

Tracking Canada's Financial Commitment to Reproductive Maternal and Newborn Child Health (RMNCH) using Official Open Data

Technical and Methodological Note on the RMNCH Explorer – December 2016

A collaboration between

<u>Canadian Partnership for Women and Children's Health</u>, and the Canadian International Development Platform

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What data are covered?

Background: scope and objectives

The aim of the *RMNCH explorer* is to leverages near real-time, commitment level, disaggregated data, to provide a snapshot of Canada's current and ongoing financial commitment to RMNCH.

The use-case this project addresses is motivated by the following question:

What is Canada's current level of financial commitment to reproductive maternal and newborn child health (RMNCH)? And can we leverage official open data to build a tool to track Canada's commitment levels over time as new initiatives are rolled out?

RMNCH is a key theme in Canada's foreign aid. In 2010 Canada made a commitment to spend at least CAD\$2.85 billion on MNCH (as it was called at the time) by 2015.² That commitment was renewed and expanded in 2014, when Canada announced that it would spend CAD\$3.5 billion from 2015 to 2020 in this area.

The Gap

The *RMNCH explorer* addresses a specific gap: while financial analysis of past MNCH expenditure is relatively easy to conduct³, the same is not the case when it comes to new and ongoing commitments. This is despite the proliferation of open data which proport to making aid information more accessible, transparent and real-time.

To analyze the current level of financial commitment and to track commitment over time within a fiscal cycle, we need ex-ante i.e. commitment level data, at a disaggregated level. These concepts are explained:

Ex-ante or near real-time vs. highly lagged ex-post data

OECD-DAC Creditor Reporting System (CRS) data are the traditional source for verified and disaggregated aid data. However, they suffer from significant time-lags. Data series take over a year and a half to be updated. For example, at the time of writing (December 2016) the best one can get from the CRS are data for 2014.⁴ In other words the CRS is highly lagged, ex-post, expenditure data. To track commitments being made in 2015 and after – a key goal of the *RMNCH explorer* – we need closer to real-time data.

² For analysis of the first MNCH commitment (2010-2015) see: http://cidpnsi.ca/financing-global-health-mnch-and-muskoka/. See also our earlier (2014) analysis on Canada's Muskoka Initiative and Global Health Financing: http://cidpnsi.ca/the-muskoka-initiative-and-global-health-financing/. For an analysis of MNCH spending in fragile states see: http://cidpnsi.ca/muskoka-mnch-and-fragile-states/. Our assessment, based on official open data, was that Canada exceeded its original CAD\$2.85 billion financial commitment made at Muskoka in 2010: http://cidpnsi.ca/exceeding-commitments-muskoka-and-mnch/

³ As noted, see: http://cidpnsi.ca/financing-global-health-mnch-and-muskoka/

⁴ See: https://stats.oecd.org/Index.aspx?DataSetCode=CRS1 (queried in December 2016).



Commitment i.e. budgets vs. disbursement i.e. expenditures

Our interest is more so in commitment as opposed to disbursement data. To track commitment levels in real-time or near real-time, we are more interested in project budget levels as opposed to expenditure levels.

Aggregate aid data vs. project/programmatic disaggregated data

Aid data sources such as the OECD-DAC may provide data that fit some of our above criteria, but even where this is the case, the data are at a highly aggregate level (e.g. total ODA levels or the ODA/GNI ratio).⁵ To analyze specific sectors and subsectors, such as RMNCH which is already a subset of health spending, and further subsets within RMNCH areas (such as family planning), we require project level i.e. disaggregated data.

Summary

- The RMNCH explorer leverages near real-time, commitment level, disaggregated data, to provide a snapshot of Canada's current and ongoing financial commitment to RMNCH.
- At this stage the tool covers **only official aid data** as reported by Global Affairs Canada. It does not cover funding from other sources even if it may go to the same projects.
- The tool (a) provides a snapshot (as of the date of last update) of GAC funding towards RMNCH and (b) tracks new commitments over time.
- The tool leverages two data feeds: Canada's publication to the IATI registry (IATI XML) and Project Browser raw data (XML)
- The tool applies the **new OECD-DAC RMNCH policy marker valuation methodology** to IATI data as a starting point.
- In the case of IATI data the default view shows the total value (CAD\$) of all currently active RMNCH projects, i.e. projects with end dates in 2016 or beyond. In the case of browser XML data, the default view shows all "operational" projects.
- IATI data are reflective of the **date of last update**: October 23, 2016. Browser data are reflective of the date of last update: September 16, 2016.
- The total value of all RMNCH projects (regardless of when they started but are reported as operational or with end dates in 2016 or beyond, as on the date of last update) is approx. CAD\$
 2.6 billion. However, our interest is in recent projects, started in 2015 or 2016. The total value of these is approx. CAD\$
 1.3 billion.
- What can you do with the tool?
 - o Analyse current and ongoing commitment levels by country.
 - Analyze commitments by RMNCH subsectors. Compare subsectors and countries.
 - Analyze which Canadian, international, civil society, multilateral, governmental partners are active in RMNCH projects across countries and RMNCH subsectors.⁶
 - o Export raw data for deeper analysis.

⁵ See for example for 2015: http://cidpnsi.ca/canada-and-the-oecd-dac-aid-statistics-2015/

⁶ Subject to availability of fields within the raw data feeds.



How was the data put together?

Data sources and feeds

In the Canadian context, two data feeds fit our criteria. The project browser XML and Canada's publication to the International Aid Transparency Initiative's registry (also in XML).

Browser XML:

http://www.acdi-cida.gc.ca/cidaweb/cpo.nsf/fWebprojDataEn?Readform

IATI XML:

Main registry, "Canada" selected:

https://iatiregistry.org/dataset?q=canada&publisher_source_type=&secondary_publisher=&org_anization=&publisher_country=&publisher_organization_type=&country=&filetype=

Link to registry data via Global Affairs:

http://www.international.gc.ca/department-ministere/open_data-donnees_ouvertes/dev/iati-iita.aspx?lang=eng

Both feeds are leveraged because they contain different levels of information.⁷ In general, sources like IATI and browser raw data are better thought of as point-in-time transparency to facilitate coordination and or donor management, as opposed to statistical data to use in analytics (like in a regression).⁸

Methodology

The feeds above provide near real-time and disaggregated project level data. However, they are generic and not specific to health, MNCH or RMNCH. In other words, the next step is to apply a methodology to limit the data to our purview: RMNCH projects.

When the first MNCH commitment was made in 2010, also known as the Muskoka Initiative, a specific valuation methodology was adopted not only by Canada but also the other members of the G8 that pledged to support MNCH. This method can be termed the legacy G8 approach.¹⁰ As the term 'legacy' suggests, this valuation methodology is no longer in use. It has been superseded by "policy marker" based approach.

⁷ For e.g. implementing partners are included in the browser feed per project code but not as readily in the IATI feed (as they may be nested in multiple points in hierarchy). The "Status" field is provided clearly in the browser feed but is not the same in IATI. The browser raw data has more country specific info that can be easily mapped; IATI has better i.e. precisely geocoded (lat/long) data, but has less country info on multi-country projects.

⁸ DAC CRS is a better source for statistical data for analyses like plugging into a regression.

⁹ In one case the update frequency can be daily (browser), the IATI frequency is quarterly.

¹⁰ See: http://www.g8.utoronto.ca/summit/2010muskoka/methodology.html this is the approach followed in our past work, cited earlier, on tracking the first MNCH commitment 2010-2015.





In theory, policy markers can be more accurate in reflecting the extent to which a project or line of aid spending is focused on RMNCH. This is because it is a more flexible, score based approach, as opposed to the prior methodology which was applied at the sector/subsector level as far as bilateral aid is concerned, and as a general ratio as far as multilateral contributions are concerned.

Following discussions and advice from Global Affairs Canada (GAC) (CFO Stats unit) we followed the new approach as proposed in Canada's formative review of the first MNCH initiative and in the 2014-15 Report to Parliament (for details please see box: Key documents that inform RMNCH valuation methodology).

To use this method, we apply the OECD-DAC's 2014 Reporting instructions for the RMNCH policy marker (see box) to the data feeds in question (starting with the IATI XML and then the browser XML).

RMNCH policy marker details

The RMNCH policy marker takes a graduated approach at the project level. Depending on whether a project is explicitly focused on RMNCH, majority focused, at least half the funding is focused on RMNCH, or quarter, the project gets a score between 4 and 1. A score of 0 is given if the focus is not on RMNCH.

RMNCH	4=Explicit primary objective				
10/11/011	3 =Most, but not all of the funding is targeted to the objective.				
	2 =Half of the funding is targeted to the objective.				
	1=At least a quarter of the funding is targeted to the objective.				
	0 =Negligible or no funding is targeted to RMNCH activities/results. RMNCH is not an objective of the project/programme.				
	J 1 J 1 E				
	Blank=not screened				

Source: OECD-DAC, 2014 (pg. 3).

As can be seen below these 'significance' scores are then possible to use to build a formula for applying the same to quantitative measures, including funding levels.

RMNCH marker score	Estimation of project's funding allocated to RMNCH	Share used for compiling quantitative estimates on RMNCH
4	86% to 100%	100%
3	61% to 85%	75%
2	36% to 60%	50%
1	15% to 35%	25%
0	0% to 14%	0%

Source: OECD-DAC, 2014 (pg. 7).

We use the above approach to apply ratios to RMNCH projects. We only parse in data that has a non-zero significance value, i.e. projects that target RMNCH at least to some degree. We then apply the ratios as given above, i.e. if a project is coded 4 a 100% of its budget is counted, if a project is coded 2 only 50% of its budget is counted, and so forth.





Key documents that inform RMNCH valuation methodology

Canada's formative review of the MNCH initiative:

Formative Evaluation of Canada's Contribution to the Maternal, Newborn and Child Health (MNCH) Initiative 2010/11 – 2013/14

December 2015

Available: http://www.international.gc.ca/gac-amc/publications/evaluation/2015/eval mnch-smne.aspx?lang=eng

OECD-DAC official guidance on "RMNCH" policy marker:

CONVERGED STATISTICAL REPORTING DIRECTIVES FOR THE CREDITOR REPORTING SYSTEM (CRS) AND THE ANNUAL DAC QUESTIONNAIRE - ADDENDUM 3

Reporting instructions for the RMNCH policy marker

February 2014

Available: https://www.oecd.org/dac/stats/documentupload/Addendum%203.pdf

Canada's forward strategy on MNCH from the 2014-15 ODA Report to Parliament:

Report to Parliament on the Government of Canada's Official Development Assistance — 2014-2015

Available: http://www.international.gc.ca/development-developpement/dev-results-resultats/reports-rapports/oda report-rapport ado-14-15.aspx?lang=eng#3.1



Application to IATI data

The RMNCH marker is applied to parse IATI data. Within the IATI schema activity file the key fields or tags are:

<iati-identifier> </iati-identifier>

<policy-marker vocabulary="1" code="9" significance="..." />

Within the IATI codelist:

- Policy marker vocabulary = 1 parses in OECD-DAC CRS policy markers of which RMNCH is one
 - o http://iatistandard.org/201/codelists/PolicyMarkerVocabulary/
- Code = 9 parses in the specific RMNCH marker only
 - o http://iatistandard.org/201/codelists/PolicyMarker/
- Significance = "4:1" denotes that we parse in all non-zero significance levels. As the codelist notes, this significance level is only used with the RMNCH marker
 - o http://iatistandard.org/201/codelists/PolicySignificance/

Since our focus is active and ongoing projects we set the End date (also within IATI) to 2016 or beyond. Below are summary statistics on the count and value of active and ongoing RMNCH projects, across the 4 significance levels at the time of our last update.

Project count per RMNCH significance level, IATI data as of October 23, 2016

	Project Budget-End						
Pm.Significance	2016	2017	2018	2019	2020	2021	Grand Total
1	4	6	3	2	2	1	18
2	5	5	3	3			16
3	4	4	1	1	1		11
4	12	13	7	10	12	2	56
Grand Total	25	28	14	16	15	3	101





Project value per RMNCH significance level, IATI data as of October 23, 2016

	Project Budget-End						
Pm.Significance	2016	2017	2018	2019	2020	2021	Grand Total
1	66,669,514	12,152,905	19,930,000	5,625,000	17,517,250	21,250,000	143,144,669
2	1,133,122	357,291,720	18,001,561	24,734,676			401,161,078
3	74,925,000	66,680,251	11,250,000	14,922,750	7,500,000		175,278,001
4	201,542,820	228,994,395	130,492,000	315,742,329	1,000,114,387	28,530,087	1,905,416,018
Grand Total	344,270,456	665,119,271	179,673,561	361,024,755	1,025,131,637	49,780,087	2,624,999,766

Challenges

From discussions with GAC it was clear that the new policy marker is only applied to IATI feed. This can be challenging for at least two reasons: first, IATI data, despite significant efforts, remain relatively inaccessible to non-technical users. Most users cannot work with XML data and or do not know or have time to understand the relatively complex (though well documented) IATI schema. Absent such an understanding, the data are unusable. Second, the size of IATI data can create challenges for users working exclusively in-memory or in common spreadsheet software.

Accessibility is only one type of challenge however. Further challenges arise with the nested nature of several IATI fields (which are simpler and flat elsewhere, such as in browser data). The schema, while well-document and well-structured, will present challenges especially for non-technical users trying to do seemingly simple tasks like group projects by implementing agents or executing partners. This is far easier to achieve working with other data, whether browser XML or DAC-CRS. But those face other shortcomings.

Recommendations

GAC could make analysis significantly easier by:

- Providing RMNCH only data more directly, consistently and with greater (i.e. within fiscal cycle) frequency there is good reason for this given it is Canada's signature foreign aid priority
- Applying the RMNCH policy marker consistently e.g. across browser raw data, as well as historical data (HPDS)



• Consulting with RNMNCH partners, e.g. via CANWACH, on (a) how they are represented in the official open data and (b) what additional data needs they have that open aid data currently fails to meet (e.g. around results tracking and impact analysis; additional, i.e. non-GAC financial support, and several other use-cases).

Application to browser XML data

As mentioned the IATI feed is unwieldy when performing certain analyses and aggregations. For this reason, we take a further step to apply our IATI RMNCH policy marker significance coding, in reverse, to project browser XML data.

To accomplish this, we de-concatenate the known IATI identifier prefixes for Canada:

For a given IATI identifier

CA-3-D002243001

CA-3- is the Canada prefix. Removing this gives us:

D002243001

This field is now possible to JOIN with "Project Number" in browser XML raw data (and elsewhere across Canadian open aid data).

With this de-concatenated version, we set up new JOINS across other feeds including browser XML raw data. This allows us to pull fields together into one set to ease analysis. As an example, the table below pulls data from the 4 largest spending lines that come up in the IATI feed under RMNCH policy marker significance level 4. The IATI data (grey) is now able to connect to browser XML raw data (blue) such that info on executing agency and expected results (which is not as straightforward to obtain from IATI even where it is given) is now easily presented side by side.

Example of combined IATI (grey) fields de-concatenated and joined with browser XML (blue): top four commitments under RMNCH significance level 4 (i.e. funding that is entirely RMNCH focused)

Pm.Significance	lati-Identifier	Project Number	Project Title	Executing Agency/Partner	Expected Results	RMNCH Amount
4	CA-3-D002243001	D002243001	Support to Gavi, the Vaccine Alliance – 2016-2020	Gavi, The Vaccine Alliance	1.The expected results for this project include: (1) Accelerated equitable uptake and coverage of vaccines (2) Increased effectiveness and efficiency of immunization delivery as an integrated part of strengthened health systems; (2) Improved sustainability of national immunization programs; 3) Improved markets for vaccines and other immunization products.	500,000,000
	CA-3-D002731001	D002731001	Support to the Global Financing Facility (GFF)	World Bank	The expected intermediate outcomes for this project include: (1) Smarter financing that is more focused on evidence-based, high-impact "best buys" (RMNCH, health systems, multi-sectoral); (2) Scaled up financing from domestic and external sources; (3) more sustainable financing that enables countries to transition in equitable and efficient ways; and (4) Improved capacity to track progress, particularly through civil registration and vital statistics systems.	200,000,000
	CA-3-M013756001	M013756001	Micronutrient Programs for the Survival and Health of Mothers and their Children	Micronutrient Initiative	The expected intermediate outcomes for this project include: (1) increased implementation of commitments by policy makers to increase the effectiveness of micronutrient programs at scale; (2) improved quantity, quality and timeliness of the provision of micronutrient products and services by public, private and civil society actors; and (3) improved consumption or intake of essential micronutrients by women of childbearing age and children under five.	150,300,000
	CA-3-D002163001	D002163001	Better Nutrition for Better Lives for Women, Newborns, Children and Girls	Micronutrient Initiative	The expected intermediate outcomes for this project include: (1) increased commitment by global and country-level policy and decision makers; (2) improved quantity, quality and timeliness of the provision of packages of interventions to target groups; and (3) improved demand for, uptake and use of nutrition interventions by target groups.	100,000,000



Key quantitative variables developed

To enhance the analysis and visualization we develop quantitative variables. Key among these is RMNCH amount (in the project listing table) and total country and sector commitment levels (in the map, bar and circle charts).

An individual project can be spread across multiple countries and or multiple sectors. See example below of how data for multi-country, multi-sector projects are typically presented:

Project Number	Title	Executing Agency/Partner	Country	DAC Sector1	
D000514001	Global Fund to Fight AIDS, Tuber Fundaria - Institutional Support - 2014 2016	Tuberculosis & Malaria	Agola: 1.15%, Burkina Faso: 1.15%, Burundi: 1.15%, Benin: 1.15%, Botswana: 1.15%, Comratic Republic of Congo: 1.15%, Central African Republic: 1.15%, Comgo: 1.15%, Compo: 1.15%, Campo:	STD control including HIV/AIDS(013040): 50%,Malaria control(012262): 32%, Tuberculosis control(012263): 18%	207,000,000

This formulation is less than ideal from the perspective of analysis and or visualization. A project that is spread over say 10 countries and 5 sectors has only one entry in either data feed (browser raw data or IATI).

We develop a fully **un-rolled i.e. fragmented version of the data**, such that there is a unique entry per element to be analyzed or visualized. For example, for a project spread over 10 countries and 5 sectors we would have 50 entries, but, all linked to one unique identifier (i.e. the project number or IATI identifier) to ensure double counting is avoided.

Furthermore, the RMNCH policy marker significance level ratio is also applied at this un-rolled level.

For example, if a project is worth \$10 million with 60% in country A and 40% in country B, and, 20% in sector X and 80% in sector Y, and, is at level 3 policy marker significance (75%); then, our unrolled version for the project would show:

- Total RMNCH amount = \$7.5 million
- Total RMNCH level in country A, sector X = \$0.9 million
- Total RMNCH level in country A, sector Y = \$3.6 million
- Total RMNCH level in country B, sector X = \$0.6 million
- Total RMNCH level in country B, sector Y = \$2.4 million
- The total of which adds to \$7.5 million as only 75% of the \$10 million project counts towards RMNCH at the '3' significance level



The formula applied therefore is:

RMNCH amount = Imputed significance level * country share * sector

The total of all project budgets after applying the RMNCH amount transformation only at the country level, gives the *country level total commitment*. Similarly, the total of all project budgets after applying the RMNCH transformation only at the sector level give the *sector level total commitment*.

Status and time bounding

One further factor is important in our application of this method. As our interest is in **active and ongoing RMNCH commitment level**, especially 2015 and beyond, we do this by adding two further parameters:

- In the case of **browser XML** raw data: we **set the "Status" field to "Operational"**. This limits data to only commitments coded as operational, as on the date of the last data update.
- In the case of IATI XML data: we include only projects that have End dates in 2016 or beyond. Projects with end dates prior to that are assumed to be already closed or close to terminating.

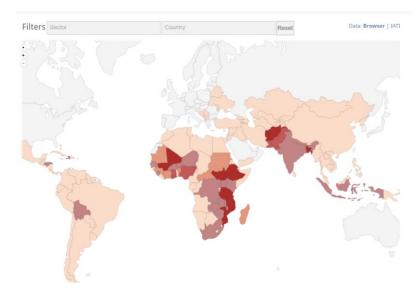
All values are in Canadian dollars unless indicated otherwise.

What do the data show?

Understanding the default view

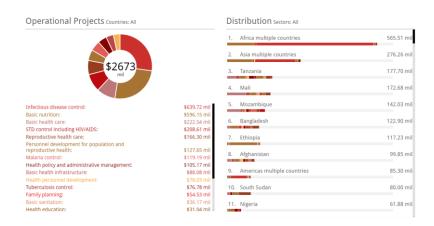
The default view shows the total value of "operational" projects after applying the RMNCH policy marker methodology. There are 4 main elements: map, circle graph, bar graph and the projects window.

Map: country fill and shade on total commitment level (darker implies higher value)





Circle graph and bar graph: circle graph shows sub-sectors within RMNCH, and bar shows country/regional distribution



Projects window: shows details of recipient, project name/title, executing agent (where available), description, start and end dates, sub- sectors within RMNCH, and calculated RMNCH amount applying the above described formula. Data can also be exported from the project window.



The default view shows the browser XML version of the data. A toggle switch can be used to switch to the IATI feed.



The view also provides a searchable dropdown filter to filter the data by sector and or country.



Understanding the data and key fields

The browser default view shows the total value of all "operational" commitments as of the date of last update which in this case is September 16, 2016:

CAD\$ 2.673 billion

The IATI default view shows the total value of all projects with end dates in 2016 or later as of the date of the last update which in this case is October 23, 2016:

CAD\$ 2.625 billion

If we limit the data more closely to our area of interest, i.e. recent commitments, made in or after 2015 and therefore part of Canada's second RMNCH commitment (2015 to 2020), we can see the following:

CAD\$ 1.3 billion (approx.)

The total value of active RMNCH projects started in 2015 and 2016.

Top 3 RMNCH subsectors:

- Infectious disease control
- Basic nutrition
- Basic health care

Largest RMNCH investments since 2015:

- Support to GAVI
- Support to the Global Fund
- Support to the Global Financing Facility for Women and Children

Largest Canadian partners since 2015:

- Micronutrient Initiative
- Aga Khan Foundation of Canada
- Save the Children Canada

Largest individual SRHR (family planning) investment since 2015:

• Strengthening Midwifery Services in South Sudan, 2015-2020, UNFPA: C\$33.5 million

Key terms

Projects: in the tool and primary data means individual project codes or identifiers. Note that there may be multiple codes that make up a single project as it may be understood elsewhere or using other approaches. We follow official GAC coding and identifiers strictly.



Sectors: are OECD-DAC sectors and subsectors, proxied by sector codes that are given in both IATI and browser feeds. They map directly to the OECD DAC CRS and CRS++

Recipient, and Country: is a country, regional or multi-country, where the project is only described as such in the official feeds. Only those projects where specific countries and project shares per country are clearly identified in the data are geocoded and placed on our filled map.

Executing agency: is the name of the executing agent or project partner mentioned in the official feed. This is only carried by the browser raw data.

Start and end dates: are the project start and end dates given in the official feed. It is important to know that these are not unchangeable. From time to time donors may update project level info, by way of extending or closing early.

Description: this field is leveraged directly from the official data feed and presented within constraints (both space and UTF8 compliance).

RMNCH amount and total commitment level: see detailed explanation of the valuation method above. These fields are developed by applying the new OECD-DAC RMNCH policy marker methodology to project level quantitative financial data. The formula typically is <RMNCH amount = Imputed significance level * country share * sector> for data at the country and sector specific level. A similar calculation allows aggregation (without double counting) at the country only and sector/subsector only levels (see details in the methodology section above).

How to use the tool

Basic navigation and filtering

- Select a country using the graph to focus on a specific country
- Use the filters to focus on a specific country and or sector
- Use the toggle to switch between browser and IATI data

Raw data and data export

- The project window by default holds all the data
- Data can be exported to a spreadsheet, after applying filters (this is advisable as otherwise the file may be too large)
- Raw data are extractable from a linked (earlier) version on the Canadian International Development Platform: http://cidpnsi.ca/rmnch-explorer-alpha/





About the organizations

Canadian International Development Platform is a data analytics, software development and policy research hub that leverages open data and big data to analyze, visualize and discuss Canada's engagement with developing countries, focusing on four verticals: foreign aid, bilateral trade, investment, and migration and remittances.

See: www.cidpnsi.ca

Canadian Partnership for Women and Children's Health catalyzes Canadian collaboration among 100 Partners who are improving women's and children's health in 1,000 communities worldwide.

See: http://www.canwach.ca/