

GUIDELINES FOR ADOPTION OF ICTS IN RURAL EXTENSION TO FACE AND OVERCOME EMERGENCIES

This policy note is a proposal by the Latin American Network for Rural Extension Services (RELASER) to guide the adoption of Information and Communication Technologies (ICT) in Rural Extension services to face and overcome emergencies.

Successful experiences¹

The emergencies generated by the effects of climate change, the high conflicts in the continent, and now by COVID-19, challenge the Rural Extension services to external changes. Today, these emergencies threaten the possibility of maintaining supply chains and food security and the life and well-being of the population.

The risks generated by these emergencies require a new approach to the adaptation, mitigation, and action processes.

There is no doubt about the leading role that ICTs play in this context since they facilitate action during moments of crisis and generate a sustainable plan for the post-emergency.

In this scenario, this policy note indicates the elements that must be taken into account in a roadmap that allows the efficient incorporation of ICTs into Rural Extension.

Methodology

In this research, two methodological moments were defined:

- In the first methodological moment (investigative), four interviews were conducted with experts from Mexico, Colombia, India, and South Africa. Eleven significant experiences were documented.

- In the second methodological moment, as a knowledge management strategy—with more than thirty actors linked to RELASER from Rural Extension services in Latin America—conceptual and methodological issues were defined and specified.

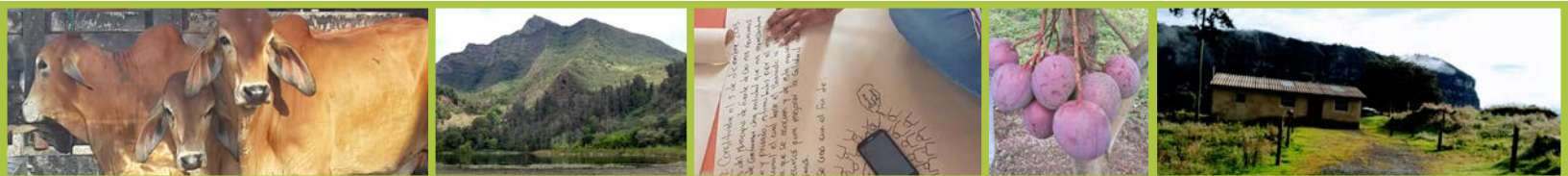
Findings

The exercise of knowledge management yielded significant findings that can be found in the text *“Extensión Rural Y Tecnologías de la información y la Comunicación (TIC) para enfrentar y superar las emergencias”* to face and overcome emergencies). The main conclusion is that Rural Extension systems can optimize their impact if they incorporate ICTs into their daily activities.

The identified impacts are grouped into the following key areas: 1- Assisting the flow of information concerning the emergency. 2- Facilitating relationships to guarantee supply chains. 3- Maintaining Rural Extension services and technical assistance.

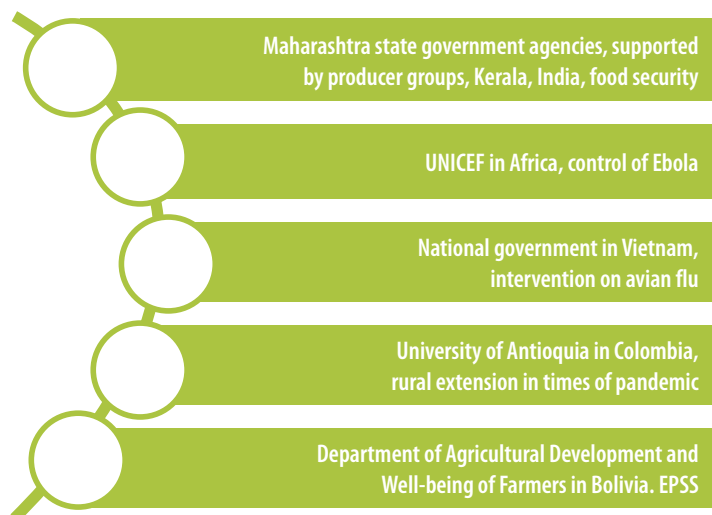
Further, the analysis also showed the digital divide in rural territories; difficulties within access and usability characterize this. Although the protagonists of rural development seem to agree on the urgency of incorporating ICTs into the sector, they do not have the conceptual clarity or the methodological tools to face the challenge. With this perspective

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The following table shows the origin and purpose of the documented paradigmatic experiences.*

Successful experiences



**Translated by Laura Amador Toro
Source: author's own creation*

in mind, the urgency to act in order to reduce this digital gap and enable rural territories to insert themselves into digital dynamics is apparent.

Policy guidelines proposal

Four lines of work —on which policy guidelines are built to incorporate ICTs into Rural Extension services— were found. They are expressed with the Theory of Change (ToC) model; first, the impacts to be achieved are formulated, then the initial conditions, and finally, the strategies.

Rural, individual and organized actors incorporating ICTs into their production and care dynamics

The initial conditions to achieve this result varies notably from region to region. These variations —which fundamentally depend on the structure and performance of communication in rural territories— have to do with the access and usability of ICTs. Thereby, the first strategy is the following:

Characterize the digital divide in rural territories. The variables to be investigated are i) connectivity, whether or not there is access to the Internet, and what characteristics and cost this service has; ii) availability of receiving devices; iii) service offered mediated by technology; for example, banking services, marketing or Rural Extension programs and training.

For the diagnosis to be a working tool, institutions in charge of rural development —as well as the ones associated with innovation and ICTs— will need to guarantee the availability of recollection instruments for sensitive information that are adapted and adaptable to specific contexts.

The result of the diagnosis must direct the action in two ways: First, showing which technologies are available to use them efficiently. Second, route actions to overcome the identified digital divide. These actions are intersectional and multilevel. They require participation from part of the families, the agricultural organizations, organizations with rural



vocation, and local and national governments. Thus, the diagnostic exercise should be as inclusive as possible both in its implementation and in its socialization. (*"Diagnóstico de Usabilidad de las TIC en Territorios Rurales"*, s. f.)

Generate information and services mediated by ICTs. In times of emergency, necessary accurate and timely information must be prioritized to guarantee self-care. For example, information concerning the mobility restrictions, biosecurity conditions, or focus of contagion. These must be produced and reach the rural citizens through available media, and with the participation of the Rural Extension services.

Information flow must be created to maintain production and commercialization—for example, information about prices, possible users or consumers, climate variations, among others.

Extension services must create strategies, so the available information reaches the producers opportunely. This is why the extensionist must not only manage that information, but also come up with plans of action so producers can access it as well.

Expansion of e-commerce and social-e-commerce programs. Covid-19 has shown, unlike any other emergency, the power of ICT. The significant capability of these tools within direct relations among producers and consumers has become evident in addition to its ability to promote solidarity and associativity.

Successful experiences must be evaluated and systematized to confirm its impact on the local economies. For these initiatives to be sustainable, it is necessary to link processes and services (supplies, finance, warehousing, and logistics).

Rural actors trained in ICTs as a basis for the technological transformation of the agri-food system

ICT-mediated education must be articulated shoulder-to-shoulder with the educational ecosystems of the territories involved —It must incorporate primary and secondary schooling received by girls, boys, and the general youth in rural areas, in addition to tertiary education that

trains technicians and professionals who work in the agricultural sector—. The chain of educational and training systems must include in its curriculum competences associated with the use of ICTs.

Within permanent education, the formation of ICTs will need to focus on the following:

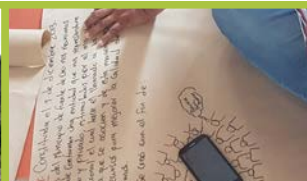
- Rural communities or families. It will be necessary to expand the focus in these interventions to not generate other digital gaps within the family's interior.
- Extensionists as promoters of the rural development process will be critical components to make the incorporations of ICTs a reality. The first level of competences has to do with their role as community educators, for which it will be useful to keep in mind the "Common Framework of Digital Instructional Competence" ("Marco Común de Competencia Digital Docente") proposed by the Spanish government.

As promoters of agricultural innovation, the extensionist will have to be trained on digital tools of production optimization with a broad perspective. The use of the available ICTs will keep the digital divide from continuously growing.

Knowledge management implemented to stimulate the incorporation of ICTs in Rural Extension services.

The public, private, and community services of Rural Extension must have a virtual space for socializing experiences using ICTs in emergency contexts. This dynamic will allow actors within the service to share and learn from their experiences in real-time. Consequently, this will improve the learning curve while avoiding the waste of time in moments of crisis.

Civil society organizations with rural vocation must dedicate efforts and resources towards evaluating and systematizing experiences. This is necessary since it contains a relative value essential to face the crisis in the food-safety perspective.



The universities that address Rural Extension —undergraduate or graduate level— must consolidate lines of investigation that examine successes in the use of ICTs. For example, methodology diagnosis, educational strategies, and the most effective learning models of training to achieve digital competences among rural families, technicians, and professionals in the agricultural sector. Correspondingly, it is vital to research the effect of public policies that promote the reduction of the digital divide in rural territories.

ICTs are incorporated into small and medium-size agricultural production.

It will be fundamental to bring knowledge and innovation to agricultural producers. It comes down to incorporating different types of tools such as software (planning and controlling and of genetic and risk management) and technologies of greater complexity (use of sensors, drones, agrometeorological stations, automated systems, and equipment) among others.

In that perspective, it is necessary to promote initiatives that incorporate technology in a larger-scale to processes of production, commercialization, and logistics.

The innovating systems of each country, as well as the universities and local administrations, must take charge in the process of incorporating ICTs into the different scales of agricultural production.

The exercise of knowledge-management will nurture a repository of projects besides the initiatives of adoption of ICTs into the production processes of small and medium-size producers.

The final message consists of not letting the crisis happen in vain. We need to recognize it and be able to face the challenge. In moments of crisis, it is necessary to come back to what is fundamental; to persevere and devote to it. This is not about generating panic, but it is also not about accepting the inertia or the inaction. There is a lot that can be done, and ICTs are key allies of Rural Extension and their protagonist.

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