Keeping Track
Measuring Progress Toward the UN Sustainable Development Goals

Global Affairs Canada
Affaires mondiales Canada

BCCIC
Moving Toward a Better World
The BC Council For International Cooperation

The British Columbia Council for International Cooperation is a network of civil society organizations and individuals moving toward a better world based in British Columbia, Canada. Through coordinating this report BCCIC hopes to contribute informed and reputable voices from civil society into the critical debate on Canada's role in developing and achieving the Sustainable Development Goals (SDGs). BCCIC asked the many authors and contributors their opinion on four key questions. Each question addresses one of the proposed goals. These four questions, tackled from a variety of authors, from a number of organizations and backgrounds, are key to understanding Canada’s role and potential in relation to the Sustainable Development Goals.

For more information on BCCIC or this report go to: bccic.ca
Or contact us:
#550 - 425 Carrall Street, Vancouver, B.C., V6B 6E3
Phone 604-899-4375

Produced with the support of Global Affairs Canada. All intellectual content including omissions and errors remains the responsibility and property of the BC Council for International Cooperation.
# The Sustainable Development Goals

| Goal 1 | End poverty in all its forms everywhere. |
| Goal 2 | End hunger, achieve food security and improved nutrition and promote sustainable agriculture. |
| Goal 3 | Ensure healthy lives and promote well-being for all at all ages. |
| Goal 4 | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. |
| Goal 5 | Achieve gender equality and empower all women and girls. |
| Goal 6 | Ensure availability and sustainable management of water and sanitation for all. |
| Goal 7 | Ensure access to affordable, reliable, sustainable and modern energy for all. |
| Goal 8 | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. |
| Goal 9 | Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. |
| Goal 10 | Reduce inequality within and among countries. |
| Goal 11 | Make cities and human settlements inclusive, safe, resilient and sustainable. |
| Goal 12 | Ensure sustainable consumption and production patterns. |
| Goal 13 | Take urgent action to combat climate change and its impacts. |
| Goal 14 | Conserve and sustainably use the oceans, seas and marine resources for sustainable development. |
| Goal 15 | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. |
| Goal 16 | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. |
| Goal 17 | Strengthen the means of implementation and revitalize the global partnership for sustainable development. |
The Global Goals for Sustainable Development - Quotes from Student Writers

Introduction and Acknowledgements

Goal 1 - End poverty in all its forms everywhere.

Goal 2 - End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Goal 3 - Ensure healthy lives and promote well-being for all at all ages.

Goal 4 - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

Goal 5 - Achieve gender equality and empower all women and girls.

Goal 6 - Ensure availability and sustainable management of water and sanitation for all.

Goal 7 - Ensure access to affordable, reliable, sustainable and modern energy for all.

Goal 8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Goal 9 - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

Goal 10 - Reduce inequality within and among countries.

Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable.

Goal 12 - Ensure sustainable consumption and production patterns.

Goal 13 - Take urgent action to combat climate change and its impacts.

Goal 14 - Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Goal 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Goal 16 - Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Goal 17 - Strengthen the means of implementation and revitalize the global partnership for sustainable development.
“Canada can be the first country to take an active lead in promoting the SDGs as fundamental cornerstones of development applicable to all countries the world over.” - Dylan Tent

“For taking the lead, the government needs to take action. For taking meaningful action, citizens need to buy into the Canadian government’s plan. Bottom-up consultations, inclusiveness and extensive outreach are then a necessary step forward.” - Laura Barluzzi

“Canada can lead in measuring its progress towards achieving the health SDG by ensuring that civil society and government develop an appetite for broadening the health indicators to be inclusive of all individuals, for without data and evidence there is no incentive to acknowledge and act on improving health.” - Annalise Mathers

“Canada must take the lead amongst developed countries in investing in quality, reliable, local data in order to truly address inequalities within industrialized nations that are hidden in national statistics.” - Keanna Driedger

“We have the capability, we just need commitment.” - Alexandra MacDonald

“Canada can lead by internalizing an ethic that safe, quality water and sanitation is valuable for our survival and future generations as well as collaboratively finding that common ground on all levels of society and government, so that implementing concepts to tackle its specific water issues can be achieved despite its challenges.” - Sara Wilkinson

“By leveraging the vast knowledge base in Canada and consulting with civil society experts, in addition to taking into account the diverse perspectives across our country, Canada can be a leader in progressing toward and achieving the SDGs. Multilateral engagement is the key to solving our pressing energy challenges and identifying sustainable solutions.” - Morrell Andrews

“Achievement is dependent on results, and for results, you need updated data and a well-developed census. If Canada has the results, we can achieve anything.” - Sarah Neubauer
“The SDGs represent a new age and agenda in international development, policy, and practice. For Canada to take the lead in measuring its progress towards achieving the SDGs, it must leverage its strengths and look towards increasing stakeholder representation and participation at all levels.” - Hugo Wu

“Canada must actively seek measures that establish trends in extreme inequality: who are the ones making gains, the ones falling behind, and how consistent is this pattern?” - Ava Ashrafian

“Canada can lead the way by making its indicators accessible and open to everyone, and therefore allowing itself to be held accountable to both the commitments and the spirit of the Sustainable Development Goals.” - Moira Warburton

“The shift to SCP patterns implies increasing efficiency and productivity throughout the supply chain and the life cycle of the products, now and over the long-term. Canada is expected to strengthen capacity building related to data collection, and to provide an initial assessment of what is required to modify the current SCP system.” - Annie Wang

“Canada can utilize its data collection capabilities to assist other countries in developing similar systems.” - Ksenia Orehova

“It is time for Canada to commit to the development of innovative and robust indicators to most efficiently track its progress towards protecting its forests and biodiversity” - Kitaek Kim

“Canada needs to refocus attention to improving means of measuring its progress towards the SDGs by actively supporting structures in place to collect significant data that will identify areas of need.” - Lindsay Wong

“Canada has the opportunity to be a leader on SDG 16 by creating a regulatory agency designed to investigate and supplement data on domestic and international peace and justice.” - Daniel Lone

“With such a wide menu of goals, it’s easy to inflate the sense of progress. But to stay accountable, Canada needs to commit; it needs to define where its money for international assistance is going, and show that the money is producing commensurate results. Canada needs to focus.” - Cherrie Lam
The Sustainable Development Goals represent the pinnacle of our species ambition. The seventeen goals and 169 targets represent a hard won ethos of global stewardship. They are an integrated expression of compassion for each other, our potential to live life fully and to protect life on earth. Universal in nature and most definitely aspirational, they apply to “everyone everywhere”. All of them are time bound and expected to be measurable. Civil society has long argued that politically lofty statements are useless without timelines and measurable targets. But measuring progress is tricky in a world of multiple variables and unclear cause and effect. Exactly what kind of measurement can we use to indicate that we are achieving what we want when it comes to systemic changes and overarching goals?

Indicators must provide a way to measure the change that we seek. Determining a good indicator is not as simple as it sounds. Many of the goals, like poverty eradication, or gender equality require us to admit our cultural perspective and context. What exactly is our definition of poverty or equality and how could it be measured? The international definition of extreme poverty has long been tagged at $1.25 day, which in a Canadian context makes no sense. Yet there are poor people in Canada many of whom are living in dire conditions.

Keystone indicators are often used to measure ecosystem health because there is a need to simplify our measuring system. Many of the global goals are about systemic ecosystem health such as life under water or terrestrial ecosystems. Here in British Columbia, for example, it has been argued that a coastal ecosystem can be considered healthy if certain species are surviving. Their very survival requires a level of ecosystem health that will indicate many other key measurements are in place. If grizzly bears and salmon are doing well, for example, it is arguable that our water and terrestrial ecosystems probably are as well. Amphibians and other delicate species can also be used to indicate systemic health because they are so sensitive to air pollutants or contaminants. But how does one measure systemic health when it comes to justice or climate change?

Ideal indicators, from the perspective of civil society, are also accessible to the public and reliable or cost effective. The source of the data also needs to be trustworthy and verifiable and most of all an indicator needs to make common sense. It needs to be translatable to the public and the media.

A year ago the British Columbia Council for International Cooperation set out to ask four questions about the Sustainable Development Goals largely examining Canada’s performance and strategic advantage. At the time the goals were still being negotiated. We published a report called Keeping Score, which was a civil society inquiry into how Canada is strategically positioned on each of the SDG goals. This year we asked thought leaders in Canada how we could measure progress on the SDGs. We took both Canada and the United Nations seriously when it came to engaging youth by directly involving them in this question. Each young person was asked to solicit the expertise of at least one thought leader in Canada on the determination of an appropriate indicator to measure Canada’s leadership regarding each of the SDG goals. They were also asked to take a civil
society perspective on what makes a good indicator and they were asked to determine indicators that worked to measure Canada’s performance both domestically and internationally. Unlike our first report on the SDGs they were not asked how Canada is performing but how best Canada could measure performance.

The task was not an easy one and we are proud of what youth in British Columbia and thought leaders around the globe have come up with. While a global framework for measuring the SDGs has been developed, Canada and all countries around the world are now wrestling with how to apply these indicators nationally. How do global indicators relate to the diversity of national and local contexts? Given the challenges these questions present, the authors and the expert they interviewed for this report are clearly taking a thought leadership role. Are they correct in their assumptions? Does BCCIC endorse their opinions? At this point in the debate the question of indicators is still being discussed so our hope is that this report will stimulate discussion rather than being conclusive. What is our impact as a multilateral actor or as global citizens? Given the challenges these questions present, the authors and experts interviewed for this report are clearly taking a thought leadership role on these important topics. Indeed, the reader will quickly discover that the report brings up as many questions as it attempts to answer and is in fact an invitation for greater debate and dialogue.

We are particularly grateful to the many young authors who buried themselves for a few months in this task. We are equally grateful to the many thought leaders who supported this research. Special thanks are also due to Dan Harris, our Program Officer who led this initiative. The research methodology of reviewing current literature, exploring goals that have only just come into effect, and determining a way to measure progress under a tight timeline, were all challenges for the research team. We would also like to thank UBC's Centre for Community Engaged Learning program for their continued contributions to our research projects at BCCIC and to our staff and interns who took this program on with such enthusiasm. Also special thanks to those authors who stayed on to form the editing team and who ensured that the report was delivered on time and to the required standard.

We would like to express our thanks to Global Affairs Canada for their continued support of the BC Council for International Cooperation without which this report would not have been possible while also acknowledging that the responsibility for the intellectual content contained in this report, including omissions and errors, lies with the Council.

Michael Simpson
Executive Director, BCCIC

The Editing Team:

Hugo Wu  Sarah Neubauer  Laura Barluzzi  Moira Warburton  Keanna Driedger  Ava Ashrafian  Daniel Lone
**An Indigenous Approach to Sustainable Development Indicators:**
**Gitanyow Socio-Cultural Needs Assessment and Major Development Projects**

**Introduction**

In introducing Tara’s article, BCCIC would like to emphasize that the UN Sustainable Development Goals (SDGs) present an opportunity for global progress towards a world where ecological health, social well-being and economic prosperity are possible and most importantly where the connection between these different aspects of sustainable development are recognized and honored.

Moving from a global agenda to on the ground action will require locally and culturally appropriate targets and indicators for directing and measuring progress toward the SDGs. The work of the Gitanyow Simgigyet’m (Hereditary Chiefs) through the development of their Socio-Cultural Needs Assessment provides an example of how the local development of indicators and targets for sustainable development can harmonize with the SDGs and connect this framework to the realities of Indigenous nations.

**The Gitanyow**

Gitanyow Simgigyet’m (Hereditary Chiefs) on behalf of the Gitanyow Huwilp (collective population) have protected and defended the Lax’iyip (territory) for millennia, and have managed the lands and resources in a manner that sustains the Huwilp population as well as newcomers. The Gitanyow are an Indigenous nation, who hold Aboriginal rights and title, protected under Section 35 of the Canadian Constitution.

While not recognized entirely by the Canadian governments, Gitanyow governs itself and the Lax’iyip through several governance instruments including: the Gitanyow Constitution; the Gitanyow Lax’ip Land Use Plan; the Gitanyow Cultural Heritage Management Policy; the Gitanyow Cedar Management Plan; the Gitanyow Ecological Risk Assessment (2010, 2015); and the Gitanyow Socio-Cultural Needs Assessment (2010, 2015).

While Gitanyow has consistently drawn on the Canadian Constitution, and other legal precedents in Canada regarding Aboriginal rights and title, to advance our vision of Wilp Sustainability, until very recently we were not aware of the UN Sustainable Development Goals. Learning about them and how they were developed, we see many linkages to the work that we do at a community and Wilp level in terms of protecting our Lax’iyip for future generations, while still promoting some development which allows for our Wilp members to thrive and access education, training and meaningful employment.

**The Sustainable Development Goals and the Gitanyow Socio-Cultural Needs Assessment**

One of the most interesting aspects of the SDGs is how remarkably similar the goals and targets are to those identified in the Gitanyow’s own Socio-Cultural Needs Assessment (SCNA). In assessing how the federal Canadian government might...
embark on tracking its progress towards achieving the SDGs and targets, the Gitanyow’s experience with the SCNA is an example of how Indigenous groups such as ours could lead the process at a small-scale by defining locally and culturally appropriate indicators for measuring progress towards the SDGs.

Beginning in 2010, the Gitanyow Hereditary Chiefs Office (GHCO) undertook an initiative to complete a Socio-Cultural Needs Assessment to inform land and resource decision-making on major projects affecting the Gitanyow Lax’ip (Territory). The SCNA is a community-driven assessment of the existing socio-cultural baseline, and the current socio-cultural needs of the Gitanyow Huwilp.

Both in 2010 and 2015, an extensive survey was completed of Gitanyow Wilp members asking them questions about education, employment, health care, housing, youth and community services, Elders care, traditional knowledge and skills, traditional foods consumption, and the feast system and traditional governance. In addition, the survey sought to gather basic population data (age, gender, and community of residence).

The SCNA is distinct from such studies led by the proponent/companies that seek to gather similar information for government-led environmental assessments. First, the SCNA gathered information from Gitanyow Wilp members, not from Gitanyow Indian Band members, or those who reside on Gitanyow Indian Reserves. The Wilp (House Group) is the central governance structure for the Gitanyow. Eight Gitanyow Wilp are organized into two main Clans, and are known collectively as the Huwilp. Second, the scope of the SCNA includes key contributors/indicators to social and cultural well-being that are not found in proponent/government led studies, such as traditional skills and knowledge, traditional foods consumption and participation in the feast system. As a community-driven assessment, the scope and indicators have been determined solely by the Project Team, Gitanyow Chiefs, and Project Steering Committee, informed by research and research experience of the Project Team.

A Cursory Analysis Comparing the UN Sustainable Development Goals and Targets & the Gitanyow Socio-Cultural Targets
In addition to assessing the baseline for numerous socio-cultural indicators, the Gitanyow Socio-Cultural Needs Assessment also provided targets for post-development. The impetus of the Hereditary Chiefs was that we need to be able to assess, monitor and track whether or not there are actual measurable net benefits from a major development project, and if not, have a management mechanism in place to take corrective action. Along with the targets, the SCNA report made several recommendations on ways to work with the proponent and both levels of government to ensure the targets are met.

Comparing the SCNA and SDGs targets revealed a considerable overlap especially in regard to SDG 1 (End Poverty), SDG 2 (End Hunger), SDG 3 (Healthy Lives and Well-being), SDG 4 (Quality Education), SDG 8 (Economic Growth and Decent Work for All) and SDG 14 (Protect, restore and promote sustainable use of terrestrial ecosystems). An example of these correlations is provided in the tables below:
### An Indigenous Approach to Sustainable Development Indicators: Gitanyow Socio-Cultural Needs Assessment and Major Development Projects

<table>
<thead>
<tr>
<th>Sustainable Development Goal 1: End Poverty in All Forms Everywhere</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relevant Target:</strong> By 2030, reduce at least half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.</td>
<td><strong>Relevant Target:</strong> By 2030 ensure that all men and women, particularly the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership, and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services including microfinance.</td>
</tr>
</tbody>
</table>

**Gitanyow Socio-Cultural Needs Assessment Targets**

- A net increase in all types of employment levels for Gitanyow Wilp members (part-time, full-time, and seasonal).
- A net decrease in the number and prevalence of employment barriers identified by Gitanyow Wilp members.

### Sustainable Development Goal 2: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture

| Relevant Target: By 2030 end hunger and ensure access by all people, in particular the poor and people in vulnerable situations including infants, to safe, nutritious and sufficient food all year round. | Relevant Target: By 2030 double the agricultural productivity and the incomes of small-scale food producers, particularly women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and opportunities for value addition and non-farm employment. |

<table>
<thead>
<tr>
<th><strong>Gitanyow Socio-Cultural Needs Assessment Targets</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A net increase in the percentage of Wilp members who are satisfied with the amount of traditional foods their families consume.</td>
<td>A net decrease in the barriers to obtaining traditional foods identified by Wilp members.</td>
</tr>
</tbody>
</table>

### Sustainable Development Goal 3: Ensure Healthy Lives and Promote Well-being for All at All Ages

| Relevant Target: Strengthen prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol. | Relevant Target: Achieve universal health coverage, including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all. |

<table>
<thead>
<tr>
<th><strong>Gitanyow Socio-Cultural Needs Assessment Targets</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A net increase in personal health ratings (How Would You Rate Your Health?) by Gitanyow Wilp members.</td>
<td>A net decrease in the number and prevalence of health needs identified by Wilp members.</td>
</tr>
<tr>
<td>A net decrease in rates of chronic and serious illness among Wilp members.</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the similarities with the SDGs mentioned, there are also numerous other correlations, specifically around environmental protection, which are captured in other reports related to the Gitanyow Lax’yip Land Use Plan. In further understanding how the SDGs relate to Gitanyow’s assessment of socio-cultural impacts and benefits from major development projects, it is important to emphasize that indicators around access to healthy traditional foods such as salmon, moose, berries and medicines is also an indicator of overall ecosystem health. Where our people indicate that access is limited or decreased, we know that something is impacting the ecosystem and corrective action must be taken. In this way, Indigenous socio-cultural well-being is directly linked to ecosystem function and sustainability. The link between ecological sustainability, social well-being and economic prosperity is also emphasized in the SDGs and another area where the SDG and SCNA frameworks overlap. To conclude, this fact alone warrants special attention in how Canada and the UN propose to track progress towards on the UN Sustainable Development Goals.
Goal 1:
End poverty in all its forms everywhere.

Thought leader interviewed:

**Alice Sundberg**

Alice Sundberg is a housing and community development consultant based in Vancouver BC. Alice has been involved in social housing advocacy, education and development since 1981, including 16 years as a Development Consultant for co-op and non-profit housing, 11 years as the Executive Director of the BC Non-Profit Housing Association (BCNPHA), and 6 years as the Co-Chair of the Metro Vancouver Regional Steering Committee on Homelessness.

She has been an adult educator since 1987, facilitating community consultations and workshops, leading strategic planning sessions, and delivering non-profit board orientation and training sessions. She has been the part-time Coordinator for the Surrey Poverty Reduction Coalition, formerly Vibrant Surrey, since 2010.
### Targets

| 1.1 | by 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day |
| 1.2 | by 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions |
| 1.3 | implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable |
| 1.4 | by 2030 ensure that all men and women, particularly the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership, and control over land and other forms of property, inheritance, natural resources, appropriate new technology, and financial services including microfinance |
| 1.5 | by 2030 build the resilience of the poor and those in vulnerable situations, and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters |
| 1.a | ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation to provide adequate and predictable means for developing countries, in particular LDCs, to implement programmes and policies to end poverty in all its dimensions |
| 1.b | create sound policy frameworks, at national, regional and international levels, based on pro-poor and gender-sensitive development strategies to support accelerated investments in poverty eradication actions |
It is important to consider the various Canadian and international groups and demographics affected by poverty when formulating a set of reliable indicators to measure Canada’s progress towards ending poverty. Measuring the population below the poverty line fails to account for those who suffer the most, as well as those who are not only below the poverty line but also far below it in conditions of extreme poverty. To examine this, a measurement of what percentage of the population spends 50% or more of its income solely on shelter provides an indication of those suffering in particularly extreme conditions.

Aboriginal peoples are among those with the worst incidence of poverty in Canada, and a broad measure of those below the poverty line - adjusted for regional living wages with a market basket measure- should focus on Aboriginal welfare as one of its primary indicators. This is consistent with indigenous peoples around the world, who suffer disproportionately from poverty worldwide. Single parents (especially women), who are forced to survive on one income are another group to be accounted for when considering the limitations of a standard ‘below the poverty line’ measurement. This can be measured as a percentage of the total population of a given area, or as a number per x population, depending on the size of the region being measured.

Incidence of homelessness and unemployment are valuable indicators at any scale, represented as a percentage of the total population, as well as the rates of income assistance, disability assistance, and pensions - in other words, a measure of societal response to poverty in Canada. Access to healthcare, social services and affordable childcare for at-risk groups, such as the aforementioned single parents and Aboriginal families, but also refugee households and those with disabilities (among others), measures both a percentage of those in poverty and the capacity of a given society to care for them by measuring what percentage of those at risk (below the poverty line) have used a given service within the past year.

Measuring Canada’s progress abroad takes the form of measuring funding devoted towards the eradication of poverty internationally, such as how much of Canada’s GNI contributes to development assistance abroad. To balance this output with an input, poverty indicators must also be measured in countries where Canada has committed to reaching development targets - luckily, the indicators outlined here are easily applicable across international boundaries and can be used to measure the progression of eradicating poverty abroad as well as in Canada.

The main problem of measuring poverty indicators is that no one definition of ‘poverty’ exists, and that any measurement - local, national, or international - deals with different sets of living conditions, wages, costs and currencies. There is no absolute definition or number that can be applied to all areas equally to indicate poverty accurately; therefore, all indicators must factor in a realistic market basket measure by which to measure a standard of poverty that is reasonable for each area, including consideration towards a given area’s median income and an appropriate livable wage. A distinction must also be made between income assistance and actual income, as those in poverty can be receiving additional support that may or may not surpass (or adequately supplement) the income that they receive through their occupation.

The strength of these indicators is that they are easily applicable across national and international boundaries, being very broadly indicative of poverty and its conditions while remaining easy to adapt to varied regional factors. They also rely on data that is readily accessible and regularly monitored, in some cases yearly and others as often as on a monthly basis. This allows for a comprehensive and up to date measurement of the indicators’ progress wherever they are applied, and thus provides useful for civil society. However, it stands to reason that some developing countries may not have the same capacity for census taking and data collection as Canada does. In countries where Canada’s aid contributions form part of the effort to stamp out poverty, it may be difficult to accurately measure Canada’s contribution insofar as it is efficiently used for its intended goals.
Canada’s potential is dependent on the indicators that we use to measure progress. As previously mentioned, incidence of homelessness is a valuable measurement of poverty. In the past, homelessness has been difficult to capture numerically; today, however, communities across the country are using "point in time" counts to determine the number of people who are without shelter on a given night.¹ Point in time counts, according to Employment and Social Development Canada, are intended to "enumerate individuals in a community who are, at a given time, staying in shelters or 'sleeping rough' (e.g., on the street, in parks), providing a ‘snapshot’ of homelessness in a community."² Advocates point out, however, that these enumerations are typically undercounts, and should be considered most useful to track trends among homeless populations.

From a measurement perspective, completing point in time counts on a frequent basis provides an excellent measurement for civil society, as it is easily accessible through the government and measures progress throughout time. If the Canadian government continues to provide funding for this project, there is a strong potential for Canada to identify trends in homelessness and develop a policy to eradicate it. Moreover, the elimination of the mandatory long form census in 2011 was a setback to Canada’s ability to accurately measure its indicators of poverty, among other statistics, though the current Liberal government has plans to restore it. The restitution of the census will strengthen existing indicators, as it will provide the socio-economic characteristics of those who live in poverty. These statistics are especially important for members of civil society to determine trends in poverty.

Tackling poverty requires applying a set of criteria and indicators appropriate for each area, whether it be a region of Canada, the country itself or internationally.

- The indicators must use provincial and regional data to create a market basket measure that accurately reflects the conditions of each area, using measurable criteria such as the median income for the area and an appropriate living wage - factors that cannot be generalized based on an all-encompassing set of criteria or standards.
- This will require a concerted effort to boost grassroots engagement at a community level, as well as a larger poverty reduction framework by provincial and federal policymakers that has a definitive set of goals, deadlines and a commitment to valid indicators.
- The Canadian government should coordinate with communities to pursue "point in time" counts of homelessness over an extended period of time, in order to track homelessness and potentially curb it.
- Canada will need to increase its contributions to development aid to reach agreed upon global standards, as well as rely on a system of tracking its usage in these countries to ensure that it is adequately fulfilling its goal of ending poverty. An effort to increase transparency and the availability of data in all such locations will give Canada a better picture of its contribution to this SDG abroad, and allow the practical implementation of efficient indicators.

References


This article was written by Dylan Tent based on their own research and drawing primarily on an interview with Alice Sundberg, a key thought leader in this field.
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Thought leaders interviewed:

**Charles Levkoe**
Charles Levkoe is a Postdoctoral Fellow in the Department of Geography and the Environmental Studies at Wilfrid Laurier University, an Adjunct Research Professorship in the Department of Geography and Environmental Studies at Carleton University and is a Research Associate at the Centre for Sustainable Food Systems. His community engaged research focuses on efforts to build a more sustainable and just food system and the ways that social movements address issues of food sovereignty. This work considers the role of grassroots organizations, their connection to place and their ability to mobilize across scales.

**Sean Smukler**
Sean Smukler is an Assistant Professor in Applied Biology & Soil Science and the Junior Chair, Agriculture and the Environment for the Faculty of Land and Food Systems at the University of British Columbia. His research currently focuses on quantifying biodiversity and ecosystem services in agricultural landscape across a wide range of agroecological and socioeconomic conditions. Sean received a PhD in Ecology from the University of California, Davis where he also did his undergraduate studies. He holds a MSc. in Forest Soils from the University of Washington, Seattle.
<table>
<thead>
<tr>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.1</strong></td>
</tr>
<tr>
<td><strong>2.2</strong></td>
</tr>
<tr>
<td><strong>2.3</strong></td>
</tr>
<tr>
<td><strong>2.4</strong></td>
</tr>
<tr>
<td><strong>2.5</strong></td>
</tr>
<tr>
<td><strong>2.a</strong></td>
</tr>
<tr>
<td><strong>2.b</strong></td>
</tr>
<tr>
<td><strong>2.c</strong></td>
</tr>
</tbody>
</table>
In identifying the most appropriate indicators for the goal, this article will focus on three areas of key relevance for Canada: domestic food insecurity, sustainable agriculture, and development assistance (Stuart, 2016).

According to Charles Levkoe, author of *The Food Movement in Canada: A Social Movement Network Perspective* (2014), one of the primary sources of data for measuring food insecurity is the Household Food Security Module (HFSSM) in the Canadian Community Health Survey (CCHS). This national statistic is collected annually through self-reported household surveys comprised of 18 questions. The HFSSM focuses on accessibility and availability of food in relation to household incomes. Food Banks Canada also provides useful data on food bank usage across the country; for instance, according to their *HungerCount* report (2015), about 852,137 people received food from food banks in March 2015. Another useful indicator is the National Nutritious Food Basket (NNFB), which is regionally collected to monitor the cost and affordability of healthy eating. All this data is mainly available at a national and provincial scale. Levkoe highlighted that academics and Civil Society Organizations (CSOs) also collect and provide data at various scales. For example, the PROOF project analyses national food insecurity data while projects such as FoodARC and Paying For Nutrition engage in participatory food costing initiatives in Nova Scotia and northern Ontario.¹ Furthermore, Levkoe said that many other statistics collected at the national level are necessary to get a full picture of food insecurity such as income, poverty levels and food prices.

Statistics Canada collects a large amount of data that has been used to develop indicators that measure agricultural sustainability. Most of these measures are designed to assess the sustainability of agricultural production and provide a better understanding of the management choices of farmers and ranchers. Some of these indicators can be found in the Agricultural Water Survey and the Farm Environmental Management Survey, among others. According to Sean Smukler, author of *Agriculture and climate change: Monitoring, reporting, and verification methodologies for agriculture, forestry, and other land use* (2015), the most comprehensive collection of indicators for measuring sustainable agriculture is the Agriculture and Agri-Food Canada report Environmental Sustainability of Canadian Agriculture (2010). This report provides an extensive analysis and a full suite of indicators. For example, the Soil Organic Matter and the Greenhouse Emission indicators are included to provide information on how the sector may contribute to or mitigate climate change. This report focuses on national levels, and it is useful for informing national policy-making. If it is scaled down to the provincial level, Smukler said that it becomes less useful and at a sub-provincial level its application becomes challenging. The main reason for this limitation is due to the fact that at the national level some locally meaningful indicators have not been included. It is unclear to Smukler if the Canadian suite of indicators is appropriate for international tracking. However, Smukler did identify attempts at building internationally meaningful sustainable agriculture indicators. For instance, the World Resources Institute (WRI) produced the working paper *Indicator for Sustainable Agriculture Scoping Analysis*(2014a) that reviews a wide range of indicators of different organizations, through a thorough inventory of all the indicator systems available. Some other organizations are the Food Agriculture Organization (FAO), the Global Alliance on Climate-Smart Agriculture (GACSA) and the Organisation for Economic Co-operation and Development (OECD).

The most appropriate way to measure Canadian international assistance for SDG 2 is by calculating the percentage of Overseas Development Assistance (ODA) focused on SDG 2 targets. A very accurate source is the *Statistical Report on International Assistance* (2014), annually produced by Global Affairs Canada (GAC). In the report it is possible to find the breakdown of the ODA by sector, such as by ‘food aid/food security programs’. Another appropriate way to measure international assistance is by counting the number of partnerships with relevant organizations and research, such as the WRI and the GACSA. In this regard, Canada is one of the 23 member countries of the GACSA, which is an international attempt to address the connection of climate change, agriculture, and food security. Canada also partners with FAO, the World Food Programme, and the OECD. However, Canada does not support the WRI, which is funded by France, Ireland, USA, UK, Sweden, Singapore, Korea, Jamaica, Norway, and others (WRI, 2014b: 30).

From a Canadian perspective what are the most appropriate indicators for addressing this goal and how can it be framed from a local, vs national, vs international scale?
From a civil society perspective, federal food security statistics, such as the HFSSM and the NNFB, are generally rigorous, reliable, accessible and affordable. CSOs can easily compare the data over time as they are regularly collected. However, this data tends to misrepresent some geographic regions and populations. For example, surveys do not include indigenous and homeless people, who represent sections of society facing the highest levels of food insecurity. Another weakness is that sometimes it is difficult for CSOs to access the breakdown, as special permissions may be required. The data collected by Food Banks Canada may be useful, but their percentage often underestimates the problem due to the fact that many people facing food insecurity do not use their services.

The strengths of participatory projects, such as the FoodARC, include providing space, voice and ownership to the people who face food insecurity. Consequently, this type of data is qualitatively valuable and it provides relevant information for CSOs in order to best understand specific sectors of the populations, such as indigenous communities, and to address meaningful actions. However, this data is expensive to collect and to monitor on a regular basis. Levkoe said that a general drawback of most of food insecurity indicators is that they do not speak to the underlying causes which are more about social and economic factors.

Levkoe said that a general drawback of most of food insecurity indicators is that they do not speak to the underlying causes which are more about social and economic factors.

The Environmental Sustainability of Canadian Agriculture report has been considered by Smukler as a very effective set of indicators for measuring sustainable agriculture. It is regularly collected through census programs, and the system for monitoring is well established. However, despite the report being publicly accessible to CSOs, Smukler mentioned it is not easily understandable to non-experts. In the report there is a shortage of accessible graphic information and there is not a clear categorization of the indicators. According to Smukler, another relevant weakness of these indicators is that they are ‘top-down’, framed at a national level. This affects farmers, landowners and CSOs in their ability to properly inform and monitor their work and the local land management.

The percentage of ODA by sector is overall a very useful indicator for CSOs. This data is produced annually and it also provides an accurate breakdown, allowing CSOs to regularly be updated and well informed. These numbers are relevant for both domestic and international CSOs; the report allows comparison with other countries due to the use of international standards (GAC, 2014). However, the Statistical Report on International Assistance does not immediately inform on how much Canada is giving towards SDG 2, since the framework of the SDGs has not yet been used to present ODA expenditure.

As one of the larger exporters of agricultural products and as the 10th richest country by GDP (IMF, 2016) Canada holds a key potential in measuring and achieving the targets both domestically and internationally.

In regard to food insecurity, Canada’s potential is confined domestically. This is because food insecurity is still a national problem, as proved by the existence of Food Banks. In 2012, this problem was publicly stated by Olivier De Schutter, the UN Special Rapporteur on the Right to Food (UN, 2012). At the time, the Canadian government was not responsive to Schutters’ suggestions. However, CSOs have continued to provide space for alternative solutions to the problem raised by the UN delegate. Levkoe believes that Canada's new government has the opportunity to address this national issue by consulting CSOs and academics and by addressing more comprehensive measurements of food insecurity.

In regard to sustainable agriculture, Smukler said that Canada has great potential. The Environmental Sustainability of Canadian Agriculture report is believed to be a very good example of sustainable agriculture measurement and monitoring. Canada has the chance of becoming a leader if the right improvements and investments follow. For example, Canada could improve the existing measurements by investing in the building of a suite of indicators that works efficiently at different scales: sub-provincial, provincial, and national. CSOs, farmers and landowners would benefit from a flexible and ‘bottom-up’ measurement of sustainable agriculture, and this may become the springboard opportunity for Canada to become a global leader.
Recommendations

- Canada should do extensive outreach for increasing awareness on the need to improve indicators for this goal;
- Canada should systematically invest in projects like PROOF, Food ARC, and Paying for Nutrition to strengthen knowledge and measurements on food insecurity in specific contexts;
- Canada needs to develop a comprehensive and meaningful measurement of food insecurity that addresses the underlying socio-economic and historical causes;
- Canada should develop a well thought through national food strategy and CSOs should be consulted and included in the whole process;
- Consultations with local experts in local land management and sustainable agriculture should be conducted for building a better multi-scale sustainable agriculture suite of indicators;
- In the next years the governments should increase funding for expert scientists and researchers involved in measuring and monitoring sustainable agriculture at sub-provincial levels;
- In 2017, Canada should apply the SDGs framework to visualize ODA expenditures;
- Canada should strive to become a leader in the development of globally effective indicators by investing in national scientific resources, by strengthening partnerships and by funding international research institutions.

References

¹ PROOF involves co-investigators from the University of Toronto, the University of Illinois at Urbana-Champaign, the University of Calgary, and the Centre for Addiction and Mental Health. The Food Action Research Centre or FoodARC is a research centre at Mount Saint Vincent University committed to research and action to build food security in Nova Scotia and beyond. Paying For Nutrition is a research project involving Mount Saint Vincent University, Lakehead University and Food Secure Canada.

This article was written by Laura Barluzzi based on their own research and drawing primarily on an interview with Charles Levkoe and Sean Smukler, key thought leaders in this field.
Goal 3: Ensure healthy lives and promote well-being for all at all ages.

Thought leader interviewed:

Sarah Kennell
Sarah is the Public Affairs Officer with Action Canada for Sexual Health and Rights, a progressive, pro-choice charitable organization committed to advancing and upholding sexual and reproductive health and rights in Canada and globally. As Public Affairs Officer, Sarah oversees Action Canada’s engagement with government officials and supports the work of the Canadian Association of Parliamentarians on Population and Development (CAPPD), for which Action Canada is the Secretariat. Sarah has held positions with the Youth Coalition for Sexual and Reproductive Rights, the Canadian International Development Agency, and Human Resources and Skills Development Canada. Sarah holds a Masters’ degree in International Development, Globalization and Women’s Studies and maintains memberships with Forum for Young Canadians and the Women’s Peace and Security Network-Canada.
<table>
<thead>
<tr>
<th>Targets</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>by 2030 reduce the global maternal mortality ratio to less than 70 per 100,000 live births</td>
</tr>
<tr>
<td>3.2</td>
<td>by 2030 end preventable deaths of newborns and under-five children</td>
</tr>
<tr>
<td>3.3</td>
<td>by 2030 end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases</td>
</tr>
<tr>
<td>3.4</td>
<td>by 2030 reduce by one-third pre-mature mortality from non-communicable diseases (NCDs) through prevention and treatment, and promote mental health and wellbeing</td>
</tr>
<tr>
<td>3.5</td>
<td>strengthen prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol</td>
</tr>
<tr>
<td>3.6</td>
<td>by 2020 halve global deaths and injuries from road traffic accidents</td>
</tr>
<tr>
<td>3.7</td>
<td>by 2030 ensure universal access to sexual and reproductive health care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes</td>
</tr>
<tr>
<td>3.8</td>
<td>achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all</td>
</tr>
<tr>
<td>3.9</td>
<td>by 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination</td>
</tr>
<tr>
<td>3.10</td>
<td>strengthen implementation of the Framework Convention on Tobacco Control in all countries as appropriate</td>
</tr>
<tr>
<td>3.11</td>
<td>support research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration which affirms the right of developing countries to use to the full the provisions in the TRIPS agreement regarding flexibilities to protect public health and, in particular, provide access to medicines for all</td>
</tr>
<tr>
<td>3.12</td>
<td>increase substantially health financing and the recruitment, development and training and retention of the health workforce in developing countries, especially in LDCs and SIDS</td>
</tr>
<tr>
<td>3.13</td>
<td>strengthen the capacity of all countries, particularly developing countries, for early warning, risk reduction, and management of national and global health risks</td>
</tr>
</tbody>
</table>
The indicators that are the most appropriate within the Canadian context of addressing the health SDG continue to be those related to maternal, newborn, and child health (MNCH) that have been widely used domestically and globally since the MDG agenda. At present, these indicators focus on:

- (3.1) maternal deaths per 100,000 live births and the proportion of births attended by skilled health personnel
- (3.2) under-5 mortality rate and neonatal mortality rate (deaths per 1,000 live births)

Canada’s progress as an international leader in this field is heralded by its commitment to the Muskoka Initiative in 2009 and the federally mandated agenda for 2015-2020 for MNCH. These projects contain indicators that declare Canada’s commitment to scaling up interventions by strengthening healthcare systems for women and children, increasing health care worker numbers, and monitoring progress through statistical databases.

Sarah Kennell of Sexual Health and Rights in Canada notes that the health SDG has broadened and become more inclusive of a comprehensive array of indicators and targets since the MDG agenda. Sarah believes that the above indicators surrounding MNCH are valid and reliable measures due to the long-standing use of these exact indicators domestically and internationally. Sarah also reflects on the need for the government to “develop an appetite” for addressing the narrow sexual and reproductive health indicators that form the fundamentals for health and are a new feature of the SDGs, focusing on:

- (3.7) the percentage of women of reproductive age (aged 15-49) who have their need for family planning satisfied with modern methods and the adolescent birth rate (aged 10-14; aged 15-19) per 1,000 women in that age group

Sarah cautions that “in the dominant worldview, what is measured is often what becomes real, so what kinds of indicators are chosen [and who they are chosen for], have real impacts on how concepts like sustainability, progress, and conservation get enacted”. Another barrier she notices is the multi-tiered construction of the health care system in Canada at regional, provincial and federal levels that contributes to significant policy and legal discrepancies in ensuring equitable health coverage and care for all Canadians.
At present, the standardized health indicators noted above surrounding MNCH have served quite well in tracking Canada’s progress. These indicators have been in place to guide data collection for over 20 years and preceded the MDG framework. The more current continuation into the SDG agenda suggests that there is a long-standing commitment to MNCH internationally that can be used to garner further support for the MNCH indicators within Canada moving forward. However, Sarah acknowledges several limitations of these indicators:

- The progress that Canada has made on MNCH has claimed – but not ensured – adequate tracking of program scale-up and strengthening, nor disaggregated, detailed, and long-term data collection.
- Sarah noted that health data for indigenous communities within Canada is greatly lacking and thus is unable to adequately reflect the enormous disparities that exist. As such, the health indicators as well as all SDG indicators must ensure that much greater emphasis is placed on ensuring that populations experiencing inequities are recognized and attended to. The collection and disaggregation of sexual and reproductive health data will provide a more nuanced perspective of health and the related SDGs not only for women and children, but for all individuals. Sarah notes that this issue should be a top agenda item at the First Ministers meeting addressing health in Canada, which will bring together Ministers across portfolios, including the Minister of Health Jane Philpott.
- Sarah describes the present indicators as “pigeon-holing sexual and reproductive health into a narrow focus [that] misses root causes”, such as the lack of attention to the contributing social determinants of health like gender, age, and socio-economic status that influence access to and quality of health care. She also recommends the incorporation of indicators that are inclusive of both male and adolescent sexual and reproductive health, as there remain serious knowledge-action gaps regarding inequities for health issues and populations among Canadians.

To address the health goal more holistically and inclusively, Sarah recommends the implementation of stronger qualitative data sources – such as focus groups and interviews – to support the predominantly quantitative measures currently used. She sees the development of databases that use greater data disaggregation as a means to monitor trends that reflect disparities in health status of Canadians, rather than using national statistical generalizations that do not reflect inequities among the population. From this, Canada will be able to identify what resources, services and methods can be scaled up to inform evidence-based practice for MNCH and sexual/reproductive health.
Canada has set a precedent with its progress in MNCH as a global leader ensuring a commitment to MNCH in the post-2015 development agenda consultation process and thus has great potential to continue to be a leader for the health SDG. Sarah notes that the Canadian Statistical Commission is highly regarded and advanced worldwide, but still has room to ensure that measuring sexual and reproductive health indicators is done more comprehensively and extensively.

In Canada, there has been much agreement to the “universality” of the SDG agenda, but Sarah suggests that civil society must take responsibility for drawing attention to the lingering inequities in data for sexual and reproductive health. The MNCH indicators provide very tangible and tried-and-true targets, backed by strong evidence collected for more than 20 years within Canada and therefore provide an excellent foundation that is accessible and affordable for civil society to pursue. She believes that linking this agenda more intimately with domestic health organizations to strengthen collaboration must also ensure meaningful space for civil society to influence development, implementation, monitoring, and evaluation of these sexual and reproductive health indicators mentioned above. Sarah thinks that the CCIC is best positioned in the international development community to help outline how best to integrate civil society across sectors to approach this agenda in Canada.

Most specifically, Sarah sees the greatest potential for Canada to address indigenous populations through disaggregated data improvement, noting that “as a Canadian demographic that continues to have poor sexual and reproductive health outcomes, indigenous persons [as well as] incarcerated and racialized communities are lacking the qualitative piece that is needed through data collection and disaggregation [in order to] to invest more holistically in health for all within Canada”. The financial burden of ensuring statistical data is relevant and inclusive will, like all initiatives, incur a financial burden initially. Sarah claims that investment is required to make Canada stand out as a leader in data collection and place greater focus on populations that experience inequities. As she describes, “without data, there is no way to develop programming to meet needs. The government and civil society require this evidence-based information in order to bring these issues into the public political sphere of discussion, policy making, and programming, but without evidence there is no incentive to acknowledge and act on improving health for these populations”.

In order for Canada to meaningfully pave the way forward with respect to the health SDG, Sarah suggests that the Government of Canada can initiate the consultation process for developing a national agenda strategy through collaborating with civil society and various Ministries. This will help to create strategies and priorities for data collection regarding the health target areas outlined above. Furthermore, it will also enable future implementation plans and the commitment of services and resources to appropriately address these issues.

Canada is coming to the table with strong commitment for indicators from the MDGs on child, newborn, and maternal health, but Sarah declares that we cannot silo issues to the extent that we only look at pregnant women. Instead, the indicators that Canada should pursue to measure its progress internationally and domestically are thus embedded in broadening the scope of the Canadian post-2015 development agenda to focus twofold: on the root causes of maternal mortality and on inclusive sexual and reproductive health. This will require ensuring qualitative and quantitative indicators for sexual and reproductive health using a holistic approach that incorporates adolescent and youth friendly sex education, perceptions of barriers to accessing quality health care (such as abortion services and for groups such as trans-identifying persons), and great data collection and disaggregation for marginalized groups and populations. These steps are required in order to extend beyond the current narrow quantitative focus of statistical health data collection in Canada and ultimately ensure that the health goal and indicators are contextualized to the Canadian landscape.

Finally, Sarah recommends that Canada should take stock of adopting best practices from other countries who are leaders in other fields of health. For example, Canada is the only OECD country that does not currently collect data on contraceptive prevalence, and generalizes national findings based on other industrialized countries. Sarah remains hopeful that the return of the census will provide a more detailed and nuanced view through which to guide health within Canada, particularly for groups experiencing inequities in sexual and reproductive health.


This article was written by Annalise Mathers based on their own research and drawing primarily on an interview with Sarah Kennell, a key thought leader in this field.
Goal 4: Ensure inclusive and equitable quality education and promote life-long learning opportunities for all.

Andy Harrington

Andy Harrington is the Chief Executive Officer at the Wellspring Foundation for Education, working at both grassroots and systemic levels to empower the provision of quality education in East Africa, with a particular focus on Rwanda. He is committed to promoting asset based development that is sustainable in its outcomes and that builds empowerment, worth and dignity into the individuals and communities associated with it.

Andy has over twenty eight years of experience working with CSO’s and with youth and young adults around the world, including 23 years in leadership with a major international youth agency. He and his wife Helen spent two years in Croatia and Bosnia working with children traumatized by the war and has led projects in a number of other countries, including as part of the relief efforts for the Asian Tsunami disaster. He is also one of the founders of the JustUs project exploring the response to poverty and justice issues from a youth perspective. Andy travels, writes and speaks extensively on a number of issues including social justice and the need to release a new generation of justice and poverty minded leaders.
### Targets

| 4.1 | by 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes |
| 4.2 | by 2030 ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education |
| 4.3 | by 2030 ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, including university |
| 4.4 | by 2030, increase by x% the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship |
| 4.5 | by 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples, and children in vulnerable situations |
| 4.6 | by 2030 ensure that all youth and at least x% of adults, both men and women, achieve literacy and numeracy |
| 4.7 | by 2030 ensure all learners acquire knowledge and skills needed to promote sustainable development, including among others through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship, and appreciation of cultural diversity and of culture’s contribution to sustainable development |
| 4.8 | build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all |
| 4.9 | by 2020 expand by x% globally the number of scholarships for developing countries in particular LDCs, SIDS and African countries to enrol in higher education, including vocational training, ICT, technical, engineering and scientific programmes in developed countries and other developing countries |
| 4.10 | by 2030 increase by x% the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially LDCs and SIDS |
Sustainable Development Goal 4 concerns access to quality education opportunities for all. This is an improvement to the MDGs that focused more on quantity of access rather than the quality of services delivered. Andy Harrington, CEO of Wellspring Foundation, believes it is crucial to unpack the factors that characterize quality education and the assumptions that go into them. What does quality primary and secondary education look like? It needs to take an approach to education that is both values based, and promotes individualized learning.

On a domestic scale a promising indicator set to measure Canada’s progress nationally is the Canadian Index of Wellbeing (CIW). This indicator set measures 8 different domains, one of which is education. Within the domain of education there are a further 8 subtopics, including early childhood education, social and emotional competencies and student to educator ratios. Example indicators that are used include: the number of early childhood education and care centres (ages 0-5), student to educator ratio in public schools, and a composite headliner index, of five domains, that reflects social and emotional competencies of children ages 12-13. This is a promising index because it incorporates both traditional and non-traditional indicators for measuring education. It also draws on a wide range of Pan-Canadian data sets and was established through an extensive consultation process that drew on the knowledge of education professionals to ensure that the indicators effectively captured the set constructs.

To measure the progress of Canadian programs abroad, Wellspring Foundation has developed a set of indicators that utilizes observational models, promotes independent verification of data, and utilizes standardized measurement and evaluation. The indicators use results based management to measure the capacity of schools to deliver quality education. While taking a holistic approach to community development it highlights in particular the importance of early childhood education, teacher training and parental involvement. Examples of indicators used are: district Professional Development Committees, which are effectively monitoring performance of educators to improve quality education, number of head teachers trained in leadership skills, educational assessment skills and administrative capacities, and number of Parent Teacher Committee (PTC) leaders trained in parental engagement, community organization and school management concepts.

From a Canadian perspective what are the most appropriate indicators for addressing this goal and how can it be framed from a local, vs. national, vs. international scale?

Nationally the CIW is a promising indicator for measuring the success of education programs. This composite index is compatible with civil society needs because it begins with a definition of education that is relevant to the concerns of the target audiences, easy to understand and comparable across jurisdictions and groups. CIW reports are published bi-annually and are available for free online. This is a progressive indicator set because it attempts to balance conventional indicators such as attainment and achievement scores with nontraditional indicators that measure social and emotional competencies. This demonstrates relevance with contemporary indicators measuring quality and value. Non-academic skill sets that are considered include critical thinking, social responsibility, emotional intelligence, empathy, respect and tolerance, and citizenship. It also attempts to address equity in society using a proxy indicator measuring socioeconomic gradient. While this is a valid proxy measurement for inequality in society, the CIW recognizes the need for a separate indicator to measure the gap between minority and non-minority groups. The index also shirks away from indicators measuring teaching effectiveness or quality due to potential vested interests when judging quality teaching. It also refrains from addressing the effectiveness or availability of informal education and solely focuses on formal education institutions. The CIW utilizes Pan-Canadian trend data from Statistics Canada, the National Longitudinal Study of Children and Youth and the Programme for International Student Assessment. From the highlighted indicators in the above section, measurement of early childhood education quality can be improved through incorporating the Early Childhood Environment Rating Scale, a survey that goes further to addressing issues of quality through an observational model. The student to educator ratio in public schools is meant as a proxy measurement for teaching quality and assumes consistency of other teaching variables such as qualifications and support. Additional indicators should go further to specifically target teacher capacity. Finally, social and emotional competencies in middle childhood utilize self-reporting data on empathy, prosocial behaviour, social relationships, bullying and self-concept. Improvements could be seen from incorporating the Middle Years Development Instrument, developed by the Vancouver School Board in partnership with the University of British Columbia and United Way, which utilizes similar constructs to measure social and emotional competencies through self-reporting.

Wellspring’s indicator model is compatible with civil society needs because it was designed by professionals at Wellspring.
Foundation and recognizes the importance of local data gathering, asset-based community development, and standardization of measurement and evaluation. This creates a reliable indicator set that can be used to measure the progress of Canadian programs abroad. Wellspring produces independently verified data using recognized data acquisition models to measure the effectiveness of projects. Measuring is done through observational data gathering that uses quantifiable measurements, one-on-one interviews and other tools in addition to traditional testing to get a true picture of the effectiveness of education initiatives. The framework is a performance measurement framework that collects data and reports on results during implementation of programs. It builds indicators around the measurement of specific desired results at different stages: immediate, intermediate and ultimate. These indicators use data collected at the individual school and district level that is independently verified and assesses core issues. For instance, district

Professional Development Committees is an indicator used to effectively monitor performance of educators to improve education quality. This data is collected through surveys and interviews conducted by district education offices, sector education officers, regional inspectors and school leadership. The indicators are built around capacity building for schools and teachers. This is also done through comprehensive monitoring of model schools, training community connectors on the use of asset based community tools and building the capacity of PTCs. These strategies are well suited for use by civil society to monitor the effectiveness of Canadian programs abroad because they are local, affordable, and accumulate data at the individual school level that can be percolated up nationally and can contribute to meaningful national indicators.

What is Canada’s potential?

Currently the CIW releases data nationally with provincial data available exclusively for Ontario. The CIW should move towards releasing data for each province that is further disaggregated by region. Canada can contribute to this by creating model schools or best practice hubs where indicators can be tested and teacher capacity can be developed. Andy Harrington states that vocational training will be “especially important as unemployment contributes to social disorder, homelessness, civil disturbance and injustices on every level.” The CIW should increase its scope to include informal education. Canada can be a leader in developing indicators that measure the success of vocational programs, a relatively new element of education that is still being developed. Andy Harrington also stresses the importance of effective monitoring of parental involvement in early childhood education as a crucial element of continued student engagement in school. Canada should take a lead role in developing indicators that measure the effectiveness of PTCs and programs aimed at increasing parental capacity.

The Government of Canada publishes numerous documents that provide the data that are used for composite indices like the CIW. Canada should recognize the trend towards nontraditional indicators and measures of quality. Andy Harrington believes that this can be done through interviews, observational data gathering and self-reporting to measure the impact of values based education and learning model outcomes. Canada should also take the lead on ensuring that the data they accumulate is independently verified to ensure that it contributes quality data into national models. Furthermore, as measuring non-academic skills is still relatively new, Canada can be a leader in developing indicators that measure global citizenship, human rights, values, and sustainable development knowledge.

Recommendations

The following recommendations are suggested for Canada and civil society to measure progress towards SDG 4:

- Indicators should use data that is measured in non-traditional forms – interviews, self-reporting, and observation – in order to highlight trends that cannot be found in traditional testing based indicators
- Canada should provide stronger provincial data so that the CIW can release reports for every province
- Canada should take the lead in developing indicators that measure parental involvement in education such as Wellsprings indicator that measures the effectiveness of capacity building training for PTCs
- Canada should establish best practice hubs to test new indicators and create model schools that can diffuse knowledge regionally

This article was written by Keanna Driedger based on their own research and drawing primarily on an interview with Andy Harrington, a key thought leader in this field.
Goal 5: Achieve gender equality and empower all women and girls.

Irene Tsepopoulos-Elhaimer
Irene is a committed feminist activist, has been working with women, children and youth in efforts to end violence against women and fight for women’s equality in Canada for over 25 years. As the Executive Director of WAVAW Rape Crisis Centre in Vancouver, Canada, Irene is passionate about the agency’s vision of a society where all women are free from violence and feels very fortunate to be working with talented and committed women staff, volunteers, board members, and the community at large, to realize this goal. Irene is a Women of Distinction Award 2013 nominee.

Thought leaders interviewed:

Dr. Lealle Ruhl

Irene Tsepopoulos-Elhaimer
## Targets

<table>
<thead>
<tr>
<th>Target</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>End all forms of discrimination against all women and girls everywhere</td>
</tr>
<tr>
<td>5.2</td>
<td>Eliminate all forms of violence against all women and girls in public and private spheres, including trafficking and sexual and other types of exploitation</td>
</tr>
<tr>
<td>5.3</td>
<td>Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilations</td>
</tr>
<tr>
<td>5.4</td>
<td>Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies, and the promotion of shared responsibility within the household and the family as nationally appropriate</td>
</tr>
<tr>
<td>5.5</td>
<td>Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life</td>
</tr>
<tr>
<td>5.6</td>
<td>Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the ICPD and the Beijing Platform for Action and the outcome documents of their review conferences</td>
</tr>
<tr>
<td>5.a</td>
<td>Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance, and natural resources in accordance with national laws</td>
</tr>
<tr>
<td>5.b</td>
<td>Enhance the use of enabling technologies, in particular ICT, to promote women’s empowerment</td>
</tr>
<tr>
<td>5.c</td>
<td>Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels</td>
</tr>
</tbody>
</table>
There are a wide range of indicators available to measure gender equality that focus on social, political and economic factors. Three promising indicators are police reported data, the General Social Survey (GSS) and the gender wage gap. Dr. Lealle Ruhl, professor at Langara College and Irene Tsemnopoulos-Elhaimer, executive director of WAVAW Rape Crisis Centre, both emphasize that in order to attempt to capture the diverse and intersectional barriers that prevent women from equality, gendered analysis must be incorporated into the majority of the Sustainable Development Goals. Indicators measuring gender equality should target the areas that continue to be pervasive impediments to Canadian gender equality. Ms. Elhaimer states that the devaluing of women is the root cause of violence against women including a whole range of sexualized, racialized, economic, and political violence.

One indicator for violence against women is police reported data, which measures the number of victims based on Incident-based Uniform Crime Reporting per 100,000 for violent crimes and per million for homicide rates (Canada, 2013). The police-reported data indicator is often coupled with another indicator based on the GSS. The GSS uses questionnaires to measure the percentage of the Canadian population that has suffered both reported and unreported incidents of victimization (Canada, 2013).

Dr. Ruhl highlights that the gender wage gap is a pervasive impediment to women's equality both nationally and internationally. She also notes that although some countries have made meaningful strides towards gender equality in regards to education and healthcare, both economic inequality and poverty continue to impact women's lives. An indicator for measuring gendered economic inequality is the gender wage gap, which compares male and female full-time earnings. Dr. Ruhl points out that indicators for gendered wage gap are accessible, verifiable and reliable and have been collected domestically and globally.

Internationally, information on violence against women is available, although the analysis is limited with data missing for many countries.

Data on violence against women and the gender wage gap are publically available. National information for these indicators comes from government data such as the long form census and the GSS. Although data collection will require financial commitment from the Canadian government, institutions are already in place to support measuring sustainable development goals on gender equality. Therefore, the data will be available and accessible to civil society organizations that can hold the government accountable.

As noted by Irene Tsemnopoulos-Elhaimer, when examining police reported data it is important to consider the quality of institutional support for women experiencing abuse. This indicator can be supplemented with the GSS, which is conducted through random phone interviews every five years. Both Ms. Elhaimer and Dr. Ruhl note that the GSS is a useful tool because it creates a space for women to name their experiences. In their everyday lives, many women minimize or are not in a position to acknowledge that they have been sexually assaulted or suffered violence, physical or emotional abuse. Therefore, the anonymous GSS is instrumental for collecting this type of information. The GSS also provides information on non-physical forms of abuse, providing a broader understanding of the spectrum of violence against women (Canada, 2002). The police reported data indicator has many limitations that need to be addressed. It focuses solely on acts that qualify as offenses in the Canadian Criminal Code, in which categories fail to include a gendered perspective. It is also limited by the persistent structural misunderstanding of violence against women, inhibiting proper analysis. Ms. Elhaimer describes how law enforcements’ use of language can obscure violence against women (i.e. using sexual misconduct to describe sexual assault). Ms. Elhaimer also points out that the police and the crown have a wide range of discretion in deciding if a woman is seen as a credible enough witness and if her experience is considered worthy enough to proceed through the criminal justice system. Consequently, the police reported indicator fails to encompass the numerous ways that women and girls experience sexual violence. Some studies have found that only 6-10% of cases of violence against women are reported to police. That is why the GSS is a very important supplement to official police data.

In addition, the violence against women survey in Canada disaggregates based on aboriginal identity and individuals who do not speak English or French. This measure is both a strength and weakness depending on the political framework. Dr. Ruhl views this as a strength as it allows for a greater understanding of the racialization of violence. However, Dr. Ruhl points out that the gender wage gap indicator does not address the lack of value placed on women's labour.

Dr. Ruhl notes that indicators for the gender wage gap have
provided verifiable, reliable information. She highlights the indicators’ ability to provide valuable quantifiable data to illustrate the continued disparity in male/female earnings as a reflection of gender inequality. However, Dr. Ruhl points out that the gender wage gap indicator does not address the lack of value placed on women’s labour. Feminized work is paid less and valued less; therefore, indicators should also examine trends in the feminization of labour.

Violence against women also lacks baseline data and data collection is costly and complex, this makes international comparative analysis challenging. In framing the indicators nationally and globally it is important to be aware that the indicators do not capture the whole picture, while wage gap may prove a stable indicator for measuring economic inequality in Canada, in low income developing countries measuring women’s property rights may provide a more accurate image of gender economic inequality.

What is Canada’s potential?

Canada has been a leader in developing international indicators for violence against women. Statistics Canada, with the development of the sensitive survey tool, has contributed to the creation of the International Violence Against Women Survey (IVAW) (Nevala). Canada also sits seventh as a UN Women core donor, which measures IVAW (unwomen.org). Both Irene Tsepnopulos-Elhaimer and Dr. Ruhl state that Canada has huge potential, as a nation with extensive resources, opportunities are limitless. Dr. Ruhl believes that Canada has the ability to lead but has thus far squandered its potential. Statistics Canada along with other non-governmental institutions has provided Canada with a great capacity to track its progress towards SDG 5. Canada has limited itself through funding cuts that stifle non-governmental organizations and with the previous government cancelling the long-form census. As noted by Dr. Ruhl, these projects for measuring and attaining the sustainable development goals are going to be expensive and they are going to be a challenge to achieve. Canada must therefore make a strong commitment towards developing indicators that capture a comprehensive picture of gender inequality in order to inform organizations working to combat this issue. Ms. Elhaimer notes that although this may be expensive it is actually cost-saving to invest in women and prevent violence against women. Therefore, she recommends that Canada invest in non-governmental organizations that are working towards combatting violence against women and can contribute valuable data for measuring Canada’s progress.

Recommendations

- Canada must engage in a public discourse about Canadian values to encourage public commitment to programs addressing gender inequality
- Canada must make a serious commitment domestically to funding civil society organizations in order to support front line work and independent data gathering
- The gender wage gap indicator must be refined to be more critical of society’s devaluation of feminized labour, this indicator also needs to take into account other ways that women are economically disadvantaged including property and inheritance rights and access to paid work
- In order to contribute to the elimination of gender inequality internationally Canada could set a benchmark goal and increase its financial contributions to international development initiatives. Although, Ms. Elhaimer believes that Canadian women’s organizations combatting domestic inequality must first be 100% funded, before Canada allocates funding to international initiatives
- The police reported data indicator must be restructured to include additional categories of violence against women, this also requires increased institutional support for women who share their experiences to encourage disclosure


Nevala, Sami. 2005. “Violence against women: a statistical overview, challenges and gaps in data collection and methodology and approaches for overcoming them.” UN Division for the Advancement of Women.


This article was written by Alexandra MacDonald based on their own research and drawing primarily on an interview with Irene Tsepnopoulos-Elhaimer and Dr. Lealle Ruhl, key thought leaders in this field.
Goal 6: Ensure availability and sustainable management of water and sanitation for all.

Thought leaders interviewed:

Zafar Adeel
Dr. Zafar Adeel serves as the Director of UNU-INWEH and has over 20 years of work experience in a broad range of international development and policy issues. It includes over 16 years of work with progressively increasing research and management responsibilities within a United Nations think tank. It also includes working in the private sector as a consultant, serving both public and private sector clients in the US, resolving challenging environmental problems.

Randy Christensen
Randy Christensen is a lawyer admitted to practice in the United States and Canada. He has served as a managing lawyer for Canada’s largest environmental law organization. His practice focus is water law and policy, sustainable development and international law. He has been lead counsel in numerous cases as well as many appearances before administrative and international tribunals.

Lewis Molot
Professor Molot has studied the chemical and biological impacts of environmental stressors – including eutrophication, ultraviolet radiation, acid deposition and climate change - on lakes for over 40 years. He is a member of the Ontario Government’s Lake Simcoe Science Committee which advises the Minister of the Environment and Climate Change on environmental change in the Lake Simcoe watershed. He is also Chair of the Ontario EcoSchools Steering Committee which oversees the Ontario EcoSchools project.

Derek Richmond
Derek is a seasoned professional and a passionate advocate for the wise use of water. He is a Chartered Water and Environmental Manager and a Chartered Scientist with more than 40-years as a practicing Professional Engineer in both private and public sectors. He has been engaged in various municipal, public works, water resources and environmental projects across Canada and the UK.
### Targets

| 6.1  | by 2030, achieve universal and equitable access to safe and affordable drinking water for all |
| 6.2  | by 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations |
| 6.3  | by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and increasing recycling and safe reuse by x% globally |
| 6.4  | by 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity, and substantially reduce the number of people suffering from water scarcity |
| 6.5  | by 2030 implement integrated water resources management at all levels, including through transboundary cooperation as appropriate |
| 6.6  | by 2020 protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes |
| 6.a  | by 2030, expand international cooperation and capacity-building support to developing countries in water and sanitation related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies |
| 6.b  | support and strengthen the participation of local communities for improving water and sanitation management |
Despite having the 3rd largest freshwater resource in the world, Canada sets an example of how having access to abundant water does not ensure the consumption of safe and adequate water. When looking at Canada's statistics on improved water and sanitation, Canada shows a consistent 100% achievement over the past 25 years (WHO 2013). However, cases of infectious waterborne diseases such as diarrhea (WHO 2012), malaria and cholera, are present in low numbers (Infectious Diseases of Canada 2016, Dr. Stephen Berger). Consequently, developed countries may be more successful in controlling such waterborne pathogens (viruses, bacteria, etc.), but still have water quality issues as proven by the drinking water outbreak of waterborne diseases in Walkerton, Ontario in 2001, which resulted in the death of 7 people and affected 2,500 (Waterproof reports Ecojustice 2001).

Derek Richmond points to the key overarching indicator of the level of "coordination of Canada's provincial and national individual water resource groups with an international vision under a single provincial-federal umbrella". While this broader indicator may be difficult to measure, it is significant in providing a suitable framework for approaching, as well as managing all dimensions related to SDG 6. The indicator is appropriate because it highlights the importance of effective communication and collaboration for achieving SDG 6 including provincially, nationally and internationally. The level of collaboration envisioned in the indicator does not currently exist in Canada at the provincial or federal level, but with the new federal government there is hope that this can be accomplished.

Lewis Molot has studied formation of harmful cyanobacteria blooms brought on by excessive phosphorus loading. It is known that high phosphorus concentrations create anoxic conditions (lack of dissolved oxygen). Molot's research suggests that the presence of dissolved oxygen at the sediment/water boundary will prevent bloom formation. Therefore, he argues for adopting dissolved oxygen at the sediment/water boundary throughout an aquatic system as a new indicator in Canada and abroad. To fully utilize this indicator, it is necessary to have a benchmark which data can be measured against. Molot suggests that the benchmark should be above 2 mg of oxygen per litre. Over time, one will be able to see whether or not the water body in question is 'sustainable'. High oxygen levels will also limit formation of toxic methyl mercury and enhance decomposition of organic pollutants. Managers and researchers should begin to think in terms of how best to manage oxygen demand (e.g., via phosphorus controls, nitrification, and organic matter controls) and supply (e.g., inputs via in situ aeration) at the sediment/water interface.

Randy Christensen points to the popular indicator concerning the number of boiled water advisories. He believes that this indicator should be used cautiously as there is a potential that drinking water providers may not issue boil water advisories when prudent if too much emphasis is placed upon a simple analysis of the number of advisories issued. Christensen suggests a focus upon replacing it with regular testing in Canada and going back to an application of a broad sweep of standards which may not be covered by provincial legislation or a systems operating permit. Additionally, this indicator is appropriate since vast disparities exist between water standards in rural and urban areas in Canada. In rural areas the standards that are the same in larger urban areas are oftentimes waived or not required. As a result, these population groups are not given much structural protection in their right for safe and adequate water. By applying this indicator, Canada will be able to have a more accurate assessment of both acute and chronic risks to drinking water for nearly all potential hazards impacting universal target 6.1. It will also help to develop further "severely specific" indicators for it (Christensen).

Dr. Zafar Adeel emphasizes the need to use the indicators that are already defined and accepted by the UN Statistical Division as a guideline. One of these indicators is the "improved" drinking water source (for example: well versus pond). Although this indicator is not appropriate enough, it could be expanded by monitoring the safety and the quality of water sources. Thus, Dr. Adeel suggests a focus on outcome indicators. Outcome indicators focus on questions such as: Did the health of the people improve from the changes in their water supply? Did their nutrition or salary levels increase? Dr. Adeel indicates that when water-related projects, whether in Canada or abroad, concentrate on outcome indicators they tend to be more successful.
One weakness of the indicators that all thought leaders agreed upon was that civil society has not been completely involved in the decision-making process of Canada’s water management plans. The perception of how their involvement should look like varies. Molot points to the lack of participatory objectives in Canada’s national governance mechanism, while Richmond states that such an involvement on the civil society level relies on a certain understanding among everyone that “water is the glue that binds everything together.” Christensen agrees, though he also highlights the need to link their complete involvement with the improvement of water treatment systems. This aspect addresses the 1%-5% of First Nations and remote communities in Canada’s rural areas, who, according to all thought leaders, are more affected by issues concerning contamination and the lack of clean drinking water. To demonstrate this, Christensen points out that a committee in a small rural community may approve the assessment of a water treatment system based on factors such as having access to a pump, pipes, and a water distribution system, but could neglect that their drinking water source may be unsafe (Christensen). Christensen’s indicator of regular testing and standards would be a way to solve this problem and possibly pave the way for Canadian law to finally establish a clear legal definition of safe drinking water and what potable water is.

Civil society’s lack of access to transparent, adequate, and accurate information on the quality of the water bodies on a federal and provincial level is a crucial weakness in Canada.

To some extent, there is disagreement concerning Canada’s potential. It has been argued that Canada is doing well in working towards the SDG 6 targets, given how most jurisdictions have formulated well-developed indicators (Molot). Conversely, one could make the case that Canada is lacking political will (Molot and Richmond), compliance, enforcement of existing laws (Christensen), meaningful involvement with the public at large (Molot), accessibility to data/information (Christensen), and a national dialogue (Dr. Adeel). Molot believes that Canada has the potential to overcome these hurdles, but is currently unable to “translate these indicators into action”.

Molot and Christensen argue that civil society can apply political pressure through public activism while Dr. Adeel indicates that the government could also step in instead of only showing interest in finding solutions for its water issues. A strong example of the lack of political will can be shown by Lake Winnipeg, the 10th largest lake in the world, that contains algal toxins visible by satellite. To date, apart from a few governmental and voluntary stewardship initiatives, there are no policies in place to intervene in this type of water quality problem. Instead of only focusing efforts on monitoring and research, Molot believes that the government must also play a stronger role in facilitating changes by implementing policies even if they fear the political costs. Richmond emphasizes enforcing appropriate legislations and providing regional educational programs, while Christensen supports re-staffing the positions of environmental inspectors, as well as improving the network of monitoring stations on water quality and water quantity across Canada. Both Dr. Adeel and Richmond believe that one of the biggest potentials is to have a national dialogue on Canada’s vision around water and to finally develop a national water policy. In many European countries and in the United States these policies already exist. This national dialogue would include, among others, negotiating with the US, since the likelihood that they will face an increasing demand of water and will turn to Canada to share resources is quite high. In order to promptly respond to international needs in terms of water...
issues, Canada must address this discourse domestically, as Canada’s national contribution is an international one. Dr. Adeel suggests that this boils down to having the “necessary discourse around our vision for water, and once we have done that, the indicators or any targets that Canada sets for itself, would come from that not the other way around”.

Recommendations

- A larger national dialogue before defining and applying the indicators for SDG 6 (Dr. Adeel)
- The development of a synthesized water security dimension into the Human Development Index (HMI) to track success of implementing water-related SDGs (Dr. Adeel)
- Canada needs to work towards envisioning a national water policy (Richmond and Dr. Adeel)
- The Canadian government needs to provide a statutory right in law so every citizen can file concerns and request a governmental investigation pertaining to their local water sources (Christensen)
- The Canadian law must establish a legal definition of what safe and potable water is (Christensen)
- The Canadian government needs to be the generator of information/data (Christensen)
- The provision of participatory governance mechanisms that engage the public e.g. the Lake Simcoe Integrated Watershed Management Project (Molot)
- The implementation of watershed protection plans (first at a local level, then at a river basin level) and the inclusion of water management plans as part of a general development review and renewal process (Richmond)
- The development of collective provincial water resource bodies that focus on implementation and monitoring the 4 Cs (collaboration, cooperation, coordination and communication) related to water resources issues. This will foster coordination on a national level and help in measuring and reporting progress, and also on a provincial level in terms of tackling key water issues related to individual provinces (Richmond)
- Inclusion of ‘ecological accounting’ as part of infrastructure asset management to assist in balancing competing interests such as economy, ecology, and the environment (Richmond)

This article was written by Sara Wilkinson based on their own research and drawing primarily on an interview with Zafar Adeel, Randy Christensen, Lewis Molot, and Derek Richmond, key thought leaders in this field.
Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all.

Thought leader interviewed:

Roger Peters
Roger Peters is a Professional Engineer with over 35 years of experience in energy efficiency and renewable energy as a consultant, researcher, writer, policy advisor, and advocate. Roger is currently on the board of the Ottawa Renewable Energy Cooperative (OREC) which he co-founded in 2010. OREC has invested $5 million of community capital in local solar power projects. Previously, Roger was Director of Renewable Energy and Efficiency at the Pembina Institute, and Director of Technical Services at the Saskatchewan Energy Conservation Authority. Roger also has significant international experience in Asia, Latin America and Africa.

Earlier in his career, Roger worked at the National Research Council Solar Program in the early 1980s and was a co-founder of Marbek Resource Consultants in 1983. Roger has authored studies on energy efficiency strategy, innovative financing, feed-in tariffs, and power storage, as well as co-op share offering statements and business plans.
### Targets

<table>
<thead>
<tr>
<th>Target</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>by 2030 ensure universal access to affordable, reliable, and modern energy services</td>
</tr>
<tr>
<td>7.2</td>
<td>increase substantially the share of renewable energy in the global energy mix by 2030</td>
</tr>
<tr>
<td>7.3</td>
<td>double the global rate of improvement in energy efficiency by 2030</td>
</tr>
<tr>
<td>7.4</td>
<td>by 2030 enhance international cooperation to facilitate access to clean energy research and technologies, including renewable energy, energy efficiency, and advanced and cleaner fossil fuel technologies, and promote investment in energy infrastructure and clean energy technologies</td>
</tr>
<tr>
<td>7.5</td>
<td>by 2030 expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, particularly LDCs and SIDS</td>
</tr>
</tbody>
</table>
From a Canadian and international perspective the most appropriate indicators for addressing this goal and its sub-targets generally are measurements of:

- Total percentage of the population with access to sustainable and socially acceptable energy sources for all energy needs (Goal 7.1);
- Total renewable, socially acceptable and ecologically suited energy share in total final consumption (Goal 7.2);
- Indices of energy efficiencies for each major sector and their uses of resources (water, waste processing, energy, etc.) (Goal 7.3);
- Total annual national research, commercialization and deployment investment in renewable energy and energy efficient technology, green infrastructure, and energy source research/ development projects (Goal 7a);
- And Canadian international development assistance for renewable energy and energy efficiency infrastructure (Goal 7b)

Roger Peters, Board Member of the Ottawa Renewable Energy Co-op, emphasizes the importance of focusing not only on the international, national, and provincial, but also on how progress toward these indicators can be measured at the municipal level. He noted that this should be done in many areas, from local investment to local grid infrastructure development. This is especially important in developing countries, where technology tends to ‘leapfrog’ and can be more efficiently sourced at the community level. These measurements can be directly applied to all levels of analysis in Canada and around the world.

What are the strengths and weaknesses of the indicators identified?

From a quantitative perspective, a huge challenge with these indicators generally is how data is aggregated. There are huge differences in understanding Goal 7 not only around the world but within Canada as well. Peters brought up the notion that aggregation can oftentimes hide the specific ‘make-up’ of factors in the data. This effectively masks important discrepancies in a country’s regional, ethnic, and local variables, as with our northern geography and First Nations communities in Canada. Where the densely populated suburbs of urban Canada might easily have access to solar electricity and smart grids that show significant progress to the goal, communities in Nunavut rely exclusively on the import of fossil fuels to support their energy needs. The Canadian experience of Goal 7 is so incredibly varied in and of itself that there needs to be a concerted effort to combat the risk of skewing country data on domestic and global scales.

From a civil society perspective, there are different understandings of what constitutes a modern, reliable, and affordable energy source. For instance, hydroelectricity may be beneficial in some communities while in others it may have a major environmental impact. Wind turbines placed too close to residential areas and owned by offshore companies are often judged much more critically than community owned wind farms. While nuclear energy is championed by some as both safe and clean, others, including Peters, consider it unsustainable and expensive. Finally, the use of biomass as a preferred heating source in many northern countries has in some instances been known to cause deforestation in developing countries. From these examples it is clear that countries need to better define what constitutes a sustainable, modern, reliable, and affordable energy source in order for global movement toward achieving Goal 7.

This ambiguity and discrepancy extends to what is considered a ‘socially acceptable’ or ‘sustainable/ecologically suited’ energy share in total final consumption. Despite the semantics, previously suggested indicators without explicit language fail to conform fully to the goal. Peters highlighted how some of Canada’s northern communities use diesel as their primary electricity source. An indicator that only measures “total percentage of the national population with access to electricity” would consider these communities to be aligned with the goal. However, the diesel used to power generators is not sustainable; it is being shipped up in tankers and thus failing to align with the goal of modern, sustainable, affordable, and reliable energy.

Overall, the five indicators are fairly accessible to the public in Canada as there are already a number of reporting mechanisms and government agencies tracking energy usage, share, and sustainability. This includes Natural Resources Canada, the Conference Board of Canada, the National Energy Board, Environment and Climate Change Canada, as well as a number of other NGOs and civil society groups.
It is no secret that Canada is currently going through a turbulent time with its natural resource industries. UN SDG 7, its corresponding targets, and the proposed indicators present an opportunity for Canada to fulfill its commitments from UNFCCC COP 21 and take the international lead toward energy sustainability and access. With the new government in Ottawa, Canada is in a powerful position to develop and pass environmental regulatory laws across industries; invest in national world-class research and higher education institutions to solve energy challenges; provide assistance to marginalized communities that lack affordable, sustainable, or reliable energy; and extend Canadian development assistance programs to countries where energy technology can benefit vulnerable populations.

There are a number of potential solutions to address the previously identified indicator weaknesses:

In order to make meaningful advances toward the SDG agenda, the government of Canada must move to build on its current federal and provincial enabling legislation governing equipment and buildings. Acts and legislation that allow governments to set energy efficiency standards and codes for products and buildings can be found across the country. Use of existing regulations need to be accelerated. Building codes, for example should move quickly towards net zero energy requirement. Peters maintains that this is the only way to ensure that governments are given the agency to make progress toward the SDG goals.

In the interest of accounting for the nuances and intricacies in the development process, Ottawa should re-engage and consult with civil society groups across the country. The job of finding suitable indicators is more efficiently done by leveraging knowledge from experts. Re-engaging with relevant actors will enable policy makers to access broad knowledge networks as a basis for understanding regional issues and complications. This will prove to be a better long-term strategy compared to if indicators were established unilaterally. By increasing civil society stakeholder involvement, a more comprehensive set of indicators can be realized.

Moving forward the Canadian government needs to critically assess its strategy in terms of nuclear energy and the oil sands and decide how to transition out of these unsustainable energy sources. With the differing perceptions about energy sources and their societal impacts, the government should undertake regional impact assessments and consultation on various energy forms to establish how best to go forward in the construction of ‘green’ infrastructure. Community feedback should be incorporated into the indicators that are selected in order to accurately reflect the impacts on Canadian (and thus global) markets and societies. Additionally, a nationwide survey should be conducted to ascertain where Goal 7 (compliant energy access) is insufficiently available.

The government should also re-evaluate its fossil fuel subsidies and consider their transfer to institutions and firms developing clean technologies. Universities and the private sector play an important role in advancing the necessary sustainable technologies that are applied not only domestically but also internationally. Increasing funding allocations and consultation for development-centered projects will help re-establish Canada as a committed donor and sponsor of international sustainable development efforts while involving experts and the use of advanced technologies.

Monitoring of the relevant indicators can be undertaken by existing government bodies and their corresponding provincial counterparts. Information sharing should be prioritized in order to communicate across the indicators both in regards to their development and subsequent progress. Additionally, the census should be utilized as a method of data collection to assess progress and consider any changes to the framework. The census would also be an effective tool in identifying demographic differences and regions where work needs to be focused.

Finally, the government should begin creating an index of different industry efficiencies and annual benchmarks to measure total energy use in each sector as well as energy intensity per unit of GDP and per capita. By establishing base rates of energy usage the indicator can be used by government departments for measuring Goal 7. By employing annual benchmarks to improve rates relevant to indicators, the private sector can be held accountable for their role in the goal, as the indicator frameworks are made available through practical targets. The establishment of an indexing system will help to not only inform best practices across industries, but also the legislative and regulatory processes outlined above.
Given the proposed indicators and analysis of the weaknesses and the opportunity for Canada to institute them, the following recommended indicators are put forward:

- **7.1** Percentage of population with electricity access (%).
- **7.2** Enabling legislation and framework for renewable energy production established by 2020.
- **7.3** Composite Energy Efficiency Improvement Index built up of sub-indicators measuring the efficiency of transport energy, industrial energy, power generation energy, buildings energy and agricultural energy.
- **7.a** Improvement in the net carbon intensity of the energy sector (GHG/TFC in CO2 equivalents).
- **7.b** Percentage of international cooperation projects being implemented to facilitate access to clean energy.

In order to successfully implement these indicators the government should seek to analyze, keep track of, create and enable legislation to both reach the target and enable other indicators. The government should also re-engage with civil society to contribute to knowledge networks and ways to improve upon indicators and progress. Additionally, a countrywide survey should be conducted to ascertain where Goal 7 compliant energy access is insufficiently available with possible solutions and timelines identified and built into the indicator frameworks. Finally, by establishing an index of industry energy information and setting benchmarks, the private sector and industry will be involved in the process of target setting. By moving away from a unilateral approach to policy development, the indicators and targets identified will be more successful in the long-term and better suited to Canada’s diverse regions and societies, and ultimately its involvement in global development.

*This article was written by Morrell Andrews based on their own research and drawing primarily on an interview with Roger Peters, a key thought leader in this field.*
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Paul Boothe was appointed Professor and Director of the Lawrence National Centre for Policy and Management at the Ivey Business School, Western University in September 2012. His career has included university research and teaching, acting as an independent consultant to Canadian and international organizations, and serving at the deputy minister level in provincial and federal governments.

Thought leader interviewed:

Paul Boothe
Paul Boothe was appointed Professor and Director of the Lawrence National Centre for Policy and Management at the Ivey Business School, Western University in September 2012. His career has included university research and teaching, acting as an independent consultant to Canadian and international organizations, and serving at the deputy minister level in provincial and federal governments.
<table>
<thead>
<tr>
<th>Target</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Sustain per capita economic growth in accordance with national circumstances, and in particular at least 7% per annum GDP growth in the least-developed countries.</td>
</tr>
<tr>
<td>8.2</td>
<td>Achieve higher levels of productivity of economies through diversification, technological upgrading and innovation, including through a focus on high value added and labour-intensive sectors.</td>
</tr>
<tr>
<td>8.3</td>
<td>Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage formalization and growth of micro-, small- and medium-sized enterprises including through access to financial services.</td>
</tr>
<tr>
<td>8.4</td>
<td>Improve progressively through 2030 global resource efficiency in consumption and production, and endeavour to decouple economic growth from environmental degradation in accordance with the 10-year framework of programmes on sustainable consumption and production with developed countries taking the lead.</td>
</tr>
<tr>
<td>8.5</td>
<td>By 2030 achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.</td>
</tr>
<tr>
<td>8.6</td>
<td>By 2020 substantially reduce the proportion of youth not in employment, education or training.</td>
</tr>
<tr>
<td>8.7</td>
<td>Take immediate and effective measures to secure the prohibition and elimination of the worst forms of child labour, eradicate forced labour, and by 2025 end child labour in all its forms including recruitment and use of child soldiers.</td>
</tr>
<tr>
<td>8.8</td>
<td>Protect labour rights and promote safe and secure working environments of all workers, including migrant workers, particularly women migrants, and those in precarious employment.</td>
</tr>
<tr>
<td>8.9</td>
<td>By 2030 devise and implement policies to promote sustainable tourism which creates jobs, promotes local culture and products.</td>
</tr>
<tr>
<td>8.10</td>
<td>Strengthen the capacity of domestic financial institutions to encourage and to expand access to banking, insurance and financial services for all.</td>
</tr>
<tr>
<td>8.a</td>
<td>Increase Aid for Trade support for developing countries, particularly LDCs, including through the Enhanced Integrated Framework for LDCs.</td>
</tr>
<tr>
<td>8.b</td>
<td>By 2020 develop and operationalize a global strategy for youth employment and implement the ILO Global Jobs Pact.</td>
</tr>
</tbody>
</table>
Canada has a large range of economic indicators that cover areas such as growth, sustainability, employment, and financial health. The most well-known and widely referenced indicators include income per capita, or GDP per capita, and the unemployment rate alongside the Labour Force Survey. Other indicators include the Gini coefficient, debt to GDP, the living wage calculation, and environmental indicators such as air quality, water quality, emissions and wildlife protection. The above indicators are the most appropriate indicators to ensure inclusive and sustainable economic growth, as well as measuring decent work. These indicators are well-established on a local and national scale, and are easily comparable on an international level.

The most widely used indicator to measure the economic growth and progress of a country is GDP per capita. However, GDP only measures the accumulation of income and does not account for the way income is distributed nationally. This is an issue of inclusive growth, which means that equal opportunity for individuals of all economic classes within an economy during times of growth is to be measured. Paul Boothe explains that “…for sustainable inclusive growth, the Gini coefficient must be examined simultaneously with GDP.”

Boothe also states that “…no economy can be sustainable while accumulating huge amounts of debt.” Therefore, debt to GDP (household and government) and debt to disposable income, both for households and non-profit organizations, should be tracked. Monitoring these indicators alongside GDP growth shows whether Canada can afford its growth in the long term.

Canada also has measurements that indicate its contributions towards helping other countries’ progress towards SDG 8. Notably, the amount of foreign direct investment (FDI) in countries around the world, and the amount of foreign aid distributed. The Canadian International Development Platform (CIDP) has broken down the measurement of foreign aid by region and income group in order to ensure transparency around where aid is allocated. It also measures development projects, filtering by sector, organization location, and organization class, including civil society and government contributions.

To ensure sustainable economic growth, it is important to examine the environmental indicators. Boothe mentions that “…the environmental indicators Canada already has in place measure for air quality – including the health index – as well as water quality, wildlife protection and CO2 emissions per capita. GDP and the performance of these environmental indicators must be simultaneously monitored to ensure that environmental sustainability is not a trade-off for economic growth.”

While this is the best Canada can do with the current resources available, this may not be the most efficient way to monitor sustainable economic growth. These environmental indicators may not have any direct causational effects and are subject to several statistical variable biases. It may be in Canada’s best interest to adopt other sustainable economic growth policies, such as Green Accounting. This is a method for corporations to include environmental costs into their financial measures, which would result in the national GDP including environmental costs.

In regards to the employment indicators for this goal, there is already a well-established system in place for Canada. This includes the monthly unemployment rate, the Labour Force Survey and the average hourly earnings. Employment indicators will also include ensuring that the median wage is rising in Canada. A suggested framework to ensure this is to implement a Living Wage, the hourly rate at which a household can meet its basic needs after all government transfers and tax deductions. This can vary between cities, as the cost of living varies across Canada. This allows for a standardized and comparable unit for all individuals in Canada to live without financial stress. Unemployment Rate and the Living Wage are directly related to labour standards in Canada, and are good indicators to represent decent work. An indicator that can demonstrate the labour standards within Canada is work injury rates, filtered by age, gender and industry, which are important to ensure safe working conditions.
Given the tight timeframe of the SDGs, it is best to stick with simple, pre-established indicators. One such is GDP per capita, given that it can be identified from a local to international scale, and can be easily benchmarked against other countries. A weakness of GDP is its inability to measure the way income is distributed. However, this can be offset by the Gini coefficient. The data for GDP is easily accessible for civil society, and gives a very good indication for the way a country is shifting economically.

The national unemployment rate is another indicator in which the information is extremely accessible to civil society, as the Labour Force Survey is conducted and reported monthly. This is an extremely reliable source in Canada because we are able to readily access our census. Information on the Living Wage Framework is created by civil society organizations, however certain cities within Canada do not have Living Wage data available and hence could use more financial support or data access. This would allow for all areas within Canada to have access to information regarding the Living Wage. Moreover, Labour Standards are difficult to locate on government websites and media, and the majority of the data regarding work injury rates are out of date. Therefore, both would benefit from a standardization of presentation.

Indicators that measure Canada’s international contribution towards SDG 8 are currently measured by the CIDP. Currently, the data for the FDI Canada has made is more updated than Statistics Canada’s database, which is concerning for accessibility for civil society. This discrepancy makes the indicator weaker from a civil society perspective.

For financial indicators, there is more discrepancy between what is the most widely used and most appropriate. There has been some suggestion that in order to measure the SDG sub-target 8.10 countries would be required to count the number of ATMs per 100,000 adults. Boothe states that “...this is not a simple, efficient or affordable way to measure the financial health.” Statistics Canada already has measurements for debt per GDP (including household debt), which is a much better indicator of Canada’s financial health. This type of indicator allows for a simple benchmark to measure countries on an international scale, regardless of size. Although this is not an appropriate indicator to dictate future policy actions, such as contractionary or expansionary fiscal moves, it does allow a country to ensure that economic change is not the result of an overwhelming amount of debt.

Environmentally-friendly economic growth is also vital to ensuring sustainability, and can easily coexist with the financial sector as long as environmental indicators are taken seriously and in concurrence with macroeconomic variables. Environmental indicators – air, water, emissions and wildlife – are all easily accessible to civil society. As mentioned previously, these indicators are difficult to simultaneously measure with GDP, and therefore Green Accounting may be a better alternative for measuring environmentally sustainable economic growth. Weaknesses to Green Accounting include the efficiency of putting it as a capital measure for firms, as environmental effects are typically timelagged, and it can take a while before we can truly see the detrimental effects. This may make Green Accounting more difficult to implement, but at present it is the most accurate way to monitor environmental changes in tandem with economic growth.²
Canada is in a good position to be a leader in developing and monitoring these indicators. Prior to 2011, data was collected every year; this should be reinstated, given the importance of accurately measuring progress to attain our 2030 goals.

Canada already has the budget and resources to continue using the indicators outlined above, as long as the census is kept up to date. Updated data is vital for staying on time with the 2030 SDGs. Therefore, Statistics Canada can cooperate, communicate, and work with other major data collecting agencies such as the IMF, the World Bank and the OECD, in order to ensure the best methods are being used to collect data.

As recommended by Boothe,

“GDP must be examined simultaneously with the Gini coefficient as the main economic growth indicators, to measure inclusive economic growth. Debt to GDP is to be measured to ensure supportable financial growth, and the environmental indicators are to be used to ensure sustainable growth.”

GDP is already calculated frequently, as growth is typically reported on a monthly basis. However, for it to be measured with these other indicators, they also need to be measured as frequently. By measuring one indicator at a more intense level than the others, it will seem that resources and priorities are going to only one sector of this goal, employment and economic growth. Indicators such as the Gini Coefficient should be updated more frequently.

Canada should also consider implementing indicators on a national and standardized level, such as the Living Wage and Green Accounting. The Living Wage would help implement a strategy for ensuring basic income needs are met for all Canadians from all regions, while Green Accounting can help ensure the environmental impacts of all firms are measured and held accountable.

References


This article was written by Sarah Neubauer based on their own research and drawing primarily on an interview with Paul Boothe, a key thought leader in this field.
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

Michael Gurstein
Dr. Michael Gurstein, a founding father of Community Informatics, is currently Executive Director of the Centre for Community Informatics Research, Development and Training (CCIRDT) in Vancouver, Canada, Editor in Chief of the Journal of Community Informatics and Foundation Chair of the Community Informatics Research Network. He has held Research Professorships at universities in Canada and the US and is an Adjunct Professor at the Information School at the University of British Columbia. He has been on the Board of the Global Telecentre Alliance, Telecommunities Canada, the Pacific Community Networking Association and the Vancouver Community Net and was a member of the High Level Panel of Advisors of the (UN) Global Alliance for ICT for Development.

Brittany Neale
Brittany Neale, Senior Development Specialist with Appnovation Technologies, is a sustainable business professional with experience in youth, sport, and financial development. Brittany has worked with a number of non-government organizations in India, and most recently in South Africa with Grassroot Soccer. Upon re-locating to Canada Brittany pursued a career in corporate social responsibility in order to leverage the power of the private sector to create social good. Brittany specializes in partnerships, business development, proposals, and policy formation.

Thought leaders interviewed:
## Targets

| **9.1** | develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all |
| **9.2** | promote inclusive and sustainable industrialization, and by 2030 raise significantly industry's share of employment and GDP in line with national circumstances, and double its share in LDCs |
| **9.3** | increase the access of small-scale industrial and other enterprises, particularly in developing countries, to financial services including affordable credit and their integration into value chains and markets |
| **9.4** | by 2030 upgrade infrastructure and retrofit industries to make them sustainable, with increased resource use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, all countries taking action in accordance with their respective capabilities |
| **9.5** | enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, particularly developing countries, including by 2030 encouraging innovation and increasing the number of R&D workers per one million people by x% and public and private R&D spending |
| **9.a** | facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, LDCs, LLDCs and SIDS |
| **9.b** | support domestic technology development, research and innovation in developing countries including by ensuring a conducive policy environment for inter alia industrial diversification and value addition to commodities |
| **9.c** | significantly increase access to ICT and strive to provide universal and affordable access to internet in LDCs by 2020 |
Innovation is the act or process of introducing new ideas, devices, or methods. Among those that have adopted a more traditional approach to innovation, particular emphasis has been placed on technological innovation as a means of maintaining competitive advantage. This approach is apparent in both existing literature and conventional policy-making.

Within Canada there are currently a multitude of indicator frameworks in place to measure progress towards achieving UN Sustainable Development Goal (SDG) 9. Most of these indicators follow international norms and therefore a more conventional approach towards measuring progress towards this goal.

Following this approach adopted by the Canadian government, the most available indicators of measuring innovation according to existing Canadian and international perspectives are:

1. Gross domestic expenditure on research and development (R&D) as a share of GDP (GERD).

Gross domestic expenditure on R&D as a share of GDP is a summary of how much private and public consumption expenditure has been expended and/or invested into R&D in a country. It is a regularly used traditional measure of innovation, which typically focuses on capital expenditures and value added. While monetary expenditure is not the best way to measure innovation, the availability of funds for the expressed purpose of R&D is crucial for conventional approaches to innovation. A greater expenditure to GDP ratio could be indicative of a society ready and willing to support technology development, research, and innovation.

2. The number of firms collaborating in innovative activities with public or private partners, government and higher education institutions.

Over the years the Canadian government has been placing increasing value on the existence of private-public partnerships (P3s). Their value lies in the pooling of resources, which enable the facilitation of technological transfer and diffusion. The importance of P3s cannot be understated in enhancing creative capacity within innovative processes.

3. The intensity of technological trade flows, quantified by the number of existing exchanges between Canada and partner countries.

This indicator is more international in scope, serving to act as a measure of how Canada could track its progress in helping other countries foster innovation and also of the establishment of knowledge networks and partnerships which increasingly provide the most effective support for innovation in the digital economy. Canada currently has in place a series of formal science and technology agreements with select international partners, which include funding opportunities to enhance innovation abroad. The presumption of this indicator is that increasing the intensity of technological trade flows and therefore the exchange of technological expertise and products would go towards fostering higher levels of innovation, development, and technological capacity both with the overseas partner and domestically.

While the aforementioned indicators are the most available they are not the most meaningful. There is a growing body of work on an alternative form of innovation that is becoming more influential and represents a significant counter-position to the more conventional approach. In light of this development, existing indicators of innovation should be seen as only partial.
Recognition that there may be a range of approaches to the definition of “innovation” has led to a shift towards an approach to innovation commonly referred to as “inclusive” or “grassroots/bottom-up” innovation. A plethora of international organizations, development agencies and national governments have already begun launching inclusive innovation actions.² At the heart of this phenomenon is a focus on communities and their ability to adapt to difficult circumstances and engage in creative problem solving.³ Innovation in this sense is therefore not limited to the novelty associated with technological advances. Adaptive responses are increasingly occurring at both the community and individual level and yet it is often under-acknowledged.⁴ Key pillars of this particular form of innovation are focused on affordability, accessibility, opportunity, sustainability, and impact. Despite continued efforts, our intentions are often limited when faced against a backdrop of top-down intervention.⁵ This is true in the sense that the current system governing humanitarian development is short-lived, time bound, and lacks a holistic understanding of local knowledge practices.⁶

Other gaps still exist. Existing literature and discourse tend to focus on processes and inputs. While the ability to measure actuals is extremely important, focusing solely on traditional measures of innovation is insufficient. Brittany Neale stresses the importance of understanding how people, organizations, and communities leverage inputs and technologies. Innovation is adaptation; it is a reaction and it entails the use of creative responses. Indicators must therefore look towards outputs and outcomes. While a focus on inputs represents a limitation, they are a means of providing an objective, baseline frame of reference.

Another issue pertaining to these indicators more generally is the challenge of disaggregating data and defining creative outcomes, a point that was raised by both Neale and Dr. Michael Gurstein. There are different understandings of what constitutes innovation. The current policy landscape heavily favours formal systems of innovation. Although, innovation does not solely occur within research institutions and corporations. Innovation is also taking place within communities at the local level in what Gurstein calls “grassroots innovation.” Local and marginalized actors are active agents as both consumers and producers of innovation.⁷ Existing frameworks often fail to properly take this into account and as a result certain actors and activities are excluded from formal innovation systems and measures.⁸ The result is indicators that are incapable of fully measuring adaptive responses occurring at lower levels.

Overall, the utility of the indicators selected rest in their applicability to varying contexts and the relative ease in which relevant data can be obtained. Much of the data pertaining to the aforementioned indicators are readily available, as is the case in Canada.
Moving forward, there are a series of changes that Canada can implement so as to meaningfully contribute to the SDG agenda both domestically and abroad:

• With a focus on innovation, alternative indicators need to be conceptualized and implemented.

• Greater attention must be paid to indicators measuring innovative outcomes rather than inputs of innovation; performance measures highlighting creative responses to overcoming specific challenges is key.

• Efforts must be made to establish the necessary social ecosystem to support the building of the requisite skills and knowledge required to use and sustain innovation at all levels.

• There needs to be a recognition of innovation at all levels so as to establish a policy landscape that enables and is inclusive of both private and non-traditional stakeholder involvement.

• Provide comprehensive, up-to-date, and sustained data sets to assist organizations dependent on the information to make informed decisions for strategic planning purposes.

Recommendations

As it stands, Canada is not considered a leader in developing indicators to measure innovation. That said, there are a number of practical solutions that the Canadian government can undertake:

Canada must increase its creative capacity and by extension the necessary social and physical infrastructure. Canada’s highly successful education system is frequently identified as being a key piece moving forward, Gurstein also makes reference to the availability of skilled resources and the existence of a strong telecommunications infrastructure. Neale highlights the existence of a large number of government-funded initiatives in place to foster innovation through the establishment of innovation partnerships and different knowledge networks. She also suggests increasing access to technology outside of the segmented and linear manner that is apparent in the Canadian market. The building of skills and the expansion of knowledge to adequately use and sustain innovation at all levels is key.

Becoming a leader in indicator development will also require a different set of institutional frameworks. An enabling policy environment must be established along with an inclusive innovation strategy to bridge the gap between formal and informal innovation systems. The Canadian government must act to remove institutional barriers and biases in order to facilitate, support, and incentivize stakeholders to engage in inclusive innovation. The government must also work with a variety of stakeholders to develop policy. By re-engaging with civil society and through the establishment of new innovation partnerships, the collective knowledge and expertise can be leveraged in a way that provides a better understanding of traditional knowledge practices and the necessary support to overcome local barriers. Existing regulations must be changed in light of these developments.

Finally, in order to address indicator development in an objective manner, Neale stresses the importance of measurable actuals. This is an issue made more pressing by the fact that grassroots innovations are not always aggregated. This need for actuals necessitates readily available and verifiable data sets. Statistics Canada reporting is commendable in that it is not only transparent but it also serves as an invaluable resource for data pertaining to a wide range of topics. Unfortunately, recent cutbacks have placed limitations on the kind of services it can offer. This has made it difficult at times to collate data that is both up-to-date and collected in a sustained manner. It is therefore imperative for Canada to not only reinstate efforts to fill in data gaps but to expand its scope of coverage in order to sufficiently serve communities.

What is Canada's potential?
References


² Betts and Bloom, “The two worlds.”


⁴ “What is bottom-up innovation?” UNHCR Innovation, accessed April 30, 2016, http://innovation.unhcr.org/what-is-bottom-up-innovation/


⁸ Ibid.


¹⁰ Ibid.


This article was written by Hugo Wu based on their own research and drawing primarily on an interview with Brittany Neale, a key thought leader in this field.
Goal 10:
Reduce inequality within and among countries.

Andrew MacLeod
Andrew MacLeod is the Legislative Bureau Chief for TheTyee.ca website. He is the author of the book A Better Place on Earth: The Search for Fairness in Super Unequal British Columbia (Harbour Publishing, 2015). His work has been referred to in the BC legislature, Canadian House of Commons and senate. He won a 2006 Association of Alternative Newsweeklies award for news writing and was a finalist for a 2007 Western Magazine Award for best article in BC and the Yukon. His reporting has appeared in Monday Magazine, the Georgia Straight, BC Business, 24 Hours, the San Francisco Bay Guardian, Detroit’s MetroTimes, Portland’s Willamette Week and elsewhere. Andrew lives with his family in Victoria, BC.

Iglika Ivanova
Iglika’s work investigates issues and trends in health care, education and social programs, and examines the impact of public services on quality of life. She also looks into issues of government finance, taxation and privatization and how they relate to the accessibility and quality of public services. Iglika’s other research interests focus on the Canadian labour market and in particular trends in income inequality, low wage work and the integration of immigrants.

Iglika holds an MA in Economics from the University of British Columbia and a BA in Economics from Simon Fraser University. When she is not in the office, she can often be found swing dancing or sailing the coastal waters of BC.
<table>
<thead>
<tr>
<th>Targets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1</td>
<td>by 2030 progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average</td>
</tr>
<tr>
<td>10.2</td>
<td>by 2030 empower and promote the social, economic and political inclusion of all irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status</td>
</tr>
<tr>
<td>10.3</td>
<td>ensure equal opportunity and reduce inequalities of outcome, including through eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and actions in this regard</td>
</tr>
<tr>
<td>10.4</td>
<td>adopt policies especially fiscal, wage, and social protection policies and progressively achieve greater equality</td>
</tr>
<tr>
<td>10.5</td>
<td>improve regulation and monitoring of global financial markets and institutions and strengthen implementation of such regulations</td>
</tr>
<tr>
<td>10.6</td>
<td>ensure enhanced representation and voice of developing countries in decision making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions</td>
</tr>
<tr>
<td>10.7</td>
<td>facilitate orderly, safe, regular and responsible migration and mobility of people, including through implementation of planned and well-managed migration policies</td>
</tr>
<tr>
<td>10.8</td>
<td>implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with WTO agreements</td>
</tr>
<tr>
<td>10.9</td>
<td>encourage ODA and financial flows, including foreign direct investment, to states where the need is greatest, in particular LDCs, African countries, SIDS, and LLDCs, in accordance with their national plans and programmes</td>
</tr>
<tr>
<td>10.10</td>
<td>by 2030, reduce to less than 3% the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5%</td>
</tr>
</tbody>
</table>
In terms of access and affordability, the Gini is the most-commonly used indicator to measure inequality. As MacLeod explains, the broad use of the coefficient makes it relatively easy to compare inequality among countries. That being said, the Gini indicator has its flaws. The math yields disproportionate results, capturing the middle of the distribution and disregarding the top and bottom percentiles. Consequently, as argued by much of civil society, the Gini’s oversensitivity to the middle renders the indicator ineffective in terms of measuring inequality in developing countries.² As Ivanova stresses, income inequality today is attributed to gains for the ultra-wealthy (1 or 0.1%), therefore the Gini’s inability to capture change in the low and high end of the distribution is problematic. Moreover, since achieving the SDG’s requires measuring progress over time, the Gini is inadequate as it neglects to consider the areas of the distribution where inequality is growing most rapidly.³

MacLeod introduces another important criticism: while numbers are handy, they are hard to understand. Canada is currently estimated to have a Gini coefficient of 0.32—but what does this number mean? Who are the ones living in poverty, and who are the top earners? Is there a pattern? MacLeod, raising this important point, questioned whether one could appreciate the varying conditions of those living in a country with a coefficient .3 higher than their own. Criticisms such as this should encourage civil society to look beyond just the Gini Coefficient as an indicator of inequality.

Statistics Canada. From an international perspective, civil society can determine Canada’s contribution to the global effort to end inequality by examining Canada’s Official Development Assistance (ODA). The amount of financial assistance Canada grants to developing nations indicates how committed we are to ending poverty and inequality. Additionally, Canada recently agreed to a new framework that will implement new measures against corporate tax base erosion and profit-sharing (BEPS), such as country-by-country reporting of corporate profits. This framework will allow civil society to detect Canada’s effort to end global inequality by measuring our commitment to fair taxing practices, thereby ensuring that multinational corporations do not cheat developing countries out of tax revenue that is necessary to curb inequality.¹

From a Canadian perspective what are the most appropriate indicators for addressing this specific goal and how can it be framed from a local vs. national vs. international scale?

What are the strengths and weaknesses of the indicators identified?

In terms of access and affordability, the Gini is the most-commonly used indicator to measure inequality. As MacLeod explains, the broad use of the coefficient makes it relatively easy to compare inequality among countries. That being said, the Gini indicator has its flaws. The math yields disproportionate results, capturing the middle of the distribution and disregarding the top and bottom percentiles. Consequently, as argued by much of civil society, the Gini’s oversensitivity to the middle renders the indicator ineffective in terms of measuring inequality in developing countries.² As Ivanova stresses, income inequality today is attributed to gains for the ultra-wealthy (1 or 0.1%), therefore the Gini’s inability to capture change in the low and high end of the distribution is problematic. Moreover, since achieving the SDG’s requires measuring progress over time, the Gini is inadequate as it neglects to consider the areas of the distribution where inequality is growing most rapidly.³

MacLeod introduces another important criticism: while numbers are handy, they are hard to understand. Canada is currently estimated to have a Gini coefficient of 0.32—but what does this number mean? Who are the ones living in poverty, and who are the top earners? Is there a pattern? MacLeod, raising this important point, questioned whether one could appreciate the varying conditions of those living in a country with a coefficient .3 higher than their own. Criticisms such as this should encourage civil society to look beyond just the Gini Coefficient as an indicator of inequality.

From a domestic perspective, Ivanova was very praiseful of Statistics Canada’s data on high-income earners. Looking at the share of income that goes to the top 0.1% or 1% is pertinent in today’s climate of extreme inequality where income is increasing for a small percentage of people at the very top and remaining stagnant for everyone else. As explained by Ivanova, previous to this indicator, Statistics Canada relied on survey data in order to report on income. Rather than looking at the actual income tax reported,
they would simply call Canadians and ask them to disclose their financial details. This was a questionable method for numerous reasons: numbers could be fabricated, individuals could unintentionally report them incorrectly, and in many instances, low-income earners did not complete the survey. In 2004 the proportion of households that under reported income was roughly 35-50%, which suggests that survey data is not capable of truthfully expressing inequality. Data on Canadian tax filers by income, however, gives a more candid depiction of inequality, as it reveals the income of the highest earners in comparison to the income of the average Canadian. However, while this data is disaggregated by gender, there is virtually no mention of any other characteristics such as ethnicity, disability, age, etc. This is one benefit of survey data; while it does not indicate extreme inequality, it considers other significant components, such as aboriginal and immigrant status, which is necessary in order to establish patterns of inequality. Currently, the data fails at indicating who is falling through the cracks and if this is a consistent trend.

Furthermore, Ivanova also stressed the importance of the World Wealth and Income Database, which includes data from more than 30 countries (the number is constantly changing). This database allows researchers to compare inequality from an international perspective by looking at the share of income that goes to top 1% and 0.1% in various countries. In terms of measuring Canada’s efforts to alleviate inequality on a global scale, one could look at our foreign aid spending as a proportion of our GNI. However, while this is a commonly-used and easily accessible method, it is not without its flaws: foreign aid has become more “emergency focused or reactive.” Essentially, this means that Canadian foreign aid is shifting from being distributed by need, to being allocated based on domestic security concerns. Therefore, while foreign aid spending is one way to measure Canada’s efforts to end global inequality, civil society should be conscious of the shifting priorities behind foreign aid spending.

What is Canada’s potential?

Ivanova commends Statistics Canada reporting, especially its statistics on high-income; however, even Statistics Canada has suffered from funding cuts. As a result of the cancellation of the long form census we do not have up-to-date, reliable statistics on the incomes of aboriginal peoples or recent immigrants. The new government, however, has promised to reinstitute this. While this is progress, Statistics Canada does not formally collect data on peoples with disabilities or the LGBTQ community. Indeed, there are occasional surveys that attempt to do this, however it is not in a sustained manner. Furthermore, while the re-institution of the long form census will give us an idea of who is affected by poverty, many countries do not collect data on this, which makes it impossible to compare internationally. While NGOs can pursue independent surveys and collect data from specific areas, there needs to be a push for nationwide data collection so we can better measure progress among countries. Statistics Canada’s collection of data is admirable, especially its reporting on income; nevertheless, the aggregated nature of its data fails to determine trends in the population.
Collecting meaningful, accurate, and reliable data is paramount to ensuring that Canada and other countries are working to achieve the Sustainable Development Goals. The UN, as well as individual countries, should collect more statistics on inequality in a disaggregated manner. Nationwide data collection is expensive; however, there is no tangible way to measure progress without statistics that demonstrate what is happening on the ground. With that being said, there are current indicators in existence that measure inequality, and governments should not use the excuse of data-collection to delay the implementation of policy. While gathering more statistics will strengthen inequality-reducing programs, as it will demonstrate who the top and bottom earners are (as opposed to just highlighting how much they make), the overwhelming evidence suggests that inequality is worsening. Canada’s indicators currently do a satisfactory job measuring inequality, most notably our data on the income of the top 1% and 0.1%. In order for us to better measure progress towards achieving SDG 10, at home and abroad, Canada should pursue the following options:

1. Examine income reports in conjunction with survey data in order to gain a more comprehensive picture of inequality.

2. Collect new data that looks at income broken down by variables such as ethnicity, age, gender, disability, area, etc. This option would require tax forms to ask questions about socio-demographic characteristics, which would not place much financial burden on the government, and would be easily accessible for civil society.

3. From an international perspective, Canada’s ODA is not a sufficient indicator of foreign aid spending on inequality as our ODA is not being distributed based on need. Therefore, Canada needs to ensure financial assistance is going to the countries that need it the most in order to measure progress reducing global inequality.

4. Canada should implement measures in the new framework preventing tax evasion such as country-by-country reporting of corporate profits; however, this information should be released to the public rather than remaining exclusively in government hands.

References

7 Canadian International Development Platform. CIDP. Canada’s Foreign Aid.
8 Turn The Tide: The G20 Must Act On Rising Inequality, Starting With Fairer Global Tax Reform... Oxfam Canada. p. 5.

This article was written by Ava Ashrafian based on their own research and drawing primarily on an interview with Andrew MacLeod and Iglika Ivanova, key thought leaders in this field.
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable.

Thought leaders interviewed:

**Meg Holden**
Dr. Meg Holden is a scholar of urban studies and geography, specializing in urban sustainable development in policy, planning, theory, ethics, and popular expression. Dr. Holden’s research takes place in the cities of North America, particularly the Cascadia region, and in cities internationally through her research engagement in a number of global networks of urban professionals and researchers. Teaching graduate courses in Urban Studies and Geography and undergraduate courses in Geography, Dr. Holden supervises students investigating the evolution of sustainability thinking, culture, policy and practice in a number of domains, locally and internationally, as well as urban planning, policy, development and civil society topics more broadly.

**Helen Ng**
Helen Ng is the Executive Vice President of the World Council on City Data (WCCD) and Director of the Global City Indicators Facility (GCIF). The WCCD coordinates all efforts on city data to ensure a consistent and comprehensive platform for standardized urban metrics and provides an open data platform with verified data from cities. Helen is the official liaison to TC268 representing the WCCD and GCIF’s network of cities in ISO standards development work. The Working Group is now working on a new international standard for smart cities. She holds a Master’s degree in International Development and Political Science from the University of Guelph, Canada and a Honours Bachelor’s degree in Public Policy from the University of Toronto, Canada.
<table>
<thead>
<tr>
<th>Targets</th>
<th>(11.1)</th>
<th>by 2030, ensure access for all to adequate, safe and affordable housing and basic services, and upgrade slums</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(11.2)</td>
<td>by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</td>
</tr>
<tr>
<td></td>
<td>(11.3)</td>
<td>by 2030 enhance inclusive and sustainable urbanization and capacities for participatory, integrated and sustainable human settlement planning and management in all countries</td>
</tr>
<tr>
<td></td>
<td>(11.4)</td>
<td>strengthen efforts to protect and safeguard the world’s cultural and natural heritage</td>
</tr>
<tr>
<td></td>
<td>(11.5)</td>
<td>by 2030 significantly reduce the number of deaths and the number of affected people and decrease by (y)% the economic losses relative to GDP caused by disasters, including water-related disasters, with the focus on protecting the poor and people in vulnerable situations</td>
</tr>
<tr>
<td></td>
<td>(11.6)</td>
<td>by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality, municipal and other waste management</td>
</tr>
<tr>
<td></td>
<td>(11.7)</td>
<td>by 2030, provide universal access to safe, inclusive and accessible, green and public spaces, particularly for women and children, older persons and persons with disabilities</td>
</tr>
<tr>
<td></td>
<td>(11.a)</td>
<td>support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning</td>
</tr>
<tr>
<td></td>
<td>(11.b)</td>
<td>by 2020, increase by (x)% the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, develop and implement in line with the forthcoming Hyogo Framework holistic disaster risk management at all levels</td>
</tr>
<tr>
<td></td>
<td>(11.c)</td>
<td>support least developed countries, including through financial and technical assistance, for sustainable and resilient buildings utilizing local materials</td>
</tr>
</tbody>
</table>
According to Helen Ng, director of the Global City Indicators Facility, when choosing indicators for SDG 11 it is crucial to ensure that they are diverse. Sustainable urban development involves so many different factors – from land use, to green space, to safety of the population, to accessibility – that Canada must take a holistic approach when measuring how a country is achieving urban sustainability.

Ng pointed to the ISO 37120 – an index of 100 indicators that the Global Cities Facility was instrumental in developing. It defines and establishes methodologies for measuring every aspect of sustainability and environmental resilience in an urban context, from more basic expressions of sustainability such as greenhouse gas emissions in tonnes per capita, to more complex and less-frequently captured data such as green hectares as a proportion of the total urban population. It also captures some of the more elusive elements needed to indicate Canada’s progress on SDG 11 – for example, the number of policemen per capita and crime rates, both of which denote overall safety.

The ISO indicators create a standardized set of indicators which can then be used to compare cities on a global scale. Standardization is something that both Holden and Ng see as necessary. The World Council on City Data has piloted the ISO indicators in 20 cities on every continent worldwide, and the indicators are becoming more widely adopted, suggesting that they are increasingly meaningful as a benchmark as more information is added to them.

Ng also noted that from a Canadian perspective, indicators that could be spatially mapped as specifically as possible, and indicators of access to services and affordability, would be beneficial.

Meg Holden pointed to the important role played by Statistics Canada in creating indicators and measuring data. Possible indicators that can be used in this regard include:

- Statistics Canada’s land surveys, housing affordability, crime rates, and distribution. It has the benefit of being gathered regularly and is free to access, making it attractive to civil society groups. To supplement gaps left by Statistics Canada – such as an indicator for how well Canadian cities respond to disasters, or a more thorough breakdown of urban transit usage – there is a wide variety of reports compiled by civil society groups which are released annually. These often include benchmarks to global trends, such as the Canadian Conference Board’s report on municipal waste disposal, Public Safety Canada’s database on Canadian disasters, and the Canadian Homelessness Research Network’s data that compares how Canadian cities are working towards ending homelessness.

- Canada currently has no formal indicators that measure its contribution to sustainable urban development on a global scale. Possible indicators that could be developed are a better, clearer, centralized reporting system for how Canada allocates its aid funding, by sector and region. The Canadian International Development Platform has a dataset which does this by aggregating government statistics, but the government has not released statistics since 2012-2013 and the most relevant sector to sustainable urban development is “construction” – there is no climate, environment, or sustainability label, and no urban development label.

- Another potential avenue for measuring Canada’s international investment towards SDG 11 could be tracking the numbers of experts in sustainable urban development that Canada sends overseas, by the government or NGOs. This could be measured through information within the government registry of Canadians abroad, and through census data. These two mechanisms allow Canada’s international commitment to SDG 11 to be determined.
The biggest weakness noted by both Ng and Holden in potential indicators is that it is difficult to truly judge how Canada compares to other countries because of the lack of definitions and standardization around indicators and targets. Holden said that every country defines a city differently, and many countries have trouble measuring very basic things like population.

Most cities have the data necessary, said Ng, but it is fragmentized. The indicators exist, but they need to be standardized and centralized so they can be accessed by all cities and used to create practical targets and goals.

A strength of the Statistics Canada data and other domestic reports to supplement it is that they can be adjusted for a Canadian context. For example, although SDG 11 stipulates lowering the number of people living in slums, Ng and Holden said that slum measurements are not as relevant to Canada and that housing affordability and relative poverty, as measured by Statistics Canada, would be better indicators. In addition, Holden noted that although collection of urban solid waste was a target outlined by the UN, this was not as relevant for Canada and instead the focus should be on how waste is being minimized – through composting or recycling. This is measured in the ISO indicators, as well as domestic agencies such as the Conference Board of Canada which compares Canadian provincial waste management to other countries.

Holden also argues that Canada should measure Indigenous communities on a parallel with the rest of the country, because “there is a third world within Canada” and reserves should not be left behind or swallowed up in the bigger picture of statistics. This is where spatially mapped indicators could be valuable.

The drawback of the ISO indicators is that the ISO standard must be bought from ISO. In this regard Statistics Canada’s data, combined with domestic reports, is preferable, although this sacrifices standardization and comes at the cost of fragmentation of data worldwide. However, if cities are members of the World Council for City Data and have certified ISO data, then the data is made freely available.

Holden noted that a weakness of both the ISO and Statistics Canada indicators is that they do not capture social behavioural trends, or have any social meaning. The data they produce is difficult to translate into something that resonates with the public, and doesn’t capture what mechanisms or policy recommendations are the most functional for how Canada can achieve SDG 11.

The final weakness of these indicators is that they do not demonstrate how Canada is contributing to SDG 11 through its international engagement, either via funds donated or causes supported in non-fiscal ways in overseas countries. As a developed country, this is a serious gap in Canada’s ability to measure its contributions to SDG 11. Potential indicators such as a clearer aggregation of data on how Canada allocates international development funding or the number of experts Canada sends abroad would fill this gap, but their weaknesses cannot be firmly outlined until they are developed.
Holden emphasized that because of Canada’s culturally diverse population, it has great potential to demonstrate the effects of successful implementation of SDG 11 to the rest of the world. With this in mind it is extremely important for Canada to find the right balance between international indicators and accurate measures of Canada’s unique complexities, as outlined in the previous section. To adequately measure and benchmark Canada’s progress on SDG 11, a combination of ISO indicators and domestic indicators such as reports from NGOs and Statistics Canada data should be used.

The ISO indicators provide the most benefit to Canada on the whole. They allow for a standardization of terms, measures and a benchmark to judge Canada’s performance against other cities worldwide. For Canada to get involved in this set of indicators would be very beneficial – the more cities that use it and contribute their data, the more valuable the dataset becomes. Canada could support its cities in joining the World Council for City Data, in order to make the ISO data freely available to civil society members.

To complement these, Canada needs to overcome the main weakness of the ISO indicators – lack of specification to Canada – by supplementing them with data pulled from Statistics Canada and individual domestic reports. Indicators used could be consolidated into either one annual report released publicly, or onto one website where the data gathered could be accessed by the general public. Ng noted that a holistic approach is crucial, allowing for a more complete picture to be captured through the indicators. Strategically combining the ISO indicators with Statistics Canada and civil society reports would allow for this holistic approach. To enhance this, Holden suggests taking BC’s Community Energy and Emissions Inventory, used to measure emissions from communities across the province, as a template for an indicator that could be used across the country. This would provide greater accountability within communities in every province.

A major gap is creating an indicator for Canada’s international engagement on the targets outlined in this goal. This could be accomplished in part by providing a clearer, more accessible report of what programs the Canadian government funds through international aid, as well as creating a reporting platform where non-government entities could report what areas they contribute to. Canada’s work towards helping other countries achieve SDG 11 would be made much more transparent and be easier to access and measure by civil society. The implication with this emphasis on consolidation and reporting is that Canada is holding itself accountable not only to the UN, but to its own citizens.

**Recommendations**

Holden and Ng also both state that a centralization of indicators and definitions is crucial. Ng emphasizes standardization, although Holden has concerns that some indicators will not be useful everywhere; both emphasize a holistic approach. When Canada is choosing indicators, it should capture the most holistic picture of urban sustainability, and create indicators whose data can be centralized and used across Canada and ideally internationally.

- The ISO indicators provide a standardized, international set of measurements that Canada can use to quantify its progress towards SDG 11 and compare progress to other countries.
- Statistics Canada data and domestic civil society reports should be used to provide a holistic picture of Canada’s progress as a country towards this goal.
- Canada needs to create an indicator of how it is supporting SDG 11 through its international aid and overseas projects, such as clear reporting on where and how it allocates aid and experts. To do this, it should work with its own government as well as non-governmental organizations within its borders to fully flesh out its progress on this front.
- In solidifying these indicators, the Canadian government should create some kind of easily accessible database or report for whichever indicator it selects. This will allow informed participation from civil society and individuals around the world, and will strengthen both the indicators and Canada’s progress in the long run toward achieving SDG 11.

This article was written by Moira Warburton based on their own research and drawing primarily on an interview with Meg Holden, a key thought leader in this field.
Goal 12: Ensure sustainable consumption and production patterns.

Thought leader interviewed:

**Vanessa Timmer**
Vanessa Timmer is co-founder and Executive Director of One Earth, a nonprofit ‘think and do’ tank based in Vancouver, Canada, whose mission is to transform production and consumption patterns locally, nationally and internationally to be sustainable, healthy and just within the limits of living systems. She weaves together sustainability with systems thinking, and believes that envisioning sustainable futures is a powerful draw for social change. In 2013, she was awarded Business in Vancouver’s Top Forty under 40. Vanessa is also an Associate with the Sustainability Science Program at Harvard University’s Kennedy School of Government on innovation and global public goods. She is asked to speak on social change, leadership, systems thinking and sustainability, and teaches courses on these topics at the University of British Columbia (UBC), Simon Fraser University, Metro Vancouver and the International Institute for Sustainable Development.
<table>
<thead>
<tr>
<th>Targets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.1</td>
<td>Implement the 10-Year Framework of Programmes on sustainable consumption and production (10YFP), all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.</td>
</tr>
<tr>
<td>12.2</td>
<td>By 2030 achieve sustainable management and efficient use of natural resources.</td>
</tr>
<tr>
<td>12.3</td>
<td>By 2030 halve per capita global food waste at the retail and consumer level, and reduce food losses along production and supply chains including post-harvest losses.</td>
</tr>
<tr>
<td>12.4</td>
<td>By 2020 achieve environmentally sound management of chemicals and all wastes throughout their life cycle in accordance with agreed international frameworks and significantly reduce their release to air, water and soil to minimize their adverse impacts on human health and the environment.</td>
</tr>
<tr>
<td>12.5</td>
<td>By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse.</td>
</tr>
<tr>
<td>12.6</td>
<td>Encourage companies, especially large and trans-national companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.</td>
</tr>
<tr>
<td>12.7</td>
<td>Promote public procurement practices that are sustainable in accordance with national policies and priorities.</td>
</tr>
<tr>
<td>12.8</td>
<td>By 2030 ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.</td>
</tr>
<tr>
<td>12.9</td>
<td>Support developing countries to strengthen their scientific and technological capacities to move towards more sustainable patterns of consumption and production.</td>
</tr>
<tr>
<td>12.10</td>
<td>Develop and implement tools to monitor sustainable development impacts for sustainable tourism which creates jobs, promotes local culture and products.</td>
</tr>
<tr>
<td>12.11</td>
<td>Rationalize inefficient fossil fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities.</td>
</tr>
</tbody>
</table>
Consumption and production activities are the basis of the global economy; however, current patterns are depleting natural capital, degrading ecosystem services, driving inequality, and undermining the capacity of countries to meet their needs in a sustained way. The shift to SCP (Sustainable Consumption and Production) patterns reduces social and ecological impacts by focusing on quality of life for all, within the life support systems of the planet. SCP adopts a whole systems approach to reduce the absolute amount of resources and waste being produced, now and for future generations. SCP innovations focus on using fewer resources through reducing material demand and through radical product redesign, and efficiency gains in supply chain and in the life cycle of products.

Effective measurement for SDG 12 requires a whole systems approach and shift in cultural and economic models, away from economic growth towards qualitative improvements in social, ecological, and economic wellbeing. Vanessa Timmer, Executive Director of Canadian nonprofit One Earth, identified the following three indicator sets for measuring progress toward SDG 12:

1. Market share of sustainable public procurement complying with sustainable labelling verified products and services;
2. Industrial resource use including reducing agricultural / food waste.
3. Accessible educational and awareness raising programs for sustainable consumption.

On the local scale, a focus on Smart Consumption was suggested. Smart Consumption is a strategic approach used to change wasteful consumer behaviour and to change consumption and production habits to be more green, ethical and just.

Market share of sustainable public procurement complying with sustainable labelling verified products and services is the first indicator set suggested in order to make a critical shift locally. Sustainable Public Procurement (SPP) is a process whereby public authorities seek to procure goods and services with a reduced environmental and/ or social impact throughout their life cycle. SPP measures organizational behavior that supports sustainable consumption while the current Canadian eco-labeling program establishes 122 Eco-Logo standard categories which allow civil society to monitor progress in sustainable purchasing within the public sector.

The second indicator set worth noting is industrial resource use including reducing agricultural / food waste which applies material flow analysis and the green accounting method. In general, material flow analysis and green accounting create a system to track and display life cycles and flows of materials entering, staying within, and leaving the different production chains. For a developed economy like Canada, the industrial resource use rate can be monitored through measures such as input-output analysis, ecological footprint assessments, urban metabolism studies and material or domestic consumption data.

At the global scale, Timmer emphasizes the importance of equitable consumption beyond our borders which focuses on the developing world’s access to resources, services, and other basic living needs. For example, Timmer identifies the global agricultural products waste rate as the focal indicator for complying with this equitable consumption goal. The Food and Agricultural Organization reports that more food is wasted in rich countries (220 million tonnes) at the consumer and retail level than the entire net food production of sub-Saharan Africa (230 million tonnes).

Reducing food waste at the consumer and retail level and strengthening support for farmers and agricultural investments can reduce food waste. Given the integrated supply chain, there is a great opportunity for Canada to convert waste agricultural biomass into a value-added resource, thus contributing to global agricultural food management. This eases the burden on food supply within developing countries. This indicator supports Canada’s commitment for equitable consumption globally – not limited to foreign aid, but through sustained capital transfer in agriculture-related technology.

At the global level, the final indicator set for SDG 12 is accessible educational and awareness raising programs for sustainable consumption. Canada has a well-established record in empowering its communities with informative education on sustainable consumption. It is through a combination of lifestyle choices and patterns shaped by societal structures, and through purchasing choices that consumers vote in the market in terms of whether they support or reject certain corporate practices. Through this process they also send messages to decision-makers in government and industry. Canada can promote a commitment to Sustainable Consumption and Production (SCP) globally by holding
From a civil society perspective, the strengths and weaknesses of the indicators are considered in relation to accessibility and affordability. SCP encompasses the objective of a systematic decoupling of economic growth from escalating resource use and a consumer culture aimed at continuous material ownership and product disposal. A mature global supply chain should include strengthened institutional procurement policies as well as a sustainable economy and the indicators identified will support movement in such a direction.

Another strength of the three indicators identified is transformability. For example, although it will not be possible to distinguish life-cycle assessments for some products or activities, it is possible to gather environmental and economic information from industries or households that are comparable internationally through monitoring large scale government procurement. These indicators will consequently create an accessible framework or a more circular economy and give more emphasis to the durability of economic activity.

A weakness that these indicators fail to address is the problem of securing commitment to achieving SCP due to the vague clarification around implementation responsibility and accountability. It is the assignment of implementation authority among different levels of governmental agencies as well as outdated political agendas that will affect progress toward the SDGs. Fragmentation is also an issue. Environmental reporting is often carried out independently across departments and institutions and these reporting requirements are constructed for their own purposes and cannot be used in a cross-bureaucratic approach, which is problematic.

Data availability is another weakness in quantifying indicator progress, as the double counting issue is currently unsolved for many Eco-footprint algorithms. Many scholars and members of civil society have criticized the lack of data availability for measuring progress, and the technical capacity issues faced by many countries including Canada. For example, the sustainable purchasing labeling programs, specifically eco-labeling, discussed earlier has not been updated in terms of measurement standards since 2005.

What is Canada’s potential?

Canada has tremendous potential with the current support of a federal government that recognizes the importance of SCP. National leadership is expected to encourage further cooperation at the provincial level and the Government of Canada should take the lead in creating new policy frameworks to promote a more circular economy. In doing so, there is an urgent need to change the fragmented national institutional systems with respect to SCP measurement.

Transitioning away from its passive governmental commitment, Canada is expected to strengthen capacity building related to data collection and application, to provide an initial assessment of what is required to do so, and to modify the current accessing system. Decentralized information systems in the environmental sphere need to be improved through a coordinated approach with a clear timeline.

A change in the mindset of new generations of Canadians is fundamental in order to shift away from an economic system and consumer culture aimed at continuous economic and material growth. Cities like Vancouver tagged with its DNA for sustainability will take the national lead in this SCP movement. Innovation driven and modified by local communities is evidence of this vital change in consciousness already happening from the grassroots up.
Recommendations

Lead by example through sustainable procurement practices

- Canadian governments, businesses and institutions can demonstrate their commitment to SCP by adopting sustainable purchasing practices. Indicators include share of sustainable procurement in relation to all procurement.

Analysis of the market share of sustainable public procurement and industry reuse, remanufacturing and repair rate

- Canadian governments, businesses and institutions can use these indicators to accelerate their efforts to implement and standardize sustainable purchasing policy and to develop action plans and practices that will move supply chains in the direction of cradle to cradle sustainability.
- Material flow analysis and sustainable accounting methods (e.g., urban metabolism, ecological footprint, and material flow analysis) can be developed to support emerging sustainable practices like the reuse, repair and remanufacturing industry and low carbon technology innovation. Indicators include material footprint per GDP, and material footprint per GDP for each national economy, and sectoral material input per sector added value for main manufacturing sectors such as construction, agriculture and transport.

Active monitoring of the global agricultural food waste system

- The global agricultural food waste rate is a focal indicator for assessing progress toward the equitable consumption aspect of SDG 12. This can be measured through measuring the proportion of solid waste, specifically organics, generated that are landfilled or incinerated. Other indicators can include percent of food lost prior to consumption: losses on the field, post-harvest, storage, manufacturing, processing and distribution stages; and percent of food waste at the consumption stage.

Support awareness campaigns around sustainable lifestyles and consumption patterns

- Measurements can include number of campaigns undertaken as well as citizens engaged.

Improve Institutional Cooperation and Data Quality

- At the federal level there is an urgent need to change the fragmented national system with respect to SCP measurement.
- Canada is expected to strengthen capacity building related to data collection. As part of the capacity building agenda, it is important for all countries to identify as soon as possible their requirements for environmental statistics. One proposal is for countries to develop a national plan for the improvement and enhancement of environmental statistics gathering.

This article was written by Annie Wang based on their own research and drawing primarily on an interview with Vanessa Timmer, a key thought leader in this field.
Goal 13: Take urgent action to combat climate change and its impacts.*

Geneviève Talbot
Research and advocacy officer at the Canadian Catholic Organisation for Development and Peace (CCODP) since March 2015, Geneviève Talbot is involved in the field of international solidarity since 2000. She joined CCODP in March 2007 as the Programme Officer for the Philippines and Cambodia and then was responsible of the organization programs in Nigeria and Sierra Leone. Geneviève Talbot worked as an international volunteer in Iligan City, Philippines, for the United Nations Development Program (UNDP) in Ecuador as well as for the Canadian Commission for UNESCO (2001-2004). Last December, Geneviève Talbot was an observer at the Climate change conference (COP 21) in Paris.

Thought leader interviewed:

Geneviève Talbot
Research and advocacy officer at the Canadian Catholic Organisation for Development and Peace (CCODP) since March 2015, Geneviève Talbot is involved in the field of international solidarity since 2000. She joined CCODP in March 2007 as the Programme Officer for the Philippines and Cambodia and then was responsible of the organization programs in Nigeria and Sierra Leone. Geneviève Talbot worked as an international volunteer in Iligan City, Philippines, for the United Nations Development Program (UNDP) in Ecuador as well as for the Canadian Commission for UNESCO (2001-2004). Last December, Geneviève Talbot was an observer at the Climate change conference (COP 21) in Paris.
### Targets

| 13.1 | strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries |
| 13.2 | integrate climate change measures into national policies, strategies, and planning |
| 13.3 | improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning |
| 13.a | implement the commitment undertaken by developed country Parties to the UNFCCC to a goal of mobilizing jointly USD100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible |
| 13.b | promote mechanisms for raising capacities for effective climate change related planning and management, in LDCs, including focusing on women, youth, local and marginalized communities |

*Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.*
Currently, Canada has a well-established set of indicators regarding climate change, including air quality, emission levels and human health impacts related to pollution. Although these indicators are appropriate and well-developed, they require further development to address the shifting nature and effects of climate change both domestically and internationally. Genevieve Talbot, a research and advocacy officer for the non-profit organization Development and Peace, identified five key indicators for measuring Canada’s action on climate change.

The first indicator is the amount of gross domestic expenditure (GDP) being spent on climate change related projects. Canada is the eighth largest producer of greenhouse gas emissions in the world; the country has an obligation to dedicate a substantial amount of its GDP to curbing climate change. Using the amount of GDP spent on climate initiatives as an indicator measures the commitment of the Canadian government to make progress on SDG 13, by showing to what extent it puts its money where its mouth is. Talbot recommends that a domestic benchmark level of five per cent of GDP is used towards climate change projects, as this number represents the $75 billion a year that Canadians spend on energy to heat homes and offices, and to operate cars, factories and appliances. The GDP allocation is also easily comparable to other countries worldwide. Internationally, Canada has committed 2.65 billion dollars by 2020 for climate change adaptation and mitigation measures in developing countries. However, based on precedents where Canada has contributed 3% to 4% of multilateral funds, Canada’s fair share of the US$100 billion promised in the Paris Decision document would require a contribution of $4 billion a year by 2020.

The second indicator that would be beneficial in measuring climate change progress is the amount of greenhouse gas emissions that Canada releases. The current Canadian target of greenhouse gas emissions is to be 17% under the 2005 level of emissions which was 749 mega tonnes of the carbon dioxide equivalent. Though this is in line with the Copenhagen target, this decrease is not substantial enough to curb global warming and climate change effects. Talbot instead recommends a 2025 target of at least 35% drop in emissions below 2005 levels, a 50% reduction by 2030 and decarbonisation by 2050. In order to work with these targets, Talbot argues that these targets should be expressed as a carbon budget to measure performance and that targets should be set in five-year increments in line with progress towards decarbonization by 2050.

The third indicator recommended by Talbot is dedicating 50% of the previously mentioned climate change funding towards adaptation programs and 50% to those that deal with mitigation as both are equally important yet previous funding for adaptation purposes was only 18.1%. She provides the example of supporting small-scale farming, which is a far more sustainable form of agriculture than the current globalized system in place, which heavily contributes to greenhouse gas emissions in the form of transportation. Canada must adopt its climate change strategy to build resilience and reduce vulnerabilities in reference to climate domestically and internationally.

At the global level Talbot identifies two sets of indicators for measuring Canada’s efforts and successes in the climate change field internationally. The fourth set of indicators referenced by Talbot is Canada’s active participation in 100% of all climate change conferences with the key indicator being Canada’s re-admission into the Kyoto Protocol and the upholding of Canada’s commitments in both COP21 and Kyoto. The fifth indicator for measuring Canada’s progress to climate change internationally is the dedication of 90% of Canada’s overall climate change funding to international development and solidarity organizations that deal with climate change adaptation in states that are most vulnerable to climate change effects.

What are the strengths and weaknesses of the indicators identified?

The strength of all five indicators lies in their ability to be monitored relatively easily through the use of proper data collection. In relation to the second, third and fifth indicators mentioned – which revolve around climate finance – Talbot explains that the main benefit is that it is relatively simple to determine the exact amounts of funding dispersed by the government, which makes accountability for that funding possible. This can be achieved through annual spending reports and monitoring efforts of climate finance mechanisms such as the Green Climate Fund – a UN-founded financial mechanism which helps developing countries adapt and mitigate the effects of climate change – of which Canada is a board member.

A strength in measuring the second indicator – the decrease of carbon emissions – is that this is something that both individuals and companies can be held accountable for, possibly through a potential carbon tax.

With regards to the two international indicators, their strength lies in their ability to re-establish Canada on the international field. In recent years the government has been
unreliable in its international commitments, including the country’s exit from the Kyoto Protocol.

A major weakness of the second, third and fifth indicators is the argument that simply allocating funds does not ensure that the funding is being dispersed effectively and achieving results. Talbot explained that funding often tends to get lost through the many levels of multilateral agreements, leaving amounts that end up unaccounted for. Therefore she suggests that the government engages in an increased amount of bilateral agreements which makes funding easier to track.

From a civil society perspective these indicators generally revolve around higher level processes which could decrease the role of the individual in being able to measure climate change within Canada. Internationally, a weakness in tracking climate finance lies in the lack of data, which could be addressed through improvements on data collection methods, as well as databases at national and international levels.

What is Canada's potential?

Canada has the ability to play a substantial role in monitoring climate change funding and finance through these indicators in both the domestic and international fields. Canada is particularly well positioned as it is currently on the board of the Green Climate Fund and is well-situated in the Organization for Economic Co-operation and Development, which has a committee that tracks financing for climate change purposes. Canada also has great potential to be a leader in data collection of greenhouse gas emissions, as the country has been collecting carbon data since 1990. Through Canada's assistance in the implementation of similar data collection systems worldwide, the indicators relating to decreasing carbon emissions could be more effectively met. Furthermore, Canada has the potential to engage civil society through the use of the existing annual and biennial reports which are easily accessible online and therefore holds Canada and the international community to a higher level of accountability. By supporting similar reports internationally, civil society can become more engaged worldwide in this issue. Internationally, Canada has the ability to make a big impact on monitoring climate funding and enforcing participation by pushing for an increased amount of bilateral agreements, which yield better data and thus produce more effective results.

Recommendations

The following indicators are proposed:

• Canada should track the % its GDP being allocated towards climate change initiatives with a target of 5% of GDP including 4 billion a year for climate adaptation and mitigation measures in the Global South.

• The level of greenhouse gas emissions should be closely monitored. An indicator of success would be a 2025 target of at least 35% below 2005, a 50% reduction by 2030 and decarbonisation by 2050.

• Indicators for tracking climate change funding should be established. Climate change funding should be split equally between mitigation and adaptation.

• Targets should be set in five-year increments to achieve decarbonization by 2050.

• Canada’s targets should be expressed as a carbon budget.

• 90 per cent of all funding should be given to international initiatives and 10 per cent to domestic.

• Canada should reaffirm its commitments to both the Kyoto Protocol and COP21.

• Canada’s greenhouse gas reduction should be enshrined in domestic law with implementation and enforcement responsibility clearly assigned.

• Canada should ensure early action to maximize reductions that can narrow the gap to our 2020 target.

• Canada should do its fair share to keep global warming to well below 2 degrees Celsius, and pursue all efforts to limit it to 1.5 degrees.

• Ensure transparency so that all assumptions underlying greenhouse gas emissions, projections and measures can be quantified, verified, and compared to other country commitments. Canada especially needs to be transparent with regard to its calculation of the sources and removals relating to the land sector.

This article was written by Ksenia Orohova based on their own research and drawing primarily on an interview with Geneviève Talbot, a key thought leader in this field.
Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Thought leader interviewed:

Bill Wareham
An environmental professional with over twenty-seven years experience working in the environmental not-for-profit sector. Wide range of experience in terrestrial and marine conservation, environmental policy review, conservation planning and sustainability initiatives. Extensive work history developing effective conservation and sustainability initiatives that maintain and rebuild biodiversity. Extensive experience in marine conservation and sustainable fisheries and seafood programs. Goal is to engage skills, knowledge and experience in helping organizations meet their environmental and sustainability objectives.
### Targets

<table>
<thead>
<tr>
<th>Target</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1</td>
<td>by 2025, prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution</td>
</tr>
<tr>
<td>14.2</td>
<td>by 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration, to achieve healthy and productive oceans</td>
</tr>
<tr>
<td>14.3</td>
<td>minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels</td>
</tr>
<tr>
<td>14.4</td>
<td>by 2020, effectively regulate harvesting, and end overfishing, illegal, unreported and unregulated (IUU) fishing and destructive fishing practices and implement science-based management plans, to restore fish stocks in the shortest time feasible at least to levels that can produce maximum sustainable yield as determined by their biological characteristics</td>
</tr>
<tr>
<td>14.5</td>
<td>by 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on best available scientific information</td>
</tr>
<tr>
<td>14.6</td>
<td>by 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation</td>
</tr>
<tr>
<td>14.7</td>
<td>by 2030 increase the economic benefits to SIDS and LDCs from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism</td>
</tr>
<tr>
<td>14.a</td>
<td>increase scientific knowledge, develop research capacities and transfer marine technology taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular SIDS and LDCs</td>
</tr>
<tr>
<td>14.b</td>
<td>provide access of small-scale artisanal fishers to marine resources and markets</td>
</tr>
<tr>
<td>14.c</td>
<td>ensure the full implementation of international law, as reflected in UNCLOS for states parties to it, including, where applicable, existing regional and international regimes for the conservation and sustainable use of oceans and their resources by their parties</td>
</tr>
</tbody>
</table>
The UN Statistical Commission has suggested the use of meta-indicators to measure progress toward SDG 14, rarely proposing more than one indicator per target. For example, to measure the reduction of marine pollutants, in particular from land based activities, the index of coastal eutrophication has been proposed. At the domestic level, the Department of Fisheries and Oceans Canada collects a range of data that can be used to measure the meta-indicators identified by the UN Statistical Commission. For example, Fisheries and Oceans Canada (FOC) gathers data on eutrophication, marine acidity, and the proportion of fish stocks within biologically sustainable levels. In the case of the eutrophication, data from Environment and Climate Change Canada on the eutrophication of major Canadian lakes could also be used as an indicator on this topic.

Internationally, recent policy implementations such as the New Emerging Fisheries Policy will allow Canada to measure its contribution abroad as well. The goal of this policy is to regulate illegal fishing practices in order to keep the fish population balanced, indicating a desire to eradicate subsidies that contribute to environmentally harmful commercial fishing. Canada’s Department of Finance provides data suitable for measuring subsidies related to small sized fisheries in accordance with the UN’s indicator on measuring access of small scale fishers to resources and markets.

Locally, the implementation of the frameworks has taken place through the development of programs, such as the Vancouver Aquarium’s Ocean Pollution Research Program, headed by Dr. Peter Ross and focused on marine mammal research. The population and condition of marine mammals can provide valuable metadata on the marine ecosystem, as they rely on fish and plankton populations. This data can supplement FOC’s data to determine the number and proportion of species at risk, serving as a meta-indicator to determine pollution levels as well as fish populations.

Canada’s ability to measure its role globally in achieving SDG 14 is not as well developed as its capacity to implement indicators domestically. Regulations pertaining to fisheries and reduction of pollution in marine environments follow a domestic focus and do not have an international application. However, on the global stage, Canada has committed itself as a party to the United Nations Convention on Law of the Sea (UNCLOS). As a member state of UNCLOS, Canada makes payments which are distributed through a fund to lesser developed states within the convention and part of these funds is used to promote sustainable marine management. As a result, Canada’s international contribution to SDG 14 can be measured through its financial contribution to UNCLOS. Another indicator of Canada’s global contribution to SDG 14 is Canada’s efforts to prevent illegal and unreported fishing originating from other nations. This second indicator can be measured by recording the estimated reduction of illegal fishing due to Canadian monitoring and enforcement. Money spent on developing other countries’ capacity to prevent illegal fishing can also serve as an indicator of Canada’s efforts abroad. Finally, rather than measuring the role of fisheries in GDP for small developing island nations, measuring the role of fisheries in food security is more relevant. This can be done by measuring the fish consumed as a protein source as a percentage of the protein need of the nation.

Fisheries and Oceans Canada provides most of the relevant data needed to measure progress on SDG 14. A major benefit of this is that the information remains free for civil society to access, as is the case with other national departments. Environment and Climate Change Canada and the Department of Finance also supply complementary statistics, for example, information on subsidies for small and medium sized fisheries, and data on lakes and rivers.

Wareham remarked on several shortcomings in the indicators including those revolving around marine acidity, the nitrogen use efficiency composite indicator, and coverage of protected areas in relation to marine areas. Weather trends, such as El Niño and La Niña, can cause water acidity to fluctuate distorting results from one year to the next. Since these weather patterns greatly affect pH levels, results of testing can be distorted during periods of warm weather events. Furthermore, measuring the levels of nitrogen as a means to determine ocean pollution levels can underestimate the degree of pollution. Nitrogen tends to accumulate in coastal regions and is only one of many pollutants present in the ocean. Therefore, there is need for a macro-indicator to provide a better holistic view of pollution build-up in marine environments. This can be done by measuring the number and proportion of species at risk, which overcomes the shortcomings of measuring eutrophication and pH levels. The meta-indicator of the number and proportion of species at risk will provide data that accurately reflects pollution levels. Fisheries and Oceans Canada measures biogeographic data, and the resulting statistics on marine species and ecological patterns can be used to measure this proposed meta-indicator. Lastly, protected areas often limit the use of exploitative practices, but do not ban resource exploitation. Therefore, while measuring the increased percentage of marine protected environments is a good indicator for the conservation of coastal and marine areas, this indicator
Although in the past there has been a lack of commitment in implementing indicators, Canada does have a good structure in place to fulfill required research to collect data to determine the progress in achieving the targets. The majority of the indicators are valid in theory, but are narrow-minded in nature.

Overall, Wareham stated that Canada’s potential to carry out the indicators is better relative to many other nations in the world. Canada has the infrastructure to apply indicators through institutions like the Department of Fisheries and Oceans, which carries out research in concordance with many of the UN Statistics Commission indicators. However, due to a lack of effort in supporting environmental goals and research in sustainable practices by the federal government in the past, there is currently a lack of data needed to determine Canada’s progress towards meeting the goals. Therefore, there is a level of uncertainty in how Canada will be better able to implement indicators without a base of collected data that shows areas of improvement or areas that are functioning well.

In order for the federal government to more successfully implement and increase effectiveness of indicators, Wareham recommends that the government should garner support and promote the political will to act amongst industries and civil society. Several of the indicators will directly affect the activities of particular industries, such as fisheries. By reinforcing positive behaviours amongst industries, for example through increased subsidies, the willingness of industries to comply with and implement indicators is more likely. Moreover, increased public support behind indicators can increase pressure on industries to comply with government enforcement of regulations. In this regards, Canada’s potential in implementing effective and successful indicators is much greater.

Recommendations

In improving effectiveness of indicators in reaching the desired targets, and ultimately, SDG 14, there should be a greater focus on fishing and pollution, as well as an overall improvement to specific indicators that fall within this framework.

Regarding Canadian fisheries, there should be an addition of third party certification, such as certification of aquaculture, which would broaden the scope of the indicator to include the percentage of production or harvest that falls under this third party certification.

On an international level, measures should focus on the degree of which nations have fisheries used for food security issues, instead of measuring GDP. Small developing island nations often fish for subsistence, thereby generating little GDP from the industry. Therefore, it is better to measure how much fish remains in the nation as a protein source measured against protein need.

Furthermore, an alternative measure for determining pollution levels in marine environments is the use of keystone species that suffer a greater impact in face of rising pollution than other species. According to the “Maple Leaf in the OECD” published by the David Suzuki Foundation, the number of species at risk and proportion of species at risk can be used to determine ecological health of an ecosystem.

This article was written by Lindsay Wong based on their own research and drawing primarily on an interview with Bill Wareham, a key thought leader in this field.
Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Gwen Barlee
Gwen Barlee has been involved in the environment movement since 2001 and is presently the Policy Director and a spokesperson for the Wilderness Committee. Gwen leads campaigns on species at risk, parks and public lands, river diversion power projects, and the protection of bees and wild pollinators from deadly neonic pesticides. Gwen is an active user of provincial freedom of information legislation and over the years has learned through trial and error how to pry politically sensitive information from numerous government bodies. Her innovative FOI work on key environmental issues and on Lyme disease, an emerging health concern in BC, has resulted in hundreds of media stories including front page coverage in the Vancouver Sun and The Province.

Andrea Reimer
Inspired by Mayor Gregor Robertson’s leadership to join Vision Vancouver, Councillor Andrea Reimer was first elected to Vancouver City Council in 2008, and re-elected in 2011 and 2014. She had previously served as a School Board member with the Green Party from 2002–2005. As the lead councillor on the City’s award-winning Greenest City Action Plan, Councillor Reimer led efforts to make Vancouver a global leader in environmental action, validated by Vancouver being named the fourth greenest city on Earth in 2014. In 2013, she was awarded the Queen’s Jubilee medal in recognition of her leadership role on this initiative.
<table>
<thead>
<tr>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>15.1</strong></td>
</tr>
<tr>
<td><strong>15.2</strong></td>
</tr>
<tr>
<td><strong>15.3</strong></td>
</tr>
<tr>
<td><strong>15.4</strong></td>
</tr>
<tr>
<td><strong>15.5</strong></td>
</tr>
<tr>
<td><strong>15.6</strong></td>
</tr>
<tr>
<td><strong>15.7</strong></td>
</tr>
<tr>
<td><strong>15.8</strong></td>
</tr>
<tr>
<td><strong>15.9</strong></td>
</tr>
<tr>
<td><strong>15.10</strong></td>
</tr>
<tr>
<td><strong>15.11</strong></td>
</tr>
<tr>
<td><strong>15.12</strong></td>
</tr>
</tbody>
</table>
Sustainable Development Goal 15 encompasses the conservation of terrestrial ecosystems and proposes a range of ecological initiatives concerning forests, sustainable management of forests and desertification, biodiversity, management of genetic resources, protection of flora and fauna and illegal wildlife products, and the conservation and monitoring of illegal wildlife species. Thus, Goal 15 espouses an ambitious range of environmental issues and policy aspects, and sets forward a comprehensive indicator framework to measure a state’s progress towards meeting the goal. With an eye to brevity and relevance to Canada’s unique ecological position, this report will focus on the sub-goals and accompanying indicators that concern forest conservation and biodiversity. According to the Natural Resources Canada 2015 report, Canada is estimated to have 348 million hectares of forest, accounting for the third-largest forest area after Russia and Brazil. It has been reported by Natural Resources Canada that Canada’s forests represent 9% of the world’s total forests and also represent 24% of the world’s total boreal forests. These forests play critical roles for ecosystems: purifying air and water, removing carbon dioxide and providing habitats for plants and animals.

Canada finds itself in a unique position in regards to Goal 15 relative to its peers given the sheer representativeness of Canadian forests on the international level. Indeed, for Canada, national efforts in developing indicators and implementing meaningful policy can be understood as contributing to the conservation of a globally significant portion of forests and therefore a means of measuring Canada’s progress on an international level.

Historically, Canada has been on the forefront of indicator development in relation to its forests; such as identifying the value of quantitative measures in the first State of Canada’s Forests report in 1990. In this way, Canada has carved out a global leadership position in developing quantifiable measures for forest conservation. Indeed, Canada took a leadership position in the Montreal Process in binding 11 other countries into developing and adopting a common set of quantitative measures to keep track of and report on the state of their forests, with the goal of improving the surveillance of forests globally.

In measuring the state of its forests, Canada has developed a comprehensive indicator framework as evidenced by Natural Resources Canada in a 2015 report. In the report is a set of 46 sustainability indicators that include: total forest area, wood-volume, deforestation area, and species at risk population trends. A meaningful way to track Canada’s influence internationally in meeting Goal 15 may be to measure the percentage of significant multilateral talks or conventions Canada attends. An indicator such as this would intend to represent the influence Canada would exert on its peers through multilateral platforms, for instance, UN Climate Change Conferences.

The forest area indicator is mainly used to keep track of the total area of permanent forest in Canada, providing a way for the government to monitor changes in hectares of forest area over time. This is a valuable measure for monitoring Canadian ecosystems as well as regulating its export economy, given that fluctuations in permanent forest area affect biodiversity and form the basis of long-term resource projections. Wood volume measures total Canadian wood supply in m³, and is critical in forming sustainable harvesting plans that are necessary for a country like Canada, which relies heavily on its lumber exports. In a similar vein, deforestation is used to derive annual rates of forest loss in hectares. This measure is critical for alerting the government of significant changes in forest area due to exogenous influences such as climate change or insect proliferation. As for biodiversity, a central indicator for measuring progress at use is the species at risk population trends indicator, which assesses the recovery trends of the populations of species at risk in Canada. In this way, the indicator measures the extent to which species at risk respond to management initiatives.

Though these indicators are appropriate for a country such as Canada, which possesses significant forest area and dense biodiversity, these indicators are not without their weaknesses. Indeed, indicators may not produce entirely accurate representations of progress towards sustainable development, especially when secondary inferences are extrapolated from these ‘keystone’ indicators. For instance, Gwen Barlee argues that the main indicators used to measure forest degradation, forest area and deforestation, are less effective at representing biodiversity than measuring the annual loss of old-growth primary forest. Given that old-growth forests (i.e. previously unlogged forests) are much more capable of serving ecological functions such as sequestrating carbon or providing habitat for terrestrial species compared to secondary forests (i.e. re-grown forest areas). Thus, measuring the annual loss of old-growth primary forest as separate from general forest area loss would be a more accurate keystone measure to make inferences about biodiversity loss. Hence, Canada ought to make continuous efforts into both reviewing the accuracy of its current...
indicators as well as innovating new, more reliable indicators to most efficiently track its progress towards meeting Goal 15.

A distinctive weakness of the population trends indicator is that it does not offer a comprehensive view of species at risk in Canada. In actuality, the range of species represented in the indicator, relative to the number of existing wildlife species in Canada is quite narrow. Indeed, those species represented must be included on the List of Wildlife Species at Risk under the Species at Risk Act, meaning that they must be covered under a recovery strategy or management plan, be approved as feasible to recover, and be approved by the Committee on the Status of Endangered Wildlife in Canada. This indicator may not be conducive to rapid government response, which may be necessary to intervene to save species at extreme risk or risk of extinction. This is because noticeable changes in population trends are slow to emerge and slower still to be detected and tracked by the indicator given its narrow and rigid structure.

A distinctive strength of the forestry and biodiversity indicators mentioned above is their accessibility. These indicators are complemented by an easily accessible and user-friendly online forest inventory available on the Government of Canada website, which succeeds in lending a degree of transparency of government practice, thus enabling individuals and civil society groups to hold the government accountable by their own initiatives.

What is Canada’s potential?

As stated above, Canada has played an active role in developing quantitative measures to monitor its forests and biodiversity since the 1990’s. Looking to the future, both interviewed experts confidently say that Canada has an enormous amount of potential for developing and measuring indicators in tracking its progress towards meeting the Sustainable Development Goals, a potential that is enabled by efforts on multiple political levels. Efforts may be made on the national level to review currently existing indicators to ensure that they are accurate, especially if they are used as keystone indicators. Furthermore, the government must not forget the importance of innovating and developing new indicators that may compensate for the deficiencies of older indicators, as evidenced by the primary old-growth indicator proposal made above. Further, Barlee argues that one way to circumvent the political tendency to pay cursory or symbolic efforts in sustainable efforts including developing indicators is to begin implementing binding recommendations in its legal documents pertaining to sustainable development initiatives. Without binding language, governments may enjoy too much flexibility and therefore may be undeterred from making superficial or symbolic commitments to developing indicators rather than making substantial action towards meeting Goal 15. Evidence of this potential is already present in various municipal initiatives, such as the Greenest City Action Plan in Vancouver. City of Vancouver Councillor Andrea Reimer points towards the goal-setting and developing of indicators such as total number of trees planted in urban areas and total tonnes of community CO2 emissions as a demonstration of this potential.

Recommendations

In sum, there are three recommendations to be made for Canada to best meet Goal 15:

- Canada ought to continue using the existing indicators, namely forest area, wood volume and deforestation to continue to keep track of the state of its forests as they are affected by major influences such as climate change and industry.

- However, Canada must also commit to developing new indicators as well as revising pre-existing indicators to make them more effective. Thus, Canada should also adopt the annual loss of primary old-growth forest as a keystone indicator, given that old-growth forest is much more effective at producing biodiversity services, and thus a more accurate measure of potential biodiversity loss than indicators that include secondary forests in measurement.

- Canada should consider adopting an indicator that measures Canada’s commitments to international talks regarding conservation issues, such as a percentage of major environmental conferences attended, as a way to monitor Canada’s contributions towards the fulfillment of Goal 15 on the international level.

*This article was written by Kitaek Kim based on their own research and drawing primarily on an interview with Gwen Barlee and Andrea Reimer, key thought leaders in this field.*
Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

Allen Sens
Allen G. Sens (Ph.D, Queen's) is a Professor of Teaching in the Political Science Department at the University of British Columbia, Canada. He specializes in international conflict and conflict management, with a research and publication focus on peace support operations, European security, peacekeeping, and NATO. His teaching interests include international relations, international security, armed conflict, Canadian foreign and defence policy, and nuclear weapons and arms control. Dr. Sens has served as a consultant to the Canadian government on the future of peacekeeping and NATO enlargement.
<table>
<thead>
<tr>
<th>Targets</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.1</td>
<td>significantly reduce all forms of violence and related death rates everywhere</td>
</tr>
<tr>
<td>16.2</td>
<td>end abuse, exploitation, trafficking and all forms of violence and torture against children</td>
</tr>
<tr>
<td>16.3</td>
<td>promote the rule of law at the national and international levels, and ensure equal access to justice for all</td>
</tr>
<tr>
<td>16.4</td>
<td>by 2030 significantly reduce illicit financial and arms flows, strengthen recovery and return of stolen assets, and combat all forms of organized crime</td>
</tr>
<tr>
<td>16.5</td>
<td>substantially reduce corruption and bribery in all its forms</td>
</tr>
<tr>
<td>16.6</td>
<td>develop effective, accountable and transparent institutions at all levels</td>
</tr>
<tr>
<td>16.7</td>
<td>ensure responsive, inclusive, participatory and representative decision-making at all levels</td>
</tr>
<tr>
<td>16.8</td>
<td>broaden and strengthen the participation of developing countries in the institutions of global governance</td>
</tr>
<tr>
<td>16.9</td>
<td>by 2030 provide legal identity for all including birth registration</td>
</tr>
<tr>
<td>16.10</td>
<td>ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements</td>
</tr>
<tr>
<td>16.11</td>
<td>strengthen relevant national institutions, including through international cooperation, for building capacities at all levels, in particular in developing countries, for preventing violence and combating terrorism and crime</td>
</tr>
<tr>
<td>16.12</td>
<td>promote and enforce non-discriminatory laws and policies for sustainable development</td>
</tr>
</tbody>
</table>
The use of baskets of indicators, as suggested by the UN Statistics Commission, will be an effective means to measure Canada's progress toward Sustainable Development Goal 16. The UN has already established a basket of indicators for measuring the significant reduction of all forms of violence and related deaths as a crucial target for measuring progress toward SDG 16 with indicators including: the UN providing a basket of indicators that includes: the number of victims of intentional homicide, and the number of conflict-related deaths per 100,000 population; the percentage of the population subjected to physical, psychological, or sexual violence in the previous 12 months, and the proportion of people that feel safe walking alone around the area that they live. At the domestic level, the Canadian government already provides data suitable for monitoring indicator baskets across a broad range of SDG 16 targets including the number of abused and/or trafficked children per 100,000 population, weapon seizures, government expenditures, proportion of positions in public institutions held by minorities compared to their national distributions, percentage of the population having felt personally discriminated against, and data for the many other indicators within the baskets. In monitoring these indicators, the UNDP has emphasized the need to disaggregate the results, which will be of particular importance for Canada where certain groups, especially aboriginal women are disproportionately victims of violent crime.

Beyond nationally and multilateral generated statistics, Dr. Sens suggests NGO indexes as promising indicator sets for measuring Canada's domestic progress toward SDG 16. NGOs provide indexes using baskets of indicators that are effective at measuring progress toward many SDG 16 targets. Transparency International measures public and private perception in the Corruption Perception Index, determining both domestic corruption and bribes paid by Canadian firms operating abroad. The World Press Freedom Index provided by Reporters Without Borders is an effective tool to measure public access to information and the protection of fundamental freedoms. The index compiles data from a questionnaire provided to media professionals, lawyers, and sociologists around the world. In addition to this, Reporters Without Borders has a team of specialists to keep track of violence and abuse against journalists throughout the world.

To determine Canada's international contribution to international peace and justice, a combination of input and output measurements should be used. Canada's input is measurable by determining government funding as a percentage of GNI toward development and security efforts to build peace, justice and institutions abroad. Another possible input measure, suggested by Dr. Sens, is how often Canada hosts conferences to address issues related to targets in SDG 16. Hosting conferences indicates efforts to create a dialogue and to make progress on these issues.

Several measurements for output remain possible. In countries where Canada has worked to build peace and justice, election participation (a typical but somewhat limiting indicator) can be supplemented with measurements of police effectiveness, and monitoring jail conditions. According to Dr. Sens, this can provide insight into how the justice system is functioning and whether the system faces corruption. Though quantitative data is crucial and allows the UN to measure development tangibly, the importance of qualitative data cannot be overlooked. Qualitative data such as jail conditions would act as an important supplement in cases where statistics fail to show the whole picture.

Dr. Sens identified crime reporting rates as posing an important challenge in measuring domestic progress toward SDG 16. If the reporting rate for crime is low, it is an indication of a lack of trust in the justice system. It also serves to skew results as data published will not be reflective of the legitimate effectiveness of justice institutions. Estimations of crime reporting rates are therefore required to provide an accurate reflection of Canada's justice system.

Measuring indicators for corruption, especially in the government, poses a greater challenge. This task is best suited for an independent body and, even so, can still be difficult to determine. However, many indexes are published by independent organizations and remain freely available to civil society. One issue with using independent indexes is a tendency to analyze Canada's changing position rather than score. If, however, the reverse is done, Canada's absolute progress can be measured instead of focusing on Canada's relative progress determined by country rank. A strength of the indexes identified is that data and analysis on peace, security, justice and institutions are already being published and are available for civil society. Hinds and Carter at the Governance and Social Development Resource Centre have compiled an extensive list and summary of these indexes. This source could be drawn upon in order to determine the best indexes in relation to SDG 16. The best indexes provide their own independent data, which is especially useful for measuring government corruption and people's fundamental freedoms.
The most difficult challenge for measuring Canada’s progress toward SDG 16 is measuring the government’s efforts internationally. Though inputs are far easier to determine, high levels of inputs (i.e., foreign aid) do not guarantee high outputs. Additionally, when assistance is provided multilaterally, it is difficult to gauge the importance of Canadian efforts relative to other states. However, if analysis is focused on bilateral efforts to improve human rights, these results will be strong indicators of their success. This could be measured by evaluating the progress toward SDG 16 targets in the partner countries. Though the government does release reports on the success of its multilateral and bilateral development assistance projects, they require synthesis to determine Canada’s overall impact internationally. Though qualitative data would provide a crucial supplement, it complicates the analysis and increases the difficulty of measuring progress over the timeline of the SDGs.

**What is Canada’s potential?**

Overall, Canada has strong indicators in place to evaluate levels of violence and justice. Statistics Canada publishes data on violent crime rates and disaggregates the data according to many variables including victim and perpetrator age, gender, region, and context (e.g., gang violence, use of legal or illegal firearms, relationship between accused and victim, etc.). This data is made available to the public, making it a useful tool for civil society.

Dr. Sens offers social media mining as a possible way to supplement data and determine its accuracy. In cases where crime reporting is an issue, if high levels of crime are reported on social media but not to the police, that would constitute a red flag. Similarly, social media mining could provide indicators for the level of access to justice, satisfaction with decisions made by public service, and the level of discrimination. Rather than act as a direct indicator, social media could be used as a method to trigger investigations if disparities between published data and information gathered through social media are significant. Canada could be a leader in developing social media mining tools to verify official statistics and ensure reliable data output.

As there are already several NGOs publishing baskets of indicators on peace and social justice, Dr. Sens suggests Canada could take the lead on synthesizing and analyzing this data in order to put it in the context of SDG 16. In addition to this, an international regulatory agency would be important to ensure the reliability of data. This agency could lead investigations and supplement the statistics with qualitative data. This would need to be formed by the end of the year and would therefore be based on the indicators determined by the UN Statistical Commission. This would allow an appropriate timeline to synthesize and analyze data for 2016 after states release their data and indexes are published. Investigations could then take place in response to incomplete or unreliable data in the first year of the SDGs.

Canada has the opportunity to take the lead on this and with its strong record of good governance and peace and justice making it ideally suited for the role.

**Recommendations**

The Canadian government publishes statistics suitable for measuring levels of violence, discrimination, and justice. Indexes published by NGOs can provide valuable complementary data especially those such as the World Press Freedom Index, which collects its own data. By circumventing the government, this can provide an unbiased analysis of fundamental rights and, along with the Corruption Perceptions Index, provides insight on government corruption levels. Measuring Canada’s efforts abroad should combine the measurement of input and output indicators. Input measurements should focus on spending and international initiative such as holding conferences, while output measurements should focus on Canada’s bilateral work. Finally, Canada has the potential to take the lead on this SDG by leading the creation of an international regulatory agency to conduct investigations in order to ensure the reliability of data.
References


This article was written by Daniel Lone based on their own research and drawing primarily on an interview with Allen Sens, a key thought leader in this field.
Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Thought leader interviewed:

**Aniket Bhushan**

Aniket Bhushan is Adjunct Research Professor at the Norman Paterson School of International Affairs (Carleton University, Ottawa). Prior to this he was Senior Research in the Governance for Equitable Growth program at the North-South Institute, a leading Canadian international development think-tank. Aniket leads the Canadian International Development Platform, an initiative that leverages open data and big data to analyze, visualize and discuss Canada’s engagement with the developing world.
17.1 Strengthen domestic resource mobilization, including through international support to developing countries to improve domestic capacity for tax and other revenue collection.

17.2 Developed countries to implement fully their ODA commitments, including to provide 0.7% of GNI in ODA to developing countries of which 0.15-0.20% to least-developed countries.

17.3 Mobilize additional financial resources for developing countries from multiple sources.

17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries (HIPC) to reduce debt distress.

17.5 Adopt and implement investment promotion regimes for LDCs.

17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation, and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, particularly at UN level, and through a global technology facilitation mechanism when agreed.

17.7 Promote development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed.

17.8 Fully operationalize the Technology Bank and STI (Science, Technology and Innovation) capacity building mechanism for LDCs by 2017, and enhance the use of enabling technologies in particular ICT.

17.9 Enhance international support for implementing effective and targeted capacity building in developing countries to support national plans to implement all sustainable development goals, including through North-South, South-South, and triangular cooperation.
### Trade

| 17.10 | promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the WTO including through the conclusion of negotiations within its Doha Development Agenda |
| 17.11 | increase significantly the exports of developing countries, in particular with a view to doubling the LDC share of global exports by 2020 |
| 17.12 | realize timely implementation of duty-free, quota-free market access on a lasting basis for all least developed countries consistent with WTO decisions, including through ensuring that preferential rules of origin applicable to imports from LDCs are transparent and simple, and contribute to facilitating market access |

### Policy and Institutional Coherence

| 17.1 | enhance global macroeconomic stability including through policy coordination and policy coherence |
| 17.2 | enhance policy coherence for sustainable development |
| 17.3 | respect each country’s policy space and leadership to establish and implement policies for poverty eradication and sustainable development |

### Multi-stakeholder Partnerships

| 17.6 | enhance the global partnership for sustainable development complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technologies and financial resources to support the achievement of sustainable development goals in all countries, particularly developing countries |
| 17.7 | encourage and promote effective public, public-private, and civil society partnerships, building on the experience and resourcing strategies of partnerships |

### Data, Monitoring and Accountability

| 17.10 | by 2020, enhance capacity building support to developing countries, including for LDCs and SIDS, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts |
| 17.11 | by 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement GDP, and support statistical capacity building in developing countries |
Goal 17 is focused towards global partnership for sustainable development and high-level coordination of national policy actions, covering aspects including mobilization of trade, financial resources, and technology transfer between countries. The goal's targets outline the North-South, South-South and triangular regional, international and multi-stakeholder cooperation needed to implement the other goals. Consequently, it can be argued that indicators applicable for Canada under Goal 17 should track our nation's performance in parallel with other nations, lending themselves inherently to an international focus.

In identifying the most appropriate indicators, Aniket Bhushan, principal investigator of the Canadian International Development Platform and Adj. Research Professor at the Norman Paterson School of International Affairs (NPSIA, Carleton University), underlines several problems. Firstly, Goal 17's targets lack technical specificity and detail. Weaknesses stem from imprecision about what overall is being measured, and incongruence between suggested indicators and actual data sources or data points. Many targets are neither policy variables nor useful for performance management, raising added confusion towards their functionality as statistical measures or rather, lobbying tools. For example, many of Goal 17’s finance targets fail to describe which precise monetary stability issues they intend to address, preventing the right indicators from being articulated. Secondly, some targets' measurability is open for debate. For target 17.15, the possibility of developing a verifiable objective measure of the “respect [in] each country's policy space and leadership” is questionable. Bhushan argues that the formulation of Goal 17’s targets demonstrates a clear mismatch with using evidence-based processes, such that the resultant indicators detract from the practice of data-driven development.

A third barrier arises from incomplete data. Bhushan observes that measurement of Canadian and international progress will invariably gravitate towards areas where data exists, like ODA/GNI. Tracked by the OECD Development Assistance Committee (DAC), Official Development Assistance (ODA) as a percent of Gross National Income (GNI) is the most widely cited global measure for donor development effort. It represents resource flows to developing countries as a share of donor countries' national incomes. Since 1970, 0.7% ODA/GNI has been repeatedly endorsed as the global aid target, a notion reflected in SDG target 17.2. Additionally, target 17.2 urges donors to deliver 0.15% to 0.20% ODA/GNI to least developed countries (LDCs).

From a Canadian perspective what are the most appropriate indicators for addressing this specific goal and how can it be framed from a local vs. national vs. international scale?

What are the strengths and weaknesses of the indicators identified?

The strength of ODA/GNI lies in the amount of existing data, as well as its status as the most commonly referenced indicator for global development effort. But ODA/GNI presents many shortfalls. For Canada, the indicator does not appear congruous with national policy goals. Canada has never explicitly adopted a target level of ODA/GNI, and has fared poorly against the globally accepted 0.7% objective, especially in recent years. Internationally, Bhushan maintains that ODA/GNI is a flawed and antiquated measure. From the perspective of evolution from MDGs to SDGs, at least in terms of designing measurable indicators with credible data, Bhushan reckons that little to no progress has been made, because these same measures have been around for decades.

According to the latest data, Canada's ODA/GNI is about 0.28%. By Bhushan's calculations, around 0.08% of Canada's GNI currently goes towards LDCs, meaning that reaching the 0.15% to 0.20% target would require doubling ODA to these countries. Since the overall ODA pool is not expected to increase dramatically, the alternative way to meet this target would be to shift aid funds away from other countries towards LDCs. From 2014-2015, the largest aid recipient for Canada was Ukraine. This reflects our country's commitment to humanitarian response, which along with health, constitute Canada's two priorities in international assistance. However, Ukraine is neither an LDC nor a “fragile state”. Thus, ODA spent on Ukraine lowers the share of aid spent in the “poorest and most fragile contexts,” in contradistinction to the sentiments expressed by the 2016 Ministerial Mandate Letter from the Prime Minister. Likewise, other major recipients of Canadian international assistance include Syria, Iraq, Lebanon, Turkey, and Jordan, which are also not LDCs nor the “poorest countries”. If past trends are any indication, emerging geopolitical considerations will likely create difficulty for Canada to consistently focus on the poorest and most fragile states. Choosing to meet SDG target 17.2, for Canada, may mean concentrating less on humanitarian response. Thus there is a tension between Canada's ODA priorities and the ODA/GNI indicator that the SDGs propose in a very reductionist manner.

ODA/GNI is also problematic as an international measure. Bhushan observes that the indicator is based on the “two-gap model,” which assumes that lack of savings in developing...
countries is the main factor preventing investment and development in these countries. However, this model has been largely disproved. Additionally, the indicator has both a numerator and denominator problem. In the numerator, the definition of what counts as ODA has augmented over the years, currently including refugee costs incurred in donor countries, and increasingly also military support and private sector support. Thus, a rise in ODA/GNI may not accurately reflect a growth in aid spent within developing countries. With the numerator’s enlarging composition, there is no reason why a 0.7% target should continue to make sense as the desired aid level, if it ever made sense to begin with. As for the denominator, Bhushan finds no justification for the level of poor countries’ need to remain at an unchanging proportion of rich countries’ GNI. It would be far more effective, he states, to orient the indicator towards measuring the actual aid amount needed to spur development in recipient countries. Not only does ODA/GNI fall short of reflecting the breadth of issues covered by Goal 17, this indicator, originally a lobbying tool, no longer serves as an adequate measure of whether aid flows are sufficient.

What is Canada’s potential?

Moving forward, Bhushan reckons that Canada will need to craft a more focused narrative on what it aims to achieve via development assistance. The government should seek to develop some form of policy statement, articulating the international development areas in which Canada can be a leader. To do so, the government should continue engaging Canadians in meaningful dialogue, using practices like releasing green papers or discussion documents to collect input from stakeholders. Although defining a more focused narrative may mean admitting that Canada’s capacity has eroded to only health and humanitarian response, Bhushan emphasizes that a narrow focus allows greater accountability and clearer progress tracking. Moreover, Bhushan urges that Canada can still contribute competitively by engaging Canadian private sector and business in innovative development finance. Rather than taking money out of taxpayer resources to fund ODA, Canada can follow the lead of countries like France, in financing development through the proceeds of leveraging taxpayer resources on capital markets. As such, Canada should place more emphasis on following through with the Development Finance Initiative.

Rather than rely on ODA/GNI, which exaggerates the amount of international assistance on the ground, Canada should shift its attention towards disaggregating its ODA in terms of the country’s declared priorities. The government can leverage data on actual amounts of assistance delivered in programs in developing countries, showing a more accurate picture of its development effort. This would be similar to looking at country programmable aid (CPA) published by OECD-DAC, a measure which nets out refugee costs, debt service, and more. By employing precise aid amounts that reflect commensurate results, Canada can better build support for development.

Towards changing the indicator in the long term, DAC is currently updating the definition of ODA, and developing a measure of Total Official Support for Sustainable Development (TOSSD). These developments over time may erode the current prominence that ODA receives as a measure or certainly push thinking beyond it.

Additionally, Bhushan recommends other ways to measure development effort. One suggestion is to use aid floors that calculate the cost of providing essential services in developing countries, and dividing this cost between developed countries, to come up with a requisite share of the burden. A similar approach is applicable in the case of global public goods, such as climate financing. Another alternative is to look at ODA as a share of budget or budgetary expenditure. This would better reflect donors’ fiscal effort and commitment to development, since donors have more control over budgets than national income.
While ODA/GNI emerges as the dominant indicator for measuring progress on Goal 17, it does not sufficiently capture Canada’s development effort. To better track Canada’s performance towards global partnership, particularly in international assistance, Canada should:

- Engage Canadian stakeholders in meaningful consultations to establish a more focused narrative or strategy in international assistance;
- Leverage its disaggregated data on actual assistance delivered in developing countries, rather than relying on inflated measures like ODA to build support for development;
- Continue improving the consistency and quality of Government of Canada data on international assistance;
- Within OECD-DAC, advocate for a change of the globally accepted indicator; and
- Focus efforts on leveraging financing that does not further encumber or increase reliance on taxpayer resources (such as through a Development Finance Initiative), and develop suitable indicators in that respect.

References

1 Where given in the latest version of the IAEG-SDG indicator framework put forward by the UN Statistical Commission in March 2016

2 Unlike others, e.g. the UK, which has an explicit ODA/GNI spending target that anchors fiscal effort on development


This article was written by Cherrie Lam based on their own research and drawing primarily on an interview with Aniket Bhushan, a key thought leader in this field.