Food and Agriculture Organization of the United Nations

E-agriculture in Europe and Central Asia

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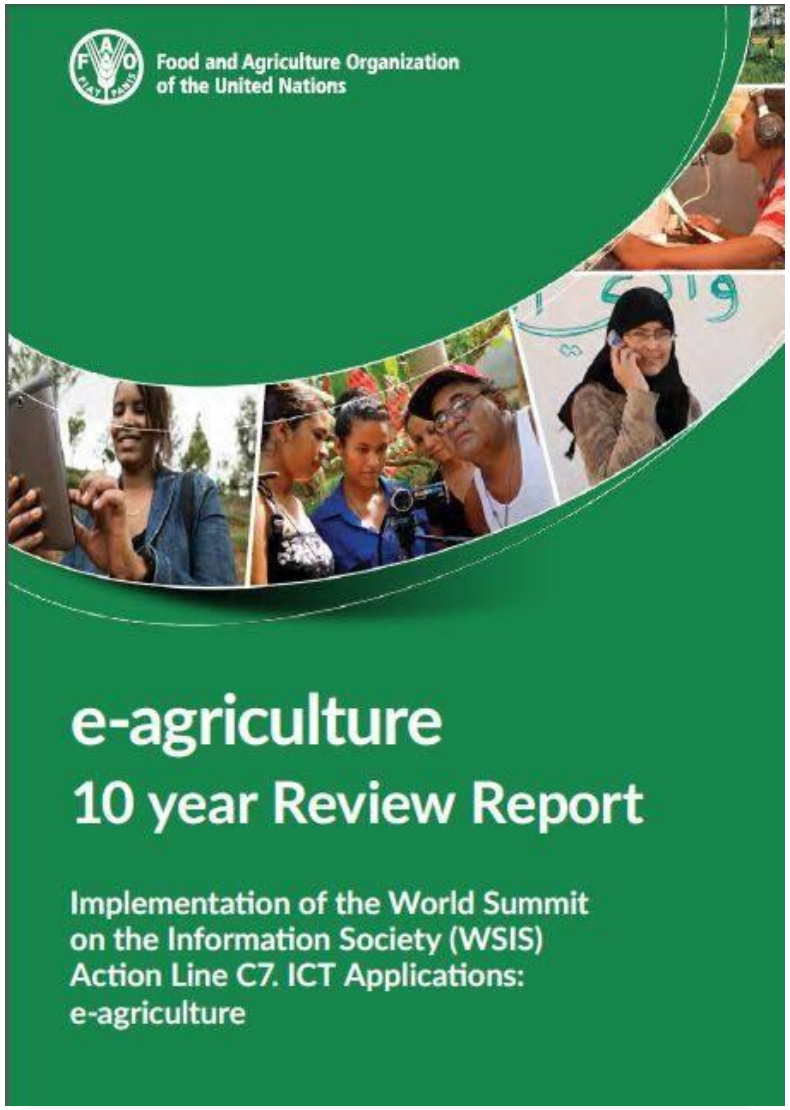

www.fao.org/3/a-i4605e.pdf

FAO international mandate

World Summit on the Information Society (WSIS)

Geneva, December 2003

Tunis, November 2005

Geneva Plan of Action

WSIS Action Line

C7. ICT applications:
benefits in all aspects of life
'e-agriculture'

E-agriculture definition

- E-agriculture refers to designing, developing and applying innovative ways to use information and communication technologies (ICTs) - including digital technologies - in the rural domain, with a primary focus on agriculture and food, including fisheries, forestry and livestock.
- Technological application, facilitation, support of standards and norms, capacity development, education and extension belong to the broader concept of e-agriculture.
- E-agriculture offer the unprecedented opportunities for accelerating agricultural development, however an appropriate enabling environment is needed to realize the technology potential.

Source: FAO,2016

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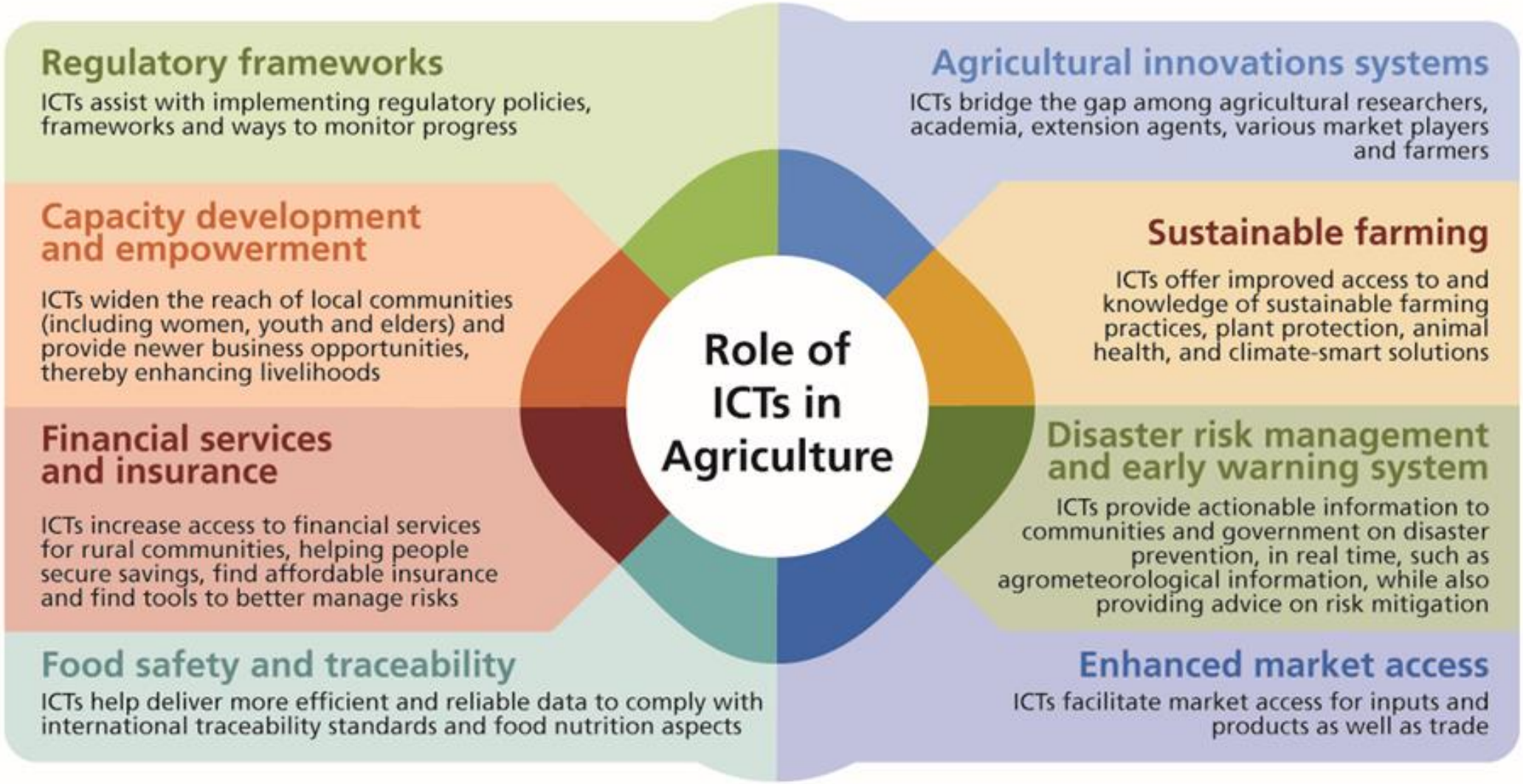


Source: FAO - ITU

FUTURE FARMS
small and smart

SURVEY DRONES

Aerial drones survey the fields, mapping weeds, yield and soil variation. This enables precise application of inputs, mapping spread of pernicious weed blackgrass could increasing Wheat yields by 2-5%.

FLEET OF AGRIBOTS

A herd of specialised agribots tend to crops, weeding, fertilising and harvesting. Robots capable of microdot application of fertiliser reduce fertiliser cost by 99.9%.

FARMING DATA

The farm generates vast quantities of rich and varied data. This is stored in the cloud. Data can be used as digital evidence reducing time spent completing grant applications or carrying out farm inspections saving on average £5,500 per farm per year.

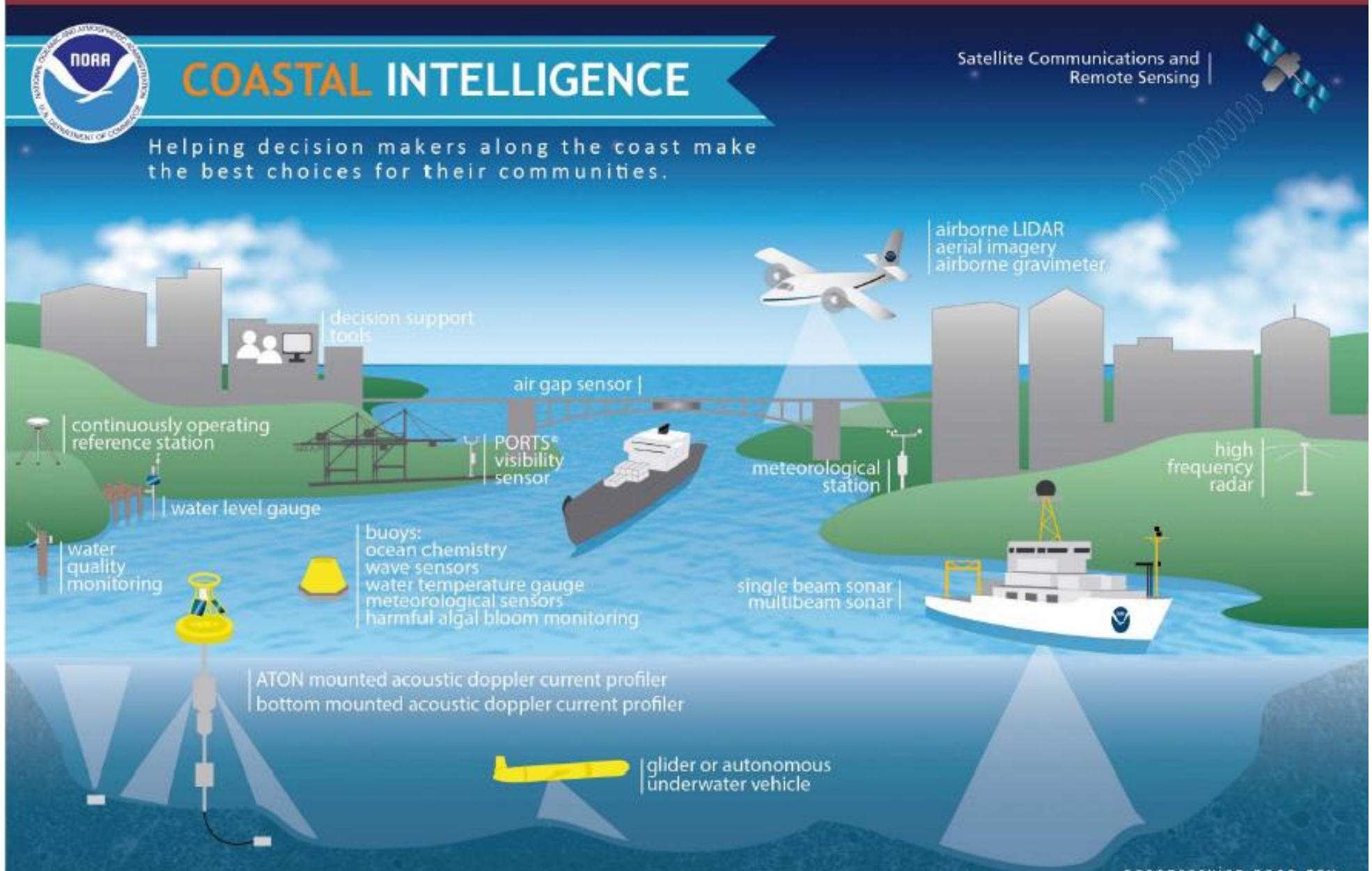
TEXTING COWS

Sensors attached to livestock allowing monitoring of animal health and wellbeing. They can send texts to alert farmers when a cow goes into labour or develops infection increasing herd survival and increasing milk yields by 10%.

SMART TRACTORS

GPS controlled steering and optimised route planning reduces soil erosion, saving fuel costs by 10%.

The role of spatial technologies



Collect

Easy and flexible survey design and data management

Collect Mobile

Intuitive data collection and validation in the field

Collect Earth

Innovative land assessment through freely available satellite imagery

Calc

Efficient and collaborative data analysis and results dissemination

SEPAL

System for earth observation, data access, processing, analysis for land monitoring

www.openforis.org

Challenges in Europe and Central Asia and SDGs

Rural livelihoods and rural poverty

- **62% of poor live in rural areas**
- **Migration from rural areas**

Farm structure

- 97% of farmers in Europe and 70% in Central Asia are smallholders

Sustainability of food production and food systems and climate change

- Land degradation and increase of natural disasters in the region
- Transboundary diseases

Food Security and malnutrition

- Triple burden of malnutrition: undernutrition – obesity – micronutrient deficiencies

Agrifood Trade

- Potential for export promotion, implementation of trade agreements
- Capacity Development in WTO
- Growing demand for updating the Sanitary and Phytosanitary measures

Reduce the triple divide : digital, rural and gender

7 factors of success

- Success factor 1: Content
- Success factor 2: Capacity development
- Success factor 3: Gender and diversity
- Success factor 4: Access and participation
- Success factor 5: Partnerships
- Success factor 6: Technologies
- Success factor 7: Sustainability

9 principles for digital development

In summary using the A's questions

Available

Appropriate

Accessible

Adapted

Affordable

Ability

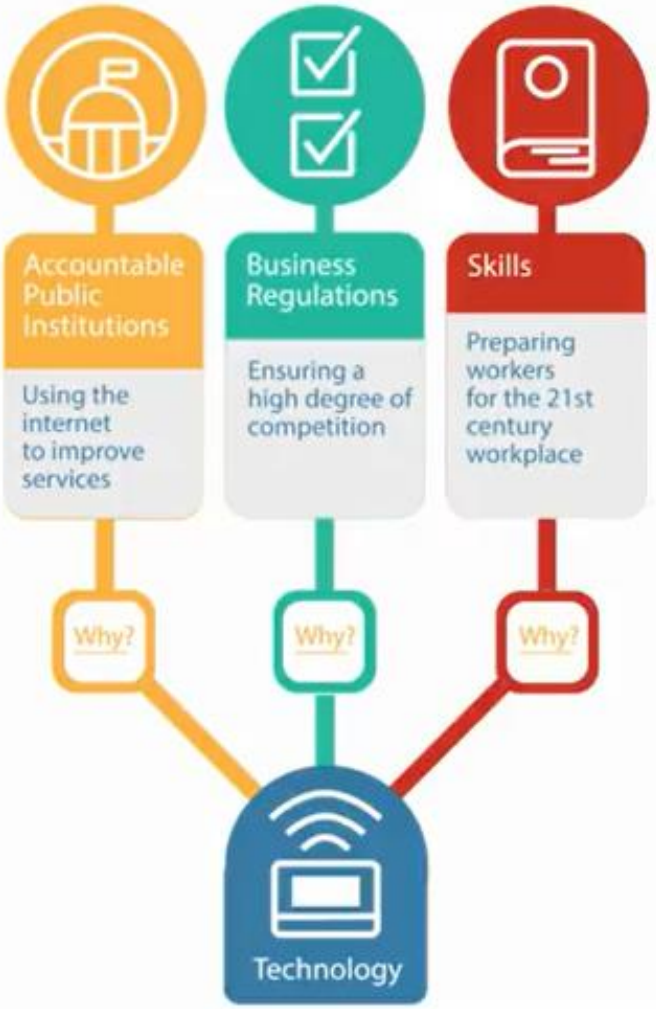
How digital technologies can support smallholders?

As a result of land reforms in the 1990s, Europe and Central Asia is largely a region of smallholders.

In some countries, large commercial farms exist side-by-side with many economically unprofitable smallholders. Yet small farms can achieve high levels of productivity and income – through improved organization, intensified and sustainable production, and integration into agri-food chains.

With appropriate support, family farms can be a model for achieving sustainable growth, ensuring food security and mitigating rural poverty.

Technology alone will not solve development challenges



SOURCE:http://www.worldbank.org/en/news/infographic/2016/01/22/how-do-countries-rate-on-digital-progress

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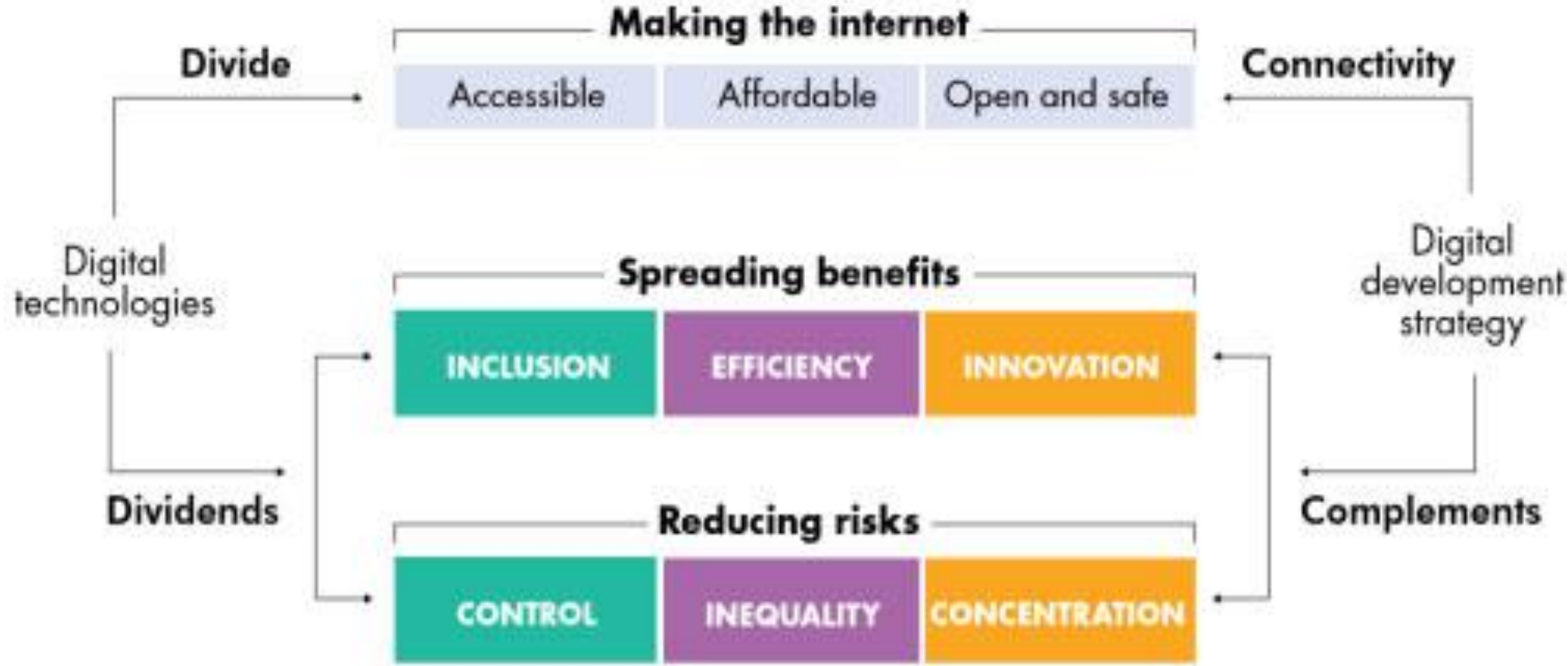


Source: WDR 2016 team.

EU Digital strategy and declarations related to agriculture

- EU Digital Strategy
- EU Digital single market
- Digitalisation and common agricultural policy

In April 2019

- EU Declaration on
  "A smart and sustainable digital future for European agriculture and rural areas"
- EU ethical guidelines on human-centric Artificial Intelligence
- Promoting Greater Participation of Women in Digital

Different countries, similar challenges in the European Union, … and not only

- Farming population is ageing
- Shortage of farm labour in some Member States
- Lack of a digitally skilled workforce is also slowing down the modernisation of the sector
- Low use of digital technology in agriculture and rural areas in the EU
- Lack of information about existing technologies
- Lack of digital skills
- Limited availability of reliable cost/benefit analyses of the new technologies are challenges to increased investments in digital applications
- Research and innovation are still required to develop new solutions
- Basic infrastructure, such as broadband or access to other high-speed internet connections, is still missing

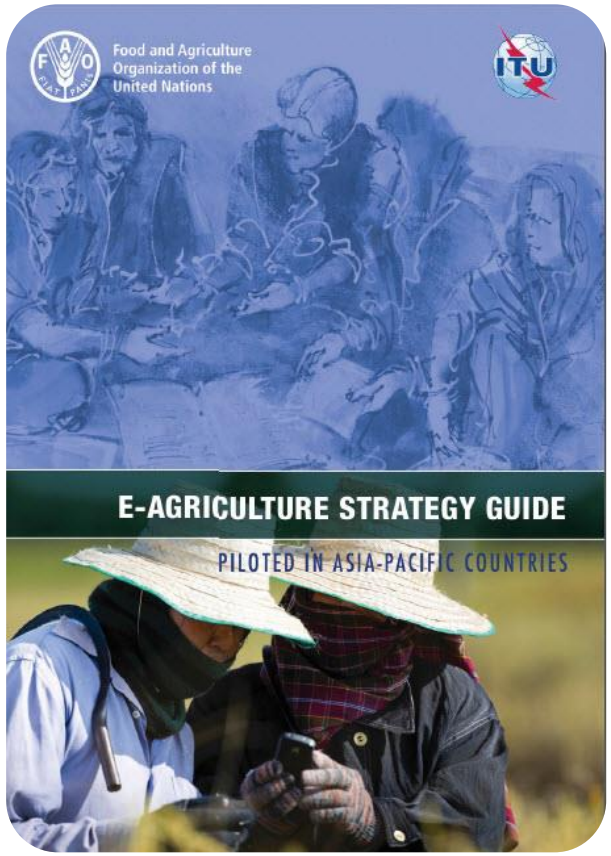
Concrete suggested actions … to be implemented together

- Mapping of status of e-agriculture implementation and existing digital strategies
- Support to development of national e-agriculture strategies
- Awareness campaigns on potential of digital technologies and their use
- Data analytics, ownership, sovereignty, open-access, security, reliability, interoperability

Concrete suggested actions … to be implemented together

- Appropriate digital infrastructure in rural areas across the region
- Digital skills for youth and ageing population
- Appropriate technologies replying to needs of smallholder farmers
- Analysis of cost/benefits of technologies

E-agriculture strategy guide



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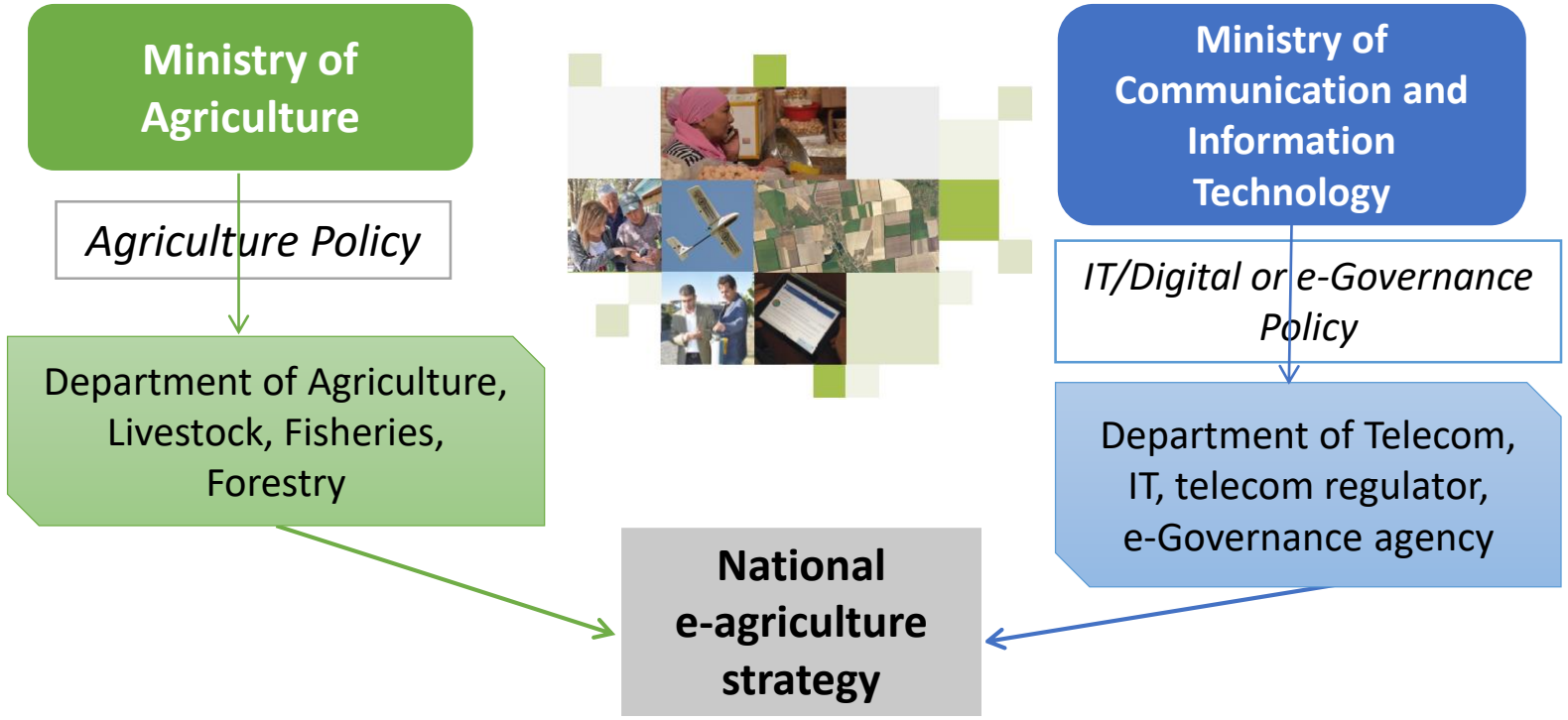
This framework is used to assist countries to identify, design and develop sustainable ICT solutions/services to overcome challenges faced in agriculture or to accelerate achieving national agricultural goals.

English: www.fao.org/3/a-i5564e.pdf
Russian: www.fao.org/3/I9515RU/i9515ru.pdf

Developing national e-agriculture strategy



National e-agriculture strategy

is a comprehensive framework to develop sustainable e-agriculture services and solutions

Addressing key building blocks

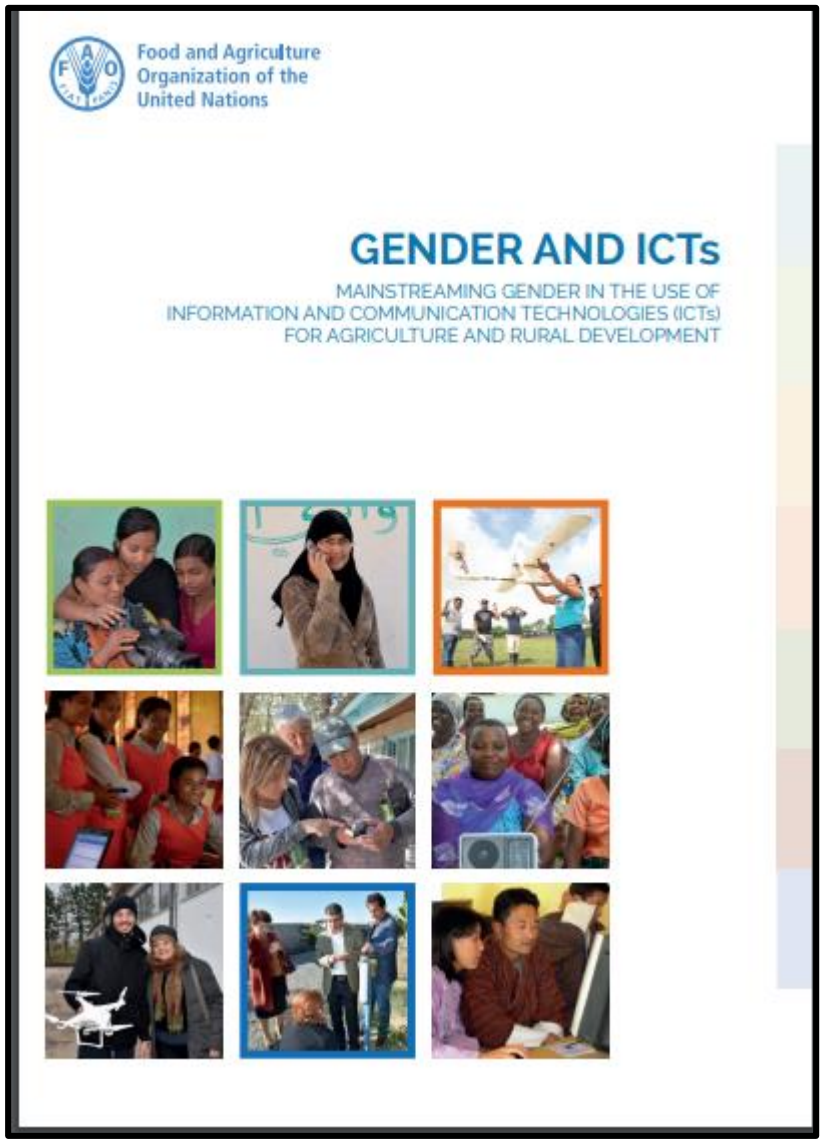
- Infrastructure
- Interoperability
- Reliable Data
- Data sharing/ privacy
- Policies and Regulations

- Digital Literacy
- Gender-Digital Divide
- Data Analytics
- Capacity Development
- Support to Innovations

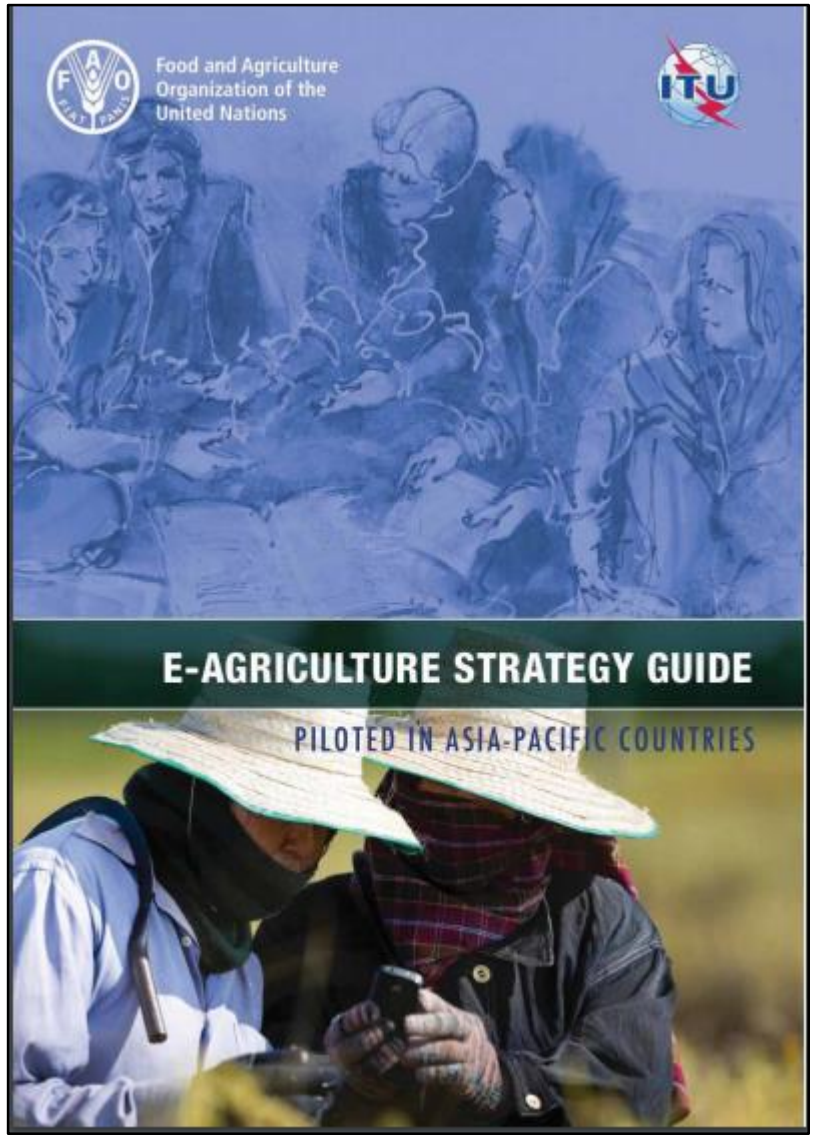
Ready to hear back from you

- Do you have a national digital strategy?
- Do you have a national digital strategy for agriculture – e-agriculture ?
- How is it implemented?
- How smallholder farmers in your country can benefit from the new technologies?
- How digital skills are enhanced in your country?
- Any good practices to be documented and shared?

http://www.fao.org/3/I8303EN/i8303en.pdf



http://www.fao.org/3/i8670en/I8670EN.pdf



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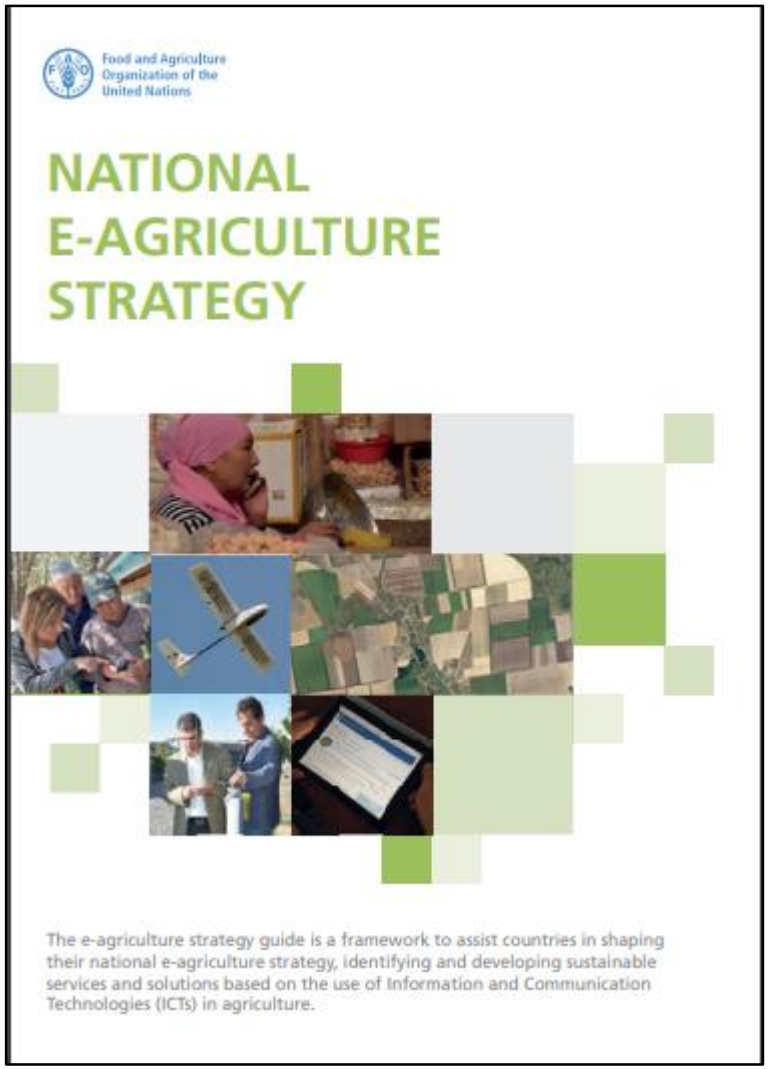

www.fao.org/3/i8133en/I8133EN.pdf

www.fao.org/3/i8133ru/I8133RU.pdf

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April 2018 ERC/18/3

FAO Regional Conference for Europe

Thirty-first Session

Voronezh, Russian Federation, 16-18 May 2018

E-agriculture: the Use of Information and Communication Technologies (ICTs) for the Development of Sustainable and Inclusive Food Systems and Trade Integration

Executive Summary

Traditional and innovative information and communication technologies (ICTs) offer unprecedented opportunities for accelerating agricultural development towards more sustainable and integrated agriculture and food systems and achieving United Nations (UN) Sustainable Development Goals (SDGs), including food and nutrition security. ICTs bring new models for service delivery, fair and inclusive trade, and social and financial inclusion, among others. However, digital technology dividends are not automatic; in order to allow everyone to benefit from the technologies at minimized risk, FAO advocates for a participatory e-agriculture strategy formulation and implementation at the national level.

This paper aims at discussing practical methods, concrete policy options and priority actions related to the digital transformation of the food and agricultural sectors in the region, while enhancing exchange on benefits and challenges in applying ICTs in agriculture, food livestock, forestry and fisheries. Members will be called upon to provide guidance, to share good practices with a focus on strategy formulation, identify policy options and specify needs for FAO support in e-agriculture.

This background paper defines the terms related to e-agriculture, presents its multiple benefits against the technology challenges in Europe and Central Asia, and builds the case for a national e-agriculture strategy. Policy options are identified, and areas for FAO assistance are proposed.

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E-agriculture: the Use of Information and Communication Technologies (ICTs) for the Development of Sustainable and Inclusive Food Systems and Trade Integration and web Annex for document ERC/18/3:

In English:
www.fao.org/3/MW106EN/mw106en.pdf +
www.fao.org/3/MW402EN/mw402en.pdf

In Russian: www.fao.org/3/MW106RU/mw106ru.pdf +
www.fao.org/3/MW402RU/mw402ru.pdf

Thank you

www.fao.org/europe/resources/e-agriculture/en/

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