring program as case examples
- Guidelines on how to build NAM into AM readiness testing processes

Strategy 2: Broaden the community of practice: Engagement support

- **Objective:** Help local governments build support for implementation actions across all departments of the municipality and throughout the community, to overcome silos and create a shared language and goals around NAM (e.g., with senior government staff, municipal council, general public, land-owners, consultants)
- **Needs that can be addressed:** Institutionalizing/operationalizing NAM; NAM standards/common language; Risk identification; Internal buy-in; Strong relationships; Overcoming silos, Staff capacity
- **Key points:**
 - Local governments often need help working with industry practitioners to advance collaboration and expand capacity; these external consultants also need training on processes/methodologies, etc.
 - Education/training is critical for building buy-in; and buy-in needs to be sufficient to ensure commitments translate into action; there needs to be buy-in to the concept of NAM and also to progress to implementation
 - Focus on impactful levers, such as connections with extreme weather events and demonstrating that momentum is building beyond community borders
 - MNAI needs to provide more communications and education in addition to training to advance decision-maker buy-in
 - Key messages have to be heard repeatedly by local governments
- **Examples of potential resources that MNAI could consider:**
 - Webinars, backgrounders, videos, aimed at various audiences
 - New products aimed at Councils are needed to create high level buy-in, for example a full-day workshop aimed at leaders/councillors rather than a manager. (Sample content: need for NAM; what it looks like if you don't do NAM; highlights from other communities; benefits.)

Strategy 3: Deepen knowledge: Training on implementation options

- **Objective:** Provide training on NAM implementation areas for those leading NAM initiatives at the municipality

- **Needs that can be addressed:** Institutionalizing/operationalizing NAM; NAM standards/common language; Risk identification; Internal buy-in; Overcoming silos, Staff capacity
- **Key points:**
 - Focus on areas with expertise gaps and address all professions involved, also building a common language
- **Examples:** Modular, targeted training opportunities for staff and consultants e.g., micro credentials

Strategy 4: Influence senior government policy

- **Objective:** Generate momentum for MNAI across the country by ensuring senior government policy framework supports local government NAM action
- **Needs that can be addressed:** Institutionalizing/operationalizing NAM; NAM standards/common language; Regulatory framework (Provincial/Federal/Territorial); Strong relationships; Funding
- **Key points:**
 - MNAI could play a strong advocacy role to influence policy and standard development on behalf of local governments, and to help secure the commitment (resourcing) needed for implementation
 - Need to address the challenge that different tiers of government can have contradictory policies and competing priorities (in silos)
 - Could also support local governments in gaining access to data that is not currently shared (overcoming jurisdictional issues relating to data)
- **Examples of potential supports that MNAI could consider:**
 - Synthesize and articulate policy changes and local government supports needed from each provincial government to support NAM implementation
 - Workshops/training targeted to provincial governments
 - Encourage provincial and federal governments to partner with and support municipalities for the management of large natural asset areas (e.g., watersheds that transcend municipal boundaries)
 - Work with senior government to create best management practices, roadmaps, guidelines, and standards that are relevant to NAM. Even if these Best Management Practices (BMPs) are not enforceable standards it would build momentum around NAM and support progress

Lower Priority Strategies

Strategy 5: Expand capacity: External supports for staff engaged in NAM

- **Objective:** Enhance capacity of staff at local governments that are working on NAM, and support them in filling knowledge and/or resource gaps

- **Needs that can be addressed:** Institutionalizing/operationalizing NAM; NAM standards/common language; Risk identification; Internal buy-in; Staff capacity; Funding
- **Examples:**
 - Funded pilot projects across the country on targeted topics, e.g., a new pilot could be focused on implementation
 - Secure funded positions in local governments or regional representatives (e.g., like FCM's climate ambassadors/utilities energy managers)
 - Establish regional hubs (potentially including MNAI representatives for regions across the country)
 - Support data & performance tracking/collection (via a tool, or MNAI support person)
 - Ongoing support via a collaboration/peer network to facilitate group sharing/peer learning

Strategy 6: Advance collaboration: Guidance and support on partnerships

- **Objective:** Build knowledge of best practices on building partnerships to advance NAM
- **Needs that can be addressed:** Institutionalizing/operationalizing NAM; NAM standards/common language; Strong relationships; Staff capacity; Funding
- **Examples:**
 - Guidance document outlining best practices (templates for partnership agreements, MOUs, etc.)
 - Case studies to demonstrate how collaborative models have been successfully implemented elsewhere, including elaborating roles of different departments (finance, AM, operations, engineering) and how they can work together to advance NAM projects, and articulating how they broke down silos/brought these groups/departments together; also including best practises on data collection
 - Map out local partners/provide list of senior government partner programs
 - MNAI forms overarching partnerships (e.g., with the Institute for Catastrophic Loss Reduction (ICLR))
 - Identify/support partnerships with local academic institutions that can provide technical expertise not available within staff

5. CONCLUSIONS

Having assisted local governments during the assessment phases and planning phases of NAM, MNAI is now well-placed to also help local governments as they progress to implementation phases of work. Figure 1 summarizes the recommended logic model for this, derived from this consultation process with MNAM project communities and other MNAI partners.

This process identified two Tier 1 priority needs to be considered in developing new offerings, considering what would have the highest impact on accelerating NAM implementation and would be most addressable by MNAI over the coming 5 years:

- 1) institutionalizing and operationalizing NAM, and
- 2) creating standards and common language for NAM

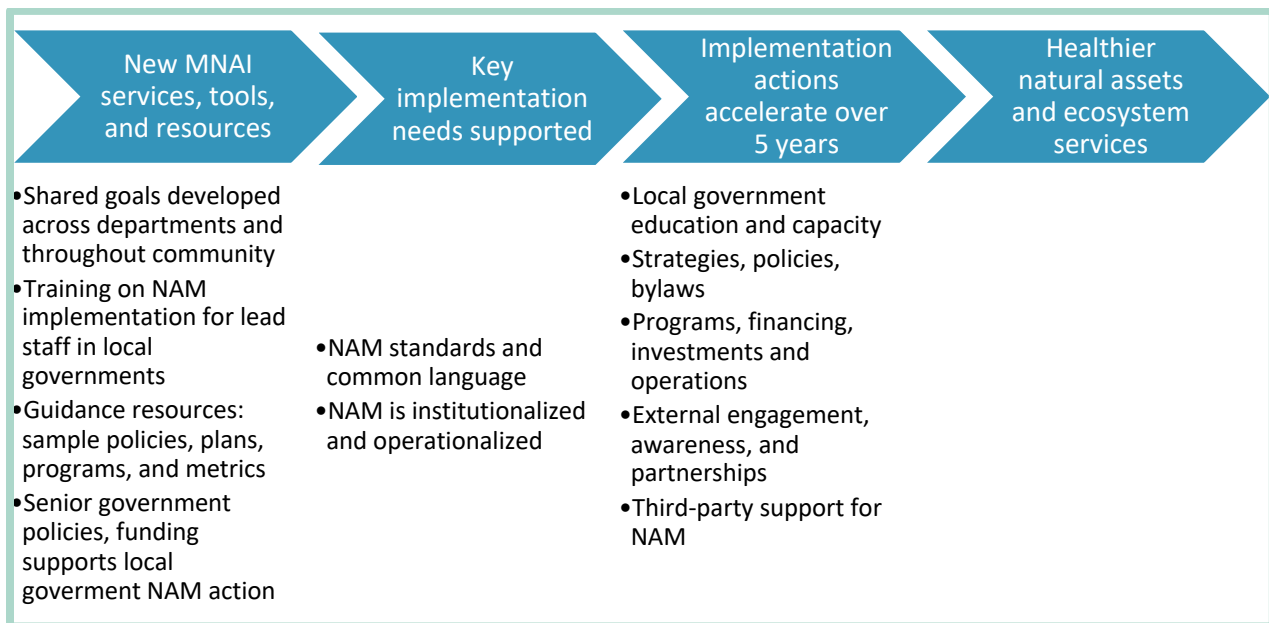
Additional needs identified include Tier 2: risk identification/methodology, regulatory frameworks, internal buy-in, and Tier 3: financing/funding, overcoming silos, external relationships, and staff capacity.

Four types of strategies were identified as best suited to supporting these needs:

- 1) Expanding resources: Sample policies, plans, programs, metrics to institutionalize and operationalize NAM across all departments through guidance documents/resources
- 2) Broadening the community of practice: Building support across all departments of the municipality and throughout the community, to overcome silos and create a shared language and goal around NAM
- 3) Deepening knowledge: training on NAM implementation areas for those leading NAM initiatives at the municipality
- 4) Influencing senior government policy: Advocate for needed policy changes and funding to ensure that senior government policy framework supports local government NAM action

These strategies were considered to also have high potential to have impact on Tier 2 and Tier 3 needs.

Figure 2: Recommended logic model to support local governments as they progress to implementation on Natural Asset Management



In designing future programs, it will be important to consider overarching opportunities to build from successes and strengths, continue to mainstream NAM practice, and to determine an appropriate level of customization of resources to address unique local contexts across the country.

- **Build from Strengths:** MNAI has become a trusted partner for local governments engaging in NAM. One of MNAI's key strengths is the capacity to act as a reliable and trusted third party that can provide impactful tools, resources and programs, as well as curating and vetting external resources and tools.
- **Mainstream the practice:** As with the assessment phase of NAM, it will be important to secure partnerships with accredited and/or respected organizations and institutions to co-develop, deliver and/or vet resources. This may include partnership with agencies already engaged with various municipal departments (e.g., Asset Management B.C.).
- **Generalized or customized:** In many cases resources or support is needed specific to the community, based on its location. This can include unique characteristics regarding institutional structures and senior government legislation.

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APPENDIX A: POTENTIAL IMPLEMENTATION ACTIONS

MNAI has compiled a suite of potential NAM action areas, presented in the table, below.

TABLE 4: LOCAL GOVERNMENT NAM IMPLEMENTATION ACTION AREAS

AREA	Components and examples
LOCAL GOVERNMENT EDUCATION, CAPACITY	
	Increased staff understanding of role of NAM in delivering service
	Human resources practices are adapted
	Staff receive training where needed
STRATEGY, POLICY, BYLAW	
	Natural asset management policy
	Natural asset management strategy
	Environmental strategy
	Official Community Plan
	Adaptation/resilience plan/strategy
	Shoreline Protection Plan
	Parks Master Plan
	Subdivision Bylaws
	Development Charge Bylaws/Development Permit Areas
	Zoning
PROGRAMS, FINANCING, INVESTMENTS AND OPERATIONS	
	Rehabilitation project
	Acquisition project
	Integration of NAM into stormwater management plan
	Monitoring project
	Activities to scale up from subwatershed
	Costed O&M plans
EXTERNAL ENGAGEMENT, AWARENESS AND PARTNERSHIPS	
	Mechanisms in place to engage others with title/jurisdiction
	Incorporation of traditional Indigenous knowledge
	School/community engagement
	University partnerships
	Citizen Science
	Communication through financial reports and to the community on NAM
THIRD-PARTY SUPPORT FOR NAM	
	Funding from ICIP, DMAF
	Insurance Sector
	Capital markets

APPENDIX B: WORKSHOP SUMMARY

A two-hour virtual workshop was convened on Wednesday, November 24, 2021 to obtain input from key informants (representatives of local and senior governments, non-governmental organizations and consultants) on needs and opportunities for supporting local governments as they progress to the implementation phase of NAM.

Workshop desired outcome:

- Identification of high impact needs for the implementation of Municipal Natural Asset Management which can be influenced over the next 5 years through MNAI new services, resources, and tools.

Agenda:

1. Welcome, Context, and Desired Outcome for Workshop
2. Part 1: Challenges and Needs in Moving to Implementation
3. Part 2: Support Strategies for Implementation
4. Closing

Break-Out 1 Discussion Summary: High Impact and Highly Addressable

Discussion Objective:

Review preliminary list of needs and discuss:

- Have existing needs/challenges been accurately captured? What would you add or refine?
- For each need:
 - Would meeting this need have a **high impact** on NAM implementation? The need can be considered as having **high impact** on NAM implementation if it unlocks or strengthens critical progress through, e.g.:
 - Influencing or changing business-as-usual practices and processes
 - Regulation and policies
 - Enabling innovation/pilot projects
 - Otherwise supporting the progress from assessment and planning to implementation stages
 - Can this need be addressed through support of new MNAI services, resources, and tools? The need can be considered **addressable** by MNAI if it:
 - Is a logical next stage of evolution of NAM practice; and
 - Can be supported by new services, resources, or tools.

List of needs (as presented to participants):

- 1) Buy-in amongst key LG decision makers
- 2) Overcoming silos within LG
- 3) Strong relationships with external entities
- 4) Institutionalize and operationalize NAM
- 5) Staff capacity (esp. time)
- 6) Financing/funding

Discussion notes:

The following presents a consolidated summary of discussions in from three break-out groups.

BUY-IN AMONGST DECISION-MAKERS

- Many participants noted this was a high priority need to address (one said most important). In particular, the need to obtain buy-in from Council.
- Education is critical for buy-in.
- Sufficient buy-in needed to ensure commitments translate into action; there needs to be buy-in to the concept and also to progress to implementation.
- Local buy-in also important for generating support amongst senior levels of government.
- Build buy-in through: case examples; making the connection with protection against extreme weather events; creating standardized practices (e.g., link with CSA); demonstrating that momentum is building beyond community borders.

OVERCOMING SILOS

- Noted as a high impact need.
- There is not a mechanism in place to cross the various departments (silos) that need to be involved.
- Most challenging in larger communities.
- Key challenge: different tiers of government can have contradictory policies and competing priorities (in silos). There is a tendency to re-invent the wheel where the practices exist, data exists but they don't have access. One community works with three conservation authorities but finds it challenging to share data. Tools and practices need to be shared.
- A specific example: one community has a tree canopy committee but there is no common framework across departments. (This connects also with the need to institutionalize/ operationalize NAM).

INSTITUTIONALIZE AND OPERATIONALIZE NAM

- Some thought this was the most important on the list.
- Need a proposed high-level framework, overview of steps to take, processes, etc, on how to proceed to implementation.
- Standardization is an important support strategy - helping LGs work with industry practitioners to advance collaboration and expand capacity.

- Governance is also important and requiring support – e.g., guides to decision making; related to roles of other levels of governments and other entities (e.g., conservation authorities).
- Thus, MNAI could help provide overarching governance framework.
- There is a need for integration with other plans and priorities at the staff level to ensure staff are aligned with high-level goals.
- Need to integrate learnings from inventories and integrate GIS data into AMP and asset management processes.
- Multiple groups noted that there is a large role for provincial governments in supporting this need (collaboration is essential), particularly involving the need for a regulatory approach and senior government policy.
- Senior government can support advancement through policies, e.g., providing templates and frameworks for OCPs, AMPs.
- Requires making connections with policy processes and providing input.
- Needs support/resources/funding and follow through from provincial governments to ensure ability to progress to implementation.
- Need to build understanding of what can be done, and the methods.

STRONG RELATIONSHIPS WITH EXTERNAL ENTITIES

- Noted as a high impact need because downstream communities may be impacted; however, many natural asset systems are contained within one jurisdiction also, so not universally important.
- In some jurisdictions there are authorities which bridge these jurisdictional issues, with mechanisms in place to address (e.g., Ontario Conservation Authorities).
- There is a value in building these initiatives from local government up, to inform senior government action from the bottom-up.
- This need is most significant for smaller communities.
- It is important to engage developers, private landowners, private tenure owners (e.g., forest tenure) as much as with other governments.

STAFF CAPACITY

- Noted as high impact/substantial by many, technical capacity is a particular problem.
- Would be beneficial to have dedicated/permanent staff, cross-cutting skills development needed (NA and AM).

FINANCING

- Very related to the first item (buy-in critical to secure financing).
- Funding could stimulate work substantially, implementation is stalled by lack of examples (need pilot projects).
- To become mainstream, this needs to be built into municipal budgets rather than looking for funding.

Additional Needs Identified During Workshop

Participants in each of the groups noted additional needs that should be considered, as summarized below.

INCORPORATE RISK ASSESSMENT/RISK MANAGEMENT PRIORITIZATION

- Need to better understand risk assessment process.
- Concern that municipalities are introducing another risk element they don't really understand – the risk of doing NAM itself.
- Need to determine if risk assessment should align with the approach for traditional infrastructure.
- Risk is a major concern: various forms: legal, financial, liability, engineering.
- Understanding/addressing risk is a key challenge for those involved in the practicalities of implementation.

CREATE BUSINESS CASE FOR NAM

- Including linking NAM with ecosystem evaluation and NAM.

BUILDING A COMMON UNDERSTANDING OF WHAT NAM IS

- Without a common understanding the conversation is log-jammed.
- Need formalized, authoritative material such as accounting standards, engineering standards and adoption in regulations.
- Would help to broaden the community of practice and create buy-in.
- Many plans/objectives/functions touch on NAM but are using different language (e.g., climate change, asset management, sustainability), a common language would help align these efforts and engage broadly (e.g., finance and senior leadership).
- Language needs to be broadly accessible.
- Also important to demonstrate the connection between intersecting frameworks (NAM; Nature based climate solutions; ecosystem services).
- Would facilitate tapping into and building from knowledge from other spheres of work.

REGULATORY FRAMEWORK TO DRIVE NAM AGENDA

- Suggested as a key means of moving NAM from side of desks to central agendas.

Polling Results: High Impact and Highly Addressable Needs

Following the first break-out discussion, participants were polled to provide input on which needs were likely to have the highest impact on implementation and were the most likely to be addressable by MNAI. Results were aggregated, using weighted averages, and conveyed in summary charts, presented below. Based on the results, needs were down-selected to the top three priorities for discussion during break-out groups.

Top 3 ‘needs’ for discussion were those ranked with the highest overall score, including:

1. Institutionalize/Operationalize NAM
2. NAM standards/common language
3. Improved buy-in and overcoming silos

SUMMARY OF POLLING RESULTS ON IMPACT AND ADDRESSABILITY OF NEEDS PRESENTED AS WEIGHTED AVERAGES

	Polling Results- Weighted		
	IMPACT	ADDRESS ABILITY	TOTAL
1) Buy-in	3.00	1.87	4.87
2) Overcome silos	2.29	1.43	3.72
3) Strong relationships	2.35	1.93	4.29
4) Institutionalize /operationalize	2.71	2.67	5.37
5) Staff capacity	2.47	1.54	4.01
6) Financing/funding	2.82	1.93	4.75
7) Regulatory framework (prov + fed)	2.59	2.20	4.79
8) NAM standards and common language	2.47	2.73	5.20
9) Risk ID methodology for NAM	2.24	2.60	4.84

Looking more closely at the results shown in

Figure 1, two needs were identified as clear priorities:

1. Institutionalize/Operationalize NAM
2. NAM standards/common language

In addition to these two priorities, four additional needs were shown to be either highly addressable or to have high impact.

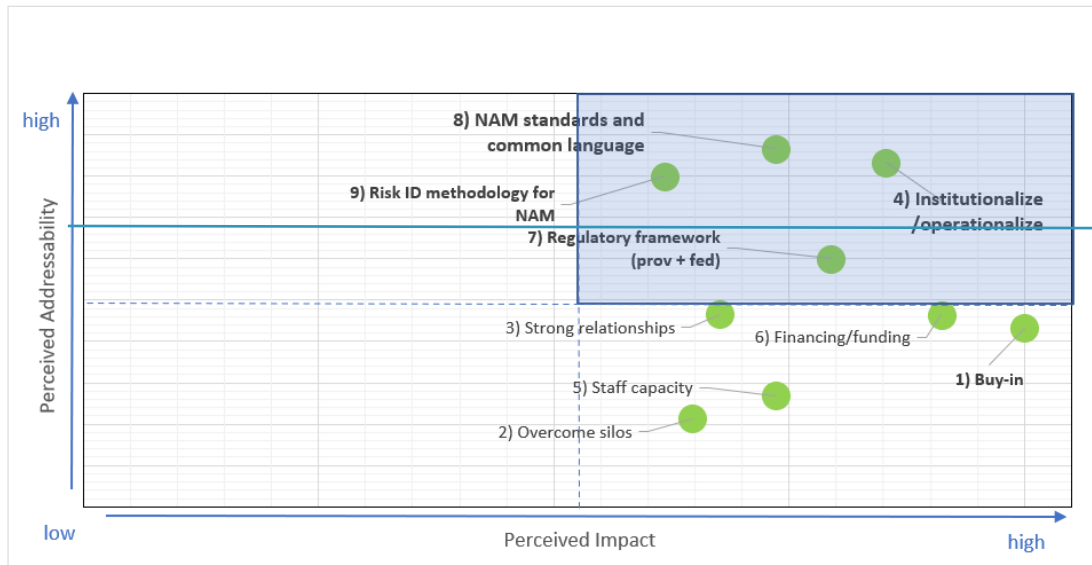
Highly addressable:

1. Risk management prioritization/identification methodology
2. Regulatory framework

High impact:

1. Buy-in
2. Financing/funding

FIGURE 1: RANKING OF PERCEIVED IMPACT AND ADDRESSABILITY OF NEEDS



Break-out 2 Discussion Summary: Support Strategies for Implementation Action

Focusing on the three priority needs, participants discussed strategies that will best meet each need and discussed, refined and brainstormed potential services, resources, and tools associated with that strategy.

Discussion Notes:

INSTITUTIONALIZE/OPERATIONALIZE NAM

- Key strategies: Influence senior government policy and provide overarching governance framework/guidelines.
- Develop standardization and a high-level framework, overview of steps to take, processes, etc, on how to proceed to implementation:
 - guides to decision-making; related to roles of other levels of governments and other entities (e.g., conservation authorities)
 - templates and frameworks for integrating into OCPs, AMP, etc
- Help local governments work with industry practitioners to advance collaboration and expand capacity.

- MNAI has a strong role relating to advocacy to influence policy and standard development on behalf of LGs and also help to secure the commitment (resourcing) to implement.
- The wealth of data needs to be taken into consideration – there are already communities of practice in Ontario and plugging in conservation authorities helps to enable LGs. But other provinces don't have this structure, so there are additional needs in other areas.
- There is no need to start from scratch; there are already relevant plans/initiatives in place. MNAI helps bring these together (reconcile/roll-up). For example, there are already integrated watershed strategies/plans, the focus can be on optimizing these existing mechanisms and approaches.

STANDARDIZATION/COMMON LANGUAGE AROUND NA AND NAM

Top strategies that would support this need:

- **Deepen knowledge:** Training on implementation options (modular training, micro credentials)
- **Broaden the community of practice:** Engagement support (e.g.: webinars, videos, etc.)
- **Expand resources:** Sample policies, plans, programs, metrics
- **Influence senior government policy:** Advocate for needed policy changes and funding

Comments:

- Common language would help to broaden the community of practice; build buy-in. There are many plans/objectives/functions that touch on NAM but many are using different language (e.g., climate change, asset management, sustainability); need common language to engage more broadly and inclusively (e.g., finance) – language needs to be broadly accessible. Similarly there are a lot of intersecting frameworks (NAM; Nature based climate solutions; ecosystem services), and it would be helpful to demonstrate the connection between these frameworks or merge them. Need to tap into knowledge elsewhere and build from this.
- Could provide mapping of NA across disciplines, creating terminology that is accessible to all involved.
- Important to engage subject matter experts to help merge existing frameworks with NAM and create this common language.
- Some thought 'expand resources' was most important – they need help to fill expertise gaps, and training/ed is needed to help build these resources.
- Developing guidelines, standards, roadmaps would be very helpful; documenting and coming to a common agreement on terms and methodologies on how to do things.
- Having higher levels of government establish best management practices (BMPs) is a good first step (even if they aren't enforceable).
- Valuation is an important next step for some communities and they need data on how restoration/improved management will benefit service delivery. (They have baseline data from other studies – e.g., in terms of level of ecosystem services provided by an average wetland but don't have a clear sense of the level of improvement possible through restoration activities.) They need tools and resources around this or at least a standardized methodology to guide them.

- There is interest in exploring new software: INVEST (Integrated valuation of ecosystem services and tradeoffs) open source s/w which models different types of ecosystem services. (<https://naturalcapitalproject.stanford.edu/software/invest>).
- This points to a broader need that MNAI provides – third party, trusted partner to vet external resources and tools.
- Expanding resources is key for this need but should have facilitated conversations about which services should be prioritized (e.g., Catherine would vote for standardized valuation of ecosystem services using existing models or developing a new one).
- Data sharing is essential – including on a watershed scale (e.g., trying to work with healthy watersheds bc to develop a centralized data collection and sharing outside provincial data registry). LGs are partners need to understand what is the important data to collect and how to collect it. Shared data would be useful for many partners so this would be a valuable support/resource.

BUY-IN

- Need new products aimed at Councils aimed at building high-level buy-in, for example a generic full-day workshop aimed at leaders/councillors rather than a manager. Cover need for NAM, what it looks like if you don't do NAM, highlights from other communities, benefits. Include conservation authorities in Ontario. Communicate need for incremental progress, don't make it look like an overwhelming change.
- Distinguish between communications-education-training (build in stages, progression). MNAI needs to do more communications and education in addition to the training work in order to get senior buy-in. Key messages have to be heard again and again and again.
- Need to support range of professions that are involved.
- Peer-to-peer validation is critical – success stories, validation endorsements.
- Important continued MNAI role in monitoring and building portfolio of success stories.



Workshop Participants

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Michael Leering - CSA
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Tatiana Koveshnikova - CVCA
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APPENDIX C: STANDARDIZED FRAMEWORK/MANUAL/GUIDELINES

A standardized framework/manual/guidelines that lays out how to approach NAM from a standard asset management approach could be developed.

- Objectives:
 - Guide municipal AM practises when due for upgrades/how to bridge to existing administrative processes
 - Supports them in developing their NAM program and this in turn would provide the necessary grounding for bylaw development, etc
- Key features:
 - Step by step
 - Include examples from test cases
 - List of assets; risk register; assign risks, sample probability and impacts
 - Templates
 - Standardized valuations for various natural assets, with ability for each municipality to customize values for their locations**
 - Vetted by other municipalities