



INTERNATIONAL FOOD
POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty

A Benchmarking Tool for Agricultural Innovation Systems

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World Bank

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IFPRI

Analyzing agricultural innovation systems

Why is it important?

→ Investments in agricultural innovation

- Traditionally very high returns → pro-poor growth
- Rapidly changing frame conditions
 - New ways of thinking about agricultural innovation
- **How to unleash the innovative capacity of the rural poor?**
 1. What is the role of *local institutions*? How can this role be fostered?
 2. What is the role of *national policies and institutions* for creating an *enabling environment* for innovation?
 3. How can *development interventions* best support pro-poor agricultural innovation?

Objectives of the project component

“Developing a benchmarking tool for AIS”

- **Using the innovation systems concept**
 - 1. to develop a set of innovation indicators** that can be collected and used at the **national level** as a benchmarking tool
 - ➔ to guide policy and development interventions that aim at improving the innovative performance of agriculture;
 - ➔ to improve transparency, e.g., for parliamentarians and stakeholders who are involved in innovation policy-making;
 - 2. to develop approaches for assessing the agricultural innovation system from a local perspective**
 - ➔ with a focus on the role of local institutions and networks
 - ➔ in fostering the innovative capacity of the rural poor and of rural women

Contents

- 1. Introduction**
- 2. Conceptual Framework**
- 3. Analyzing National Innovation Systems**
 - Mapping of innovation indicators
- 4. Analyzing Local Innovation Systems**
 - Link to rural institutions
 - Methodological approaches
- 5. Conclusions**

**National
Agricultural
Innovation
System**

Informal institutions, practices and attitudes
 * Propensity to innovation and entrepreneurship * Socio-economic conditions
 * Social capital * Trust * Attitudes towards risk * Learning orientation

Agricultural research and education systems

Agricultural education system
 * Primary / secondary
 * Post-secondary
 * Vocational training

Agricultural research system
 * Public sector (NARIs, Univ.)
 * Private sector
 * Third sector

Bridging institutions
 * Political channels
 * Stakeholder platforms
 * Media

Agricultural extension system
 * Public sector
 * Private sector
 * Third sector

Agricultural value chain actors & organizations

Consumers

Processing, wholesale, retail

Traders

Farmers (different categories)

Input suppliers
 * Seeds, fertilizer, pesticides, machinery, financial services,

Integration in value chains

Implementation / funding ↑
 Influence / feed-back ↓

Implementation / funding ↑
 Influence / feed back ↓

Agricultural Innovation Policies
 * Agricultural research policies
 * Agricultural extension policies
 * Agricultural education policies
 * Facilitation of actors and linkages

General Agricultural Policies
 * Food policy * Rural infrastructure
 * Trade policies * Agricultural services
 * Taxation * Agricultural regulation
 * Facilitation * Property rights (land, IPR)

Knowledge for Development (K4D)

Search All GO

More Options

Home > Learning > WBI Learning Programs > Knowledge for Development > KAM Home > Basic Scorecard

Basic Scorecard Choose Variables Global Ranking Over Time Comparison Cross-country Comparison Worldmap

1. Country
 Kenya

Comparison Group ?
 Africa

2. Optional
 Ethiopia

Comparison Group ?
 Africa

3. Optional
 Select 3rd Country

Comparison Group ?
 All Countries

User Guide

Return to KAM Home

Basic Scorecard

Data from: most recent Innovation variables are: weighted by population

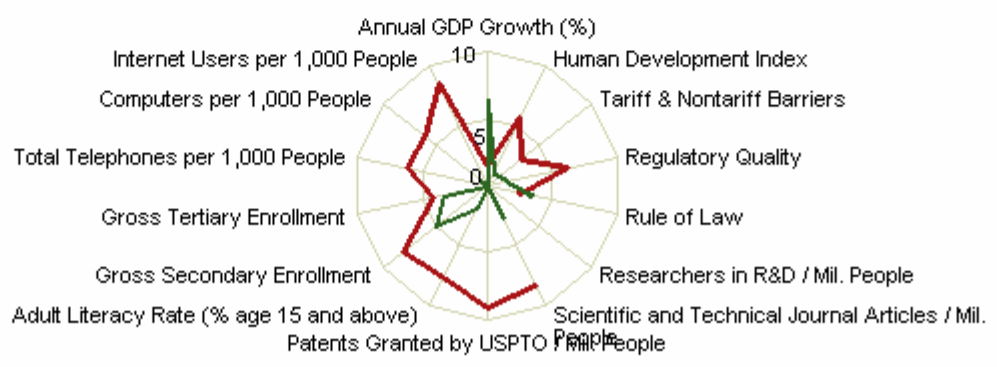
One chart Separate charts

Standard Variables Knowledge Economy Pillars Indexes and Pillars

download graph

enlarge graph

Kenya, Ethiopia



October 2001

Back navigation: [Home](#) > ASTI Database

ASTI Database

Choose Countries...

Algeria

Antigua and Barbuda

Argentina

Aruba

... or a region:

East Asia & Pacific

Europe & Central Europe

Latin America & Caribbean

Implementing Agencies

Government Agencies

Higher Education

Non Profit

Public (subtotal)

Business

Total

Agricultural R&D Indicators

Researchers (full-time equivalents)

Expenditures (current local currency)

Expenditures (1993 local currency)

Expenditures (1993 international dollars)

Expenditures (1993 U.S. dollars)

Public expenditures as a % of AgGDP

Public researchers per \$100 million AgGDP

Years

1971

1972

1973

1974

1975

1976

1977

1978

Note: It is possible to make multiple selections from the above lists, by holding down the [Ctrl] key while selecting. However, it is only possible to choose one **Agricultural R&D indicator type**. To select a series, hold down the [Shift] key.

Constructing an Agricultural Innovation Index

that is pro-poor^P and gender-sensitive^G

G: Gender-disaggregated
P: different poverty groups

Aspect of the Innovation Syst.	Example: K4D index (World Bank)	Agricultural innovation index - Some ideas -
Innovative performance	Patents Journal publications	No. of farmers ^{P,G} trying s.th. new New varieties – adoption ^{P, G} Productivity / agricultural growth ^P
Research / Extension / Linkage institutions	Researchers in R&D	Budget (share)/ staff ^G in agricultural research & extension; partnerships; innovation funds; NGOs; Farmers ^{P,G} , voice in research and extension;
Knowledge base	Adult literacy rate, sec. & tertiary enrolment	Adult literary rate of rural pop. ^{P,G} No. of vocationally trained farmers ^{P,G}
Incentives & governance	Governance indicators, such as rule of law	Policy-induced price distortions Regulation affecting agriculture
Infrastructure	Telephone / computer / internet users	Telephone / internet Physical infrastructure

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Constructing an Agricultural Innovation Index

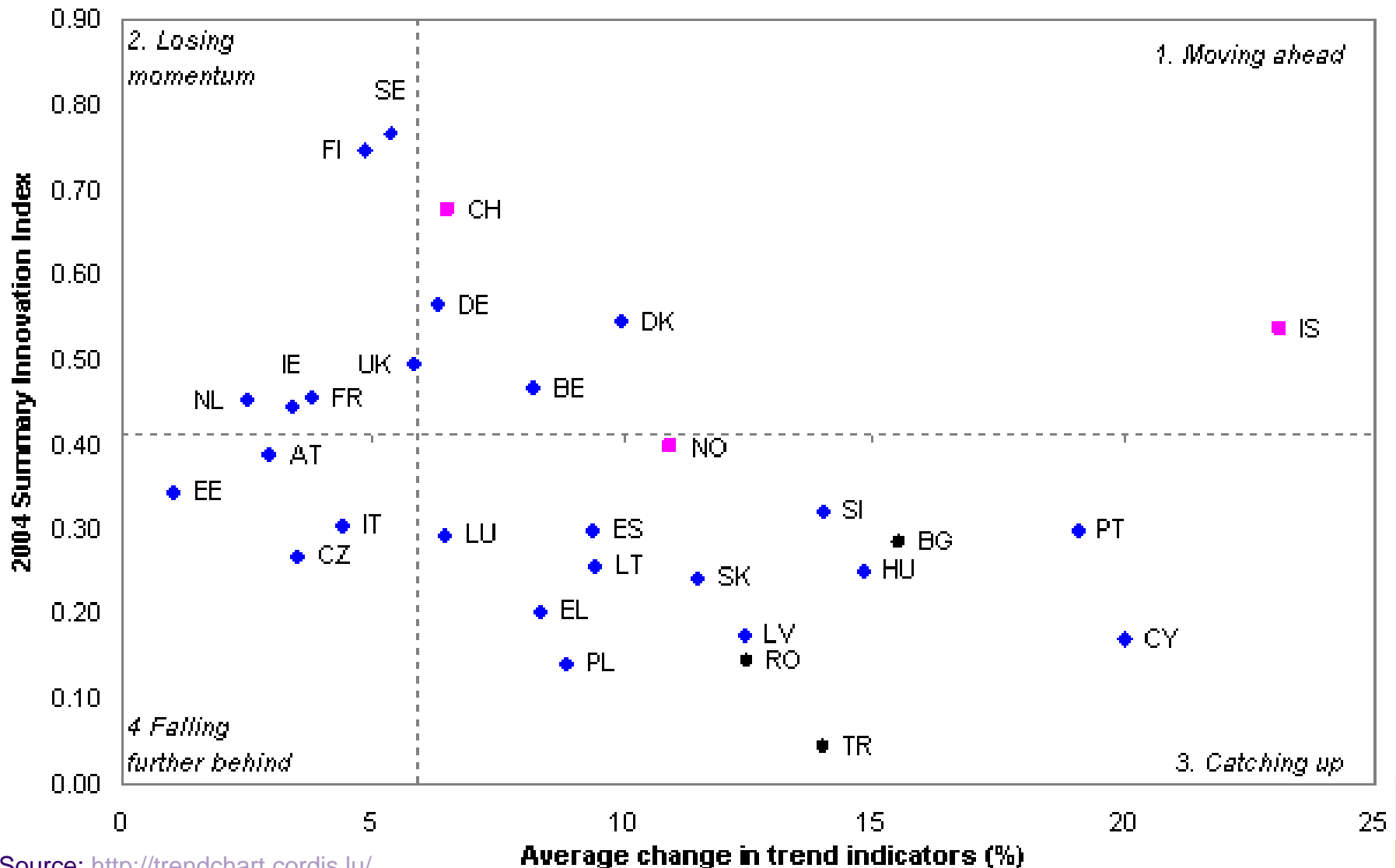
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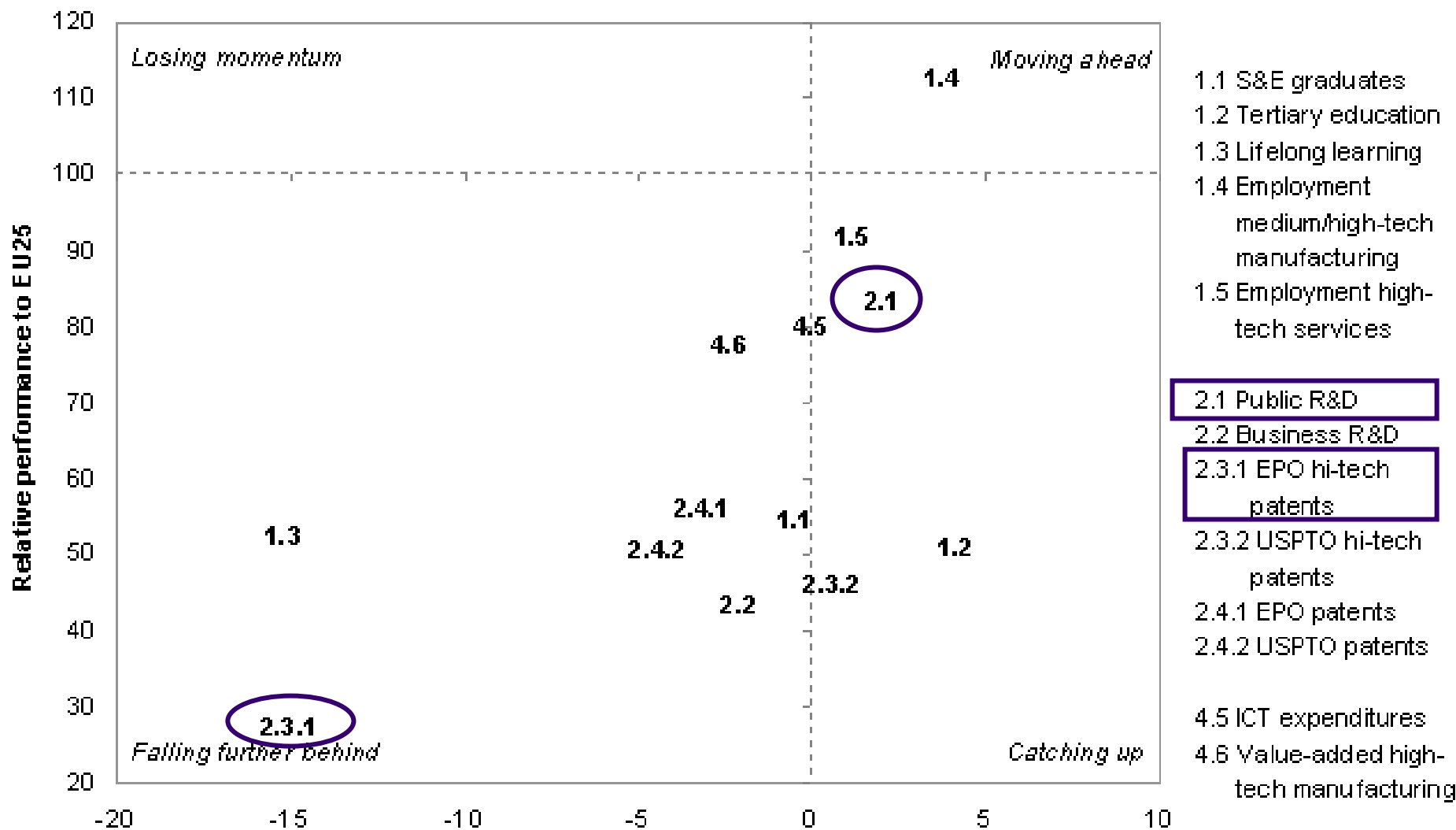
Using Innovation Indicators for Benchmarking

Mapping an Innovation Index: Example of EU countries



Disaggregating the Index for Benchmarking: EU Example

2004 European Innovation Scoreboard - ITALY

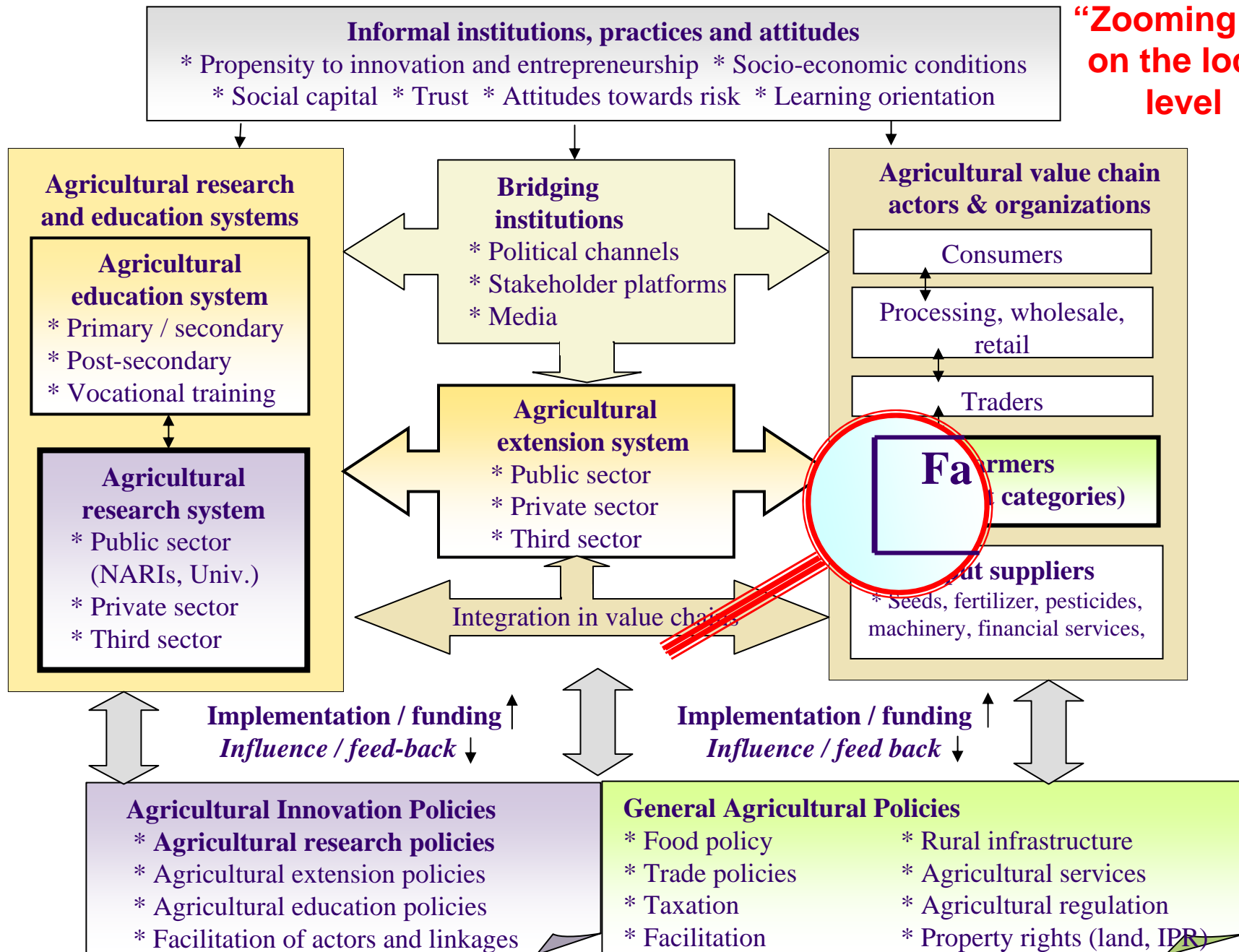


Applying this idea to agricultural sector

Research approach at national level

- **Review of existing methodologies and indicators**
 - ASTI, FAO, OECD, World Bank
- **Use of internationally available data**
 - Statistical analysis (e.g., factor analysis)
 - Proto-type indicators for stakeholder feed-back
- **Data collection at national level: Ethiopia and Vietnam**
 - Compilation of existing data in comparable form (e.g., budget data on investment in agricultural extension)
 - Use of expert assessments (e.g., on innovative performance)
 - Use of social network mapping / analysis tools
- **Experimentation with different presentation formats**
 - Maps, scorecards, spider diagrams, etc.

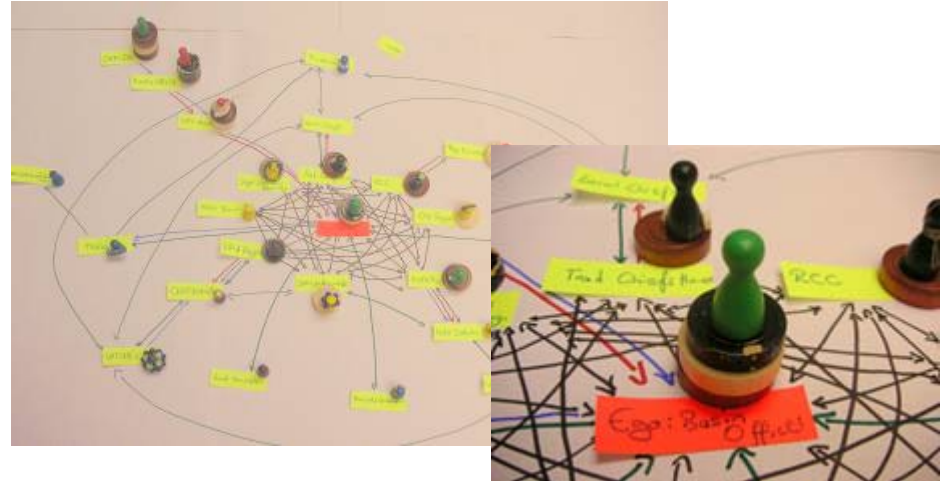
**“Zooming in”
on the local
level**



Research approach at the local level

- **Work with country teams involved in rural institutions study in Vietnam and Ethiopia**
- **Developing a joint conceptual framework**
 - Taking framework used for Rural Institution Study as a starting point
 - Including a focus on the role of different local organizations for enabling for innovative behavior
- **Contributing to design of data collection methods that are useful for analyzing rural institutions and innovative behavior**
- **Responsibility for the analysis of data related to local innovation systems**
 - Analyze how national-level innovation system is linked to enabling conditions at the local level
 - Identify factors that need to be included at national-level analysis

Participatory tool for local-level analysis: Influence-network-mapping



- (1) Identify and map actors (individuals, organizations) that are perceived to be relevant for improving rural livelihoods
- (2) Identify the flows of knowledge/information, funds and other resources among actors / organizations
- (3) Identify and visualize respondents' perception on the level of influence of different stakeholders
- (4) Link analysis of innovative behavior with network analysis

Conclusion

- **New approaches to study innovation → innovation systems approach**
 - has not fully been exploited for agriculture at national and local levels
- **Project offers the opportunity**
 - to develop methods for a better understanding of agricultural innovation systems,
 - to develop a benchmarking tool to guide policies and intervention and increase transparency, and
 - to link the national perspective with the local-level perspective.



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Thank you.

Elements of the conceptual framework

- Local innovation systems -

- **Typology of innovations:**
 - *Level:* individual – farm household – community
 - *Type:* commodity, institutional/technical, process/product, embodied/disembodied,
 - *Economic characteristics:* land-/ labor saving, capital intensity, etc.
- **Typology of innovative behavior**
 - Development of own innovations, modification, simple adoption
- **Role of information flows**
 - Role of different rural organizations as communication networks
 - Role of specific knowledge services (ag. extension, media)
- **Role of services and infrastructure**
 - Example: access to credit; “rural investment climate” for farmers
- **Role of market access and value chains**