Food and Agriculture Organization of the United Nations

United Nations Decade of FAMILY FARMING 2019-2028

Transforming rural Africa

Trends and experiences in rural communication services

Transforming rural Africa

Trends and experiences in rural communication services

Food and Agriculture Organization of the United Nations
Rome, 2024

Required citation:

FAO. 2024. *Transforming rural Africa – Trends and experiences in rural communication services.* Rome. https://doi.org/10.4060/cc9345en

ISBN 978-92-5-138545-6

Cover photograph: ©Digital Green

Design and layout: studio Pietro Bartoleschi

Contents

Figure


©FAO

Preface

Family farmers play a key role in supporting food security, ensuring sustainable livelihoods, achieving gender equity and creating a more resilient global community, all of which are essential elements of the Sustainable Development Goals (SDGs). Opportunities for successfully achieving these goals greatly improve when family farmers are engaged as strategic partners. Indeed, family farmers are recognized as "pivotal in rendering agri-food systems more inclusive, sustainable, resilient and efficient" (FAO, 2022).[1] This is not only because they produce more than 80 percent of the world's food, and the sector employs 30 percent of the world's population (FAO, 2014b), but also because family farmers are important "custodians of biodiversity, landscapes and cultural heritage" (FAO, 2022).[2]

Communication for Development (ComDev) has an important role to play in supporting family farming and achieving the SDGs across a range of methods, media, channels and approaches. Communication that is locally driven and engages family farmers and the broader range of rural development actors can create unique opportunities for family farmers and their organizations to be heard and to be informed. It can also lead to support to address issues that are relevant and important to them. In fact, when understood and applied within a ComDev approach that is results-oriented and based on dialogue and participation, communication initiatives can be a transformative factor in the rural agricultural sector.

Within the context of the United Nations Decade of Family Farming (UNDFF) 2019–2028 and the regional Yenkasa Africa initiative, this study examines the role of rural communication services in family farming in Africa. The study analyses trends and key milestones in rural transformation and rural communication, as well as field-driven evidence of the importance of rural communication services in Africa's family farming sector. The study methodology comprises evidence gathering through projects, expert input and policy review. It presents a set of key conclusions and recommendations regarding how to strengthen rural communication services to support family farming policies and programmes.

---

1 **Blondeau, S. & Korzenszky, A.** 2022. *Family farming. Legal Brief 8.* Rome, FAO. https://doi.org/10.4060/cb8227en

2 **Blondeau, S. & Korzenszky, A.** 2022. *Family farming. Legal Brief 8.* Rome, FAO. https://doi.org/10.4060/cb8227en

Acknowledgements

This study on rural communication services for family farming in Africa represents the collaborative efforts of the FAO Communication for Development Team, Yenkasa Africa – a regional communication initiative – and several partner institutions and organizations.

We acknowledge the guidance of Dr Mario Acunzo, FAO, and Dr Sarah Cardey, University of Reading.

The contributions of different stakeholders during the consultation process were instrumental in focusing the case studies and refining the findings, recommendations and conclusions. In particular, we thank the authors of the case studies Temesgen Gebeyehu, Michael Neligwa and Gordon Nikoi.

Special thanks also go to Dianne Berest for editing the document and to Danielle Girard-Mahan for the final revision.

Abbreviations

ATA	Agricultural Transformation Agency (Ethiopia)
CIMMYT	International Maize and Wheat Improvement Center
ComDev	Communication for Development
COVID-19	coronavirus disease
ECA	Economic Commission for Africa
FAO	Food and Agriculture Organization of the United Nations
FASDEP	Food and Agriculture Sector Development Policy (Ghana)
GCRN	Ghana Community Radio Network
GFRAS	Global Forum for Rural Advisory Service
GSMA	Global System for Mobile Communications Association
ICT	information and communication technology
IEA	International Energy Agency
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IRENA	International Renewable Energy Agency
ITU	International Telecommunication Union
IVR	interactive voice response
MOFA	Ministry of Food and Agriculture (Ghana)
MVIWATA	Mtandao wa Vikundi vya Wakulima Tanzania (United Republic of Tanzania)
NGO	non-governmental organization
OAU	Organization of African Unity
PADETES	Participatory Demonstration and Training Extension System (Ethiopia)
RCS	rural communication services
SDG	Sustainable Development Goal
SMS	short message service
UNDFF	United Nations Decade on Family Farming
UNDFF GAP	UNDFF Global Action Plan
UNSD	United Nations Statistics Division
WHO	World Health Organization

©FAO/Walter Astrada

Chapter 1

Advancing family farming in Africa

Rural transformation in Africa

Africa has the fastest growing population in the world, with more than half of global population growth by 2050 expected to occur on the African continent (United Nations, n.d.). The majority of the population lives in rural areas (OAU and ECA, 1994), and although there are clear patterns of urbanization, rural communities and the rural agriculture sector remain pivotal in socioeconomic transitions in Africa. However, the agriculture sector has weak fundamentals that are "preventing a broad-based reduction in poverty and inequality" (IFAD, 2016, p. 132). Agriculture remains fundamental to the economies of African countries, but its structure and nature are changing:

> **The importance of agriculture extends well beyond primary production and is likely to grow with continued transformation of food systems and lagging growth in manufacturing. In any scenario, agriculture will continue to play a greater role than has been the case in other transformations, because factor proportions and comparative advantage favour it.**
>
> **Evidence confirms that most of the African countries that registered relatively high rates of structural and rural transformation over the last two decades managed to cut poverty quickly, while very few of the slower transformers were able to do so. Still, a significant number of countries registering quite rapid transformation showed slow poverty reduction. A common feature of such countries was limited technical dynamism (as measured by growth in total factor productivity) in agriculture (IFAD, 2016, p. 132).**

Challenges such as a lack of basic infrastructure, inadequate credit markets, poor and insecure land tenure, and ethnic and gender inequalities continue to undermine sustainable rural transitions (IFAD, 2016). Addressing these inequalities is fundamental to improving the long-term options and livelihoods of farmers. Public policy must support these transitions – addressing inequalities, building material support for infrastructure, and creating the systems to increase family farmers' capacities across the production, agro-industry and service sectors.

Inclusion is at the heart of sustainable change and takes many forms. As IFAD notes:

> **Inclusion has many dimensions, including gender, race, ethnicity, disability, religion, sexual orientation and occupation. Exclusion from economic opportunity along any of these lines can be costly for society and painful for individuals. Exclusion correlates closely with poverty. Each dimension is relevant in most parts of Africa (IFAD, 2016, p. 142).**

According to the European Commission's Africa–Europe rural transformation action agenda (European Commission, 2019), a multifaceted approach covering four key areas is needed to support sustainable rural transformation in Africa:

1 A territorial approach for income and job creation:

The aim of this approach is to look beyond the agriculture sector per se, unlock the potential of rural areas and secondary cities, strengthen the capacity of local people, notably women and youth, and empower local, regional and national institutions.

2 Sustainable land and natural resource management and climate action:

We identify policies to sustainably manage Africa's land and natural resources and to use climate action to systematically build resilience against the impacts of climate change. Adopting a food systems approach to agri-food policies and investments allows the simultaneous targeting of economic, environmental and social sustainability.

3 Sustainable transformation of African agriculture:

Acknowledging the wide diversity in agricultural situations among African countries, we propose measures to achieve rapid inclusive agricultural growth, using and preserving the full potential of ecological resources to co-design with local actors a new development paradigm. We favour a specific focus on family farming, building capacity in farmers' organizations, sustainable agricultural intensification, and agri-food systems, backed up by increased commitment to creating an enabling economic and institutional environment for the sector. African governments, societies and farmers must together drive this transformation.

4 Development of the African food industry and food markets:

Building capacity, particularly of African women and youth; participatory governance; and the involvement of education and research institutions should be integral to the partnership (European Commission, 2019, p. 8).

United Nations Decade of Family Farming

Enshrined in the United Nations Decade on Family Farming (UNDFF) is the understanding that family farmers are key agents in the future of agricultural development. Family farming is the dominant form of food and agricultural production globally and is responsible for producing more than 80 percent of the world's food. It is also multidimensional: family farming, family enterprise, food production, livelihoods, traditional knowledge, innovation systems and social dynamics are all intertwined in a complex system. UNDFF defines family farming as follows:

> **Family farming (including all family-based agricultural activities) is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production that is managed and operated by a family, and is predominantly reliant on the family labour of both women and men. The family and the farm are linked, co-evolve and combine economic, environmental, social and cultural functions (FAO and IFAD, 2019, p. 9).**

A multisectoral approach is needed to support continued agricultural development in the context of family farming. The UNDFF Global Action Plan articulates four intersecting thematic areas that need to be addressed:

1. Leaving no one behind: Disadvantaged individuals and groups suffer from different factors of inequality and detrimental social conditions, political circumstances and economic positions, leaving them vulnerable and lacking their economic, dietary and livelihood rights. These different and intersecting inequalities must be understood and addressed across all SDGs. Supporting and achieving the realization of these rights can empower family farmers to be profound change agents.
2. Multidimensionality: Family farmers are key actors in the interconnected dimensions of sustainable development. They do not act on different challenges in isolation: they work holistically across economic growth, social inclusion and environmental protection.
3. A nexus approach: Since the approval of the SDGs, many countries continue to struggle to implement integrated and comprehensive plans to address these multidimensional challenges. The UNDFF approach suggests that there are integrated, sustainable development priorities that work across SDGs, and can be most readily addressed through collaboration across complex development challenges rather than working on them in isolation.
4. Means of implementation: To achieve the SDGs, the UNDFF approach focuses on innovation, knowledge sharing, capacity building and technology access and use to create concrete action plans and strategies at global, regional, national and local levels (FAO and IFAD, 2019).

About this study

The Global Action Plan of the UNDFF recognizes the need to promote rural communication services (RCS) to advance sustainable food systems. RCS includes a wide range of demand-driven communication processes, media applications and institutional arrangements that respond to the needs of family farmers and rural populations in a sustainable and inclusive manner.

This study examines the critical role of RCS within the UNDFF framework and the regional Communication for Development (ComDev) initiative, Yenkasa Africa. By analysing trends in rural transformation and communication, the study presents field-based evidence detailing the importance of RCS in Africa's family farming sector. Specifically, it includes three case studies to understand trends in information and communication technology (ICT) policy and how ICTs have been appropriated by governments, farmer organizations and rural communities in sub-Saharan Africa.

Drawing on insights from these three case studies and a review of communication trends, policies and initiatives, the study concludes with key lessons for refining communication policies and practices to advance sustainable agrifood systems. Recommendations stress the importance of adopting a participatory, farmer-centred approach, mobilizing farmers through suitable platforms, and considering socioeconomic structures in the design of RCS, thus reducing barriers to information access. Emphasis is placed on the collective effort needed to strengthen RCS in Africa, with a focus on institutional embedding, timely content delivery and appropriate and equitable access to technology, all underpinned by effective partnerships between farmer organizations, rural institutions and community media.

© FAO/Arete/Ismail Taxta

Chapter 2

Rural communication services: a key to rural transformation in Africa

Rural communication services: a framework

Communication plays a key role in supporting sustainable rural transformation and achieving the goals of the United Nations Decade on Family Farming (UNDFF) 2019–2028 in Africa. Communication for Development (ComDev) and rural communication services (RCS) are the backbone of such transformation, consistent with the inclusive, farmer-driven approaches articulated by the UNDFF Global Action Plan (GAP). As adopted by the World Congress on Communication for Development, ComDev is defined as:

> **... a social process based on dialogue using a broad range of tools and methods. It is also about seeking change at different levels including listening, building trust, sharing knowledge and skills, building policies, debating and learning for sustained and meaningful change. It is not public relations or corporate communication (The Communication Initiative, FAO and The World Bank. 2006, p. 209).**

RCS emerge from the ethos of the ComDev approach, but they look specifically at providing a framework for the participatory assessment, negotiation, design and implementation of farmer-centred communication processes, media and activities in the agricultural and rural milieu (FAO, 2017).

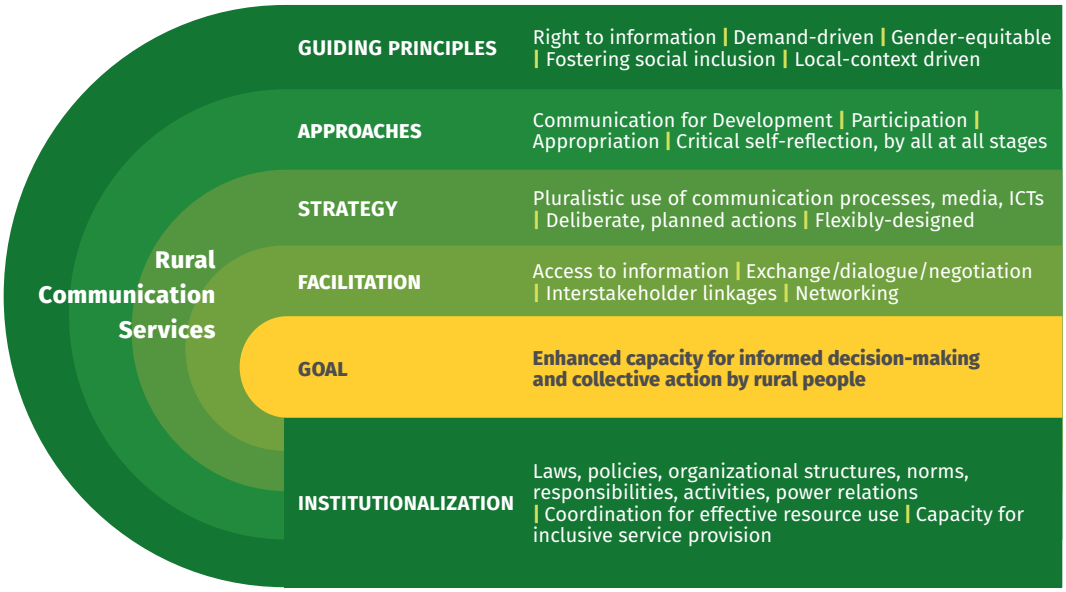
During the first Forum on Communication for Development and Community Media for Family Farming, held in Rome in July 2014, a flexible framework was proposed to mainstream ComDev in policy and programmes. This framework creates a platform based on the collaborative planning, implementation and evaluation of integrated development initiatives, and has the following characteristics and advantages:

- allows for local customization and negotiation of rural development initiatives;
- promotes coordination and better use of limited resources;
- connects geographically dispersed agriculture service providers and users;
- creates a collaborative environment and improves linkages among stakeholders;
- provides a platform for discussion and enables interactive communication;
- processes and manages data quickly and efficiently;

- enables informed and collective decision-making and provides correct information and knowledge when and where it is most needed; and
- enhances the effect and impact of existing agricultural information and advisory services.

The RCS framework operationalizes several ComDev principles and approaches as applied to agriculture and rural development. The framework includes an overall goal, four main elements, and an enabling dimension (institutionalization).

Figure 1. **Rural communication services framework**



Source: Elaborated by Mario Acunzo, Sarah Cardey and Elske van de Fliert in the context of the Forum on Communication for Development & Community Media for Family Farming (FCCM), 2014.

It should be noted that the framework also considers *key determinants* for implementing the RCS, including:

- conducive institutional and policy environments;
- enhanced local communication capacities;
- content of the communication activities;
- equitable access to appropriate technology and infrastructure; and
- partnerships and investments for sustainability.

The concept of RCS has evolved in recent years to serve as a co-learning and engagement approach and as a platform for championing rural development processes (FAO, 2014a). In *Farming for The Future: Communication Efforts to Advance Family Farming,* RCS is defined as:

> **...sustained two way processes delivered regularly to the rural population. They are intended to enhance rural livelihoods by facilitating equitable access to knowledge and information, social inclusion in decision making and stronger links between rural institutions and local communities. RCS have been documented to contain also elements of policy, service provision and institutional organization (FAO, 2014a, p. 49).**

The work on RCS is now directly linked with the activities for implementing UNDFF GAP. Indeed, Pillar 4 of UNDFF GAP focuses on enhancing farmers' capacities and recognizes RCS as a key dimension of communication efforts, emphasizing the need to streamline this element in the agenda of family farmer organizations and in associated policy dialogues, advocacy and capacity-development efforts. Within this framework, a series of regional consultations on RCS were held between May and July 2022, and a global forum on RCS took place on 11 July 2022.

Communication trends and policies in Africa

Across countries in Africa, communication policy and approaches have evolved in a similar manner. In most cases, the initial approach to providing information to farmers was top-down, driven primarily by governments. Sector institutions and governments recognized the importance of agriculture for national development and dictated how and what kind of information to disseminate to farmers. The ineffectiveness of these top-down approaches became apparent over time, however, and it became clear that unidirectional messages were overly simplistic and ineffective. As a result, policy was steered towards more inclusive and farmer-centric approaches in some instances to information and extension services. The idea of farmers as innovators and of the communication environment as one that can enable innovation through networks of actors gained prominence. In some cases, policy language began to include demand-driven extension. However, this was not a universal process (Garforth *et al.,* 2003).

The late 1990s and 2000s also saw decentralization in many countries, with extension activities being devolved to local governments. But this has yielded mixed results. In many cases, decentralization weakened the extension system, fragmenting services and limiting coordination between different agencies. Several countries moved to a more pluralistic approach, with greater involvement of the private sector, civil society, farmer organizations and donors in agricultural extension services. This approach has been successful in a number of countries as demand-driven services are much more focused, are more considerate of farmers' needs, and pilot and deploy multiple media and ICTs to reach more farmers.

However, communication structures and organizational frameworks are important to keep services from being fragmented and to ensure that those already marginalized have access to the services they require. Communication and information services must be offered in a range of forms, based on local context and needs. Different services, both public and private, are necessary to meet the needs of government, farmers and communication actors (Garforth *et al*., 2003).

National governments are working to provide a more enabling environment through their ICT policies, which encourage other stakeholders to help bridge the digital divide, support ICT infrastructure and launch ICT-based initiatives. However, the issue of access to ICTs still remains a challenge and a barrier to fully leveraging their potential to support family farming. This section will further address this issue.

Trends in ICT infrastructure and access

Current challenges in rural communication undermine efforts to provide information services to rural areas. For instance, basic mobile telephony services remain unavailable in many rural areas. Global estimates range from 370 million people having no coverage in 2015 (ITU, 2015) to 2.9 billion people being offline in 2021, 96 percent of whom are in the Global South (ITU, 2021). The reason most often given is that building and operating a network in some areas is simply not a viable business proposition: users are dispersed, the terrain is often difficult and incomes are too low. In practice, this means that conventional mobile telephone operators fail to build out their networks to the more remote, mountainous and poor parts of their licence concessions. Policy instruments designed to address the problem include establishing universal service funds where, in effect, users in more densely populated areas subsidize rural users, and attaching licence conditions to mobile phone operators or spectrum auctions, under which they are obliged to service the more remote areas. However, such policy solutions are not always applied. Mobile telephone operators often strongly resist them and in practice they are not usually delivered or sustained. The outcome is that in many countries, rural areas, especially the most geographically remote and usually the poorest, have almost no coverage. Where coverage does exist, it is very basic and of poor quality.

On the other hand, the internet is expanding rapidly within sub-Saharan Africa. For example, it has been estimated that by 2025, internet penetration in sub-Saharan Africa will increase by 130 percent (Awosanya, 2018). Of the estimated 3.026 billion internet users throughout the world, sub-Saharan Africa is expected to contribute about 495 million. Even though internet penetration is growing rapidly in the region, it is still relatively low, considering that the population is estimated to reach 1.24 billion by 2025 (Awosanya, 2018). This suggests that governments within sub-Saharan Africa need to revise their communication policies on internet provision to match the growing population and the corresponding demand for internet services.

Access to ICTs has been increasing throughout Africa with better infrastructure for rural electrification, broadband and cellular networks. Infrastructure development is much faster in some countries than in others; nevertheless, there is a significant increase overall. Despite this, the digital divide is still wide in several countries, particularly impacting low-income and rural communities (Shenglin *et al*., 2017). The divide begins with limited access to electricity, which limits access even to media like television and, to a lesser extent, radio. Electrification remains at 46.7 percent in sub-Saharan Africa and is as low as 11.2 percent in Malawi, 18.4 percent in Burkina Faso, 18.8 percent in the Niger and 27.6 percent in Liberia (IEA, IRENA, UNSD, World Bank, WHO, 2023).

The most accessible and consumed media in Africa is radio (which can operate without much electricity), with listenership as high as 90 percent in some countries, and with low listenership still at around 70 percent. Indeed, 80 to 90 percent of households in Africa have access to a functioning radio. Community radio is also becoming an important information source across the continent, with more liberal broadcast approaches in many countries. Television ownership and viewership is less prevalent at 28 percent (ITU, 2010), and growth rates are not encouraging due to multiple factors, including unreliable electricity supply (BBC World Service Trust, 2006). Approximately 46 percent of the population of sub-Saharan Africa – almost 495 million people – subscribed to mobile services by the end of 2020 (GSMA, 2022). This means that more than 50 percent of the population still has no access to mobile services. Rural populations are 60 percent less likely to use mobile internet than urban populations (GSMA, 2020a). Moreover, limited access to electricity can result in limited use of mobile services in rural areas, leaving some rural populations at risk of being left behind (Houngbonon, Le Quentrec and Ribrichi, 2021) thus compounding the digital divide. It should be noted that the divide is not only between rural and urban populations, but also between genders. In sub-Saharan Africa women are 37 percent less likely than men to use mobile internet (GSMA, 2020a).

Trends in digitalization and communication policies

In recent years in Africa, governments have been emphasizing improvements in the digital infrastructure, building digital skills, and providing digital services and platforms, which in principle enables communities to access information and services more easily and drives economic opportunities. While some focus on mass communication channels (such as television and radio) remains, several countries have launched policies and initiatives with a "digital first" approach. This is also driven by an increase in mobile phone ownership across the globe, with mobile phones becoming more common than access to electricity in sub-Saharan Africa (Economist, 2017).

Of particular note is the significant progress achieved with the development of the Digital Transformation Strategy for Africa (2020–2030) by the African Union, which takes a holistic view of digital development and includes building digital infrastructure, increasing access to smart devices and to content, and to building digital skills (African Union, 2020).

The strategy aims to have a collective vision, facilitating an enabling environment, policy and regulations in African countries, while building on existing country initiatives and frameworks. Within the strategy, agriculture is considered a critical sector in the effort to drive digital transformation across the continent.

Among the countries that currently have ICT policies and frameworks, the Government of Ghana launched its ICT for Accelerated Development policy in 2003, emphasizing the modernization of the agriculture sector through the deployment and exploitation of ICTs (Republic of Ghana, 2003) among several other policy and infrastructure-related reforms in recent years (World Bank, 2019b). Kenya has one of the strongest digital infrastructures in the African region, with its National ICT Master Plan (2014–2018) and flagship projects providing a strong ICT foundation (World Bank, 2019b). Kenya's National ICT Policy (2019) focuses specifically on "mobile first" – ensuring that citizens have access to inexpensive internet, skills and innovations, and on public service delivery including agriculture-related government services (Ministry of ICT Kenya, 2019). Nigeria introduced its National Digital Economy Policy and Strategy (2020–2030), which establishes eight pillars for digital development, including digital infrastructure, digital literacy and skills, and service infrastructure (Federal Ministry of Telecommunications and Digital Economy, 2019). Ethiopia also approved the Digital Ethiopia 2025 National Strategy, with one of the four crucial pathways being to unleash value from agriculture by building a digital agricultural platform, and another being to provide fast and reliable internet connectivity (ITU, 2020).

While some national policies emphasize the rural and agriculture sector, others are not explicitly inclusive of rural infrastructure and economy. Certain policies are also unclear about their relevance and application to agriculture and allied sectors. However, some agriculture policies themselves do include ICTs.

Snapshot of national communication and ICT policies

This section examines trends in ICT policy through a selection of country case studies and looks at how ICTs, both traditional and digital, have been appropriated by governments, farmer organizations and rural communities in sub-Saharan Africa.

Ethiopia

In Ethiopia, the agriculture sector and agricultural extension services are recognized as a part of national development and as key to achieving national goals in poverty reduction and economic growth. Research-based agricultural extension in the country began in 1953, implemented by the Alemaya College of Agriculture (now Haramaya Agricultural University).

The extension system has since used a variety of approaches, including establishing farmer training centres, creating farmer groups and training extension agents. In 2017, the Government adopted its current agricultural extension strategy, titled Agricultural Development Led Industrialization, as the overall strategy to guide the sector through 2030. The strategy is based on nine interrelated pillars:

Pillar 1: Strengthen farmer training centres through active participation of community and capacity building.

Pillar 2: Enhance agricultural knowledge and information systems.

Pillar 3: Enhance client-oriented and multi-actor advisory extension services.

Pillar 4: Facilitate market linkage and enhance value chain development.

Pillar 5: Gender, youth and nutrition mainstreaming.

Pillar 6: Enhance environmentally sustainable agricultural practices.

Pillar 7: Enhance institutional arrangements, coordination and linkages among key agricultural development partners.

Pillar 8: Human resource development and utilization for effective extension service delivery.

Pillar 9: Establish strong and dynamic result-based monitoring, evaluation and learning for continuous improvement of extension services delivery (Ministry of Agriculture and Natural Resources, 2017).

In 1995, the Government introduced the Participatory Demonstration and Training Extension System (PADETES) (Davis *et al.*, 2010). In 2006, the Government launched the Plan of Accelerated and Sustained Development to End Poverty, a five-year plan (2006–2011) for agricultural policy. Since 2010, the country has been implementing a participatory extension system, as an adapted version of PADETES, aiming to establish a sustainable, farmer-owned extension system (Davis *et al.*, 2010). The PADETES system was improved by organizing farmers into development groups and social networks, and participation was improved in watershed management and full-package extension services (Ministry of Agriculture and Natural Resources, 2017).

The Government remains the main provider of extension services, with civil society organizations and the private sector collaborating with the Government to provide extension services. Farmer organizations do not deliver extension services directly, but rather do so through the Government.

Over the years, farmer participation in extension activities, demand-driven extension, and gender-inclusive agriculture have gained prominence in extension and agricultural services in Ethiopia. The country has a strong network of farmer training centres in the field, with strong technical staff as development agents and in woredas (districts). However, most farmer training centres and woredas do not have the equipment or inputs necessary to provide many of the needed services. Moreover, there are challenges in terms of staff skills at the local level, an enabling environment, and linkage to education and research systems across Ethiopia. At the field-level, the extension system is limited in its ability to meet farmers' needs and could be more effective if there were more mechanisms to make it farmer driven and market responsive (Gatdet, 2022).

In 2018, Ethiopia's Ministry of Agriculture and Agriculture Transformation Agency recognized that poor access to diversified communication channels and low use of ICTs were creating a bottleneck preventing the improvement of agricultural productivity and incomes (Ministry of Agriculture and Natural Resources, 2014) and introduced the ICT for Agricultural Services projects to reach farmers with up-to-date information through interactive voice response (IVR) and short message service (SMS), with the goal of reaching 6 million farmers by 2025 (Ethiopian ATA, n.d.).

Additionally, 50 community radio stations received broadcast licences from the Ethiopian Broadcast Corporation and several of them broadcast agriculture-related information in regional languages (IMS, 2019). There has been rapid development of ICTs in Ethiopia, providing tremendous opportunities, but limited ICT infrastructure is posing a problem in realizing its potential in the agriculture sector (Chibsa, 2020). Many non-profit organizations are working closely with the Government to provide ICT-based solutions and extension services in agriculture, attempting to overcome these barriers. However, while there is a growing media environment, there is still room to expand ICT use. A recent study in Ethiopia has found that while video-based training systems can have greater reach than traditional extension, increasing access to extension, they did not necessarily result in greater technology uptake (Abate *et al.*, 2023).

Ghana

After gaining independence in 1959, Ghana established the General Agricultural Services Division under the Ministry of Agriculture, as the agency responsible for extension services. Subsequently, the extension system underwent several changes, from the General Agricultural Services Division being abolished and the United Ghana Farmers Council being established and providing extension services in 1962, to the reformation of extension services in 1964. In the 1970s and 1980s, the different departments under the Ministry of Agriculture undertook separate extension activities. In 1987, the Ministry of Food and Agriculture (MOFA) established the Department of Agricultural Extension Services, bringing all extension services under one umbrella (Ministry of Food and Agriculture, 2002).

In 1997, MOFA formulated the Accelerated Agricultural Growth and Development Strategy. The objectives of the strategy were to facilitate access to agricultural technology and improve access to markets. The programmes under the strategy were planned to be pluralistic, demand-driven and farmer-focused. In 2002, following the strategy, the Food and Agriculture Sector Development Policy I (FASDEP I) was developed and then revised to FASDEP II in 2007. FASDEP II recognized the problems of access to extension services, particularly to high-quality extension services. It also recognized that women farmers have less access, and that gender mainstreaming in extension planning, delivery and content results in extension services that may not address women farmers' needs and circumstances (Ministry of Food and Agriculture, 2002). To ensure the sustainability of extension services and the programme activities, FASDEP II proposed using participatory approaches, supported by adequate funds. The policy also focused on pluralism – leveraging the strength of private sector service providers and engaging farmer-based organizations for improved access by smallholder farmers to extension services.

Like other countries, Ghana also went through the phases of having an inefficient top-down approach, then moving towards a more decentralized and participatory approach, and eventually including multiple stakeholders to deliver demand-driven extension services (GFRAS, 2023). Today, the Directorate of Agriculture Extension Services under the Ministry of Food and Agriculture is responsible for managing extension delivery within a decentralized system, working through partnerships between the Government and the private sector (Ministry of Food and Agriculture, 2023). In the decentralized system, the Regional Agricultural Development Units are responsible for overseeing the extension activities and coordinating with other stakeholders, including non-governmental organizations (NGOs) and the private sector (Moore, Ferguson and Lolig, 2015).

In the early 1990s, the Government of Ghana liberalized the national telecommunications sector (Frempong and Atubra, 2001; World Bank, 2019a). This was informed by the Government's understanding of the importance of ICTs in national economic growth and development (Frempong and Atubra, 2001). The liberalization policy enabled the private sector to provide services, to increase coverage, introduce value-added services and boost consumer access to state-of-the-art technology (Frempong and Atubra, 2001).

Following Ghana's liberalization of its telecommunications sector, a five-year telecommunications development programme was introduced in 1994 by the Ministry of Transport and Communication (Boateng, 2012). This liberalized telecommunications policy aimed to increase teledensity from 0.3 percent to between 1.5 and 2.5 percent by providing public and private pay phones, increased public access in rural and urban agglomerations, expanding mobile phone coverage, promoting the ownership of telecommunication companies by Ghanaians and retaining overall public regulatory control of the sector by creating a single agency (Frempong and Atubra, 2001). This policy also sought to accelerate telecommunication development, and increased teledensity from 0.34 lines to 1.16 lines per 1 000 inhabitants and public phones from 0.001 to 0.16 per 1 000 inhabitants (Boateng, 2012).

In the 2000s, the Government of Ghana introduced two communications policies: the ICT for Accelerated Development Policy in 2003 and the National Communications Policy of 2005. Both policies aimed to steer Ghana toward becoming an information society. The basic premise of the ICT for Accelerated Development Policy was to transform Ghana into a middle-income, information-rich, knowledge-based and technology-driven economy and society (Republic of Ghana, 2003). One of the 14 pillars of the ICT for Accelerated Development Policy is to modernize the agriculture sector and agrobased industry, including providing rural economies, largely engaged in agricultural activities, with up-to-date agricultural information (Republic of Ghana, 2003).

Trends in West and East Africa

In 2020, the Niger launched the Smart Villages for Rural Growth and Digital Inclusion project, funded by the World Bank, to accelerate the adoption of digital technologies in rural areas (Kermah and Arsène, 2021). The Niger's National Network of Chambers of Agriculture e-Extension system has been the dominant agricultural extension and advisory service provider in the country, combining a call centre and radio programmes (among other media) to provide farmers with market prices. Television and radio are also used to disseminate weather alerts to farmers (Kermah and Arsène, 2021).

However, certain countries in Western Africa, such as Mali (Developing Local Extension Capacity Project, 2018a), Guinea (Developing Local Extension Capacity Project, 2019), and Senegal (Franzel, Ndiaye and Tata, 2018) do not have specific policies regarding ICT in agriculture, and the use of ICTs to provide farmer services remains low. However, they do have some radio and television programmes, and other donor-funded or private-sector ICT projects and services that provide information to farmers.

The United Republic of Tanzania's first formal national ICT policy was launched in 2003. The initial policy was later revised as the National ICT Policy 2016. Through the policy, the Government aims to bridge the digital divide and reach rural communities by building ICT infrastructure. The policy recognizes and aims to address issues of capacity building, access, gender equality, relevant content and adequate utilization of other complimentary ICTs, such as radio (Ministry Of Works, Transport and Communication, 2016). Several government initiatives have promoted the use of ICTs. For instance, the Government launched the Wananchi Portal to help citizens consult government authorities, a national data bank to provide statistical information, and individual government ministries to communicate with their citizens and stakeholders (Lubua and Maharaj, 2012). However, uptake of ICTs in agriculture and in agricultural extension services has remained low. Initiatives and projects by the private sector and civil society are slowly changing that, with a focus on different technologies and media to support extension services.

In Eastern Africa, Rwanda aspires to be an ICT hub and has an ICT Hub Strategy 2024. The strategy builds on the SMART Rwanda 2020 Master Plan, which included SMART agriculture as one of the pillars. Rwanda also launched an ICT for Rwandan Agriculture Strategy (ICT4RAG)

(2016–2020), to complement the efforts of the Ministry of Agriculture and Animal Resources to develop the agriculture sector (Developing Local Extension Capacity Project, 2018b). The ICT Hub Strategy addresses the issue of gender and ICTs, one of the very few policies to do so (Ministry Of Information Technology and Communications, 2018). Rwanda's Twigire Muhinzi extension model, which is designed to reach all farmers with advisory services, uses community and national radio. This model is also an example of institutionalizing a farmer-centred and decentralized extension system. The Rwanda Agriculture Board also uses public, private and community radio for disseminating information on pest and disease attacks to reach farmers with this information in a timely manner (Developing Local Extension Capacity Project, 2018b).

The agricultural policies of African countries vary with regard to the emphasis they place on the use of conventional media and digital ICTs for providing family farmers with information. In some countries, policies are converted into strong action on the ground with various programmes and initiatives, while in others, on-the-ground implementation is not as strong. In most countries, the private sector, civil society organizations (such as farmer organizations) and donor agencies also fill some of the informational gaps for family farmers. Despite these policies, programmes and initiatives, issues of access and digital divide still exist in many countries. Three common themes can be identified in communication policies within the subregion: (i) communication policies aim to enhance the geographic coverage of communication services in each country, (ii) communication policies have been liberalized by allowing the operation of private companies rather than nationalized communication services, and (iii) communication policies are very broad, focusing on national-level goals, with some objectives tailored to rural and agricultural development.

Media and ICT landscape in rural areas

ICT penetration

It has been estimated that more than half the population of sub-Saharan Africa will be subscribed to a mobile service by 2025 (GSMA, 2020b). Out of an estimated global mobile subscription of 5.859 billion by 2025, sub-Saharan Africa is expected to have about 638 million subscribers (Awosanya, 2018). GSMA's latest report suggests that unique mobile subscriber penetration in sub-Saharan Africa stood at 44 percent at the end of 2019, below the global average of 64 percent (GSMA, 2020b). The mobile penetration rate is forecast to reach 25 percent by the end of 2023, and 52 percent by 2025 (GSMA, 2020b).

However, this increase is primarily concentrated in densely populated urban areas within sub-Saharan Africa, while less populated, largely rural areas, remain less connected partly due to the economic challenges of network rollout in these areas (GSMA, 2020b). Lower mobile connectivity suggests that rural areas within the subregion do not have robust access to mobile communication services.

Similarly, despite sub-Saharan Africa having been documented as the world's fastest-growing mobile region in recent times, subscriber growth is slowing as the industry faces challenges such as issues of affordability and the fast-growing youth population that characterizes the subregion (GSMA, 2020b). The World Bank reports that about 40 percent of the population in the subregion consists of people who are under the age of 16, who are reported to have lower levels of mobile phone ownership than the population as a whole (GSMA, 2018).

In view of the disparity in terms of ICT penetration in rural and urban settings, efforts towards improving agricultural services and productivity must include improving communication services within rural sub-Saharan Africa. To ensure that rural areas within sub-Saharan Africa are connected to better mobile technology services, governments within sub-Saharan Africa could put in place measures such as: (i) establishing relevant regulatory frameworks, and (ii) establishing investment-friendly policies that would facilitate multiyear Capex programmes (GSMA, 2020b). Governments could improve rural communication policies by, for example, liberalizing the telecommunications sector to potentially attract private telecommunications companies, leading to competition and, in the long run, more affordable ICT services for the poor within rural sub-Saharan Africa, providing more access to agricultural information and thus improving agricultural activities.

NGOs and multilateral organizations working in rural sub-Saharan Africa must recognize the disparity between rural and urban areas in terms of penetration, ownership and access to improved means of communication and communication services.

Harnessing the potential of radio in rural development

The critical role rural radio plays in making RCS successful is highlighted in a study by Chapman *et al.* (2003). Their study suggests that "...the community element of rural radio (Radio Ada) encourages the active participation of the audience, the engagement of the community's intellectual resources, and community ownership of the radio station." (Taiwo and Asmah, 2012, p. 2) Community radio stations are set up to support and enable the participation of marginalized communities, so they can generate knowledge and share their experiences. Their programmes focus on livelihood and development issues, air mostly in local languages and cater strongly to local issues and environments. These are fundamental to RCS.

In this fast-changing landscape framed by global technological advances and a growing appetite for internet connectivity stretching deep into rural communities, community broadcasting can act as a facilitator for establishing RCS. Community radio gives rural audiences the opportunity to discuss, share and consume information on pressing issues such as the effects of global warming and ecological change on food security and livelihoods in rural communities.

In this time of changing technologies, community radio in sub-Saharan Africa is increasingly adopting new media strategies to survive (Girard, ed., 2003). The strength of the sector has always been its ability to meet the information needs of communities by providing high-quality local content and to incorporate new technologies into its programming. For example, the successful use of applications such as WhatsApp, Instagram and WeChat are a clear sign of the importance given to interactive platforms that are driven by community and individual participation.

To this end, community radio can evolve into an innovative tool that is able to identify compatible partners in the public and private sectors and among NGOs and telecommunications companies to collaborate and bring new technologies to community broadcasting, which will provide new communication possibilities. Innovation and interdependent relationships with business partners, policy makers, users and beneficiaries may provide a viable route towards a sustainable future for community broadcasting and the analogue media sector in general.

With the advent of digital broadcasting in Africa and the world, the future of analogue radio stations seems uncertain, particularly with the digital switchover for television broadcasting in progress. In most African countries, the switchover of radio from analogue to digital broadcasting is not compulsory. To date, only three sub-Saharan Africa countries launched a trial phase, Ghana, Uganda and South Africa, while another three countries expressed their interest, the Sudan, Kenya and the United Republic of Tanzania (WorldDAB, 2023). Digital audio broadcasting refers to the use of the airwave's spectrum using a digital signal. This shift means that listeners will have to buy new receivers, potentially posing a challenge in regions where resources are limited.

The rollout of fibre broadband and Wi-Fi networks across numerous countries in sub-Saharan Africa, and specifically in rural regions, may benefit the advance of RCS through community broadcasting. Fibre broadband and Wi-Fi networks are increasingly in demand for accessing and using data and internet networks. Hence the need to build rural communication and community broadcasting capacity to participate fully in this landscape and to use these new technologies. Facilitating the transition of the community radio sector in digital technology is critical for rural development, which means new services that blend radio and digital services will have to be developed.

©Digital Green

Chapter 3

Experiences in rural communication services

This chapter presents selected cases of African organizations that are providing RCS, with participatory and inclusive approaches, in collaboration with other stakeholders and with a strong emphasis on institutionalization and sustainability. The case studies represent different types of organizations: farmer and farmer-led organizations, civil society organizations, government extension services and private social enterprises. The organizations selected provide RCS using different media and ICTs to represent the wide range of media and ICT possibilities.

Case study 1: Low-cost communication technology – 8028 Farmer Hotline in Ethiopia

by Temesgen Gebeyehu

In most parts of the world, mobile phones are ubiquitous, but in Africa where the mobile penetration rate is 38 percent (Attanasio and Giorgi, 2023), marginalized communities are being left out. This is where interactive voice response (IVR), which can be accessed using phones with basic features and also through landlines, becomes a feasible option for disseminating essential agricultural information in a timely manner and, thus, empowering family farmers. As an example, the interventions of Ethiopia's Agricultural Transformation Agency (ATA), working with partners to deliver information to farmers using IVR and other ICTs, are reshaping agricultural extension delivery.

Together with Digital Green and Ethiopia's Ministry of Agriculture, ATA institutionalized the use of ICT-enabled services – a combination of locally produced video, community radio and IVR, together with farmer group training conducted by trained development agents, to disseminate pertinent information about agricultural practices, tools and technologies. These interventions were subsequently institutionalized in national agricultural policies that promote the use of ICTs, including mobile phones, IVR, farm radio and television, to disseminate agricultural information (Ministry of Agriculture and Natural Resources, 2014).

These efforts have resulted in farmers increasing their knowledge and adopting improved technologies and crop protection strategies (Precision Agriculture for Development, 2020). The consortium combined locally produced video, radio, IVR and human mediated facilitation to disseminate information about good agricultural practices, tools and technologies developed via the New Alliance Scaling Seeds and Technologies Partnership that improves smallholder farmer productivity and environmental outcomes (Digital Green, 2023).

Approach

This case study introduces the use of IVR in implementing the ATA 8028 Hotline – smallholder farmers access the Farmer Hotline by calling the short code 8028. It is toll free and gives callers information on a range of agricultural activities. Farmers and extension agents can also subscribe to the service and receive information on specific areas of interest automatically whenever they dial in (Ethiopian ATA, n.d.).

IVR uses a phone with simple features to disseminate prerecorded messages containing information on themes that are pertinent to the user. IVR also permits the users to ask questions and leave feedback on the service. ATA's 8028 Hotline not only caters to the information requirements of farmers and development agents through inbound calls, but also enables the administrator to push customized and relevant content according to immediate challenges faced by farmers through outbound calls. The ATA worked with partner organizations such as Digital Green and Precision Development to deliver these specialized extension services to farmers.

The source of the content for this service was an extension package provided by the Ethiopian Ministry of Agriculture. The package was a collection of best agronomic practices for each crop, developed in consultation with agricultural research institutes in Ethiopia. Based on this package, the content for each crop was summarized by a team of agronomists and shared again with the Ministry of Agriculture for approval. Once the messages were approved, the content was recorded and uploaded onto the hotline.

The ATA offered information on 21 crops across five stages of crop development – pre-planting, planting, crop protection, fertilizer side-dressing, and post-harvest and processing (Precision Agriculture for Development, 2020).

Inbound calling was toll free, and farmers could receive information on a wide range of agricultural activities covering all major crops – cereals, pulses and high-value crops. The service expanded in 2020 to cover information on COVID-19 as well as livestock content such as dairy production, fattening (cows, sheep and goats), small-scale poultry, improved household poultry, and apiculture. Each number or button on the keypad corresponded to a separate agricultural subject or crop. Farmers typically navigated the keypad to find the activity they were interested in and could then listen to the automated response that contained the required information.

For outbound push calls, customized content was created related to agricultural challenges such as drought, pests or disease. This information was tailored based on crop, geography or demographic data captured during the registration of new farmers to the IVR system, and then stored on their respective profiles. Agricultural advice on subjects such as wheat rust occurrence and treatment, maize lethal necrosis disease, fall armyworm, and unseasonal rainfall was broadcast using this feature. In addition to agricultural topics, information on livestock and the COVID-19 pandemic, such as safe farming, family and community interaction and dispelling COVID-19 myths was also disseminated.

Information was gathered from local development agents based on the information requests they received from farmers in their local woredas. This content was then disseminated – or "pushed" to the relevant farmers. Early warning messages were also developed using the data collected from surveys conducted through the hotline. The International Maize and Wheat Improvement Center, in collaboration with the Ethiopian Institute of Agricultural Research, generated advisories that were developed into content and uploaded to the IVR system. For COVID-19, the content was developed by public health institutes in collaboration with the Ministry of Health and the same workflow as mentioned above was followed.

The ATA also established a help desk that links the IVR advisory system to services provided by people. This enabled both farmers and development agents to ask and record questions and report issues in their respective regions. Information about the queries was recorded, questions were answered by subject matter experts, and these answers to farmers' questions were provided at the woreda level by the Ministry of Agriculture.

The hotline system could handle 330 concurrent calls at any given time. Seven lines were available to handle incoming calls and four lines handled outgoing calls. The database was managed by three servers hosted by a central data centre. The content production of the IVR was outsourced to an information technology service provider who produced and recorded the IVR content.

A survey tool was also put in place to capture information and data at the woreda and kebele (municipality) levels. Such information was useful in directing the agronomists to create customized content according to the issues farmers were facing. For instance, during the pilot of the survey tool, a team of experts identified and verified the occurrence of wheat rust and subsequently dispersed detailed forecasts on how the disease would spread in Ethiopia. The hotline then alerted the farmers whose regions were going to be affected by the disease on how to identify and treat it (Ethiopian ATA., n.d.).

The administrators of the service had a user dashboard (Obesia, 2016) that provided them with the real-time statistics of the users calling into the system. Statistics such as active calls, inbound calls, weekly unique calls, number of calls per region and number of users registered in a language were displayed on the dashboard. The primary aim of the dashboard was to moderate the services of the hotline. With the dashboard in place, it became easy for the administrators to look for errors and flag them in near-real-time.

The dashboard also served to plan the content of push calls and schedule them in advance. With information such as the farmers' area and region easily tracked, the farmers were grouped into clusters to send out customized advisory or service information. Early warning systems for diseases were deployed using these farmer clusters to simultaneously warn hundreds of farmers in the region of coming threats.

One of the prime challenges of an IVR service lies in the limitations inherent in the system (Precision Agriculture for Development, 2018). The fact that it lacks visual cues to support comprehension of the new agricultural practices being demonstrated can pose a challenge. However, as with radio, which relies on audio information alone, an effective script can provide clarity and improve comprehension. Designing and packaging the content in a way that engages the audience, holds their interest, and keeps them returning to use the service is crucial to the success of IVR (Obesia, 2016). While in a human-mediated session, the mediator can keep participants engaged by catering to their interests, in self-learning platforms like IVR the content must be engaging enough to hold the listener's attention long enough for the listener to absorb all the necessary information. There is no opportunity to further develop the context of the information, as the message must be kept short and precise.

Multiple languages present another challenge with IVR systems. Automatic voice recognition software doesn't always work with all languages. While the technology is improving and the software can be trained to recognize an increasing number of languages and dialects, it remains a challenge. It is also a challenge financially in terms of the cost of the system and the cost of implementing it, particularly for less-common languages.

Phone ownership is still low in Ethiopia. As such, the reach of IVR systems using phones in Ethiopia is limited. Rural populations, as previously noted, have lower rates of phone ownership, meaning that many farmers will be excluded from using IVR-based services.

Another challenge is the cost of raising awareness about IVR services, which can be substantial. If the service is to be used by farmers, there must be regular awareness raising among farmers to help them get the maximum benefit from the service and to continue to see its relevance to their agricultural practice. The reach of the service depends largely on the efforts of local development agents to do the awareness raising. However, their role as extension agents may not give them the time or mandate to do this. Therefore, there is a tension: while IVR services rely on awareness raising from field agents and extension workers, these same people are often stretched very thin, and promoting the IVR service may not be one of their top priorities.

Impact in reach and adoption

Evidence from India and Kenya shows that agricultural advice provided through telephone systems can lead to changes in farmer behaviour (Cole *et al.*, 2019, Fabregas, Kremer and Schilbach, 2019) and increases in yield (Casaburi *et al.*, 2019; Cole and Fernando, 2021). It is plausible that the agricultural advice provided by the IVR system in Ethiopia could have a significant impact on yield and, thus, on farmer livelihoods.

As of 2019, the ATA hotline had served about 5 million callers and handled about 51 million calls in five different languages, covering themes of crop production, but also COVID-19 and livestock information. The service bridged the gap between family farmers in remote areas and scientists and agricultural experts, using a low-cost technology that can be scaled up at low marginal cost. The ATA's efforts have led to 66.4 percent of agricultural households accessing agricultural extension services (FAO, 2020a). The traction of this service among producers does provide anecdotal evidence that there is demand for the service. Follow-up of how the information provided by the system has been used by farmers suggests that some best practices have been adopted because of the service.

The service also incentivized farmers to report pests, diseases and other agricultural issues in their respective areas and provided them with access to rapid, practical, expert derived control advice from the ATA.

The hotline system led to the standardization of information, avoiding the possibility of human error in providing information. The wheat rust early warning system was developed using surveys conducted by the Ethiopian Institute of Agricultural Research (CIMMYT, 2019), and information from the hotline call logs helped development agents identify cases of rust at woreda level – with the IVR information reaching 10 000 development agents and 275 000 smallholder farmers (Mercy Corps and AgrIFin, 2020).

> *Launched in July 2014, the hotline received 1.5 million calls from 300 000 farmers within 12 weeks of operations. It initially covered Oromia, Amhara, Tigray and the Southern Nations, Nationalities, and Peoples' Region, but was later expanded to cover the entire country. As of 2019, about 4 million callers – about one-third of the total family farmer population – had registered with the service (Tsan, et al., 2019).*

During the 2020 COVID-19 pandemic, the ATA in collaboration with Ministry of Agriculture, Ethio Telecom, Ethiopian Public Health Institute and Mercy Corps Ethiopia, updated the service to incorporate COVID-19 health advisories that provided information on safe farming, family and community interaction, handling COVID-19 deaths and COVID-19 myths (Ethiopian Monitor, 2020). The initiative aimed to halt the spread of misinformation and was one of the few available channels in rural areas through which official and trustworthy information could be disseminated during the pandemic.

Lessons learned

- IVR can be a good tool for implementing extension services in countries such as Ethiopia, with a largely rural and dispersed population and low ICT access.
- IVR is scalable at marginal additional cost, making it a good option in countries where resources must be carefully used to achieve maximum benefit. IVR has been highly effective as a key, low-cost vehicle to reach rural communities at scale.
- Farmers will call the service to access agricultural and weather information.
- While women may not have access to their own phone, there is some indication that they are able to access information through the IVR system more easily than through community meetings, where their concerns may not be heard. IVR can be used in combination with other services to support women's agricultural activities.
- The nature of IVR is such that the content creation must be centralized as it requires some infrastructure; however, content must be made context specific. Special content on early warning systems, pest management and other topics is developed using data collected from IVR surveys, making it possible to create specific content for targeted areas. Collaboration to develop specialized content covering, for example, digital financial literacy, livestock topics and COVID-19 information has been an essential practice, and many partners work together with the ATA to develop such content for use by family farmers and to build their capacity.
- Creating awareness of the IVR service must be continual. Despite the popularity of IVR, many rural communities remain out of its reach due to a lack of awareness of the system. Development agents need to buy into the service and help make it popular among rural communities.

Case Study 2

Sharing agricultural information through value-added services – Esoko in Ghana

by Gordon Nikoi

Family farmers produce one-third of the world's food (FAO, 2014b) but owing to complex agricultural value chains, they depend on a series of actors to be able to profit from their produce. Furthermore, the farmers often receive the smallest portion of the profits due to long value chains. Connecting farm production, processing and distribution could make value chains more efficient (Africa Progress Panel, 2014). Achieving such efficiencies in complex value chains is driven by information. Empowering family farmers with information ensures that they have more negotiation power when selling their goods, and it brings more transparency to the entire value chain. Therefore, an information-driven approach enabling farmers to adapt to value chain complexities is important for increasing farmer livelihoods.

This case study examines Esoko, a private company using ICTs to bring agricultural information to farmers in Ghana. The name is a fusion of "E", which stands for electronic, and soko, which means market in Swahili. The company has partnered with public and private organizations at national, regional and international levels. Esoko's work in Ghana and several other countries covers three activities: (1) digital farmer services; (2) data digitalization services and analytics for agribusiness organizations; and (3) customized registration/survey programmes (Esoko, 2023b; Atanga, 2020). Within these activity areas, Esoko offers a host of services such as recruitment of field officers for executing grassroots projects, training and management, data collection, farmer profiling, surveys and tracking project activities on the ground. This case study looks specifically at the dissemination of agricultural and economic information to farmers in Ghana.

Esoko's main offering to farmers includes automated alerts containing agricultural and economic information sent to mobile phones in the form of SMS and voice messages. The products offered include information on market prices (58 commodities in 42 markets nationwide, collected at markets daily), weather forecasts, crop price bids and crop production protocols.

Most products offered by Esoko use mobile technology. In addition to its information products, Esoko offers a number of business-to-business products aimed at larger paying customers. These include marketing products, monitoring and evaluation products, as well as goods-sourcing products. Products can take the form of bulk messaging, SMS polling, call centre monitoring and call surveys. The following describes Esoko's four main services.

Providing crucial agronomic, weather and market information

This package offered by Esoko provides information about agronomy, markets and the weather forecast. The data collection technology developed by Esoko, known as Insyt (Fugar, 2017), works both online and offline, and syncs to a web-enabled reporting dashboard. This dashboard allows Esoko to provide information that allows agronomy, market and weather programmes to be specifically targeted to their audiences based on data (mostly gathered by Esoko), and not subject to poor or false information and misinformation. Some data utilized by Esoko is open data sourced by the Ghanaian Government. However, most of the data is generated and curated by Esoko.

> **AGRONOMY:** Esoko gathers data from various sources about pests, diseases and other similar topics and broadcasts timely warning messages to farmers in several local languages. The warning messages might include the risk level of the pest or disease in the area, recommended actions to be taken and steps on how to use the Esoko call centre to gather more information.
>
> **MARKET:** Esoko's agents gather price data from approximately 50 markets in Ghana (Andrason and Van Schalkwyk, 2016) which is used to provide farmers with crucial market information, enabling them to make selling decisions and negotiate better prices for their produce.

> **WEATHER:** Field agents also collect exact GPS coordinates of the field to send targeted weather updates (Fugar, 2018). Other data collected is not made publicly available but is provided as a value-added service to business clients.

Providing financial inclusion services

Esoko Wallet (and Visa Payment Solutions) is another service that smallholders can use to access payment solutions, buy agricultural inputs and mechanization services, and access guaranteed and structured market outlets (Atanga, 2020). Esoko Banbo is a microinsurance service introduced by Esoko for smallholder farmers and informal workers (Esoko, 2023a). This service aims to reduce the risks that dominate agricultural practices for small farmers and their families. This platform also educates farmers on insurance and related products.

Esoko's multifunctional farmer helpline

Esoko's helpline serves as a quick point of reference for services such as weather updates, agronomic tips, extension services, market prices, market access and nutritional advice. The helpline's most popular services are:

- **Linking buyers and sellers through web and mobile platforms.**

  The farmers utilizing this platform can call Esoko's call centre and provide information on the crop they want to sell, the quantity and their location. This information, along with the farmer's contact details, is sent to buyers and aggregators on the platform. The buyers post bids and offers online and these are sent to the farmers over their phones through "offer alerts" (Asare-Kyei, 2013). Since market pricing is available to the farmers who are subscribed to the service, they can easily negotiate to get the best price for their produce.

- **Providing farmers with pest management and other agronomic advice.**

  Farmers can contact the call centre to seek advice from well-trained agricultural experts on pest outbreaks and how to manage them effectively.

Value addition for business organizations providing services for farmers

Esoko provides data and other value-added services to various product and service providers. For instance, through its Satellite for Business (Sat4Business) digital platform (Fugar, 2020), Esoko facilitates access to finance for smallholder cocoa and oil palm farmers by providing the farmer's credit scores to lending institutions to aid credit decisions.

Challenges

Digitization is affected by poor infrastructure, connectivity issues, and remoteness of location. In remote areas, many farmers, especially women, do not have access to their own devices. In these cases, the Esoko team must go through other farmers or other parties to reach the intended beneficiary. Access to the market information provided by Esoko may result in greater bargaining power when selling their produce, but it does not directly translate to higher profits, as farmers need to be able to act on the information they receive, which is not always possible. For instance, a key challenge for farmers is market access. Where farmers do not have the physical means to reach the marketplace, the information they receive may be of little benefit to them.

Literacy levels affect the use of phones and other digital devices. Researchers often point out challenges for farmers in operating mobile applications (Atanga, 2020). Illiteracy slows their ability to adapt to technology, both in terms of using the technology and in using the knowledge received through the technology. Information received from Esoko may be hard for certain illiterate farmers to interpret and apply in their agricultural practice.

High data costs can deepen the digital divide. If only a few wealthier farmers are able to afford it, the digital divide becomes wider. Moreover, women are less able to access digital resources than men because of cost, access and relevance to their agricultural interests.

High deployment costs can limit the expansion of such services. Reports suggest that the largest of Esoko's expenses is the deployment cost (Andraason and Van Schalkwyk, 2017), which accounts for 95 percent of the total cost of running the service. This means that, unless the company can expect the service to be highly profitable in a given area, it will not seek to expand there.

Agricultural trade and value chains have become more informed and transparent with greater information available. Farmers can compare the prices being offered in other markets with the prices they are being offered at the farm gate. As a result, they can negotiate higher prices and discover new markets, thus trading more effectively. As farmers become more aware of the ecosystem, traders modify their bargaining and trading strategies. Esoko offers agricultural information related to market prices, the weather, cropping calendars, nutrition and agronomic practices. The platform provides a two-way communication and information flow between farmers and other value chain actors.

This has increased farmers' knowledge as well as their access to quality inputs, credit and formal markets. The business model of voice, video, and call centres is easily accessible to illiterate farmers (FAO, 2020a). This has also led to higher profits for farmers. Studies have shown that farmers using Esoko increased their long-term profits (over two years) by 11 percent. This is primarily due to traders offering higher prices to farmers, as they assume that the farmer is aware of market prices (Hildebrandt *et al.*, 2020).

Case Study 3

Empowering farmers to broadcast their voices – Mtandao wa Vikundi vya Wakulima Tanzania

by Michael Neligwa

Community radio is one of the most affordable communication channels for farmers in remote areas. In recent decades, community radio transformed from being a source of information to being a reliable medium of expression, empowerment and advocacy for farmers and others in rural areas. Community radio plays an important role in filling the gap that mainstream media tends to leave - that of showcasing locally relevant issues of remote, rural and marginalized communities (Madamombe, 2005). This case study examines a farmer organization that established the Mtandao wa Vikundi vya Wakulima Tanzania, or MVIWATA, radio station in Morogoro, the United Republic of Tanzania in 2019.

MVIWATA is a Tanzanian national network of farmer groups founded in 1993 by small-scale farmers from the Morogoro, Iringa, Tanga, Mbeya and Dodoma districts (in the United Republic of Tanzania's centre, southwest and northeast) to create a farmer-to-farmer interaction forum. Sokoine University of Agriculture in Morogoro guided and assisted its formation, which culminated in the organization's legal registration in 1995. MVIWATA's purpose is to bring together farmer groups and local farmer networks to form a strong national farming organization capable of representing and advocating for farmer interests at all levels of decision-making. MVIWATA's overall goal is to be a voice for farmers in collectively tackling their demands and issues, through participatory communication, lobbying, advocacy and organization-building to provide agronomic and marketing services. MVIWATA promotes developing strong organizations to support smallholder farmers, as well as establishing reliable marketplaces for selling farm produce, long-term financial and technical consulting services, and farmer empowerment at all levels.

MVIWATA's foray into community radio was spurred by multiple factors. One was that the organization felt the need to amplify its information and advocacy efforts through a means that they themselves owned, operated and executed. MVIWATA also wanted to develop a communication tool for the many interventions that it had been carrying out over its history. Secondly, reaching out to commercial radio stations and asking them for a time slot in which to produce and air farmer-specific content was cumbersome and expensive. Finally, even when commercial stations agreed to produce and air their programmes, the programme content was modified and aligned to meet the requirements of the commercial station, rather than being what MVIWATA intended to promote. These factors led MVIWATA to establish its own community radio station – MVIWATA FM, whose mission is to become the voice of the voiceless.

Community and participatory development are at the heart of MVIWATA FM's approach. Most of its programmes are developed at the farmer level, but training and production are carried out by MVIWATA. The community radio currently airs 31 programmes, divided into three major areas:

- information and education programmes, covering best agronomic practices, market information and prices;
- discussions and knowledge-sharing programmes, covering land rights and land lease and rent options for farmers: and
- entertainment programmes.

Since MVIWATA operates throughout the United Republic of Tanzania, it has access to considerable farmer-specific information which it uses in producing the radio programmes. Content is gathered from meetings conducted by MVIWATA farmer organizations to understand the issues of the local farmers. Once a broad concept note is developed, the MVIWATA FM team goes back to the farmers to gather finer details. This can be done through face-to-face meetings or through phone calls. The farmers providing the information on locally relevant issues then become programme correspondents, and their interviews are inserted into the broadcast. Sometimes, if the farmers are located near the radio station headquarters, they are invited into the station to discuss specific issues that are then recorded, edited and broadcast.

MVIWATA FM also conducts surveys through its parent organization. Questionnaires are sent to member farmers in different areas and their recorded responses are developed into programmes. The member farmers who own smartphones are also connected on a WhatsApp group that they use to report hyperlocal news such as weather information, pest attacks, crop diseases, etc. This WhatsApp group also sends in photos of crop issues they face as primary evidence. The studio can then follow up with the farmer to seek additional details or supplementary information, or to check the validity of the information.

MVIWATA FM's programming caters to a wide range of audiences, from young to older farmers. For instance, its Youth and Agriculture programme caters specifically to young people and aims to motivate them to choose a career in agriculture. Youth migration to urban areas in search of better lifestyles and earning opportunities is detrimental to the future of agriculture everywhere. This programme tries to counter this phenomenon by encouraging youth to adopt best practices and facilitating collaboration at the local level, sometimes among family members. MVIWATA produces another programme called Women Space that provides women farmers with a forum to discuss the issues and challenges that they face, such as how patriarchy manifests in their day-to-day lives and what active strategies they can use to counter its adverse impacts.

Information in MVIWATA FM's programmes is presented by agronomists and agriculture market experts from leading agriculture and scientific research institutions. The programmes disseminate information and knowledge on agronomic best practices, crop diversification, handling land disputes, markets, prices, climate-resilient agriculture, etc. Listeners can call in during the programmes to ask questions and learn about actionable solutions from the experts.

There is a high demand for MVIWATA FM's services, but not enough financial cushion to meet the demand. The need for MVIWATA FM is strongly felt by MVIWATA's member farmers across the country, and this is echoed at the organization's annual general meetings. Licensing and establishing radio stations is expensive. Since the organization relies primarily on membership fees and project funds to operate, limited funding is available to expand and scale MVIWATA FM into other regions of the United Republic of Tanzania, despite nationwide demand. There is also limited staff available: MVIWATA FM has only three full-time employees. The station needs to borrow money from its parent organization. Such underfunding means that the station must limit the scope of its activities.

MVIWATA FM currently reaches about 250 000 people in three districts of the United Republic of Tanzania (FAO, 2021). The agricultural practices shared through the station's programming have significantly helped farmers improve farm preparation and pest management, helping to ensure higher yields. Local farmers have stated that MVIWATA FM programmes, like Uzalishaji endelevu (sustainable production), taught them about integrated pest management, a low-cost and effective method they applied on their horticultural farms that has saved their crops and reduced their expenses.

Educational programmes and information sessions have also supported farmers at the community level. In Ilonga village in Kilosa district, for example, information on the process of participatory planning helped the community to request a budget to build a health centre. As a result, the central government has allocated funds for its construction in the 2021/22 budget.

Lessons learned

- Leveraging the power of network: Community radio stations with limited financial resources should collaborate extensively with various agencies and organizations and focus on building relationships with them. This translates into good results when on-the-ground expertise or presence is needed while running community radio operations. For instance, MVIWATA FM leverages the MVIWATA platform to source information and content from various farmer organizations across the United Republic of Tanzania.
- Farmer organizations that own or work closely with community radio have the advantage of being able to keep their communications focused on the priorities expressed by their members, rather than conforming to narratives usually driven by advertisers. Community media helps them to produce their own content to suit the multiplicity of community needs. This structures radio as a mass communication service, genuinely responding to people's needs. It gives them the opportunity to produce content that answers to the requirements of their communities.

©Digital Green

Chapter 4

Insights from trends and experiences

Lessons learned

Having reviewed forms of communication, communication policies, the penetration of ICTs, the role of media and ICTs in agricultural and rural development, and initiatives and projects promoting communication in sub-Saharan Africa, this section highlights the lessons learned for communication policy and practice to improve the livelihoods of rural communities.

1 The reach of communication infrastructure must be expanded

Despite the increase in mobile telephony and ICTs across the African continent, communication infrastructure continues to leave many rural farmers without access to important information. Without affordable access to communication tools, information and communication will not benefit the farmers who most need support. Public and private cooperation will be necessary to provide mobile phone and ICT access universally.

2 Rural communication services should develop programming in local languages

Organizations (whether non-governmental, bilateral or multilateral) that intend to use modern communication technologies to reach rural farmers should properly consider providing information in local languages so that farmers can fully understand and make use of the information. Communication interventions should consider language, literacy, numeracy and social factors when designing technologies to ensure equal access to the information services being provided. Where this is not done, information inequalities can be exacerbated, and the cultural identity of local communities neglected.

3 Rural communication services should provide equitable access to knowledge and information

The review of mobile phone penetration in sub-Saharan Africa suggests that more men than women own mobile phones in the region. To ensure that agricultural information is equitably accessed, NGOs and other organizations should acknowledge this in their communication interventions and act to ensure that women farmers have equal access to agricultural information for their farming decisions. As such, before implementing interventions involving mobile technologies, implementing organizations must conduct a baseline assessment of the ownership and utilization of mobile phones to guarantee that services are equitably accessed and utilized across different areas. Furthermore, rather than making assumptions about the type of information that is preferred by each gender, implementing organizations must design their content based on evidence from each community.

4 Mechanisms should be put in place to increase the communication capacities of communities

In Esoko and Farm Africa's project Knowledge Plus in the United Republic of Tanzania (discussed in Chapter IV), one of the successful aspects of the project is that they put in place mechanisms to increase the communication capacity of beneficiaries. Organizations intending to undertake interventions aimed at contributing to the development of rural areas in sub-Saharan Africa must ensure that the communication capacities of the local communities are supported so they can take over and manage the initiatives established by projects after the projects come to an end. This means increasing the capacity of communities to design communication activities, manage them, and maintain them over the long term.

5 Communication technologies should be blended with existing modes of communication

There is a long and rich communication tradition across sub-Saharan Africa. These traditions must not be forgotten in the race to use new technologies to improve the provision of information. Integrating multiple forms of communication has the potential to increase the relevance, engagement and impact of rural communication interventions. There remain barriers to using mobile and internet-based technologies in rural communities, related to cost, infrastructure, policy and sociocultural perspectives. Working with multiple forms of communication can help mitigate these challenges, increasing the likelihood of success.

6 Communication interventions should obtain regular feedback from farmers

Organizations that implement communication interventions should have a feedback mechanism in order to determine if the information they are providing truly meets the needs of the beneficiaries. Rather than being mere recipients of information, farmers should play a core role in the feedback cycle of every communication intervention.

7 Communication initiatives should be farmer centred

The importance of farmer-centric, demand-driven communication is the essence of the Communication for Development approach. Although this is well established and understood by many stakeholders providing communication services, there is a lack of information on participatory, farmer-centred communication initiatives linked to ongoing agricultural initiatives and policy efforts that benefit from inclusive rural communication services.

Though organizations are largely farmer-centric, the level of farmer participation may differ from organization to organization, and country to country, ranging from engaging farmers in consultative processes, to farmers themselves producing media and to supporting the development of farmer-owned communication initiatives. Sometimes, organizations also train farmers and farmer groups in media and ICT skills for more engagement, participation and ownership, as well as to increase the sustainability of Communication for Development initiatives.

8 Diverse communication channels should be integrated for effective community engagement

A variety of Communication for Development activities are conducted using different media and ICTs. Even if an organization focuses on one particular media or ICT, it may also use complementary communication channels. For instance, a community radio station, though primarily focused on radio as the means of communication, might also use social media to disseminate information, and might also conduct community meetings on a regular basis. Or a government extension service may use multiple media and ICTs to reach farmers at scale, depending on the access to different media of their target farmer groups. They might have an IVR service for farmers with less access to ICTs and mobile applications for farmers with more access and resources. Organizations tend to conduct assessments of media and ICT access and availability among the farmer groups they work with, and to design and provide communication services accordingly.

Another important issue is that media and ICTs are usually supported by face-to-face interactions, such as home visits and community meetings. Forums such as community meetings are also important in building farmer participation and facilitating community dialogue. Though there were fewer face-to-face interactions during the COVID-19 pandemic, they still play an important role in interacting with farmers, community mobilization

and participation. However, media and ICT services have themselves been designed in such a way as to facilitate and enable two-way communication that encourages farmer participation. For instance, community radio programmes invite farmers to call in and share their experiences, community video screenings encourage farmers to provide feedback on content, and IVR services enable farmers to ask questions and request further information.

Farmers and rural communities appropriating media and ICTs

An important dimension in the design and implementation of RCS is the appropriation of media (including ICTs) by stakeholders to foster inclusiveness and sustainability in RCS. Several lessons and tips have been collected in relation to this important dimension of RCS, which are presented in this section.

1 Farmer-centred approach

Adopting a farmer-centred approach is central to promoting RCS. All the cases described here demonstrate that it is essential to consider the needs and resources of farmers, considering both the media and ICTs they can access, and the information they actually need to improve their livelihoods. Only when the services provided meet these two basic parameters can they be of use to farmers and can the services be scaled up.

2 Co-creation and sharing of knowledge

The participatory co-creation of content for knowledge-sharing and collective action is a vital element of this inclusive approach. Different organizations use different methods and degrees of farmer participation, including farmers creating content, providing feedback on content, participating in group meetings or calling in to request information, and even contributing their own resources, such as time and skills, in content creation activities. Such participation increases the ownership of farming communities in the communication services provided as well as ensuring that the information provided is highly relevant and meets the immediate needs of farmers, thus having a high level of impact.

3 Localized content

Developing localized content increases the likelihood of agricultural practices being adopted. A common element, which is documented in the case studies, is that the content was local and highly contextualized, making it easily accessible and applicable for the farmers. Often, such content is used for technology transfer or to disseminate new, high-value or climate-resilient agricultural practices. Such content also sheds light on the needs, opinions and aspirations of the rural populations they serve. When local farmers develop such content for their own communities it helps to ensure that the information is contextualized and makes it easier for the local population to adopt it.

4 Literacy vs media literacy

Lower literacy levels must be considered when using media and ICTs. The level of literacy of the target audience affects how information technologies and devices are designed and how easily they can be accessed. Rural populations with low literacy levels have limited capacity to use the technologies that are available today. When features such as video and audio are included, rural people with low literacy levels are able to leverage these media for their agricultural practice and for making informed decisions in their day-to-day lives. The organizations documented in the case studies used a variety of media and sometimes a combination of several media, to engage farmers on various levels. This was often done by complementing media and ICTs with physical interactions such as farmer group meetings, also through online platforms, wherever possible.

5 Connectivity and access

Connectivity and access are persistent issues that must be addressed. The COVID-19 pandemic saw the greatest jump in the number of people using the internet in a decade – a jump of almost 10 percent (ITU, 2021), mostly driven by users in the Global South. Despite the massive shift of people going online during the pandemic and the momentum that digital upskilling gained as a result, several countries are yet to make the internet readily accessible to their entire populations. This makes access to digital resources much more difficult, particularly for women, who are most often on the wrong side of this digital divide as they are usually the last members of the family to own electronic devices, often resorting to using the devices of male family members. As such, ICT-enabled interventions are less likely to reach women because they have to be routed through male family members, which slows down the process and in most cases renders it ineffective.

6 Appropriate media

Appropriate media and ICTs and direct access to source data can provide timely access to information. One advantage of having media and ICT channels readily available to farmers is that it eliminates the need for middlemen. Farmers can access information, make relevant comparisons, and subsequently make informed decisions about their agricultural practice. In the case studies, farmers were able to use weather information to perform pre-production field activities in a timely manner, diagnose their crops using online messaging platforms almost instantly without having to wait for an agronomist to arrive and suggest a solution, and look at the prices being offered in various markets across their country and even globally to make the critical decision of where to sell their produce and at what price. This information not only helps the farmers improve their productivity but also helps them trade more effectively, helping them gain better negotiation power in a supply chain where information is key to outcomes.

7 Collaborative partnerships

Collaboration with relevant players helps strengthen communication services. Investing time and resources in reaching out to existing organizations to promote regional and topical collaboration avoids duplicating efforts and helps effectively manage the scarce resources of RCS providers. For instance, Esoko works with various agricultural and rural businesses to create effective channels for sales and information sharing, opening up avenues for rural communication. MVIWATA FM relies on the farmer network of its parent organization to gather content and resources. Such multifaceted collaboration with organizations that have already faced the challenges of the market and have overcome them is highly desirable and easily scalable.

Community-pooled resources can provide some support. Since the ownership of digital tools and resources is a major hindrance to the growth of RCS, community-pooled resources have great utility in serving the needs of the community. Digital resources are already being pooled in several rural areas. However, innovation is required to effectively distribute these resources among their beneficiaries, to allow equitable access and to prevent corruption or mismanagement.

8 Media convergence and human-centred design for rural communication services

As we look towards the future in a digital era where information is fundamental, we must consider integrated multimedia approaches. This convergence of multiple media forms (conventional, community, social, ICT-based, etc.) can reinforce the strengths while overcoming the weaknesses of different communication methods. For instance, 11 Kenyan community radio stations have partnered with NGOs, government and private-sector actors to combat the recent fall armyworm crisis. This has been done by employing multiple media methods. Farming communities were trained in community radio production, with weekly airtime on community radio stations. This allowed broadcasters to promote participation in bulk SMS and WhatsApp platforms to increase listener participation and feedback. A local facilitator shared success stories on how weekly radio programmes on farming tips and practices improved the yield of small farmers in some regions of Kenya. As part of this programme, a programme development committee composed of farmers, Department of Agriculture and Communications representatives and community radio broadcasters was established. This was key to the community ownership and the success of the project. The credibility of the programmes was boosted through the combination of farmer participation and locally viable solutions, combining traditional methods and innovation. The radio show was promoted via SMS to share tips and to increase interaction. Local telecommunications companies supported the initiative offering bulk SMS packages at reasonable costs. There was strong participation of national NGOs, such as the Kenya National Federation of Agriculture Producers, which brought food security and agriculture experts to radio show panels.

9 Role of community radio networks in successful rural communication services

Rural radio networks can play a key role in promoting and supporting successful rural communication activities. An example of this is the role of the Ghana Community Radio Network (GCRN) in supporting Radio Ada's efforts in Ghana. GCRN supports community radio broadcasters in building community capacities to share their knowledge, participate in decision-making at every level, and to support their local community. The association also supports the role of community radios in rural development activities aimed at achieving global and national development goals. To this end, GCRN helps community radio stations understand their role in community education, particularly around issues such as environmental change and its impact on food security and livelihoods. The association operates on the basis of a participatory methodology that respects existing cultural and community values, builds partnerships with local and global organizations and fosters continuous dialogue with relevant stakeholders. The outcome envisaged is always the development of community-centred content by local stakeholders, such as farmers and community members. GCRN insists that one of the main components in successful local communication services is to focus on public recognition and acknowledgement of the contribution of stakeholders and beneficiaries alike. This example demonstrates how community radio networks can be ideally placed to advocate for local participation in successful RCS. As such, it is recommended that community radio networks be strengthened at the country, regional and global levels, building their advocacy and lobbying skills as well as their knowledge regarding how to use new media effectively.

10 Connecting geographically dispersed agriculture service providers and users

Access to services and information is disparate, when comparing rural and urban areas. Rural areas, that are generally larger and more sparsely populated, are often underserved by information and service providers. Infrastructure, including roads, telephone and internet coverage, and public transportation, is often less robust than in urban areas. This has implications for providing information (in agriculture and other activities) as the connection between service providers and communities is often weaker. To build inclusive RCS, inequalities in road, telephony and internet infrastructure must be remedied. Such measures will bring users and service providers closer and enable farmers, in particular, to derive greater benefit from communication initiatives.

©Loes Witteveen

Chapter 5

Towards inclusive rural communication services in Africa

Advancing rural communication services

Overall, RCS are geared towards improving the lives and livelihoods of rural communities (FAO, 2017), championing rural livelihood development by improving access to information, enhancing participation in decision-making processes, and building better ties between rural institutions and local communities.

This publication identifies trends in connection to RCS in Africa and documents the use of media and ICTs by farmer organizations and government service providers, and also considers opportunities for institutionalizing inclusive RCS. Analysis has shown that agricultural policies in several African countries are gradually including the use of media and ICTs to reach farmers. In most countries, over the last few decades, policies have moved from promoting top-down agricultural extension to including more participatory approaches. Most now emphasize that communication services should be farmer-centric, demand-driven and delivered in collaboration with farmer organizations. Nevertheless, RCS are rarely developed with a truly inclusive focus to advance family farming.

While policies are increasingly being formulated to be more inclusive and participatory, the case studies in this report show some common trends. For instance, due to lack of access to media and information, farmer organizations are often limited in their participation in policy dialogue, as well as in their ability to influence the development of inclusive RCS. “Inclusiveness” is often only associated with ICT and media presence, but not with their economic or social accessibility nor with their relevance in terms of content.

This gap is also identified in the UNDFF, and specifically the Global Action Plan (GAP), which acknowledges the need to develop inclusive rural communication services (Pillar 4). Further, it recognizes “the role that communication and the new technologies play in facilitating access to knowledge and information and allowing family farmers and their organizations to make their voices heard” (FAO and IFAD, 2019, p. 46).

The various case studies documented in this publication demonstrate that important efforts are being made by farmer and civil society organizations, development agencies and government institutions to support farmers to adopt media and ICTs in an inclusive and participatory manner, despite the various challenges involved (including limited media and ICT infrastructure, lower literacy levels, a paucity of trained staff and poor financial resources). These efforts are a catalyst to move towards innovative, needs-based RCS in hard-to-reach areas and in the most marginalized communities and to establish consistent institutional frameworks for their inclusive delivery. While not all the initiatives documented here have been independently evaluated, their documented impact on family farming, particularly in terms of access to relevant and timely information, has been encouraging. The next subsections summarize the main lessons learned and conclusions, which must be validated by the main stakeholders involved in the processes.

Rural dwellers in sub-Saharan Africa and around the world who are primarily involved in primary economic activities, particularly farming, can benefit greatly from RCS provided by governments and others via different media and ICTs. As discussed regarding communication policies within sub-Saharan Africa, a way of ensuring inclusive RCS is for governments to offer tax reductions and exemptions as part of the liberalization of their communication policies. Such measures could benefit private telecommunication companies that are willing to extend their network to the rural and deprived areas that are the backbone of agricultural activity. In addition to ensuring that rural areas are connected to mobile telephony and internet facilities for robust access to agricultural and climate information, inclusive RCS imply that all social groups, regardless of age or gender, are involved in designing, implementing and evaluating communication initiatives. RCS do not operate in a vacuum but, rather, within the context of prevailing rural service delivery systems, such as government extension and advisory services, efforts of NGOs, development programmes and community media services, with the intent to complement the overall goals of existing communication infrastructure.

Opportunities and challenges at the policy level

The findings of this study make it clear that organizations appropriating media and ICTs to deliver communication services to farmers must be quite intentional in their efforts in order to have an impact and to be sustainable.

As stated by FAO (2017, p. 4), “RCS need to be embedded in institutional arrangements and benefit from a supportive institutional environment.” This section will outline how this can be achieved, opportunities for embedding RCS, and policy challenges in embedding RCS.

Creating an enabling environment for rural communication services requires national communication policies linked to agricultural and rural development policies

National communication policies must provide an institutional framework for family farmers and their development partners, including NGOs, extension services, ministries of agriculture, and telecommunications companies (both private and government-owned) to collaborate in supporting inclusive rural development. Inclusive RCS are more likely to be successful where communication policies serve as instruments for supporting the systematic planning, development, funding and use of information and communication processes. For example, the liberalization of the communication sector – as a core aspect of telecommunications within sub-Saharan Africa (see Section 1.1) – must be accompanied by policies such as universal access funds and must carry rules to better incentivize expansion into rural areas. This would provide rural farmers with better access to internet and telephony and, thereby, provide them with easy access to agricultural information.

Local involvement in policy formulation

For RCS to be socially inclusive, rural dwellers must participate directly in policy development. FAO recommends that policy development should engage all stakeholders, including the private sector, civil society and rural and marginalized communities (FAO, 2014a). However, groups such as family farmers are not often involved in policy formulation. As a result, the question must be asked: To what extent do these broad national-level policies truly meet the needs of the rural communities that are hardly involved in the process of formulating them (Pautrizel, *et al.*, 2011; FAO, 2014a)?

Rural communication services to boost participation

The participation of rural people is critical at every stage of development initiatives (planning, implementation, and evaluation of the change process). RCS can facilitate rural participation through a number of mechanisms: (i) supporting multistakeholder awareness raising, (ii) fostering dialogue for the co-creation and operation of communication processes, and (iii) promoting systems integration involving a wide range of media options, including community radio, innovation forums, mobile phones, community ICTs and social media.

Mobilizing farmers for inclusive RCS

Mobilizing farmers to help them voice their unique issues, bring attention to the challenges they face, and request better information and communication services is essential. Mobilizing and empowering them by continuously implementing a carefully planned, effective public awareness strategy, keeping in mind the various factors that affect farmers at the local level, is an effective way to institutionalize communication services. Over time, such institutionalization can gradually develop into a fair, transparent and well-defined local system that allows equitable access to information and communication services and ensures the active participation of all family farmers.

Institutionalizing RCS

Notwithstanding the efforts to enhance inclusive communication services in Africa, the results of this study suggest that most civil society organizations, NGOs and other international organizations have failed to advocate for their institutionalization. This element is often missing from the policy agendas being negotiated with governments and the private sector.

Greater emphasis must be placed on promoting conducive policy frameworks for institutionalizing RCS and enhancing local and national capacities to deliver those services. The latter should coincide with the direct involvement of farmer organizations, especially rural youth, in developing, implementing and using those services. The following policy recommendations are based on the analysis of existing policy frameworks:

- Most agricultural and agriculture-extension policies recognize the use of media and ICTs as essential for reaching farmers, but do not include systematic, participatory mapping of the availability and gaps in communication services, nor do they include needs assessments or communication planning, implementation and evaluation. Policies can provide a framework to ensure that RCS efforts are indeed addressing issues of access and the needs of farmers, and those resulting in better impact are scaled and institutionalized.
- Typically, telecommunications and digital policies address issues of access to media and ICTs by emphasizing that infrastructure must be established in rural areas. However, the availability of infrastructure itself will not improve livelihoods. For instance, internet kiosks can be established in every village, but women might not be able to access them if the kiosks are dominated by men. Therefore, the policy should include not just building media, ICT and digital infrastructure to increase availability, but also developing mechanisms to ensure better and equitable access and community participation.
- Collaboration among stakeholders is often challenging. In fact, even within government departments, collaboration is often inefficient, with different actors working in their own silos, despite the potential benefits of joining forces to achieve better results. National policies must not only enable such collaboration, but also provide enabling mechanisms for farmer organizations, government, the private sector and civil society to design and implement communication initiatives. Farmer organizations, in particular, must be encouraged to participate and the voices of farmers must be heard, as they remain quite distanced from policy.
- Resource availability is yet another challenge that policy can address. There are numerous restrictions on ways in which farmer and civil society organizations can generate resources. While some countries have policies on providing resources to farmer organizations, most of these organizations are stretched for resources. As such, it is important to establish more and easier avenues to access and generate resources. Unless this happens, the institutionalization of RCS will remain limited.

In conclusion, multiple efforts have been taken at policy, institutional and grassroots levels over the decades to improve the livelihoods of family farmers by improving their access to information, and to include their voices in policy development and interventions. Various approaches have been implemented, some of which have resulted in positive impacts at scale. Stronger policy frameworks that address issues of access, inclusion, participation, collaboration and resources can provide an impetus to further the advancement of RCS even in the most challenging of environments.

Regarding communication policies, this study found that governments within sub-Saharan Africa have liberalized policies to ensure that every part of the region (both rural and urban) is connected to mobile telephony, internet and other ICTs by providing space for private telecommunication companies to operate. This initiative aims to break the monopoly of a few companies and open the sector for competition, thus potentially improving communication access in sub-Saharan Africa. Yet, this study found a disparity between rural and urban areas in terms of mobile telephony and ICT penetration. Therefore, it is recommended that governments within sub-Saharan Africa, as part of the liberalization of communication policies, adopt mechanisms (such as must carry rules) that encourage private telecommunication companies to expand their services to rural, underserved communities.

Next steps

The process of promoting and institutionalizing RCS in Africa requires collaborative efforts and is directly linked to the key determinants associated with the RCS framework. These include:

- **conducive institutional and policy environments;**
- **enhanced local communication capacities;**
- **the right content at the right time;**
- **equitable access to appropriate technology and infrastructure; and**
- **partnerships and investment for sustainability.**

To make this process real and compelling, it is necessary to take advantage of existing initiatives to mainstream RCS as part of national family farming policies and programmes. In particular, the implementation of the UNDFF and national action plans for family farming present opportunities to carry forward the RCS agenda in Africa. Similarly, the Yenkasa Africa regional initiative offers a space for collaboration on RCS through knowledge sharing, communities of practice and capacity development activities. Within this framework, FAO will continue to promote research studies, policy dialogue and consultations to generate evidence, to validate the conclusions of this study and define a way forward with farmers and institutions to advance inclusive RCS in Africa.

©FAO/Rijasolo

References

Abate, G.T., Bernard, T., Makhija, S. & Spielman, D.J. 2023. Accelerating technical change through ICT: Evidence from a video-mediated extension experiment in Ethiopia. *World Development*, 161.

Africa Progress Panel. 2014. *Grain Fish Money: Financing Africa's green and blue revolutions.* Geneva. https://www.tralac.org/images/docs/5693/africa-progress-report-2014-grain-fish-money.pdf

African Union. 2020. *Digital Transformation Strategy for Africa. Addis Ababa.*

Andrason, A. & van Schalkwyk, F. 2016. *Open data intermediaries in the agricultural sector in Ghana: A research paper. Washington, DC. World Wide Web Foundation.* http://webfoundation.org/docs/2016/12/WF-RP-Open-Data-Intermediaries-in-Agriculture-Ghana-Update.pdf

Andrason, A. & van Schawlkwyk, F. 2017. Opportune Niches in Data Ecosystems: Open Data Intermediaries in the Agriculture Sector in Gana. *SSRN*. https://ssrn.com/abstract=2949722

Asare-Kyei, D. 2013. *Mobile Agriculture: Providing Tools and Support for Market Information Services and Commodity Price Exchange.* Geneva, UNCTAD (United Nations Conference on Trade and Development). https://unctad.org/system/files/non-official-document/SUC_GCF2013_18-03-2013_Daniel-ASARE-KYEI.pdf

Atanga, S. 2020. *Digitalization of Agriculture: How Digital Technology is Transforming Small-Scale Farming in Ghana.* A research paper in partial fulfilment of the requirements for obtaining the degree of Master of Arts in Development Studies. The Hague, Erasmus University Thesis Repository.
https://thesis.eur.nl/pub/55705/Atanga-Sam-Nicholas_MA_2019_20_AFES.pdf

Attanasio, A. & Giorgi, J. 2023. Mobile as a technology platform. In: *Aljazeera.* [Cited 18 September 2023]. https://interactive.aljazeera.com/aje/2016/connecting-africa-mobile-internet-solar/mobile-connecting-africa.html#:~:text=With%20more%20than%20330%20million,Africa%20is%20around%2038%20percent

Awosanya, Y. 2018. By 2025 internet penetration will increase by 130% in Sub-Saharan Africa. In: *Techpoint Africa.* [Cited 28 September 2023].
https://techpoint.africa/2018/03/08/global-internet-users-to-hit-5billion-by-2025

BBC World Service Trust. 2006. *African Media Development Initiative.* Research Report. London, BBC World Service Trust. https://downloads.bbc.co.uk/worldservice/trust/pdf/AMDI/AMDI_summary_Report.pdf

Boateng, M.S. 2012. *The Role of Information and Communication Technologies in Ghana's Rural Development.* Library Philosophy and Practice. In: University of Nebraska–Lincoln. [Cited 28 September 2023]. https://digitalcommons.unl.edu/libphilprac/871

Casaburi, L. Kremer, M. Mullainathan, S. & Ramrattan R. 2019. Harnessing ICT to Increase Agricultural Production: Evidence from Kenya. Working Paper. *Private Enterprise Development in Low Income Countries.* https://pedl.cepr.org/publications/harnessing-ict-increase-agricultural-production-evidence-kenya

Chapman, R., Blench, R., Kranjac-Berisavljevic', G. & Zakariah, A.B.T. 2003. *Rural radio in agricultural extension; the example of vernacular radio programmes on soil and water conservation in N. Ghana.* Agricultural Research and Extension Network Paper 127. London. Overseas Development Institute.

Chibsa, L.D. 2020. Review on Impact of ICTs on Improving Agricultural Productivity and Rural Incomes in Ethiopia. *Information and Knowledge Management*, 10: 5.

CIMMYT (International Maize and Wheat Improvement Center). 2019. Scientists develop an early warning system that delivers wheat rust predictions directly to farmers' phones. In: *CIMMYT.* Veracruz, Mexico. [Cited 29 September 2023]. https://www.cimmyt.org/news/scientists-develop-an-early-warning-system-that-delivers-wheat-rust-predictions-directly-to-farmers-phones

Cole, S.A. & Fernando, A.N. 2021. 'Mobile'izing Agricultural Advice: Technology Adoption, Diffusion and Sustainability. *Economic Journal,* 131: 633. https://dash.harvard.edu/handle/1/37371301

Cole, S. & Sharma, G. 2017. *The Promise and Challenges in Implementing ICT for Agriculture.* Working paper. Newton, Massachusetts, Precision Agriculture for Development. https://precisiondev.org/wp-content/uploads/2019/12/cole-sharma-july1-2017.pdf

Cole, S., Fernando, N., & Seo, H. 2019. Agricultural Extension, Technology Adoption and Information Spillovers: Evidence from a Cluster Randomized Experiment. *Harvard University Working Paper.*

Communication Initiative, FAO, The World Bank. 2006. *World Congress on Communication for Development: lessons, challenges, and the way forward.* Washington, DC., World Bank Publications.

Davis, K., Swanson, B., Amudavi, D., Mekonnen, D.A., Flohrs, A., Riese, J., Lamb, C. & Zerfu, E. 2010. *In-Depth Assessment of the Public Agricultural Extension System of Ethiopia and Recommendations for Improvement.* IFPRI (International Food Policy Research Institute) Discussion Papers. Washington, DC., IFPRI.

Developing Local Extension Capacity Project. 2018a. *Mali: In-depth Assessment of Extension and Advisory Services.* Feed the Future. Washington, DC., USAID. http://www.digitalgreen.org/wp-content/uploads/2017/09/DLEC-Mali-In-depth-Assessment-Extension-Final.pdf

Developing Local Extension Capacity Project. 2018b. *Rwanda: Desk Study of Extension and Advisory Services. Feed the Future. Washington, DC., USAID.* http://www.digitalgreen.org/wp-content/uploads/2017/09/DLEC-Rwanda_Desk-Study_revised_final.pdf

Developing Local Extension Capacity Project. 2019. *Guinea: Desk Study of Extension and Advisory Services.* Feed the Future. Washington, DC., USAID. http://www.digitalgreen.org/wp-content/uploads/2017/11/DLEC-Guinea_Desk_Study-final.pdf

Digital Green. 2023. Ethiopia. In: *Digital Green.* [Cited 29 September 2023]. https://www.digitalgreen.org/ethiopia/#:~:text=The%20Digital%20Agricultural%20Advisory%20Services,%2C%20Oromia%2C%20SNNP%20and%20Tigray-

Economist. 2017. In much of sub-Saharan Africa, mobile phones are more common than access to electricity. In: *The Economist.* London. [Cited 28 September 2023]. https://www.economist.com/graphic-detail/2017/11/08/in-much-of-sub-saharan-africa-mobile-phones-are-more-common-than-access-to-electricity

Esoko. 2023a. Delivering Microinsurance to Smallholders and Informal Workers. In: *Esoko.* Accra, Ghana. [Cited 29 September, 2023]. https://esoko.com/portfolio/protecting-smallholder-families-with-microinsurance

Esoko. 2023b. Esoko Data Collection and Profiling. In: *Esoko.* Accra, Ghana. [Cited 29 September 2023]. https://esoko.com/surveys/#

Ethiopian ATA (Agricultural Transformation Agency). n.d. 8028 Farmer Hotline. In: *ATA.* Addis Ababa. [Cited 29 September 2023]. http://www.ata.gov.et/programs/highlighted-deliverables/8028-farmer-hotline

Ethiopian ATA. n.d. ICT for Agricultural Service Products. In: *ATA.* Addis Ababa. [Cited 28 September 2023. http://www.ata.gov.et/programs/agribusiness-markets/ict-for-agricultural-services

Ethiopian Monitor. 2020. Farmers to Get COVID-19, Livestock Information via 8028 Hotline. In: *Ethiopian Monitor.* Addis Ababa. [Cited 29 September 2023]. https://ethiopianmonitor.com/2020/12/31/farmers-to-get-covid-19-livestock-information-via-hotline/

European Commission. 2019. *An Africa-Europe Agenda for Rural Transformation.* Report by the Task Force Rural Africa. Brussels, European Commission.

Fabregas, R., Kremer, M. & Schilbach, F. 2019. Realizing the potential of digital development: The case of agricultural advice. *Science,* 366: 6471. https://www.science.org/doi/full/10.1126/science.aay3038

FAO (Food and Agriculture Organization of the United Nations). 2014a. *Farming for The Future: Communication Efforts to Advance Family Farming.* Rome.

FAO. 2014b. Small family farmers produce a third of the world's food. In: FAO News. Rome. [Cited 29 September 2023]. https://www.fao.org/news/story/en/item/1395127/icode

FAO. 2014c. *The State of Food and Agriculture: Innovation in Family Farming.* Rome.

FAO. 2017. *Inclusive Rural Communication Services Building Evidence, Informing Policy.* Rome.

FAO. 2020a. *Ten years of the Ethiopian Agricultural Transformation Agency.* An FAO evaluation of the Agency's impact on agricultural growth and poverty reduction. Rome.

FAO. 2020b. *In Brief to The State of Agricultural Commodity Markets 2020. Agricultural markets and sustainable development: Global value chains, smallholder farmers and digital innovations.* Rome. https://doi.org/10.4060/cb0677en

FAO. 2021. How rural radio has improved agricultural practices for Tanzanian farmers. In: **FAO.** Rome. [Cited 06 November 2023]. www.fao.org/flexible-multipartner-mechanism/news/news-detail/en/c/1430402/

FAO. 2022. *The Global Action for Fall Armyworm Control: A resource mobilization guide.* Rome. https://doi.org/10.4060/cb8910en https://www.fao.org/flexible-multipartner-mechanism/news/news-detail/en/c/1430402/

FAO & IFAD (International Fund for Agricultural Development). 2019. *United Nations Decade of Family Farming 2019–2028. Global Action Plan.* Rome, FAO.

Federal Ministry of Telecommunications and Digital Economy. 2019. *National Digital Economy Policy and Strategy (2020–2030).* Abuja, Nigeria, Federal Ministry of Telecommunications and Digital Economy.

Franzel, S., Ndiaye, A. & Tata, J.S. 2018. *Senegal: In-depth Assessment of Extension and Advisory Services.* Developing Local Extension Capacity Project. Washington DC., USAID. http://www.digitalgreen.org/wp-content/uploads/2017/09/DLEC-Senegal-In-Depth-Assessment-Extension-Final.pdf

Fugar, S. 2017. Closing Africa's Data Collection Gap One Project at a Time. In: *Esoko.* Accra, Ghana. [Cited 29 September 2023]. https://esoko.com/closing-africas-data-collection-gap-one-project-time/

Fugar, S. 2018. "Getting an Idea of Market Prices...Helps Me Plan Where And When I Can Get The Best Prices For My Crops". In: *Esoko.* Accra, Ghana. [Cited 29 September 2023]. https://esoko.com/getting-idea-market-priceshelps-plan-can-get-best-prices-crops

Fugar, S. 2020. Improving Access to Finance for Smallholder Cocoa and Oil Palm Farmers. In: *Esoko.* Accra, Ghana. [Cited 29 September 2023]. https://esoko.com/improving-access-to-finance-for-smallholder-cocoa-and-oil-palm-farmers

Frempong, G.K. & Atubra, W.H. 2001. Liberalisation of telecoms: the Ghanaian experience. *Telecommunications Policy*, 25: 3.

Gatdet, C. 2022. The Ethiopian agricultural extension services: A mixed perspective. *Cogent Food & Agriculture*, 8:1.

Garforth, C., Angell, B., Archer, J. & Green, K. 2003. Fragmentation or creative diversity? Options in the provision of land management advisory services. *Land Use Policy*, 20:4.

GFRAS (Global Forum for Rural Advisory Services). 2023. A Brief History of Public Extension Policies, Resources and Advisory Activities in Ghana. In: *GFRAS.* Laussane, Switzerland. [Cited 28 September 2023]. https://www.g-fras.org/en/world-wide-extension-study/africa/western-africa/ghana.html#history

Girard, B., ed. 2003. *The one to watch: Radio, new ICTs and interactivity.* Rome, FAO.

GSMA (Global System for Mobile Communications Association). 2018. The Mobile Economy of West Africa 2018. [Cited 28 September 2023]. https://www.gsma.com/subsaharanafrica/wp-content/uploads/2018/11/2018-04-11-e568fe9e710ec776d82c04e9f6760adb.pdf

GSMA. 2020a. Mobile Internet Connectivity 2020 Sub-Saharan Africa Factsheet. In: GSMA. Nairobi. [Cited 28 September 2023]. https://www.gsma.com/r/wp-content/uploads/2020/09/Mobile-Internet-Connectivity-SSA-Fact-Sheet.pdf

GSMA. 2020b. The Mobile Economy Sub-Saharan Africa. In: *GSMA.* London. [Cited 28 September 2023]. https://www.gsma.com/mobileeconomy/wp-content/uploads/2020/09/GSMA_MobileEconomy2020_SSA_Eng.pdf

GSMA. 2022. The Mobile Economy in Sub-Saharan Africa. *GSMA.* In: Nairobi. [Cited 28 September 2023]. https://www.gsma.com/mobileeconomy/sub-saharan-africa

Hildebrandt, N., Nyarko, Y., Romagnoli, G. & Emilia, S. 2020. Price Information, Inter-Village Networks, and 'Bargaining Spillovers': Experimental Evidence from Ghana. *NYU Stern School of Business Forthcoming,* 6 November 2020. https://ssrn.com/abstract=3694558

Houngbonon, G.V., Le Quentrec, E. & Rubrichi, S. 2021. Access to electricity and digital inclusion: evidence from mobile call detail records. *Humanities & Social Sciences Communications,* 8: 170. https://doi.org/10.1057/s41599-021-00848-0

IEA (International Energy Agency), IRENA (International Renewable Energy Agency), UNSD (United Nations Statistics Division), World Bank, WHO (World Health Organization). 2023. *Tracking SDG 7: The Energy Progress Report.* Washington, DC., World Bank. https://www.irena.org/Publications/2023/Jun/Tracking-SDG7-2023

IFAD. 2016. *Rural Development Report 2016: Fostering inclusive rural transformation*. Rome. https://www.ifad.org/en/web/knowledge/-/rural-development-report-2016-fostering-inclusive-rural-transformation

IMS (International Media Support). 2019. *Assessing the capacity, challenges and sustainability of the community radio sector in Ethiopia*. Copenhagen. https://www.mediasupport.org/wp-content/uploads/2019/04/Ethiopia-community-radio-assessment_IMS_April2019.pdf

ITU (International Telecommunication Union). 2010. *World Telecommunication/ICT Development Report 2010: Monitoring the WSIS Targets, A mid-term review.* Geneva.

ITU. 2015. *Measuring the Information Society Report.* Geneva.

ITU. 2020. *The Road to Addis: Shaping the 2021 Digital Development Agenda.* Geneva. https://www.itu.int/en/ITU-D/Conferences/WTDC/WTDC21/Documents/Speeches/WTDC_Road_to_Addis_Dr._Ahmedin_Remarks.pdf

ITU. 2021. Facts and Figures 2021. In: *ITU News.* Geneva. [Cited 27 September 2023]. https://www.itu.int/hub/2021/11/facts-and-figures-2021-2-9-billion-people-still-offline

Kermah, M. & Arsène, B. 2021. *Analysis of Digital Agriculture Extension and Advisory Services in Niger. Feed the Future.* Washington, DC., USAID. https://www.digitalgreen.org/wp-content/uploads/2017/09/DLEC_Analysis-of-Digital-EAS-in-Niger-1.pdf

Lubua, E.W. & Maharaj, M.S. 2012. *ICT Policy and e-Transparency in Tanzania.* IST-Africa 2012 Conference Proceedings. Dar es-Salaam. https://www.researchgate.net/publication/275154028_ICT_Policy_and_e-Transparency_in_Tanzania

Madamombe, I. 2005. Community radio: a voice for the poor. In: *Africa Renewal.* New York. [Cited 29 September 2023]. https://www.un.org/africarenewal/magazine/july-2005/community-radio-voice-poor

Mercy Corps & AgrIFin. 2020. Digitally Enabled Services for Agriculture in Ethiopia: Ecosystem Study Report. In: *Ethiopian ATA.* Addis Ababa. [Cited 29 September 2023]. https://www.mercycorpsagrifin.org/wp-content/uploads/2020/03/Mery-Corps-Agrifin-Ethiopia_Ecosystem-Report-2019-2.pdf

Ministry of Agriculture and Natural Resources. 2014. *National Strategy for Ethiopia's Agricultural Extension System: Vision, Systemic Bottlenecks and Priority Interventions.* Addis Ababa, Government of Ethiopia.

Ministry of Agriculture and Natural Resources. 2017. *Agricultural Extension Strategy of Ethiopia.* Addis Ababa, Government of Ethiopia.

Ministry of Food and Agriculture. 2002a. *Agricultural Extension Policy.* Accra, Government of Ghana. https://www.fbosecretariatghana.com/sites/default/files/documents/MoFA%20Extension%20Policy%202002.pdf

Ministry of Food and Agriculture. 2002b. *Food and Agriculture Sector Development Policy (FASDEP II).* Accra, Government of Ghana. https://www.grain.org/media/W1siZiIsIjIwMTMvMDIvMjgvMTRfMjhfMTZfNzUxX0ZBU0RFUF9JSV9GSU5BTC5wZGYiXV0

Ministry of Food and Agriculture. 2023. Directorate of Agricultural Extension Services. In: *Ministry of Food and Agriculture Republic of Ghana.* [Cited 28 September 2023]. https://mofa.gov.gh/site/directorates/technical-directorates/directorate-of-agricultural-extension-services

Ministry of ICT (Information, Communications and Technology) Kenya. 2019. *National Information, Communications and Technology (ICT) Policy.* Nairobi, Government of Kenya.

Ministry of ICT Rwanda. 2018. *ICT Hub Strategy 2024.* Kigali, Government of Rwanda.

Ministry of Works, Transport and Communication. 2016. National Information and Communications Technology Policy for Tanzania. In: *United Republic of Tanzania.* Dar es Salaam, Government of the United Republic of Tanzania. https://www.ega.go.tz/uploads/publications/sw-1574848612-SERA%202016.pdf

Moore, A., Ferguson, O. & Lolig, V. 2015. *Assessment of Extension and Advisory Services in Ghana's Feed the Future Zone of Influence.* MEAS Country Assessment. Ghana, Feed the Future. https://agrilinks.org/sites/default/files/resource/files/MEAS%20Country%20Report%20GHANA%20-%20August%202015.pdf

OAU (Organization of African Unity) & ECA (Economic Commission for Africa). 1994. Population and Development in Africa: A briefing note. In: *UNFPA.* [Cited 27 September 2023]. https://www.unfpa.org/resources/population-and-development-africa

Obesia, S. 2016. *The Case of Agricultural Information Service Hotline (8028) Or The Ivr/Sms System*. Addis Ababa University. https://www.academia.edu/42269455/THE_ROLE_OF_ICT_IN_AGRICULTURAL_KNOWLEDGE_COMMUNICATION_IN_ATA_THE_CASE_OF_AGRICULTURAL_INFORMATION_SERVICE_HOTLINE_8028_OR_THE_IVR_SMS_SYSTEM

Pautrizel, L., Alpha, A., Broutin, C., Castellanet, C., Doligez, F., & Violas, D. 2011. *Which public policies for family farming in developing countries?* Saint-Etienne, France, Coordination SUD (Solidarité Urgence Développement) Agriculture and Food Commission.

Precision Agriculture for Development. 2018. *Mid-Term Evaluation of IVR/SMS Project: Findings and Recommendations.* Newton, Massachusetts, Precision Agriculture for Development. https://precisiondev.org/wp-content/uploads/2019/12/January-ATA-PAD-Report-no-logo-compressed.pdf

Precision Agriculture for Development. 2020. *PAD Q3 2020. Quarterly Report.* Newton, Massachusetts, Precision Agriculture for Development. https://precisionag.org/wp-content/uploads/2020/11/2020_Q3_PAD-report.pdf

Republic of Ghana. 2003. *The Ghana for ICT Accelerated Development [ICT 4AD] Policy.* Accra, Government of Ghana. https://nita.gov.gh/theevooc/2017/12/Ghana-ICT4AD-Policy.pdf

Shenglin, B., Simonelli, F., Ruidong, Z., Bosc, R. & Wenwei, L. 2017. Digital Infrastructure: Overcoming the Digital Divide in Emerging Economies. G20 Insights. In: *Global Solutions.* Berlin. [Cited 28 September 2023]. https://www.global-solutions-initiative.org/policy_brief/digital-infrastructure-overcoming-digital-divide-in-emerging-economies

Taiwo, O., & Asmah, E. 2012. Extending the learning community: Rural radio, social learning and farm productivity in Ghana. [Cited 9 November 2023]. https://www.brookings.edu/wp-content/uploads/2016/06/learning-community-ghana-taiwo.pdf

Tsan, M., Totapally, S., Hailu, M., Addom, B. K. 2019. *The Digitalisation of African Agriculture Report 2018–2019.* Wageningen, The Netherlands: CTA/Dalberg Advisers.

UN (United Nations). n.d. Global Issues: Population. In: *United Nations.* New York. [Cited 27 September 2023]. https://www.un.org/en/global-issues/population

World Bank. 2019a. *Ghana Digital Economy Diagnostic.* Washington, DC., World Bank Publications.

World Bank. 2019b. *Kenya Digital Economy Assessment.* Washington, DC., World Bank Publications.

WorldDAB. 2023. Countries. [Cited 9 November 2023]. https://www.worlddab.org/countries

Yenkasa. n.d. Ten Success Factors for Rural Digital Transformation in Africa. In: *Yenkasa.* Accra, Ghana. [Cited 28 September 2023]. https://yenkasa.org/ten-success-factors-for-rural-digital-transformation-in-africa/

Transforming rural Africa

Trends and experiences in rural communication services

Transforming rural Africa

Trends and experiences in rural communication services

The UN Decade of Family Farming (2019-2028) acknowledges the importance of inclusive rural communication services (RCS) to advance economic, environmental and social dimensions of family farming. Focusing on Africa, this study examines the role of RCS in rural transformation and family farming and provides insights for the region. Through case studies and a review of media and ICT trends and policies, it highlights the need for participatory, farmer-centred communication approaches and responsive delivery mechanisms aligned with local socioeconomic realities. The study concludes with recommendations for embedding RCS into national policies, thereby opening new development opportunities for family farmers and rural communities in the Africa region.

University of Reading

YenKasa Africa
Facilitating Dialogue

For more information:
YenKasa.org
www.fao.org/communication-for-development/en

Food and Agriculture Organization of the United Nations
Rome, Italy

ISBN 978-92-5-138545-6
9 789251 385456
CC9345EN/1/03.24