

# POLICY BRIEF

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## Best practice guidance for inclusive digital tool development for sustainable rice in Vietnam

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### KEY MESSAGES

- Face-to-face interactions such as training sessions and meetings with extension agents remain the most common and popular methods for transferring knowledge.
- Two-way communication via social media tools, such as Zalo and Facebook Messenger are the most commonly used internet based digital tools.
- Challenges for inclusive digital development include long term engagement by farmers, incorporating farmers, and the target tool users - in cases where intermediaries will be the users, in the design process and developing sustainable business models.
- Inclusion can be improved by understanding farmer needs, considering trade-offs and ensuring continued support.

for up to 50% of overall rice output and more than 95% of total milled rice exports in Vietnam. Rice production is responsible for 15% of the country's total greenhouse gas (GHG) emissions. In Vietnam, irrigated rice production emits 50% more carbon dioxide equivalent (CO<sub>2</sub>e) than the entire transportation sector, including airplanes, ships, cars, buses, trains, and motorcycles.

Many of the current limitations of agricultural advisory services are due to the imperfect flow of information between the stakeholders in a complex knowledge system including farmers, traders, input suppliers, processors, buyers,

This brief summarizes findings of the project “Agroecological transitions for building resilient and inclusive agricultural and food systems” (TRANSITIONS), which is funded by the European Commission through its DeSIRA initiative and managed by the International Fund for Agricultural Development (IFAD). The Digital Tools regional work in Vietnam focused on research and engagement with digital tools for technical advice and performance assessment in sustainable rice production in the Mekong River Delta. This best practice guidance was developed based on findings from a review of existing digital tools for the rice value chain in Vietnam, a baseline survey with rice farmers and extension workers and a participatory dialogue with relevant stakeholders on the challenges of reaching Vietnamese smallholder rice farmers with digital tools.

### Introduction

Vietnam is the fourth largest rice producer and the world's second largest exporter. Rice production contributes 3% to Vietnam's GDP as they sell around eight million tons of milled rice, accounting for one-fifth of worldwide trade volume (US\$4 billion in rice export). The Mekong Delta, located in the South of Vietnam, is the country's largest source of rice. It accounts

### Digital agricultural profile for Vietnam

- Vietnam is ranked 3rd in the world in terms of affordability of information and communication
- The average rate of broadband is \$3 USD a month
- 90% of farmers own a mobile phone and per capita mobile subscription rates are well over 100%
- 42% of mobile phone users have 3G or 4G connections, a 36% increase since 2015
- 46% of the Vietnamese population and 10% of farmers use broadband internet.
- 46% had data subscriptions for mobile usage

*Digital Agriculture Profile, Viet Nam, FAO (2021)*

extension agents, and researchers.

In Vietnam, face-to-face interactions such as training sessions, field seminars, meetings with extension agents and cooperatives remain the most common and popular method for transferring knowledge. Farmers find local government field agents or company field agents the most reliable source of agricultural advisory, followed by experienced fellow farmers and rice buyers. Farmers communicate with field agents one to two times per week to exchange information about farming practices and crop management. In terms of farm record keeping, on average farmers keep a record of their farming practices twice a week. Approximately 60-70% of farmers keep physical records in their own paper-based recording system and 30-40% use printed forms provided by agents. Agents then collect information about farming practices by meeting one-to-one with farmers and taking notes on paper or filling out data collection templates. This information is then transferred to excel spreadsheets at a later date and stored on local devices. This data may be analyzed to provide future technical guidance.

Two-way communication social media tools, such as Zalo and Facebook Messenger are the most commonly used digital tools, especially for farmers under 55. Traditional mass communication methods such as radio, television, and posters also provide a useful source of information sharing and still tend to be main sources of information for older farmers. The farmers who access smartphone farming applications are overwhelmingly males (over 90%) due to their role as the main agricultural decision makers. However, in Vinh Thanh district of Can Tho province, women access farming applications because they also directly participate in rice production and farming decision-making.

### Principles for inclusion and co-creation of farming practices through digital tool use

Co-creation and sharing of knowledge are powerful strategies for digital transformation. Agricultural innovations respond better to local challenges when they are co-created through participatory processes. The widespread access to mobile telephones and internet in Vietnam has created new possibilities to support information flows by allowing farmers to actively engage in more sophisticated information exchange. However, it is important not to assume that digital tools can replace face-to-face interactions. Rather, digital tools should be used to support interactions with farmers and in cases where farmers may be hard to reach.

This learning brief is aimed at guiding the development of inclusive digital tools to enable women and men smallholder rice farmers' access to information that drives co-design of agroecological practices.

#### Principle 1: Diversity within your team


The first step in an inclusive design process is to reflect on who to include in your team. An inclusive solution that considers diversity benefits from a diverse design team. Make sure your field work team is diverse and balanced in terms of gender, and where possible consider the ethnographic background and language of those you are trying to reach. During field work this will greatly influence the richness and lack of bias of the information that is gathered.

##### Key considerations:

- Language: Ensure inclusion through use of language suited to all respondents.
- Gender and ethnicity matching: Consider the demographic of the farmers and whether they would be more comfortable speaking with a man or a woman, or someone from their own ethnicity.

#### Principle 2: Explore and understand farmer needs

Ensure you have understood the target farmer beneficiaries and their challenges and needs. Understanding their needs will help guide the development of the tool and improve long term engagement. Usability is key for



### Mr. Tran Van Thuyet

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**Location** : Hamlet B2, Thanh Loi Commune, Vinh Thanh District, Can Tho City

**Age** : 79

**Ethnic group** : Kinh

**Farmer groups** : He is participating in cooperative group but without a farming contract. He is mostly selling rice to traders.

**Income** : 30.000.000 – 40.000.000 VND/ha/year

**Years of education** : 4

**Digital tool use** : Due to his age, he does not use smartphones. He only uses his phone to call for purchasing input materials (seeds, fertilizers, pesticide) and to communicate with field agents and traders. He asks his son or grandchildren to help him if he needs to access a smart phone.

**Challenges** : Information is limited due to not using digital tools. However, he has no desire to start using digital tools for rice production. He enjoys talking face-to-face with his neighbours and field agents.

*Example persona of a rice farmer in Mekong Delta*

engagement, especially with elder farmers or intermediaries who may have less experience using digital tools. Farmers should be able to quickly observe the benefits of the tool.

*Example task:*


- Observe and time farmers or intermediaries performing their current recording process. Once farmers/intermediaries have been introduced and trained on the use of the digital tool, observe and time them performing the same task.
  - Key finding: Duplication of seasonal reports can reduce data entry time. Personalization of measurement units that can be saved for individual users reduces errors and saves time between entries.

*Key considerations:*

- Digital literacy: Consider who will be the target user groups and their levels of digital literacy. For example, if field agents or other intermediaries are the target users, a more complex tool may be acceptable. If the target user is the rice farmer, simple interfaces, printable formats, videos, interactive voice response (IVR), two-way communication, and large font sizes are important.
  - Key finding: Contract farmers are more receptive to digital tool use than non-contracted farmers because they need to update the requirements and technical instructions for farming practices from the buyer to ensure compliance and quality standards.
- Limitations on tool use: Consider where the farmers will likely be using the tool, for example at home or in the field. Are there any specific challenges involved, such as poor internet access when they are in the field? If so, downloadable offline versions that store information on the device will be necessary.
- Usability: Think about how to make the tool easy to use and maneuver, for example, with drop down options and easy to use interfaces that have been tested and co-developed with diverse users. Expect that farmers will only use tools that serve their needs and design with this in mind to avoid extractive data collection. Since farmers already use messaging apps, consider using the existing familiar poll functions and mass SMS for seasonal reminders.

**Principle 3: Reach the farmers directly**

Consider how you will be reaching the farmers. They often face time constraints and mobility restrictions, especially during certain busy periods in the cropping season. Do not expect participants to come unless you know they are willing and able. You may be required to go to places where they already are, or easily accessible meeting points. In order to ensure female participation, consider whether timings coincide with household responsibilities such as mealtime preparation, and whether there will be an issue with childcare which may impact attendance. Allowing children to come, as they are generally quick to understand digital tools, can offer support to farmers which encourages their participation in digital tool trainings.



**Mrs. Nguyen Thi Kim Nhung**

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**Location** : Hamlet D1, Thanh Loi Commune, Vinh Thanh District, Can Tho City

**Age** : 45

**Ethnic group** : Kinh

**Farmer groups** : She has concluded a farming contract with Loc Troi Group. She is a member of Dong Thuan cooperative.

**Income** : from 35,000,000 to 45,000,000 VND/ha/year, mainly from rice

**Years of education** : 8

**Digital tool use** : 2-3 times/week she uses digital tools for the exchange of information related to rice production. She mostly uses Zalo, Facebook, YouTube, messenger to talk to people she knows.

**Challenges** : Thi would like more access to technical advice, especially when she has issues which need immediate support like pests and diseases. She wonders whether some of the information accessed is accurate or not.

*Example persona of target farmer for digital tool*

*Key considerations:*

- Reaching women: Women often have more household responsibilities than men. Consider whether they have responsibilities which may restrict involvement such as childcare or meal preparation. There may be certain times of the day which are better suited to their responsibilities and meetings should be scheduled around these times and near gathering spaces for more inclusive participation of women.
- Timing: Farmers will be busier at different times of the day and at different periods during the cropping season. Be sure to schedule meetings at less busy times of the day and season so farmers are not inconvenienced by participating.

- Mobility restrictions: Ensure that meeting locations consider mobility restrictions and are easily accessible.
- Use an aggregator: It may also be easier to reach the farmers via a cooperative leader or another aggregator.

#### Principle 4: Trade-offs are important

Consider whether the tool is designed with the intention to replace something which is an integral part of farmer lives, such as face-to-face interactions with technical support field agents. Face-to-face interactions are the most valued form of information exchange in Vietnam and the intermediaries are highly trusted. Farmers gain multiple benefits from these in-person interactions that cannot be replaced by a digital tool. Therefore, digital tools should be designed as a system of support that complements person-to-person methods of exchange and communication.

##### *Key considerations*

- In-person trade-offs: Consider whether the tool is designed to replace something that is important to the farmer such as face-to-face interactions. If so, a solution can be incorporated into the tool such as two-way communication, storing and sharing of records, replication of reports to reduce reporting time, knowledge repositories, calculations, calendars, warning systems, time-specific recommendations, and reminders that work alongside face-to-face interactions.

#### Principle 5: Multiple iterations of user testing and training are needed

It is essential to consult with the end beneficiaries of the information – farmers – and also the intended users of the tool, in cases where beneficiaries and users are different, at all design stages. The feedback should be used to modify and improve the tool and its content. Training may be required to ensure understanding and long term engagement, this may have to take place in multiple iterations. If you are working with an aggregator, it may be useful to engage and support the aggregator’s field team as back up or technical support for training, including how farmers can access their data and how aggregator’s can use the farmer reported data according to data privacy regulations.

##### *Key considerations:*

- Be prepared: Define the users of the product (i.e., those that will interact directly with the tool) and the beneficiaries (i.e., those that are intended to benefit from the outputs of the tool) and ensure that both are included in the identification of needs and development of the tool. Follow a user-centered design process when engaging users. Ensure good preparation for the first training. For example, if using an app, users should come to the initial training with the tool downloaded to their phones.
- Understanding of the tool: Ensure the user understands the tool, its purpose and what benefits it can provide.
- Ease of use: Observe user interactions with the tool. Are there any pain points, where the user is struggling to interact with the tool? Ensure wording and measurement units are appropriate for the context or provide the ability to customize the tool based on user preferences.

#### Principle 6: Ensure feedback loops, maintenance and updates

Maintenance and updates keep the tool secure, relevant and user friendly. Including a feedback system allows the continued update of the tool and its content based on farmer and user needs. Critical feedback should be welcomed and used to positively influence the tool development.

##### *Key considerations:*

- Feedback mechanisms: Include a mechanism for users to provide feedback on observations, issues and complaints, both on the tool use and its content.
- Updating: Ensure you regularly maintain and update the tool and contents and continue with user-centered design and testing when new versions are released.

#### Principle 7: Create a sustainable business model

When targeting farmers directly, consider who in the household uses digital tools and will engage in long-term tool use. Consider what communication methods the user prefers and how the users will interact with the tool. To encourage a wider user base, provide multiple formats for communication including printable content, videos, two-way chat functions, group chat for users and IVR. Bundle the services to provide links to the larger digital

ecosystem including access to input suppliers, buyers, services, financial support, etc. Be aware of what services the farmer and user wants or already uses.

#### Key considerations:

- Existing digital ecosystem: Consider the existing services in the broader digital ecosystem and how they are used by beneficiaries (i.e., Are farmers using mobile money apps already? How can your product link to mobile money apps if there is a need to purchase products or services or link with buyers? Could you connect with existing tools to improve usability and function?).
- Bundling services: Bundling desired features with useful services can improve engagement and increase the chance of scaling for agroecological transitions.
- Price point: Consider if farmers are willing to pay a price before creating an app with fees. Rice farmers in Vietnam are generally not willing to pay for technical advice or performance assessment digital tools. Therefore, digital tools may need to link to mobile service providers as a built-in value addition to a specialized “farmer package” that is supported through advertisements, paid by the mobile service provider to differentiate them within the mobile market, or built into the pricing plan for mobile services targeting farmers.
- Farmer accessible data: Easily extractable information is also important to ensure the tool provides the farmers with usable benefits. SMS is a useful medium which is easily accessible by most user types.

#### Further reading

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*The Agroecological Transitions for Building Resilient, Inclusive, Agricultural and Food Systems (TRANSITIONS) Program aims to enable agroecological change at scale. The TRANSITIONS Inclusive Digital Tools (ATDT) project aims to support the use of digital resources and citizen science to empower farmers to co-create, adapt, and innovate practices for climate-resilient and low-emission agroecological outcomes at large scales. This brief was developed by the International Rice Research Institute for the TRANSITIONS ATDT.*

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