CWWA Position Statement on the Adoption of Natural Infrastructure in the Water Sector

CWWA Utility Leaders Committee | Developed 2024

BACKGROUND

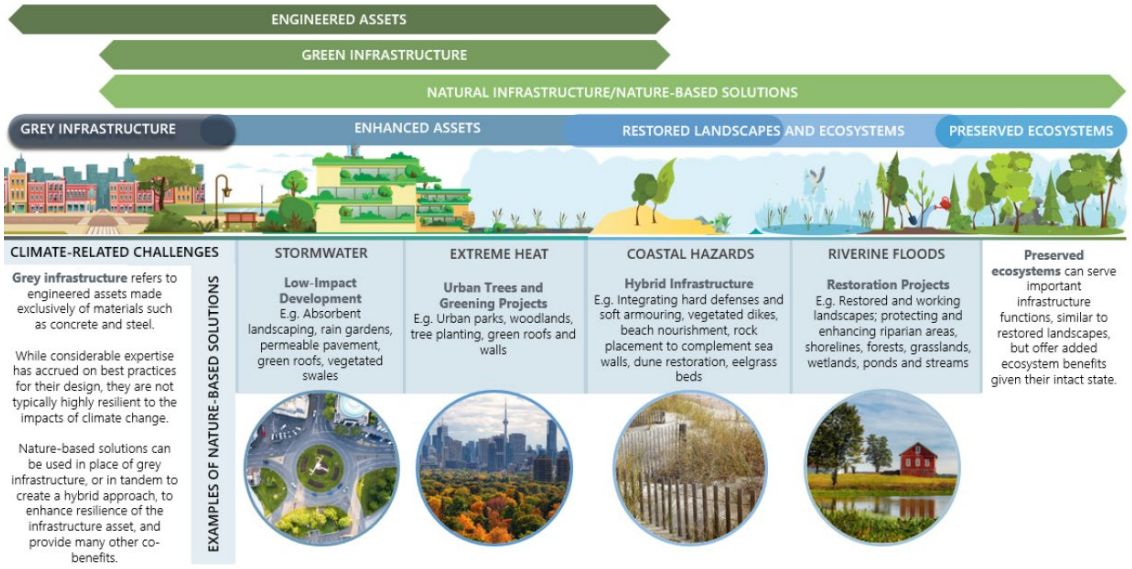
There is growing recognition of the importance of Natural Infrastructure[1] (NI) in achieving water management goals in watersheds and communities. It can play important roles with respect to water supply, water quality improvement and stormwater management. In addition to targeted infrastructure outcomes, NI can provide a range of co-benefits to the environment and the economy, as well as community health and well-being. Many municipalities, watershed management organizations, water utilities and senior levels of government have initiated programs designed to promote and implement NI projects and approaches so that these benefits may be widely recognized.

The adoption of NI practices is relatively recent and has been adopted, planned and implemented in a number of different ways by various organizations. To some degree, this is not surprising given the wide range of:

- Climatic conditions and geographic circumstances across Canada
- Water management challenges, and
- Natural infrastructure types.

One of the challenges is that, in these early days of adoption, what one means by "natural infrastructure"[1] can differ between organizations and/or within organizations. CWWA has adopted the definition of NI used by the Canadian Council of Ministers of the Environment (CCME); from the CCME Natural Infrastructure Framework: "*CCME has defined Natural Infrastructure as the use of preserved, restored or enhanced elements or combinations of vegetation and associated biology, land, water and naturally occurring ecological processes to meet targeted infrastructure outcomes (CCME 2018).*" CCME also provides a typology of infrastructure types to show that there is a spectrum, with increasing use of nature-based solutions as one moves closer to preserved ecosystems:

Figure 1. Typology of Infrastructure Types



A recent survey conducted by CWWA indicated that:

a) While there is a general understanding of what constitutes Natural Infrastructure, there is still a need for universally accepted terminology and definition.
b) The vast majority of respondents recognized NI as a possible solution to their water infrastructure challenges.
c) Objectives for implementing NI programs and projects were associated with well-established initiatives; namely watershed protection, flood and erosion management, stormwater management and receiving water quality improvement, with many projects intended to fulfil several of those purposes. Other purposes included: reducing overflow to rivers, erosion risk management, restoration and resource management, research and enhancing wetlands for wildlife.
d) A wide range of municipal groups participate in NI programs and projects; for example, public works, transportation, parks & recreation, facilities, engineering, planning & development departments, as well as watershed planning & protection organizations, and local, non-governmental watershed groups.
e) A third of organizations responding either do not have an asset management program, or their staff are unsure if they have one, showing there is still a need to increase awareness and funding for asset management. That conclusion applies to all aspects of the organization and not just NI.
f) Many of the current needs identified by respondents were in response to knowledge gaps. Specifically, tools to help evaluate the benefits of NI (including cost-benefit); standards and specifications for the design of NI; and better guidance/information on where, when and what type of NI should be incorporated to maximize benefits. Additional provincial/federal funding programs, specifically

focused on promoting implementation of NI programs and projects, would also help advance its uptake.

CWWA'S POSITION STATEMENT

Natural Infrastructure (NI), as defined by the Canadian Council of Ministers of the Environment (CCME), has an important role to play in Canada as part of effective and sustainable water, wastewater, stormwater and water resource systems, particularly as part of a "One Water" philosophy. As such:

Position 1: NI should be given equal consideration as that given to more traditional measures (i.e. "grey infrastructure") and its environmental and community benefits should be fully considered when evaluating alternatives.

Water management challenges, however, are place-based and context-based. Generally, NI approaches are not plug-and-play infrastructure components. Rather they must be integrated into the built and natural system in which they are proposed. As such:

Position 2: Appropriate NI solutions must be selected for the specific goal or problem of the specific location.

Most organizations are in the early stages of NI adoption and, not surprisingly, there is a lack of knowledge as to what roles NI can play and how it can be planned, designed, implemented, and maintained most effectively. Federal and Provincial Governments have a key role to play in helping facilitate knowledge exchange through programs and targeted funding to promote NI.

Position 3: Decisions on which NI approaches are appropriate should be made with an asset management viewpoint, including best estimates of lifecycle costs.

The current lack of knowledge on NI extends to how it can be incorporated into a utility's or municipality's asset management system. This includes firm details of operations and maintenance (O&M) costs of NI. For the moment, lifecycle cost estimates will need to be based on the best data currently available until more projects enter their O&M phase and more information becomes available.

Further, CWWA encourages all stakeholders, including its membership, to share experiences and expertise so that the water sector, as a whole, can appreciate the benefits of NI and increase its uptake as a useful and appropriate part of water systems.