

Climate Action Co-benefits Project Evaluation Guide

Neighbourhood/ Business Zone

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Report Overview

This report presents a project evaluation guide to help municipal partners measure impact of neighbourhood/ business zone climate action projects. The guide provides a process to help partners develop a project evaluation framework focused on reporting CO₂ emission reductions and project co-benefits. The guide provides a conceptual lens to complete impact evaluation and structured exercises to support framework development. The framework was developed and tested as part of Toronto and Region Conservation Authority (TRCA) and partners' Transition 2050 project. The approach empowers partners to design an evaluation framework useful to their specific project and which speaks to overarching T2050 objectives and municipal sustainability goals. The overall T2050 project aims to apply and refine TRCA's neighbourhood/business zone models as effective strategies to support low carbon transitions.

The guide was designed in consultation with project partners and builds on best practice evaluation concepts developed by the TRCA's Sustainable Neighbourhood Action Program (SNAP) and Partners in Project Green (PPG) program to evaluate these integrated and collaborative neighbourhood and business zone projects. The design process acknowledges that partners are at various stages of project implementation. Degree of partner involvement informing guide development varied as well and may have been influenced by shifting priorities due to COVID-19 response efforts.

The neighbourhood/business zone projects participating in the T2050 initiative strategically integrate climate action with planned initiatives and projects designed to deliver on other compelling local interests. As such the guide was intentionally developed for reporting on climate mitigation targets (T2050 impact) as well as other benefits resulting from the neighbourhood/business zone projects. Tracking co-benefits allows partners to build a better business case for their projects which may not be realized by simply reporting CO₂ emission reductions. In addition, reporting co-benefits can enhance the reach of climate action projects by communicating the full value of projects to community stakeholders and project funders. Given the range of project objectives, the evaluation guide offers a standardized structure that is flexible to capture different contexts and stakeholder interests.

The evaluation guide addresses T2050 **project objective 4, efficient evaluation and reporting frameworks** which calls for *effective measurement, evaluation and reporting frameworks that can demonstrate achievement of mitigation targets while highlighting the co-benefits and business case behind neighbourhood and business zone planning models.*

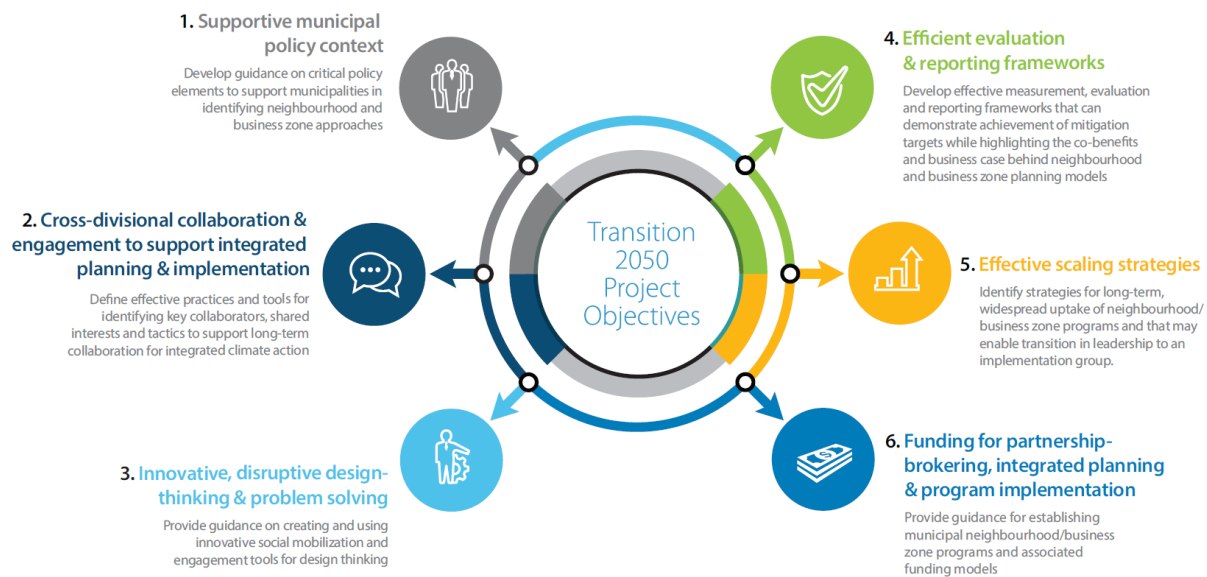


Figure 1: Transition 2050 project objectives

To achieve objective four the following steps were taken:

1. Propose an effective evaluation approach based on best practice evaluation concepts and project partner input.
2. Develop customizable tools to help partners develop a project impact evaluation framework.
3. Support project partners in populating tools.
4. Revise evaluation guide based on initial partner experiences.

Effective evaluation ‘empowers programmers to improve existing initiatives and to influence future ones, as well as enabling the production of evidence-based claims, which are essential in supporting decision making’ (Brown et al., 2018).

The evaluation guide provides a structured approach to inform project improvement, project efficiency and scaling and report on municipal CO₂e reduction commitments and other climate adaptation goals. While the guide was developed to support evaluation of participating neighbourhood/ business zone T2050 projects, it offers a model that can be used to evaluate local scale sustainability action projects more generally.

Approach

Core evaluation concepts were identified based on learnings from prior Sustainable Neighbourhood Action Project evaluations (see especially San Romanoway Tower Revitalization Evaluation) and a review of key documents including a scan of the academic and grey literature. The concepts and subsequent evaluation support tools were refined using an iterative review process where ideas and documents as developed were shared with the project leadership team for consideration and feedback. In addition, the project partners were engaged in four workshops to share and validate core concepts, solicit input to inform the evaluation design, and seek input from early partner experiences.

Document Review

The project team conducted a scan of academic and grey literature. Keywords searched (using various combinations of the selected words) included evaluation, community, neighbourhood, business, climate change, climate action, co benefits, and indicators. In addition, while reviewing documents the team identified further sources based on key references cited in the respective articles and reports. See Appendix A for a list of the articles and reports reviewed including a brief summary. For articles considered but deemed out of scope, a summary was not provided.

In addition to the literature scan, the project team reviewed T2050 project documentation and PPG and SNAP reports. For contextual purposes, the project team also reviewed municipal climate related strategies, plans, and commitments of participating municipalities to connect the projects to broader municipal climate change related commitments, CO2e reduction targets, and action plans.

Workshops - Share, Listen, Learn, Improve

Four municipal partner workshops were held throughout the T2050 project, as outlined in Figure 2 below. The workshops were part of an iterative process of sharing ideas and concepts, listening to feedback, and making improvements. In addition to the workshop sessions, the evaluation team spoke with project partners to support framework development and implementation. Workshop summaries including PowerPoint presentations, and documentation of questions and answers are available by request from the project leadership team.

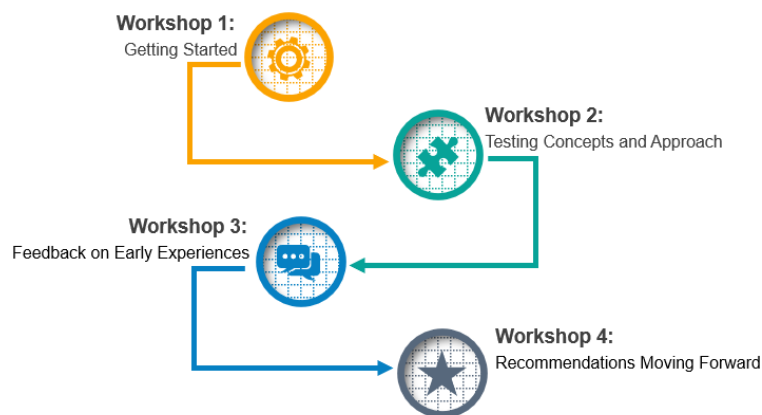


Figure 2: Overview of workshop objectives

Workshop 1: Getting started

Workshop 1 introduced partners to the evaluation process, provided a review of findings from the literature scan and highlighted key elements for project partners to consider when developing their project evaluation framework.

Workshop 2: Testing concepts and approach

During workshop 2, the evaluation team introduced core concepts framing the evaluation process and early versions of the evaluation development worksheets.

Workshop 3: Feedback on early experiences

The evaluation session at workshop 3 was designed to get initial reactions from project leads on their early experiences developing their specific project evaluation framework. In addition, the project team developed mock evaluation frameworks for one neighbourhood partner and one business zone partner based on material from the evaluation readiness questionnaire and templates. The insights and lessons were used to refine the guide.

Workshop 4: Recommendations moving forward

Workshop 4 provided a refresher on the development process; highlighted refinements to the guide based on initial feedback; provided an opportunity to exchange lessons learned; and, probed neighbourhood and business zone project leads on possible recommendations to improve framework implementation.

Continuous refinements

As noted, the evaluation guide was designed using an iterative process with deliberate feedback sessions to capture (1) initial reaction to the design, (2) utility of worksheet templates, and (3) early experiences developing project evaluations. The process of continual improvement reflects efforts to

capture input from the onset and to integrate lessons learned in practice. The evaluation team made numerous tweaks and refinements based on initial partner experiences. Several noteworthy improvements in this version of the guide include the addition of a systems diagram to visually represent how projects connect to overarching sustainability objectives. The worksheet templates were also revised, and an additional template was added to link impacts back to project delivery.

Conceptual Framing

Evaluation frameworks to measure impact of community-based action projects have been hindered by a call for standardization yet the need for flexibility. In a comprehensive review of evaluation frameworks, Bours and colleagues (2013) highlight the lack of a standardized evaluation methodology as a limitation to assess and compare impacts of community action projects. They note, however, that the frameworks have different strengths reflecting project objectives and context making it difficult to endorse one approach as best. While several articles call for and propose standardized evaluation frameworks, generalized models are prone to overlook the nuances of community-based projects. Brown and colleagues (2018), for example, argue that a one size fits all model may not be suitable. Instead, they endorse a project by project approach that reflects context and community priorities. Sharifi and colleagues (2015) similarly argue that evaluation of community projects must take into consideration location and differing needs and motivations of community stakeholders.

To balance the need for standardization and flexibility the proposed conceptual framing put forth to measure the T2050 projects is based on a set of principles that can be consistently applied across projects but are adaptive to account for context. The core evaluation principles are as follows:

1. Measure co-benefits
2. Adopt a nested measurement approach
3. Report output, outcome, and impact indicators
4. Set benchmarks
5. Adopt a long-term lens

Principle 1: Measure Co-Benefits, Ripples to Waves

‘If a wind blows steadily across a large enough patch of water for a few hours then the ripples become waves, and these will not be dampened so easily.’

- Tristen Gooley, Clues & Patterns from Puddles to the Sea

The primary motivation of the T2050 projects is to achieve GHG emission reduction targets. Climate action projects, however, often create additional benefits or co-benefits that are overlooked during the

evaluation process. Reporting co-benefits is important to understand the full impact of projects. The respective co-benefit domain categories that partners report on will reflect project context. Figure 3 provides an example of possible co-benefits associated with an environmental action project. At a minimum for the T2050 climate action projects, in addition to the primary motivation, the environmental, social, and economic co-benefits or “ripples” should be considered (figure 4).

Climate action co-benefits are the positive spillover effects associated with a particular action, policy, project, or program aimed at reducing greenhouse gas emissions.



Figure 3: Example, possible co-benefit domains

Accounting for co-benefits has been shown to increase project participation, stakeholder support and secure project buy-in from city council, other departments, and funding agencies (Spencer et al., 2017; Floater et al., 2016; Bain et al., 2016). A study completed by Bain and colleagues (2016) found that reporting co-benefits motivated individuals to act on climate benefiting projects even when they didn’t believe in climate change. For these individuals it was benefits that fell outside of the projects intended scope that convinced them to participate. Other studies have noted the importance of acknowledging co-benefits early and measuring them effectively (Floater et al., 2016; Bain et al., 2016; Bain et al., 2012). A review by Wilson and colleagues (2020) demonstrated that investments in environmental programs and initiatives often extend beyond environmental outcomes fostering economic resiliency,

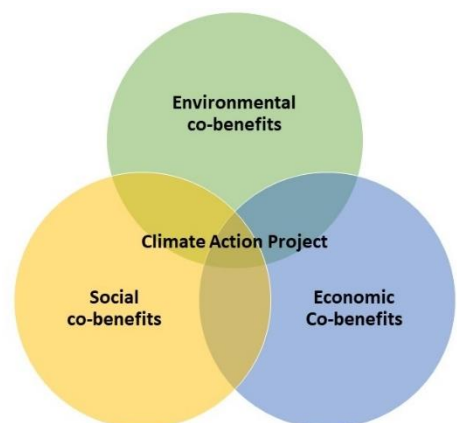


Figure 4: Co-benefit categories, T2050 projects

improved wellbeing, and other population health benefits. Understanding the connections and emphasizing the overlap help build a stronger case for community support, investment, and prioritization of sustainability objectives. Supportive business networks and engaged neighbourhoods were also shown to make communities more desirable places to live.

Principle 2: Adopt a Nested Measurement Framework

The community action projects have impacts that extend across multiple scales. Nested measurement and reporting frameworks integrate different scales providing a more holistic understanding of impacts. Several studies note the importance of investigating multiple scales of impacts (Barbosa et al., 2018; Man et al., 2017; López-Ridaura et al., 2005). Williams and Robinson (2020) advocate for frameworks that highlight inter-relationships between scales in systems and understanding how projects impact different scales.

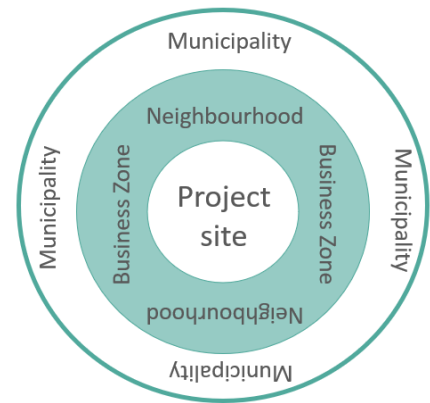


Figure 5: Nested model framework

While the T2050 projects target business zones and neighbourhoods, impacts occur at a project level, community level (neighbourhood and business zone), and municipal level. For example, indicators at different scales could be project level (number of home energy retrofits or number of participants in a skills training program), neighbourhood level (increased sense of community belonging, expanded business networks), and municipal level (increase in canopy cover, job creation). Some indicators apply to all scales. For example, GHG reductions can be tracked and reported at project level at neighbourhood level across projects, and at a municipal level to measure progress toward GHG reduction targets.

Principle 3: Report Output, Outcome, and Impact Indicators

Turner and Zolin (2012) emphasize a need for strong indicators that are thorough, measurable, and which account for project performance at different levels, specifically output, outcome, and impact. Identifying appropriate indicators will in part reflect what data is available and the time and resources of partners to collect and secure data. Greenaway et al. (2006) highlight the importance of selecting indicators that tell the existing story and will be able to communicate a future story. While project evaluations often emphasize quantitative data, qualitative data can be equally as useful to understand project effectiveness. Adopting a mixed methods approach can offer a richer analysis to support project evaluation and inform deeper project learning (Brown et al., 2018).

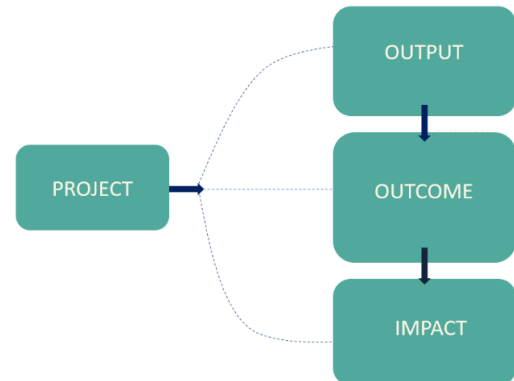


Figure 6: Project output, outcome, impact indicators

Principle 4: Set Benchmarks

Benchmarking is considered a critical and often overlooked component of evaluation (Floater et al., 2016; Greenaway et al., 2006). Benchmarking helps give meaning to indicators. Benchmarks or targets can be a reference point in time (e.g. reduce emissions to 1990 levels), a reference point against a peer group (e.g. below industry average) or an ideal target (e.g. net zero by 2030). While targets identify an end point, reporting baseline data is critical as well to understand where the community was prior to project implementation (Floater et al., 2016; Greenaway et al., 2006). Pringle (2011) recommends benchmarking community action projects against multiple metrics. The targets should relate back to the different measurement scales and co-benefits and provide a lens to measure project progress and drive program improvement.



Figure 7: Benchmark target visual

Principle 5: Adopt a Long-Term View

The evaluation framework should emphasize indicators and benchmarks that can capture impacts over the longer term. Many project co-benefits may not manifest immediately. Similarly, a longer-term lens helps frame the evaluation as an important learning exercise as opposed to a one-off reporting commitment to secure funding.



Figure 8: Shifting mindset from a short-term to long-term view

Building Your Evaluation

Prior to starting an evaluation, it is helpful to develop a system schematic to display how a project connects to overarching sustainability objectives. The example presented below was informed by previous Sustainable Neighbourhood Action Projects. The strength of the diagram is its ability to visually represent how projects, outcomes, and impacts tie together.

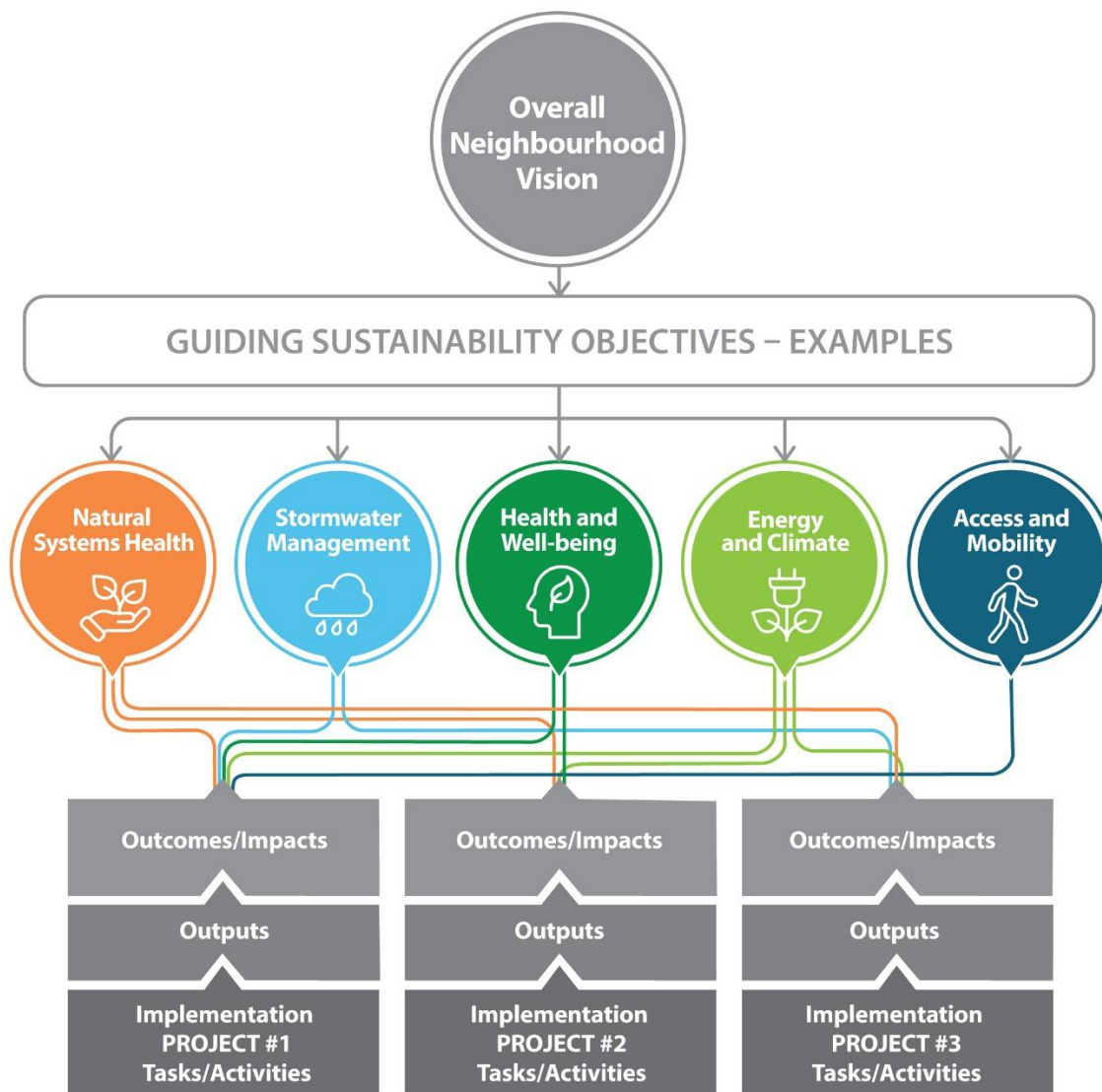


Figure 9: Example, system schematic

Evaluation Development Tools

The evaluation team prepared an evaluation readiness questionnaire and four worksheet templates to help municipal partners develop their T2050 project impact evaluations. See Appendix B for the evaluation readiness questionnaire and Appendix C for the worksheet templates. The questionnaire helps partners scope the evaluation while the worksheets focus on specific evaluation components: identification of project co-benefits, connecting outcomes back to project activities, identification of evaluation indicators, and reporting progress. The evaluation team provided partners support as needed to populate the questionnaire and templates. Seven of the nine participating communities completed the evaluation readiness questionnaire and templates.

The questionnaire and templates are intended to be completed sequentially. While linear in approach, worksheets should be populated with the broader conceptual framing in mind. Prior to completing the worksheets, it is helpful to sketch out a systems diagram as exemplified above. The systems diagram can be adapted as users populate the questionnaire and worksheets.

Project Evaluation Readiness Questionnaire

The evaluation readiness questionnaire is designed to help the T2050 partners scope their evaluation. Questions ask them to describe the project, articulate project objectives and outcomes, identify boundaries, list stakeholders, and connect projects to broader municipal sustainability goals and climate reduction targets. In addition, it prompts users to consider short term impacts and longer-term impacts. The questionnaire was introduced in workshop 1. Project partners completed the questionnaire following the workshop. See Appendix D for a summary of projects.

Worksheet 1: Identifying Co-Benefits

The T2050 projects are neighbourhood or business led projects focused on reducing greenhouse gas emissions. The co-benefits template guides partners to identify co-benefits associated with their projects. Communicating the broader benefits, in addition to the climate mitigation benefits, helps partners build the business case. Table 1 provides an example for a project focused on home energy audits. The template organizes benefits into environmental co-benefits, social/health co-benefits, and economic co-benefits. Organizing co-benefits into these categories provides an easy mechanism for partners to communicate benefits to different audiences.

Evaluation Template: Co-Benefits Example				
Project, policy, or action	Climate Benefits	Co-benefits		
		Environmental	Social/Health	Economic
Complete 200 home energy audits in x neighbourhood	Reduced GHG emissions	Lower energy demand on the grid	Increased thermal comfort	Cost savings to building owners/ occupants
			Reduced number of people living in poverty	Local job creation
				Skill training
				Increase in property value

Table 1: Co-benefits evaluation template example

The worksheet is designed to have partners brainstorm a broad list of co-benefits. Actual co-benefits reported on and subsequent measurement indicators tracked would reflect individual project context and be narrowed according to project scope, feasibility, and resources available to support evaluation and data collection. Table 2 (business zone projects) and table 3 (neighbourhood projects) demonstrate the wide range of co-benefits for possible evaluation. The lists presented here are the result of a brainstorming exercise completed by project partners to populate the co-benefits worksheet.

Co-Benefits Business Zone Projects	
Economic Ripples	Scale
Operational Savings due to lower energy use	Business
Higher awareness of energy costs and strategies to reduce energy use	Business
Investment in business operations	Business
Enhanced resiliency to business disruption due to climate impacts	Business Zone
Local job creation	Municipal
Investment in green economy	Municipal
New business starts	Municipal
Environmental Ripples	Scale
Increased awareness of environmental footprint/ sustainability	Business
Reduced flood risk	Business/ Municipal
Improved air quality	Municipal
Lower water use	Municipal
Lower energy demand	Municipal
Reduced burden on the grid/ municipal infrastructure	Municipal
Social Ripples	Scale
Employee satisfaction (energy comfort)	Business
Improved image (demonstrates environmental responsibility to customers)	Business

Increased enthusiasm for environmental projects	Business
Exhibits business leadership for sustainability	Business Zone
Business integration into the community (csr)	Business Zone
Increased local organizational capacity	Municipal
Increased sense of community belonging	Municipal
Increased sense of civic pride	Municipal
Community recognition	Municipal

Table 2: Co-benefits for business zone projects

Co-benefits Neighbourhood Projects	
Economic Ripples	Scale
Savings associated with reduced vehicle use	Project site
Savings on grocery bills	Project site
Savings associated with home retrofit	Project site
Increase in property value	Project site
Skills development	Project site
Increase in economic viability of local businesses	Neighbourhood
Job training (energy efficiency)	Municipal
Job creation	Municipal
Sales at material suppliers	Municipal
Environmental Ripples	Scale
Reduced fossil fuel dependency	Project site
Reduced erosion	Project site/ Neighbourhood/ Municipal
Reduced flood risk	Project site/ Neighbourhood/ Municipal
Improved air quality	Neighbourhood/ Municipal
Lower water use	Neighbourhood/ Municipal
Lower energy demand	Neighbourhood/ Municipal
Reduced burden on the grid/ municipal infrastructure	Municipal
Social Ripples	Scale
Healthier diets	Project Site/ Municipal
Access to fresh vegetables	Project Site/ Neighbourhood/ Municipal
Better knowledge and appreciation for where food comes from	Project Site
Increase in physical activity	Project Site/ Neighbourhood/ Municipal
Improved mental health	Project site/ Municipal
Reduced exposure to extreme heat	Project Site/ Neighbourhood
Higher household temperature comfort	Project Site
Increased likelihood of aging in place	Project Site/ Municipal
Improved neighbourhood aesthetics	Neighbourhood

Improved neighbourhood safety	Neighbourhood
Community cohesion	Neighbourhood
Increased social equity	Neighbourhood
Sense of belonging	Neighbourhood
Increase in transportation options	Neighbourhood/ Municipal
Improved resiliency to power outages	Neighbourhood/ Municipal
Higher awareness of energy efficiency	Neighbourhood/ Municipal
Volunteerism	Neighbourhood/ Municipal

Table 3: List of possible co-benefits for neighbourhood action projects

Worksheet 2: Connecting Impact to Project Delivery

Impact evaluation pushes your focus to the end results. It is important, however, to account for what gets you there. Successfully achieving GHG mitigation and other co-benefits requires that a series of task and activities take place beforehand. Worksheet 2 is intended to help users connect desired impact(s) back to tasks and activities that need to take place. Mapping the pathway to impact provides a structured strategy to increase the likelihood of project success. From an evaluation perspective, it also provides a systematic approach to reflect on the project to identify possible breaks in the pathway that may have limited desired impact. Table 4 provides an example for a home energy audit project.

Tasks	Activities (output)	Outcome	Impact
Develop workshop curriculum	Deliver 10 community workshops on benefits of home energy retrofits	Complete 200 home energy audits in x neighbourhood	GHG mitigation
Develop a workshop promotion strategy <ul style="list-style-type: none">Social media campaignPartner with xx community groupsFlyers in mailbox			Savings to building owners/ occupants
Formalize relationship with community college	Work with local community college to conduct energy audits as part of green building program		Local job creation
Implement safety protocols (criminal record check, diversity training ...)			Lower energy demand on the grid
			Increased thermal comfort

Table 4: Connecting impact to project delivery, example - home energy audit project

Impact evaluation is focused on the end result. To achieve success, a lot of tasks and actions need to happen beforehand. Connecting a project logic model or project theory of change framework to impact evaluation clarifies the pathway from tasks to desired impact.

Worksheet 3: Identifying Indicators

The next critical stage in developing project evaluation is charting progress on the degree to which activities have been completed, intended outputs achieved, and desired impacts realized. The indicator worksheet provides a template to guide the identification of possible measurement indicators. When brainstorming indicators, users will want to consider indicators at different project scales (project level, neighbourhood/business zone, municipal). Users can identify more than one indicator per activity/output, outcome, or impact. Keep in mind, the selected set of indicators to report on must be manageable and feasible given available resources. In the template, for each indicator users identify a target to benchmark progress against. In addition, to help identify the ‘right’ indicators, users are asked to consider data availability and data collection feasibility (table 5). The T2050 evaluation is focused on measuring impact, with particular attention to measuring primary benefits as well as co-benefits. This effort is in part to understand the potential business case for neighbourhood and business level climate action projects and in part to understand the collective impact of climate action projects undertaken as part of the T2050 initiative.

Focus	Indicator/s	Target		Indicate data source if currently available.	If data is not available, how will you collect it?	What are associated costs with data collection?	Who will be responsible for data collection and tracking the data?
Activity/ Output (1)	Indicator (1)						
	Indicator (2)						
Activity/ Output (2)	Indicator (1)						
	Indicator (2)						
Outcome (1)	Indicator (1)						
	Indicator (2)						
Outcome (2)	Indicator (1)						
	Indicator (2)						
Impact (1)	Indicator (1)						
	Indicator (2)						
Impact (2)	Indicator (1)						
	Indicator (2)						

Table 5: Identifying indicators template

Populating the worksheet is intended to help users come up with a meaningful list of indicators that can be tracked and reported on to support project learning and improvement.

Worksheet 4: Reporting Progress

The final worksheet provides an indicator reporting structure linking indicators to focus (output, outcome, impact), data type and organizational responsibility for data collection. See table 6 for an example using the Town of Caledon’s business zone project. The GreenBiz Caledon program aims to support local businesses to set and achieve sustainability goals around energy, transportation, water, and waste.

The goals of the project include:

1. Build capacity among businesses through workshops and peer learning to develop and implement climate actions to reduce energy, water and/or waste
2. Support energy and/or resiliency retrofits in 5-10 participating businesses

Goal: Build capacity among businesses through workshops and peer learning to develop and implement climate actions that reduce energy, water and/or waste				
Focus	Indicator	Targets	Data Type	Data Responsibility
Activity/output	Business participation: <i># of businesses implementing retrofits</i>	10	Admin	Project team
Outcome	Lower energy costs: <i>Change in electricity, natural gas, fuel costs</i>	Average of 17% energy savings at participating businesses	Building energy use/ fuel use	Participants, pre and post retrofit
Outcome	Business leadership recognition: <i># of positive social media messages referencing participating businesses or business zone</i>	15	Twitter, Facebook, Instagram	Project team
Impact	GHG emissions reductions: <i>Change in CO₂e emissions among participating businesses (buildings, transportation)</i>	17% reduction vs. pre- program baseline	Energy use, fuel consumption – converted to CO ₂ e	Participants pre and post retrofit

Table 6: Indicator Reporting template, Town of Caledon example

Comments on Using the Templates

A Balanced Approach

To be useful, projects need to balance what is practical to measure and satisfaction with the level of comprehensiveness. The worksheet templates are structured to help users brainstorm and develop a robust evaluation framework. Moving from the development phase to operationalizing the evaluation framework can be characterized as brainstorm, narrow, refine, finalize. As part of the process, project teams will need to make decisions on which co-benefits to track, how many indicators are appropriate, and the level of reporting detail. In terms of identifying co-benefits and indicators, the fulsome list generated in the templates should be narrowed to a manageable list. What is manageable will vary by project. Consider the following screening criteria as a starting point.

- Audience: Know your audience/s. Project co-benefits may resonate differently depending on the audience (project funder, community members, partner agencies). Ensure indicator selection reports on priority benefits of different targeted audiences. Where relevant, indicator selection should be informed by project stakeholders to confirm buy in especially among

stakeholders supporting data collection and tracking. Questions to consider, who is my audience? Which project benefits are they interested in? Have we identified an indicator to track that benefit?

- **Data check:** Data access and feasibility of collection will influence indicator selection. Are the data to populate the indicators readily available. Does your team have access to the data? Do you have the resources (time, money, and skillset)? If not, does your team have the capacity and resources associated with data procurement if getting from an outside source or to conduct direct data collection? Direct data collection, using surveys and focus groups, for example, can require a substantial amount of time and skillset that may not be feasible given the project scope and resources. If procuring data or using secondary sources, you will also want to consider data quality. Who collected it? How was it collected? Is it based on suitable sample sizes?
- **Materiality:** Are the identified co-benefits and subsequent indicators relevant or significant to project purpose and overarching sustainability goals?
- **Saturation:** Avoid redundant indicators. Examples of questions to consider, does the proposed indicator offer new information not already captured elsewhere? Does the proposed indicator improve upon an existing indicator (easier to collect, less costly, ...)? Report the minimum number of indicators to tell your story.

Table 7 provides an example of 11 co-benefits that may result from a project to plant trees in a specified neighbourhood to achieve 40% canopy cover. Identifying and reporting on indicators for the 11 identified co-benefits would not be manageable for a project team. From the list of 11, based on the screening criteria identified above, they may choose to identify and report on two indicators from the list, improved air quality and reduced exposure to very hot temperatures (highlighted in table 7). Flushing out a full list of co-benefits is still an important part of the project story. It is simply not feasible to track and report data on all of them.

Project, Policy, or Action	Climate Benefits (impact)	Co-benefits (impacts)		
		Environmental	Social/Health	Economic
Achieve canopy cover of 40% in neighbourhood	Carbon sequestration (CO2e reduction)	Improved air quality	Reduced exposure to very hot temperatures	Energy savings to building owners/occupants
		Lower energy demand on the grid	Increased levels of physical activity	Increase in property value
		Habitat/biodiversity	Improved mental health	Worker productivity
		Stormwater mitigation	Reduced heat annoyance	

Table 7: Narrowing list of co-benefits, example

Setting Targets

Targets give indicators meaning and are set to define parameters of success. For example, in respect to GHG mitigation, what level of CO₂e emissions avoided or reduced determines if your project was a success or not? Identifying that target should be evidence based, realistic and reflect the individual project goals and scope. Where possible, link targets to neighbourhood goals and municipal climate change strategies and action plans. In addition, identifying targets to inform outputs and outcomes can be useful checks toward achieving project impact. For example, let's assume achieving targeted CO₂e reductions requires increasing canopy cover in a neighbourhood to 40%. In this case, let's assume this requires planting 500 trees of which 400 trees are to be planted on municipally owned land and 100 trees on private land. To meet the 100-tree target on private land, your team plans to host 2 free tree giveaway events. Assuming a 20% non-survival tree rate, your team needs give away a minimum of 120 trees for the project to be on track to achieve the overall CO₂ reduction target. The example summarized in table 8 demonstrates that to achieve the desired carbon reduction goal, a series of targets tied to actions must be met.

Tasks	Activity/Output	Outcome
Partnership development	Host two events to give away 120 trees to homeowners (measurable target - 120 trees)	Achieve canopy cover of 40% in neighbourhood (measurable target – 40%)
Work with partners to complete GIS mapping to quantify number of trees to be planted		
Identify project partners to support event		
Promote event		
Secure trees		
Develop educational material for homeowner to ensure tree survival rate		
Develop follow up process to document that homeowner planted tree (picture of tree)		

Table 8: Example of project tasks, activity, and outcomes.

Keeping scale in mind

As part of the project description it is important to identify the focus of the evaluation. For example, among the T2050 initiatives some are single activity projects and the focus of the evaluation may be based on a specific project benefit and co-benefits. Other T2050 initiatives include multiple activities and projects, each of which has a specific focus and set of co-benefits. Regardless of the focus, it is important that the evaluation of respective projects connect to broader neighbourhood level and business zone initiatives (if applicable) and support municipal goals and GHG reduction targets.

Moving Forward

In this section, we make recommendations to support the evaluation of community-based climate action projects.

Reporting co-benefits

Project partners indicated that tracking co-benefits allows them to build a better business case for their projects which may not be realized by simply reporting CO2 emission reductions. In addition, reporting co-benefits can enhance the reach of climate action projects by communicating the full value of projects to community stakeholders and project funders.

***Recommendation:** Adopt an evaluation framework that tracks co-benefits to capture the full set of neighbourhood/ business zone impacts.*

At a minimum for the T2050 climate action projects, in addition to reporting on the primary impact, partners should consider reporting at least one co-benefit or “ripple” for the environmental, social, and economic domains. Table 9 provides examples of co-benefits by domain for consideration.

Environmental	Social	Economic
<ul style="list-style-type: none">- Air quality- Energy use (electricity, natural gas, fuel)- Water use	<ul style="list-style-type: none">- Sense of community belonging- Volunteerism	<ul style="list-style-type: none">- \$ savings, energy use- Investment in the green economy- Job creation

Table 9: Examples of co-benefits for consideration

In respect to specific projects, the co-benefit domain categories included will reflect individual project context. The co-benefit categories reported should be meaningful to the project based on materiality criteria and consider data collection capacity.

Long-term evaluation

Project impacts manifest over time, especially those resulting from new ways of doing things or those contingent upon broad scale behaviour change. Similarly, impacts from projects based on building relationships and community trust take time to realize. Understanding the return on project investment requires monitoring and evaluation over an appropriate timeframe which may extend beyond the funded project timespan. Too often, we fail to understand the full impacts because the evaluation period is too short.

***Recommendation:** Commit to long term evaluation and integrate evaluation plans at project onset.*

Funding and resource requirements

A barrier to longer term evaluation is that project timelines and funding typically extend to project development and implementation without a comprehensive plan to support project evaluation and learning. While the proposed framework is designed to support a longer timeline and culture of evaluation, fulsome evaluation, requires time and resources.

Recommendation: Implement funding mechanisms and project plans that address the time and resource commitments needed to support long term evaluation.

Non-prescriptive indicators

The tendency when developing an evaluation and reporting framework with broad applicability is to prescribe a set of indicators that, in this case, for example, would allow for comparisons across projects and communities to understand which projects were most effective at reducing CO₂ emissions. A prescriptive set of indicators, however, ignores the diversity of projects, different community contexts, resources and program delivery models making comparisons meaningless. It becomes problematic if comparative results determine future funding decisions in the absence of broader project evaluation and review. Reporting cross cutting indicators is fine but they should complement a set of project derived indicators that reflect project and community contexts. Indicators should be useful to project partners and stakeholders. What is important is they inform learning and project improvement.

Recommendation: Adopt indicators meaningful to project and reflective of community context.

Flexible design, flexible mindset

The evaluation framework is designed to provide a consistent structure that can be adapted to different project scopes and audiences. The flexible design speaks to the diversity of projects. The templates are intended to foster reflection on project benefits at different scales and support the identification of indicators to track direct project benefits and co-benefits. The number of indicators, data sources, and breadth of reporting will depend on project resources and context. Implied in the flexible design is a mindset that if the evaluation process (indicators selected, data collection tools) is not working or achieving the intended objectives, it should be adjusted to ensure usefulness. Similarly, if project effort scales up or gets redefined, the evaluation framework can be adjusted accordingly. The intention is meaningful evaluation not evaluation for the sake of evaluation.

Recommendation: Implement a flexible design applicable to different project scopes, evaluation objectives, audiences, and community contexts and one which is adaptable to changes in project scope or direction.

Partner buy-in

In many cases, populating indicators will require project partners and/or community stakeholders to provide or collect data. Reach out early to ensure support. Make it easy for partners by implementing data collection processes and data tracking templates. Where possible, work with partners to share data and reporting efforts to benefit all parties. As importantly, share evaluation findings with partners and community stakeholders to inform their own programming and planning.

Recommendation: Secure support from partners and community stakeholders to assist with data collection and tracking at project onset.

Data sharing

Lack of access and availability of data often limit effective evaluation. In some cases, the data exists but the evaluation team does not have access to it. In other cases, collecting the data is challenging. This

may include lack of resources to undertake data collection or the challenges of needing a partner or stakeholder to collect the data for your team. Interdepartmental data sharing and data sharing among partners is not a fail-safe solution but can help mitigate some of these challenges.

Recommendation: Support a culture of data sharing and open data.

Summary

The climate action co-benefits evaluation guide is intended to be useful, practice based, and offer an intuitive and emergent approach to help partners evaluate project progress and impact. The conceptual framing provides partners a structure to tell their story and communicate the business case. Populating the templates position partners to carry out an evaluation of their T2050 projects to validate that story. The worksheets to support the identification of co-benefits and indicators and a process to support project impact evaluation. The project evaluation guide offers flexibility recognizing the diversity of projects and contexts. The guide is non-prescriptive, the indicators selected, scope and scale and how the evaluation relates back to broader neighbourhood/business zone and municipal climate action plans and strategies will vary by project. The evaluation team also appreciates that the comprehensiveness of evaluations will depend on resources (time, money, and skillset) teams have at their disposal. The T2050 projects are intended to mitigate GHG emissions. While the focus is on reporting impact towards that goal, measuring co-benefits is key toward understanding the full impact and value of community-based action projects.

Appendices

Appendix A: Literature Summary Table

Report/ Website	Notes
Global Covenant of Mayors for Climate and Energy., (2020). About Us. [online] Available at: http://www.globalcovenantofmayors.org [Accessed 16 June 2020].	The website is a resource managed by the Global covenant of mayors for climate and energy. This company has over 10000 cities and local governments committing to the reduction of CO2 emissions.
Huang, L. Zheng, W., Hong, J., Liu, Y., & Liu, G., (2020). Paths and strategies for sustainable urban renewal at the neighbourhood level: A framework for decision-making. <i>Sustainable Cities and Society</i> , 55. https://doi.org/10.1016/j.scs.2020.102074	The article provides a decision-making framework for strategies for urban renewal. Additionally, it acknowledges the importance of early, continuous and cautious evaluation will help improve the programs.
Williams, S., & Robinson, J., (2020). Measuring sustainability: An evaluation framework for sustainability transition experiments. <i>Environmental Science and Policy</i> , 103, 58–66. https://doi.org/10.1016/j.envsci.2019.10.012	The article proposes utilizing the development pathway as a framework to characterize transformational change. The presented framework places emphasis on the importance of scaled impacts and investigating impacts across levels.
Dixon, T., Bacon, N., Caistor Arendar, L., Nielsen, E., Callway, R. and Naylor, A., (2019). Measuring the initial social sustainability impacts of estate regeneration: a case study of Acton Gardens, London. <i>Journal of Sustainability Research</i> , 1 (1). e190002. ISSN 2632-6582 doi: https://doi.org/10.20900/jsr20190002	The article explores and reviews the initial measurement of social sustainability during early phases of a housing regeneration project. The broad indicators focused on amenities and infrastructure, social and cultural life, and voice and influence. They used indicators that focused on physical and nonphysical factors in social sustainability, as done in previous research. They then developed 13 driving indicators that were categorized in this way. Individuals were interviewed to understand the impacts the project had on them.
Woods, M., (2019). All the Places in Canada That Have Declared States of Climate Emergency. <i>Huffington Post</i> .	The report contains a comprehensive list of places in Canada that have declared states of climate emergency. This article provides reasoning for climate action programs.
Barbosa, N., Ferreira, J., Nascimento, C., Silva, F., Carvalho, V., Xavier, E., Ramon, L., Almeida, A., Carvalho, M., & Cardoso, A., (2018). Prediction of future risk of invasion by <i>Limnoperna fortunei</i> (Dunker, 1857) (Mollusca, Bivalvia, Mytilidae) in Brazil with cellular automata. <i>Ecological Indicators</i> , 92, 30–39. https://doi.org/10.1016/j.ecolind.2018.01.005	The article uses a scaled model to predict future risks of <i>Limnoperna fortunei</i> invasions in Brazil. The report highlights from a macro-scale, the issue went unnoticed, emphasizing the importance to consider different scales of impacts.

<p>Brown, C., Shaker, R., & Das, R., (2018). A review of approaches for monitoring and evaluation of urban climate resilience initiatives. <i>Environment, development, and sustainability</i>, 20 (1), 23-40. https://doi.org/10.1007/s10668-016-9891-7</p>	<p>The article provides an overview of different measuring techniques that can be used for community-based climate action projects. This overview describes developing indicators, how to monitor and evaluate these projects. The report acknowledges that each individual project needs a tailored set of tools.</p>
<p>Man, Y., Xiao, H., Cai, W., & Yang, S., (2017). Multi-scale sustainability assessments for biomass-based and coal-based fuels in China. <i>Science of the Total Environment</i>, 599-600, 863–872. https://doi.org/10.1016/j.scitotenv.2017.05.006</p>	<p>The article reviews the methodology used to conduct sustainability assessments for biomass and coal-based fuels in China. The article uses a multi-scale model to capture the levels of impact from the project.</p>
<p>Raymond, C., Frantzeskaki, N., Kabisch, N., Berry, P., Breil, M., Nita, M., ... Calfapietra, C., (2017). A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas. <i>Environmental Science and Policy</i>, 77(C), 15–24. https://doi.org/10.1016/j.envsci.2017.07.008</p>	<p>The report proposes a 7-step framework for nature-based solutions (solutions to societal challenges that are inspired and supported by nature). The stages include identifying problem/opportunity, select and assess NBS related actions, design implementation process, implement solution, engage stakeholders and communicate co-benefits, transfer and upscale, monitor and evaluate. For co-benefits specifically, the framework includes 4 dimensions; co-benefits for human health and well-being, integrated environmental performance, trade-offs and synergies to biodiversity, health or economy, and potential for citizen involvement.</p>
<p>Spencer, B., Lawler, J., Lowe, C., Thompson, L., Hinckley, T., Kim, S., ... Voss, J., (2017). Case studies in co-benefits approaches to climate change mitigation and adaptation. <i>Journal of Environmental Planning and Management</i>, 60(4), 647–667. https://doi.org/10.1080/09640568.2016.1168287</p>	<p>The article presents case studies to demonstrate international co-benefits of climate projects. The case studies emphasize co-benefits approaches that are accessible in countries that are more vulnerable to climate change. The authors highlight importance of acknowledging co-benefits in the implementation phase.</p>
<p>Bain, P., Milfont, T., Kashima, Y., Bilewicz, M., Doron, G., ... Saviolidis, N., (2016). Co-benefits of addressing climate change can motivate action around the world. <i>Nature of Climate Change</i> 6, 154–157. https://doi.org/10.1038/nclimate2814</p>	<p>The report discusses co-benefits at the individual level and how these additional benefits motivate people to participate in climate benefiting activities. According to the study, this motivation existed in both people who believed climate change is real and climate deniers. A relationship was displayed between communicating co-benefits and motivation on climate change action at a local level.</p>
<p>Cutter, S., (2016). The landscape of disaster resilience indicators in the USA. 80(2), 741–758. https://doi.org/10.1007/s11069-015-1993-2</p>	<p>The article examines both qualitative and quantitative approaches to resilience assessment. 4 different parameters were used; focus, spatial orientation, methodology, and domain area.</p>

	Common elements were viewed as attributes and assets, and capacities. For communities the report highlights the possibility of a bottom up approach, which provides the ability to incorporate a breadth of local knowledge.
Floater, G., Heeckt, C., Ulterino, M., Mackie, L., Rode, P., Bhardwaj, A., Carvalho, M., Gill, D., Bailey, T. & Huxley, R., (2016). Co-benefits of urban climate action: a framework for cities. London School of Economics and Political Science, London, UK.	The report highlights the need for benchmark reporting, noting that few cities have benchmark indicators which authorities can measure progress against. The report further recommends using a hierarchical classification framework to outline benefits and co-benefits and further outlines a series of co-benefits that exist in the literature.
Hal, A., (2016). The Third Success Factor of Renovations with Energy Ambitions. Regenerative and Resilient Urban Environments.	The article notes that several factors including physical context, social context, behavioral processes, and motives determine an individual's participation in community action programs. To engage participants, it is important to focus on more than the environmental impact and include other interests of the community members.
Sharifi, A. & Murayama, A., (2015). Viability of using global standards for neighbourhood sustainability assessment: insights from a comparative case study. Journal of Environmental Planning and Management, 58:1, 1-23, DOI: 0.1080/09640568.2013.866077	The article provides a comparative case study for neighbourhood sustainability. It was determined that the assessment of these projects needs to take into consideration specificities of the location and varying needs of the stakeholders.
World Bank Group & Climate Works Foundation., (2014). Climate Smart Development. Adding up the benefits of actions that help build prosperity, end poverty and combat climate change. [online] Washington. Available at: < http://documents.worldbank.org/curated/en/794281468155721244/pdf/889080WP0v10REOSmart0Development0Ma.pdf .	The report proposes a framework to assess climate action benefits. Framework steps include to identify the full range of benefits, select appropriate assessment tools, choose the proper macroeconomic tool, estimate the full range of benefits. The report further suggests several tools for valuation including value of statistical life, social cost of carbon, energy savings, etc.
Bours, D., McGinn, C. & Pringle, P., (2013). Monitoring & evaluation for climate change adaptation: A synthesis of tools, frameworks and approaches. SEA Change CoP, Phnom Penh and UKCIP, Oxford.	The report outlines several frameworks for measuring and evaluation. One example framework is the AdaptME Toolkit, broken out by purpose, subject, logic and assumption, challenges and limitations, measuring progress, engaging and communicating and purpose.
Bain, P., Hornsey, M., Bongiorno, R., & Jeffries, C., (2012). Promoting pro-environmental action in climate change deniers. Nature Climate Change, 2(8), 603–603. https://doi.org/10.1038/nclimate1636	The report discusses the relationship between co-benefits and initiating action against climate change at the individual level. It further determined that climate change deniers would act pro-environmentally when they thought the action would benefit society with greater economic and

	technological development or create a more considerate and caring society.
Turner, R., & Zolin, R., (2012). Forecasting Success on Large Projects: Developing Reliable Scales to Predict Multiple Perspectives by Multiple Stakeholders over Multiple Time Frames. <i>Project Management Journal</i> , 43(5), 87–99. https://doi.org/10.1002/pmj.21289	Report outlines a developed framework to assess the effectiveness of projects. Framework specifically focuses on the importance of stakeholder intervention in development plans. Additionally, uses input, output, outcome model.
Pringle, P., (2011). <i>AdaptME: Adaptation monitoring and evaluation</i> . UKCIP, Oxford, UK.	AdaptME is a toolkit that focuses on measuring and evaluating projects. The toolkit measures performance against good adaptation using 6 guiding principles: sustainable, proportionate and integrated, collaborative and open, effective, efficient and equitable.
Slaper, T., & Hall, T., (2011). The Triple Bottom Line: What Is It and How Does It Work? <i>Indiana Business Review</i> , 86(1), 4–8.	The report explains sustainability and its relevance to business using the triple bottom line, including how to calculate the triple bottom line with possible indicators for economic, environmental and social aspects.
Environmental Protection Agency., (2010). <i>Measurement Tips & Resources for Community Projects</i> . Community Action for a Renewed Environment.	The report suggests basic principles for measuring community action projects. Suggested principles include, establish measure of success based on goals, gather and measure data to assess progress, regularly report to community and funders. Consider using a form of logic model with inputs, outputs and outcomes.
Salamon, L., Geller, S. & Mengel, K., (2010). <i>Nonprofits, Innovation, and Performance Measurement: Separating Fact from Fiction</i> .	The study investigates project implementation. The study displays that respondents were not using the techniques that assessment experts insist are necessary to measure return. The barriers limiting respondents are often constraints with resources. It is important to factor future resources into the overall project planning.
Center for Sustainable Energy., (2009). <i>Best Practice Review of Community Action on Climate Change</i> . Bristol.	The report reviews multiple case studies on community engagement divided by overview, model of engagement, method of delivery and tools used, partnerships, benefits and lessons learned. For planning activities and monitoring achievements, it is recommended to establish an action plan, streamline activities, monitor impact, plan for follow through. Low Carbon West Oxford case study is a home retrofit program.
Greenaway, A., & Witten, K., (2006). Meta-analysing community action projects in Aotearoa New Zealand. <i>Community Development Journal</i> , 41(2), 143–159. https://doi.org/10.1093/cdj/bsi053	The article reviewed 10 completed community action projects. The authors found that most project reports lacked context for the basis of decision making and were limited by funder reporting mechanisms.

López-Ridaura, S., Van Keulen, H., Van Ittersum, MK., & Leffelaar, PA., (2005). Multi-scale sustainability evaluation of natural resource management systems: Quantifying indicators for different scales of analysis and their trade-offs using linear programming. <i>International Journal of Sustainable Development & World Ecology</i> , 12:2, 81-97, DOI: 10.1080/13504500509469621	The article describes a framework designed for multi-scale sustainability evaluation of Natural Resource Management Systems. Paper places emphasis on the significance of incorporating multiple scales in the assessment process. Further, emphasis is placed on the importance of understanding how projects impact different scales.
Fritz, L., Schilling, T., & Binder, C., (2019). Participation-effect pathways in transdisciplinary sustainability research: An empirical analysis of researchers' and practitioners' perceptions using a systems approach. <i>Environmental Science and Policy</i> , 102, 65–77. https://doi.org/10.1016/j.envsci.2019.08.010	N/A
Cai, Y., & Zhang, L., (2018). Editorial: Multi-scale ecological indicators for supporting sustainable watershed management. <i>Ecological Indicators</i> , 92, 1–10. https://doi.org/10.1016/j.ecolind.2018.05.079	N/A
Rehak, D., Senovsky, P., Hromada, M., Lovecek, T., & Novotny, P., (2018). Cascading Impact Assessment in a Critical Infrastructure System. <i>International Journal of Critical Infrastructure Protection</i> , 22, 125–138. https://doi.org/10.1016/j.ijcip.2018.06.004	N/A
Hinckson, E., Schneider, M., Winter, S.J., (2017). Citizen science applied to building healthier community environments: advancing the field through shared construct and measurement development. <i>International Journal of Behavioural Nutrition and Physical Activity</i> , 14, 133. https://doi.org/10.1186/s12966-017-0588-6	N/A
Pasetto, M., Baliello, A., Giacomello, G., & Pasquini, E., (2017). Sustainable solutions for road pavements: A multi-scale characterization of warm mix asphalts containing steel slags. <i>Journal of Cleaner Production</i> , 166, 835–843. https://doi.org/10.1016/j.jclepro.2017.07.212	N/A
Kenis, A., Bono, F., & Mathijs, J., (2016). Unravelling the (post-)political in Transition Management: Interrogating Pathways towards Sustainable Change, <i>Journal of Environmental</i>	N/A

Policy & Planning, 18:5, 568-584, DOI: 10.1080/1523908X.2016.1141672	
Rao, S., Klimont, Z., Leitao, J., Riahi, K., Van Dingenen, R., Reis, L., ... Van Vuuren, D., (2016). A multi-model assessment of the co-benefits of climate mitigation for global air quality. Environmental Research Letters, 11(12), 8. https://doi.org/10.1088/1748-9326/11/12/124013	N/A
Petrovic, N., Madrigano, J., & Zaval, L., (2014). Motivating mitigation: when health matters more than climate change. Climatic Change 126, 245–254. https://doi.org/10.1007/s10584-014-1192-2	N/A
Janetos, A., Malone, E., Mastrangelo, E., Hardee, K., & De Bremond, A., (2012). Linking climate change and development goals: framing, integrating, and measuring. Climate and Development, 4(2), 141-156, DOI: 10.1080/17565529.2012.726195	N/A
Cooper, S., & Pearce, G., (2011). Climate change performance measurement, control and accountability in English local authority areas. Accounting, Auditing & Accountability Journal, 24(8), 1097–1118. https://doi.org/10.1108/09513571111184779	N/A
Seyfang, G., (2010). Community action for sustainable housing: Building a low-carbon future. Energy Policy, 38(12), 7624–7633. https://doi.org/10.1016/j.enpol.2009.10.027	N/A
Azevedo, K., Bras, B., Doshi, S., & Guldberg, T., (2009). Modeling Sustainability of Complex Systems: A Multi-Scale Framework Using SysML. Computers and Information in Engineering Conference, Parts A and B. 2(29), 1437–1448.	N/A
Epstein, M., & Roy, M., (2001). Sustainability in Action: Identifying and Measuring the Key Performance Drivers. Long Range Planning, 34(5), 585–604. https://doi.org/10.1016/S0024-6301(01)00084-X	N/A

Appendix B: Evaluation Readiness Questionnaire

Transition 2050, Project Evaluation Readiness
<p>The purpose of this exercise is to help set you up for evaluation success. Often, evaluation is either not done or is an end of project funding requirement that can be regarded more as a chore than an opportunity for learning and improvement. The first step in creating a helpful evaluation process is starting when the project starts. We have developed a series of readiness templates to help you begin framing your evaluation. Template 1 is designed to help you scope your evaluation. The exercise asks you to articulate project objectives, primary outcomes and prompts you to consider short term impacts, longer-term impacts, and potential secondary outcomes to inform your selection of evaluation indicators.</p>
<p>Question 1: Briefly describe your proposed project and how it relates to your Climate Action Plan or equivalent municipal plan. Consider project boundaries, partnerships, existing neighborhood conditions and capacities.</p>
<p>Question 2: Identify climate reduction targets and actions outlined in your Climate Action Plan that correspond with this program.</p>
<p>Questions 3: List project objectives.</p>
<p>Question 4: List the expected project outcomes (be as specific as possible).</p>
<p>Question 5: What potential co-impacts may result from your project?</p>
<p>Question 6: Have you considered different levels of impact that your project will have? For example, household, neighborhood, city, region. Please list how.</p>

Appendix C: Worksheet Templates

Worksheet template 1, co-benefits

Benefits Mapping				
Project, Policy or Action	Climate Benefits	CO-BENEFITS		
		Environmental	Social/Health	Economic

Worksheet template 2, connecting impact to project delivery

Connecting Impact to Project Delivery			
Tasks	Activities (output)	Outcome	Impact

Worksheet template 3, identifying indicators

Identifying Indicators				
Focus	Indicator	Target / Benchmark	Data Source	Data Responsibility/ Tracking Method
Activity / Output	Indicator (1)			
	Indicator (2)			
Outcome	Indicator (1)			
	Indicator (2)			
Impact	Indicator (1)			
	Indicator (2)			
Activity / Output	Indicator (1)			
	Indicator (2)			
Outcome	Indicator (1)			
	Indicator (2)			
Impact	Indicator (1)			
	Indicator (2)			

Worksheet template 4, reporting progress on selected indicators

Selected Indicators for Reporting Progress				
GOAL:				
Focus	Indicator	Target	Data Type	Data Responsibility

Appendix D: Preliminary Project Overview Table

T2050 Partner	Project description	Project objectives	Relation to Climate Action Plan/ Targets
Brampton Tower Efficiency and Resilience Initiative	>The purpose of the Tower Efficiency and Resilience Initiative is to encourage and facilitate the delivery of revitalization work that increases resilience and energy and water efficiency, while also helping address local health and well-being priorities and achieve community benefits within the tower community.	<ul style="list-style-type: none"> • Climate resilience and building efficiency • Growing, preparing food • Active, healthy living • More trees, green infrastructure • Connections between towers, shared uses • Eco-construction methods • Community building, local employment, skills training 	>Aligns with the City of Brampton's Community Energy and Emissions Reduction Plan goals and targets, including: >Reduce community wide energy and by at least 50% from 2016 level by 2041. >Achieve a 35% residential sector energy efficiency gain from 2016 levels by 2041. >Achieve a 34% residential sector water efficiency gain from 2016 levels by 2041.
Vaughan HERO Project (Residential retrofit program- Phase 1)	>Program accelerates deeper multi-measure sustainability and energy conservation retrofits using workshops to increase homeowner awareness, interest, desire, and action.	>Encourage home retrofits and actions. >Customize retrofit programs for the needs of specific neighbourhoods. >Customize to address priorities and main obstacles for implementing renovations. >2 cohorts a day targeting 100 homeowners across Vaughan using an online tool to select retrofits.	>Reduce GHG emissions of residents and businesses from 5 tonnes per capita in 2013 to 4 tonnes per capita in 2031. >Current plan to update the MEP will identify strategies to further reduce per capita GHG emissions to between 2-3 tonnes per capita.
Hamilton	>Project is still in development stages. Baseline and target urban forest coverage will be established in the action plan. Planning to utilize engagement work in 2020 to	>Increase canopy cover. >Complete an inventory of street trees.	>CCAP is under review. >Climate reduction targets: net zero emissions by 2050.

	deliver pilot tree planting program and connect climate impacts.		
Peterborough Customized Home Retrofit Video Series and Live Q&A sessions	<p>>Develop series of videos with DIY home retrofit actions relevant to the neighbourhood's building stocks, and residents' priorities and preferences.</p> <p>>Hold Live Q&A sessions with a specialized contractor, where residents can listen to and build on their neighbours comments for similar homes.</p> <p>>Because Kawartha Heights neighbourhood homes are also typical of the building stock in the rest of urban Peterborough, the videos will also be shared city-wide.</p>	<p>>Teach residents DIY home improvement projects.</p> <p>>Increase efficiency of the participants homes.</p>	>Aligns with climate reduction targets to lower residential energy by 30-50% by 2031.
Markham	>Plan is still under development.		
Mississauga Tower Demonstration Project, Webinar Series	<p>>Tower Demonstration project at three multi-unit residential buildings (MURBs) to showcase sustainable revitalization, climate change resilience, and community benefits.</p> <p>>A webinar series for mid-sized property owners and managers that addresses energy and resilient design and retrofits.</p>	<p>>Demonstrate the business case for retrofitting buildings.</p> <p>>Showcase innovation in technology and behavior change. Additionally, test new technologies and processes.</p> <p>>Increase awareness about energy and resilient design and retrofitting.</p> <p>>Connect owners and managers to resources that may assist in implementing retrofits.</p>	<p>>CCAP goal to reduce GHG emissions 80% below 1990 levels by 2050.</p> <p>>CCAP goal to increase resilience and the capacity of the city to withstand and respond to current and future climate events</p> <p>>CCAP action to promote building envelope upgrades in residential, commercial, and industrial buildings.</p> <p>>CCAP action to work with industry and businesses to support initiatives to</p>

		<p>>Improved water and energy efficiency, improved waste management, stormwater management, natural systems, and urban forests. Increase in active living and food production. Reduced GHG emissions.</p>	<p>decrease emissions and enhance resilience.</p> <p>>Webinar series can address a number of actions in the CCAP depending on topics chosen (e.g., encourage the use of low carbon heating and cooling technologies)</p>
<p>Caledon</p> <p>GreenBiz Caledon</p>	<p>>The project aims to support local businesses in setting and achieving sustainability goals through engagement resources.</p>	<p>>Build capacity among businesses to develop and implement climate action plans to reduce energy, water, and waste.</p> <p>>Educate and raise awareness among businesses of the benefits of addressing climate change in operations.</p> <p>>Support the development of the business action plans.</p> <p>>Retrofit 5-10 Caledon businesses.</p>	<p>>CCAP is currently being updated.</p> <p>>New target recently adopted to reduce emissions to net zero by 2050.</p>
<p>London</p> <p>Sustainability program implementation</p>	<p>>Develop local capacity to organize and execute sustainability programs at the residential/business level.</p> <p>>Create a means to celebrate and share knowledge of sustainable practices.</p>	<p>>Select specific sustainability projects that work at the neighborhood level to offer to decrease GHG emissions.</p> <p>> Engage with at least 10 businesses. Support environmental objectives of the businesses. Decrease the environmental impact of the businesses.</p>	<p>>CCAP is still in development.</p> <p>>Commitment to net zero emissions by 2050. Reviewing current 2030 target to reduce emissions by 37% below 1990 levels.</p>
<p>Guelph</p> <p>Energy Management System comply to the ISO 50001:2018 Standard.</p>	<p>> Update Energy Management System to comply with the ISO 50001:2018 Standard by leveraging existing energy management elements, adopting global best practices, and supporting the community net zero goal.</p>	<p>>Compliance with ISO 50001:2018 standard.</p> <p>>Strengthen organizational culture.</p> <p>>Reduction in carbon emissions as per net zero commitments.</p>	<p>>Corporate 100% Renewable Energy by 2050 (100RE) target.</p> <p>>Community Net Zero Carbon by 2050 goal.</p>