

A Map of Evidence Maps Relating to Sustainable Development in Low- and Middle-Income Countries Evidence Gap Map Report

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Colophon

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About CEDIL: The Centre of Excellence for Development Impact and Learning (CEDIL) is an academic consortium initiative supported by UKAID through DFID. The objective of the centre is to commission and implement impact evaluations, promote the uptake and use of evidence from impact evaluations, and develop and demonstrate new and innovative methodologies for impact evaluation and evidence accumulation. International Initiative for Impact Evaluation (3ie) is one of a number of CEDIL members that form its intellectual leadership team.

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Summary

Over the last decade, there has been an increase in the number of impact evaluations and systematic reviews published on development interventions in low- and middle-income countries. This growth has created new challenges for ensuring that existing evidence is accessible to decision makers, that new studies avoid duplication, and that evidence gaps are addressed. In response, researchers, governments and NGOs are increasingly investing in evidence mapping exercises. The International Initiative for Impact Evaluation (3ie), Sightsavers and the International Rescue Committee are some of many that have published evidence maps.

This report summarises the findings of a map of evidence maps designed to catalogue evidence maps relating to development interventions in low- and middle-income countries. It uses a modified version of the 3ie evidence gap map methodology to identify, categorise and display evidence maps within a framework of intervention sectors adapted from the World Bank's categorisation and outcomes classified according to the Sustainable Development Goals (SDGs). The report summarises the evidence gap map's scope and methodology and describes the trends and characteristics of the body of evidence maps that we found. It also offers some recommendations for future directions in the production of evidence maps.

Main Findings

We found 55 completed and 18 ongoing evidence maps that met our inclusion criteria. While this represents a significant body of evidence maps overall, in many sectors we identified few or no maps. Moreover, most sectors in the framework cover a very broad range of interventions. Although a relatively high number of maps have been completed for some sectors, there are still likely to be many types of interventions in which evidence has not been mapped. Overall, the distribution of maps across intervention sectors is relatively uneven, with the health, nutrition and population sector having the highest number of evidence maps, followed by agriculture and rural development, education and, finally, climate change and environment. We did not identify any evidence maps that examine transportation, and we identified only one evidence map in each of the energy and the economic policy sectors. A relatively smaller number of maps have been completed on topics such as information and communications technology, humanitarian programmes, and urban development.

SDG 3 on health and SDG 4 on education and learning are the most frequently covered. However, no maps report on targets associated with SDG 17 on global partnership, while there are several SDGs for which relatively few evidence maps are available. These include water, sanitation and hygiene (SDG 6); energy (SDG 7);

infrastructure (SDG 9); urban and rural development (SDG 11); consumption (SDG 12); climate change (SDG 13); and sustainable use and management of the oceans (SDG 14).

Publication of evidence maps is growing, with the number of studies being published roughly doubling each year from 2014 through 2016. DFID and USAID dominate map funding, while the most active publishers are 3ie, through its Evidence Gap Map Report series; the International Rescue Committee; and the Collaboration for Environmental Evidence, through its journal, *Environmental Evidence*.

A majority of maps consider equity in some way. They either have an explicit focus on a specific dimension of inequity, such as sex and gender or age, or report on research disaggregated by one or more population groups in their analysis. The highest number of maps with some form of equity focus analyse the included studies according to sex- and gender-based differences, inequality based on age, socioeconomic status, educational status, disability and place of residence.

Included evidence maps employ a diverse range of methodologies in terms of the types of studies they include, as well as the scope of their search, critical appraisal, data extraction, and analysis and presentation.

While we did not conduct a critical appraisal of included maps, we extracted data that can provide an indication of quality in terms of the comprehensiveness of the maps' search strategies, any restrictions placed on study inclusion and whether maps focused on describing a body of evidence, rather than drawing conclusions about the overall findings of included studies.

Maps most commonly either include all types of study designs or focus on impact evaluations and systematic reviews only. Most maps search the unpublished as well as the published literature, while a majority also have some form of inclusion restriction based on publication date, language or publication type.

In terms of data analysis and presentation, most maps present included studies in some form of interventions–outcomes matrix, often accompanied by a narrative analysis and supporting histograms, tables and charts. The evidence maps largely limit themselves to describing the characteristics of the studies they include. Only a few report on findings regarding intervention effects.

Where maps do describe findings from included studies, it is typically in relation to systematic review findings only and on a study-by-study basis. However, a small number of maps informally synthesise findings from the included studies or otherwise provide conclusions about the findings of the body of evidence as a whole. The fact that only a limited number of maps do this is encouraging, as doing so adds confusion around the objectives of evidence maps and could produce conclusions that do not have a rigorous basis.

Conclusions

Implications for Policy

Evidence maps are thematically focused collections of knowledge designed to provide access to an evidence base that can inform policy or research investment decision-making. Increasingly, they allow users to follow links to included studies and to view summaries of that evidence, further increasing ease of use. However, the methods used to produce them determine their suitability for informing policy. Maps that do not include transparent and systematic methods of synthesis should not draw substantive conclusions about the evidence and therefore are not a reliable way of informing policy.

Implications for Research: Methods

The varying objectives that maps can address and the challenges inherent in mapping different topics mean that maps will continue to adopt differing approaches to sourcing and presenting evidence. However, like any other systematic approach, researchers creating evidence maps should specify their methods in advance via a study protocol and transparently report final methods in a way that can be replicated by others. They should also be careful not to make generalised claims about the findings of a body of evidence based on an informal synthesis.

Implications for Research: Substantive Focus of Future Maps

An increasing number of evidence maps are being published that focus on evidence relating to low- and middle-income countries. However, some significant gaps remain in terms of intervention sectors and outcomes covered. Sectors in which there are currently limited or no evidence maps include transportation, urban development, economic policy, energy, disaster risk reduction and other adaptive measures. SDGs for which comparatively few maps have been undertaken include SDG 7 on energy, SDG 13 on climate change and SDG 14 on the marine environment. Nevertheless, even within sectors or SDGs with the highest concentration of evidence maps, there are likely to be gaps. We encourage researchers and commissioners to inspect the online interactive map accompanying this report to identify the specific gaps in priority areas and explore the size of the literature before pursuing new evidence maps.

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Abbreviations and Acronyms

CEDIL	Centre of Excellence for Development Impact and Learning
DPME	Department of Planning, Monitoring and Evaluation (South Africa)
EGM	Evidence gap map
IER	Impact Evaluation Repository (3ie)
IRC	International Rescue Committee
SDG	Sustainable Development Goal
SRR	Systematic Review Repository (3ie)
WASH	Water, sanitation and hygiene

Introduction

1.1 The Issue: Mapping the Evidence

The production of impact evaluations and systematic reviews aimed at identifying effective development interventions has increased markedly over the last decade (White and Waddington 2012; Cameron et al. 2016). While this growth in rigorous evidence is welcome, it also presents a challenge for ensuring that existing evidence is accessible to decision makers, that new studies avoid duplication, and that evidence gaps are addressed.

In response, researchers, governments and NGOs are increasingly investing in broad evidence mapping exercises. For example, DFID (Bakrania 2015) and the South Africa Department for Planning, Monitoring and Evaluation (DPME) have commissioned evidence maps (DPME 2016). Similarly, both the International Rescue Committee (IRC) and Sightsavers have created evidence maps to help inform their programming (IRC 2017; Sightsavers 2017). Finally, the International Initiative for Impact Evaluation (3ie) has developed evidence gap maps (EGMs) as a means for establishing what we know and do not know about the effects of development interventions (Snilstveit et al. 2017) and has published 11 maps as of June 2017 (3ie 2017).

Evidence maps¹ are not limited to international development, but span a range of public policy domains. For instance, a recent systematic review of maps focusing primarily on health identified 34 evidence maps (Miake-Lye et al. 2016), while the Collaboration for Environmental Evidence library includes 14 systematic maps focused on environmental policy, many of them with an explicit emphasis on low- and middle-income countries (L&MICs).² The Evidence for Policy and Practice Information and Coordinating Centre has also produced 15 systematic maps spanning education, social welfare and health.³

While there are various efforts to standardise methods for systematic reviews, evidence mapping is still a relatively emergent field. To minimise duplication and inform the further development of methods for evidence mapping, we conducted a stock-taking exercise to provide an overview of the methods and thematic focus of existing evidence maps focusing on L&MICs. The results will inform the thematic

¹ Throughout, we use the term 'evidence map' as a catch-all term for maps, including systematic maps, evidence gap maps and so on, that share a common approach to using a framework of interventions and outcomes to describe evidence collected and screened systematically.

² <http://www.environmentalevidence.org/>

³ <https://eppi.ioe.ac.uk/cms/>

focus of a number of evidence maps by the Centre of Excellence for Development Impact and Learning (CEDIL).⁴

1.2 Objectives

The aim of this project is to provide an overview of completed and ongoing evidence maps focusing on development programmes in L&MICs. In doing so, we have three objectives:

To identify and summarise the characteristics of existing evidence maps;

To identify thematic gaps where new evidence maps could add value; and

To provide easy access to existing evidence maps through an interactive platform.

1.3 Methodological Approach

The methodology drew on a number of methods for evidence mapping, in particular that of 3ie EGMs (Snilstveit et al. 2017). We sourced the included maps through a systematic search of the published and unpublished literature, including searches of academic databases, online websites and search engines, contacting map authors and commissioning organisations, and a social media campaign. We then screened them according to a set of inclusion criteria and then extracted data to populate the map of evidence maps.

We structured the map of evidence maps around a framework of intervention sectors and Sustainable Development Goal (SDG) domains, allowing us to map out visually where evidence is available and where there are gaps.

The report employs descriptive statistics and a narrative analysis to describe the characteristics of the included maps and examines potential topics for new ones. This report accompanies the interactive, online map of evidence maps available on the 3ie website.⁵

Appendix A provides a detailed description of the search, inclusion criteria and screening and data extraction processes.

1.4 Overview

The remainder of this report is structured as follows. Section 2 outlines the substantive scope of this map of evidence maps. We present our findings in section 3, describing the size and characteristics of the evidence base, while section 4 provides a discussion of new directions for evidence maps. Section 5 summarises this study's strengths and limitations. The final section draws some conclusions. We

⁴ The objective of CEDIL is to commission and implement impact evaluations, promote the uptake and use of evidence from impact evaluations, and develop and demonstrate new and innovative methodologies for impact evaluation and evidence accumulation. 3ie a consortium member of CEDIL.

⁵ <http://gapmaps.3ieimpact.org/evidence-maps/map-maps>

include a full list of included maps in Appendix D and provide additional methodological details in Appendix A and Appendix B.

Section 2

Scope of the Map of Evidence Maps

EGMs typically involve the construction of a framework of interventions and outcomes based on a review of the literature and consultation with stakeholders (Snilstveit et al. 2017). The overall scope of this map of evidence maps covers all evidence maps of international development programmes in L&MICs that we found by end of May 2017. We adapted the World Bank’s sectoral classification of interventions (World Bank 2017a), and classified outcomes using the United Nations SDGs. We chose these two classifications because of their comprehensive scope and relevance to international development research and programmes. Broadly, this map of evidence maps includes any map that catalogues evidence relating to at least one sector and outcome of interest. We outline the inclusion criteria in more detail below.

2.1 Populations

To be included, evidence maps needed to have an explicit focus on capturing evidence from L&MICs. This does not mean that they could not include evidence from high-income countries.⁶

2.2 Interventions

We adapted and expanded the World Bank’s sectoral classification of interventions (World Bank 2017a) into a set of 100 types of development interventions, classified into 17 intervention sectors. Appendix E provides an overview of the full intervention classification that we used. To be included, a map needed to focus on one or more of these intervention sectors. The 17 intervention sectors are listed in Table 1.

Table 1: Intervention Sectors

⁶ We used the World Bank’s classification of country and lending groups (World Bank 2017b).

Agriculture and rural development
Climate change and environment
Conflict management and post-conflict reconstruction
Cross-sectoral
Economic policy
Education
Energy
Finance
Health nutrition and population
Humanitarian
Information and communications technology
Private sector development
Public sector management
Social protection
Transportation
Urban development
Water, sanitation and hygiene

2.3 Outcomes

To be included, evidence maps needed to focus on one or more of the targets specified by the SDGs (Table 2). The United Nations classifies 169 targets across the 17 [SDGs](#) in all welfare domains, including equity across income and gender (IAEG-SDGs 2017). The outcome categorisation for the map of evidence maps is made up of these 17 SDGs, with all included maps categorised into one or more of these goals (the scope of some maps covered several SDGs).⁷

Table 2: Outcomes by Sustainable Development Goal

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

⁷ The complete text of the SDG indicators is available in [Online Appendix G](#).

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; 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

2.4 Study Types

We were interested in identifying and mapping completed or ongoing evidence maps. They first emerged in the 1990s (Bates et al. 2007) and since then researchers have adopted a range of different approaches to mapping and describing the evidence base. These approaches have been variously described as 'systematic maps' (Haddaway et al. 2016), 'evidence maps' (Bragge et al. 2011; Miake-Lye et al. 2016) and 'evidence gap maps' (Snilstveit et al. 2017; Sightsavers 2017).

In this study, our primary interest is to identify maps with evidence relating to L&MICs. Maps can be described generally as studies that are typically broad in scope and primarily address questions related to the size and characteristics of the evidence base with the purpose of identifying existing research and research gaps

(Haddaway et al. 2016; Miake-Lye et al. 2016). Some evidence maps also aim to inform decision-making by compiling existing research to make it more accessible to users, in the form of lists, indexes or searchable databases (Bragge et al. 2011; Haddaway et al. 2016; [Snilstveit et al. 2017](#)). Finally, evidence maps limit data extraction and analysis to study characteristics, and do not provide a formal synthesis of the findings of included studies (Haddaway et al. 2016; Miake-Lye et al. 2016).

The methodological inclusion criteria for this map of evidence maps drew heavily on the descriptions of the key characteristics of maps as reported in existing literature on evidence mapping methodologies (Haddaway et al. 2016; James et al. 2016; Miake-Lye et al. 2016; [Snilstveit et al. 2017](#)).

Box 1: Evidence Maps: A Working Definition

Throughout, we use the term 'evidence map' as a catch-all term for maps, including systematic maps, evidence maps and evidence gap maps. The definition below is based on our inclusion criteria, which are reported in full in Appendix A.

To be considered for inclusion, maps needed to self-identify as 'evidence or evaluation or systematic map or mapping', or use a similar combination of terms. They also needed to clearly state an objective of mapping or cataloguing evidence.

Maps also had to provide a list of included studies *and* do either of the following:

For each included study, provide details on any of the following metadata: intervention type, sectoral area, outcomes or exposures, or study designs; or

Provide descriptive analysis across the body of studies included in a map.

Descriptive analysis could provide metadata for any of the following: intervention type, sectoral area, outcomes or exposures, or study designs.

2.5 Other Inclusion and Exclusion Criteria

We included both completed and ongoing maps. To be included, maps had to be published in or after the year 2010. This date is justified by evidence maps being a relatively recent innovation in international development, with a systematic review of maps published in 2013 ([Schmucker et al.](#)) finding only seven maps. Likewise, the first map of international development evidence that we were aware of prior to this research project was published in 2010 by Stewart and colleagues.

Finally, all completed or ongoing maps had to be available to the general research community or there had to be a plan to make them available in the future. During the screening process, we were made aware of a couple of maps that authors do

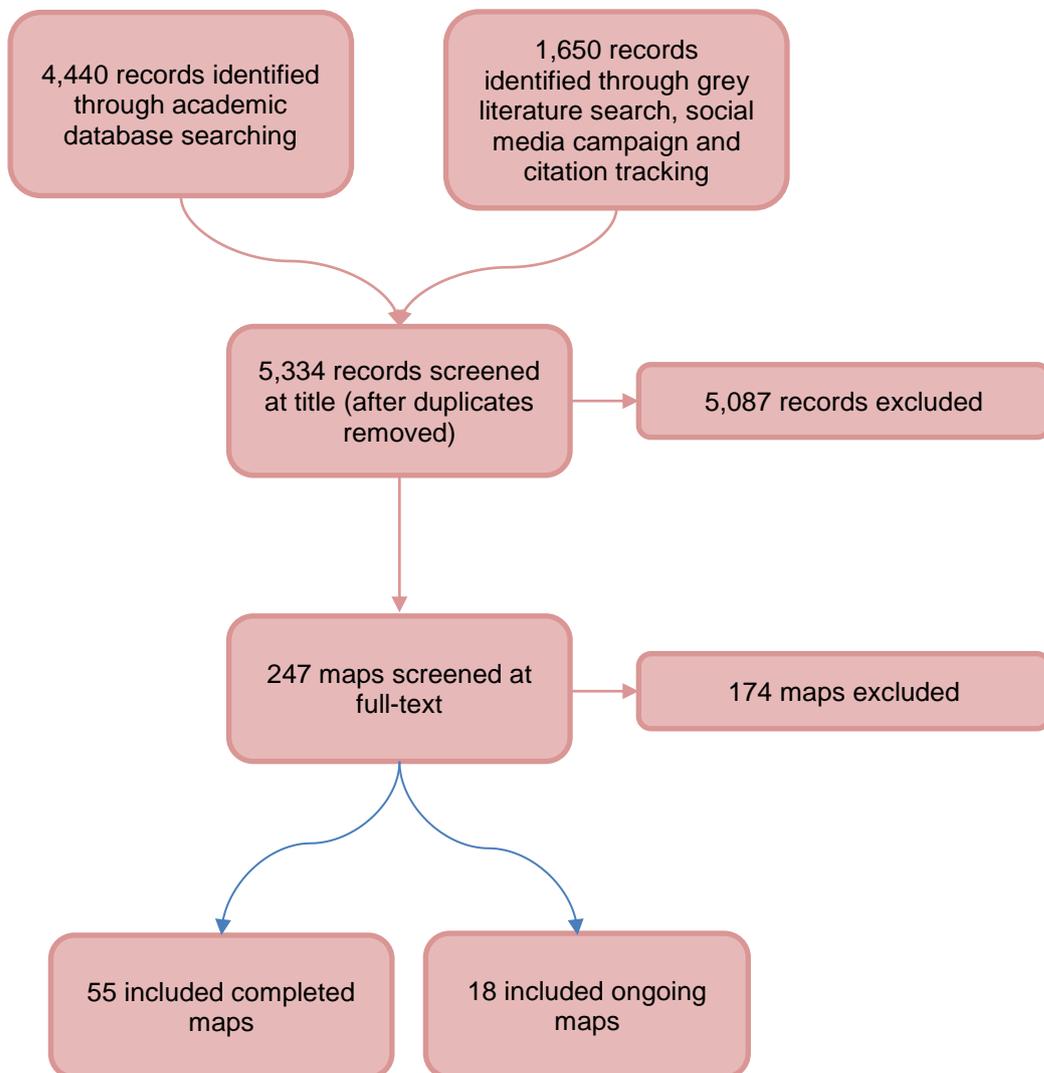
not plan to publish and therefore are not accessible.⁸ These were not included in our study.

Section 3

Results

This section reports on the results of our search and screening processes and describes the characteristics of the maps that we found. The descriptive analysis first examines the completed maps and then ongoing maps. Finally, we discuss the thematic gaps in the evidence base.

Figure 1: PRISMA Diagram



⁸ Typically, because such maps were commissioned to inform organisations' internal decision-making.

3.1 Search and Screening, Volume of Evidence Base

The PRISMA diagram in Figure 1 provides an overview of the screening process used to identify studies included in the map of evidence maps. We identified 4,440 records from academic databases and an additional 1,650 records through searches of websites, search engines, a social media campaign and citation tracking. After removing duplicates, we screened a total of 5,334 records at title and abstract. Of these, 5,087 were excluded for not meeting our title and abstract inclusion criteria. The most common reasons for exclusion at this stage were topic relevance and study methodology. We downloaded and screened the full texts of the remaining 247 studies. Of these, we excluded 174 for not meeting our full-text screening inclusion criteria. Study methodology and lack of L&MIC focus were the most common reasons for exclusion at the full-text screening stage. See Appendix A for a full description of these exclusion criteria. Seventy-three maps were included in the map of evidence maps, 55 of which are completed and 18 of which are ongoing.

3.2 Characteristics and Trends of the Evidence Base from Completed Maps

The interactive map of evidence maps is available on 3ie's website.⁹ It charts all included maps according to the sector(s) and SDG(s) that they cover. Bubble sizes indicate the size of the evidence base, with a larger bubble indicating that more maps cover a given map intersection. Hovering over the bubble provides a list of relevant maps and links to full-text studies or online platforms.

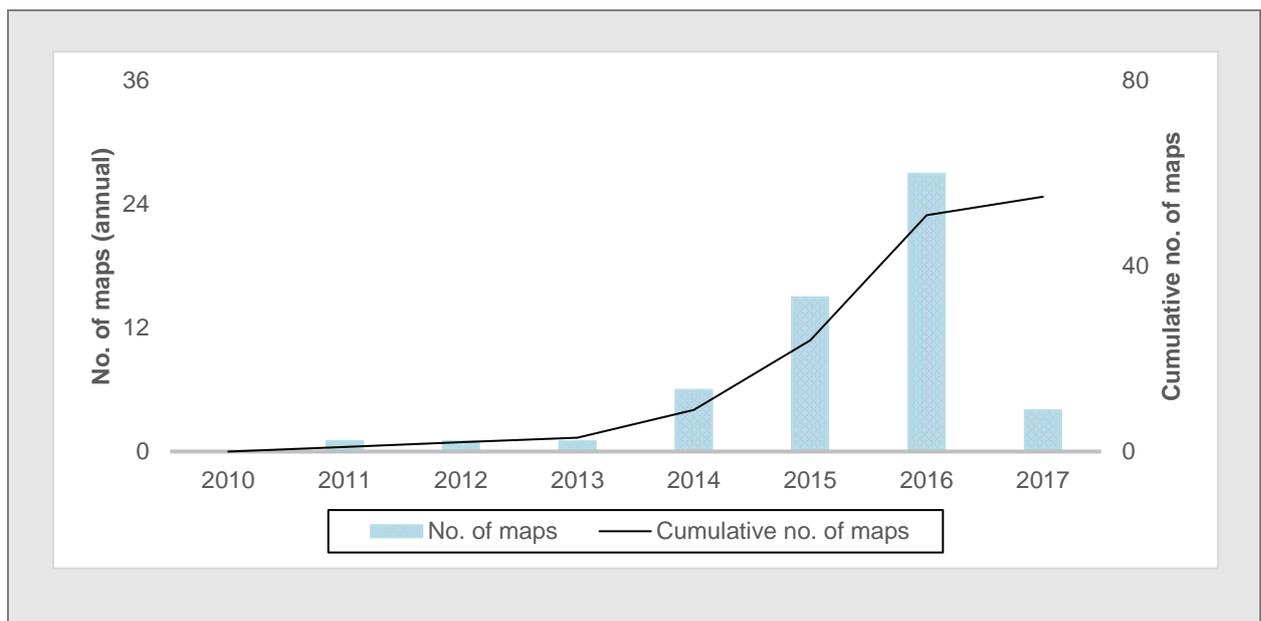
The following section analyses the characteristics of the 55 completed evidence maps. A subsequent section reports on the ongoing evidence maps, for which fewer details are typically available.

3.2.1 Rapid Recent Growth in Map Publication

We include a total of 55 completed evidence maps. Figure 2 displays the number of completed maps published each year from 2010 to 2017. The black line indicates the cumulative number of studies published. The number of studies being published roughly doubled each year from 2014 through 2016. The largest year-on-year increase in terms of absolute number of publications was in 2015 to 2016, when the number of available evidence maps increased from 15 to 27.

⁹ <http://gapmaps.3ieimpact.org/evidence-maps/map-maps>

Figure 2: Map Publication



3.2.2 Map Publication and Funding is Dominated by Only A Few Organisations

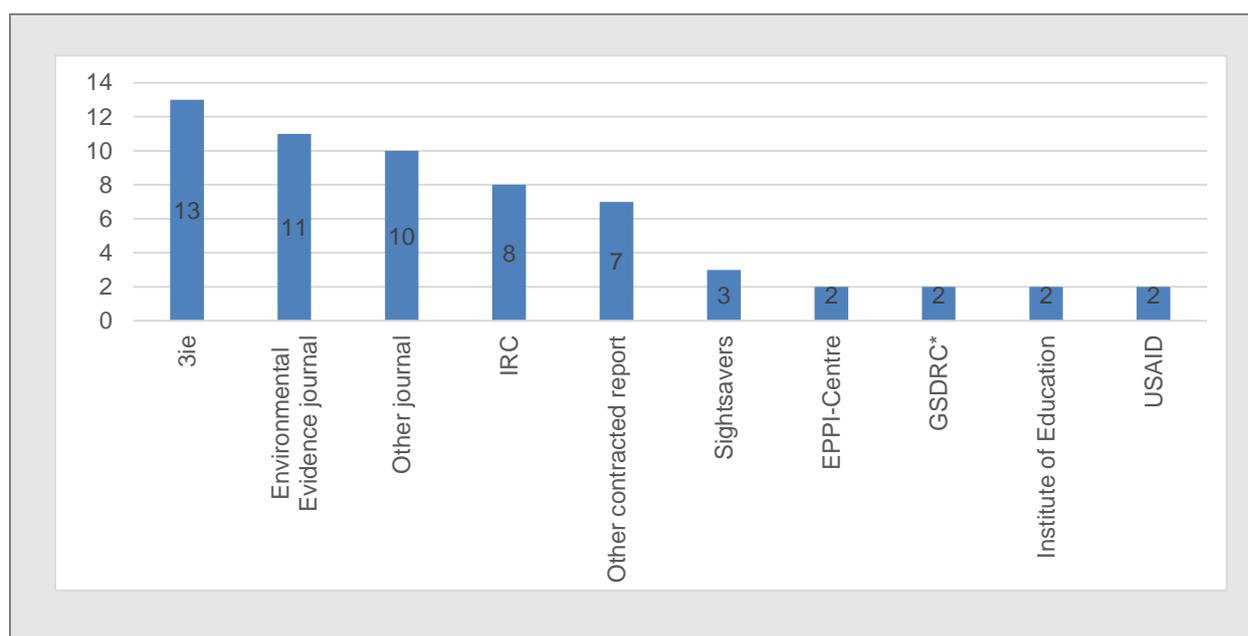
Figure 3 provides a breakdown of the sources of included maps. The majority of maps (n = 39) were published in a report or as an online map, while the remaining maps were published in peer-reviewed journals.

The largest publisher of maps overall is 3ie (n = 13), followed by *Environmental Evidence*¹⁰ (n = 11) and IRC (n = 8). Maps published in journals other than *Environmental Evidence* were distributed across a variety of other publications.¹¹

¹⁰ *Environmental Evidence* is the journal of the Collaboration for Environmental Evidence.

¹¹ All 'Other journal' publishers comprise: BioMed Central, *British Medical Journal*, *Conservation Biology*, *Globalization and Health*, *Health & Place*, *Journal of Public Health Policy*, *Journal of Urban Health*, *PLOS ONE* and *South African Review of Sociology*.

Figure 3: Map Publishers



Note: Totals sum to over 55 because some maps were published both as online maps and in journals.

The 'Other journal' category combines figures for all journals that have published only a single included map.

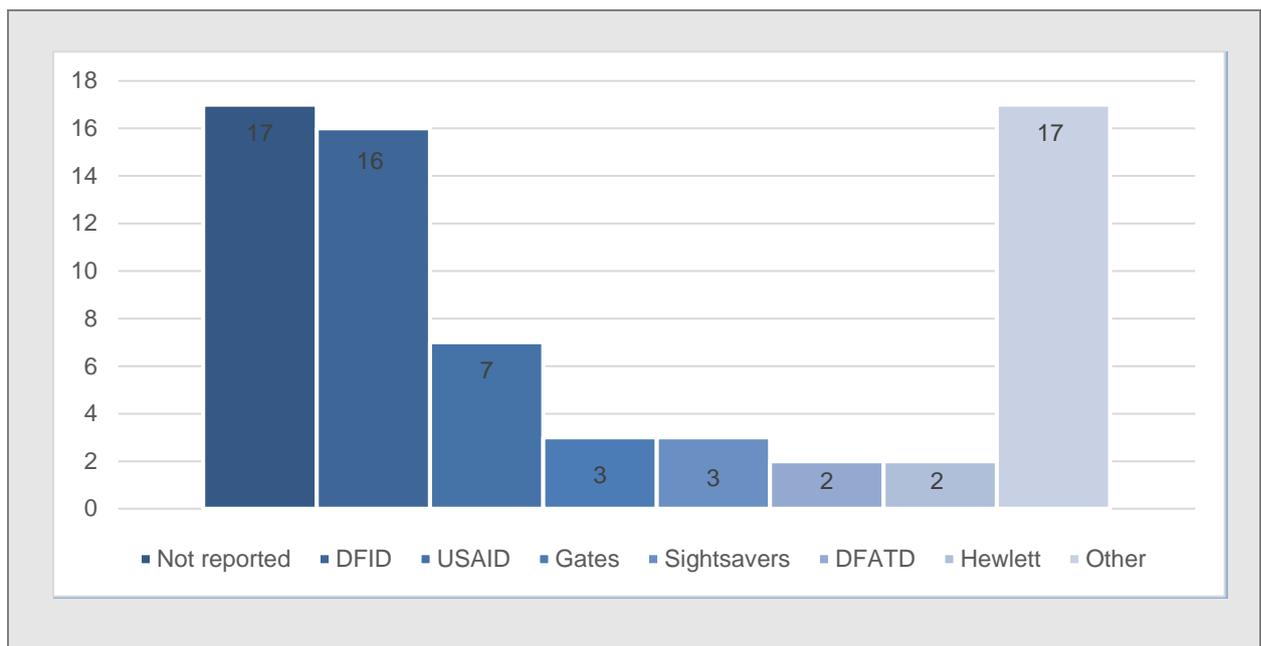
The 'Other contracted report' category combines figures for other publishers that have published only a single included map.

** GSDRC = Governance and Social Development Resource Centre.*

Figure 4 provides a breakdown of the funders of included maps. Sixty-nine per cent of the included maps (n = 38) provide information on their funder. DFID is the most cited funder, followed by USAID. All funders in the 'Other' category funded only one map.¹²

¹² All 'Other' funders comprise: Australian AID; Children's Investment Fund Foundation (CIFF); Center for International Forestry Research (CIFOR); Department for Environment, Food & Rural Affairs (DEFRA); European Commission; Feinstein International Center (Tufts University); FHI Foundation; Japanese International Cooperation Agency (JICA); MacArthur Foundation; The MasterCard Foundation; *Natural Environment Research Council* (NERC); Oxfam; private donors; Swiss Agency for Development and Cooperation (SDC); Research Councils UK; World Bank; and World Wildlife Fund.

Figure 4: Map Funders

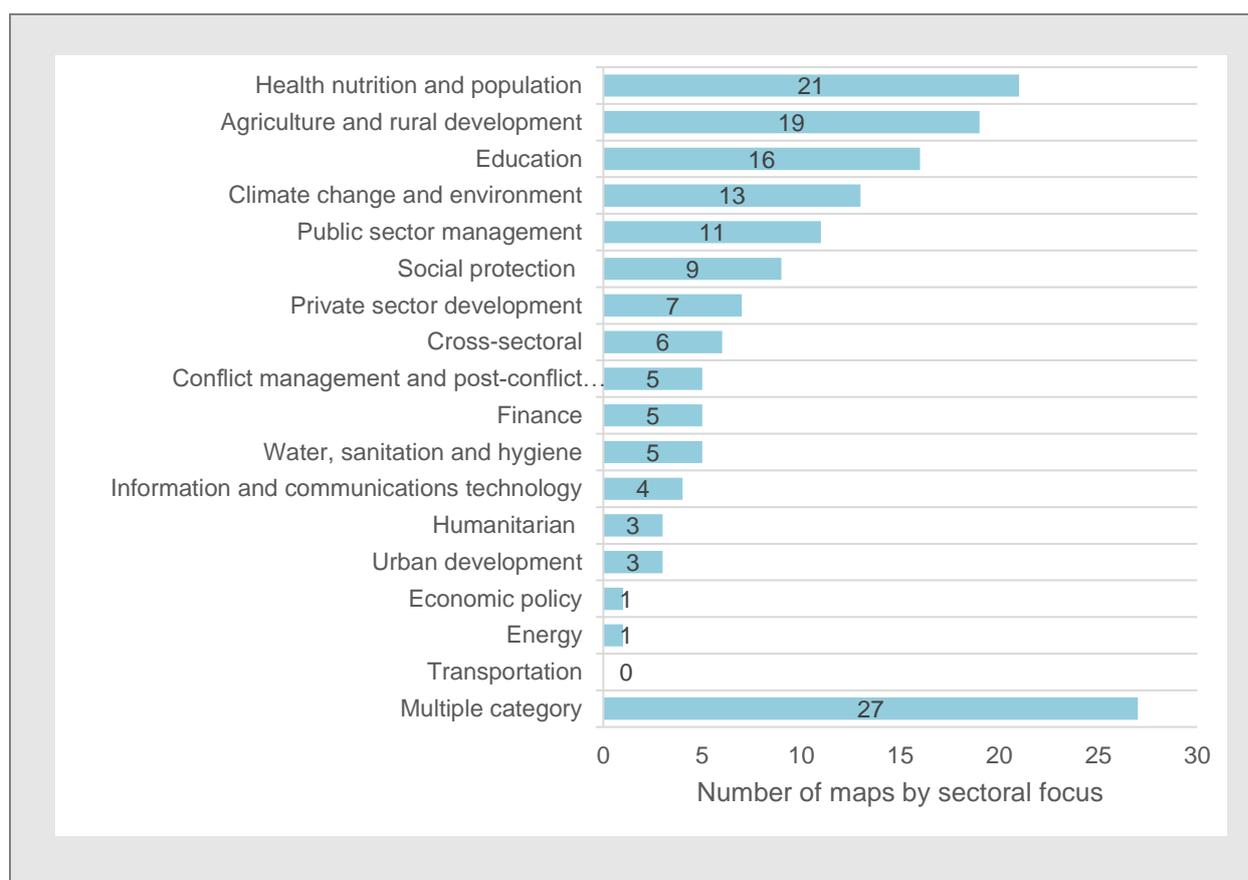


Note: Totals sum to over 55 because some maps had funding from multiple organisations.

3.2.3 Distribution of Maps Across Sectors

Figure 5 shows the number of included maps, disaggregated by the 17 different sectors covered by the EGM. As the scope of many maps is broad, we also include a 'Multiple category' in the chart, which indicates the number of maps that cover more than a single sector. Thus, a single map that covers multiple sectors is included in both the multiple category and all relevant individual categories. Full definitions for all sectors are provided in Appendix E.

Figure 5: Maps by Sector



Note: Totals sum to over 55 because the scope of many maps covered more than a single sector.

Health, nutrition and population is the sector with the highest number of evidence maps (38%, n = 21), followed by agriculture and rural development (35%, n = 19), education (29%, n = 16), and climate change and environment (24%, n = 13). We did not identify any evidence maps that examine transportation and found only one in each of the energy and economic policy sectors. For other sectors, such as information and communications technology, humanitarian programmes, and urban development, few maps are available. Finally, just under half of studies (49%, n = 27) cover interventions in more than a single sector, indicating the broad scope of many evidence maps.

Most sectors in the framework cover a very broad range of interventions, so, although there is a relatively high number of maps for some sectors, this should not be interpreted as indicating that they have been mapped comprehensively.

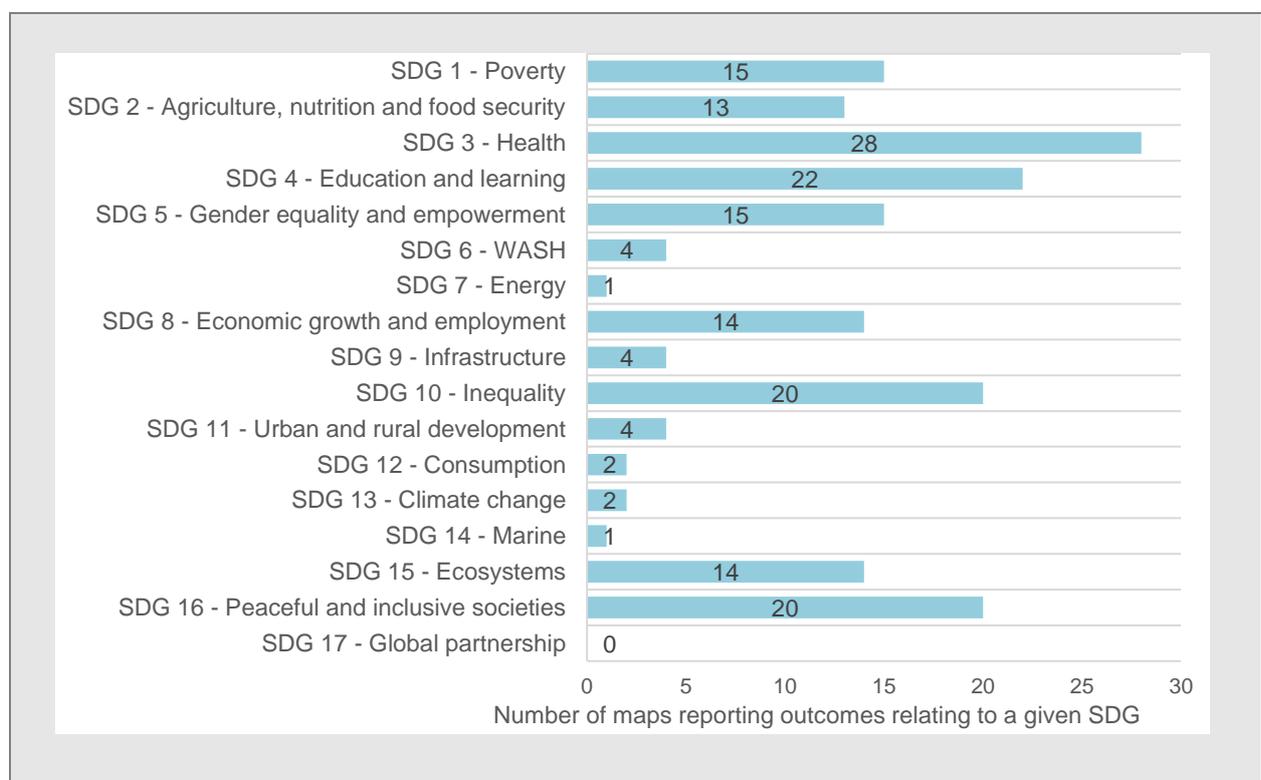
A majority of the maps that examine interventions in the area of climate change and environment – 9 out of 13 – were published in *Environmental Evidence*, the journal of the Collaboration for Environmental Evidence.

3.2.4 Distribution of Maps Across SDGs

The focus of included maps is distributed across almost all of the SDGs, with the exception of SDG 17 on global partnership (Figure 6). A majority of maps (80%, n = 44) report on more than a single goal.

SDG 3 on health is the goal most frequently covered, with just over half of maps (51%, n = 28) covering at least one of the targets included under this goal. The target most commonly included is SDG 3.3, which relates to eradicating communicable diseases such as HIV, tuberculosis and neglected tropical diseases (n = 7). This is closely followed by targets SDG 3.1 and SDG 3.7, which relate to reducing maternal mortality and to sexual and reproductive health, respectively (both n = 6).

Figure 6: Maps by Sustainable Development Goal



Note: Totals sum to over 55 because many maps report on more than a single SDG.

The second-most-studied goal is SDG 4, which focuses on education and learning (40%, n = 22). The most commonly included target under this goal is SDG 4.4, which relates to increasing skills for youth and employment for adults (n = 9). The second-most-studied target under this goal is SDG 4.1, which relates to completion of primary and secondary schooling and proficiency in reading and mathematics (n = 7).

No studies report on targets associated with SDG 17 on global partnership. This is perhaps unsurprising given that this SDG covers multilateral collaboration between countries, and few primary studies examine such interactions, making a map of the area less relevant.

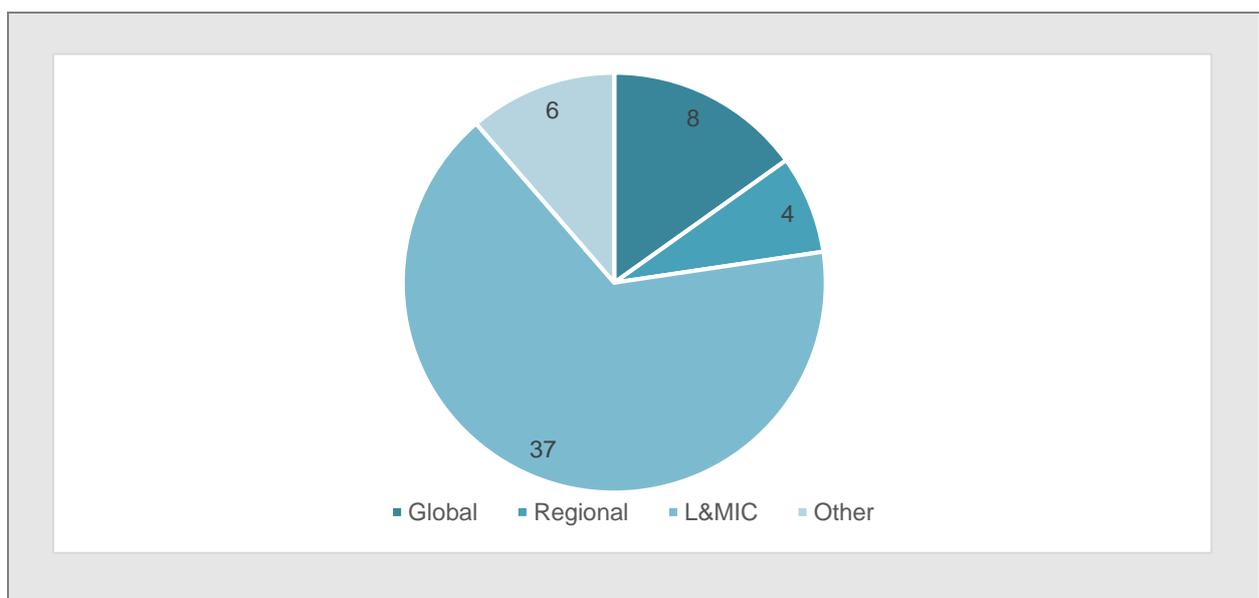
In addition, there are several SDGs for which very few evidence maps are available. For example, there is only one map available for each of the SDGs pertaining to energy (SDG 7) and sustainable use and management of the oceans (SDG 14). Furthermore, consumption and climate change (SDGs 12 and 13) are captured by just two maps each, followed by four maps each covering WASH, infrastructure, and urban and rural development (SDGs 6, 9, 11).

Appendix F provides an overview of all included maps, disaggregated by specific SDGs and targets.

3.2.5 Geographic Focus of Maps

A majority of included maps (67%, n = 37) have an explicit focus on L&MICs (Figure 7). Fewer studies have a global (15%, n = 8) or regional scope, such as on Latin America or Sub-Saharan Africa only (7%, n = 4). Studies that have another type of geographic focus (11%, n = 6) include a focus on non-OECD countries (n = 2), mountainous regions (n = 1) and humanitarian settings (n = 2).

Figure 7: Maps by Geographic Focus



3.2.6 Methodology, Presentation and Analysis of Evidence Maps

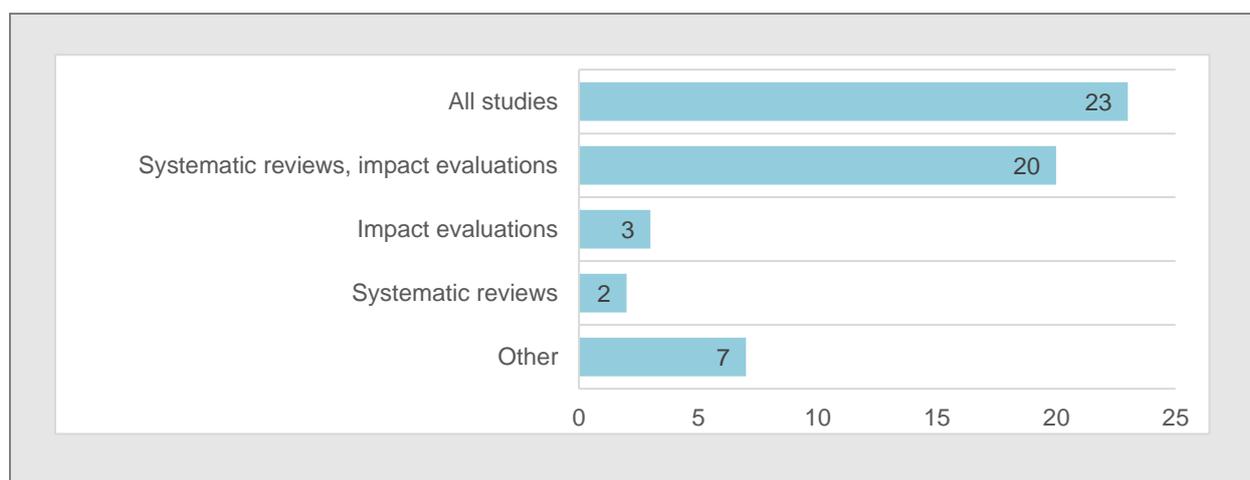
The included evidence maps employ a diverse range of methodologies in terms of the types of studies they include, as well as the scope of their search, critical appraisal, data extraction, and analysis and presentation. Table 3 summarises the characteristics of maps' methodologies, and their approach to presentation and analysis of included studies.

The included maps differ in the types of literature they set out to map, as indicated by Figure 8. Nearly half of the evidence maps (42%, n = 23) do not have any study design restrictions and include 'all studies'. Thirty-six per cent of maps (n = 20)

include only impact evaluations¹³ and systematic reviews,¹⁴ all published by either 3ie (n = 12) or IRC (n = 8). Similarly, two maps include systematic reviews only and another three maps include impact evaluations only. Finally, 13 per cent of maps (n = 7) adopt an approach somewhere in between (designated 'other' in Figure 8), including a range of study types such as literature reviews or observational studies, while excluding some other types of studies.

The types of studies included in different maps are closely related to the objectives of that mapping exercise. In some cases, the objective of the map is to identify all research on a particular topic. As a result, the authors include and describe any type of study relating to their substantive focus. In other cases, like the EGMs produced by IRC and 3ie, the aim of the exercise is to map studies of intervention effects. As a result, the maps are limited to impact evaluations and systematic reviews designed to assess intervention effects. Nevertheless, these maps typically adopt an inclusive definition of impact evaluation, including a broad range of experimental and quasi-experimental study methodologies and designs.

Figure 8: Map Inclusion Criteria – Study Designs



In addition to study design restrictions, evidence maps often adopt additional inclusion restrictions. A majority of maps (69%, n = 38) report some such inclusion restrictions. Over half (55%, n = 30) report limiting the studies they include by the year of publication. Other inclusion restrictions used in maps are restrictions by language (18%, n = 10) and publication status (13%, n = 7).

The comprehensiveness of searches conducted for evidence maps varies in both the number and types of sources searched. Most maps (91%, n = 50) include sources of grey literature as well as sources of peer-reviewed published literature in their search strategy.

¹³ Where impact evaluations are defined as evaluations adopting counterfactual analysis to measure the net impact of an intervention (3ie 2012).

¹⁴ Where systematic reviews are defined through their use of transparent and systematic methods to identify, appraise and synthesise findings from studies addressing a specific issue (Waddington et al. 2012).

There is also variation in the approach to critical appraisal. Less than half of the included evidence maps (47%, n = 26) conduct some form of critical appraisal of all or some portion of the included studies. Most of the evidence maps that critically appraise studies restrict this appraisal to systematic reviews. Map producers with the largest number of maps that include some form of critical appraisal are 3ie and *Environmental Evidence* (both n = 9), followed by Sightsavers (n = 3).

Maps adopt a variety of approaches to presentation and analysis. Sixty-six per cent of evidence maps use some form of matrix to present their results (n = 36). Of these, 28 provide an interactive matrix to display studies organised according to a framework of interventions and outcomes, allowing users to query the matrix to discover what evidence appears at any given intersection. Eight display included studies in some other form of interventions–outcomes matrix, allowing users to assess the quantity of evidence at a given intersection but not to view the specific studies that populate it. Eighteen of the 36 maps that provide some form of matrix also provide additional presentation in the form of a narrative discussion or the use of histograms, charts or similar visualisations. However, a further 18 rely on the matrix alone, without providing further presentation or discussion of included studies.

Of the 19 maps that do not provide a matrix, 14 provide histograms, charts or similar visualisations accompanied by a narrative description, while 5 rely on a narrative description of the evidence alone. In total, well over half of maps (65%, n = 36) provide a narrative description of the characteristics of the evidence base, with 29 of these also including analysis in the form of histograms, charts or other visualisations. Finally, over half of the evidence maps (55%, n = 30) include some form of database that allows users to access study summaries and/or full-text papers through an online link.

We also assessed whether the evidence maps go beyond describing the characteristics of included studies, and report or synthesise the findings of included studies. Approximately half of the evidence maps (47%, n = 26) limit themselves to describing the characteristics of the included studies and do not report on findings. Forty-five per cent of maps (n = 25) report outcomes from included studies on a study-by-study basis or conduct a formal synthesis of evidence. The majority of these are 3ie and IRC maps that summarise the findings of systematic reviews. Finally, only 13 per cent of maps (n = 7) go beyond describing the evidence and synthesise findings, reporting conclusions about the overall findings of studies.¹⁵ This relatively small number is encouraging, as maps that informally synthesise studies add confusion around the objectives of evidence maps, and blur the distinction between evidence maps and evidence synthesis.

¹⁵ Maps were counted as having drawn substantive conclusions based on informal synthesis if they did not report systematic methods of data synthesis and also made generalised statements about the findings of studies included in the map. An example would be a map that reported that the included studies generally reported positive findings for a given outcome, but did not employ systematic methods to reach this finding.

Table 3: Map Methodology, Presentation and Analysis

Methodology	Percentage (n)
Maps critically appraised some or all included studies	47 (26)
Maps restricted inclusion criteria	69 (38)
By year of publication	55 (30)
By language	18 (10)
By publication status	13 (7)
Maps searched grey literature	91 (50)
<i>Map inclusion criteria for studies:</i>	
Any study design	42 (23)
Impact evaluations	5 (3)
Systematic reviews	4 (2)
Impact evaluations and systematic reviews	36 (20)
Other	13 (7)
Presentation and analysis	
<i>Map presentation and analytical format:</i>	
Interactive matrix	51 (28)
Other matrix	15 (8)
Narrative description	65 (36)
Histograms, charts or other visualisations	53 (29)

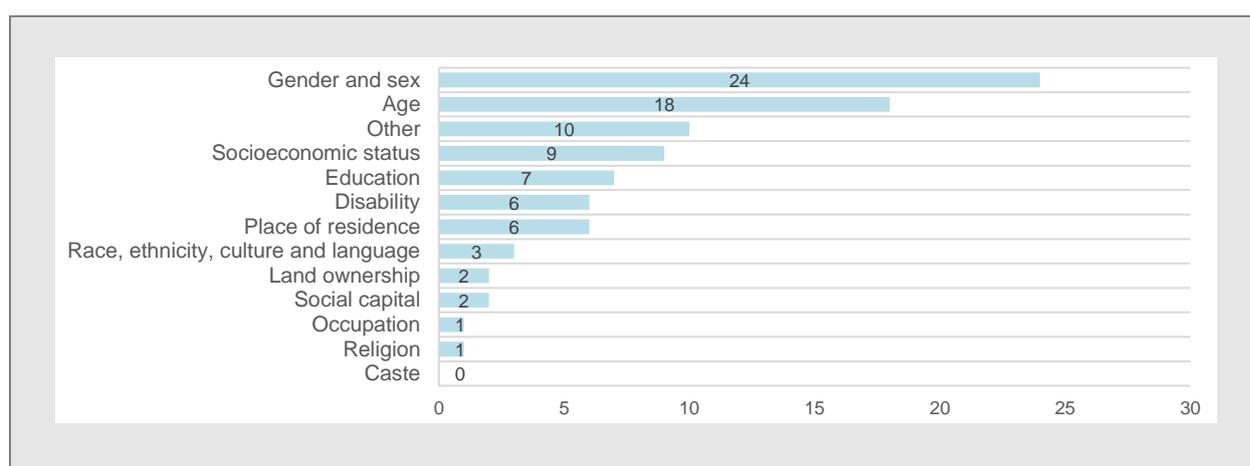
Web links to included studies provided	55 (30)
<i>Map reporting of findings:</i>	
Findings not reported	47 (26)
Findings reported study-by-study or formal synthesis	40 (22)
Findings of included studies informally synthesised	13 (7)

3.2.7 Equity Focus of Maps

We disaggregated maps by their focus on equity, using categories adapted from the PROGRESS framework (O'Neill et al. 2014), and drawing on Welch and others (2013) and Masset and Snilstveit (2016) (see Figure 9). Studies were coded as having an equity focus if this is clearly stated in their objectives or inclusion criteria, or if they consider research disaggregated by one or more disadvantaged population group in their analysis.

Seventy-five per cent of maps (n = 41) include some form of equity focus. Figure 9 shows the number of studies with a focus on populations according to different dimensions of inequity. The highest number of maps with some formal consideration of equity assess sex and gender-based differences (n = 24) and age (n = 18), followed by socioeconomic status (n = 9) and populations disadvantaged by their educational status (n = 7). It is also notable that 15 maps were identified as covering SDG 5 on gender equality and empowerment.

Figure 9: Equity Focus of Maps



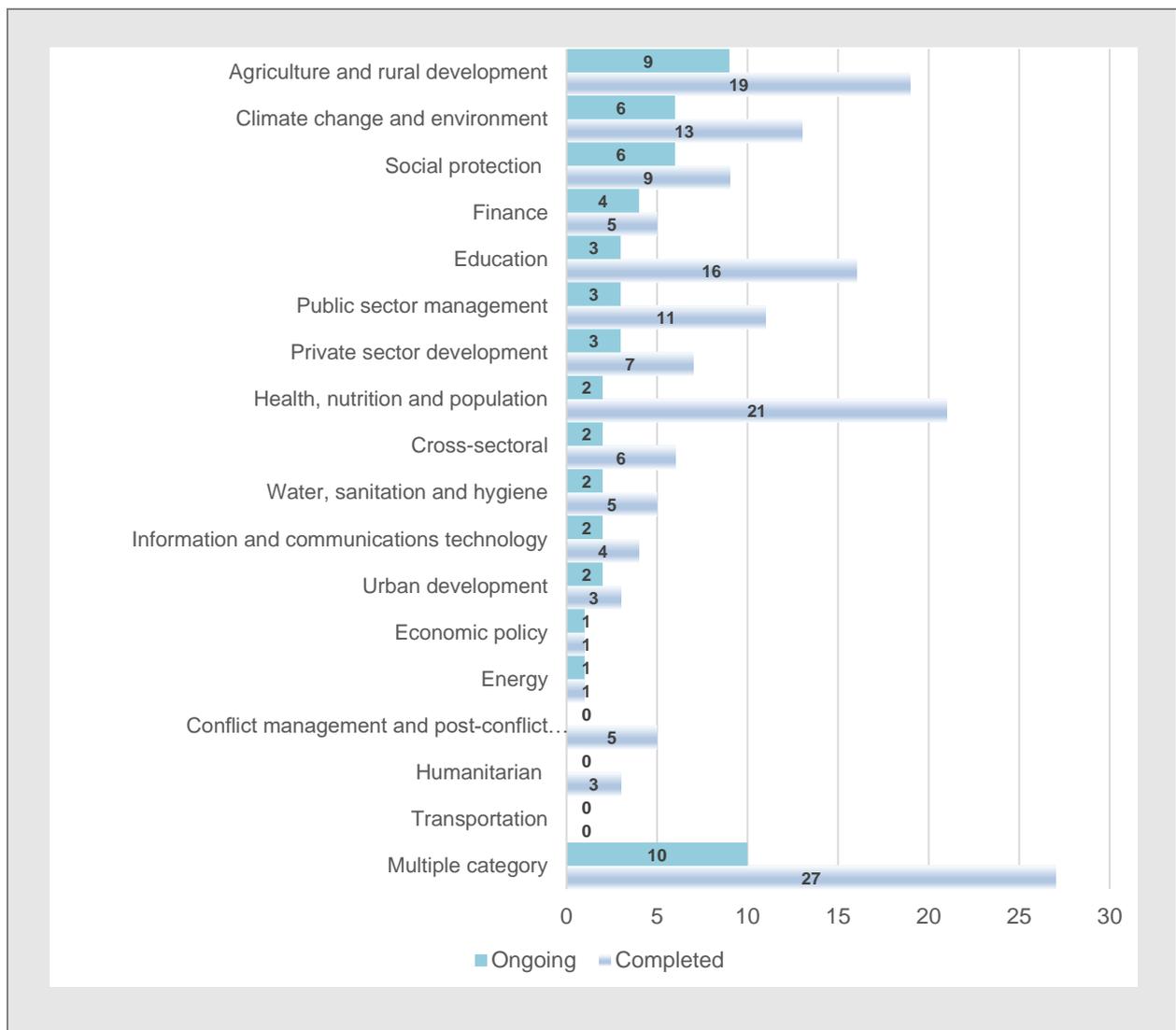
3.3 Characteristics and Trends of the Evidence Base from Ongoing Maps

In addition to the completed maps, we also identified 18 ongoing maps. However, it is not yet standard for map protocols to be published. Ongoing maps were included if the information available provided evidence of a clear commitment to produce an evidence map that met our inclusion criteria.

3.3.1 Distribution of Ongoing Maps Across Interventions

Figure 10 shows the distribution of ongoing maps together with the distribution of completed maps for easy comparison. The categories with the highest number of ongoing maps were agriculture and rural development (50%, n = 9), followed by climate change and environment (33%, n = 6). We did not identify any ongoing maps in the conflict management and post-conflict reconstruction, humanitarian and transportation categories.

Figure 10: Ongoing Maps by Sector



Note: Totals sum to over 73 because the scope of many maps covered more than a single sector.

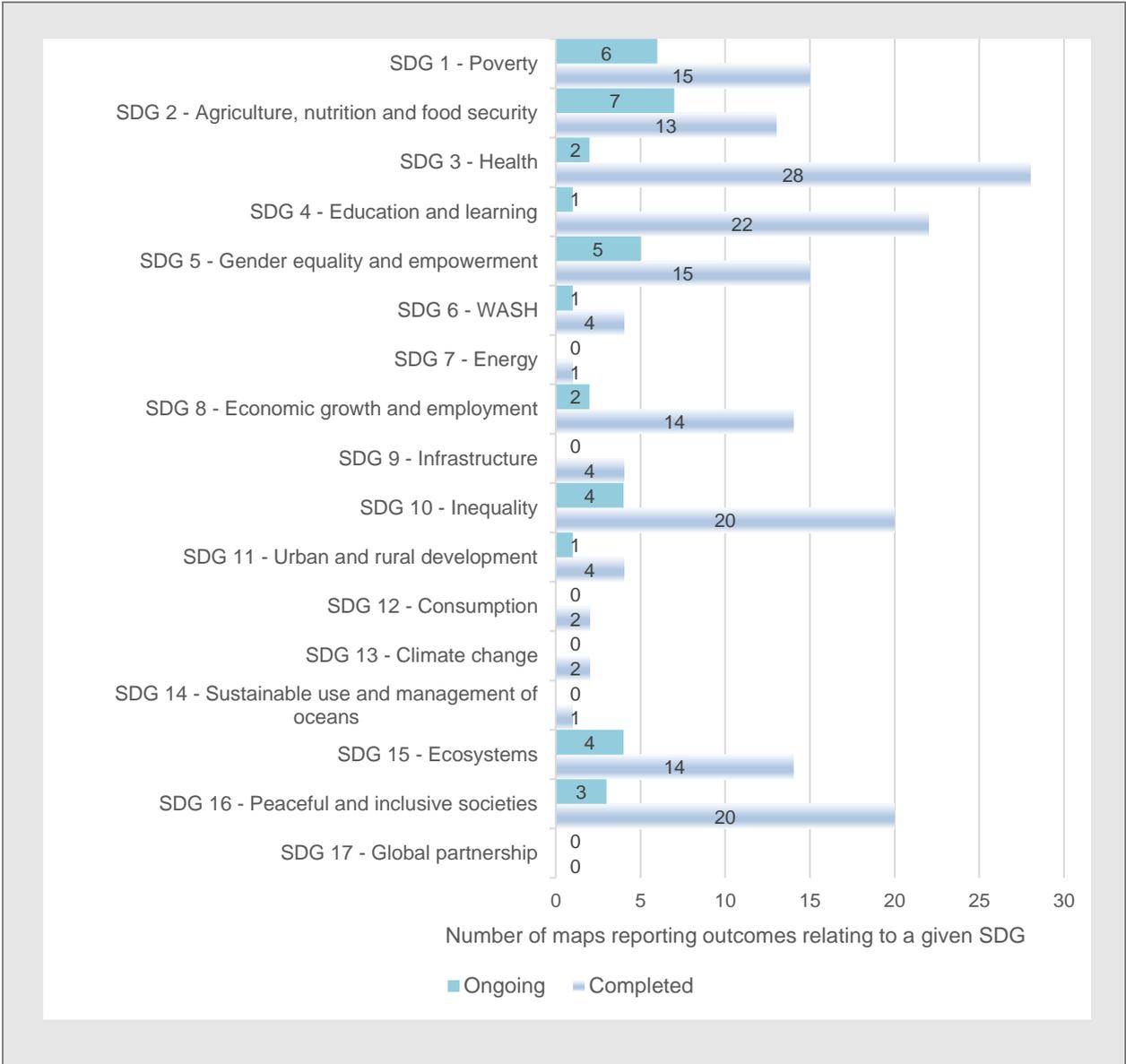
3.3.2 Distribution of Ongoing Maps Across SDGs

Figure 11 provides an overview of the distribution of ongoing maps across the different SDG categories. The trends described in this section in particular are approximate as they reflect work on maps that are still in progress.

The most commonly targeted SDGs include SDG 2 on agriculture, nutrition and food security (39%, n = 7); SDG 1 on poverty (33%, n = 6); SDG 5 on gender equality and empowerment (n = 5, 28%); SDG 10 on inequality; and SDG 15 on ecosystems (both n = 4, 22%).

Categories with little ongoing work include SDG 4 on education and learning, SDG 6 on WASH, and SDG 11 on urban and rural development (all n = 1), while no ongoing studies clearly state that they plan to examine outcomes relating to SDG 9 on infrastructure, SDG 12 on consumption, SDG 13 on climate change or SDG 17 on global partnership.

Figure 11: Ongoing Maps by Sustainable Development Goal



Note: Totals sum to over 73 because many maps report on more than a single SDG.

3.3.3 Comparing the Distribution of Completed and Ongoing Maps Across SDGs and Intervention Sectors

When the distribution of completed and ongoing maps is compared across sector intervention and SDG categories, the pattern remains largely the same. However, considering the large number of completed maps that have focused on the education and health sectors, relatively few new maps are currently ongoing in those areas.

Discussion: Directions for New Evidence Maps

The map of evidence maps covers a large thematic area, with each sector covering a wide range of interventions and each SDG covering a variety of targets or outcomes. The interactive map of evidence maps provides an aggregated overview. As a result, the distribution of maps should be interpreted with caution. Well-populated intersections do not automatically mean that evidence has been mapped for all relevant interventions and outcomes.

Similarly, intersections with few or no evidence maps do not necessarily indicate gaps that should be filled with new maps. Lightly populated or empty intersections may denote an area of secondary importance for research or reflect a lack of the primary or synthesis evidence that is needed to make a map worthwhile. Furthermore, the map of evidence maps does not indicate how extensive the primary evidence base is. Other resources, such as 3ie's Systematic Review Repository (SRR) and its Impact Evaluation Repository (IER), provide a better basis for understanding whether there is a wider body of evidence that may make new maps worthwhile.¹⁶

The following section draws on the results of this map of evidence maps, CEDIL's terms of reference (CEDIL 2017), which set out priority areas for future research, and 3ie's SRR and IER, which provide an indication of the likely size of the evidence base. The discussion turns first to the possible substantive areas of focus for new evidence maps, and then to mapping methods.

4.1 Substantive Focus of New Maps

In the following section, we first draw on the findings of the map of evidence maps to indicate some key gaps in the mapping literature. We then use the CEDIL terms of reference (CEDIL 2017) to indicate some potential focus areas for new maps of evidence relating to L&MICs.

4.1.1 Overview of Key Gaps: Intervention Sectors

We found maps covering all 17 intervention sectors other than transportation. No included maps explicitly catalogued evidence relating to this area. Urban development is another sector that was poorly represented in included maps. A few maps have touched on the topic (3ie 2015a; IRC 2016f; Phillips et al. 2017). An ongoing map of human settlements (DPME ongoing) promises to provide new evidence in this area.

¹⁶ 3ie's SRR and IER are available at: <http://www.3ieimpact.org/en/evidence/>

Another important area where few evidence maps were available is energy. We only found two maps that examine interventions in this sector – one completed map that examines the impact of energy systems on marine ecosystem services (Papathanasopoulou et al. 2016) and one ongoing map that will map evidence relating to female labour in L&MICs, including interventions associated with energy (Langer et al. ongoing). There is clear scope for a map relating to (renewable) energy generation, electrification and related interventions.

While there have been multiple studies that have mapped evidence relating to climate change and the environment, these have predominantly focused on areas such as land use change, forestry, ecosystem services and biodiversity. Adaption and mitigation efforts, such as disaster risk reduction or adaptive social protection, are areas of growing research and potential areas of focus for future maps.

Another comparatively less well-mapped sector is that of economic policy, including trade, macro and non-trade interventions, and tax reform. Considering the breadth of interventions in the sector, it may also be a potentially fruitful area of research for future maps.

4.1.2 Overview of Key Gaps: Sustainable Development Goals

We found maps covering all 17 SDGs except for global partnership. Other SDGs for which comparatively few maps have been undertaken include SDG 7 on energy, SDG 13 on climate change and SDG 14 on the marine environment. This finding is in alignment with the conclusions above regarding the lack of maps focusing on energy and climate change. While a comparatively large number of maps have focused on the environment, we could only find a single map that provided evidence in relation to the goal of conserving and sustainably using the oceans, seas and marine resources for sustainable development.

4.1.3 Topic Focus for New Maps

The format and focus of new maps will depend on the objectives set for them. We organise the following discussion according to two potential goal(s) for EGMs conducted by CEDIL:

- Informing research innovation and methods development;
- Identifying synthesis gaps; and
- Promoting uptake and use of evidence.

The goals are drawn from the CEDIL terms of reference (CEDIL 2017). The suggestions for substantive focal areas for new maps outlined draw on the findings of the map of evidence maps, CEDIL's terms of reference, and 3ie's SRR and IER. Some suggested maps may appear in more than one of these groupings, as they could be adapted to fulfil multiple goals.

- 1) Informing research innovation and methods development and identifying synthesis gaps

One goal of future maps could be to take a relatively narrow substantive focus and target areas where evidence maps have yet to be undertaken. Findings could be used to drive innovation and identify best practice in designing and carrying out maps in such areas. This could be especially helpful in areas that are less amenable to rigorous evaluation through the use of experimental or quasi-experimental techniques.

Such maps could also be used to identify synthesis gaps, where there is a relatively large body of evidence from primary studies but limited or no systematic reviews.

Using the 3ie IER as the source, the following list contains examples of potential topics for maps that are currently under-researched. Due to their complexity, they may present challenges to standard evaluation approaches. In these cases, 3ie's IER indicates that there is a limited body of available evidence:

- Urban development (45 studies);
- Climate change mitigation: energy, renewable energy and/or energy efficiency (37);
- Climate change adaptation: for example, adaptive social protection or disaster risk reduction (158 relate to 'environment and disaster management', but a smaller number would likely be relevant to each of these subtopics);
- Transport (24);
- Tax (14);
- Policing (86 relate to 'anti-corruption and governance', but a smaller number would be relevant to this subtopic);¹⁷ and
- Judicial and legal (86 relate to 'anti-corruption and governance', but a smaller number would be directly relevant to this subtopic).¹⁸

2) Promoting uptake and use of evidence

Maps with this goal could focus on an already well-studied topic area with the aim of promoting evidence uptake and use. A prerequisite for maps with this goal would be adequate demand from potential evidence users. As these maps would cover areas in which there is more likely to be a reasonably large amount of evidence from both primary studies and synthesis, it could be sensible to limit them to including systematic reviews only. Maps could incorporate the systematic reporting of findings from included reviews or summary of findings tables for high-quality reviews (Guyatt et al. 2011) as a way of presenting the available evidence in a more user-friendly way.

Maps designed to promote the uptake and use of evidence could include the following reviews and studies in the 3ie SRR or IER:

¹⁷ Policing and justice is the subject of one map (Bakrania 2015), but scoping work by 3ie indicates that there are many more relevant studies not covered by this map.

¹⁸ Policing and justice is the subject of one map (Bakrania 2015), but scoping work by 3ie indicates that there are many more relevant studies not covered by this map.

- Nutrition (57 systematic reviews);
- HIV and AIDS (86 systematic reviews);
- Health financing (17 systematic reviews and 53 studies);
- Early childhood development (10 systematic reviews and 54 studies);
- Microfinance (18 systematic reviews and 194 studies); and
- Fragile and conflict-affected states¹⁹ (no equivalent category on 3ie repositories).

4.2 Mapping Methods

This mapping exercise reviewed the methodological approaches adopted by evidence maps. Doing so highlighted that evidence maps are heterogeneous in terms of the types of studies they include; in the comprehensiveness of their search and reporting; in how they approach critical appraisal, data extraction and analysis, and in presenting results. Maps use different terminology to describe their approach, including ‘scoping’, ‘systematic map’, ‘evidence map’ and ‘evidence gap map’.

We extracted data on the methods adopted by different maps, and this information can provide some indication of map quality. For example, maps generally include a search of the published as well as the unpublished literature and typically also include some form of inclusion restriction regarding date of publication, language or publication type. A relatively small number of maps go beyond describing the characteristics of included studies and draw substantive conclusions based on informal synthesis.

Innovative approaches to map conceptualisation and visualisation can help to ensure that they remain responsive to the needs of research and policy. Increasingly, producers of evidence maps are innovating the ways in which they present findings. 3ie EGMs allow users to filter the evidence according to their specific interests, while the IRC has developed ‘outcomes and evidence frameworks’ that also allow users to explore the evidence interactively around interventions’ theories of change (IRC 2017).

The diversity in methods reflects a field that is still developing, without standardised guidelines that have been generally adopted. In many ways, this is a strength, as it leaves researchers with the flexibility to innovate and tailor their methods to address map objectives, timelines and resources. However, too much diversity can cause confusion and limit progress towards agreed best practice in the field. It also leads to variability in quality of outputs, but without an agreed framework for appraising that quality.

This diversity of methods is also often a reflection of different objectives. For example, some maps are designed to address broad topics, such as the volume and characteristics of research on topic x, while others address more specific topics,

¹⁹ 3ie completed an EGM on evidence for peacebuilding in April 2015. This EGM could be the subject of an EGM update to incorporate studies published since the map was completed.

such as the volume and characteristics of evidence on the effects of intervention type x on outcomes y and z.’ In the same way systematic reviews include different types of studies to address different objectives (Lavis 2009), evidence maps may naturally include different types of studies.

Authors may also need to adapt methods to better fit their specific topic area. For example, many of the less well-mapped areas outlined above, such as transport, urban development or economic policy, are complex systems that often cut across sectors. For such topics, it is important to have a strong theoretical framework as the basis for developing substantive inclusion criteria and presenting evidence. For example, using a social ecological model as a starting point can be a useful way of developing a framework that captures more complex, cross-cutting topics and systems thinking (Bronfenbrenner 1994; McLaren and Hawe 2005; Meadows and Wright 2008). An example of this type of thinking can be seen in a 3ie map of education effectiveness, which grouped evidence according to five broad categories at the child, household, school, teacher and systems levels (3ie 2015b).

Moreover, some topic areas are also more challenging for researchers to study, requiring the use of more innovative study designs. In such cases, the evidence base may be more fragmented, with a range of different methodologies, no commonly agreed-upon best practice, and limited numbers of systematic reviews and impact evaluations. As suggested above, maps addressing these topics could incorporate a wider range of different types of evidence to address their objectives. In doing so, maps could be designed to provide a description of the methods used by primary studies to identify best practice evaluation designs for future work.

It is beyond the scope of this exercise to make recommendations regarding universal quality standards for maps. This EGM includes a wide range of types of map with varying formats and objectives, which would require flexible standards. Those interested in this question may wish to refer to 3ie’s working paper on mapping (Snilstveit et al. 2017) or to the forthcoming Campbell Collaboration title registration and protocol templates for EGMs, which 3ie has helped to develop (Campbell Collaboration, n.d.). Despite the diversity of methods and objectives employed by maps, they share common ground in their basis in the scientific method (Moher et al. 2015). In keeping with best practice in the field, maps should specify methods including search terms, inclusion criteria, screening and data extraction.

Section 5

Strengths and Limitations of this Study

The map of evidence maps framework was designed to ensure its relevance by drawing on the World Bank’s classification of intervention sectors and the United Nations SDGs. Users of the interactive map of evidence maps can view evidence for

a particular sector or SDG, or filter it by map methodology, geographic focus or equity dimension. The map of evidence maps draws on a systematic process for identifying, screening and extracting data from included maps. This process is intended to be as comprehensive as possible in finding includable maps. However, due to the breadth of the substantive focus of the map of evidence maps, and the need for an efficient screening process, it is possible that some relevant maps were missed.

The scope for the map of evidence maps is very broad; the sectors cover a wide range of interventions and the SDGs cover a large number of outcomes. The breadth of the exercise means that even for those sectors or SDGs in which there appears to be a relatively high number of maps, there are still likely to be intervention areas for which the evidence has not been mapped. It was beyond the scope of this exercise to provide a more granular analysis by interventions. Finally, while we provide some analysis of the methods of included evidence maps, it was beyond the scope of this study to provide a comprehensive critical appraisal.

Section 6

Conclusions

6.1 Implications for Policy

Evidence maps are thematically focused collections of knowledge designed to provide access to an evidence base that can inform policy or research investment decision-making. Increasingly, they allow users to follow links to included studies and to view summaries of that evidence, further increasing ease of use. However, the methods used to produce them determine their suitability for informing policy. Maps that do not include transparent and systematic methods of synthesis should not draw substantive conclusions about the evidence and therefore are not a reliable way of informing policy.

6.2 Implications for Research

6.2.1 Implications for Research: Methods

Evidence maps adopt a systematic approach to the collection and presentation of evidence on a predetermined topic. The varying objectives that maps can address and the challenges inherent in mapping different topics mean that maps will continue to adopt differing approaches to sourcing and presenting evidence. However, we echo the position articulated by Moher and colleagues (2015) that what systematic reviews of evidence and evidence maps have in common is their roots in the scientific method. As such, in keeping with best practice in the field, future evidence maps should specify their methods in advance via a study protocol and transparently report final methods in a way that can be replicated by others.

Furthermore, they should also be careful not to make generalised claims about the findings of a body of evidence based on informal synthesis.

6.2.2 Implications for Research: Substantive Focus of Future Maps

Although an increasing number of evidence maps are being published that focus on evidence relating to L&MICs, significant intervention and outcome areas of relevance to L&MICs remain unmapped. Sectors in which there are currently few or no evidence maps include transportation, urban development, economic policy, energy, disaster risk reduction and other adaptive measures. SDGs for which comparatively few maps have been undertaken include SDG 7 on energy, SDG 13 on climate change and SDG 14 on the marine environment. When the distribution of completed and ongoing maps is compared across sector intervention and SDG categories, the pattern remains largely the same. Nevertheless, even within sectors or SDGs with the highest concentration of evidence maps, there are likely to be gaps. However, we encourage researchers and commissioners to inspect the online interactive map accompanying this report to identify specific gaps in priority areas and explore the size of the literature before pursuing new evidence maps.

Appendix A: Methodology

A.1 Screening Tool

The map of evidence maps includes maps assessing the evidence on social, behavioural and economic development in L&MICs.

We screened maps at two levels – firstly at title (and abstract or summary if available), then at full-text. The full screening process was as follows.

Screening at Title and Abstract or Summary

The following initial criteria were used to screen search results at title:

- 1) Methodological:
 - i. Primary studies were excluded, as were discussion pieces.
 - ii. Studies identifying themselves as systematic reviews, rapid reviews or rapid evidence appraisals were excluded.
- 2) Publication date:
 - i. Maps published before 2010 were excluded.
- 3) Relevance:
 - i. Maps that could not conceivably fit within one of our intervention sectors or did not provide any evidence relating to one or more of the SDGs were excluded.
- 4) Health:
 - i. Maps of mental health, substance abuse, non-communicable diseases and preventive interventions pertaining to general health and well-being, with no explicit global or L&MIC focus, were excluded.

Screening at Full-Text

At full-text, we applied the following additional criteria:

- 1) Conceptual:
 - i. To be included, maps had to self-identify as an evidence or evaluation or systematic map or mapping' or a similar combination of terms.
 - ii. To be included, maps had to clearly state an objective of mapping or cataloguing evidence.
- 2) Methodological scope:
 - i. To be included, maps had to provide inclusion criteria that allow for the inclusion of studies of effects (primary or secondary). As such, maps of incidence, prevalence, or other epidemiologic or demographic data

- without any included evidence (at least one study) relating to interventions were excluded.
- ii. To be included, maps had to map evidence from published or grey literature. Maps that mapped data only (implementation, epidemiological or other) were excluded.
- 3) L&MIC geographic scope:
 - i. Maps focusing on a single country were excluded.
 - ii. Maps only containing evidence from high-income countries were excluded.

The focus of the map of evidence maps is on the broad field of international development. As such, to be included, maps had to focus on evidence from L&MICs (World Bank 2017b):

- The focus was in the title or text; or
- For completed maps, at least 25 per cent of their included studies focused on L&MICs (using latest World Bank L&MIC designations).
- 4) Mapping approach: to be included, maps had to fulfil criterion i) AND either ii) or iii).
 - i. To be included, maps had to provide a list of included studies; and
 - ii. Fulfil either one of the following two criteria:
 - For each included study, provide details on any of the following metadata: intervention type, sectoral area, outcomes or exposures, or study designs; or
 - Provide descriptive analysis across the body of studies included in a map; such analysis must provide metadata for any of the following: intervention type, sectoral area, outcomes or exposures, or study designs.

A.2 Search Strategy

Because many systematic maps do not appear in academic databases, the search strategy focused on a search of topical website-based databases, contacting map authors and commissioning organisations, and checking references. We searched the list of website-based databases in Table A1. We also checked references and did forward citation-tracking of key literature on evidence-mapping. We also contacted authors of included maps, as well as mapping experts and commissioners, to ask about additional maps. Finally, we used listservs and social media to request suggestions for maps for inclusion.

We undertook a systematic search of a limited number of academic databases. The full search strategy for academic databases is outlined in Appendix C. It combines the following terms: 'evidence map*' OR 'evaluation map*'. We applied variants of this search string to topical website-based databases.

Academic databases searched: Discovery, EBSCO, Social Science Citation Index and Scopus.

Web-based search engines searched: We screened through the first few hundred hits on Google and Google Scholar.

We searched the website-based databases listed in Table A1.

Table A1: List of website-based databases

Database or organisation	Web URL
3ie	http://www.3ieimpact.org/en/evidence/
Collaboration for Environmental Evidence (CEE)	http://www.environmentalevidence.org/
DFID	https://www.gov.uk/dfid-research-outputs
Department of Planning, Monitoring and Evaluation (DPME), South Africa	http://www.dpme.gov.za/Pages/default.aspx
Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre)	http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=56
International Rescue Committee	www.rescue.org
Oxfam Humanitarian Evidence Programme	http://policy-practice.oxfam.org.uk/our-work/humanitarian/humanitarian-evidence-programme
SBU – Swedish Agency for Health Technology Assessment and Assessment of Social Services	http://www.sbu.se/en/

Social Care Institute for Excellence (SCIE)	https://www.scie.org.uk/
UNICEF	https://www.unicef.org
USAID	http://eccnetwork.net/resources/evidence-gap-maps/

All academic and website-based database searches were completed by 8 March 2017, although we continued to accept suggestions for includable maps through social media and other contacts until the end of May 2017.

A.3 Screening and Data Extraction Processes

Screening

Screening was undertaken in two stages, ‘title and abstract’²⁰ and ‘full-text’; however, since many of the search results came from the grey literature, in practice much of the screening was undertaken at full-text. The mapping of evidence maps was intended to be a rapid process, and therefore screening was not undertaken by two independent researchers at either stage. Instead, to ensure consistent application of screening criteria, we trialled the screening process with a small sample of maps, with discrepancies discussed within the team and inclusion criteria clarified where necessary. A second coder reviewed any maps for which inclusion/exclusion was unclear. A second coder also screened all maps identified for inclusion at full-text before adding them to the EGM. Where multiple versions of the same systematic map were available, we chose the most comprehensive or most up to date.

Data Extraction

We used a standardised data extraction form to extract descriptive data from all maps meeting our inclusion criteria. Data extracted from each map included commissioning agency; bibliographic details; intervention sectors and outcomes covered; regions covered where applicable; and some key variables on methodology employed, including whether grey literature was searched, whether quality appraisal was undertaken or inclusion criteria were applied, and methods of reporting. 3ie is piloting equity-sensitive EGMs, which identify to what extent and how current research practice incorporates equity (Masset and Snilstveit 2016). These criteria build on the PROGRESS equity criteria for health (O’Neill et al. 2014). As a result, we also extracted data on the extent to which included maps provide evidence relating to the equity populations listed below:

²⁰ If an abstract or similar summary was unavailable, preliminary screening was on title only.

- Age;
- Caste;
- Disability;
- Education;
- Gender and sex;
- Land ownership;
- Occupation;
- Place of residence;
- Race, ethnicity, culture and language;
- Religion;
- Socioeconomic status;
- Social capital or for other vulnerable groups; and
- Other vulnerable group: open category, to be used iteratively to record details of any vulnerable groups otherwise identified

For maps to be considered as providing evidence relating to equity, they had to:

- Provide analysis of interventions or outcomes that apply specifically to a vulnerable group;
- Focus on a specified equity group or have an equity focus conveyed in title, abstract or inclusion criteria (which was coded as 'Map inclusion criteria/focus'); or
- Separate an equity population or theme in their analysis (which was coded as 'Map analysis').

A full list of the data extracted is described in our coding tool in Appendix B. To ensure that the tool was fit for purpose and to promote consistent application of data extraction criteria, we trialled and discussed the process within the team before finalising the data extraction template. Data extraction was then completed by a single coder before being checked for consistency by a second team member.

Analysis and Presentation

The dataset of included maps was analysed in Microsoft Excel to explore and describe the interventions sectors, outcomes, regions and equity populations covered.

We uploaded data on included maps onto 3ie's EGM platform to create a graphical display of the evidence. We grouped included maps according to the intervention sectors and SDG outcome categories contained in our framework. This allowed us to identify evidence gaps where there are currently no maps, but where new ones may be both feasible and of value.

Appendix B: Data Extraction Form

Descriptive information	Study ID	Open answer
	Coder ID	Open answer
	Title	Open answer
	Author citation	Open answer
	Publication date	Open answer
	Geographic focus	<input type="radio"/> Global <input type="radio"/> Regional <input type="radio"/> L&MIC <input type="radio"/> Other
	Geographic focus – explanation	Open answer
	Regions (select multiple options if necessary)	<input type="radio"/> East Asia and Pacific <input type="radio"/> South Asia <input type="radio"/> Europe <input type="radio"/> CIS <input type="radio"/> Middle East and North Africa <input type="radio"/> Sub-Saharan Africa <input type="radio"/> Latin America and the Caribbean <input type="radio"/> North America
	Funder	Open answer
	Publication type	<input type="radio"/> Journal or book <input type="radio"/> Contracted report <input type="radio"/> Other grey literature
	Publication type 2	Open answer
Equity data	How does this map consider equity (select from dropdown menu; select multiple options if necessary)	By inclusion criteria/thematic focus By analysis Not applicable
	Dimension of equity/ population group (select from dropdown menu; select	<input type="radio"/> Age <input type="radio"/> Caste <input type="radio"/> Disability

	multiple options if necessary)	<ul style="list-style-type: none"> o Education o Gender and sex o Land ownership o Occupation o Place of residence o Race, ethnicity, culture and language o Religion o Social capital o Socioeconomic status o Other
	If 'other vulnerable group', describe	Open answer
Intervention sectors		<ul style="list-style-type: none"> o Agriculture and rural development o Climate change and environment o Conflict management and post-conflict reconstruction o Cross-sectoral o Economic policy o Education o Energy o Finance o Health nutrition and population o Humanitarian o Information and communications technology o Private sector development o Public sector management o Social protection o Transportation o Urban development o Water, sanitation and hygiene
	Intervention description	Open answer
SDGs		o Goal 1: End poverty in all its forms everywhere

- o Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
- o Goal 3: Ensure healthy lives and promote well-being for all at all ages
- o Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- o Goal 5: Achieve gender equality and empower all women and girls
- o Goal 6: Ensure availability and sustainable management of water and sanitation for all
- o Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all
- o Goal 8: Promote sustained, inclusive and sustainable economic growth; full and productive employment; and decent work for all
- o Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation
- o Goal 10: Reduce inequality within and among countries
- o Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- o Goal 12: Ensure sustainable consumption and production patterns
- o Goal 13: Take urgent action to combat climate change and its impacts
- o Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- o Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems; sustainably manage forests; combat desertification; halt and reverse land

	degradation; and halt biodiversity loss
	o 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
	o Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development
	Open answer
	Outcome descriptions
	Relevant targets of all SDGs coded
	Open answer
URL for full-text/ongoing study	Open answer
Number of included studies in map	Open answer
What methods of analysis were used?	o Interactive matrix
	o Other matrix
	o Histograms, charts, tables
	o Narrative description of evidence
Inclusion criteria study types	o All studies
	o Systematic reviews
	o Impact evaluations
	o Other
Inclusion criteria 'other'	Open answer
Database of studies?	Yes/No

Did the map identify knowledge clusters and gaps?	Yes/No
Inclusion restrictions	<ul style="list-style-type: none"> <input type="checkbox"/> Language <input type="checkbox"/> Year of publication <input type="checkbox"/> Publication status
Reporting of findings	<ul style="list-style-type: none"> <input type="checkbox"/> Some results of included studies reported study-by-study <input type="checkbox"/> Authors go beyond describing evidence or reporting results study-by study. They synthesise <input type="checkbox"/> No reporting of findings
Search included grey literature	Yes/No
Additional notes	Open answer

Appendix C: Search Terms

Methodology Search String

(evidence NEAR/2 map*) OR (evaluation NEAR/2 map*)

L&MIC search string

((Afghanistan OR Albania OR Algeria OR Angola OR Antigua OR Barbuda OR Argentina OR Armenia OR Armenian OR Azerbaijan OR Bahrain OR Bangladesh OR Barbados OR Benin OR Byelarus OR Byelorussian OR Belarus OR Belorussian OR Belorussia OR Belize OR Bhutan OR Bolivia OR Bosnia OR Herzegovina OR Hercegovina OR Botswana OR Brasil OR Brazil OR Bulgaria OR 'Burkina Faso' OR 'Burkina Fasso' OR Burundi OR Cambodia OR Cameroon OR Camerouns OR Cameroun OR 'Cape Verde' OR 'Cabo Verde' OR 'Central African Republic' OR Chad OR Chile OR China OR Colombia OR Comoros OR 'Comoro Islands' OR Comores OR Mayotte OR Congo OR Zaire OR 'Costa Rica*' OR 'Cote d'Ivoire' OR 'Ivory Coast' OR Croatia OR Cuba OR Czechoslovakia OR 'Czech Republic' OR Slovakia OR 'Slovak Republic' OR Djibouti OR 'French Somaliland' OR Dominica OR 'Dominican Republic' OR 'East Timor' OR 'East Timur' OR 'Timor Leste' OR Ecuador OR Egypt OR 'El Salvador' OR Eritrea OR Estonia OR Ethiopia OR Fiji OR Gabon OR 'Gabonese Republic' OR Gambia OR Gaza OR 'Georgia Republic' OR 'Georgian Republic' OR Georgia OR Ghana OR Grenada OR Guatemala OR Guinea OR Guiana OR Guyana OR Haiti OR Honduras OR Hungary OR India OR Maldives OR Indonesia OR Iran OR Iraq OR Jamaica OR Jordan OR Kazakhstan OR Kazakh OR Kenya OR Kiribati OR Korea OR Kosovo OR Kyrgyzstan OR Kirghizia OR 'Kyrgyz Republic' OR Kirghiz OR Kirgizstan OR 'Lao PDR' OR Laos OR Latvia OR Lebanon OR Lesotho OR Liberia OR Libya OR Lithuania OR Macedonia OR Madagascar OR Malaysia OR Malaya OR Malay OR Malawi OR Mali OR Malta OR 'Marshall Islands' OR Mauritania OR Mauritius OR Mexico OR Micronesia OR 'Middle East' OR Moldova OR Moldovia OR Moldovian OR Mongolia OR Montenegro OR Morocco OR Mozambique OR Myanmar OR Myanma OR Burma OR Namibia OR Nepal OR 'Netherlands Antilles' Curacao OR 'Sint Maartin' OR Nicaragua OR Niger OR Nigeria OR 'Northern Mariana Islands' OR Oman OR Pakistan OR Palau OR Palestine OR Panama OR Paraguay OR Peru OR Philippines OR Philipines OR Phillipines OR Phillippines OR 'Puerto Ric*' OR Romania OR Rumania OR Roumania OR Russia OR 'Russian Federation' OR Rwanda OR Ruanda OR 'Saint Kitts' OR 'St Kitts' OR 'Nevis' OR 'Saint Lucia' OR 'St Lucia' OR 'Saint Vincent' OR 'St Vincent' OR Grenadines OR Samoa OR 'Samoan Islands' OR 'Sao Tome' OR 'Saudi Arabia' OR Senegal OR Serbia OR Montenegro OR Seychelles OR 'Sierra Leone' OR Slovenia OR 'Sri Lanka' OR 'Solomon Islands' OR Somalia OR 'South Africa' OR Sudan OR Suriname OR Surinam OR Swaziland OR Syria OR 'Syrian Arab Republic' OR Tajikistan OR Tadjhikistan OR Tadjikistan OR Tadjhik OR Tanzania OR Thailand OR Togo OR 'Togolese Republic' OR Tonga OR Trinidad OR Tobago OR Tunisia OR Turkey OR Turkmenistan OR Turkmen OR Tuvalu OR Uganda OR Ukraine OR Uruguay OR Uzbekistan OR Uzbek OR Vanuatu OR Venezuela OR Vietnam OR 'Viet Nam' OR 'West Bank' OR Yemen OR Zambia OR Zimbabwe)) OR ((developing or 'less* developed' or 'under developed' or underdeveloped or under-developed or 'middle income' or 'low* income') NEAR/3 (countr* or nation*)) OR ((low* NEAR/3 (middle NEAR/3 (countr*)) OR (Africa or Asia or

Caribbean or 'West Indies' or 'South America' or 'Latin America' or 'Central America'))
NOT (('African-American*' OR 'African-American*' OR 'Mexican American*' OR
'American Indian*' OR 'Asian American*' OR 'native american*'))

The search will combine the methodology search string and the L&MIC search string
in the following format: 1. AND 2.

Appendix D: List of Included Maps

Completed Maps

Bakrania, S, 2015. *Security and justice evidence mapping*. Birmingham: Governance and Social Development Resource Centre (GSDRC), University of Birmingham.

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World Bank. *Financial services evidence gap mapping*. Unpublished evidence map.

World Bank. *Infrastructure sector evidence gap mapping*. Unpublished evidence map.

World Bank. *Manufacturing agribusiness and services evidence gap mapping*. Unpublished evidence map.

Appendix E: Intervention Sectors

We present our intervention sector taxonomy, based on the World Bank's sector and operations taxonomy (World Bank 2017b).

Agriculture and rural development

Agricultural reform	Livestock
Agricultural credit	Agricultural research
Agricultural subsidies	Rural housing
Agricultural extension	Rural land reform
Agro-industry & marketing	Rural livelihoods
Weather insurance	Rural roads
Fisheries & aquaculture	Genetic traits/species
Irrigation & drainage	

Climate change and environment

Biodiversity	Resettlement
Environmental institutions	Land use and forestry
Natural resource management	Adaptation and mitigation
Pollution control/waste management	

Economic policy

Macro/non-trade
Trade
Tax reform

Education

Distance education/education technology	System reform & capacity building
Educational inputs	Tertiary education
Girls' education	Vocational/technical education & training
Non-formal education	Scholarships
Pre-primary and primary education	Early childhood development programmes
Public/private sector education	Sports
Secondary education	Teacher hiring, incentives
Student loan	

Energy

- Distribution & transmission
- Hydro
- Thermal
- Other power & energy conversion
(includes biofuels and cookstoves)
- Rural electrification

Finance

Capital markets development	Financial sector reform
Banking systems	Microfinance
Consumer credit	Finance for innovations/enterprise

Health nutrition and population

Child nutrition	Mortality
Nutrition	Preventive health and health behaviour
Health sector reform	Primary health, including reproductive health
Health financing, insurance and user fees	Sexual behaviour
Health services	Specific diseases – including malaria, TB
HIV and AIDS	Gender-based and inter-partner violence
Hospitals – secondary & tertiary	

Information and communications technology

Telecommunications	Technological innovation
Mass media	Technology development funds

Private sector development

- Business environment
- Private infrastructure
- Small scale enterprise

Public sector management

Anti-corruption/governance	Judicial reform
Civil service reform	Public financial management

Decentralisation	Law and policing
Institutional development	
Social protection	
Labour markets & employment	Social assistance
Pensions & social insurance	Social protection reform
Savings and remittances	Cash transfers
Transportation	
Highways	
Ports and waterways	
Railways	
Urban development	
Urban housing	Slum upgradation programmes
Urban land reform	Urban development and management
Urban transport	
Water, sanitation and hygiene	
Water supply and sanitation, hygiene interventions	
Urban water, sanitation and hygiene	
Rural water, sanitation and hygiene	
Humanitarian	
Humanitarian	
Disaster management	
Conflict management and post-conflict reconstruction	
Conflict prevention and post-conflict reconstruction	
Cross-sectoral	
Community action programme	Social funds
Community-driven development	Integrated development
Concessions	

Appendix F: SDG Targets in Included Completed Maps

The chart below shows the number of maps that examine outcomes relating to the SDG targets. Dark grey cells indicate no SDG target. For a description of each target, see Appendix E in this document.

	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.10	a	b	c	d
SDG 1 – Poverty	4	2	2	0	6	2						2	0		
SDG 2 – Agriculture, nutrition and food security	3	9	4	0	2	0						1	0		
SDG 3 – Health	16	5	3	7	3	0	0	6	5	1	0	0	1	0	0
SDG 4 – Education and learning	10	7	5	0	9	1	5	4	0	0	0	1	0	2	0
SDG 5 – Gender equality and empowerment	8	2	6	1	0	0	1					0	0	0	
SDG 6 – WASH	2	2	2	0	0	0	0					2	0		
SDG 7 – Energy	1	0	0	0	0	0	0					0	0		
SDG 8 – Economic growth and employment	2	1	1	4	0	11	0	2	1	0	0	0	0		
SDG 9 – Infrastructure	0	1	0	2	0	1	0					0	0	0	
SDG 10 – Inequality	3	12	5	1		1	0	1				0	0	0	
SDG 11 – Urban and rural development	1	4	0	0	0	2	1	0				0	0	0	
SDG 12 – Consumption	0	0	1	0	0	1	0	0	0			0	0	0	
SDG 13 – Climate change	1	1	0	0								0	0		

SDG 14 – Marine environment	1	0	0	0	0	0	0	0				0	0	0	
SDG 15 – Ecosystems	8	4	3	2	2	2	0	0	0	2		0	0	0	
SDG 16 – Peaceful and inclusive societies	4	10	1	2	2	4	8	8	0	0	3	1	0		
SDG 17 – Global partnership	0	0	0	0	0	0	0	0	0	0		0	0		

Online Appendix G: SDG Indicators

The complete text published by the UN Inter-Agency and Expert Group on SDG Indicators is available [here](#).

http://www.3ieimpact.org/media/filer_public/2017/07/28/egm10-appendix-g.pdf

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Note to the reader: References in this section include only those works that are cited in the main text. All references for studies included in the map of evidence maps are listed in Appendix D.

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