

Natural Capital Asset Valuation – Pilot Project Update

ISSUE

Natural assets provide a range of ecosystem services, including storm water management, water purification, habitat, recreation, community building, and carbon sequestration. The Natural Capital Asset Valuation pilot project creates a preliminary framework for the valuation of natural assets for the City of Saskatoon (City). The findings of this study outline:

- Financial valuations for two areas, plus an extrapolated value for natural assets city-wide;
- While ecosystem services provide value, they are not currently managed similar to engineered assets;
- While engineered assets are represented in municipal financial statements, ecosystem assets are not; and
- Local and cultural data resources for natural asset valuation are limited.

BACKGROUND

At its meeting on May 23, 2017, City Council resolved, in part:

- “2) That a capital project for the Natural Capital Asset valuation be created to enable an application to the Federation of Canadian Municipalities (FCM), Municipalities for Climate Change Innovation Program.”

On April 17, 2018, the City was granted up to \$125,000 in funding through the Municipalities for Climate Change Innovation Program. The funding was for developing a valuation framework for natural capital infrastructure in the municipality, and for applying the framework through a pilot project.

At its meeting on May 14, 2018, the Standing Policy Committee on Environment, Utilities and Corporate Services resolved, in part:

- “2) That a report related to bringing the Natural Capital Asset Valuation into the City's Asset Management program be brought forward to the June 11, 2018 meeting of the Standing Policy Committee on Environment, Utilities and Corporate Services for consideration.”

At its meeting on June 11, 2019, the Standing Policy Committee on Environment, Utilities and Corporate Services, resolved, in part:

- “1) That the report of the Acting General Manager, Corporate Performance Department, dated June 11, 2018, be forwarded to the Governance and Priorities Committee for consideration at its June 18, 2018, meeting as part of the Business Planning prioritization.”

At its meeting on August 18, 2018, the Governance and Priorities Committee resolved:

- “1) That the report of the Standing Policy Committee on Environment, Utilities and Corporate Services be received as information.”

CURRENT STATUS

Natural Assets and Ecosystem Services

Saskatoon's Green Infrastructure Strategy defines the green network as a system of natural, enhanced, and engineered assets that provide municipal and ecosystem services. By protecting, restoring, or emulating nature, a comprehensive green network results in ecosystem services with an array of benefits to people. The United Nations' Millennium Ecosystem Assessment framework categorizes ecosystem services into four broad areas: supporting, regulating, cultural, and provisioning.

Healthy natural assets have the potential to provide services similar to some engineered assets, in addition to the ecosystem services that are inherently provided. However, the services provided by natural assets are not well understood, nor is there a general knowledge of their valuation and tracking in a way that is compatible with engineered assets.

Currently, Saskatoon and many other municipalities do not apply financial asset management to this class of assets. The City does not currently include natural assets in the annual financial statements, as they are not a reporting requirement under the Public Sector Accounting Board standards.

DISCUSSION/ANALYSIS

Natural Capital Asset Valuation Pilot Project

The Natural Capital Asset Valuation pilot project was created with the following objectives:

- Develop a proposed framework for valuation of natural assets;
- Create an inventory of municipal natural assets for Saskatoon;
- Conduct a basic vulnerability assessment for natural assets within city limits; and
- Complete a pilot valuation for these natural assets.

The full Natural Capital Asset Valuation Pilot Project document can be found in Appendix 1.

Framework for Valuation

The Economics of Ecosystems and Biodiversity - a global organization with the objective of incorporating the value of biodiversity and ecosystem services into decision-making, provides guidance for a structured approach to ecosystem valuation. Studies, information, and discussions with subject matter experts, within the City and from other organizations, have also been considered when choosing the ecosystem services that are used for the pilot valuation.

To assign values to ecosystem services for the pilot, the value (benefit) transfer method is used, which involves transferring an existing value that has been estimated for a similar ecosystem. For this pilot, values were transferred from other studies that have been completed in Saskatchewan, or from the global ecosystem service value database maintained by the Economics of Ecosystems and Biodiversity organization.

Assets for Valuation

To identify areas eligible for asset valuation, the pilot uses Saskatoon’s Natural Areas Inventory, which was completed in partnership with the Meewasin Valley Authority. Areas with a mix of aquatic, grassland, and forest/shrub land were given priority for the pilot. Information about the individual natural assets was compiled to determine how much information would be available for valuation purposes. Two natural areas were chosen for the asset valuation pilot:

- Area 1: Small Swale; and
- Area 2: Richard St. Barbe Baker Afforestation Area, including the Northwest Section of Chappell Marsh.

Additional information about the location, attributes and assets of these two areas can be found in Appendix 1 - Natural Capital Asset Valuation Pilot Technical Report.

Valuation Results

The asset valuation considers land cover of wetland, grassland and forest/shrub land in Areas 1 and 2 as well as the total natural area within the city limits. The value of a given area’s land cover is assessed against the criteria of supporting, regulating, cultural and provisioning using the *value transfer* methodology.

Area 1: Small Swale

Wetlands	18 ha
Grasslands	144 ha
Forest / shrub land	0 ha
Total	162 ha

The natural asset valuation for Area 1 (162 ha) is estimated at \$731,000 per year. The wetlands and grasslands in this area are estimated to store about 82,900 tonnes of CO₂e in their soil.

Area 2: Richard St. Barbe Baker Afforestation Area

Wetlands	7 ha
Grasslands	67 ha
Forest / shrub land	58 ha
Total	132 ha

The natural asset valuation for Area 2 (132 ha) is estimated at \$347,000 per year. The wetlands, grasslands and forest in this area are estimated to store about 54,081 tonnes of CO₂e in their soil and biomass.

Total City Area Extrapolated

Natural assets make up 14% of Saskatoon’s footprint. Extrapolation of the asset valuation to other similar natural assets within city limits result in an estimate for the total ecosystem service value to be over \$48.2 million per year.

In alignment with the Low Emissions Community planning horizon, the cumulative value to 2050 of Saskatoon's natural assets is estimated at \$1.446 billion, using the pilot's methodology. In total, the wetlands, grasslands and forest city-wide are estimated to store about 1,575,000 tonnes of CO₂e in their soil and biomass.

Valuation Gaps

Preparation of the pilot reveals that the value transfer methodology is limited in its ability to capture the full value of ecosystem services in the two study areas. In the methodology, values are based on currently available data which has limitations. In some cases, values are available for transfer from local studies in comparable areas, but in other cases the only available values are from an international database, which is generally considered to be less accurate.

In several cases, especially for cultural services, no value could be estimated due to the lack of measurable data. This pilot has been an important first step in the natural asset valuation process. However, due to these valuation gaps, results obtained in the study likely under-represent the full financial value of the ecosystem services.

More work is required to improve the rigour of the valuation before natural assets can be represented in the City's annual financial statements.

Managing All Municipal Assets

Many municipalities use formalized asset management principles and practice to improve overall management of critical assets. This typically involves creating an inventory of existing assets, determining their current state, and preparing a plan to maintain or replace the assets over time. This process improves the ability of municipalities to make informed decisions about asset management and finances.

Municipal Ecosystem service valuation is a new field to analyze the value of natural assets which compliments asset valuation for traditional infrastructure. Both the Municipal Natural Assets Initiative and the Canadian Environmental Accounting Standards are contributing to best practice to formalize natural asset management. Municipal Ecosystem service valuation includes:

- Identify and quantify the value (with greater accuracy) of ecosystem services provided by natural assets;
- Develop a framework for natural asset accounting;
- Develop indicators to track ecosystem health by measuring the status of natural assets;
- Identify risks to ecosystem services, such as the loss of soil or water quality;
- Prioritize actions to strengthen natural assets; and
- Manage and fund natural assets consistently.

Further work to formalize natural asset management processes, and integrate both City asset management classes, is recommended through the findings of this pilot and outlined in the Green Infrastructure Strategy. Finance is not considering changes to include environmental accounting at this time.

IMPLICATIONS

There are no financial, legal, social, or environmental implications directly triggered by this information report.

Engagement

The Administration met with internal stakeholders and subject matter experts, including representatives from Asset Management, Finance, Indigenous Initiatives, Parks, Planning and Development, and the Storm Water Utility, to identify and understand the information available to inform the pilot valuation.

Meetings with external stakeholders and subject matter experts including: the Meewasin Valley Authority, the Friends of the Saskatoon Afforestation Areas Inc., Ducks Unlimited, Native Plant Solutions, the University of Saskatchewan, Swale Watchers, the Flatlander's Fat Tire Brigade, and Saskatoon Land also helped to identify available information.

NEXT STEPS

The Corporate Climate Adaptation Plan and the Green Infrastructure Strategy include work to progress the collection of additional information that would support further development of natural capital asset valuation. Requests for funding initiatives under these strategies will be brought forward in future business plan and budget cycles. If work on these strategies proceeds and additional information is successfully collected, there will be opportunities to undertake further natural capital asset valuation from a more rigorous accounting perspective in the future.

APPENDICES

1. Natural Capital Asset Valuation Pilot Technical Report

REPORT APPROVAL

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