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Disability Inclusion Helpdesk Report No: 17

Query title	**Mobile phone technology for disability-inclusive agricultural development: findings from an evidence review and webinar**
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Date	**18th February 2020**
Query	This report summarises findings from two queries: 1) A rapid evidence review on best practice in addressing disability and including people with disabilities in agricultural development programming, including mobile agriculture. 2) An online webinar bringing together practitioners in the mobile agriculture and disability inclusion space highlighting barriers, emerging practice and gaps.
Enquirer	**Agriculture Research Team, DFID**

Background:

This report summarises findings from a rapid evidence review and online webinar that explored best practice in disability inclusion in agriculture and mobile-based interventions for smallholder farmers. The rapid evidence review found a *very limited* evidence base, however it indentified *potential* opportunities to use mobile-based solutions for disability inclusive agricultural programming. These include using mobile technology to share agricultural information and good practice; communicate between farmers, suppliers and buyers of goods and produce; and expand access to financial opportunities for farmers with disabilities.

In May 2019, the Disability Inclusion Helpdesk conducted a rapid evidence review on best practice in disability inclusion in agricultural development programming, with a focus on mobile agriculture programming.[1] This review found a lack of evidence of established best practice in disability-inclusive use of mobile technology in agriculture. As a follow up, the Disability Inclusion Helpdesk and GSMA hosted a webinar in October 2019 to gather expert knowledge on emerging practice on how mobile technology can be used to address barriers for farmers with disabilities in agricultural programming in low- and middle income countries (LMICs). The webinar was attended by 11 experts with cross-cutting expertise in disability inclusive agriculture, ICT and accessible technology; representing one UN organisation, INGOs and DPOs in countires in Africa, Asia and Europe.[2]

This report brings together the evidence identified in the rapid evidence review and findings from the webinar. The evidence from both queries provides insights into what is known about the barriers and challenges for farmers with disabilities in agriculture programming and use of mobile technology; emerging entry points for use of disability-inclusive mobile technology in agriculture; and highlights the significant remaining evidence gaps. For the full background to this report and the detailed evidence review from the rapid research, see **Helpdesk Report no. 14.**

Findings from the evidence review and the webinar highlight using mobile technology for inclusive agricultural programming as an exciting area of innovation, one which requires a focus on adaptation and strong monitoring, evaluation and learning components.

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[1] See Disability Inclusion Helpdesk Report 14: Agriculture and mobile-based interventions for smallholder farmers: best practice on disability inclusion.

[2] These experts were identified from the research for the rapid evidence review, in consultation with GSMA and DFID.

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1.   Overview of the evidence

The rapid evidence review conducted prior to the webinar[3] (see Helpdesk Report no. 14) identified a very limited evidence base around the intersection between disability inclusion, agriculture and mobile technology. There is **a double evidence gap**:

- While there is some programming taking place in the intersection of agriculture and disability inclusion, there is **limited documented evidence** of what works and what does not work.
- The evidence base on accessible mobile interventions in smallholder farming in LMICs is even more limited, highlighting a **lack of disability specific programming** in this area, and a **lack of data and evidence on whether and how mainstream mobile agriculture interventions are reaching people with disabilities.**

> **Box 1: Definitions**
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> **Disability**: DFID follows the United Nations Convention on the Rights of Persons with Disabilities in promoting a **human rights-based approach** to disability. **Persons/people with disabilities** are: '…those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.' (Article 1, CRPD)
>
> **Small-holder farming:** Smallholders are farmers 'who produce food and non-food products on small scale with limited external inputs, cultivating field and tree crops as well as livestock, fish and other aquatic organisms' (IFAD, 2013, p. 10).
>
> **Mobile technology in agriculture:** Mobile technology is playing an increasing role in agriculture programming and is used in a range of ways, such as informing farmers about agricultural events, climate and weather forecasts, availability of inputs, market prices and connecting them to financial services, suppliers and buyers (FAO, 2017).

Given the limitations of a *very limited* evidence base, the practice note could **not identify any best practice** on disability inclusion in agriculture and mobile-based interventions for smallholder farmers. In absence of systematic reviews, evaluations and other robust evidence, the practice note identified some emerging learnings from **agriculture programmes that have included people with disabilities**, as well as good practice in **mobile-based interventions for people with disabilities**. These are presented in section 3 together with emerging insights from the webinar.[4]

In summary, drawing on the combined evidence/ insights from these two areas, the evidence review suggested the following *potential* entry-points for use of accessible mobile technology in agriculture programming in LMICs – addressing common environmental, attitudinal, institutional and cross cutting barriers (Ahlenback, Lee and Coe, 2019):

- Involve comprehensive and holistic approaches to address barriers to disability-inclusive agriculture, in which mobile technology can play a role accompanied by broader strategies.
- Assess disabled participants' literacy/numeracy skills and their use of mobile technology prior to any intervention and adjust the mobile technology to suit users.
- Consider the costs associated with use of mobile technology.

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[3] This rapid (3-day research time) research query systematically searched for evidence from syntheses, evidence reviews, systematic reviews, as well as grey literature such as guidelines, information posted on websites, learning briefs and similar sources. See Helpdesk Report no. 14 for full methodology, assessment and review of the evidence.
[4] Section 4, 5 and 6 are similarly based on findings from the initial query and the webinar.

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- Consider the socio-economic barriers that may restrict farmers with disabilities from participating in the programme.

Findings from the evidence review and webinar suggest that agriculture programmes which seek to introduce mobile technology for farmers with disabilities are more likely to have an impact if they address multiple types of barriers, including underlying barriers, as opposed to addressing one type of barrier alone. For example, programmes should not only address environmental barriers such inaccessible infrastructure but attitudinal and institutional barriers including negative attitudes and discriminatory policies.

2. Background on GSMA's AgriTech programme

The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 250 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and Internet companies, as well as organisations in adjacent industry sectors.

The GSMA AgriTech Programme works towards equitable and sustainable food chains that empower farmers and strengthen local economies. GSMA bring together and support the mobile industry, agricultural sector stakeholders, innovators and investors in the AgriTech space to launch, improve and scale impactful and commercially viable digital solutions for smallholder farmers in the developing world.

The GSMA Innovation Fund for Digitisation of Agricultural Value Chains was launched in 2019 with the aim to scale digital solutions for the agricultural last mile and improve smallholders' financial inclusion, livelihood and climate resilience. GSMA is interested in exploring how disability can be addressed under the projects supported by the Innovation Fund.

3. Key barriers and challenges to disability-inclusive agriculture and use of mobile technology

The rapid evidence review found intersecting attitudinal, environmental and institutional barriers that affect access to agricultural programming in general for people with disabilities, as well as specific barriers pertaining to access and use of mobile technology. For a full overview of the identified barriers, see Annex 1.

Environmental	Attitudinal	Institutional
• Lack of assistive devices and lack of adapted farming tools and techniques. • Agriculture trainings are not accessible for people with disabilities. • Mobile technology is not accessible for people with disabilities, e.g. non-availability, cost and affordability. • Infrastructure that is not accessible for people with disabilities and cost of transport limits access to markets.	• Negative attitudes against people with disabilities and misconceptions, e.g. seen as incapable of doing farming. • Distrust towards people with disabilities, e.g. excluding them from accessing financial opportunities. • Self-exclusion from agriculture due to internalised oppression.	• Lack of consideration and targeted approaches by development actors, farming subsidy programmes etc. • Discriminatory policies against people with disabilities, restricting them from opening bank accounts and taking out loans. • Lack of accessibility standardisation for mobile technology and systems. • Lack of access/ ownership of land.

Findings from the webinar add further insights to these identified barriers. Webinar participants highlighted **very limited availability of mobile phones that embed disability features in LMICs, and that many companies in the mobile technology sector (e.g. mobile operators, device manufacturers and service providers) do little to make their products and services accessible**. Lack of research and knowledge on disability inclusion was cited as one key reason why so little is being done by mobile providers. In addition, governments' own failures to fulfil their obligations toward the rights of people with disabilities, including equal access to information and communication technology[5], , translate into a lack of incentives for mobile companies to provide this.

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[5] Convention on the Rights of Persons with Disabilities, Article 4

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The discussions emphasised the need to consider the underlying barriers that affect people with disabilities'
opportunities to use and benefit from mobile technology in agriculture, as highlighted in the rapid evidence review (see Ahlenback, Lee and Coe, 2019, p. 12). One expert drew particular attention to how **multiple and overlapping identities and circumstances such as individuals' location, literacy levels, disposable income, and gender determine who is likely to have access to mobile technology and services and who is likely to be left behind** as smart technology and digital services continue to expand in LMICs. This highlights a situation in which smallholder farmers in general face barriers to access and use mobile technology, and that those barriers are even more pronounced for farmers with disabilities, particularly so for women farmers with disabilities. Another gendered challenge highlighted in the webinar was that women farmers with disabilities face considerable challenges to owning and accessing land.

> **Box 2: Example of how mobile technology can be used to overcome barriers**
> Enable India, an NGO that works in 28 Indian states, has developed a mobile phone-based information sharing service called *Namma Vaani*. The service allows its users to access information through listening and responding to recorded voice messages, addressing the barrier of lack to accessible information. The service can be used with basic or feature phones, and is mainly used to share information about employment opportunities but also messages relating to education, trainings and life skills. By mid-2017, Namma Vaani had received over 200 000 calls from over 15 500 unique callers (Essl Foundation, 2018).

4. GSMA's Gender Toolkit sheds further light on gendered challenges in agriculture and access to mobile technology. For instance, it highlights that women are less likely than men to own a mobile phone; instead, the majority of women farmers in LMICs are believed to access mobile services through shared phones, which are usually owned by a male family member or friend. **Entry points and pockets of innovation where mobile technology can play a role in inclusive agriculture**

The rapid evidence review identified some emerging learning and insights in the field of agriculture programming and disability inclusion (see Ahlenback, Lee and Coe, 2019 p. 6ff). Existing programming have for instance highlighted:

- **The importance that interventions consider the diverse aspirations, needs and capabilities of people with disabilities** and tailor activities accordingly, for example through participatory and inclusive workshops and consultations during programme scoping (see e.g. Drain, 2017; Drain, 2018; Bruijn and Mulder-Baart, 2014).
- **The opportunities to make agriculture more inclusive by adapting farming tools, methods and technologies to suit people with different types and severity of disability** (see e.g. Leprosy Research Initiative, 2018).
- **The potential to challenge negative attitudes and stereotypes by including both people with and without disabilities in activities and groups**, as people with disabilities can gain recognition for their work and develop social networks, and improve self-confidence (see e.g. Bruijn and Mulder-Baart, 2014).

Evidence of use of inclusive mobile technology for farmers with disabilities was more scarce, and the evidence review could only suggest entry-points where mobile technology could *potentially* play a role to address different barriers, drawing on insights from disability inclusive agriculture programming, and good practice in mobile-based interventions for people with disabilities in LMICs (Ahlenback, Lee and Coe, 2019,). Combined with emerging insights from the the webinar, the following opportunities to harness mobile technology in inclusive agricultural programming are identified and suggest that mobile technology can:

- **Enable farmers with disabilities to communicate with suppliers and buyers**, allowing them to plan their access to markets better
- **Share information on agricultural best practice**, e.g. to share information about events, agriculture lessons/best practice, climate forecasts and warnings, as well as allow farmers with disabilities to send questions directly to agriculture experts. Despite recognition of the importance of this by webinar participants, there is little evidence of how this is implemented in practice. Although participants recognised the potential of smartphones to provide disability accessible features, it was simultaneously highlighted that owning, being able to use, and pay for data packages for a smartphone is far from being a realistic choice for most smallholder farmers with disabilities. **This warrants the need to explore the potential of 'un-smart' mobile technology in a first instance, such as agricultural services and information exchange based on voice-call or simple text-messages**. It was highlighted that there can be lessons to draw on from UNICEF's RapidSMS and RapidPRO systems, which are

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used for rapid exchange of information by SMS. This has for instance been used to send and receive information to/from adolescents.

- **Provide accessible mobile banking** to link farmers with disabilities to financial institutions that could provide opportunities to access loans and other financial services to support their agricultural activities). Mobile-based banking solutions could potentially challenge environmental, attitudinal and institutional barriers that restrict people with disabilities' access to banking services.
- **Share messages about disabilities and disability rights**, such as information about barriers facing people with disabilities. These could target for instance suppliers of farm inputs, farmers groups, extension workers, and buyers of products to challenge attitudinal barriers (Ahlenback, Lee and Coe, 2019).
- **Mobile technology can be part of solutions that bring value chain services to the farm gate, which could reduce some environmental barriers**. One webinar participant explained that such services already exist (Cropin was mentioned as an example) but that these often assume a certain level of accessibility, digital literacy and literacy, and would therefore need to be tested and adopted for farmers with disabilities, and consider gendered barriers.

In order for the above opportunities to be taken, the following key approaches should be considered:

- **Governments could play an important role by providing incentives for mobile companies (e.g. mobile operators, device manufacturers and service providers) to develop disability inclusive technology**. Despite a general sense that mobile companies are not doing enough to make their products and services accessible to people with disabilities, some positive developments were highlighted: Vodacom in South Africa has taken steps towards disability inclusion, and in 2018 Safaricom in Kenya made their financial service accessible for people with visual impairments. This latter was recognised as a positive development; however, the discussion highlighted that **negative attitudes and distrust in people with disabilities is a prevailing attitudinal barrier that will not be addressed by simply making mobile financial services accessible**.
- Programmes should take an intersectional lens which considers gender and age as well as disability. **There was consensus in the webinar that women farmers with disabilities are likely to face additional barriers to engaging in agricultural activities and making it a viable livelihood**. For instance, in societies where women's mobility is already restricted by gender norms, women with disabilities may face additional environmental barriers to mobility, which may for instance limit their access to markets**.**
- A pre-requisite for using mobile technology in agricultural programming with farmers with disabilities is that the mobile based systems and content are accessible to people with different types and severity of impairments (visual, hearing, physical, intellectual). **To ensure this, people with disabilities should be included in the design and testing of the technology from the beginning**. However, a webinar participant noted that it is very rare that mobile technology companies in LMICs engage people with disabilities in the development of their products and services.

5. Evidence gaps

The queries have highlighted the following evidence gaps in particular:

- **Lack of documented evidence on inclusive agricultural programming, mirrored by significant gaps in practice.**
- **Particular lack of evidence on what works to include people with disabilities in mainstream agricultural programming.**
- Almost a total lack of evidence on the use of accessible mobile interventions with smallholder farmers with disabilities in LMICs.
- **A lack of disaggregated data and evidence on persons with disabilities' access to- and usage of mobile technology**, e.g. disaggregated by type of impairment, location, gender, age, disposable income, (digital) literacy and types of mobile usage. Increased access to disaggregated data could contribute to a better understanding of current mobile usage by people with disabilities, existing barriers as well as opportunities that mobile technology can bring to people with disabilities.

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- **Mobile technology providers/ developers generally lack knowledge of the needs and priorities of mobile users with disabilities, highlighting the importance that evidence as it becomes available, is shared with mobile technology developers and companies operating in the local context, as well as other key stakeholders such as companies and actors in the agricultural sector**.

The overall scarcity of documented evidence and limited practical know-how in the field mean that interventions in this area will require innovative approaches and will be part of establishing evidence. This underscores the importance of integrating ongoing learning, and through monitoring and evaluations systems into new programmes, and sharing lessons learnt as they emerge.

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We are also grateful to the other seven expert participants in the webinar who provided valuable inputs but who preferred not to be acknowledged personally in the report.

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Annex 1: Barriers table

Factors affecting access to agricultural programming for people with disabilities			
Individual	**Environmental**	**Attitudinal**	**Institutional**
Intersecting and compounding forms of discrimination and disadvantage, with barriers differ depending on **type and severity of impairment**, and: **Universal factors** (fixed aspects of one's identity regardless of setting), including age, gender, disability and health status. **Contextual factors** (more complex and changeable factors and those that vary by setting), including language, caste, family status, and migration and refugee status. **For example: Older age and disability** create intersecting inequalities, and so can **'triple-disadvantage'** – being a woman, poor, and disabled increase the risk of encountering multiple barriers**.	**Physical barriers** to agricultural work due to inaccessible pathways/ farming grounds, lack of assistive devices, and lack of adapted farming tools and techniques. **Inaccessible agriculture training** due to non-accessible locations, inaccessible format and content. **Barriers to access technology** – non-availability, cost and affordability, inaccessibility (format, content etc.). **Lack of information about market prices, weather forecast etc.** due to inaccessible information. **Inaccessible infrastructure and cost of transport limits access to markets** e.g. to sell produce and buy farming inputs.	**Negative attitudes and prejudice against people with disabilities (by community and development workers),** who are commonly seen as incapable of doing farming and hence not included in agricultural programming. **Misconceptions and stigma** lead to exclusion from taking part in agriculture. For instance, people with disabilities are seen as cursed and myths that disability is contagious. **Distrust towards people with disabilities excluding them from accessing financial opportunities** such as loans and saving groups that could allow access capital e.g. to invest in agriculture. For example, that people with disabilities will not be able to pay back loans/ contribute to savings groups. **Self-exclusion from taking part in agriculture** due to internalised oppression.	**Lack of consideration by development actors** (governmental and non-governmental) in agricultural policies, programmes and interventions – they do not recognise or acknowledge the need to consciously include disabled people. **Lack of targeted approaches by farming input subsidy programmes (and similar)** – the barriers people with disabilities face to access livelihood options are not recognised or addressed – "non-targeted" approaches can by default exclude disabled people. **Lack of disability disaggregated data** in agricultural and mobile phone programming. **Discriminatory policies** for opening bank accounts and taking out loans. **Lack of access/ ownership of land.** **Lack of accessibility standardisation** for mobile technology and systems.
Crosscutting barrier: Lack of basic literacy and numerical skills is the culminative result of multiple barriers that prevent children with disabilities from accessing education which leads to disadvantage also later in life. For instance, low levels of education can restrict people from meaningfully participating in agriculture trainings and restrict effective use of mobile technology.			

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Helpdesk services are provided by a consortium of leading organisations and individual experts on disability, including Social Development Direct, Sightsavers, Leonard Cheshire Disability, ADD International, Light for the World, BRAC, BBC Media Action, Sense and the Institute of Development Studies (IDS). Expert advice may be sought from this Group, as well as from the wider academic and practitioner community, and those able to provide input within the short time-frame are acknowledged. Any views or opinions expressed do not necessarily reflect those of DFID, the Disability Inclusion Helpdesk or any of the contributing organisations/experts.

For any further request or enquiry, contact enquiries@disabilityinclusion.org.uk

Suggested citation: Ahlenbäck, A., Lee., H. and S. Coe (2020) *Disability Inclusion Helpdesk Webinar: Mobile phone technology for disability-inclusive agricultural development,* Disability Inclusion Helpdesk Research Report No. 17. London, UK: Disability Inclusion Helpdesk