Status of Implementation of E-agriculture in Central and Eastern Europe and Central Asia: insights from selected countries in Europe and Central Asia

Regional e-agriculture review and publication developed in collaboration between the Food and Agriculture Organization and St Istvan University, Hungary

Laszlo Gabor Papocsi, FAO Consultant, Hungary

St Istvan University – largest agricultural higher education institute in Gödöllő, Hungary

- **FAO partner, scholarship program, workshops, Memorandum of Understanding**
- **GAK: Education, innovation & research centre of the university**
  - **eFarmer, Farmernet, Safefoodnet projects, e-government, e-claim etc experience**

FAO REU – Regional Office for Europe and Central Asia, located in Budapest, Hungary http://www.fao.org/europe/

- **Nevena Alexandrova**
  Agricultural Innovation Systems and Knowledge Sharing Officer
- Michal Demes, Information Systems Officer 1997-2012 (retired to his farm), IAALD, AgroWebCEE (including Lithuania), ESCORENA networks

Country profile
Ministry
FAO NC
Information Centres
Research Centres
Education
NGOs/CSOs
Agromarketing
EU Integration
Food and Nutrition
Veterinary Medicine
Animal Genetic Resources
Animal Welfare
Farmnet
Forestry
Fishery
Beekeeping
Gender
Other Information

AgroWeb Lithuania, a part of the AgroWeb Central and Eastern Europe Network is created in aim to collect and provide information on agricultural institutions and other important agriculture related subjects to help users to find information and contacts in Central and Eastern European countries and former USSR.

NEWS IN LITHUANIA

Ka pasesi ... 2014

19th International Agricultural Exhibition "Ką pasėsi... 2014" on April 3-5 will be held in the Aleksandras Stulginskis University (Akademija, Kaunas distr., Lithuania).

News submitted on 20.02.2014

AGROBALT 2014

AgroBalt International Exhibition on Agriculture and Food Industry, 3-5 April 2014, Kaunas, Lithuania

News submitted on 4.02.2014

Archive

INTERNATIONAL NEWS

TKN Regional Workshop

Regional Workshop Budapest-Hungary Thematic Knowledge Network 12-15 April 2011

Regional Workshop on the "Development of Thematic Knowledge Networks", in the framework of "Coherence in Information for Agricultural Research for Development" (CIARD) will be organised this year between 12-15 April in Budapest - Hungary.

News submitted on 15.04.2011

Archive

Agroweb Events

FAO holds Regional Round Table on Problems of Medicinal and Aromatic Plants in Budapest - Hungary beetween 3-5 April 2012

Events Archive

Strategic Partners

FAO WAICENT
FAO REU
ESCORENA
IAALD
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AGROWEB SEE
AGROWEB CAC
GRAPHIX

EAS Exp.Cons. 2016
EAS Workshop 2015
KSP Workshop 2013
TKN Workshop 2011
TKN Workshop 2010
Country profile
e-Agriculture strategy
News
Agromarketing
Ministry
FAO NC
Information Centres
Research Centres
Education
NGOs/CSOs
Food and Nutrition
Veterinary Medicine
Animal Genetic Resources
Animal Welfare

Regional Capacity Development Workshop on
National e-Agriculture Strategies in Europe and Central Asia

Gödöllő-Budapest, Hungary
22-24 June 2015

organized jointly by FAO and GAK, Szent István University

→ Annotation | → Agenda | → Presentations | → Practical Info | → List of Participants | → Photo gallery | → Video

Agroweb Events

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Follow-up review, publication

Based on:

- The experience and feedback of participants and the outcome of the Regional Capacity Development Workshops on National e-Agriculture Strategies in Europe in 2015 and 2016 in Hungary
- Desk research: collection and study of national strategies and other policy documents (received from workshop participants and by online search)
- Gathering best practices and lessons learned
- Collection and evaluation of several indicators
- Online questionnaire before the workshop
- Three of the workshop participants took the leading role in the professional work authoring and/or editing the text.

MAIN SECTIONS of the publication are as follows:

Food and Agriculture Organization of the United Nations

Status of Implementation of e-Agriculture in Central and Eastern Europe and Central Asia: insights from selected countries in Europe and Central Asia

This publication is a follow-up review based on the experience of participants and the outcome of the Regional Capacity Development Workshop on National e-Agriculture Strategies in Europe and Central Asia, organized jointly by FAO Regional Office for Europe and Central Asia and GAK, Szent István University in Hungary between 22 and 24 June 2015. The paper focuses in particular on the situation in transition economies and would serve policy makers and stakeholders in the agricultural sector in developing further approaches and strategies to leverage agriculture through use of Information and Communication Technologies (ICTs).

Food and Agriculture Organization of the United Nations

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Twitter: @e_agriculture

Barcode

Region in numbers: an overview of e-agriculture-related data and policies

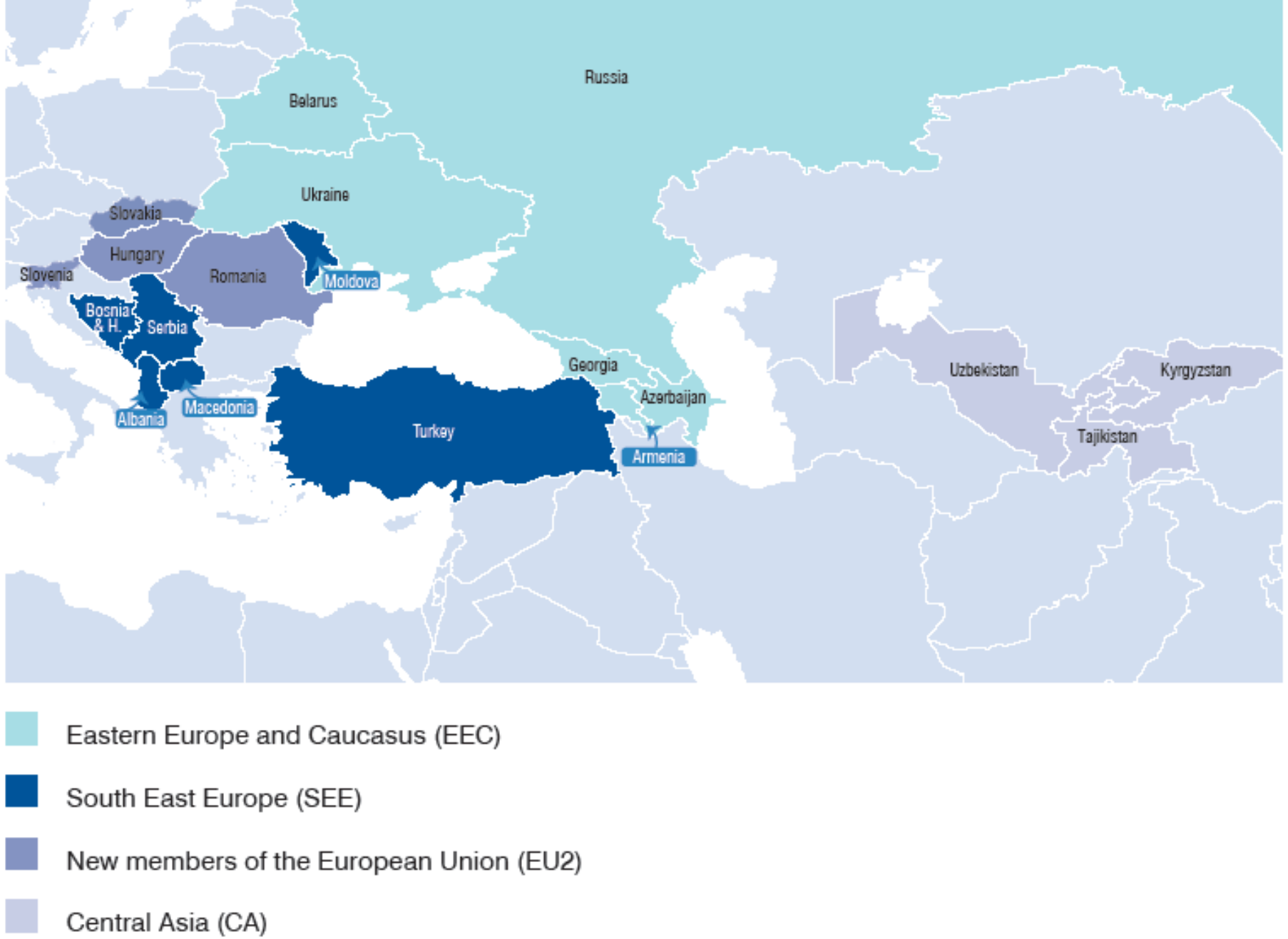
The main agricultural and information society characteristics of the region are presented,

- using basic indicators and a policy analysis
- in order to provide the context for future e-agriculture strategy development.

Five sub-regions of the Europe and Central Asia region have been set up for the purpose of the current study

- according to their common or similar geographical, economic, cultural and historical specifics,
- in order to assess, compare and evaluate the examined indicators at regional level.

4+1 sub-regions of the Europe and Central Asia region have been set up



Szent István University

Country profiles

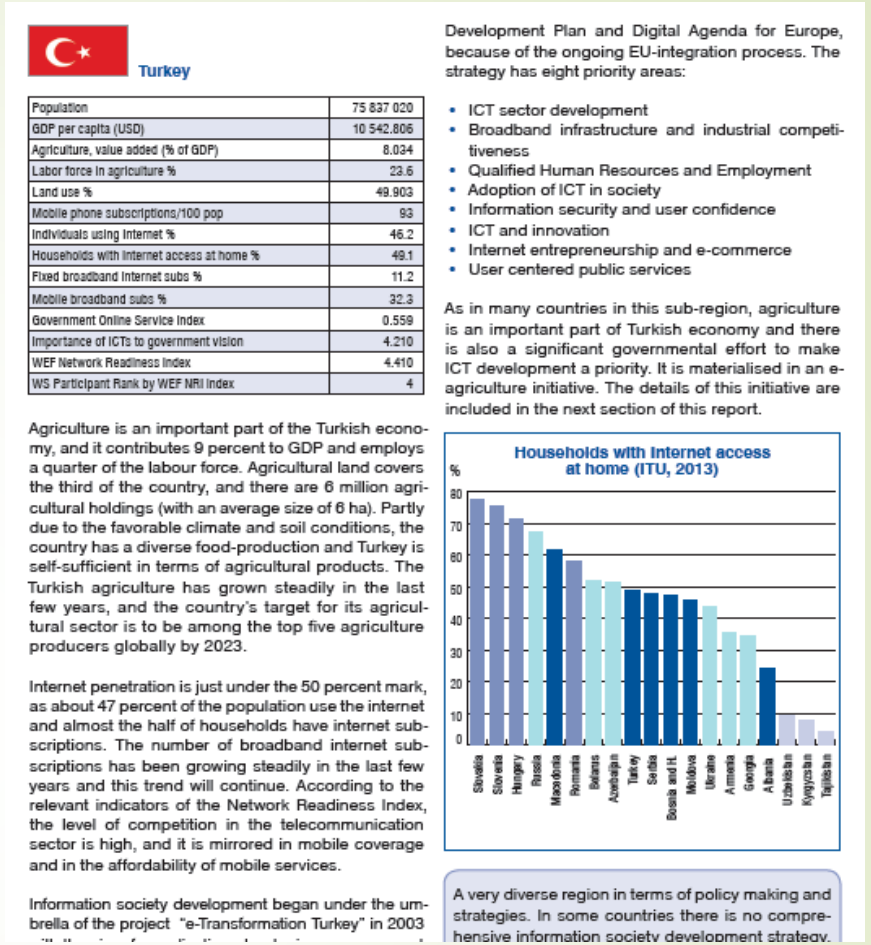
Textual description, data table, diagrams

Textual description

- Agricultural characteristics
- Highlighted indicators
- Strategy development status
- Remarks, recommendations

Data table

- 14 type of indicators



Turkey

Population	75 837 020
GDP per capita (USD)	10 542.806
Agriculture, value added (% of GDP)	8.034
Labor force in agriculture %	23.6
Land use %	49.903
Mobile phone subscriptions/100 pop	93
Individuals using Internet %	46.2
Households with Internet access at home %	49.1
Fixed broadband Internet subs %	11.2
Mobile broadband subs %	32.3
Government Online Service Index	0.559
Importance of ICTs to government vision	4.210
WEF Network Readiness Index	4.410
WS Participant Rank by WEF NRI Index	4

Agriculture is an important part of the Turkish economy, and it contributes 9 percent to GDP and employs a quarter of the labour force. Agricultural land covers the third of the country, and there are 6 million agricultural holdings (with an average size of 6 ha). Partly due to the favorable climate and soil conditions, the country has a diverse food-production and Turkey is self-sufficient in terms of agricultural products. The Turkish agriculture has grown steadily in the last few years, and the country's target for its agricultural sector is to be among the top five agriculture producers globally by 2023.

Internet penetration is just under the 50 percent mark, as about 47 percent of the population use the internet and almost the half of households have internet subscriptions. The number of broadband internet subscriptions has been growing steadily in the last few years and this trend will continue. According to the relevant indicators of the Network Readiness Index, the level of competition in the telecommunication sector is high, and it is mirrored in mobile coverage and in the affordability of mobile services.

Information society development began under the umbrella of the project "e-Transformation Turkey" in 2003

Development Plan and Digital Agenda for Europe, because of the ongoing EU-integration process. The strategy has eight priority areas:

- ICT sector development
- Broadband infrastructure and industrial competitiveness
- Qualified Human Resources and Employment
- Adoption of ICT in society
- Information security and user confidence
- ICT and innovation
- Internet entrepreneurship and e-commerce
- User centered public services

As in many countries in this sub-region, agriculture is an important part of Turkish economy and there is also a significant governmental effort to make ICT development a priority. It is materialised in an e-agriculture initiative. The details of this initiative are included in the next section of this report.

A very diverse region in terms of policy making and strategies. In some countries there is no comprehensive information society development strategy.

For *regional comparison and diagrams* used even more indicators (xls link)

- It is planned to annually update this regional ‚indicator database' and publish on AgroWebCEE, http://www.agrowebcee.net/awhu/e-agriculture-strategy/

Indicators (29)

Key indicators (8)

- World Bank: Population, GDP per capita, Agriculture, value added (% of GDP)
- FAO: Labor force in agriculture %, Land use %

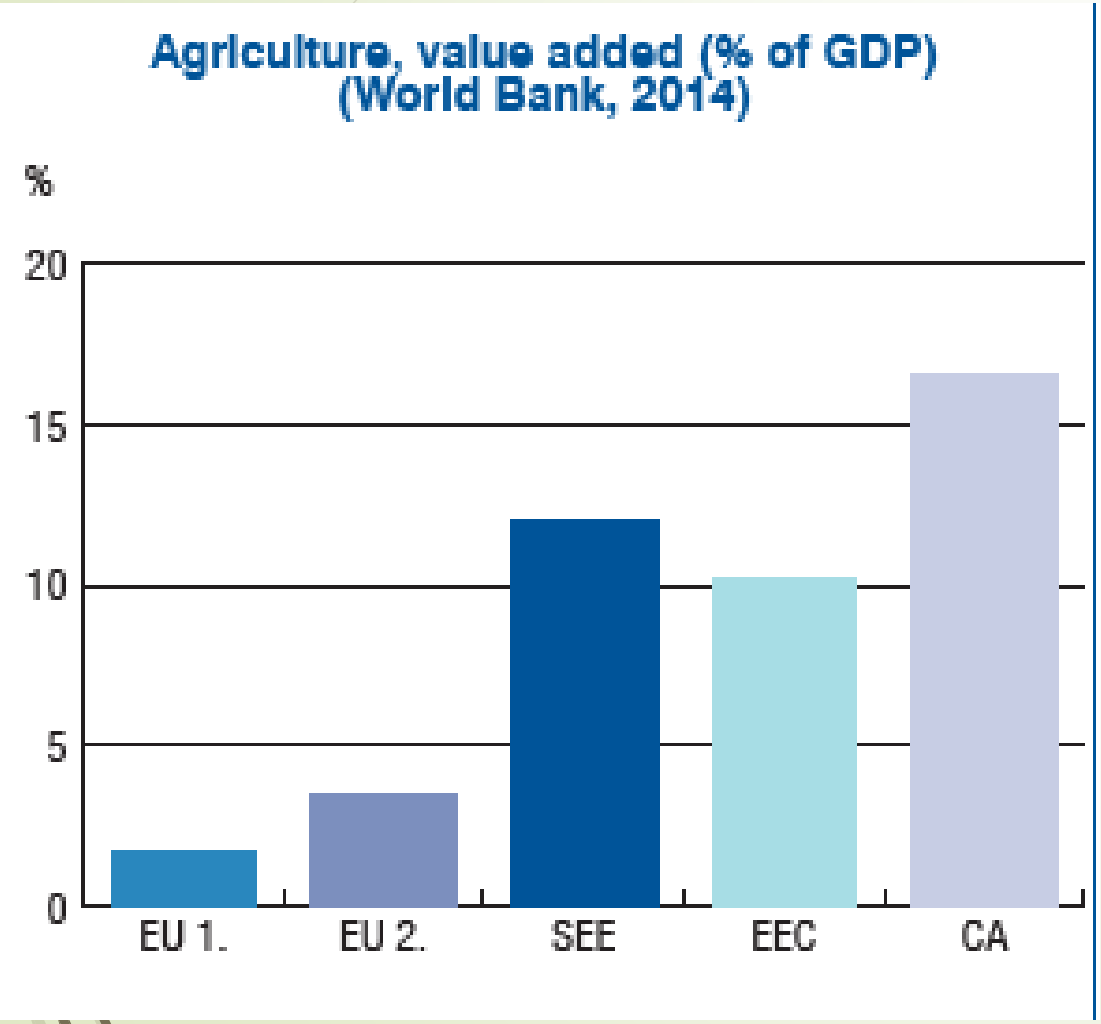
Information and communication technologies key indicators (8)

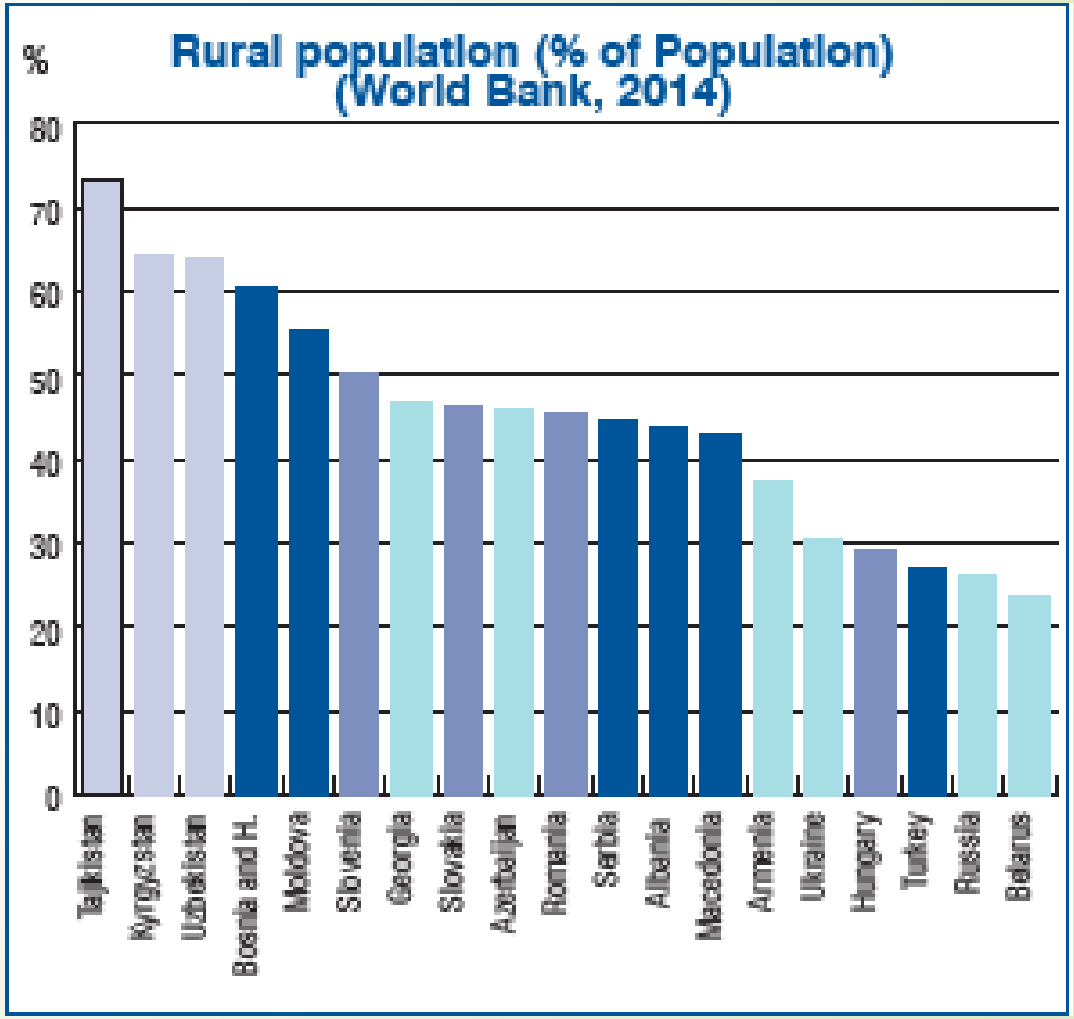
- ITU: Mobile phone subscriptions/100 pop, Individuals using Internet %, Households with Internet access at home, Fixed broadband Internet subs, Mobile broadband subs,

ICT environment / government (5) – ICT environment / business (8)

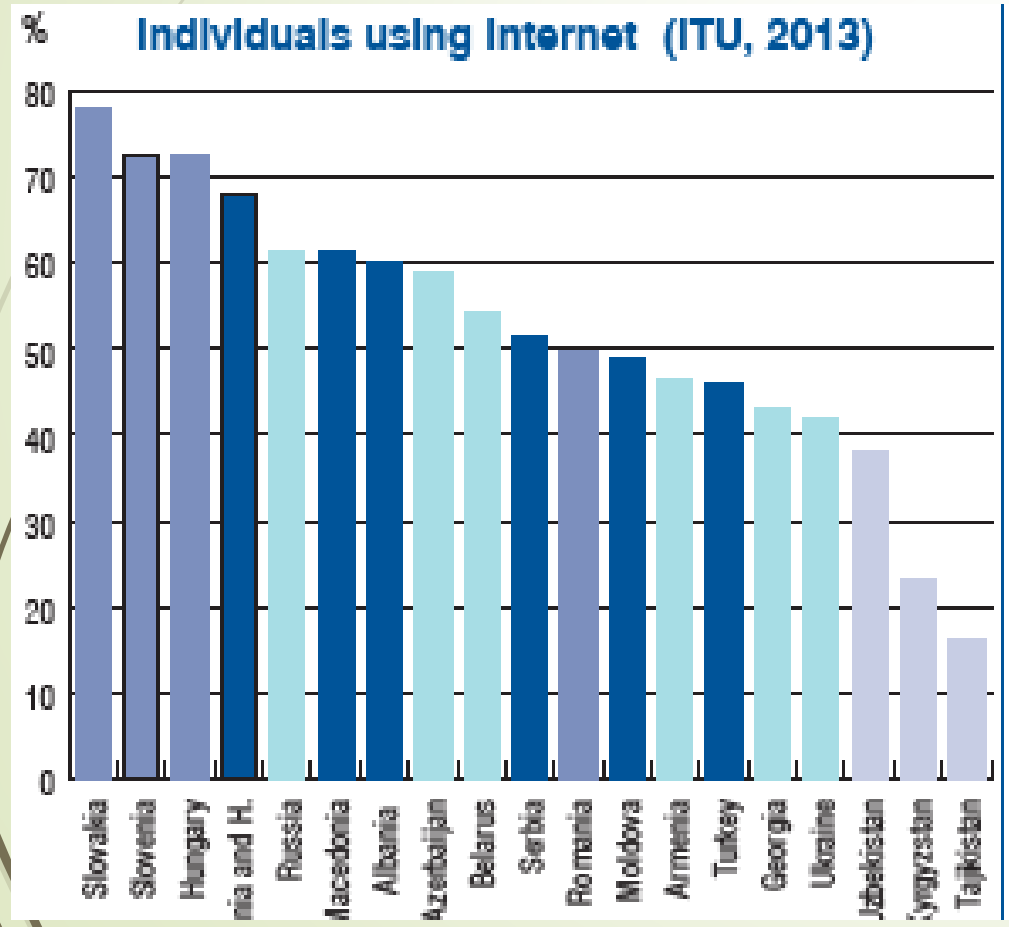
- WEF Government Online Service Index, Importance of ICTs to government vision,
- WEF Network Readiness Index
- WS Participant Rank by WEF NRI Index

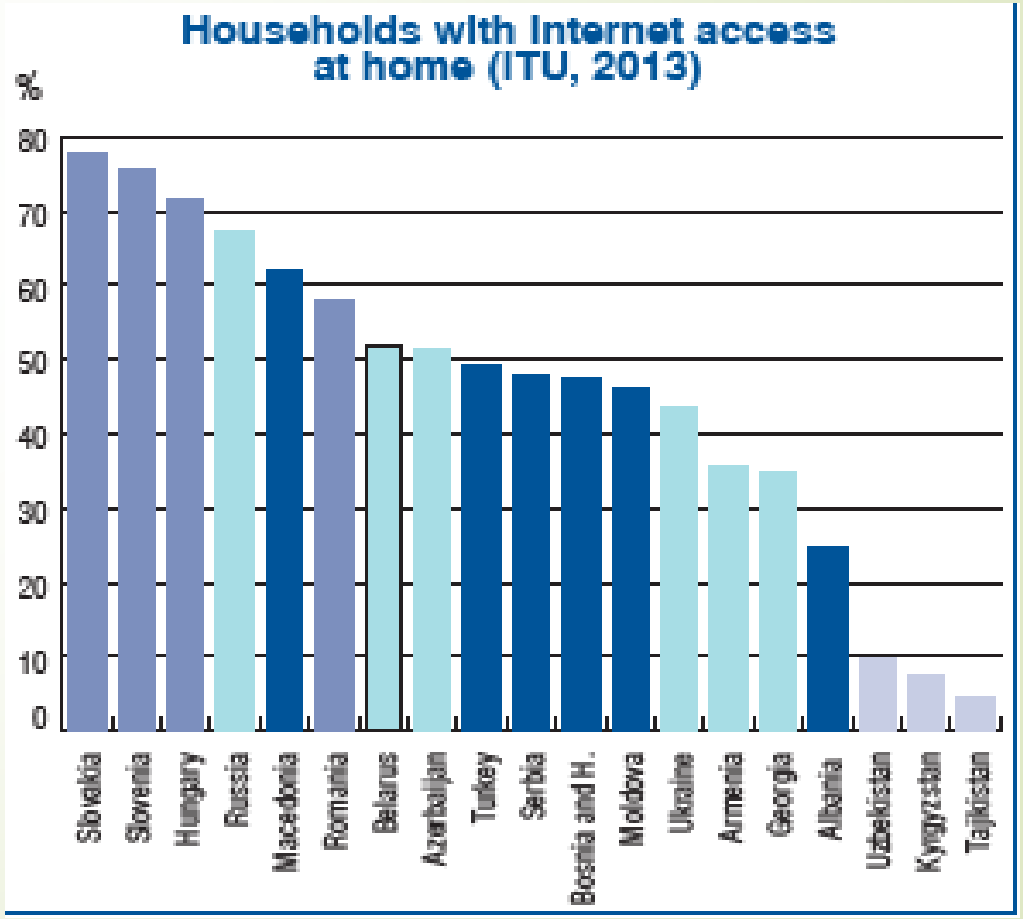
Key indicators



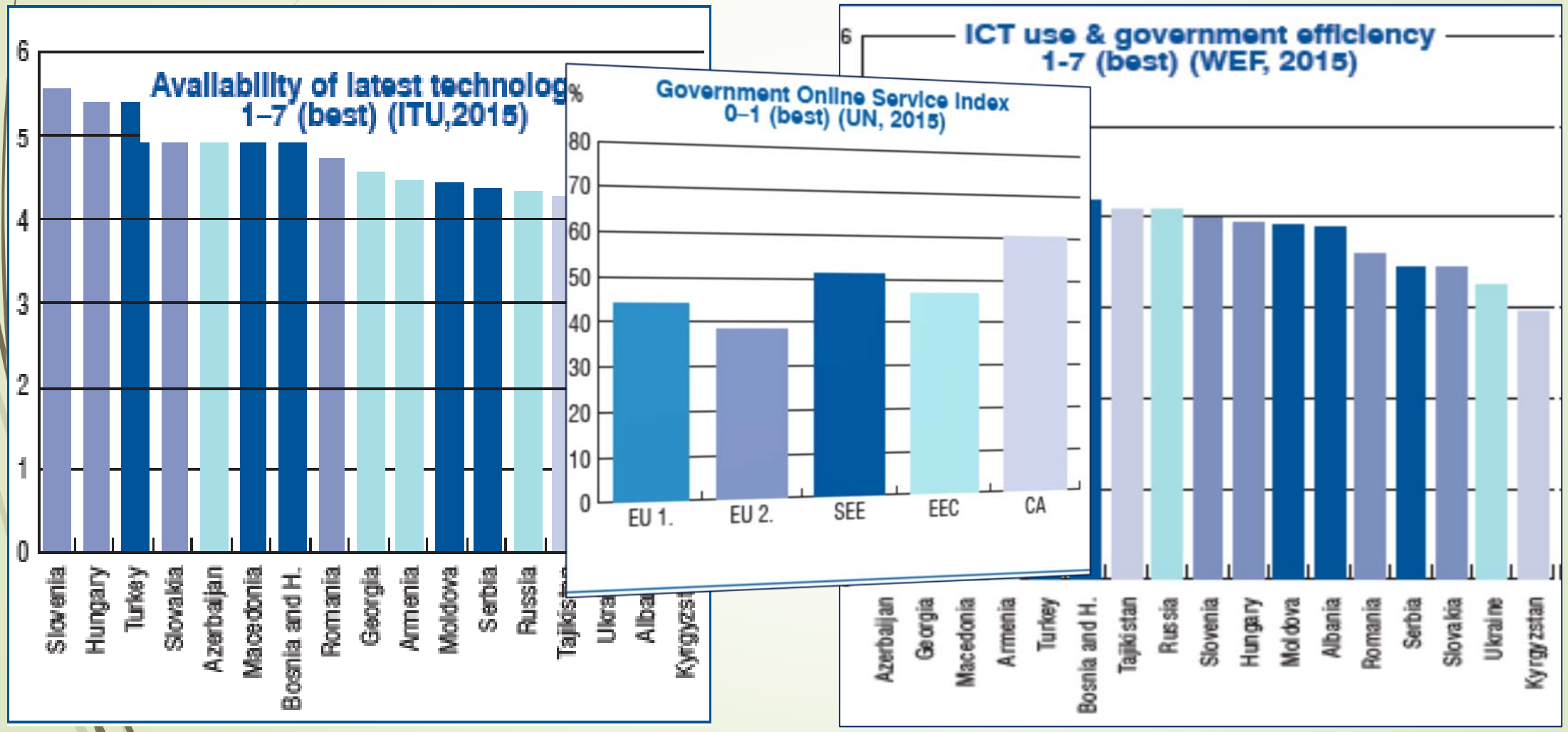


Information and communication technologies key indicators





ICT environment / government and business



South Caucasus

Armenia

Population	2 983 990
GDP per capita (USD)	3 646.663
Agriculture, value added (% of GDP)	21.935
Labor force in agriculture % (2011):	38.9
Land use %	59.115
Mobile pho	112.4
Individuals	
Households	
Fixed broad	
Mobile broa	
Governmen	
Importance	
WEF Netwo	
WS Particip	

Georgia

Population	4 504 100
GDP per capita (USD)	3 669.981
Agriculture, value added (% of GDP)	9.203
Labour force in agriculture (2007):	53.4
Land use %	35.473
Mobile phone subscriptions/100 pop	115
Individuals using Internet/100 pop	43.1
Households with Internet access at home/100 pop	34.6
Fixed broadband Internet subs %	10.2

Azerbaijan

Population	9 537 823
GDP per capita (USD)	7 884.190
Agriculture, value added (% of GDP)	5.692
Labor force in agriculture %:	37.7
Land use %	57.687
Mobile phone subscriptions/100 pop	107.6
Individuals using Internet %	58.7
Households with Internet access at home %	51.5
Fixed broadband Internet subs %	17
	43.9
	0.433
	5.237
	4.280
	6

Many countries in this sub-region have low to moderate share of agriculture to the GDP but still considerable employment in agricultural sector. The ICT-indicators show promising prospects for e-agriculture, but information society development strategies are partial, which can delay of the preparation of national e-agriculture strategies. The need for structural reforms in agriculture in al- most every country provides a good opportunity to create and implement e-agriculture development plans both in the field of ICT-strategies. There are various reform programs and development and agriculture, with overlappings. The main direction of e-agriculture development is the one-stop-shop approach by governmental organizations.

Central Asia

Kyrg

Population	
GDP per capita (USD)	
Agriculture, value add	
Labour force in agric	
Land use %	
Mobile phone sub	
Individuals using	
Households wit	
Fixed broadba	
Mobile broad	
Governmen	
Importance of ICTs to government vision	2.701
WEF Network Readiness index	3.539
WS Participant Rank	16

Importance of ICTs to government vision	3.922
WEF Network Readiness index	3.204
WS Participant Rank	17

	30 742 500
	2 037.699
	18.798
	-
	62.741
	74.3
	38.2
	9.5
Fixed broadband Internet subs %	1.1
Mobile broadband subs %	20.3
Government Online Service Index	0.449

e-Agriculture strategies were not formulated earlier in the region, but information society development strategies were created (especially in the field of e-government; the importance of ICT in agriculture was also explicitly emphasized), and recently specific governmental units were setup to coordinate the development of information technology and telecommunications. The high importance of agriculture and the recent developments in ICT are an opportunity to formulate e-agriculture strategies. There are a few specific agriculture information portals in the region and also some mobile-phone and SMS based services for farmers, among other existing development projects in the field.

Connectivity is still an issue in rural areas, e-agriculture developments have to aim for issues related to access to the internet and ICTs. The main ICT-development policies in this region recently targeted e-governance.

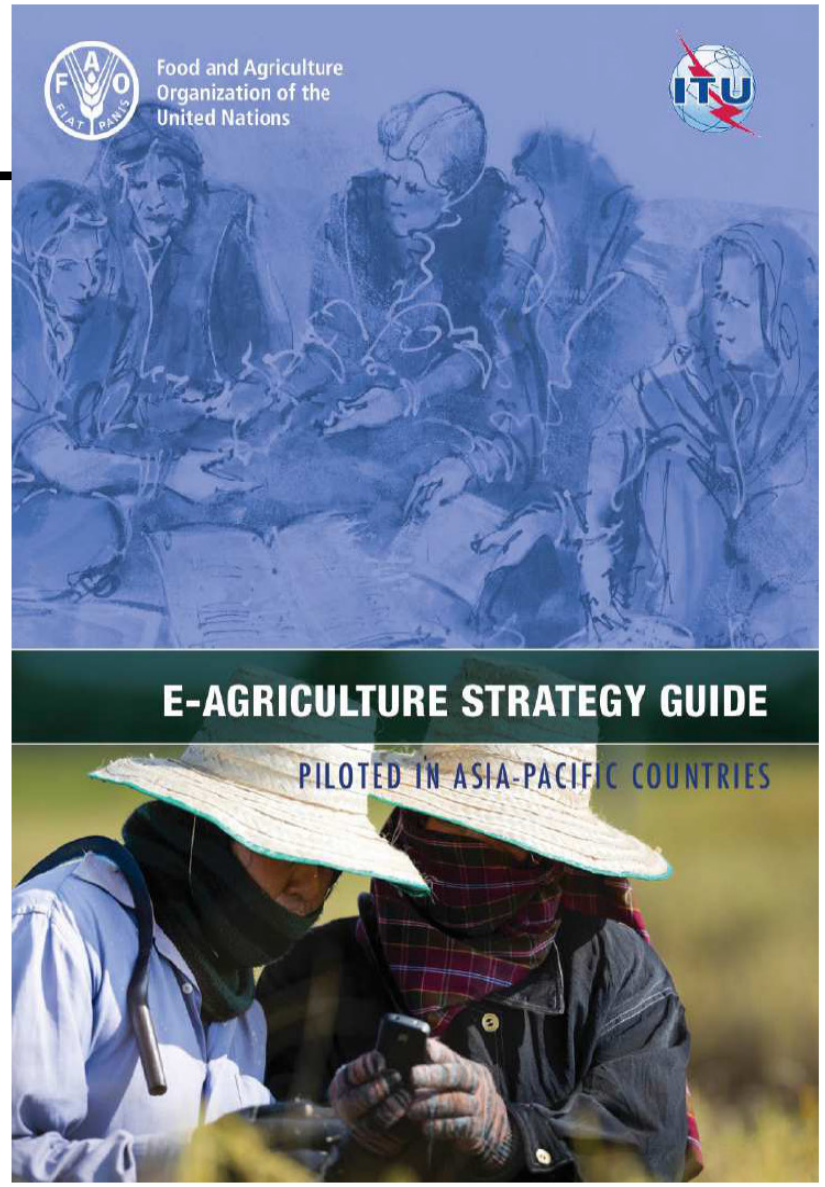
Reference to methodology

The e-Agriculture Strategy Guide

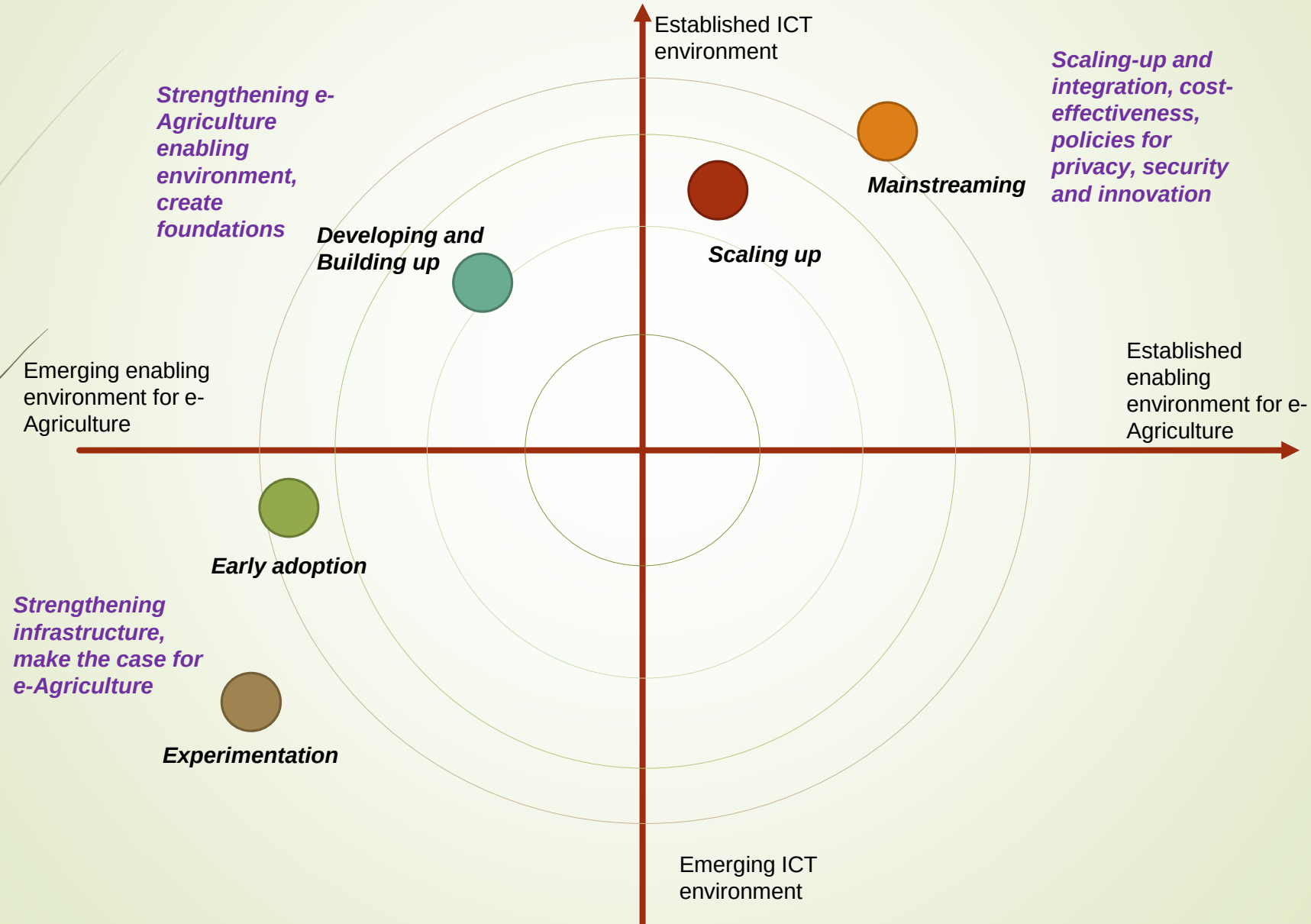
Available at:

http://www.fao.org/documents/card/en/c/24f624ea-7891-45e8-9b24-66cbf13f004d/

https://www.itu.int/pub/D-STR-E_AGRICULT.01-2016

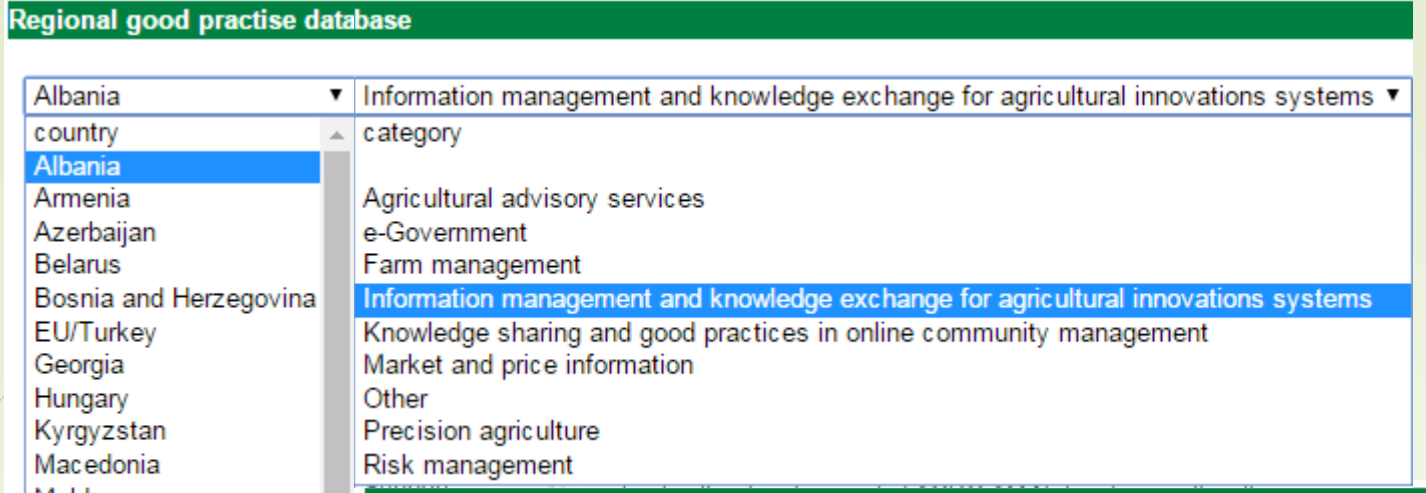


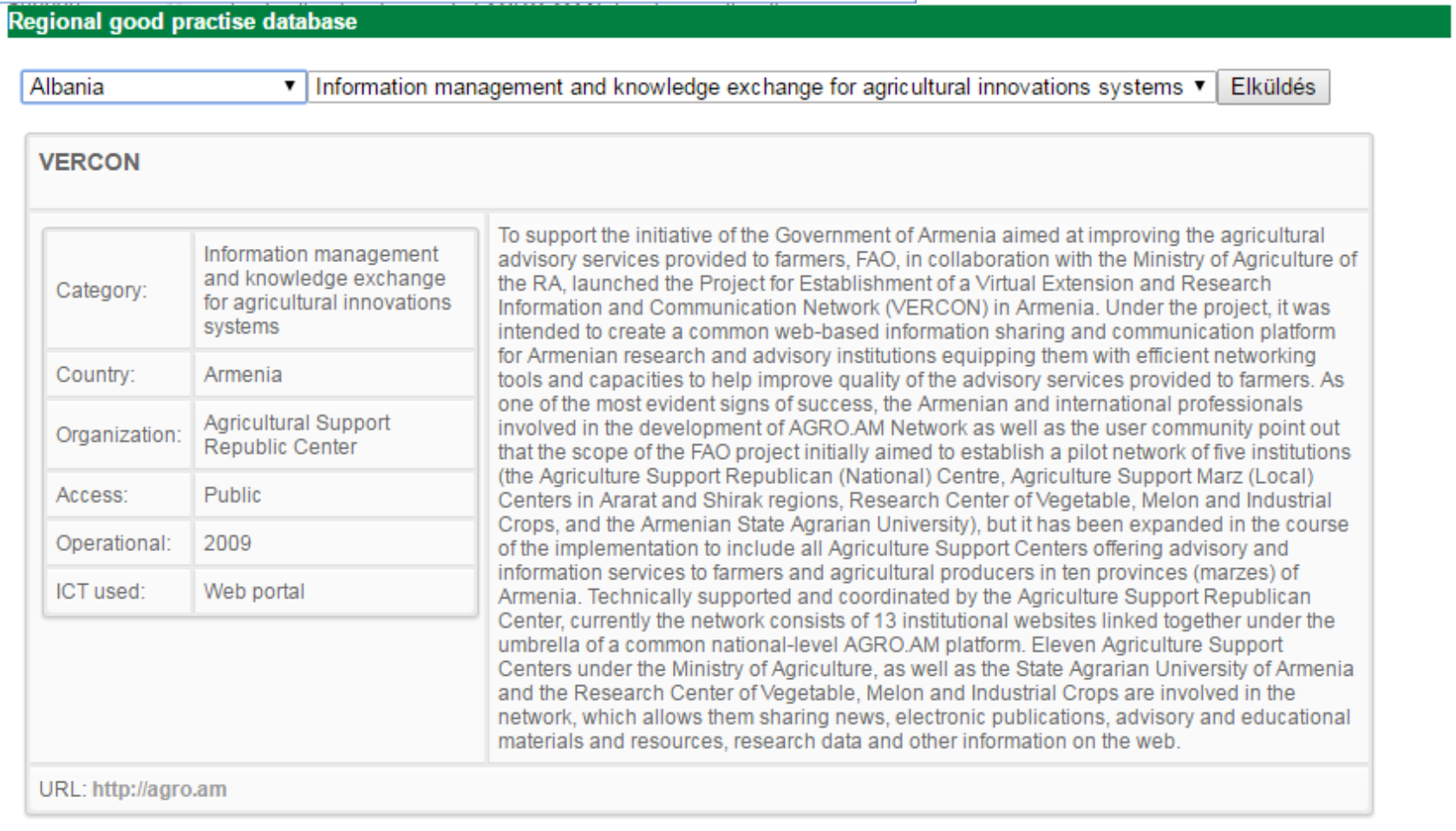
National context for e-Agriculture development



Regional solutions, applications, initiatives and networks on ICTs in agriculture and rural development

- Workshop participants requested further actions to be taken by FAO and GAK in identifying, collecting and make available initiatives and projects
  - that demonstrate innovative ways of using ICTs, in the context of smart and connected agriculture in the region that show both success and failures.
- The chapter presents such initiatives, **classifying** them into several groups,
- discusses briefly the **lessons learned** from stalled projects of failures and
- proposes more structured way for identifying **good practices** in e-agriculture, based on FAO work.
- In addition, **information boxes** bring more light on several innovative IC technologies in agriculture and
- Online database to be maintained in the future: http://www.agrowebcee.net/awhu/e-agriculture-strategy/





Szent István University

Online query interface:

http://www.agrowebcee.net/awhu/e-agriculture-strategy/

Conclusion and follow-up

- The state and implementation of e-Agriculture in Central-Eastern Europe and Central Asia **varies from country-to-country**.
- **Existing data** have to be collected, regrouped, **edited, structured and combined** in a way that it can **serve specific goals** in terms of **e-Agriculture** development.

- The status of implementation and the level of ICT-development need **to be continuously evaluated**, followed up the main agricultural and information society characteristics of the region using basic indicators and relevant data (from databases of the World Bank, International Telecommunication Union, World Economic Forum, FAO and other sources) is of high importance.

Regional “observatory”

- This process is in line with the need of putting more emphasis on the implementation, monitoring and evaluation of e-Agriculture initiatives and their impacts.
- Beside the numeric data, it is worth considering to put together a **regional “observatory”** where relevant information is collected through the network and help to put the data in context.
- The output of these activities – in form of **paper publication** and online **query interface** - could help with awareness creation and monitoring of the policy process at national level.
- It is planned to make these resources available by 2nd half of 2017.

Current (other) activities

- FAO projects:
  - Albania Apr 2017 –Farmer Single Window, e-Agriculture strategy, agri.al,
  - Armenia Sept 2017. – revising agro.am platform, donor coordination platform
  - Montenegro Dec 2016: FADN (Farm Accountancy Data Network)
  - MoU with St Istvan University, one topic is e-agriculture, university is secretariat of e-agriculture cluster in Hungary, +new precision agriculture project starts right now 50M€
- V4+WB project 2017: V4 experience in ICT for AE http://aewb-ict.net/
  - Collaborative platform for ICT in Agricultural Extension in Western Balkan
- Hungarian Digital Agriculture Strategy presentation, 3 May 2017, Gödöllő
- Agroweb, ESCORENA…thematic networks (also need re-thinking)

Thank you!