International Journal for Equity in Health

RESEARCH Open Access

# The role of NGOs in mainstreaming services for podoconiosis into healthcare facilities: the case of two NGOs in Ethiopia

Kibur Engdawork[1*], Getnet Tadele[1], Papreen Nahar[2], Gail Davey[2,3] and Shahaduz Zaman[2]

## Abstract

**Background** Non-Governmental Organizations (NGOs) have played an important role in supporting progress towards the goals of the WHO Neglected Tropical Disease (NTD) Roadmap 2021-30. Several NGOs have shifted from directly delivering NTD services to mainstreaming them to existing health systems. There is little information about the NGOs themselves – their organisational environments and their influence in mainstreaming NTD services and associated challenges. We studied two NGOs that have jointly implemented an intervention to mainstream services for the NTD podoconiosis to local healthcare facilities in rural Ethiopia.

**Methods** We conducted a focused ethnography at the NGOs' precincts, analysed documents and conducted key informant interviews with staff of the NGOs and a representative of the Ethiopian Ministry of Health.

**Results** The implementation design and the NGOs' organizational environment were vital in implementing the intervention. The project activities were difficult to sustain within the local healthcare facilities. The NGOs relied too much on individual-level quantifiable short-term outcomes which overshadowed efforts to evaluate their success in institutionalizing activities. The intervention is challenged by lack of funding for NGOs and the limited capacity of local healthcare facilities to continue providing health services.

**Conclusions** Our study revealed that the implementation design and the organizational environments of the NGOs were crucial for implementing the project activities. However, activities were short-lived due to limited resources, overreliance on short term indicators and weak institutionalization within government structures. The challenges underscore the tension between mainstreaming interventions and the realities of the settings in which interventions are put into practice.

**Keywords** Health equity, Intervention implementation, Mainstreaming, Neglected tropical diseases, Non-governmental organizations, Podoconiosis

*Correspondence:
Kibur Engdawork
kibur.engdawork@aau.edu.et
[1]College of Social Sciences, Arts and Humanities, Addis Ababa University, Addis Ababa, Ethiopia
[2]Centre for Equitable Global Health Research, Brighton and Sussex Medical School, Brighton and Hove, UK
[3]School of Public Health, Addis Ababa University, Addis Ababa, Ethiopia

© The Author(s) 2025. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by-nc-nd/4.0/.

## Introduction

Neglected Tropical Diseases (NTDs), a group of tropical conditions that are caused by a variety of communicable and non-communicable agents – with exceptions such as snakebite envenomation – affect about one billion people around the world, mostly in Asian and African countries [1]. The World Health Organization (WHO) calls for intensified disease management, preventive chemotherapy, vector control, veterinary public health and provision of safe water, sanitation and hygiene to accelerate prevention and control of NTDs [1].

NTDs primarily affect disadvantaged populations in Africa and Asia, although anyone may be at risk of contracting the conditions. Because NTDs disproportionately affect the poorest communities, research and development initiatives have mainly depended on the resources and expertise drawn from academia, international organizations, and intermittent state interventions in disease-endemic countries [2]. Initiatives such as the World Health Organization (WHO)'s Special Programme for Research and Training in Tropical Diseases and the Rockefeller Foundation's Great Neglected Diseases Network, have played a key role in convening development agencies, international organizations, and academic institutions to support NTD research and development [3, 4]. These initiatives respond to the substantial global burden of NTDs, which affect an estimated 1.7 billion people worldwide [5]. Around 40% of this population lives in Africa, predominantly in hard-to-reach and impoverished communities [6]. Sub-Saharan African countries alone shoulder the highest burden, with over 500 million people affected by NTDs [7]. Although commitments have not been strong, such developments have led to concerted efforts directed at raising the profile of these diseases in global public health agendas [8]. Collaboration between global and local stakeholders has achieved tangible success in reducing the number of people requiring NTD interventions. As of December 2022, 47 countries were reported to have eliminated at least one NTD [9]. International funders continue to push for targeted interventions in NTD endemic areas. A landmark example is the 2023 Reaching the Last Mile (RLM) Forum, where global partners pledged US $777 million to combat NTDs in endemic countries [10].

Non-government organizations (NGOs), key agents distinct from the worlds of government and for-profit business [11], have been among the major stakeholders supporting global and national NTD programmes [9]. NGOs' roles have been primarily shaped by donor priorities, which have emphasized cost-effective interventions such as Mass Drug Administration (MDA) [12]. This donor-driven orientation has, to some extent, constrained sustainability and limited national ownership. Reliance on donors also reflects gaps in budgetary resources and technical capacities within aid-receiving countries [13].

Following the catastrophic famines in Ethiopia during the 1970s and 1980s, several NGOs started operating in the country, but their activities were mainly limited to providing humanitarian aid [14]. The ratification of the 1994 Constitution of the Federal Democratic Republic of Ethiopia, along with subsequent proclamations governing civil society organizations, paved the way for a significant increase in both national and international NGOs operating in the country. Since then several NGOs have engaged in governance, advocacy of human rights, health and other activities [14]. NGOs have also played an important role in tackling NTDs in Ethiopia, including podoconiosis, which remains a significant public health problem. Although there is limited documentation of NGO-implemented programs targeting NTDs specifically, NGOs in Ethiopia – largely drawing on international funding – have coordinated the delivery of standardized interventions, mobilized resources, raised awareness, and contributed to the increase in the number of managed cases nationwide [15].

Podoconiosis is one of the NTDs that is caused through exposure of bare feet to red clay soil [16]. Globally, podoconiosis affects an estimated 4 million people. Ethiopia accounts for approximately 25% of global cases with 1.5 million affected individuals [17–19]. This figure far exceeds those reported in other sub-Saharan Africa (SSA) countries, including an estimated 40,000 cases in Cameroon, 9,000 in Kenya, and 7,000 in Rwanda [20]. Podoconiosis is determined by the complex interaction of genetic and environmental factors [16, 18]. Although podoconiosis can be prevented through regular shoe wearing [16], millions of individuals have developed the disease due to misconceptions about the cause of the disease and the widespread practice of barefoot walking, which is often shaped by poverty and norms. Among many rural residents, shoe wearing is not a social norm as barefoot walking is culturally accepted and often preferred [21–23]. Most individuals affected by podoconiosis are rural residents with low socioeconomic status and have suffered from debilitating disability, economic and social problems [24–26]. Attempts to control the disease require social equity health interventions to protect disadvantaged people who lack fair opportunities to maintain their health [27].

Despite the pernicious impact of the disease over many decades in Ethiopia, podoconiosis has been neglected by the government, researchers and NGOs. One of the reasons podoconiosis was neglected is that it is non-communicable and primarily associated with disability rather than death, thereby receiving low priority in a health system overburdened by infectious and fatal diseases. Ernest Price, a pioneer of podoconiosis research in Ethiopia, laid

important groundwork between the 1970s and 1990s, but his work was not translated into public health interventions. Following his death in 1990, podoconiosis research entered what scholars have termed a "dark age." [15]. However, since the early 2000s, local and international institutions have begun to translate research into intervention. This progress has been driven by the integration of transdisciplinary approaches into community education and clinical management, alongside the active engagement of funding agencies, shoe providers, and a diverse array of academic institutions such as Addis Ababa University and the Armauer Hansen Research Institute. These initiatives have also benefitted from growing global attention to neglected tropical diseases (NTDs), which has created an enabling environment for action [28].

International Orthodox Christian Charities (IOCC) is one of the NGOs that has engaged in podoconiosis prevention and control [29]. NGOs working on podoconiosis prevention and control had been operating dispersedly until 2012, when they established the National Podoconiosis Action Network (NaPAN), an umbrella organization coordinating NGO efforts. NaPAN facilitates learning forums and builds the capacity of the consortium [30].

In its early years, NaPAN and its members, including IOCC, primarily relied on direct delivery, providing material support for affected individuals using their own staff and other resources. Although direct approaches play a significant role in expanding health services where formal health systems are weak or absent [31], they are less likely to transform local healthcare systems, minimize costs and make sustainable impacts [32]. Recognizing the limitations of this approach, IOCC and NaPAN implemented an intervention (known as "Next Steps for podoconiosis patients in Amhara Region") through government healthcare facilities. In addition, a shift in the global IOCC strategic plan and Ethiopia's National NTD master plan compelled IOCC Ethiopia to transit from direct service delivery toward supporting integration of podoconiosis services within healthcare facilities, thereby contributing to the mainstreaming agenda [33].

Historically, most NTD interventions have been implemented through vertical programs, delivered separately from broader health systems. Recently global policy frameworks such as WHO's sustainability framework have prioritized horizonal integration, whereby NTD services are mainstreamed into public health structures. Mainstreaming of NTD services involves embedding NTD prevention and control activities within national health system infrastructure and other sectors e.g. family and community organizations to build capacity and contribute to sustainable, efficient disease prevention and control [34]. Increasingly, studies have emphasized that a sustainable NTD response requires integration within a strong local health system [31, 35, 36]. While MDA programs have effectively leveraged local health facilities and community members to achieve high coverage of NTD-affected populations [31, 37, 38], the role of NGOs in supporting long term programs for diseases managed through non-pharmacological treatment such as podoconiosis is less well described. Indeed, IOCC and NaPAN are pioneers in employing mainstream intervention to control podoconiosis.

Evidence shows that the environmental and organizational setting of implementors can strongly influence intervention outcomes [39, 40] Few studies have explored this in relation to NTD programs in Ethiopia or similar countries. Unravelling this will improve successful mainstreaming of programs in podoconiosis endemic areas. Guided by the Context and Implementation of Complex Intervention (CICI) framework, which emphasizes the impact of context, implementation and setting on health interventions [39], we studied the settings of IOCC and NaPAN to learn about their impact on interventions against podoconiosis. This study is part of a larger initiative known as the Social Sciences for Severely Stigmatizing Skin Conditions (5 S) Foundation, which investigates the effectiveness of health interventions in improving the lives of people affected by podoconiosis in rural Ethiopia. While the broader project explores context, implementation, and setting – guided by the Context and Implementation of Complex Interventions (CICI) framework – this manuscript specifically focuses on the setting dimension. In particular, it examines the organizational and physical environments of IOCC and NaPAN. We analyse how these environments influence the delivery and integration of podoconiosis services into local healthcare facilities, while acknowledging the dynamic interplay between setting, contextual, and implementation factors.

## Methods

### Design

Our study design is guided by the Context and Implementation of Complex Interventions (CICI) framework, which facilitates analysis of how contextual factors, implementation processes, and specific settings shape both the delivery and outcomes of health interventions. In this manuscript, we focus on the setting dimension, analysing the organizational and physical environments of NaPAN and IOCC in relation to a rural Ethiopian intervention titled "Next Steps for Podoconiosis in Amhara Region".

The project was jointly implemented between 2020 and 2023 by IOCC and NaPAN, with support from the IZUMI Foundation. The organizations developed a set of programs aimed at providing lymphedema services, supplying health resources, raising community awareness

about podoconiosis, and empowering affected individuals to engage in self-care management. A central goal was to integrate these interventions into local healthcare facilities, ensuring that services were delivered through existing health system structures. The programs were designed to be mainstreamed into routine service delivery rather than functioning as parallel or temporary initiatives.

To this end, the project strengthened the capacity of health professionals, who served both as trainers for Health Extension Workers (HEWs) and as providers of lymphedema care. Over a three-month intervention period, trained professionals delivered facility-based services – including foot washing, bandaging, exercises and elevation – and distributed necessary supplies to affected individuals. Affected individuals were required to attend at least three sessions before "graduating" to home-based self-care. To address stigma and further raise community awareness, local health professionals conducted health education sessions in healthcare centers and churches for both affected and unaffected community members.

We purposefully selected this intervention because of its complexity, multi-sectoral design, and relevance during our evaluation period. The project engaged NGOs, government health structures, and community institutions. It provided health resources and incorporated health education to encourage healthy behaviors and reduce stigma. Implemented during the time of our study, the project offered a timely and contextually rich case for examining how organizational and physical settings influence intervention delivery and sustainability.

Using a qualitative approach, we studied the setting of NaPAN and IOCC to understand their roles in expanding and mainstreaming NTD services into local healthcare systems. Data collection was conducted between April and August 2022 by the lead author, a sociologist with extensive experience in NTD research and a PhD in the field, together with a research associate trained in public health and social psychology, holding a master's degree. The main data collection methods included document analysis, focused ethnography, and key informant interviews.

#### *Document analysis*

We first conducted a desk review of secondary materials to learn about the organizational structures of the NGOs and the intervention they have implemented. A collection of grey documents accessed from the NGOs and the Ethiopian Ministry of Health were reviewed. The reviewed documents included prior intervention summaries and reports, the 2016 Ethiopian National NTD Master Plan, and prior project materials such as strategic plans, bylaws of NGOs and monitoring reports. This analysis provides insight into organizational structures, priorities implementation history.

#### *Focused ethnography*

Informed by the CICI framework's emphasis on physical and organizational setting, we conducted focused ethnographic research within IOCC and NaPAN. Contrary to traditional ethnography, where researchers investigate unfamiliar cultures by spending extended periods in the field, focused ethnography is helpful to study a limited number of people, a particular problem and setting; and to produce practical knowledge for the improvement of health services [41]. The lead author spent 17 days over an extended period between July 29 and August 14, 2022, at IOCC and NaPAN's offices. He focused on physical places, the staff, program documents, and major activities. He also attended the Water Sanitation and Hygiene (WASH)-NTD technical group quarterly meeting to learn how reports are made. He took observation notes which were expanded into field notes after the completion of the observation each day.

#### *Key informant interviews*

Key informant interviews were conducted with four staff members from the two NGOs and one representative of the Ethiopian Ministry of Health. Although the sample size may appear limited, it was appropriate given our reliance on focused ethnography and document analysis. Moreover, the selected informants held senior positions within their respective organizations and were well-positioned to provide in-depth insights into organizational structures, practices and challenges. Interview guidelines covered a range of themes about the organizational environment and challenges of mainstreaming podoconiosis services into local healthcare facilities. The interviews were conducted in the offices of the respondents, in Amharic, the local language, and were audio-recorded.

### Data analysis

All documents were imported into NVivo 12 software along with their titles, authors and year of publication. All the documents were carefully read to increase familiarity with their contents. Key informant interviews were conducted in Amharic, transcribed verbatim and, along with observation notes, translated into English. During the aggregation stage, all personal identifiers were removed and transcripts were anonymized using individual code numbers.

The lead author then coded all transcripts line by line in NVivo, organizing the data into nodes and regrouping them into major themes to show the program, major activities, challenges, and setting of the NGOs. To ensure analytical coherence, the data were broken down into smaller units aligned with the study's research questions,

which were guided by the Context and Implementation of Complex Interventions (CICI) framework. Each research question was operationalized into a code, and relevant sections of the interviews were coded according to elements of the 'setting' dimension—such as organizational and physical environments. A codebook was developed by the lead author and reviewed collaboratively with co-authors to ensure consistency and interpretive validity.

## Results

We have structured the results around the setting component of the CICI framework. While some findings touch on implementing agents such as donor funding or implementation processes (e.g., monitoring practices, staff secondment), these are included primarily to illustrate their influence on the organizational and physical environments of the NGOs, which are the primary focus of this manuscript.

### The organizational and physical environment of the NGOs

Both NaPAN and IOCC had developed strategic plans. IOCC-Ethiopia's operation policy was guided by the Global IOCC strategic plan and focuses on addressing the well-being of disadvantaged communities through livelihood development, health promotion, capacity building and WASH programs. Following the new Ethiopian Organization of Civil Societies Proclamation in 2019, NaPAN developed its second strategic plan in consultation with stakeholders in 2020, with the vision of a podoconiosis-free Ethiopia. The mission of the organization reads "NaPAN strives to coordinate and standardize efforts for the elimination of podoconiosis, through building the capacity of members and other stakeholders and supporting research for evidence-based interventions. The core values of NaPAN that are supposed to dictate the behaviour of its staff are transparency, accountability, loyalty, integrity, professionalism, partnership, participation, quality service, impartiality, and voluntarism."

IOCC operated with a modest staffing structure, divided into programmatic and administrative units. Staff were based in Addis Ababa and in regional offices, with some seconded to the Amhara Regional State Health Bureau to support implementation. Program areas included podoconiosis, livelihoods, nutrition, and monitoring and evaluation. The organization followed a clear hierarchical structure in which assignments flowed from the country representative to subordinates, while accountability flowed upward to the country representative. NaPAN maintained a lean staffing structure, with all personnel based in Addis Ababa. Responsibilities were divided among program coordination, administration, and executive oversight. The organization's structure was managed through an executive body, the General Assembly, which oversaw planning, reporting, and strategic direction.

Our observations illustrated that the physical environments of IOCC and NaPAN's offices reflected differences in organizational resources. The IOCC office was equipped with sufficient individual workspaces and maintained an open-door atmosphere, where staff were observed engaging in frequent informal interactions and sharing meals during breaks. In contrast, NaPAN's office was more compact, with shared workspaces and limited office resources. However, staff did not appear to be hindered by these constraints and maintained a collegial working culture within the office space. This suggests that while resource availability shapes the working environment, relational culture and adaptability can mitigate such limitations and foster collaboration.

Our ethnographic observation indicated that the staff at both organizations were well informed about the project activities in rural areas, demonstrating a strong sense of ownership of the intervention. For example, on the 3rd of August 2022, the lead author exchanged information with a staff member, who expressed regret at being able to provide shoes to only 700 affected individuals due to budget constraints.

The staff have developed personal and enduring relationships with one another. Communication among the staff appears at times to be informal and casual, with hypocorism used and small talk common. The following observation illustrates this dynamic.

On the morning of August 14, 2022, the first author observed two senior staff members working at their desks when one approached the office assistant, using a familiar nickname, to ask casually whether tea would be served. Unlike the usual practice of summoning assistants for formal instructions, the request was made in a friendly and humble tone. This interaction highlights how the workplace culture is shaped by familiarity and interpersonal warmth. This working culture may foster collaboration and ease of communication among staff.

Both organizations operated with little complexity and few staff. There was little indication that personal relationships negatively affected the implementation of activities. The situation seemed to provide the opportunity to execute project activities effectively and attentively, enabling staff communications and interactions. Staff seemed to have created fair working patterns themselves. There was no strict mechanism to document arrival/departure times, and staff appeared to be very happy with flexible working hours.

> *During one observation day, the lead author arrived at the office and noted staff arriving and preparing for work. A few staff arrived late and exchanged greetings. Shortly afterward, one staff informed col-*

*leagues about a social commitment and left the office.*

This observation illustrated a collegial atmosphere in which staff were not strictly bound by arrival and departure times, balancing professional responsibilities with the flexibility to attend to social duties during working hours. A flexible approach can potentially motivate staff by fostering a sense of autonomy and relational ease within the organization.

Most of the staff at the organizations held university degrees and had long-standing experience in podoconiosis intervention. Key informant interviews indicated that long years of work in the area helped the staff develop a compassionate approach to the suffering of affected individuals. For some, their work had become a personal passion project. One key informant described how an encounter with a patient who experienced stigma led the development of a new intervention:

*I once met a podoconiosis patient who was begging for money on the roadside. I learned that he had come to the city seeking treatment but could not return to his village due to lack of money and fear of stigma. This encounter inspired me to propose a project for migrant podoconiosis patients. The organization accepted the proposal but needed technical guidance on providing treatment. I helped train staff on treatment procedures, and the organization subsequently identified several patients on the streets and provided care. I enjoy this work and do it with great passion. (KII, NGO staff)*

## Programs and activities

### *The mainstreamed podoconiosis program*

Staff of the NGOs reported that, the intervention was originally scheduled to run from September 2020 to March 2023. The intervention utilized local healthcare facilities in Amhara region of Ethiopia in a bid to mainstream podoconiosis services into local structures. The intervention activities were: - (a) providing care and treatment services to patients to reduce disease burden; and (b) implementing health education interventions to affect the actions that at-risk individuals take to prevent exposure to the disease.

Key informants stated that the process of designing and implementing the intervention required active engagement of a range of key actors including the Federal Ministry of Health, Regional Health Bureaus, district level administration, health centres, patients' groups, and community leaders in the target communities. NGO staff reported that they had seconded a member of staff into the regional health bureau and collaborated with local health professionals to implement the project activities. One staff member stated the benefit of this as follows, "This approach is advantageous as it minimizes duplication of efforts and creates a platform to share knowledge among NTD teams in government units". (KII, staff of NGO). Analysis of the reviewed documents supported the insights from the interviews. For example, the National NTD Master Plan emphasized the importance of integrating projects and programs at the point of health service delivery [42] .

The NGO staff explained that the intervention was initiated following evaluation of earlier interventions showing that standalone or direct projects were less cost effective. A change in the strategic plan of global IOCC also forced IOCC Ethiopia to make a paradigm shift from direct intervention to intervening through healthcare facilities to mainstream podoconiosis services. Finally, Ethiopia's National NTD Master Plan emphasized building the capacity of local healthcare structures to expand podoconiosis services. A key informant reported, "Guided by the national NTD master plan, this project employed an integration approach with the intention to link the service with the local health structures …it serves as a learning exercise for future intervention" (KII, staff of NGO).

IOCC and NaPAN explicitly described their strategy in the project document. An excerpt from the project document reads as follows:

*"The strategy of this project is to build the knowledge and skills of health professionals to enable them to identify and treat podoconiosis patients in government health facilities…Trained health professionals are responsible to provide health education, treatment of the podoconiosis patients in the government health centers and maintain treated patient information and report to their respective health office and IOCC" (Project document).*

The staff noted that the experience of integrating podoconiosis services served as a model for other intervention programs at IOCC. For instance, the WASH program strategy had been integrated into NTD intervention programs to address both trachoma and podoconiosis. IOCC worked in partnership with organizations such as Footwork and World Vision to develop health education material to address trachoma and podoconiosis in endemic communities.

Key informants reported that the core implementation activities such as training health professionals, demonstrating self-care practices, and distributing supplies to affected individuals at healthcare facilities across seven districts in the Amhara region were completed within the first three months of the project in 2020. During the

remaining period, staff focused primarily on supervision, monitoring, and reporting.

#### *Monitoring and measuring success*

Key informants stated that IOCC implemented most of the intervention activities and NaPAN conducted the monitoring and supervision activities. The project plans, supervision reports and project monitoring and evaluation reports were recorded and filed at both organizations. IOCC and NaPAN monitored the project activities by deploying a supervision team to observe progress of activities, achievements and challenges encountered on a quarterly basis. These arraignments helped to organize consistent supervision across intervention sites, contributing to the structured implementation of the project activities.

The monitoring indicators relied heavily on routine data collected by local healthcare facilities. The supervision guide had 17 closed-ended indicators and three open-ended questions. These indicators aligned with the Ethiopian National Master Plan for Neglected Tropical Diseases and the Podoconiosis Morbidity Management and Disability Prevention Guideline. The alignment facilitated institutional legitimacy and integration within existing health system priorities.

Most of the assessment could be considered program-level output indicators, for example, whether training had been provided to HEWs, whether the program had been cascaded, whether there were trained professionals to provide podoconiosis prevention and treatment and so forth. Most of these indicators were clearly defined and helped to measure immediate results e.g., number of patients who were enrolled into the program.

Some of these indicators lacked clarity. One indicator asked "Does the healthcare center have enough treatment supplies?" without specifying what "enough treatment" meant. Another indicator read "Are the patients happy with lymphedema service?" – a question that may elicit a socially desirable response. Some of the questions were unhelpfully phrased. For example, one of the indicators read "Has morbidity management service started? When?" There was only a "Yes" or "No" response category to this indicator with no place to provide an answer to the "When" question (NGO's intervention supervision guideline). Such limitations in measurement tools risk constraining the assessment of service quality and patient experience.

Both IOCC and NaPAN emphasized numeric achievements. Key informants reported exceeding targets by providing health education to 47,000 rural residents although the target was 42,000. Lymphedema services were provided to 7,251 people, exceeding the initial plan by 30%. Furthermore, it was reported that the NGOs provided health education about podoconiosis to more than 100,000 individuals.

Similar patterns were observed beyond IOCC and NaPAN. On the 11th of November 2021, the lead author attended the quarterly meeting of the WASH-NTD technical working group that was established by the Ethiopian Ministry of Health to assist efforts to fight NTDs using the WASH program. The group was established to increase collaboration across organizations and to identify synergies across NTDs, as well as between NTDs and WASH. A few NGO representatives presented their project updates highlighting the number of districts and individuals they had reached. Two examples include, "We provided water access to more than 120,000 school children enrolled in 130 primary schools and the surrounding community in Amhara region" (Staff of NGO representative) and "Our project has been implemented in 81 districts of Afar and Somali regions" (an NGO representative).

Our prior study on the same intervention showed that while it successfully reached affected individuals with lymphedema services and provided essential health resources such as soap, Vaseline, bowls, and bandages – the activities were short-lived due to budgetary constraints [43]. In line with this, a key informant from the Ethiopian Ministry of Health noted that there had been little effort to support podoconiosis services through earmarked government funding. These findings suggest that while organizational structure supported short-term delivery, reliance on numeric reporting may obscure the limitations of the intervention in terms of sustainability and long-term mainstreaming of programs.

#### *Lack of funds and coping mechanisms*

IOCC provides funding for the IOCC Ethiopia program and administration/management activities. Nevertheless, we noted that securing core funding for podoconiosis was still a challenge as podoconiosis is neglected and donors have little information about the condition. To improve funding opportunities, IOCC-Ethiopia disseminates information about the outcomes of their projects on podoconiosis at national and international conferences. A key informant said, "We were able to convince funders to support our activities on podoconiosis by demonstrating our prior interventions and their outcomes. Initially, the funders were only interested in funding LF" (KII, staff of NGO).

Lack of funding for podoconiosis was a major concern for NaPAN. The staff believed that funders were less motivated to fund non-life-threatening diseases and those that are not amenable to prevention or treatment using manufactured drugs. A NaPAN staff member argued that donors preferred to fund mass drug administration (MDA) against highly prevalent diseases like

trachoma, and that the government of Ethiopia favours working with international donors that invest a large amount of funding. MDA interventions inadvertently affected podoconiosis interventions at service delivery points as NGOs working on trachoma and other similar conditions pay incentives for health extension workers (HEWs) during MDA campaigns. NAPAN and IOCC pay little to no incentives for HEWs. Our prior study on the contextual factors of a health intervention against podoconiosis showed that HEWs have little interest in conducting health education campaigns on podoconiosis as such incentives are not provided [43].

NGO staff stated that interventions against podoconiosis have been implemented despite little interest from international donors. A key informant said "We have been collaborating with scientists and donors such as IZUMI Foundation and Footwork who are committed to fight podoconiosis. The forged partnership with these partners has led to the expansion of lymphedema management services in Ethiopia" (KII, staff of NGO).

NaPAN tries to diversify its funding options by increasing the number of NGOs in the consortium. One staff stated, "NGOs want to join us as they can benefit from our experience and increase their recognition. NaPAN is a reputable organization, and its contribution is well recognized by the government. Having more members would benefit us as this increases the number of NGOs that work on podoconiosis prevention and treatment" (KII, staff of NGO).

A NaPAN staff member also informed that NaPAN includes people with lymphedema from Lymphatic Filariasis (a disease amenable to MDA) in its intervention programs and is planning to scale up the integration across other skin NTDs. NaPAN staff believed that this would help diversify funding options.

## Discussion

This study highlights how the organizational environment, including intervention design, monitoring strategies, bureaucratic structures, and donor dynamics shaped the delivery, sustainability, and equity of podoconiosis interventions in Ethiopia. Drawing on the CICI framework, we focused on the *setting* dimension to examine how the internal systems of two NGOs influenced intervention components, shaped implementation processes, defined measures of success, and generated challenges in mainstreaming services into local healthcare structures.

### Mainstreaming podoconiosis services: influence of NGO settings

The results of this study indicated that the organizational and physical environments of IOCC and NAPAN influenced efforts to mainstream podoconiosis services in local healthcare systems. The findings demonstrated that such efforts are feasible and can help expand access to previously excluded population, providing lessons for scaling NTD intervention in similar settings. Through the intervention, thousands of affected individuals received care. Although not sufficient, the NGO's effort may serve as an appropriate starting point for moving towards health equity.

From a CICI framework perspective, the setting dimension, including organizational structures, staff capacity, and physical infrastructure influenced the effort to embed podoconiosis service into local structures. In some respects, the intervention implemented can be a good showcase of embedding podoconiosis services into local healthcare structures.

### Monitoring, evaluation and bureaucracy: setting-dependent mechanisms

The internal structures and monitoring practices of the NGOs influenced how the intervention activities were delivered and embedded in local healthcare systems. The outreach approach is the major *modus operandi* of both NGOs studied. Outreach reports are helpful to indicate the health benefits achieved through the program and can be appealing to donors who want to see measurable results [44]. Donors prefer quantifiable short-term impact reports [45]. A critical approach to NGOs argues that the tendency to rely on checklists, forms and procedures that formalize the top-down process of social interventions can have repercussions in achieving development goals [46, 47]. Too much reliance on such practices may limit the ability of NGO staff to independently address localized problems and solutions. The concern is that these practices may force NGOs to direct their considerable energy and time towards attaining indicators without paying sufficient attention to processes and other important factors. Over-emphasizing technical management can homogenize attempts to enhance peoples' health, leaving little space for a heterogeneous mix of ideas that develop from local contexts and can catalyse social change [48].

Although the benefits of outreach cannot be refuted, it should be noted that diseases like podoconiosis, that are not amenable to drugs, need sustained community-wide behavioural change before any meaningful reduction in the suffering of patients happens. So, the count or outreach may not reflect more important factors. The distribution of shoes and health education is intended to bring behaviour change among patients, and NGOs working on such programs should be equally concerned about changes required over a long period of time. One way of achieving this is through institutionalizing the intervention activities within local structures. As noted by Shediac-Rizkallah and Bone, implementers need to make sure

that intervention services become part of routine activities [49].

NGOs need to understand that context and contextual factors may have unpredictable effects on the outcomes of interventions. It is crucial to emphasize the significance of local change initiatives that emerge from affected communities themselves. It is important to understand and appreciate the cultures of others to enhance the effectiveness of interventions by being responsive to local settings and promoting participation [50]. Respecting, attending to, and addressing local needs through active listening and sympathetic understanding cannot be overstated.

Integrating NTD services into local healthcare structures requires new ways of evaluating programs. NGOs need the willingness and capacity to examine healthcare systems into which they want to integrate services. Contextual factors such as socio-economic status, culture and existing health systems are associated with people's health behaviour, the structure of healthcare systems, available resources and possible challenges in utilizing local healthcare facilities must be identified in advance. This will help NGOs to design successful strategies to embed NTD services into health systems.

Measurement of program effectiveness must go beyond measuring individual-level outreach outcomes more suitable for direct management approaches. Interventions to mainstream NTD services would benefit from including items that measure institutionalization of program services at local healthcare facilities and changes in the knowledge and skills of patients in managing the disease. WHO's framework on integrated people-centred health services [51] calls for fundamental change in the funding, management and delivery of health services through empowering and engaging people and communities, strengthening governance and accountability, reorienting the model of care, coordinating services within and across sectors and creating an enabling environment. Program evaluation needs to measure changes in these aspects in addition to documenting immediate outcome metrics. Evaluation must be sensitive to sustainable inclusion of programs and behaviour changes among patients and healthcare facilities and community structures.

This will require implementers to widen their indicators and data sources to assure the objectivity of their monitoring. Conducting interviews, observations, household surveys, and focus group discussions with patients and other stakeholders may help document changes at the level of the household, local and higher healthcare facility level health. Donors must support NGOs by also revisiting their methods of evaluation and develop indicators appropriate to examine interventions that aim to mainstream services into health systems. Advances in evaluation studies have shown employing a combination of methods to engage target communities in intervention evaluation can yield in-depth, context-rich information about the effectiveness of interventions [52, 53].

NGOs will benefit if their outcome indicators focus on changes in community practices and policy programs, empowerment of target individuals, power relations, cultural renewal [54]. However, evaluating interventions in this manner can be time and resource intensive [53], thus may not be feasible or even desirable, for instance, for interventions implemented to introduce NTD services. NGOs should carefully choose evaluation approaches and metrics in line with the nature of interventions and available resources.

The two NGOs appear to operate bureaucratically in the sense of being ordered by a stable set of rules and graded authority, as outlined by Weber in 'Essays in Sociology'. Weber noted that the management of the modern office requires expertise, official competence, rule-boundedness, and a basis on written records [55]. The study showed that staff members have specific job descriptions and are expected to perform specific tasks. This, coupled with the fact that the organizations had clear rules, mission, vision and kept tasks and progress of interventions in written format, helped to implement and monitor the intervention activities as intended and in a timely manner.

The recording of project activities and progresses can assure the accountability of the staff. The literature indicates that NGOs are more prone to corruption when employees enjoy a monopoly, and have wide discretion and little accountability [56]. Unless NGOs have a system to hold employees accountable and assign different roles to staff, employees can misuse their authority. Their behaviours can spread to the entire organization, magnify in scope, and become embedded in an organization's culture [57]. In the organizations studied, task assignments followed a hierarchical structure and staff were supervised by higher-level positions. Leadership roles were subject to check and balance controlled by governing bodies. This helped to mitigate the risk of power concentration and abuse. A merit-based division of labour and transparent leadership that employed a consultative decision-making style in NGOs such as Bangladesh Rural Advancement Committee (BRAC) were found to be important to developing and implementing effective interventions that addressed complex health and economic problems [58].

NGOs might be challenged to maintain formal structures and bureaucratization and yet remain open to innovative intervention and strategies that take local contexts and patient voices into account. Our prior study indicated that the lived understanding of patients affected their willingness to take part in health interventions.

Having lived with podoconiosis for many years, affected individuals showed little interest in taking part in the intervention, thinking that treatment activities cannot improve their health. We also found that female patients' participation in the intervention was less than that of male patients due to gender inequality. Inferiority among patients is also common and resulted in self-exclusion and lack of participation [43]. Excessive use of bureaucratic rules may result in ignoring such contextual factors and constraining the intended outcomes. While being aware of the negative aspect of bureaucracy, it is important to have reliable, structural, division of labour among NGO staff, and monitoring and evaluation practices that help to implement and evaluate sustainable integration of programs.

From a CICI setting perspective, this illustrates how organizational environments simultaneously enable and constrain intervention design and delivery. Balancing the tension between formal procedures and the need for flexibility to tailor interventions to local contexts is essential for the sustainable mainstreaming of NTD interventions into local healthcare structures.

#### Packaging of similar NTDs to achieve health equity

The NGO's decision to integrate podoconiosis with LF reflects how organizational setting shapes intervention strategies. Joint delivery of health services for endemic NTDs can help achieve fair access to resources for disadvantaged people [1]. In this study, the two NGOs have demonstrated adaptive capacity by integrating podoconiosis with other donor-prioritized conditions, particularly LF, to overcome budgetary challenges.

Our findings indicated that the integration of podoconiosis with LF was instrumental in securing donor support and sustain interventions. Approaches that target conditions with shared clinical features and similar impact can provide a cost-effective mechanism for addressing disease burdens. These results align with evidence from Cameroon [59], Benin [60] and Ivory Coast [61], where integrated outreach programs targeting co-endemic NTDs have proven effective.

Given that there has been limited funding to podoconiosis, integrating lymphedema services with LF and other NTDs can not only mobilize more resources, but also helps expand quality health services and the productivity of health workers. The NGOs did exemplary work in amending their target program to include a similar disease and convince donors to support diseases requiring non-pharmacological management. This helps enhance equity of care as many patients and at-risk individuals in NTD-endemic areas will have access to health services. The NGOs' decision to package programs for similar NTDs demonstrate how organizational settings, including planning structure and available resources, affect the feasibility and sustainability of integrated service delivery.

Intervening against podoconiosis and other NTDs such as LF must take the differences between the conditions into account. For instance, mass drug administration can help treat populations at risk of developing LF. Interventions against LF have also benefited from integration into malaria control programs such as distribution of bed nets and indoor residual spraying campaigns [62]. However, prevention of NTDs like podoconiosis and soil transmitted helminths requires adoption of shoe wearing and foot hygiene practices [16, 63] requiring normative changes among the targeted communities. Shoe wearing and hygiene norms are intertwined with cultural and economic factors and may not be easily changed by individual level public health campaigns. Community level interventions are needed to promote the desirability of shoe wearing practice and to economically empower individuals to buy footwear. Successful implementation of integrated programs requires identifying differences between the targeted conditions and developing tailored activities while addressing the shared challenges people at risk of developing the conditions face.

Implementing cross-cutting strategies to expand health services for podoconiosis and similar diseases may be one approach. Podoconiosis may be related to issues of gender, environment, sanitation, disability and ageing. Emphasizing these synergies helps engage other NGOs working on these issues. Podoconiosis prevention aligns with several sustainable development goals that Low- and Middle-Income Countries governments want to achieve. Controlling podoconiosis requires universal health coverage (Sustainable Development Goal (SDG)3) and depends on addressing poverty and social protection (SDG1), universal access to safe and affordable water and hygiene (SDG6), working and living conditions (SDG8) and reducing inequalities (SDG10) [64]. Addressing NTDs also plays a critical role in achieving many of the other SDGs – e.g. alleviating poverty and hunger, enabling access to education and promoting equality [65].

The study was limited to the setting of two NGOs and a small number of key informant interviews. Hence, the findings may not be generalizable to other contexts and settings of NGOs. The study did not include macro (policy) level contextual factors or specific barriers and facilitators influencing the effectiveness of interventions that aim to embed NTD services at intervention delivery points. The design and implementation of the major intervention activities was completed before we commenced the focused ethnography. As a result, we mostly relied on document analysis and key informant interviews to obtain information about the design of the intervention. Although the data were triangulated, the staff

of the NGOs could have altered their behaviour during the focused ethnography. Furthermore, we did not focus on the intensity or degree of the NGO's intervention or its various components. Future studies exploring NGO interventions must emphasise internal and external factors affecting their programs, and cost effectiveness and scalability of mainstreaming interventions.

The results of the study illustrated that organizational environments and NGOs' implementation designs play a critical role in delivering intervention activities effectively. However, limited resources, reliance on short-term outcome assessments, and weak integration of activities into government healthcare structures can negatively impact the sustainability of interventions. These constraining factors highlight a persistent disconnect between the goal of mainstreaming interventions and the realities of the local contexts in which they are implemented. This underscores the need for a more adaptive, long-term approach that is better aligned with and embedded within local health systems.

#### Recommendations for NGOs, funders and government

Drawing on the findings of the study and existing literature, we would like to recommend the following for NGOs, funders and governments working to mainstream NTD services into the healthcare system.

#### Promote equitable access and preventive health behaviour

Podoconiosis results from the interaction of biological and social determinants. Genetic variation cannot alone determine the development of the disease. As a result, the disease can be prevented if susceptible individuals begin wearing shoes at an early age and do so consistently [16, 18]. Health interventions that address the unfair distribution of resources such as health knowledge, shoes, water, and treatment items will help tackle the condition and contribute to reduction of health inequalities. Going forward, NGOs working on podoconiosis must continue to enhance the adoption of healthy behaviours among patients and at-risk individuals and mainstream health services into local healthcare structures.

#### Strengthen negotiations with donors and advocate for NTD prioritization

Convincing funders to allocate budget for interventions that will be mainstreamed into local community structures can be challenging. Although the relationship between NGOs in low-resource settings and donors is usually characterized as asymmetrical, and their interests are barely aligned [45], NGOs could negotiate with funders on prioritized areas and desired health impacts. Our study showed that the NGOs managed to get funding for podoconiosis from donors previously only interested in LF. NGOs need to make a strong argument for a condition to be prioritized by the international community and donors.

NTDs like podoconiosis, although not life threatening, exacerbate poverty and inequality among already disadvantaged and poor groups. Millions of patients and their family members are trapped in poverty due to diminished productivity caused by the conditions [26]. Poverty leaves endemic countries vulnerable to domestic upheaval and war. These problems can spill over into neighbouring countries and can endanger regional and international security [66].

#### Expand domestic funding and reduce reliance on external support

To sustain NTD services, NGOs must also consider domestic funding as a viable alternative. The WHO and others have called for increased country ownership and less reliance on external funding for NTD programs as a way of sustaining project activities [34, 67, 68]. Excessive reliance on external funding forces NGOs to serve the desires of donors at the expense of local realities and needs [45, 69, 70]. On the other hand, domestic funding could pave the way for the development and independence of NGOs. Parks reported that in some South-East Asian countries, following a reduction in donor support, domestic institutions have emerged as sources of funding for local NGOs [45]. Less reliance on external funding means NGOs will not be pressurized to follow donor priorities and can plan and implement tailored community-led programs. Nevertheless, this is easier said than done. In low-income countries, where there is little formal donation, NGOs may struggle to get domestic funds. It is apparent that communities in low- and middle-income countries have informal ways of supporting members. Ethiopians, for instance, tend to practice giving in more informal ways such as feeding beggars or giving alms to the poor. NGOs should promote the act of formal giving in such settings. Working with community organizations may alter the form of help offered to the poor and sick by their fellow community members and indirectly expand the reach of health services [34].

#### Innovate fundraising strategies and build community partnerships

NGOs must be consistently creative in mobilizing resources. Some strategies include:

- Identifying business activities that align with their values and form a sponsorship partnership.
- Organizing community festivals and awareness events.
- Leveraging social media platforms such as Facebook, TikTok, and YouTube to introduce programs and mobilize resources.

- Collecting membership fees and through celebrity endorsement.
- Launching income-generating activities involving patients.

In Ethiopia, NGOs are legally permitted to generate income by establishing a separate business organization [71]. Such models can enhance the sustainability of interventions and empower target communities.

### Advocate for government ownership and rights-based health policy

Governments in LMICs must allocate domestic budget to NTDs and uphold their responsibility to protect affected individuals and at-risk populations. As the Kigali declaration underlined, it is essential that countries continue to lead and take ownership for ending NTDs if tangible results are to be seen [72]. The government of the Dominican Republic was able to sustain the lymphatic filariasis programme in spite of reduced external funding by allocating funds from the country's regular budget [37].

A decade ago, the Ethiopian government's involvement in podoconiosis intervention was reported to be minimal [28]. Research activities and advocacy workshops have yielded positive outcomes that include the decision of the Ethiopian government to incorporate podoconiosis intervention in national health programs and services. This resulted in the expansion of lymphedema management services across the country [15, 42, 73] However, efforts so far have not been sufficient to control and prevent podoconiosis [73]. Building on the progress to date, NGOs can put more pressure on governments and development agencies to expand health services for affected individuals and at-risk populations.

**Acknowledgements**
We extend our gratitude to the staff IOCC, NaPAN and the Ethiopian Ministry of Health for their participation in the study. We gratefully recognize Desta Ayode's assistance with data collection and coding. Desta's contributions were instrumental to the integrity and depth of this research.

**Author contributions**
KE, GT, GD, PN and SZ conceptualized the study. KE collected and analysed data. KE drafted the manuscripts. GT, GD, PN and SZ critically revised the manuscript for intellectual content.

**Funding**
This research was funded by the National Institute for Health and Care Research (NIHR) (NIHR200140) using UK aid from the UK Government to support global health research.

**Data availability**
The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

## Declarations

**Ethics approval and consent to participate**
We obtained ethical clearance from the Research Governance and Ethics Committee (RGEC) of Brighton and Sussex Medical School (BSMS) (Reference: ER/BSMS9E3G/8) and the Ethiopian Society of Sociologists, Social Workers and Anthropologists (ESSSWA) (Reference: ESSSWA 019/21) to conduct the study. We secured consent to observe office rooms, documents and activities from the NGOs. The key informants voluntarily took part in the study. Written informed consent was obtained from the key informants. To ensure the confidentiality of participation in the study, names and personal data of the key informants are not included.

**Consent for publication**
Verbal informed consent was obtained for anonymized information to be published in this article.

**Competing interests**
The authors declare no competing interests.

Received: 9 October 2024 / Accepted: 30 September 2025
Published online: 06 November 2025

**References**

1. World Health Organization. Ending the neglect to attain the Sustainable Development Goals: A road map for neglected tropical diseases 2021–20302021. https://www.who.int/publications/i/item/9789240010352. Available from: https://www.who.int/publications/i/item/9789240010352
2. Ferpozzi H. Public-Private partnerships and the landscape of neglected tropical disease research: the shifting logic and spaces of knowledge production. Minerva. 2023;1–23. https://doi.org/10.1007/s11024-023-09496-x
3. Keating C. Ken Warren and the rockefeller foundation's great neglected diseases network, 1978–1988: the transformation of tropical and global medicine. Mol Med. 2014;20(Suppl 1Suppl 1):S24–30.
4. Ridley RG, Ndumbe P, Korte R. Two years after the fourth external review: TDR moves forward with a new vision and strategy. PLoS Negl Trop Dis. 2008;2(11):e307.
5. World Health Organization. Neglected tropical diseases. [Internet]. 2022. Available from: https://www.who.int/health-topics/neglected-tropical-diseases#tab=tab_2
6. Semahegn A, Manyazewal T, Getachew E, Fekadu B, Assefa E, Kassa M, et al. Burden of neglected tropical diseases and access to medicine and diagnostics in ethiopia: a scoping review. Syst Reviews. 2023;12(1):140.
7. Hotez PJ, Kamath A. Neglected tropical diseases in sub-saharan africa: review of their prevalence, distribution, and disease burden. PLoS Negl Trop Dis. 2009;3(8):e412.
8. Liese B, Rosenberg M, Schratz A. Programmes, partnerships, and governance for elimination and control of neglected tropical diseases. Lancet. 2010;375(9708):67–76.
9. World Health Organization. Global report on neglected tropical diseases 2023. Geneva, Switzerland: WHO. 2023. Contract No.: Licence: CC BY-NC-SA 3.0 IGO.
10. World Health Organization. Global partners pledge USD 777 million to combat neglected tropical diseases. [Internet]. 2023. Available from: Global partners pledge US$ 777 million to combat neglected tropical diseases.
11. Lewis D. Non-governmental organizations, definitions, and history. In: List RA, Anheier HK, Toepler S, editors. International Encyclopedia of Civil Society. Cham: Springer International Publishing; 2020. pp. 1–9. https://doi.org/10.1007/978-3-319-99675-2_3-1
12. Banks N, The Role and Contributions of development NGOs to development cooperation. : what do we know? In: Chaturvedi S, Janus H, Klingebiel S, Li X, Mello e Souza Ad, Sidiropoulos E, editors. The Palgrave Handbook of Development Cooperation for Achieving the 2030 Agenda: Contested Collaboration Cham: Springer International Publishing; 2021. pp. 671–88. https://doi.org/10.1007/978-3-030-57938-8_31
13. Kollie K, Siakeh A, Zawolo G, Wickenden A, Theobald S, Rogers E, et al. Donor reliance and the impact on neglected tropical disease programme delivery: reflections and solutions for change from programme management perspectives. Int Health. 2020;13(4):376–8.

14. Chekole BB, Bayou DZ, editors. The Role of Non Governmental Organizations in the Democratization Process of Ethiopia, A Historical Survey2016.
15. Deribe K, Kebede B, Mengistu B, Negussie H, Sileshi M, Tamiru M, et al. Podoconiosis in ethiopia: from neglect to priority public health problem. Ethiop Med J. 2017;55(Suppl 1):65–74.
16. Price EW, Plant DA. The significance of particle size of soils as a risk factor in the etiology of podoconiosis. Trans R Soc Trop Med Hyg. 1990;84(6):885–6.
17. Deribe K, Meribo K, Gebre T, Hailu A, Ali A, Aseffa A, et al. The burden of neglected tropical diseases in Ethiopia, and opportunities for integrated control and elimination. Parasites Vectors. 2012;5(1):240.
18. Davey G, Tekola F, Newport MJ. Podoconiosis: non-infectious geochemical elephantiasis. Trans R Soc Trop Med Hyg. 2007;101(12):1175–80.
19. Deribe K, Cano J, Newport MJ, Golding N, Pullan RL, Sime H, et al. Mapping and modelling the geographical distribution and environmental limits of podoconiosis in Ethiopia. PLoS Negl Trop Dis. 2015;9(7):e0003946.
20. World Health Organization Podoconiosis (non-filarial lymphoedema) [Internet]. World Health Organization. 2023. Available from: https://www.who.int/news-room/fact-sheets/detail/podoconiosis-(non-filarial-lymphoedema)
21. Molla YB, Tomczyk S, Amberbir T, Tamiru A, Davey G. Patients' perceptions of podoconiosis causes, prevention and consequences in East and West Gojam, Northern Ethiopia. BMC Public Health. 2012;12:828.
22. Ayode D, McBride CM, de Heer H, Watanabe E, Gebreyesus T, Tadele G, et al. The association of beliefs about heredity with preventive and interpersonal behaviors in communities affected by podoconiosis in rural Ethiopia. Am J Trop Med Hyg. 2012;87(4):623–30.
23. Alemu G, Tekola Ayele F, Daniel T, Ahrens C, Davey G. Burden of podoconiosis in poor rural communities in Gulliso woreda, West Ethiopia. PLoS Negl Trop Dis. 2011;5(6):e1184.
24. Molla YB, Tomczyk S, Amberbir T, Tamiru A, Davey G. Podoconiosis in East and West Gojam Zones, Northern Ethiopia. PLoS Negl Trop Dis. 2012;6(7):e1744.
25. Tora A, Franklin H, Deribe K, Reda AA, Davey G. Extent of podoconiosis-related stigma in Wolaita Zone, Southern ethiopia: a cross-sectional study. Springerplus. 2014;3:647.
26. Deribe K, Negussu N, Newport MJ, Davey G, Turner HC. The health and economic burden of podoconiosis in Ethiopia. Trans R Soc Trop Med Hyg. 2020;114(4):284–92.
27. Burton DC, Kelly A, Cardo D, Daskalakis D, Huang DT, Penman-Aguilar A, et al. Principles Health Equity Sci Public Health Action Public Health Rep. 2024;139(3):277–83.
28. Deribe K, Tomczyk S, Tekola-Ayele F. Ten years of podoconiosis research in Ethiopia. PLoS Negl Trop Dis. 2013;7(10):e2301.
29. IOCC. Learn about us: International Orthodox Christian Charities; n.d. [Available from: https://iocc.org/about
30. NaPAN. NaPAN and Podoconiosis Programs in Ethiopia. 2014.
31. Gyapong JO, Gyapong M, Yellu N, Anakwah K, Amofah G, Bockarie M, et al. Integration of control of neglected tropical diseases into health-care systems: challenges and opportunities. Lancet. 2010;375(9709):160–5.
32. WALLEY J, TEFERA B, MCDONALD M-A. Integrating health services: the experience of ngos in Ethiopia. Health Policy Plann. 1991;6(4):327–35.
33. Engdawork K, Tadele G, Davey G, Nahar P, Zaman S. Interaction of contextual, setting and implementation factors on a podoconiosis intervention in rural Ethiopia: results from a qualitative study. PLoS ONE. 2025;20(7):e0328237.
34. WHO. Ending the neglect to attain the Sustainable Development Goals: a sustainability framework for action against neglected tropical diseases 2021–2030 Geneva, Switzerland 2021.
35. Molyneux DH, Dean L, Adekeye O, Stothard JR, Theobald S. The changing global landscape of health and disease: addressing challenges and opportunities for sustaining progress towards control and elimination of neglected tropical diseases (NTDs). Parasitology. 2018;145(13):1647–54.
36. Marchal B, Van Dormael M, Pirard M, Cavalli A, Kegels G, Polman K. Neglected tropical disease (NTD) control in health systems: the interface between programmes and general health services. Acta Trop. 2011;120(Suppl 1):S177–85.
37. Baker MC, McFarland DA, Gonzales M, Diaz MJ, Molyneux DH. The impact of integrating the elimination programme for lymphatic filariasis into primary health care in the Dominican Republic. Int J Health Plann Manage. 2007;22(4):337–52.
38. Lammie PJ, Fenwick A, Utzinger J. A blueprint for success: integration of neglected tropical disease control programmes. Trends Parasitol. 2006;22(7):313–21.
39. Pfadenhauer LM, Gerhardus A, Mozygemba K, Lysdahl KB, Booth A, Hofmann B, et al. Making sense of complexity in context and implementation: the context and implementation of complex interventions (CICI) framework. Implement Sci. 2017;12(1):21.
40. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement Sci. 2009;4:50.
41. Higginbottom GMA, Pillay J, Boadu NY. Guidance on performing focused ethnographies with an emphasis on healthcare research. Qualitative Rep. 2013;18:1–6.
42. Ministry of Health (Ethiopia). Second edition of national neglected tropical diseases master plan: 2016–2020. Addis Ababa, Ethiopia Federal Democratic Republic of Ethiopi; 2016.
43. Engdawork K, Tadele G, Nahar P, Davey G, Zaman S. The effect of contextual factors on a health intervention against podoconiosis in Ethiopia. Front Trop Dis. 2024;5.
44. Brinkerhoff DW, Brinkerhoff JM. Partnerships between international donors and Non-Governmental development organizations: opportunities and constraints. Int Rev Admin Sci. 2004;70(2):253–70.
45. Parks T. The rise and fall of donor funding for advocacy ngos: Understanding the impact. Dev Pract. 2008;18(2):213–22.
46. Gasper D. Evaluating the 'logical framework approach' towards learning-oriented development evaluation. Public Adm Dev. 2000;20(1):17–28.
47. Roberts SM, Jones JP, Fröhling O. NGOs and the globalization of managerialism: A research framework. World Dev. 2005;33:1845–64.
48. Srinivas N. Against NGOs?A critical perspective on nongovernmental action. Nonprofit Voluntary Sect Q. 2009;38(4):614–26.
49. Shediac-Rizkallah MC, Bone LR. Planning for the sustainability of community-based health programs: conceptual frameworks and future directions for research, practice and policy. Health Educ Res. 1998;13(1):87–108.
50. Mulder F. The paradox of externally driven localisation: a case study on how local actors manage the contradictory legitimacy requirements of top-down bottom-up aid. J Int Humanitarian Action. 2023;8(1):7.
51. World Health Organization. Continuity and coordination of care: a practice brief to support implementation of the WHO Framework on integrated people-centred health services. 2018.
52. Committee on Valuing Community-Based N-CPP, Board on Population H, Public Health P. Institute of M. An Integrated Framework for Assessing the Value of Community-Based Prevention10.17226/13487;10.17226/13487. Washington (DC): National Academies Press (US) Copyright 2012 by the National Academy of Sciences. All rights reserved.; 2012.
53. Matheson A, Walton M, Gray R, Lindberg K, Shanthakumar M, Fyfe C, et al. Evaluating a community-based public health intervention using a complex systems approach. J Public Health (Oxf). 2018;40(3):606–13.
54. Sandoval JA, Lucero J, Oetzel J, Avila M, Belone L, Mau M, et al. Process and outcome constructs for evaluating community-based participatory research projects: a matrix of existing measures. Health Educ Res. 2011;27(4):680–90.
55. Weber, MMv, editors. From Max Weber: Essays in sociology 1946.
56. Vian T. Review of corruption in the health sector: theory, methods and interventions. Health Policy Plan. 2008;23(2):83–94.
57. Pinto J, Leana CR, Pil FK. Corrupt organizations or organizations of corrupt individuals? Two types of Organization-Level corruption. Acad Manage Rev. 2008;33(3):685–709.
58. Debnath G, Bhowmik R. Key success factors of NGO leadership that leads to sustainable and effective development: A case on BRAC, Bangladesh. Revista De Cercetare Si Interventie Sociala. 2022;77:125–48.
59. Awah PK, Boock AU, Mou F, Koin JT, Anye EM, Noumen D, et al. Developing a buruli ulcer community of practice in Bankim, cameroon: A model for buruli ulcer outreach in Africa. PLoS Negl Trop Dis. 2018;12(3):e0006238.
60. Barogui YT, Diez G, Anagonou E, Johnson RC, Gomido IC, Amoukpo H, et al. Integrated approach in the control and management of skin neglected tropical diseases in Lalo, Benin. PLoS Negl Trop Dis. 2018;12(6):e0006584.
61. Yotsu RR, Kouadio K, Vagamon B, N'Guessan K, Akpa AJ, Yao A, et al. Skin disease prevalence study in schoolchildren in rural Côte d'ivoire: implications for integration of neglected skin diseases (skin NTDs). PLoS Negl Trop Dis. 2018;12(5):e0006489.
62. Ministry of Health (Ethiopia). In: Health, EMo, editors. Lymphatic filariasis and podoconiosis morbidity management and disability prevention guidelines. Ethiopia: Addis Ababa; 2016.
63. Mascarini-Serra L. Prevention of Soil-transmitted helminth infection. J Glob Infect Dis. 2011;3(2):175–82.
64. Deribe K, Negussu N, Bosco MJ, Davey G. Podoconiosis research to implementation: a call for global action. Lancet Glob Health. 2018;6(9):e950–1.

65. Bangert M, Molyneux DH, Lindsay SW, Fitzpatrick C, Engels D. The cross-cutting contribution of the end of neglected tropical diseases to the sustainable development goals. Infect Dis Poverty. 2017;6(1):73.
66. Rice SE. Poverty breeds insecurity. In: Brainard L, Chollet D, editors. Too poor for peace? Global poverty, conflict, and security in the 21st century. Brookings Institution; 2007. pp. 31–49. http://www.jstor.org/stable/10.7864/j.ctt6wpfc8.5.
67. Ortu G, Williams O. Neglected tropical diseases: exploring long term practical approaches to achieve sustainable disease elimination and beyond. Infect Dis Poverty. 2017;6(1):147.
68. Khan MS, Pullan R, Okello G, Nyikuri M, McKee M, Balabanova D. For how long are we going to take the tablets? Kenyan stakeholders' views on priority investments to sustainably tackle soil-transmitted helminths. Soc Sci Med. 2019;228:51–9.
69. Wallace TNGO, dilemmas. Trojan horses for global neoliberalism? Socialist Register. 2004;40.
70. Wright GW. NGOs and Western hegemony: causes for concern and ideas for change. Dev Pract. 2012;22(1):123–34.
71. Federal Democratic Republic of Ethiopia. Charities and societies proclamation. Federal Negarti Gazeta; 2009.
72. Uniting to Combat NTDs. The Kigali Declaration on Neglected Tropical Diseases [Internet]. Uniting to Combat NTDs. 2022. Available from: https://unitingtocombatntds.org/en/the-kigali-declaration/the-declaration/
73. Mengitsu B, Shafi O, Kebede B, Kebede F, Worku DT, Herero M, et al. Ethiopia and its steps to mobilize resources to achieve 2020 elimination and control goals for neglected tropical diseases webs joined can tie a Lion. Int Health. 2016;8(Suppl 1):i34–52.

## Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.