



Food and Agriculture
Organization of the
United Nations

1,000 Digital Village Initiative

An initiative to expand digital
innovations in rural villages for
inclusive rural and agrifood
systems transformation



FAO Regional Office for Asia and the Pacific
Bangkok, Thailand
2022

What is the FAO Digital Village Initiative?

A “**Digital Village**” is a concept to promote digitalization in rural areas for the benefit of residents, enabling them to apply, deploy or harness digital innovations and technologies, services and solutions, to improve their economic livelihoods, individual wellbeing, and create social cohesion through better connectivity. There is no single definition, pathway or approach for a rural community to become “**Digital**” – in fact the diversity of applying a variety of digital innovations is the key to becoming a successful digital village.

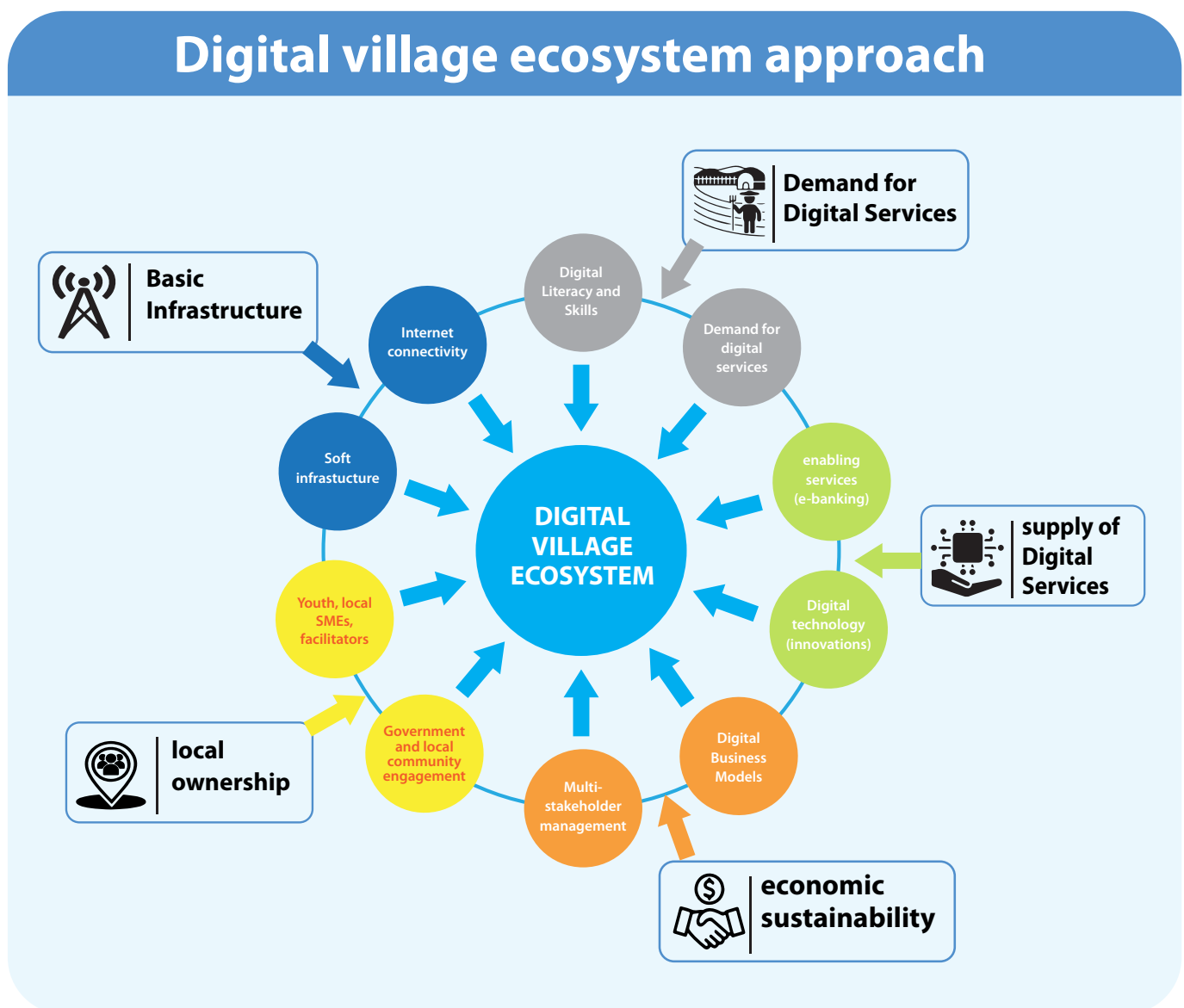
The Food and Agriculture Organization of the United Nations (FAO) launched the Digital Village Initiative (DVI) to promote digital innovations to support inclusive, gender sensitive rural development and sustainable agri-food transformation in support of Agenda 2030. FAO DVI follows a country-led, user-centered, holistic digital ecosystem approach for digital village development. The DVI combines a territorial approach with innovative design, pilot and deployment that combines end-user needs and demand, inclusive business models and local ownership to ensure sustainability.

How was the Digital Village Initiative in Asia and the Pacific developed?

The FAO Regional Office for Asia and the Pacific conducted a rapid pre-pilot assessment of the current status of digital village developments in the region. The assessment reviewed and documented several digital village pilots, models and prototypes from 13 countries, and revealed a variety of approaches, models in developing digital village or smart villages prototypes. Inspired by this rapid assessment, FAO developed a blueprint for supporting digital villages in the region based on the principals of country-ownership, bottom-up, and ecosystem-centered digital village development support.

What is the digital village ecosystem approach ?

The Digital village ecosystem takes the view that digitalization is developed taking into account the localized economic, environmental and cultural context and the needs and capacities of the targeted beneficiaries, a gender-sensitive and flexible approach. The DVE requires a flexible sequential steps that balances out the technology-supply side with the end-user centered demands of appropriate, inclusive and beneficial digital innovations.



Source: FAO (2022)

The digital village ecosystem assessment tool

The digital village ecosystem (DVE) assessment tool begins with an assessment of the current level of digitalization and supports digital pilot capacity. The assessment is carried out via using surveys targeting village residents, gender-disaggregated technology users, technology developers and enablers, and using gender disaggregated questionnaires. The DVE assessment tool is currently piloted in eight countries of Asia (table 1 below).

How FAO can support digital villages through information, tools and experience sharing



1 | Digital village development strategy support
(Digital landscape assessments)



2 | Digital village ecosystem assessment
(Needs based, feasible, and inclusive digital innovation options)



3 | Digital innovation ecosystem development
(inclusive business model and pilot action plan development)



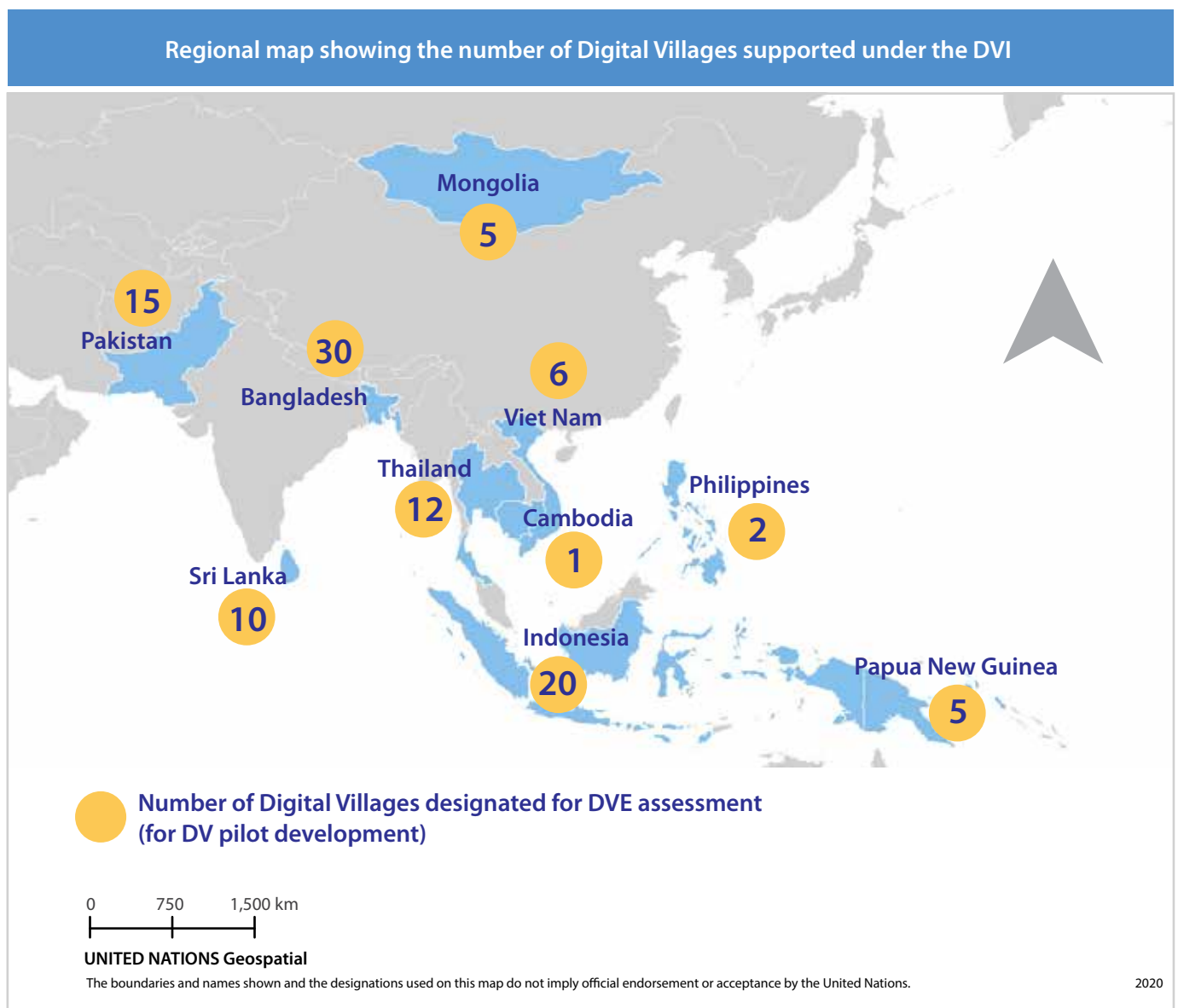
4 | Digital pilot and deployment support
(including literacy, training, institutional capacity)



5 | Knowledge sharing and best practices exchange
(within and cross-countries)

How is the Digital Village Initiative implemented in Asia and the Pacific ?

The digital village initiative in Asia and the Pacific is being implemented in several countries, building on national digital strategies, policies and priority areas of action. The DVI core support functions are custom tailored to each country digital needs and the current state of digital advancement.



Source: Modified from UN. 2020. Map of the World [online]. [Cited 1 June 2022]. un.org/geospatial/file/3420/download?token=bZe9T8I9

Country-level activities under Digital Village Initiative in Asia and the Pacific

Table 1. Country-level activities under Digital Village Initiative in Asia and the Pacific

| Countries participating in FAO Digital Village Initiative (2021-2022) | Digital landscape assessment | Digital village ecosystem assessments (# Digital Villages) | Digital village Pilot development (action plan) | DV pilot implementation & support (# digital villages) | Digital villages supported under DVI (# digital villages) |
|---|------------------------------|--|---|--|---|
| Bangladesh | ✓ (E-Ag Strategy) | ✓ (30) | ✓ (3) | ✓ (10) | ✓ (30) |
| Cambodia | ✓ | ✓ (1) | | | ✓ (1) |
| China | | | ✓ (10) | ✓ (10) | ✓ (10) |
| Indonesia | ✓ (E-Ag Strategy) | ✓ (20) | ✓ (4) | ✓ (3) | ✓ (20) |
| Mongolia | ✓ | ✓ (6) | ✓ (1) | ✓ (1) | ✓ (6) |
| Pakistan | | ✓ (15) | ✓ (1) | ✓ (1) | ✓ (15) |
| Papua New Guinea | | ✓ (5) | ✓ (2) | ✓ (2) | ✓ (5) |
| Philippines | | ✓ (2) | ✓ (2) | | ✓ (2) |
| Republic of Korea | ✓ | | | | ✓ (2) |
| Small Islands States | ✓ | ✓ | | | ✓ (digital islands) |
| Sri Lanka | | ✓ (10) | | | ✓ (10) |
| Thailand | ✓ | ✓ (11) | ✓ (3) | ✓ (3) | ✓ (11) |
| Viet Nam | | ✓ (5) | ✓ (3) | ✓ (3) | ✓ (6) |

Digital village knowledge sharing platform

FAO Regional Office for Asia and the Pacific has developed a web-based knowledge sharing platform to show case programmes, initiatives and best practices and experiences related to the digitalization for inclusive rural and agrifood transformation including an interactive map.

Selected examples of digital village innovations from Asia and the Pacific



| | |
|------------------------|---|
| Country : | BANGLADESH |
| Village : | Osmanpur (Badagonj, Rangpur) |
| Digital Innovations : | Virtual Call Centre, Digital Centre, Business planning using RuralInvest, Realtime data collection using open foris .collect |
| Users/Beneficiaries : | All households of the selected village including farmers, youth, students, job seekers, small businesses, service providers, traders etc. |
| Developers/Suppliers : | Food and Agriculture Organization of the United Nations (FAO) and Sara Bangla Krishak Society (SBKS). |

Synopsis: Osmanpur village is located in the Rangpur district of Bangladesh. The villagers raise beef cattle, milch cows, and goats, grow vegetables and have strong producer organizations. This village has a digital village service center that provides digital services to villagers and assists farmers in procuring inputs and selling products in groups to secure better prices. Members of the farmers' associations have benefited from FAO's training in rural investment, business planning, and management. Farmers also use government-endorsed mobile applications for crop and livestock disease detection and prevention, assist with cropping decisions, and consult the online fertilizer recommendation guide.



| | |
|------------------------|--|
| Country : | CHINA |
| Village : | Longxian Village (D. Lishui, P. Zhejiang) |
| Digital Innovations : | Rice and fish traceability; AI identification at Qingtian rice-fish culture system (GIAHS Site); digital extension advisory services, GIS- |
| landscape : | Monitoring, e-governance |
| Users/Beneficiaries : | Smallholder farmers, Low-income people, Elderly. |
| Developers/Suppliers : | Government |

Synopsis: With the help of drones, satellites, and artificial intelligence, information on every aspect of the Longxian Village, from farmland, roads, and houses to residents, traffic, and economy, is collected in almost real-time. The rice-fish system now produces products that meet standard requirements thanks to digital soil testing and formulated fertilization applications. Every product within the rice-fish system comes with a digital tag that can trace from production to sales. Meanwhile, public services are also digitalized and can be accessed through smartphones.

Selected examples of digital village innovations from Asia and the Pacific



| | |
|------------------------|---|
| Country : | MONGOLIA |
| Village : | Arvaikheer soum, Uvurkhangai province |
| Digital Innovations : | Mobile applications providing animal identification and traceability to promote livestock exports and provide better control of animal diseases |
| Users/Beneficiaries : | Livestock herders; farmers |
| Developers/Suppliers : | Ministry of Food, Agriculture and Light Industry (MOFALI); Uvurkhangai Province Agriculture Department; and the Private sector. |

Synopsis: Arvaikheer soum ("village") in the province of Uvurkhangai is dominated by animal husbandry. The introduction of digital animal identification and registration proved an effective livestock management tool and provided herders with improved livestock trade and better control of animal infectious diseases. FAO supported a pilot project to implement an "Animal Identification and Registration System (AIRS)" financed by the Standards and Trade Development Facility. The project ear-tagged over 190,000 animals in 4 soums (villages) and is being extended to provide herders with an information platform that allows herders to obtain weather and animal health-related information on-demand.



| | |
|------------------------|--|
| Country : | INDONESIA |
| Village : | Soge Village, Kandanghaur, Indramayu |
| Digital Innovations : | Automatic feeder (e-fishery technology) in fish ponds producing African catfish. Automatic feeding regulated in time and quantity via a smartphone synchronized to auto feeder. The innovation combines the autofeeder, input loans and e-commerce to sell the harvested fish. |
| Users/Beneficiaries : | fisherfolks (fish pond farmers) |
| Developers/Suppliers : | Private companies with enabling companies (banks) and local government support |

Synopsis: A private company developed an automatic fish feeder using Internet-of-thing (IoT) technology, which offered auto feeding of catch fish at regular interval using a smartphone synchronized with an auto-feeder. In collaboration with West Java Provincial Government, the company supplied the digital technology to catfish producers in Soge, Krimun, and dan Puntang villages resulting in tangible benefits in enhanced feed conversion ratio, saved labor, and higher income. The technology was also supplemented with operating capital loans (feed, seeds) and other cultivation production facilities, plus e-marketing and B2B Commerce. The innovation is highly successful, as indicated by the rising adoption among the villages in Indramayu. In some fish farms, the number of equipped ponds with auto-feeders rose from 2 fish ponds in 2019 to over 40 in 2022.

Selected examples of digital village innovations from Asia and the Pacific



| | |
|------------------------|--|
| Country : | REPUBLIC OF KOREA |
| Village : | Gimje-si |
| Digital Innovations : | Smart Farm Innovation Valley is an innovative ecosystem comprising of an incubator for smart farm trainees, a rental farm, a demonstration complex, a hinter land village and energy facility. |
| Users/Beneficiaries : | Young entrepreneurs; young farmers producing horticulture and specialty crops |
| Developers/Suppliers : | Government of Korea (national and local); private companies and research institutes |

Synopsis: The Smart Farm Innovation Valley (SFIV) in Gimje-si of the Republic of Korea is the first valley established among 4 valleys in ROK, to promote young farmers' adoption of smart farming by providing synergy with private companies, and research institutes. SFIV in Gimje became operational in 2021 with its facilities for training centre, rental farms, demonstration complex, and big data centre. Supported by the Korean Government, the SFIV train young farmers in smart farming technologies and business development. The rental Smart Farm offers loans and subsidies to young entrepreneurs to start businesses in smart farming. The demonstration Complex supports creating technological innovation through the demonstration and verification of ICT equipment, machines for greenhouses, analysis and utilization of big data.



| | |
|------------------------|--|
| Country : | THAILAND |
| Village : | Khlong Song, Pathum Thani (Pathum Thani Province) |
| Digital Innovations : | Internet of things (IoT) for watering organic vegetables; Online marketing platform; Government e-service; Mobile banking. |
| Users/Beneficiaries : | Association of the physically handicapped in Pathum Thani |
| Developers/Suppliers : | University of Bangkok (IoT application developer) with Government support - funding from DEPA Transformation fund from Community |

Synopsis: Members of the Association of the physically handicapped in Pathum Thani province have adopted the Internet of things (IoT) for watering organic vegetables with financial support from a university that helps to design the opened greenhouse for a physically handicapped person. This area locates near Bangkok with reliable internet connectivity. The association also obtained financial support (50 percent of the price of IoT) from the Digital Economy Promotion Agency (DEPA). Physically handicapped people and local people can largely access and use the online marketing platform, government e-service, and mobile banking via their mobile phones.

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