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PATHWAYS TO IMPACT

*Collaborating toward an
Energy Access Framework*



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EXECUTIVE **SUMMARY**

This guidebook elaborates on the process of developing a collaborative framework for four projects that shared the overall goal of scaling access to clean energy for households and communities living in poverty.

HIGHLIGHTS

- This guidebook elaborates on the process of developing a campaign-level collaborative framework with IKEA Foundation grantee partners who worked on various projects under The Good Cause Campaign (GCC).
- It is intended to help IKEA Foundation grantees and partners design Monitoring, Evaluation, and Learning (MEL) frameworks for new projects and course-correct existing projects. It can also help similar stakeholders, donors, and their partners design systems that are part of MEL frameworks.
- It takes a technologically agnostic approach toward building a results framework. It incorporates solutions tailored to different needs and contexts, without favoring any particular technology, and develops and standardizes indicators and evaluates technologies without bias.
- It uses the Ecosystem-based Adaptation (EbA) approach to view the effects of energy access on livelihoods, education and health, and communities. EbA is a people-centered approach that recognizes the direct “dependence of human well-being on ecosystems and the goods and services they provide” (Reid et al. 2005).
- This framework is constructed to help explain how energy access interventions can impact developmental outcomes such as poverty reduction, improved educational attainment, better livelihood, and health services. It provides a way to monitor and evaluate the steps along the way to both developmental and humanitarian impacts.

ABOUT THIS GUIDE

The framework was developed as part of the GCC, which was funded by the IKEA Foundation. The process of development began in 2018. Four partners were part of the GCC: One Acre Fund, Practical Action, SELCO Foundation, and Rainforest Alliance. Although the partners shared a similar focus (i.e., scaling access to clean energy), they used varying approaches to monitoring and evaluation because they were part of different portfolios within the IKEA Foundation. The term *portfolios* here refers to the donor portfolios that span the IKEA Foundation’s sphere of work. World Resources Institute (WRI) proposed a standardized monitoring and evaluation (M&E) framework that would be applicable across all four projects and would enable effective reporting and monitoring of progress toward the common overall goal. This guidebook describes the process that WRI followed to build a harmonized results framework.

This guidebook is meant to help the IKEA Foundation and its grantees and partners design an MEL framework and to guide course correction and improvement for existing and new projects. The framework within the guidebook aims to create methods for measuring change at different levels of results (impact, outcome, output, and input) (see Section 2). It also helps create operational systems within the M&E process to incorporate ways to collect and analyze data and derive learnings during implementation. Moreover, it will help design similar operational systems that

are part of MEL frameworks which capture a wide range of evidence and incorporate processes of learning along the way. These operational systems can ensure data uniformity at the campaign level, which is important for measuring impact, especially in projects that attempt to assess social impacts across entire communities (Salignac et al. 2018).

To construct a framework that would be truly collaborative, WRI engaged with each partner to learn about their project experience as well as their M&E plans. WRI understood the need to recognize that the developmental impacts of technological interventions are complex and nonlinear, and integrate this recognition into the framework.

In building the framework, WRI and partner organizations realized that, for energy access projects, a technologically agnostic framework approach—one that is not biased for or against any particular technology tool—works best. This neutral approach helps track the changes resulting from a wide variety of different energy solutions and interventions that may be tailored to the needs of different end users.

WRI also wanted the framework to capture the context and impact of each project, not only for energy access, but also for linked developmental goals such as livelihoods, education, and health. That is why we used an EbA approach to develop and align framework indicators. This people-centered approach recognizes the direct “dependence of human well-being on ecosystems and the goods and services they provide (e.g.,

water and food supply, fuel and fiber provision, pest and disease regulation, water and nutrient cycling, climate regulation)” (Reid et al. 2005).

WRI also incorporated components of the Energy Delivery Model (Garside and Wykes 2017), which focuses on the role played by activities, resources, and support related to energy services delivery in meeting end users’ needs. This model prompted the partners to broaden their M&E focus from “what are the results” to “how were the results achieved.” These two models complemented each other: EbA-approach-based evaluation helped contextualize key indicators, and the Energy Delivery Model helped formulate methods to build these indicators for the whole framework and design operational processes to know the “how.” *Contextualizing* within this guidebook means that even when data under each indicator are uniform, they might have different meanings for different partners depending on their type of intervention and region of operation.

Two of the sections in the guidebook have a subsection called “The Practitioner’s Kit,” which describes the process followed so that readers can incorporate ideas/ approaches that are relevant to their work.

IKEA partners along with WRI identified a set of indicators called enablers, which were incorporated for two reasons within the framework: one, they helped understand the various ground-level realities of each partner, unified them under the enablers, and supported operational systems in analyzing campaign-

level data sets; two, by clarifying contexts, they helped understand the assumptions within the theory of change (ToC) of the GCC and build better evaluations to facilitate measuring of change at the campaign level. WRI wanted to keep energy access in the forefront while creating the campaign-level framework with IKEA Foundation partners and developing a ToC for the GCC. The enablers identified under the GCC were reliability and affordability, technology suitability, market outreach, product and services, and a market-linked ecosystem. In any framework, an enabler may not be a necessary component, but for projects situated in various regions and contexts, it may support the interpretation of change and better impact data.

The partners came together to participate in mapping exercises based on their areas of work and the aims and goals of their projects. They discussed priority areas and each project’s individual results. Analyzing these mapping exercises helped identify the various benefits that energy access provided for communities. These benefits include impacts on the environment, including long-term impacts from the reduction of air pollution and other greenhouse gases; health, from improved access to health centers and services; education and learning; and economic effects, including energy spending, which can influence how much households and communities can save.

Further, the partners worked to develop common calculations for measuring indicators

to ensure data validity across partners and locations. Some of the parameters by which indicators were measured are reduced CO₂ emissions (environment), decrease in energy expenditure and increase in income or in financial services (economic), increase in study hours (education), and increase in hours of health services or number of patients served (health).

At the end of the process, WRI worked with partners to identify and address gaps in mapping the results to ensure that the final framework would produce a robust campaign-level summation of results for all. The processes included revising the ToC, testing the indicators, and addressing any additional data needs. Campaign-level results would include all the changes/results measured within the GCC.

For programmatic learnings, it was anticipated that a collaborative framework would help synthesize knowledge from several interventions and create a space to draw lessons from project-level indicators that would be useful for all partners. This would ensure a learning environment that facilitates cross-project learning for future work. *Programmatic learnings* include an analysis of all operational challenges and gaps, which helps chart out ways forward for the next phases of the project.

Operational barriers such as the ground realities of the COVID-19 pandemic and the varying locations and project priorities of the projects affected some of the project timelines.



INTRODUCTION

Organization-wide standardizations enable staff and donors to have a common understanding of project impacts, build systems to incorporate learnings, and improve projects to meet their intended goals.

INTRODUCTION: THE CURRENT NEED TO STANDARDIZE EVIDENCE AND IMPACT

Many organizations have separately built internally standardized frameworks (Bublitz et al. 2016) designed to measure and track progress toward programmatic goals, monitor project activities, and map success, especially for reporting impact.

However, there are few standardized results frameworks for nonprofit organizations working in different places and ways to achieve the same goals (Wood and Leighton 2010). Capturing evidence and processes of learning in different situations becomes important for organizations with partners in varied regions. Energy access frameworks are typically constructed to assess different levels of energy access and reliability (World Bank 2021). These frameworks can provide data uniformity at the campaign level, which is important for measuring impact, especially in projects that also attempt to assess social impacts across entire communities (Salignac et al. 2018).

The processes elaborated in this guidebook explain the collaborative framework for four projects that shared the overall goal of scaling access to clean energy for households and communities living in poverty. The framework was developed as part of the GCC, funded by the IKEA Foundation. The four partners in the GCC were One Acre Fund, Practical Action, SELCO Foundation, and Rainforest Alliance.

WRI proposed a standardized M&E framework that could be applied across all four projects and would enable effective reporting and monitoring of progress toward the common overall goal. Each organization incorporated this framework as part of its M&E process, with the extent of incorporation depending on each organization's priorities within the projects. This guidebook describes the process that WRI followed to build the results framework. Two of the sections in the guidebook have a subsection called "The Practitioner's Kit" that gives the overall approach of the process that was followed in the sections (methodology, etc.). It will enable readers to incorporate approaches within their work while building results framework for similar projects.

The guidebook is meant to help IKEA Foundation grantees and partners to both design new projects and course-correct their current projects. The guidebook can also be used by other stakeholders, donors, and their partners to measure impact for similar projects.

The framework was built using the *Standardised Impact Metrics for the Off-Grid Solar Energy Sector* as a starting point (GOGLA 2020). This resource explains how the impact of a sector can be captured through a common metric that enables the creation of structured reporting areas through a common approach that can be applied to multiple organizations. WRI built on this concept and, working within the boundaries of a campaign, constructed a collaborative framework that could be shared by different

organizations (IKEA partners) with a common goal but different perspectives and approaches.

A collaborative process for monitoring multi-country progress in the assessment of education and learning was created by the partners and WRI, in line with UNESCO's Global Monitoring and Evaluation Framework (GMEF) (Tilbury 2009). We used a collaborative process to create this guidebook with partners to track progress in energy access programs in a multi-country campaign-level project (India and Sub-Saharan Africa) that was funded by the IKEA Foundation. The framework can be adapted to and used in any region, as it considers technology suitability and current economic market trends.

To facilitate learning that could benefit all partners and be useful for broader audiences, WRI focused on three broad objectives for this campaign-level M&E effort. It was crucial to identify both common result metrics across projects and socioeconomic impacts of energy access that were relevant and measurable (e.g., health, economic, environmental); develop a common M&E framework accompanied by an indicator system applicable to all the projects; and unpack the impacts and explore the common mechanisms through which the project results would be achieved. By focusing on these three objectives, WRI aimed to translate the campaign results into real change and support the IKEA Foundation and its partners in aligning their project implementation with global efforts to break the cycle of poverty through sustainable development.

ABOUT THE GCC PARTNERS AND THE PROJECTS

ONE ACRE FUND: SPARKING A RENEWABLE ENERGY REVOLUTION FOR AFRICA'S POOREST FARMERS

Many smallholder farmers in Sub-Saharan Africa are stuck in “poverty traps,”¹ which are exacerbated by a lack of access to clean energy. One Acre Fund leverages its vast rural distribution network to increase the adoption of solar lights. From 2018 to 2020, One Acre Fund scaled this innovation with the aim of sparking a smallholder farm revolution across East Africa.

PRACTICAL ACTION: RENEWABLE ENERGY FOR REFUGEES (RE4R)

Practical Action and the United Nations High Commissioner for Refugees, the lead partners, implement the RE4R project following market-based approaches. The project delivers renewable energy investments in humanitarian settings by working directly with refugees and host communities in Gihembe, Kigeme, and Nyabiheke refugee camps in Rwanda and with urban refugees in Irbid in Jordan. The project provides access to affordable and sustainable sources of renewable energy and delivers quality energy services, the goal being to improve the quality of life and livelihood of the beneficiary populations.

RAINFOREST ALLIANCE: EMPOWERING RURAL COMMUNITIES AND HOUSEHOLDS IN KENYA WITH RENEWABLE ENERGY (ERCHRE)

The ERCHRE project establishes household energy centers and centralized production

facilities as product suppliers to bring no-smoke briquette, clean cook stoves, and solar lights to tea farmer households and factories. The project aims to impact both suppliers and customers. It provides mentorship to help suppliers improve production, business practices, and financial management. Household and factory customers receive quality services to ensure continuous use of the appliances so that they can reduce energy costs and improve human well-being.

SELCO FOUNDATION: RENEWABLE ENERGY FOR LIVELIHOODS IN INDIA

SELCO Foundation builds partnerships with local finance and capacity-building institutes

to create and maintain a favorable ecosystem for end users. The partnership seeks to improve the standard of services and opportunities in poor communities by blending sustainability and clean energy as important and standard designing processes within NGOs, practitioners, government bodies, think tanks, financial institutes, technology/service providers, and other local institutions. A favorable ecosystem helps address the multiple barriers faced by end users to facilitate the procurement, usage, and maintenance of solar machines, keeping in mind the end goal of poverty alleviation in underserved communities.





CREATING AN IMPACT FRAMEWORK

This section explains the development of a ToC, the enablers and their importance, and the approach that the IKEA partners adopted to decide on the various enablers. The section also elaborates on the process of setting up a collaborative framework as well as its challenges.

DEVELOPING A TOC

A ToC is designed to provide a comprehensive understanding of a particular project or a set of projects, and their impacts. It helps recognize the assumptions (on the ground) made during the implementation of the project. In the initial stages of the campaign, WRI engaged with each partner to learn about their project experience as well as their M&E plans. A common finding was that regardless of the project goals, there were no linear linkages between energy solutions and development impacts: access to clean energy did not in and of itself guarantee outcomes and impact at the community levels. Any developmental outcome

that could be assumed to be expected from such interventions would not happen at the output stage (the stage that can be controlled through the intervention [the input]). WRI understood that it would be imperative to integrate, and to recognize that the developmental impact of technological interventions, such as providing access to solar energy, is complex and nonlinear. Thus, it was important to build a logical model for all the factors influencing input–output–outcome–impact. Within the campaign, inputs were the direct project inputs in monetary terms. Outputs were the immediate results of project activities that were assessed by various partners autonomously. Outcomes were mid-term results following the outputs, and impacts were the long-term results of outcomes, such as effects on income, livelihoods, and expenditures. A detailed explanation of input–output–outcome–impact is given in Section 3.

WRI, through its interactions with partners, realized that each partner catered to a very specific demographic group in its interventions, within a particular spatial and cultural context. Creating indicators that helped identify these varied contexts was important. These indicators were named “enablers.” Enablers are defined as indicators that help frame contexts for evaluations. They help identify, measure, and track changes that will help document use cases for the success of future projects (if needed). Enablers also help understand assumptions and build the ToC.

The EbA approach is a people-centered approach that recognizes that human well-

being depends on ecosystems and the goods and services these ecosystems provide (e.g., water and food supply, fuel and fiber provision, pest and disease regulation, water and nutrient cycling, climate regulation) (Reid et al. 2005). Further, any framework aiming to capture evidence for the nonlinear relationship between energy access and developmental goals will require methods to calculate each indicator identified through the EbA approach.

Thus, we use the EbA approach to also set up operational systems to measure and analyze data, which in turn helps create tangible linkages between energy solutions and indirect development impacts. These operational systems will provide the space and mechanisms needed for data collection, learnings on the ground, and data analysis when the project is being implemented.

WRI also incorporated the components of the Energy Delivery Model (Garside and Wykes 2017), which points to the significance of activities, resources, and support in delivering an energy service to meet end users’ priority needs. The model prompted the energy access project to broaden the M&E focus from “what are the results” to “how were the results achieved.” It led to a recognition of the contexts within which the changes (the results) were occurring, which in turn helped understand how interventions lead to changes for end users and for the community as a whole in terms of health, livelihood, education, and so on. Thus, these two models complemented each other: the EbA-approach-based evaluation



helped contextualize these indicators, and the Energy Delivery Model helped calculate them. *Contextualizing* within this guidebook means that different partners in different regions could interpret change differently even when the data, or the data under each indicator, are uniform.

Three types of *enablers* were identified in the ToC (Figure 1): at Level 1, the output enabler, which helps deliver affordable and reliable

energy to beneficiaries in different regions; at Level 2, the outcome enabler, which helps end users adopt the energy provided to them across varied contexts; and at Level 3, the impact enabler, which helps achieve the varied development impacts felt by the beneficiaries who adopt renewable energy. The ToC will help aggregate the campaign-level data and also enable partners to incorporate them within

their results framework at the project level. The ToC will be able to identify the relationships between the activities (the inputs) and their linkages to the goals (outcomes and impact). In addition, these relationships will develop an understanding of the various other factors (the contexts and ground realities) beyond the project boundaries (the whole intervention).

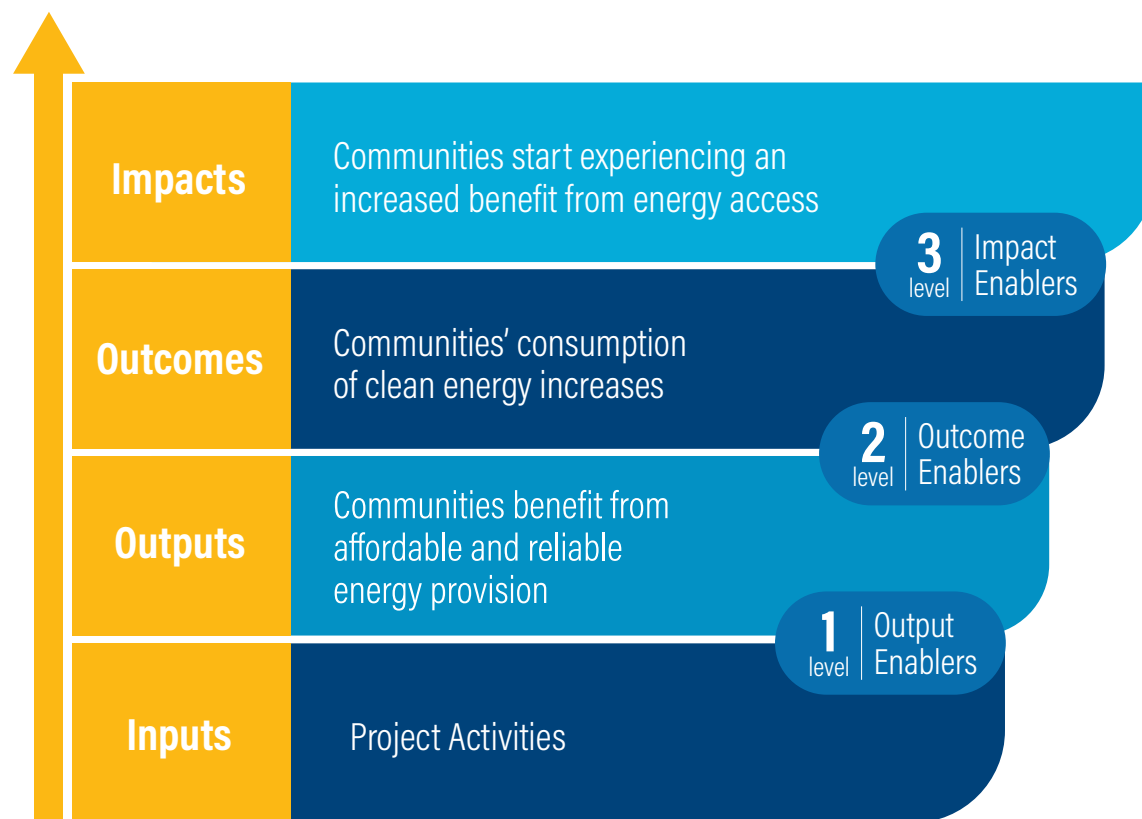
Level 1 (Output): This enabler helps offer energy solutions that are tailored to the needs of end users.

Level 2 (Outcome): This enabler helps improve the accessibility and uptake of energy solutions that have been made available to end users.

Level 3 (Impact): This enabler contributes to the generation and scaling of the development impacts. This involves a suite of factors not related to energy access but crucial for generating economic benefits for end users and/or target beneficiaries.

Within the ToC, the project inputs, outputs, outcomes, and impacts were carefully mapped. From the ways in which the four projects were implemented, *inputs* were defined as actions geared toward delivering energy and energy services to specifically targeted areas/households/communities. The delivery of energy and energy services was therefore the direct “output” of the projects.

Figure 1 | *Common theory of change*



Source: WRI authors.



APPROACHING ENABLERS

Most energy access frameworks lack a focus on community-level changes (Barnes and Samad 2018). They do not assess improved employability and income levels (Kapadia 2004), better quality of education (Owoeye 2016), and a better health delivery system (Cahill 2021), but these are important to understand the effects of energy access on communities. In addition, there are technological, financial, social, and institutional hurdles to renewable energy diffusion (Bhattarai and Risal 2009; Doukas and Ballesteros 2015; Venkateswaran et al. 2018). Measures taken to address these barriers would help improve the accessibility and uptake of renewable energy solutions and benefits for end users. Addressing these barriers is critical for building an environment where vulnerable populations can access modern energy services and equipment that can reduce poverty, enhance health, and facilitate greater access to education and livelihoods.

Several attributes of the enablers were integral to the ToC. When the validity of the ToC was tested, it was found that despite the overall assessment of technology suitability, the product adoption rate by the end users could still be low. The initial definitions of the enablers dealt only with technology suitability. However, after revisiting the ToC, it became clear that the “product adoption and reliability” had to be included in the definitions.

Below is a more detailed explanation of each of the enablers.

Reliability and Affordability: Using the broad objectives of Sustainable Development Goal 7 (SDG 7), including access to affordable energy, as a guide, the approach assumes that affordability is immediately relevant. Energy may be delivered for free in the beginning by the government or other service providers, or supported by implementing partners through donor funding. Affordability here would also ensure that customers are able to afford the intervention, which can ensure its sustainability. This would go beyond just the market competitiveness of the product from the perspective of affordability. Thus, uptake of various energy solutions will depend on affordability in the long run of the program. Reliability is another key consideration in measuring the quality of the energy access and related energy services (Rolffs et al. 2015). The definition of *reliability* also includes the sustainability of the intervention beyond the time span of the projects.

Technology Suitability: This enabler pertains to tailoring any intervention to meet the needs of the end users in a particular community. Technology suitability ensures that project designers select the technology best suited to end users’ location and their socioeconomic and energy needs (Franco et al. 2017). This enabler helps in formulating a method to estimate the number of end users who believe that the intervention is suitable for them and

then incorporating this perception into the structure of the intervention. Many countries and organizations, such as Indonesia (IEA 2015), Tanzania (TaTEDO 2017), and the World Bank (Cabraal et al. 2005) have considered technology need assessment as the foundation for exploring financing models. Therefore, technology suitability becomes an important part of designing other project offerings.

Market Outreach: This enabler focuses on understanding the barriers that prevent end users from benefiting from the product or intervention in the market. It also addresses how specific renewable energy products for particular communities could be marketed to overcome these hurdles (Lavrinenko et al. 2020). It considers how users' perception of the usefulness, quality, and reliability of the renewable energy services would influence the uptake of the technology by those who are able to pay for it (Reddy and Painuly 2004).

Product and Services: This enabler helps identify the approach toward measuring the impact of energy access beyond one household/beneficiary. It helps in understanding the whole universe of customers/end users. In addition, the enabler serves as an approach to calculating customer feedback, uptake of a particular product, the barriers to buying the product, and so on.

Market-Linked Ecosystem: Communities whose livelihoods and savings behavior would experience changes (Pueyo 2013) and might need initial support (to maintain



different saving behaviors, select financial products suited for their needs, etc.) to help them cope with the current market contexts and demands for innovation/technological intervention (SELCO Foundation n.d.; Brüderle et al. 2011; Kooijman-van Dijk 2012). This enabler focuses on the types of support customers would need in the initial phases of a technology rollout. This could be financial support mechanisms, capacity building, operations and management, and so on.

DESIGN OF A COLLABORATIVE M&E FRAMEWORK

Understanding the enablers within the ToC then led to the building up of the collaborative M&E

framework. WRI then integrated information about the various partners and their projects into the development of a Strategic Partnering Framework, an approach that is heavily used within public health to strengthen partnerships at various levels within policy and programs: national, subnational, and local (Rogers et al. n.d.). Here, the *subnational level* means work that happens across state departments. The *local level* indicates work at the smaller levels of governance such as community-level systems and local bodies within cities and villages.

Building a collaborative framework involved three stages: meta-analysis of the theories of change adopted by each partner for developing the collaborative M&E framework; creating common themes across partners where project-level data can be captured, while deriving

Figure 2 | Feedback Loop between GCC Partners and WRI for Building Common M&E Framework



Source: WRI authors.

learning from it; and creating common input, output, outcome, and impact measures.

To move ahead with multiple partners, consensus building toward an overall collaborative framework was important. Three components were key to building this consensus (see Figure 2):

Bilateral Processes: A top-down method for the development of M&E processes might

have won only limited acceptance from the partners and led to workability constraints in the face of field realities. Thus, development was steered by the partners on the basis of their project-specific learnings, and WRI assumed the role of a facilitator and technical advisor within the M&E process. Various discussions and meetings between the partners and the WRI teams helped. The first months were dedicated to understanding the partners' work to the fullest extent to ensure that all

aspects of their work were included. The next months were spent on various meetings to build the framework collaboratively.

Decision-Making for Milestones: Each partner gave their inputs on the goals they envisioned for the campaign, including their experiences with particular stakeholders. This process enabled the development of a unified ToC and a collaborative framework.

Joint Decision-Making: Bilateral interactions led to joint decision-making among the partners toward the unified ToC and the collaborative framework.

CHALLENGES IN BUILDING A COLLABORATIVE FRAMEWORK

As elaborated on in the previous section, any framework that involves multiple stakeholders leads to various challenges. An important part of building the collaborative framework was to recognize challenges and jointly develop solutions.

- **Defining Common Impact:** Before this project, the partners had been working separately in their areas of expertise and had concepts and definitions in place to measure results and impacts for their projects. However, the collaborative framework required the formulation of common definitions and shifts in methodologies for measuring the results of the projects and the campaign.
- **Geographical Spread:** As projects oc-

curred in various locations and contexts, in the initial stages, it was a challenge to understand the work and create a unified ToC as well as to be able to understand how the contexts fit together. However, creating processes that brought IKEA partners together with WRI helped them understand each other's work.

- **Varied Goals:** As the partners looked at different end users and customers, they used different approaches to energy access and different, project-specific frameworks to measure results. Partners came together to look at campaign-level impact that would resonate with their body of work.
- **Project Timelines:** Project-specific time frames varied across partners, posing a challenge for building the framework. IKEA partners did not have the same time frame for implementation, project activities, and M&E.
- **Varying M&E Plans:** Some partners had robust M&E plans in place, whereas those whose project cycles were about to commence were still setting up M&E systems and processes. Thus, although the capacities of partners and their skills were similar, their M&E activities remained in different stages of development while the collaborative framework was being built.

Box 1 | Practitioner's Kit: Creating an Impact Framework

- Creating the theory of change (ToC) should be the first priority when building a results framework.
- The approach to a ToC can be either a collaborative one with various partners or it can be anchored by one agency.
- A ToC would also help in identifying approaches that stem from the experiences and contexts in which the interventions occur. In the case of the collaborative framework process in this guidebook, approaches derived from the Energy Delivery Model and Ecosystem-Based Adaptation were used.
- It is always useful to understand what components of various interventions within the framework will be assessed. The introduction of "enablers" helped understand the basis of these interventions by enumerating and expanding on these components.
- Having multiple partners collectively build any framework is challenging. Building a learning system for all the partners may make the processes more inclusive.

Source: WRI authors.





LIPA NA M'PESA
BUY GOODS TILL NUMBER



ONE ACRE FUND
NPK
(17:17:17)
25 KG net
USE NO HOOPS
STORE IN A COOL DRY PLACE

ONE ACRE FUND
DI-AMMONIUM PHOSPHATE
25 KG net
USE NO HOOPS

DAP
DI-AMMONIUM PHOSPHATE
(18% N / 46% P)
25 KG net
USE NO HOOPS

ONE ACRE FUND
DAP
DI-AMMONIUM PHOSPHATE
(18% N / 46% P)
6.25 KG net
USE NO HOOPS



CONCEPTUALIZATIONS AND MEASUREMENTS

This framework is constructed to help explain the pathways through which energy access can reduce poverty and improve education, livelihood, and health. It gives a way to monitor and evaluate the steps along the way to both developmental and humanitarian impacts.

CONCEPTUALIZATIONS AND MEASUREMENTS

The IKEA Foundation partners within the campaign identified the objectives of their projects. Although energy access was a common goal across all of the projects, the partners aimed to achieve specific development impacts as well. The prioritized impacts were environmental impacts, economic impacts, health impacts, and educational impacts. The ToC helped maintain the focus on the impacts and the metrics (as explained below).

Provision of clean energy is a catalytic development intervention. However, as noted in the previous sections, linkages between energy access and development goals are not clearly articulated. In fact, the M&E literature on energy

access has few studies on the mechanisms through which energy access may help achieve impacts in various development areas (Raitzer et al. 2019). Existing impact assessment reports by aid agencies or development banks have recognized that although energy access investment is important, it is only one of the key types of infrastructure investment needed to facilitate social and economic development.

To assess the impacts of the projects on end users, the partners estimated the size of the populations that could theoretically benefit from the interventions, including both direct beneficiaries and indirect beneficiaries, and families and communities whenever applicable. The advantages of this approach were twofold. First, it would enable project evaluation to differentiate the types of beneficiaries by mapping the intervention impacts within the two comparable groups (e.g., customers and non-customers). Second, such an estimate would also help formulate and design future programs, as well as help learn the type of implementations that are currently deployed on the ground.

It was assumed that people who work or live (depending on the context) in the places where the interventions would be taking place will in theory receive the environmental, economic, health, and education benefits. Thus, the key impact measurements recognized the themes where benefits could possibly be achieved directly and indirectly.

To develop the results framework, the impact was divided into sectors through meta-analysis

of the various theories of change shared by the partners. The framework has two parts: the Result Chain and the Enablers (which help achieve results at each stage). The Result Chain contains four stages: project activities (inputs), energy provision (outputs), energy uptakes (outcomes), and development impacts (impacts) (Pueyo 2013), as described below.

Input: This refers to direct project inputs in monetary terms. The input monitoring did not include the project activity assessment, such as the identification of stakeholders, need assessment, and installation. These were captured as enablers at different levels.

Output: This refers to the immediate results of project activities that were assessed autonomously by various partners. The availability of suitable renewable technologies captured the existence of energy technology tailored to the needs of the targeted end users. Output was measured by the number of targeted end users that have or do not have access to the energy solutions.

Outcome: This refers to the mid-term results following the output. Once technologies are made available, many factors will influence their accessibility and uptake. Accessibility can depend on affordability, reliability, quality, and convenience. Accessibility and uptake were measured by the number of end users actively using the technology.

Impact: This refers to the long-term results of outcomes, such as effects on income, livelihoods,



and expenditures. Gauging the sustainability of such impacts was not feasible within this project because results will continue to unfold beyond its timeline, and because many other sociopolitical variables would come into play.

METHODOLOGY: INDICATOR MEASUREMENTS

COMMON IMPACT INDICATORS

In physical and virtual meetings, the partners mapped impact areas and the kinds of changes their interventions would bring about. The mapping exercises included discussions about their priorities and ways to incorporate aspects of their own project-specific results into the new framework being built. WRI analyzed these mapping exercises and the narratives provided to categorize the results into impact themes and various broader themes (see Table 1).

The common impact indicators helped WRI develop the bases of the integrated approach to monitor and evaluate the common results at the campaign level, while helping the partners draw upon the project-level insights and data.

Table 2 illustrates how indicators such as reduced CO₂ emissions and reduction in energy expenditures have been incorporated by each partner, followed by indicators on education and health. The indicators also aim to bridge the gap in socioeconomic evidence, which is considered to be lacking in various energy access projects (Raitzer et al. 2019).

Table 1 | Common impact indicators

THEMES	IMPACT THEMES
Capacity and Service Improvement	<ul style="list-style-type: none"> Increased innovation and research and development capacity Increased governance capacity Increased awareness of the renewable energy technology introduced Increase in investment on renewable energy and energy efficiency Enhancement of financial readiness of communities
Humanitarian Impacts and Sustainable Development	<ul style="list-style-type: none"> Educational benefits Health benefits Economic benefits Environmental benefits

Source: WRI authors.

Table 2 | Key indicators

IMPACT THEMES	KEY INDICATORS
Environment	Reduced CO ₂ emissions by end users/institutions (<i>for all projects</i>)
Economic	<ul style="list-style-type: none"> Decrease in energy expenditures (<i>for all partners</i>) Increase in incomes (<i>SELCO Foundation, Rainforest Alliance, Practical Action</i>) Increase in financial services (<i>SELCO Foundation</i>)
Education	Increase in number of study hours (<i>SELCO Foundation, One Acre Fund, Practical Action</i>)
Health	<ul style="list-style-type: none"> Increase in number of patients served (<i>SELCO Foundation, Practical Action</i>) Increase in number of hours of health services (<i>SELCO Foundation, Practical Action</i>)

Source: WRI authors.

In addition, the partners agreed that the economic impacts can be broken down into at least two items: decrease in energy expenditure and increase in incomes generated by the utilization of renewable energy. The projects, with their market-based approach, do aim to increase the incomes and wealth of end users. Income and savings indicators were also recognized as critical (Shobe and Kameri 2005).

To help the partners arrive at a common understanding, the impact themes encompassed campaign-level changes. The impact themes were part of the ToC, which would help determine the larger impact of the campaign that communities would start experiencing as an increased benefit from energy access.

Environment: The long-term impacts communities experience due to the reduction of air pollution and other greenhouse gases have multi-layered effects on populations. For example, globally, air pollution causes about 3 million premature deaths a year (Watts et al. 2017); reductions in air pollution levels can therefore benefit local populations.

Health: Improved access to health centers and services benefits communities. This theme encompasses remote areas and those that are either not connected to grids or have unreliable energy access, where health costs would likely decrease significantly with the provision of affordable and reliable energy to health centers (IEA 2019). Benefits would also accrue from increasing the capacity of health centers to serve their target populations/communities.

Education: Greater learning outcomes can be achieved through access to clean energy. Empirically, it has been found that access to electricity increases the learning and reading hours of students and also enables teachers to teach extra hours whenever needed (Sovacool and Vera 2014).

Economic: At the campaign level, the partners agreed upon the measurement and reporting of the energy spending alone, which would also help substantiate possible increased spending power and savings.

COMMON OUTCOME MEASURES

Partners had their own methodologies for measuring changes and gathering evidence within their M&E processes. Thus, there was a need to build common measures to have a standardized set of methods for calculating changes and communicating these uniformly.

OUTCOME MEASURES

The focus while developing the outcome measurements was on choosing the energy indicators. The partners involved in the campaign had historically used multiple indicators to measure projects' contributions to the shift in energy use patterns. After discussions and deliberations, the partners adopted similar methods for this calculation that enabled campaign-level changes from each partner to be aggregated together. A few examples were the following:

- Number of hours of active use of renewable energy provided by the project (Rainforest Alliance, Practical Action)

- Changes in consumption of traditional energy (Rainforest Alliance, One Acre Fund)
- Number of households/individuals using renewable energy technologies or in the higher tier of energy access

OUTPUT MEASURES

Output captures the ways in which access to renewable energy solutions is provided to, and reaches, potential users. It measures the effects of interventions and products on the consumers. The partners had historically used the following indicators for the project outputs:

- Number of beneficiaries/end users/customers reached (all projects)
- Renewable energy capacity installed/delivered (SELCO Foundation, Practical Action, One Acre Fund)
- Extra dollar/euro amount of funds leveraged because of the project investment (all projects)

MEASURING INDICATORS

The partners worked to develop common calculations for measuring indicators to ensure data validity across partners and locations. Discussions across partners and WRI led to the agreed definitions, which are provided in *Table 3*.

Table 3 | Indicators Explained

	INDICATORS	CALCULATIONS
Impact	Reduced CO ₂ emissions by end users/institutions	Net reduction = Annual decrease in emissions from traditional energy – increase in emissions from cleaner energy
	Reduced spending on non-renewable technologies and fuels	<ul style="list-style-type: none"> Net savings = Discounted sum of (Annual net dollars/euros savings by households + Annual net dollars/euros savings by enterprises + Annual net dollars/euros savings by institutions) Net savings = Percentage of dollars/euros saved by households, enterprises, and/or institutions (whichever entities are applicable)
Outcome	Number of individuals/entities actively utilizing renewable energy provided by the projects as primary energy solutions	<ul style="list-style-type: none"> Number of individuals impacted = Average household size (56 head counts) × Number of households impacted (household-level outcomes of basic lighting or cooking stoves) Number of households impacted = Average number of households by one streetlight (approx. 6) × Number of streetlights installed (community-level outcomes of street lighting) Number of individuals impacted in enterprises or institutions
Output	Number of end users who have access to renewable energy solutions	Total number of individuals to whom the product was marketed – Total number of individuals who purchased the product.
	Additional dollar amount of resources leveraged	Additional resources = Additional revolving funds/guarantees/working capital raised + finance leveraged from households or factories + extra contribution from other partners and government funds
Input	Dollar amount invested by the funder	Total amount of project investment from IKEA Foundation

Source: WRI authors.

IDENTIFYING GAPS

Once the draft was shared with the partners, WRI worked with them to identify and address gaps in mapping the results to ensure that the final framework would produce a robust campaign-level summation

of results for all of them. This process entailed continuous engagement with all of the partners over the project period.

Indicator Testing: The partners undertook testing after the first draft of the campaign framework was developed. Bilateral work sessions and site visits by partners from

India, Rwanda/Jordan, and Kenya were undertaken to test the validity of the indicators and explore opportunities for using the framework for impact management, including course correction and learning. The indicator testing and its decisions were steered by the partners so that the workability of the results

framework could be better understood in the context of their projects. WRI supported the partners as a technical partner during this process. The collaborative framework was built to enable the partners to track their own M&E progress. All partners made decisions about their data reporting in accordance with the priorities and timeline of the project and the human resources available.

Lack of feasibility assessments: Feasibility assessments help in testing the methodology and assumptions for any intervention/research; that is, they help identify gaps in the initial stages of the project. However, organizations may not be able to conduct such assessments due to limitations of human resources, time, and so on. Feasibility assessments are desirable, but they are not a mandatory part of any M&E process. Similarly, within this project, some partners did not wish to run the initial feasibility assessment with their technical solutions or intervention methods.

Understanding methods of course correction: One partner learned from the initial indicator testing that among the enabler factors, awareness and affordability were the most significant factors that would change the overall adoption rates for its intervention. This learning prompted this partner to investigate the various steps it would need to take toward course correction and the informed strategies it would need to adopt in their intervention.

Similar processes were run by the partners to understand the gaps in their intervention, learn from it, and course-correct. This is also part of the operational systems processes that have been explained in this guidebook.

Box 2 | Practitioner's Kit: Conceptualizations and Measurements

- Testing the indicators in the initial stages of intervention leads to understanding of the interventions and adjustment of the indicators according to field realities. This also leads to data validity and capture of changes within the intervention.
- It is also important to understand the perspectives of the various partners. Partners might want to add, or not wish to conduct, a few processes within the overall process of framework development. The building of a collaborative framework should be able to include such decisions to incorporate the perspectives of the organizations owning the intervention.

Source: WRI authors.





CONTINUING LEARNING FOR ENERGY ACCESS PROJECTS

This section provides an overview of the challenges faced and learnings gained while building this collaborative framework

TECHNOLOGICALLY AGNOSTIC FRAMEWORK APPROACH

As noted in the earlier literature on the impacts of energy access programs, a technologically agnostic framework enables multiple partners with similar approaches to energy access to assess the impact of activities and outputs irrespective of the chosen technology. It helps incorporate a wider range of technologies, which in turn helps create a better method of planning interventions across various types of end users according to their needs. The incorporation of various technologies helps the partners understand the local needs and thus measure the impacts of energy access technology on communities. The collaborative framework helps synthesize knowledge from several interventions. The framework also creates space for all partners to learn from specific project-level indicators.

PROGRAMMATIC LEARNING

A collaborative framework helps synthesize knowledge from several interventions. It also creates a space of learning across all partners. Meetings with partners and continuous conversations helped the process of cross learning and reflections.

It ensures that a community of practice toward learning is built, which could also lead to collaborative work, interventions,

and program planning in the future for all the partners involved.

Moreover, using the framework can help partners and grant makers use the operational systems set up to view, analyze, and make decisions during the whole time frame of a project. It can enable grant makers to identify gaps within existing M&E processes and encourage partners to adjust activities and plans at the input and output levels and streamline their M&E processes and interventions. Further, it can enable partners to make informed adjustments to the intervention to achieve the intended impact for the beneficiaries. In addition, by helping incorporate changes of all four partners, the framework eases the coordination of efforts and helps view not just project-specific changes but also campaign-level changes as it had set out to do.

OPERATIONAL BARRIERS

It is essential to understand the barriers that might emerge during a collaborative process. Although technology and media have made such collaborations across different regions more accessible, ground realities, such as pandemics and the remoteness of site locations, can slow activities. This should be factored into plans to work with partners providing urgent aid to especially vulnerable populations.

LIMITATIONS OF PARTNERS

Many partners, especially grassroots organizations, may not have the resources to fully engage in such processes. It is important to understand the support they may need to fully take part in processes such as capacity building, personnel, and technological investment.

COLLABORATING UNDER THE FRAMEWORK

As discussed earlier in the guidebook, many partners will come with their own organization's M&E process. Although creating participatory processes such as this can be empowering, it can also lead to organizations doubting their own processes. The collaborative framework should have space for reflection on and understanding of the various ways in which partners have set up M&E processes within their organizations.

LIMITATIONS OF THE GUIDEBOOK

Time: The collaborative process can be immersive and time consuming. In many projects, especially short-term projects, time may not be available to initiate this process for organizations and/or their partners.

Capacity Building: Developing the collaborative framework described in this guidebook did not require capacity building or a technical advisor. However,

there may be cases where capacity building is an essential first step that must be initiated before starting such processes.

Competition: Partners in competition with each other may have trouble reaching a consensus or sharing information on challenges and learnings. When initiating a collaborative framework with partners, it is prudent to understand which partners can work with each other.

Technology Agnostic: Being agnostic about technology may be difficult for organizations with mandates or work centered around particular technologies. The agnostic approach works for organizations that can incorporate different technologies during implementation.

Measuring Impact: It is often difficult to capture projects' larger social impact after the project period is over. This could be due to insufficient funding or ongoing collaboration with communities. In creating or assessing M&E processes, it may be important to consider these limitations.





REFLECTIONS

This section provides ways in which users of the guidebook can initiate a collaborative framework process.

Starting the Process: To initiate a similar process with partners, it is useful to start when they are at the project planning stage. This ensures that partner organizations will be able to start incorporating these processes within their project activities to ensure the implementation of M&E throughout the project cycle. Depending on their resources, partners can also decide to undertake these processes after the project cycle to understand the larger impact on the community/end users.

Personnel: These processes are time consuming and may require resources and personnel dedicated to them. Identifying those individuals is always important at the initial stage of planning.

Knowledge Transfer: Knowledge transfers within the organization and across partners is essential. As this is a collaborative process, each organization needs to agree to the framework and be fully informed about its initial development. Knowledge transfer also ensures that framework methodologies are standardized and remain the same.

Ways Forward: Depending on their priorities, partners can collect M&E data based on the framework developed. They can also take the process forward and capture evidence beyond the framework. The partners who collaborated under the GCC incorporated the framework into their work and took the learnings forward to understand the specific projects/data points they were undertaking under the GCC. Partners within the campaign continued doing so to document case studies and successes from their particular projects and regions. For example, partners who measure income can specify how they measure it; for example, in terms of assets, purchasing power, or increased savings, depending on their needs and priorities.

ABBREVIATIONS

EbA Ecosystem-based Adaptation

ERCHRE Empowering Rural Communities and Households in Kenya with Renewable Energy

GCC Good Cause Campaign

GMEF Global Monitoring and Evaluation Framework

MEL Monitoring, Evaluation, and Learning

RE4R Renewable Energy for Refugees

SGD Sustainable Development Goal

ToC theory of change

WRI World Resources Institute

ENDNOTES

1. Poverty trap is a system in which it becomes difficult for individuals or members of a community to escape various aspects of poverty. The poverty trap here would include the absence of various facets such as health, education, and food and nutrition and not just income.

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Natural resources are at the foundation of economic opportunity and human well-being. But today, we are depleting Earth's resources at rates that are not sustainable, endangering economies and people's lives. People depend on clean water, fertile land, healthy forests, and a stable climate. Livable cities and clean energy are essential for a sustainable planet. We must address these urgent, global challenges this decade.

Our Vision

We envision an equitable and prosperous planet driven by the wise management of natural resources. We aspire to create a world where the actions of government, business, and communities combine to eliminate poverty and sustain the natural environment for all people.

Our Approach

COUNT IT

We start with data. We conduct independent research and draw on the latest technology to develop new insights and recommendations. Our rigorous analysis identifies risks, unveils opportunities, and informs smart strategies. We focus our efforts on influential and emerging economies where the future of sustainability will be determined.

CHANGE IT

We use our research to influence government policies, business strategies, and civil society action. We test projects with communities, companies, and government agencies to build a strong evidence base. Then, we work with partners to deliver change on the ground that alleviates poverty and strengthens society. We hold ourselves accountable to ensure our outcomes will be bold and enduring.

SCALE IT

We don't think small. Once tested, we work with partners to adopt and expand our efforts regionally and globally. We engage with decision-makers to carry out our ideas and elevate our impact. We measure success through government and business actions that improve people's lives and sustain a healthy environment.

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