

Communication

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Communication

# Data Is Power: Addressing the Power Imbalance Around Community Data with the Open-Access Data4HumanRights Curriculum

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**Abstract:** Data4HumanRights training materials have been developed as open-source and tailored to limited resource settings where community data collectors often live and work. An overview of how the training material was developed together with community data collectors in Nigeria and Kenya is provided. The paper gives insights into the fundamental principles (i.e., inclusiveness, adaptive, limited resources, gender- and incentive-sensitive) and the structure of the open-access training materials. This resulted in 28 modules designed to be delivered in a face-to-face format in less than one day by a local trainer. To maximize adaptivity, the training modules can be mixed and matched (e.g., as individual modules or a learning path of several modules around a specific training need). The individual modules cover a range of methods and tools that are useful to human rights work, for example, documenting evictions, performing rapid needs assessments after acute crises, community profiling, and monitoring community development indicators. The training materials contain instructions for the facilitator(s) of the training and all necessary training materials to conduct the training. To maximize inclusivity, the training covers basic to advanced topics. Most training modules address basic training topics that can be optimally followed with a mobile phone (to avoid using a computer and printing handouts). The training was developed and implemented with local community groups in Nigeria and Kenya. The material is free to use, adapt, and translate into different contexts and languages.

**Keywords:** open-access training; deprivation; human rights; citizen science; LMICs; female leadership

## 1. Introduction

Many global development agendas prioritize eradicating poverty and reducing (spatial) inequalities. For example, SDG 11 has as its first target “to ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums” (United Nations, 2022). However, open data to monitor progress towards this target is often unavailable at the required scale and semantic details to support local action [1]. Data on deprived communities is commonly collected by external actors with limited empowerment of community groups [2, 3]. Consequently, collected (extracted) data is not available to communities [4]. Access to data is an essential means for community groups

to develop local agendas and activate members of the community (internal) and for advocacy and negotiation with local governments and other external actors (external) [5]. However, living in deprived communities comes with many challenges; besides deprived housing and environmental conditions (Figure 1), access to education is often a fundamental bottleneck [6]. For Sub-Saharan Africa, the World Bank documents a literacy rate of 68%. Generally, education levels in deprived communities vary, e.g., caused by early school dropouts or the inability of parents to pay for schooling costs (e.g., uniforms) [7]. Consequently, community-based organizations require access to training to support their data collection activities [8].

Community-based organizations often support advocacy campaigns with quantitative and qualitative data [9] to document living conditions, prioritize community actions, and advocate for their rights [10]. Many communities have gained significant expertise in collecting data, e.g., through the KnowYourCity Campaign [11] supported by Slum Dwellers International (SDI) and its affiliates [12]. While in many contexts, community groups have existing capacities in data collection [13, 14], previous research and initial discussions with community leaders demonstrated a massive capacity gap in effectively utilizing community-collected data – specifically to organise, analyse, visualise and communicate data [15].



**Figure 1.** Makoko-Iwaya Waterfront community in Lagos (Nigeria), like many urban deprived communities in LMICs, suffers from constant threats of eviction (Image Source: Open Imagery Network licensed CC-BY 4.0).

In many Low- and Middle-income Countries (LMICs), urban deprived communities are exposed to harsh and routine human rights (Human rights-related issues include, e.g., the Right to life, Right to health, Right to education, Right to adequate housing, Right to dignity, Right to personal liberty, Right to fair hearing, Right to freedom of thought, Right to freedom of expression and the press, Right to freedom from discrimination [3]) violations in the form of forced evictions, lack of access to basic services, mass arrests, and police brutality, to name a few. Residents of deprived communities are often stigmatized on account of their poverty [16]. To document human rights violation, community-centred data are required, in general [17], and in particular during crises (e.g., COVID-19 or man-made and natural disasters) [18]. For this purpose, community data collectors are required to have access to training with tailored education materials. Existing training materials about collecting, analysing and communicating data are often made for trainees with a BSc degree (e.g., ARSET, 2023). The D4HR training targeted community leaders and activists who often have primary education.

Training materials that meet the specific needs of deprived communities must be co-designed with community leaders and activists. Generally, community leaders and activists need more access to formal training opportunities, and the limited training that is provided tends to be offered ad hoc

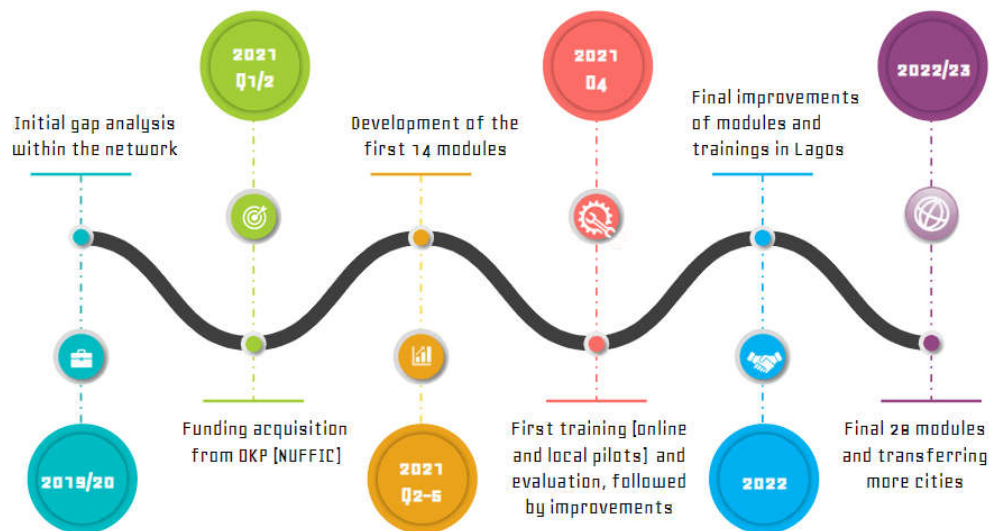
and in support of outside research projects. These scenarios are problematic in multiple ways. First, a lack of training puts community leaders and activists in a weak position to collect, analyse, and use data to improve their communities and advance respect for their fundamental human rights. This was even more evident during the COVID-19 pandemic, where inequities in access to basic services were pronounced [19]. Furthermore, researchers often collect data about residents living in communities without involving members of those communities as co-researchers [17], which further undermines the power of community leaders and activists. This practice is deeply problematic – treating people and their communities as ‘subjects of research’ rather than partners, thus generating deep distrust and frustration within communities of external researchers and resulting in low-quality data with significant gaps due to the inability to collect sufficient or accurate data [5].

Engagement, involvement, and training of communities during research are preferred to research subjugation. However, this process can also reinforce inequities. Specifically, ad hoc trainings are typically offered to community leaders and activists by uncoordinated, disparate outside groups, preventing learners from being able to follow a sequential learning pathway toward certification. So, while good-willed academics, professionals, and students advance their own careers and earning potential by teaching one-off community training, community learners spend years - even decades - attending the same types of training and performing the same types of tasks with no substantive improvement in their learning potential, title, job security, and credentials. Consequently, the main aim of Data4HumanRights (D4HR) was to co-design an open access training curriculum that is fit to increase the capacity of community leaders and activists and put community data collectors in the position to be co-researchers for research conducted in their communities and beyond. Thus, professionalizing community data collectors and providing learning pathways were essential aspects of the training.

The D4HR training also supports community groups in using data collection as a source of income that can be used to invest in the development of their communities. The D4HR training and training materials aim to improve communities' capacity to systematically collect, analyze, and disseminate data on human rights in communities and use results to support campaigns and advocacy to demand respect for their fundamental human rights. The training material is freely available online and aims to stimulate exchange between communities and practitioners who work with them. Consequently, the main aim of this paper is to present and reflect on the design of the D4HR training curriculum, which was developed to support community data collectors in increasing their professional skills and diversity of data collection methods. The following section provides an overview of the steps and principles of developing the training material. Section 3 communicates the different components of the developed training material. Section 4 discusses D4HR training experiences, and the final section provides the main conclusions.

## 2. Materials and Methods

The initial set of the D4HR training modules was developed for community organizers and trainers at the Justice & Empowerment Initiative (JEI) and the Nigerian Slum / Informal Settlement Federation (Federation), which are the local affiliates of Slum Dwellers International (SDI) in Lagos, Nigeria. The curriculum development process involved: (1) co-design of the training outline with JEI and the Federation, (2) initial material development by five trainers from academic and community organizations in the Netherlands and Kenya (CommunityMappers), (3) piloting, feedback, and oversight by JEI and the Federation, and (4) refinement and public release of the materials (Figure 2). While the D4HR modules were designed and piloted in Lagos and Nairobi, they are intended to be used in and tailored to cities globally. To develop the training curriculum, we modified standard capacity-building principles [20, 21] to the specific environment of the training, i.e., inclusiveness, adaptive, limited resources, gender- and incentive-sensitive. The training materials were designed to optimize re-use and be customized by other community groups. This also includes translating the materials into local languages.



**Figure 2.** The sequence of training development in a co-design process.

It was essential to combine different knowledge fields, including academic and community training experts, with knowledge of qualitative, quantitative, and spatial data to develop training materials. The team members also had diverse backgrounds, e.g., four different continents (Africa, Asia, North America, and Europe), and they had training experiences in LMICs. For the successful development of training materials, trainers co-designed materials with experienced community leaders to guide the development and provide critical feedback. We had several rounds of testing and improvements to develop the material throughout the training development. This included pilots with community groups in Nairobi (Kenya) and several online feedback sessions with community groups in Lagos (Nigeria). The first set of training materials were delivered and evaluated in Lagos. This led to further improvements in the material after the in-person training in Lagos. After publishing the final set of 28 modules on our website ([www.data4humanrights.net](http://www.data4humanrights.net)), the materials were transferred to other cities (e.g., Khartoum) [22].

### 2.1. Co-Design of the Training Outline with Community Groups

The training development started with a community-based needs assessment (online during COVID-19 travel restrictions). The needs assessment included JEI staff, Federation and Physically Challenged Empowerment Initiative (PCEI) community leaders, and other local experts from our network in Nigeria and Kenya. JEI is a non-governmental human rights organization that supports networks of deprived communities towards greater participation in urban planning and governance processes, including the Nigerian Slum / Informal Settlement Federation (Federation) and the Physically Challenged Empowerment Initiative (PCEI), among others. For example, JEI trains and supports a network of community-based paralegals who document and respond to human rights violations arising in their communities -- from land grabs and forced evictions to wrongful arrest and extortion, among many other case types [23].

### 2.2. Principles of the Initial Material Development

Most open-source training materials are created by highly educated, often university-based, professionals and require that learners have a high level of computer and reading/writing literacy. For example, Learn OpenStreetMap for Beginners [24] is almost entirely text-based and unavailable in local African languages. Similarly, face-to-face training sessions provided to the Federation's Profiling Team by outside groups have, in the past, tended to rely on text-heavy handouts and PowerPoints. Although well suited for a university classroom, these methods are less effective for a group like the Federation's Profiling Team and prevent community-based trainers from adapting

and redelivering the material, reinforcing a dependency on outside “experts” to deliver training sessions and leading field data collection activities. Generally, with repetition and teamwork, practical exercises are critical to ensure that trainees have fully understood the training contents. Furthermore, minimizing lecture-based instruction is essential, and instead, it should be designed around interactive, practical activities. Moreover, it is critical that all training processes support female leadership and the participation of disadvantaged groups. Therefore, the training focused on raising awareness of gender equality and how data collection should be done in a gender-sensitive way. A final test of whether learning objectives have been achieved and a participant's certification is an important incentive for participants to participate actively.

### *2.3. Piloting, Feedback, and Oversight by Community-Based Organizations*

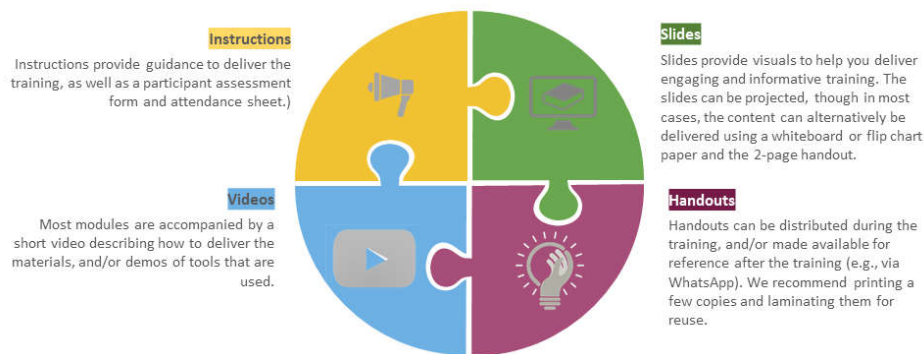
An essential principle of co-designing the training materials was to have several rounds of testing and improvement. This process was essential to develop training materials that fit the needs of community data collectors. A mixed team of community leaders and academics developed the first set of training materials and tested in Nairobi and Lagos. The first pilots were done in Nairobi (due to COVID-19 travel restrictions) by two local trainers from Nairobi, including a community leader from Nairobi (Kibera) and the head of CommunityMappers. These pilots in communities in Nairobi allowed us to improve the training materials based on the insights from trainers and participants. To get additional feedback from community groups in Lagos, we conducted online feedback sessions with experienced community leaders and data collectors in Lagos. These insights resulted in the first revised version of 14 modules of the training materials.

### *2.4. Refinement and Public Release of the Materials*

The first in-person large-scale training was done in October 2022, and it involved 42 community leaders from more than 15 different urban deprived communities in Lagos (Nigeria). This training adopted a training-of-trainers (ToT) approach. As part of the training, training led by the ToTs was carried out in two urban deprived communities with the participation of more than 60 community members. The training materials were further evaluated as part of this onsite training, and necessary improvements were implemented together with the ToTs. The final training materials were developed through a set of online workshops with the team of ToTs, followed by several online training sessions to test the new material. Onsite training using the final set of 28 modules was conducted in Lagos in January 2023.

The structure of the training materials was designed to support an easy uptake by providing free, customizable training materials that include instructions, slides, handouts, and videos (Figure 3). All materials are built-on visuals and make use of limited text to accommodate trainees with low literacy.

- **Instructions:** This provides guidance for the trainer(s) on delivering the training, as well as a participant assessment form and attendance sheet.
- **Slides:** We provide visuals to help to deliver engaging, informative training. The slides can be projected, though in most cases, the content can alternatively be delivered using a whiteboard or flipchart paper and the 2-page handout (below). (Slides are not required for the training but are an important orientation for trainers).
- **Handout:** Handouts can be distributed during the training (paper copies) and/or made available for reference after the training (e.g., via WhatsApp). We recommend printing a few copies and laminating them for reuse (to reduce printing).
- **Videos:** Most modules are accompanied by a short video describing how to deliver the materials and/or demos of the tools used. (Videos are not required for the training but can be shared with training participants and are an important orientation for trainers).



**Figure 3.** The main training components of each D4HR module are to have a mix of learning materials.

### 2.5. The Importance of Female Leadership

Community leaders are often men; therefore, it was essential to reach out to female leaders, as well as minorities and people with disabilities. In Lagos, 18 women and two people with disabilities co-designed the training development (out of 42 ToT participants). The training development was guided by five female trainers from Europe/North America (2), Asia (1), and Africa (2). The aim was to model diverse female leadership with both female and male participation to normalize the leadership of women from diverse ethnic backgrounds (Figure 4). In deprived communities in Lagos, female leadership is often limited to market associations and women's groups. In community meetings with rows of chairs or benches, almost exclusively, men occupied the front row while women and children occupied the back rows. We stimulated female leadership during the community training sessions, where local community leaders repeated the training [17, 25].



**Figure 4.** Female trainers at the Lagos (Nigeria) training venue, Oct. 2022. .

## 3. Results

D4HR training materials are open-source and build on freely available tools that do not require licenses and are free of cost for communities. The training materials are available on the Data4HumanRights website: <https://www.data4humanrights.net>. Each training module is designed to be delivered face-to-face by a local trainer in less than one day. The training modules are designed to be mixed and matched (mixed bowl approach) and cover a range of methods and tools that are useful to data location with a specific focus on deprivation and human rights work. For example, qualitative and quantitative data collection methods allow for documenting evictions, performing rapid needs assessments after natural disasters such as flooding, community profiling, and monitoring community development indicators (Figure 5). The training modules can be delivered as an entire training curriculum, as a selection of modules, or as a stand-alone module, depending on the identified training needs of communities.

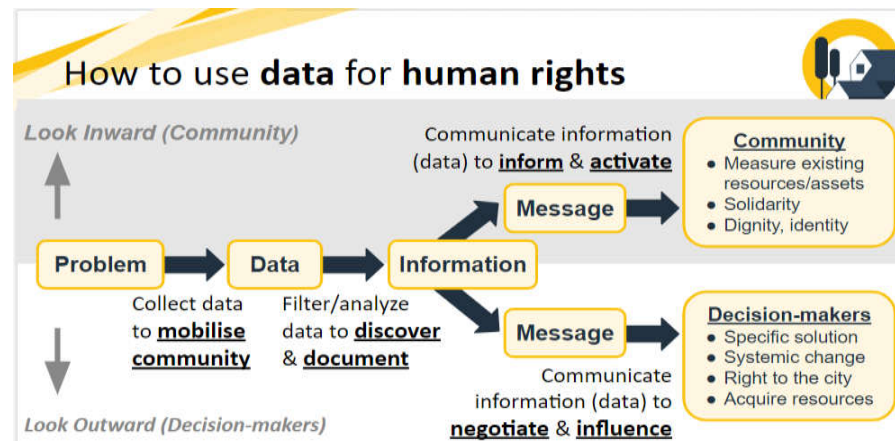
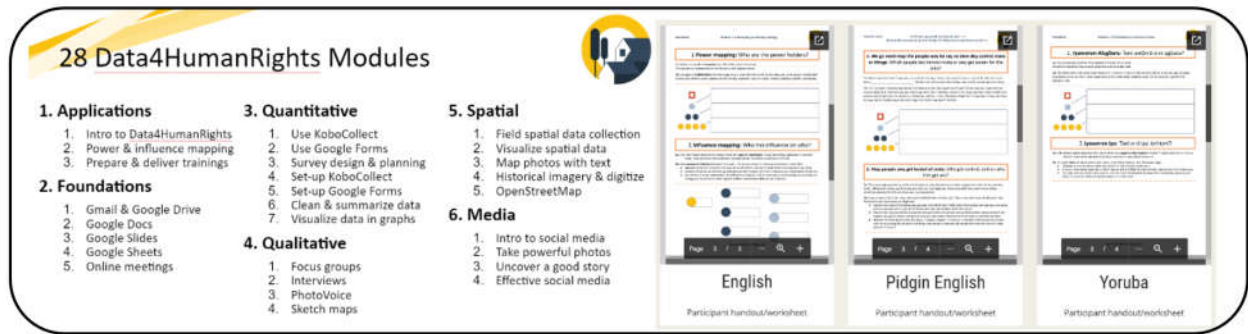


Figure 5. How to use data for human rights: [www.data4humanrights.net](http://www.data4humanrights.net).

### 3.1. The developed Data4HumanRights training materials

Digital access gaps still exist in deprived communities. However, the availability of smartphones is increasing, partially bridging this gap [26]. Therefore, most modules require participants to use smartphones, which are more commonly available in communities than computers, and only a few advanced methods rely on computers and/or require a training venue with electricity and access to the internet. While the D4HR modules were designed and piloted in Lagos, they are intended to be used in and tailored to cities globally. We strongly encourage re-using, customizing, and translating these materials into local languages while maintaining the D4HR branding and website to accredit the original source. Each module typically has materials that provide instructions, slides, handouts and video(s) (Figure 3). Presently, the training material is available in English, and handouts for participants are available in English, Yoruba, and (Nigerian) Pidgin. The training is split into six main groups (Figure 6):

- **Applications:** These modules set the scene for understanding the importance of data for community building, advocacy, and campaigning for human rights. Topics include an introduction to Data for human rights, Power and influence mapping, and How to prepare and deliver community training.
- **Foundations:** These modules provide the basics of working with a smartphone (instead of a computer) to organize information and communication. Topics include working with Google Drive and Docs, Making presentations with Google Slides, and using Online meeting tools.
- **Quantitative methods:** these modules allow data collection on questions about what is happening in communities. Topics include data collection tools such as KoboCollect and Google Forms, Survey design, sampling, and planning, Survey set-up in different tools, and working with Tables and Presenting data (e.g., graphs).
- **Qualitative methods:** these modules allow data collection on 'why' questions. Topics include Focus Group Discussions, Interviews, PhotoVoice and Sketch maps and reconnaissance surveys.
- **Spatial methods:** these modules relate to 'where' questions in communities, enabling them to understand the geographic context. Topics include Field spatial data collection in QField (Mobile), Visualize data in Google Maps app (Mobile), Map photos and text in Google Maps (Computer), Historical imagery and digitize data in Google Earth (Computer), and Adding to and editing OpenStreetMap.
- **Media methods:** these modules support communities by communicating about advocacy and awareness campaigns. Topics include an Introduction to social media, Taking powerful photos, Uncovering a good story, and Effective social media posts.



**Figure 6.** Overview of the structure of the D4HR training modules (left) and translated handouts into common local languages in Lagos, Nigeria (right).

### 3.2. Training of Trainers in Lagos (Nigeria)

As a result of the initial training in Lagos, 42 trainers (community leaders and activists) have an improved capacity to collect qualitative data (e.g., Photo Voice, Walking Interviews) and quantitative data (e.g., GPS surveys). The trainees were exposed to training units covering Human Rights / Community Actions, IT literacy (Foundations), Quantitative Data, Qualitative Data, Spatial Data, and Dissemination (Social Media). The units were split into topics that support community data collectors in collecting, organizing, maintaining, and analyzing data related to human rights. We guided trainers in running training workshops in communities by leveraging follow-on projects that engage the same groups in Lagos. For example, we collected Photo Voice and Walking Interviews on human rights violations experienced by communities – common issues that JEI supports communities to address (Figure 7).



**Figure 7.** Visualizing inaccessible urban infrastructure for people with disabilities (left) and training in Ago-Egun, Bariga, led by local trainers in Lagos, Nigeria, Oct. 2022 (right).

Subsequent training sessions have already made use of a part of training material. These training were carried out with marginalized communities in Khartoum (Sudan) (November 2022 and February/March 2023, just before the start of the conflict) and in Nairobi (Kenya) in 2023. To support the sustainability of the training and the developed training materials, we have established WhatsApp groups with the trainers (WhatsApp is the main communication channel as many community members do not have and/or do not commonly use email). The developed training material has also been integrated within an extensive network of deprivation area modelling (IDEAMAPS: <https://ideamapsnetwork.org>). The training materials will also be used for future training activities done within IDEAMAPS. The main points of supporting the sustainability of the training are:

- The sustainability of the training is supported by publishing the training materials as open-access material on our website – which allows community data collectors, CBOs, and NGOs to reuse the materials.
- Within community training in Sudan (Figure 8), the training materials have been used and were adapted and translated (Arabic) for training sessions with CBOs and NGOs: <https://www.idea-maps.net/workshops/community/>.
- The training materials are presently adapted by CommunityMappers (in Kenya) to fit the needs of community data collection on human rights in Kenya (<https://www.communitymappers.com>). This will also include a translation to Swahili.



**Figure 8.** Community Dissemination workshop in Khartoum, Sudan, Feb. 2023 and program of first community training in Khartoum Nov. 2022.

#### 4. Discussion

The development of the D4HR training curriculum had to deal with several challenges, particularly adapting academic training materials to the context of community data collectors. Furthermore, with travel restrictions due to the COVID-19 pandemic, we had several restrictions and adaptations that slowed down the development of the training materials. We moved feedback and interaction sessions online, which was challenging in Nigeria, with very common power cuts and low internet bandwidth [27]. We nonetheless developed the first set of training materials and had several feedback sessions that allowed us to co-design the training materials. Developing training material for communities was challenging for the trainers with an academic background. Therefore, it was essential to involve very experienced community leaders to guide the development and to provide critical feedback. In particular, a female community leader from Kenya with more than ten years of experience guided the adaptation. Second, we had several rounds of testing and improvements for the development of the material. This included a pilot with community groups in Nairobi and several online feedback sessions with the ToT's in Lagos. This led to a final improvement of the material after the in-person training in Lagos. The main lessons learned, and follow-up actions to maximize the outcomes and long-term impacts are summarized in the following:

- The **importance of co-designing** the material with community leaders and activists. The material had several rounds of review and improvements – to simplify the material and adapt it to situations where no computers and projectors were available.
- The training material has been split into **different levels** – basic training units and advanced training units to enable suitability for different contexts, as well as deeper learning for those interested/able.
- The training material has been **translated into local languages** – handouts for running community training in communities without access to computers and projectors.
- Publishing of all 28 training units as **open-access material** on our website. All groups with interest can pick up the materials and adapt the training to local needs.
- **Outreach** to related projects in Nigeria, Kenya, and Sudan. This supported the uptake of training materials for ongoing work in other communities.

- Network of **community co-researchers** who can support research on communities. Within the training, we stressed the importance of co-researchers from communities. The expected impact is to increase the **recognition** of the importance of working with co-researchers (for the academia) and to generate livelihood opportunities for community data collectors.
- The importance of developing materials that do not rely on computers but are built on the **use of smartphones**, which are commonly available in communities and easily allow replicating the training.
- The importance of supporting **female leaders**, developing role models of female leadership, and finding innovative solutions for female trainers to overcome challenges (e.g., the commonly softer voices by using amplification methods).

An important lesson learned as female trainers is that female trainers struggle to give training in environments with substantial background noise (more than most male trainers). Without microphones in environments without access to electricity, we developed a solution that uses male voices as a projection of women's voices. Thus, women are leading the training and presenting, but male training assistants (with loud and deep voices) repeat their words in environments of limited audibility. In environments with access to electricity, the use of amplifying devices is essential for female trainers. Another lesson learned is that most of the training materials (which have been classified into basic, intermediate, and advanced training materials) need to be available and tailored to settings without access to computers, and instead built on the use of smartphones, which are more commonly accessible for community training sessions. Thus, the basic and most of the intermediate training units do not require computer access for training participants (Figure 8). Also, training materials are disseminated via WhatsApp groups, reducing technical barriers to following the training and reusing the materials. This approach enables training sessions in environments without computers or projectors. We encourage the uptake of the D4HR curriculum by other groups while maintaining the D4HR branding and website to accredit the original source. We invite users to share the modified and/or translated versions of materials to [www.Data4HumanRights.net](http://www.Data4HumanRights.net) so that other teams might further reuse them.

## 5. Conclusions

The developed D4HR training materials support the professionalization of community data collectors. Data collectors or data activists play an important role in demanding evidence-based policymaking and acknowledging the rights of communities, e.g., housing, to access basic services and infrastructure. Sustainable partnerships have been further deepened and built as part of the training. Throughout the training, we focused on the lived experiences and human rights violations experienced by people living with disabilities in African cities. This perspective is often under-addressed in the general discussion on human rights. Such hidden experiences of minority groups and marginalized populations can be made visible by community-led data collection and use, where effective communication built on community data is fundamental.

**Author Contributions:** Conceptualization, D.T., M.K., N.K. and A.M.; methodology, D.T., M.K., N.K., and D.K.; validation, all authors.; formal analysis, all authors; investigation, all authors; resources, M.K. and D.T. writing—original draft preparation, D.T., and M.K.; writing—review and editing, M.K, D.T., N.K., D.K, and A.M.; funding acquisition, M.K, D.T., All authors have read and agreed to the published version of the manuscript.

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**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of ITC, University of Twente, The Netherlands (<https://www.itc.nl/about-itc/organization/boards-councils/ethics-committee>) on 25 May 2020.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the training.

**Data Availability Statement:** All training materials are available on our website (<https://www.data4humanrights.net>) to be downloaded, used, and modified. If your team desires other

language translations and can arrange for the translation, we can provide editable (Google Doc) versions and upload your translated versions to this website. Just email us (data4humanrights-itc@utwente.nl) or message us on Twitter (@Data4HumanRight).

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