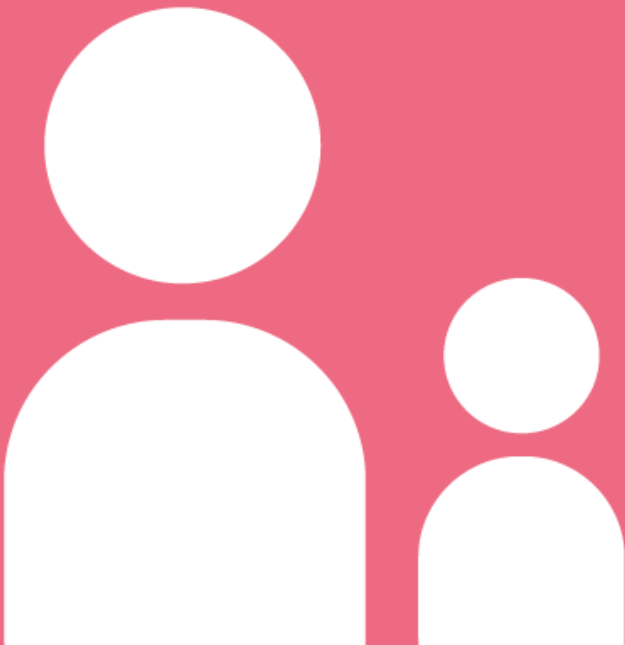


**Lessons from Practical Action's impact
community of practice**

**Practical
ACTION**

ACHIEVING IMPACT AT SCALE

WORKING PAPER



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‘Small is beautiful, but big is necessary.’¹

Fazle Hasan Abed

Founder of BRAC, one of the world’s largest international development NGOs, established in the aftermath of Bangladesh’s Liberation War.

1 Introduction

The purpose of this working paper is to capture and disseminate key lessons and recommendations from Practical Action’s internal Impact Community of Practice, convened in 2021–22. The Impact Community of Practice explored how we achieve impact at scale, including the approaches used, the lessons learned and the results achieved. Discussions were grounded in case studies of work from across our four thematic areas of agriculture, energy, resilience, and urban services. Case studies were presented by programme teams from Africa, South Asia, and Latin America. A summary of each case study is provided in [Section 4](#). We hope that this working paper catalyzes further reflection and discussion within the international development sector on achieving impact at scale.

2 Impact at scale and why it is important

For international development practitioners, impact has been defined as the ‘positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended’.² At Practical Action, within our day-to-day work, our definition of ‘impact’ focuses on the ultimate positive changes that we aim to bring about.

But what do we mean when we add ‘at scale’?

Some organizations consider scale numerically. For example, the Global Innovation Fund asserts that ‘scale is critical to what we do: we only fund innovations that have the potential to scale to reach millions of people’.³ In a similar but more modest way, Oxfam defines impact at scale as ‘change that affects tens of thousands of people or hundreds of communities’.⁴

Other organizations emphasize expansion without including numbers. For example, the Social Finance Company defines impact at scale as ‘lasting and widespread change in people’s lives and society we see when products, services or practices sustainably expand their reach, when systems embed change or when society and culture shift their perspective’.⁵

Others underscore a level of change that is commensurate with the level of need. For example, the Global Community of Practice on Scaling Up talks about ‘sustainable solutions that match the scale of the need’.⁶ This last definition echoes Fazle Hasan Abed’s assertion that ‘small is beautiful, but big is necessary’⁷ – a riposte to Practical Action’s founder, E.F. Schumacher, whose influential essays were brought together under the title *Small is Beautiful*.

One important dimension that needs to feed into this understanding of impact commensurate to need is equity. Some practitioners are concerned about the inequity and potential negative unintended consequences of approaches that create ‘small islands of excellence’ for a relatively small number of households or communities.

Based on these definitions and considerations, we can say that impact at scale entails:

- reaching large numbers of people (at least 1,000s, perhaps 10,000s);
- lasting and widespread change;
- alignment with the level of need;
- consideration of equity.

Hopefully, this rough mix of ingredients provides sufficient clarity for the concept of ‘impact at scale’ to be both intelligible and useful. At Practical Action our ultimate goal is a world that works better for everyone – and impacting everyone

At Practical Action our ultimate goal is a world that works better for everyone – and impacting everyone entails change at scale

entails change at scale. We hope that this document helps stimulate reflection and discussion on how this can be achieved.

2.1 Our model for achieving impact at scale

To achieve impact at scale, we use a tripartite model consisting of three linked and overlapping approaches: *Inspire*, *Systems*, and *Landscape*.

2.1.1 Inspire

We recognize that, as a relatively small organization, we need to influence and inspire other actors to adopt our approaches in order to extend the benefits to more people. These actors include other NGOs, governments, funders, and businesses.

We draw upon a three-stage process:

- *Demonstrate* – we trial an approach to address a specific set of needs.
- *Learn* – we learn from the trial and capture this learning.
- *Inspire* – we share the approach, achievements, and learning with others.

2.1.2 Systems

We analyze the social, economic, and political systems in which we work in order to identify nodes where we can effectively deploy our skills, knowledge, networks and influence to bring about change, which in turn will precipitate a larger and wider change across significant portions of the whole system. To do this, we work at local, national, regional, and/or global levels. Sometimes we focus on government policy and practice change, sometimes on incentives for the private sector within a market system, sometimes on mind-set and behavioural change. The aim is to create a more enabling social, economic, and/or political environment. Theory of Change Systems Maps are critical tools for gaining an understanding of the systems in which we work, especially when developed together with stakeholders and community members (see the [Appendix](#) for an example).

2.1.3 Landscape

We understand a landscape as a defined geography or ecosystem, such as a river basin or forest, or a bounded administrative area, such as a city or a province. Boundaries may be determined by distinct land features, by administrative/legal processes or by social processes (e.g. by predominant livelihood activities or natural resource uses). Taking a landscape approach means working with all key stakeholders within a landscape to understand how different land use practices and economic activities affect one another, the trade-offs therein and the resultant effects on communities living in the landscape. Strategies are then collaboratively developed and implemented to reconcile competing and/or conflicting practices. A landscape approach can be more efficient and effective than pursuing multiple disconnected or uncoordinated strategies with different stakeholder groups within the landscape.⁸

3 Recommendations on how to achieve impact at scale

The following recommendations emerged from the case studies presented at the Impact Community of Practice (see [Section 4](#)).

- **Analyze the current system: use a variety of tools and processes, and identify the system's weaknesses and strengths.**
 - Map stakeholders. Identify with whom to work to bring about change – some stakeholders will be potential allies, others will be targets you want to persuade, some may be influencers who can amplify your messages.
 - Identify where power sits in the system; seek to understand and align priorities. (See case studies on [city-wide sanitation in Bangladesh](#) and [gender transformative EWS in the Philippines](#)).
 - Find ways to leverage existing strengths. (See case study on [city-wide sanitation in Bangladesh](#)).
 - Do not attempt to address all identified weaknesses: deploy resources at the opportune times for bringing about change to critical nodes. (See case study on [resilient agriculture in Zimbabwe](#)).
- **Invest in building relationships of trust and developing strategic alliances.**
 - Build alliances with local actors. Change is rarely achieved by working alone. Other actors bring their own networks, relationships, and complementary skill sets and approaches. (See case study on [flood EWS in Peru](#)).
 - Work collaboratively with other actors to develop the new system. Ownership and sustainability will be strengthened if those responsible for the new system have a strong stake in its development. (See case studies on [energy access in Rwanda](#), [city-wide sanitation in Bangladesh](#) and [gender transformative EWS in the Philippines](#)).
 - Seek ways to integrate key decision-makers into programme structures. Their expertise can strengthen the programme and they will hear of results as they emerge. Invite key decision-makers and stakeholders to visit the work and see how it is making a difference. (See case study on [resilient agriculture in Zimbabwe](#)).
- **Identify if and where there is a gap in the evidence base.** Address it but do so in the right way! Remember that evidence on its own is never enough to bring about change.
 - Understand the evidence your targets require. (See case study on [flood EWS in Peru](#)).

- Understand the type of information and the format that will resonate with your target. Often a variety of different types is effective; do not assume that formal written documents (e.g. policy briefs) will be effective with everyone.
- Share and disseminate through trusted networks and intermediaries, which bring weight and multiplier effects. Over time, this can result in a pull factor (See case study on [gender transformative EWS in the Philippines](#)).
- **Understand that strong institutions are critical for Landscape approaches.**
 - Working with all key landscape actors requires trust, clear roles and responsibilities, and an action orientation to ensure reflection and discussion leads to change. (See case study on [water and sanitation in Kenya](#)).
 - Key decision-makers and powerful actors must be involved, including formal government representatives and community leaders (see case study on [integrated water resource management \(IWRM\) in Sudan](#)).
 - Be patient. It may take time and focused attention to develop and strengthen institutions to function effectively. (See case studies on [water and sanitation in Kenya](#), [city-wide sanitation in Bangladesh](#) and [IWRM in Sudan](#)).
- **Be deliberate about inclusion.**
 - Do not assume that inclusion happens organically or easily. Deliberate and carefully developed strategies are needed to reach and benefit socially excluded or more vulnerable groups. (See case studies on [water and sanitation in Kenya](#), [energy access in Rwanda](#), [city-wide sanitation in Bangladesh](#) and [gender transformative EWS in the Philippines](#)).
- **Keep going! Remember that achieving change at scale takes time.**
 - Change often takes longer than the three to five years provided by a single project. A series of coordinated projects that together make up a programme is often required. Develop programmatic visions, strategies, and accompanying funding options to reflect this. Some of the seemingly singular project case studies presented here built upon years of prior work. (See case studies on [flood EWS in Peru](#), [resilient agriculture in Zimbabwe](#) and [gender transformative EWS in the Philippines](#)).
 - Working with a system is an ongoing process, not a one-off event. Keep reviewing and improving the approach as your understanding of the system deepens and as the system itself evolves. Ensure that programmes have sufficient regular time and staff capacity dedicated to this ongoing work. (See case studies on [energy access in Rwanda](#) and [water and sanitation in Kenya](#)).

4 Impact at scale – case studies

4.1 Flood and landslide early warning system (EWS) in Peru

Summary	
Thematic area	Resilience
What?	Flood and landslide EWS
Where?	Rimac river basin, which serves Peru’s capital city, Lima
When?	2012–ongoing
Who?	Practical Action, municipal government, key ministries, local community brigades and committees, citizen scientists
How?	Low-cost networked monitoring stations embedded in communities Influencing government authorities: demonstrating the accuracy of data and the system’s effectiveness to save lives
Scale approach	Primarily <i>Inspire</i> ; to a lesser extent <i>Systems</i> , and <i>Landscape</i>
Number of people benefiting	In 2022–23, 22,643 women and girls and 22,643 men and boys are estimated to have benefited from the improved EWS
Further info	Practical Action, Towards effective early warning systems: Impact and lessons from Nepal and Peru

The Rimac river is the most important source of potable water for the 10 million citizens of Lima. The river is prone to flooding and landslides. Practical Action has been working in the watershed since 2012. Through our programme, a flood and landslide EWS has been established and strengthened. The EWS has four key components:

1. risk knowledge;
2. a monitoring and alert service,
3. dissemination and communication of warning messages;
4. response capacity within the community.



Photo 1. Rimac river swelling in the district of Chaclacayo, Lima

The Peruvian government had already invested heavily in weather monitoring stations that measured rainfall levels and humidity. However, these stations were expensive, and insufficient engagement with communities had meant that the system was not providing immediate and sufficient information to alert populations of flood or landslide risks.

We designed and produced low-cost, open-source weather stations, some of the components of which were produced by a 3D printer. Each station costs between 300 to 500 USD to produce. These stations were installed in communities via the municipal emergency committees that had been established and nurtured as part of the wider EWS development. By the time of the 2017 El Niño flooding we had installed five stations in the upper Rimac river basin. The stations provided warnings to communities at least 20 minutes prior to landslides hitting – 20 minutes that made the difference between life and death.

Until this point, the government agency [Servicio Nacional de Meteorología e Hidrología del Perú](#) (SENAMHI) had been very sceptical of the validity of the data generated by the low-cost monitoring stations, but after seeing the success of the system during the 2017 El Niño events, they became interested. Subsequent low-cost stations were installed in strategic locations close to the more expensive government stations, enabling SENAMHI to compare the data collected by the two types of station and feel assured of the accuracy of the data from our more cost-effective system.

Ours is a bottom-up, community-based approach to EWS

Ours is a bottom-up, community-based approach to EWS. Community members monitor rainfall levels with simple tools, host and safeguard the monitoring stations, participate in and lead brigades which disseminate messages, organize evacuations, and administer first aid. Therefore, the overall system depends heavily on the participation and engagement of community members, which is made possible by our strong presence in communities and relationships of trust.

Throughout the programme, we developed the evidence base and shared this with relevant government authorities and academics. This has included policy briefs as well as testimonies from community members and brigade leaders. These, coupled with the data and fast-track videos taken by the stations of landslides as they happen, were instrumental in convincing relevant government authorities of the system's effectiveness. Media coverage by mainstream media in Peru also played a critical role in generating interest and support.

Key messages

- Since its start, the programme has been very intentional about its aims to inspire and influence relevant government agencies, working to build relationships with all relevant government agencies, at national and local levels.
- The evidence base has been multi-pronged, including data from the monitoring stations, policy briefs, testimonies from communities, and mainstream media coverage.
- The programme has taken a holistic approach to EWS, integrating the technology into a community-based approach. Influencing has focused on this overall approach, not just the technology.
- Inspiring has been grounded in an understanding of the wider system (including its political, economic, social, and physical aspects) and a Landscape approach to the context and problems.

4.2 Climate-resilient agriculture and food security in Zimbabwe

Summary	
Thematic area	Agriculture
What?	Conservation agriculture to increase yields and ensure food security
Where?	Semi-arid areas of Zimbabwe
When?	2015–2021, but building on decades of prior work
Who?	Practical Action, Sustainable Agriculture Technology (SAT), Food and Agriculture Organization (FAO), Ministry of Agriculture, and the Foreign, Commonwealth and Development Office (FCDO)
How?	Identifying key success factors of Pfumvudza, a Zimbabwean-developed conservation agriculture technology Demonstrating the technology and its impact on yields and food security to farmers and government
Scale approach	Primarily <i>Inspire</i>
Number of people benefiting	In 2022–23, an estimated 832,000 women farmers and 768,000 men farmers have subscribed to Pfumvudza support from the Zimbabwean government

Pfumvudza is a Shona word meaning ‘new beginnings’. It is also the name given to a conservation agriculture technology originally developed in the 1980s by Zimbabwean NGO [Foundations for Farming \(FfF\)](#) to support family food security in semi-arid rural areas of Zimbabwe.

The key conservation agriculture principles behind Pfumvudza include minimal soil disturbance and maximum soil coverage at all times. The technology involves a small plot of land, roughly 16m by 39m (624m²), divided into 52 rows (1 for each week of the year), each with 28 holes. Two maize plants – Zimbabwe’s staple crop – are sown in each hole. Each plant will produce one cob, so 2,912 cobs of maize will be produced from the plot of land. This constitutes approximately one tonne of maize, enough for a family of five for a whole year. When planted on larger plots of land, the surplus can be sold locally.

To start with, a package of agri-inputs was promoted as part of Pfumvudza. Unfortunately, this undermined the technology’s sustainability, because farmers no

A key moment in the journey to scale occurred when senior government officials...visited the project sites

longer bought the inputs once support was phased out. However, we and our partner [Sustainable Agriculture Technology](#) (SAT) realized that the inputs were not a key to success; rather, the key success factors were maximizing soil coverage with mulch and watering during dry spells. So, in the 2019–20 season, we and SAT started promoting Pfumvudza within a large consortium programme, the Livelihoods and Food Security Programme (LFSP).⁹ Initially, farmers were sceptical about the potential for high yields, and we had to work intensively to sensitize and train both farmers and government extension staff.

The increases in yields and the impact on family food security were dramatic. In some cases, productivity increased by 700%. In the 2020–21 season, the government adopted and promoted Pfumvudza within its agricultural policy as a ‘climate-proof solution’ – and in 2021, 1.8 million farmers were reported to be using the technology. Other NGOs and seed houses have also adopted and promoted it, and the government has been exploring intercropping the maize with legumes to ensure maize, a carbohydrate, is complemented by protein.

The LFSP was a large national programme led by the UN’s Food and Agriculture Organization (FAO) and funded by the UK Government’s Foreign and Commonwealth Development Office (FCDO). As such, it had strong links to government and its National Programme Coordinating Committee included senior government officials. This enabled us and SAT to share literature about Pfumvudza as well as data on yields at committee meetings to pique these members’ interest.

At the same time the government was developing a new agricultural policy framework. The LFSP’s profile and the relationships of key consortium members such as FCDO and FAO with the Zimbabwean Ministry of Agriculture meant members of key committees took up invitations to visit project sites. A key moment in the journey to scale occurred when senior government officials from the Ministry of Agriculture visited the project sites and saw the maize yields. The government officials then informed the Minister of Agriculture himself, who subsequently visited. These exposure visits were complemented by farmer testimonies and presentations at various forums by youth involved in the programme.

Some concerns have come up that need to be researched and unpacked further. For example, private seed houses are now promoting Pfumvudza as a way to sell more hybrid maize seeds, which in turn require further agricultural inputs. Our preference is for open-pollinated varieties sourced from farmer-managed seed systems, which are more resilient to local conditions and are more affordable. In addition, questions have arisen about sustainability: planting 52 rows each with 28 holes is a lot of digging! This heavy work burden is reported to discourage farmers. Further research is needed to substantiate and unpack these concerns.

Key messages

- Achieving change at scale can take a long time: Pfumvudza was developed in the 1980s and the principles behind it go back much further.
- The solution proposed was not a new one; the key was to identify its success factors and the constraints that had previously prevented it from going to scale.
- Timing is key. The implementation of the LFSP programme happened to align with the government's agricultural strategy review, thus opening up the opportunity for influencing.
- Key government decision-makers witnessing the results first hand was critical to gaining their support and promotion of the technology within government policy and programmes. Obtaining government officials' commitment to visit was only possible due to already-established strong relationships (via programme partners).
- Sustainability should not be assumed – ex-post evaluation is needed to understand the extent to which unforeseen costs or challenges may dissuade long-term sustained impact.

4.3 City-wide inclusive sanitation in Bangladesh

Summary	
Thematic area	Urban services
What?	A city-wide sanitation system that serves low-income communities and provides decent work opportunities
Where?	Faridpur, Bangladesh, and extending to another 10+ towns and cities
When?	2014–ongoing
Who?	Practical Action, Society Development Committee (SDC), municipal government, mayors, informal sanitation workers, low-income communities
How?	Shifting the municipal system from direct delivery to providing an enabling environment that supports effective, affordable and inclusive services
Scale approach	Primarily <i>Systems</i> (also <i>Landscape</i> and <i>Inspire</i>)
Number of people benefiting	In 2022–23: 23,844 women and girls, 23,843 men and boys living in low-income areas of Faridpur In addition, the approach is being adopted in low-income areas of other cities across Bangladesh
Further info	Practical Action, Putting pride into poo. Practical Action, Impact brief: Emptier to entrepreneur.

In 2014 we used a variety of tools to map and survey the faecal sludge management system in Faridpur, a city in south-west Bangladesh with a population of around 150,000. We used tools from the [Participatory Market Systems Development Toolkit](#), as well as WASH sector tools such as the [Shit Flow Diagram](#). We found that, whilst toilet/latrine coverage had reached 95% of city households, only 10% of faecal sludge was safely managed. The municipality was providing highly subsidized faecal sludge management services, but these only reached 20% of the population – generally in more affluent neighbourhoods. The other 80% was relying on the services of informal pit emptiers. These emptiers were providing an affordable and accessible service, but it had its challenges:

- Manual emptying was undertaken by hand without any protective equipment. As a result, emptiers suffered from poor health (e.g. illness, cuts, infections) as well as severe social stigma.

- The service was provided mostly at night due to the associated stigma.
- Collected faecal sludge was often dumped in the local environment, including in waterways, which households rely on for transportation and water, and in which children play.

We reviewed the findings of this research collaboratively with municipal authorities. Based on these, the city decided to change its role from delivering faecal sludge collection and processing services itself to facilitating and regulating several service providers to do this.

Relationships had been established with many of the pit emptiers who were extremely active but lacked any formal organization. Together with our partner [Society Development Committee](#) (SDC), we worked intensively with the pit emptiers to sensitize them to the idea of becoming formally registered cooperatives. Emptiers were trained on organizational management, entrepreneurship, and technical skills. Personal protective equipment, such as boots, gloves, overalls, masks, and goggles, was provided. Initially the municipality was sceptical about the newly formed cooperatives' capacities, but we and SDC were able to broker the relationship and build the municipality's confidence and trust.

At the same time, we were working with the municipal authorities, technical experts, and international donors to invest in new infrastructure, including a faecal sludge treatment plant on the edge of the city. The plant uses two processes to treat the faecal sludge: solar drying under a plastic canopy and selected plants with root systems that attract and neutralize pathogens. Our technical support was critical to the design and development of the new system.

In 2016 the sanitation workers cooperatives were awarded formal contracts to collect faecal sludge from the city's neighbourhoods and deliver it for processing to the treatment plant. The cooperatives lease vehicles (Vacutags) from the municipality to deliver the service, and SDC leases and manages the plant. SDC aims to sell processed faecal sludge locally as compost (initially to flower farmers, but potentially – once it has been certified safe – to farmers growing food crops). The whole system is overseen by a multi-stakeholder committee that includes representatives from the sanitation workers cooperatives.

The overall approach has been extremely successful in Faridpur. We have achieved further impact at scale by:

1. Influencing and supporting municipal governments in nearby towns to replicate the approach.
2. Influencing funders and the government of Bangladesh to include the approach in their programmes.
3. Contributing to national guidelines and regulations so this approach can be recommended to other towns.

We helped to develop a new system that retained the best of the old one with some modifications to address weaknesses and inefficiencies.

Beyond Bangladesh, the World Bank and Asian Development Bank intend to replicate this approach in 100+ cities over the coming five years.

Together with our partners, we identified the strengths within the existing system (e.g. the role played by informal pit emptiers and the coverage of their services) and helped to develop a new system that retained the best of the old one with some modifications to address weaknesses and inefficiencies (e.g. high levels of subsidy, extensive environmental contamination, poor health and safety of workers, and extreme stigma attached to this vital work).

The sanitation workers, as they are now known, benefit from improved working conditions and fewer negative health outcomes, as well as social acceptance and even respect – they now participate actively in meetings with municipal government. Meanwhile, the population of Faridpur benefits from high-quality and affordable pit emptying services and an improved city environment.

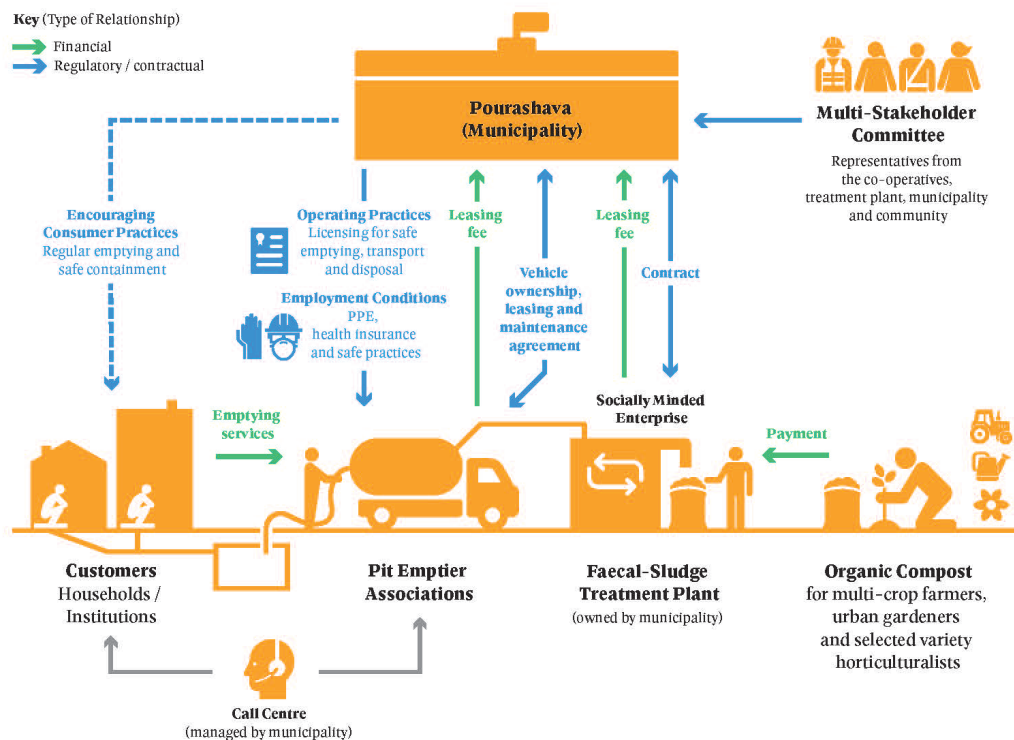


Figure 1. Faridpur's new faecal sludge management system.

Key messages

- Analysis of the existing system, using a variety of tools, was fundamental to identify both its weaknesses and strengths.
- Developing a new system was a big task and took a long time. The system had to be designed and developed collaboratively – no single actor could do it alone.
- Building the understanding and capacity of the municipality was challenging but vital for the success of the programme.
- In a municipal system the city mayor holds the power. Developing a good relationship with them is key, and the new system had to align with their motivations – including re-electability through improving service coverage.
- The informal workers needed a lot of sensitization and support to develop their own formalized and professional organizations. Existing socio-cultural tensions, were not overcome quickly.
- Currently the desludging business is financially viable (paid for by user fees), but the treatment plant continues to require subsidy.

4.4 Decentralized renewable energy access in Rwanda

Summary	
Thematic area	Energy
What?	Strengthening energy markets and energy systems for refugees
Where?	Nyabiheke, Gihembe, and Kigeme refugee camps in Rwanda
When?	2017–2022
Who?	Practical Action, UNHCR, local private sector companies, camp authorities
How?	Taking a market systems development approach to incentivize the private sector to provide energy products and services that improve quality of life to refugee communities
Scale approach	Primarily <i>Systems</i> (also <i>Inspire</i>)
Number of people benefiting	By 2022, all residents in three refugee camps had benefitted from solar-powered street lighting: 12,121 girls, 12,502 boys, 12,908 women, and 8,919 men. Within that, 6,105 girls, 6,131 boys, 6,445 women and 5,425 men had benefitted from direct purchases of solar home systems, and 9,112 girls, 10,144 boys, 11,126 women, and 9,462 men had benefitted from direct purchases of new clean cooking systems
Further info	Practical Action, <i>Improving energy access for refugees in Rwanda: Working with the private sector</i> . Practical Action, <i>Systems impact assessment of the Renewable Energy for Refugees (RE4R) project</i> .

Renewable Energy for Refugees (RE4R) built on learning and achievements from previous work such as the Moving Energy Initiative which had demonstrated the importance of clean energy access for displaced people living in humanitarian settings.¹⁰

RE4R started with a systems mapping workshop in Rwanda in August 2018. Participants included our staff, UNHCR colleagues, and other NGOs operating in Nyabiheke, Gihembe, and Kigeme refugee camps. Through the workshop a large energy systems map was created. This helped the team to understand the systemic change we were aiming for, the potential enablers and leverage points, and the barriers that needed to be addressed. One such barrier was the lack of suppliers of

In 2021, 3,764 SHS had been sold; 702 refugees were participating in revolving funds; and 87% of customers were on time with their monthly payments

renewable energy products operating in camps and accessible to refugees. As we explored solutions, there was a strong emphasis on post-project sustainability, which led the team to focus on strengthening energy markets and systems.

The programme included four complementary and reinforcing interventions:

1. Renewable electricity services for households and small enterprises.
2. Renewable biomass and advanced cooking technologies.
3. Solar-powered community street lighting.
4. Solar mini grid for institutional power.

For the first intervention on renewable electricity services for households and small enterprises, RE4R focused on solar home systems (SHS) which use photovoltaic cells to provide refugees with access to electricity. The overall aim of the intervention was to incentivize existing local suppliers to expand their businesses into the target refugee camps. We worked with existing businesses to address the multiple constraints they were facing in reaching this new market. We took suppliers into the camps so they could get an understanding of the situation themselves, conduct market research, and test the ability and willingness to pay of potential customers. One supplier set up revolving funds to provide access to the finance that lower-income customers required to purchase a SHS. We also promoted energy literacy amongst refugees.

In 2021 the following results were reported: 3,764 SHS had been sold; 702 refugees were participating in revolving funds; and 87% of customers were on time with their monthly payments. Uptake and usage were leading to improved quality of life, with refugees reporting improved safety in their homes due to lighting at night; increased time spent running businesses and studying; and satisfaction with being able to enjoy radio and television and in this way feeling connected to the wider world. Overall, we noticed a shift of mindset amongst the refugee community and the wider humanitarian sector away from a 'free distribution' mode to one of strategic engagement with the private sector. The programme is now being scaled up through a second phase which will reach all refugee camps in Rwanda.

Key messages

- Systems thinking is not a one-off event. It is an ongoing process that enables us to understand deeper levels of change and complexity, and to adapt programme approaches as this understanding deepens. Some donors will understand this and grant the license for the team to work in this way.
- The language around systems thinking can be opaque. Be playful with barriers and leverage points and do not overdo the jargon.
- Private sector facilitation is about more than just ‘selling’, but includes uptake and sustained usage. It takes time and resource. Capacity building, a big part of this, and participatory market systems development tools are very useful.
- A market development approach may not reach all segments of the community – the issue of affordability is key. RE4R developed an inclusivity strategy to address this and help otherwise excluded segments. Viable business models exist, but additional support mechanisms are needed for vulnerable groups.



Photo 2. Community members enjoying the evening time under solar powered streetlights at Nyabiheke refugee camp

4.5 Improved water access and sanitation in urban Kenya

Summary	
Thematic area	Urban services
What?	Improved water access and community-led total sanitation in an urban context
Where?	Kisumu, western Kenya
When?	2016–2021
Who?	Practical Action, Kisumu Urban Apostolate Programme, Umande Trust, county government, low-income urban communities (including children)
How?	Using a ‘delegated management model’ that works with utilities and municipal authorities and is supported by community monitoring Offering pro-poor connection rates and employment opportunities that enable services to reach the last mile Implementing community-led total sanitation Employing behaviour change communication to improve hygiene practices
Scale approach	Primarily <i>Landscape</i> (also <i>Inspire</i>)
Number of people benefiting	By 2021, 95,087 men and women had access to safe and clean water and 21,746 people had access to improved sanitation. 80% of women reported feeling safe to use facilities even at night. 37,768 children practiced improved hygiene
Further info	Practical Action, <i>Impact brief: Improving water access, sanitation and hygiene in informal settlements in Kisumu.</i>

Working at the landscape level required frequent and regular engagement with all relevant stakeholders

Kisumu is Kenya’s third largest city, with a population of around 500,000. Around 60% of the population live in low-income settlements and 50% live below the poverty line. In 2014 only 30% of the population of Kisumu’s low-income settlements had access to improved sanitation. The prevalence of poor-quality and ‘flying’ toilets meant there was faeces around toilets and in open spaces. At the same time, rapid urbanization and sprawl were putting pressure on services. At this time we took a strategic decision to work at a city-wide level and to focus less on

infrastructure and more on governance, market systems, behaviour change, capacity building, and inclusion.

In 2005 Kisumu's water utility (supported by the World Bank) had already piloted a delegated management model for water and sanitation services. Unfortunately, it had quickly become moribund. Across Kenya up to 40% of water is lost as 'non-revenue water' – essentially unpaid for.¹¹ Utility companies struggle to manage this situation, especially in low-income communities. Together with our partners, [Kisumu Urban Apostolate Programme \(KUAP\)](#) and [Umande Trust](#), we developed a revised delegated management model, in which community groups in low-income settlements across Kisumu worked in partnership with the city's water utility company. In the new model, community groups assume responsibility for water distribution and payment, as experience has shown that community groups can effectively monitor water use, wastage, quality and non-revenue use.

The model generates economic opportunities in low-income settlements, which in turn enhance community buy-in. Roles include overall coordinators or 'master operators', water meter readers and last mile connectors. The master operator can provide regular and frequent feedback to the water utility company, and the utility company is able to respond quickly to any shortcomings, leading to improved efficiency of the whole system. The focus on inclusion ensures that the lowest-income households benefit from a discounted rate for their water connections.

At the same time we, together with KUAP and Umande, also worked on a number of complementary strategies to improve the overall sanitation system in Kisumu. We collaborated with manual pit emptiers to introduce standard operating procedures for safe emptying. Communities were encouraged and supported to construct and use improved toilet facilities and services, including ensuring these were accessible to people with disabilities. We used adaptations of powerful community-led total sanitation methodologies to trigger communities to act on improving their sanitation. Behaviour change communication strategies were used to educate community members, school children and out-of-school children on hygiene practices, including on menstrual health management. Strategies included direct engagement with household members, as well as posters, flyers, murals and community information boards. We also influenced the county government to develop stronger standards and practices around water and sanitation.

Working at the landscape level required frequent and regular engagement with all relevant stakeholders. We organized quarterly meetings, and over time a culture of learning and adaptation developed, with stakeholders sharing openly what was working and where barriers remained. This was essential for the successful development of the new delegated management model. Part of our role in these meetings was to record and track agreed decisions and actions. This ensured meetings were action-orientated and that the time invested was well used.

Programme results showed an increase in water coverage in low-income settlements from 60% to 90% at project end, and a reduction in the cost of water by

up to 70%. Both these changes had important impacts on women and girls who remain responsible for household water collection. Collection times reduced to around 10 minutes, freeing up time for other activities, including studying. In addition, there was a decrease in non-revenue water use: for example, one community group reported a rate of just 5%¹² – a huge reduction compared to Kenya’s average non-revenue water use of around 25%.

Key messages

- We worked collaboratively with the water utility company to find a better way to support extension of piped water connections. The role of the master operators as intermediaries between communities and the utility was a key part of the solution.
- The sanitation side required intensive multi-stakeholder action, including with residents, landlords, schools, community health volunteers, public health officials, local builders, and informal pit emptiers.
- Working on city-wide WASH interventions requires strong institutions. Local stakeholder coordination mechanisms are critical and can bring long-lasting and wider synergies. For example, many other counties now come to Kisumu to learn from the platform.
- It is important for stakeholders to meet regularly to reflect and share learnings on what works and what does not. Action-orientated quarterly meetings helped create a culture of reflection and learning, and ensured clear actions were agreed and implemented.
- Roles need to be clear and necessary skills developed. For example, master operators need to operate like private businesses: they have to make monthly profits in order to keep services running and employees paid. Capacity building for a pro-poor unit within the water utility helped it fulfil its role.
- When excluded from WASH services, poor people spend large amounts of income on costly alternatives. Therefore, addressing this situation can have wider, multi-dimensional impacts.

4.6 Gender transformative early warning system (EWS) in the Philippines

Summary	
Thematic area	Resilience
What?	Gender transformative flood EWS – from analysis through design to supporting implementation
Where?	Baguio, Philippines
When?	2021–2022, but building on years of prior work
Who?	Practical Action Consulting, Baguio city mayor, relevant municipal departments
How?	A three-step process: <ol style="list-style-type: none"> 1. Gender and inclusion analysis 2. Developing policy and practice recommendations 3. Working with city stakeholders to develop an action plan to put recommendations into practice
Scale approach	Primarily <i>Landscape</i> (also <i>Inspire</i>)
Number of people benefiting	Baguio’s total population is around 366,000. The EWS potentially covers all parts of the city; however, some parts of the city are more prone to flood risk than others. It is very difficult to precisely estimate how many people will benefit from this work.
Further info	AASCTF, Policy and practice recommendations: towards a gender transformative flood early warning system in Baguio City . Missing Voices Approach Manual: Executive Summary

Baguio in the Philippines has a population of around 366,000. In September 2020 the city’s mayor heard Practical Action Consulting’s (PAC) disaster risk reduction (DRR) team present on its work on gender transformative EWS to reduce flood risk at a webinar organized by the [ASEAN Australia Smart Cities Trust Fund \(AASCTF\)](#). The work uses PAC’s [Missing Voices methodology for gender and inclusion analysis](#), which was developed as part of our multi-country flood resilience programme, and was then further developed and used in other countries. The mayor was impressed by the work and invited PAC to undertake the same in Baguio.

A key approach in this work was co-development

The approach for developing and implementing a gender responsive EWS can be distilled down to three steps:

1. Undertake a gender and inclusion analysis to understand gendered aspects of flood risk and warning systems across the landscape.
2. Develop policy and practice recommendations.
3. Work with city stakeholders to develop an action plan to put these recommendations into practice.

What was exciting about this opportunity was that previous PAC work on gender responsive EWS had stopped after step 2. The PAC DRR team had conducted intensive gender and inclusion analysis and made policy and practice recommendations based on the analysis, but it had not yet worked with stakeholders to develop an action plan to ensure these recommendations were put into practice.

Developing action plans involved working closely with relevant departments across Baguio's municipal government, including social services, shelters, rescue teams, and disaster risk management departments. Where a recommendation did not have a natural 'home' or sufficient associated budget, the PAC DRR team was able to escalate it to the city's highest authority, i.e. the mayor.

A key approach in this work was co-development. The PAC DRR team consciously played a facilitation role to support the responsible stakeholders through a process of awareness raising and strengthening understanding of gender and inclusion differentiated risks and needs. It then supported the stakeholders to develop their own action plans. Whilst challenging and time-consuming (it would have been faster and easier for the team to develop the action plans for the city officials), this process was essential to ensuring that actions were owned by the agencies that had the institutional responsibilities to implement them beyond project funding.

The process also generated an unintended benefit: city officials became recognized experts on the topic of gender and social inequalities within government. They are now influencing plans and policies beyond the flood EWS to consider gender and social inclusion, resulting in a larger impact from the engagement than originally planned.

The PAC DRR team had been invited to do this work by the mayor himself and was very warmly received by the responsible city government teams. This made the influencing aspects of the work much easier than in other contexts, where banging on doors was a necessary and common occurrence. The team worked closely with the city authorities from the outset, involving them in the design of gender and inclusion analysis, for example.

Key aspects of the work were captured in policy briefs, which can be used to inspire and influence others. Baguio is a flagship, 'gold standard city' within Australian Aid's and the Asian Development Bank's Smart Cities initiative, and there is potential to influence other municipal governments through this forum.

Whilst the actual PAC contract was relatively short in duration, the work emerged from years of prior research, assignments, and influencing. This included:

- Developing the original Missing Voices methodology for use within our flood resilience programme in Nepal and Peru.¹³
- Documenting the methodology and promoting it via publications and at events.
- Promoting and sharing the methodology and PAC's capacity through larger networks and via recognized and respected authorities within anticipatory action and EWSs.
- Undertaking other assignments using the methodology, for example for UN Women, UNICEF, Asian Development Bank and the START Network.

The methodology has informed the Risk Informed Early Action Partnership (REAP), a large partnership launched in 2019 which includes governments, UN agencies and civil society, and which aims to make one billion people safer from disasters by 2025.

Key messages

- The work was inspired by the evidence generated over years of previous work on the topic. The PAC DRR team had strategically promoted this via events and publications.
- Recognizing the limitations that come with our organization's relatively small size, the PAC DRR team developed relationships with strategically placed and influential networks and authorities within the sector, and shared our practice-informed knowledge and skills within relevant forums.
- The relationship with the city's highest authority, the mayor, was critical to success. The demand for the work from the mayor enabled the PAC DRR team to support implementation and to escalate issues that did not have a natural home within municipal departments.

4.7 Integrated water resources management (IWRM) in Sudan

Summary	
Thematic area	Agriculture
What?	IWRM across the Wadi El Ku watershed to improve livelihoods and support peace
Where?	North Darfur, Sudan
When?	2012–ongoing
Who?	Practical Action, UN Environment Programme, state government, local leaders, community-based organizations
How?	Working at the level of the water catchment to ensure improved equitable access to natural resources, which are essential to the livelihoods of different groups including farmers and pastoralists Ensuring co-development of community agreements on resource use and adherence to these to prevent re-escalation of conflicts
Scale approach	Primarily <i>Landscape</i>
Number of people benefiting	In 2022, the programme reached 47,640 women and girls, and 51,156 men and boys
Further info	Practical Action, <i>Community-based land and water management for adaptation at scale in Sudan</i> . European Union External Action, <i>The Wadi El Ku catchment management project</i> .

A watershed is an ecological system bounded by where water flows, infiltrates, and is accessed. The Wadi El Ku is the most important watershed in Sudan’s North Darfur state. It covers a catchment area of around 27,000 km², which includes farmland, rangeland, forests and waterpoints. Dams have been constructed at various points in the river system, but these have not always been well managed, with negative impacts for downstream water users. Pressures on water resources were a key factor in Darfur’s conflict, which started around 2003; a peace agreement was finally signed in 2020.¹⁴

Integrated water resources management (IWRM) is a process that promotes coordinated development and management of water, land, and related resources in order to maximize economic and social welfare in an equitable manner without

Rebuilding trust takes time and developing effective land use agreements can be a slow process

compromising the sustainability of vital ecosystems. The approach is informed by the Five Capitals model (natural, physical, human, social, and financial capitals)¹⁵ and seeks to understand how different groups access and use these different capitals. For example, some people within this landscape are settled farmers, others are pastoralists who herd cattle, others collect and sell timber and non-timber forest products, others make a living building dams. We have been using this approach in North Darfur since 2012.

The IWRM approach involves land use planning with all the different groups who live in and access the landscape so they can agree land use practices. These practices include access to water points, use of grazing land, migratory routes for cattle and herders, and access to and use of forest resources. Building trust is fundamental to this process, especially given the post-conflict nature of the setting. Both the government and community leaders are critical actors in the process and must be involved throughout.

The process is not without its challenges. The legacy of violent conflict between different groups and the risk of flare-ups is ever present. As such, rebuilding trust takes time and developing effective land use agreements can be a slow process. Some support to reconstruct damaged infrastructure (physical capital) is essential, especially dams, which provide sources of water for irrigation. Skill development (human capital) is also critical so farmers and pastoralists can adapt to the changing climate, including via farmer field schools. Natural capital has been enhanced through establishing community forests, which provide a source of non-timber forest products and slow or reverse desertification.

In the first phase of the programme (2013–2017) natural resource action plans were developed collaboratively with 34 village councils. These plans aimed to improve soil and water management, for example by promoting community forests, agroforestry, and silvopastoral systems to improve grazing options. Government officials and village extension workers were trained in natural resource management to support the implementation of action plans. Three community surface water storage facilities were constructed, and one *‘hafir’* (reservoir) was upgraded. Three dam management committees were established and trained, as well as an overall catchment management forum. These worked to equitably regulate access to and use of water points. Six community nurseries were established, producing 40,000 seedlings per year. These helped establish ten community forests of around two acres each, and supported the rehabilitation of an existing 15-acre forest. Community forests play a vital role in supporting non-timber forest livelihoods, providing fodder for livestock and combatting desertification, which affects dryland areas and adds pressure on farmer and pastoralist livelihoods, thereby increasing the risk of conflict.

This first phase of the work was the first use of IWRM in Sudan. The success of this landscape approach led to subsequent phases of the programme and has contributed to reduced conflict between farmers and pastoralists, and increased yields of both crops and livestock. The process has been supported by the state government, which has passed legislation to solidify the IWRM natural resource use agreements.

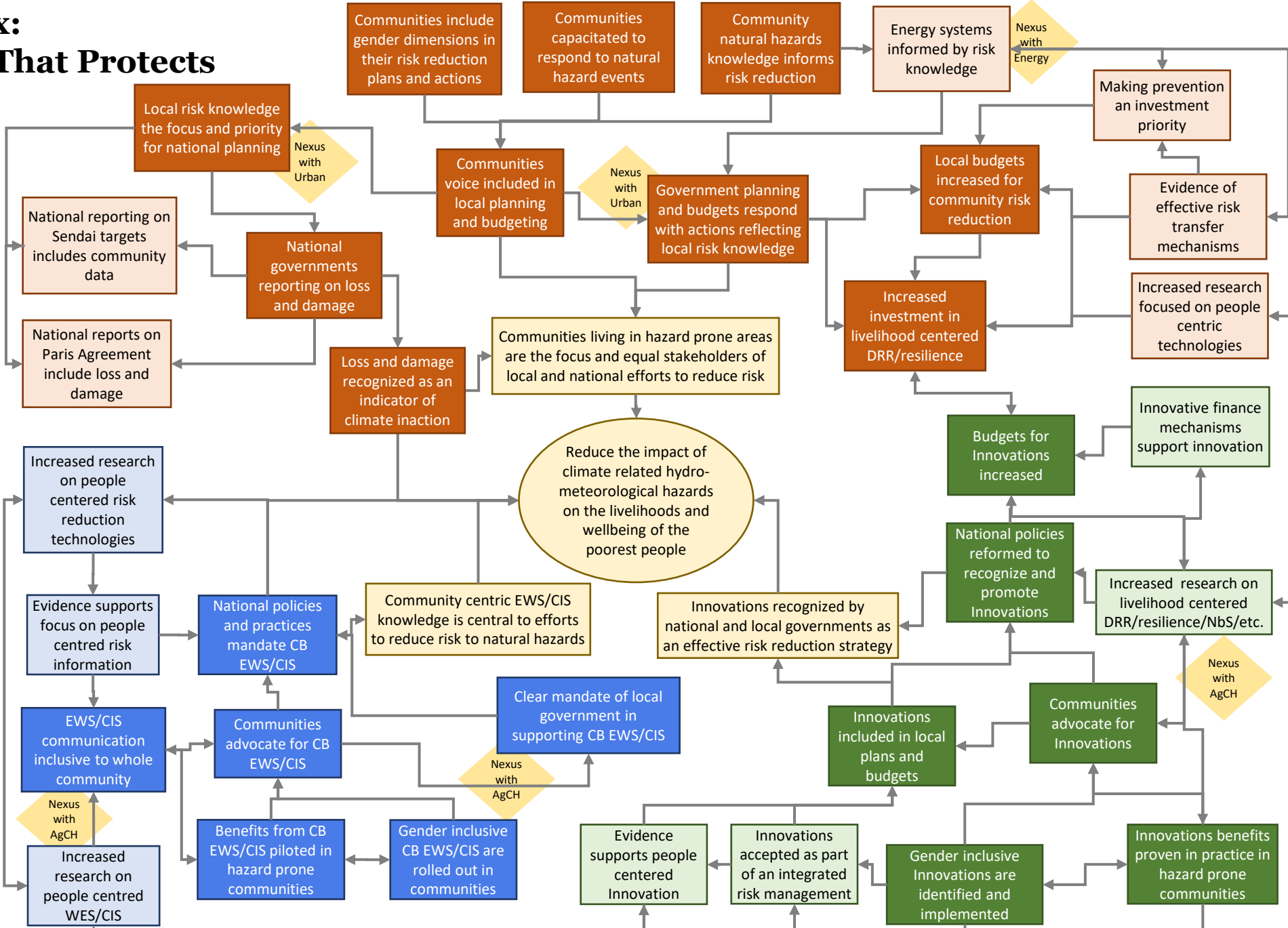


Photo 3. Celebrating the completion of a dam in the Wadi El Ku watershed

Key messages

- Supporting communities to resolve disputes over natural resource access and use takes time. Trust is fundamental and takes time to rebuild in post-conflict settings.
- Working with both government and community leaders is essential.
- The Five Capitals model is a helpful way to understand and structure interventions and support.
- Damaged and degraded infrastructure needs to be rebuilt and maintained.
- The changing climate requires support to update knowledge and skills on effective agricultural methods.

5. Appendix: Resilience That Protects



6 Endnotes

- ¹ Cited in Hossain, N., 2017, *The aid lab: understanding Bangladesh's unexpected success*. OUP.
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- ⁵ Social Finance Company, 'What does it take to make impact at scale?' [webpage]. Online (accessed July 2023): <https://www.socialfinance.org.uk/what-we-do/what-does-it-take-to-make-impact-at-scale>
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- ⁸ This draws heavily on this excellent publication: Denier, L. et al., 2015, *The little sustainable landscapes book*. Oxford: Global Canopy Programme. Online (accessed July 2023): https://wwf.panda.org/wwf_news/?259230/The-Little-Sustainable-Landscapes-Book
- ⁹ A large 72 million USD agriculture programme supported by the UK Government's Foreign Commonwealth and Development Organisation. Further information: FAO Regional Office for Africa, 19 March 2015, 'USD\$ 72 million Zimbabwe livelihoods and food security programme launched'. Online (accessed July 2023): <https://www.fao.org/africa/news/detail-news/en/c/281139/>
- ¹⁰ Further information: Chatham House, 'Moving energy initiative: sustainable energy for refugees and displaced people'. Online (accessed July 2023): <https://www.chathamhouse.org/about-us/our-departments/environment-and-society-programme/moving-energy-initiative-sustainable>
- ¹¹ In 2005–6 Kenya's Water Services Regulatory Board reported that unaccounted-for water for Kisumu's water company was as high as 75% in Kisumu (WASREB, *Impact Report Issue Number 1*). Online (accessed July 2023): <https://wasreb.go.ke/impact-report-1/>). This had fallen to 37% in 2016–17 when our project was about to start.
- ¹² For the utility company as a whole, it fell to 32% in 2020–21, from 37% in 2016–17. See endnote above.
- ¹³ For further information see 'Gender Transformative Early Warning Systems' <https://infohub.practicalaction.org/handle/11283/621134> and 'Missing Voices: Experiences of Marginalized Gender Groups in Disaster in Nepal and Peru' <https://infohub.practicalaction.org/handle/11283/621860>
- ¹⁴ At the time of writing, it was unclear how this peace agreement would be affected by the tragic violence that erupted across much of Sudan during 2023.
- ¹⁵ A key part of the Sustainable Livelihoods approach. Further information available online: <https://www.livelihoodscentre.org/-/sustainable-livelihoods-guidance-sheets>

ACHIEVING IMPACT AT SCALE

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About Practical Action

We are an international development organization putting ingenious ideas to work so people in poverty can change their world. Our vision is for a world that works better for everyone.

We help people find solutions to some of the world's toughest problems, including challenges made worse by catastrophic climate change and persistent gender inequality.

We believe in the power of small to change the big picture. And that together we can take practical action to build futures free from poverty.

Big change starts small

practicalaction.org
enquiries@practicalaction.org.uk

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