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Higher Education Institution Engagement in Innovation Ecosystems in LMICs

Barriers and Enablers for Fostering Sustainable Change
Through Higher Education-Driven Innovation

MARCH 13, 2024



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Introduction of Country Teams



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- **Kenya:** University of Nairobi & ResilientAfrica Network

PI: Prof. John Muthama (Univ. of Nairobi)



UNIVERSITY OF NAIROBI



- **Indonesia:** Smart City Universitas Indonesia

PI: Prof. Ahmad Gamal



SMART CITY
UNIVERSITAS INDONESIA

- **Philippines:** Philippines Institute for Development Studies

PI: Dr. Francis Quimba



Overview



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1. Background: SHARE
2. HEIGHTS Innovation Ecosystem (IE) multi-country study
3. Methodology
4. Presentation of Country Study Findings: Kenya, Indonesia, and the Philippines
5. Synthesis of Cross-national Findings
6. Discussion: Implications for Policy
7. Discussant remarks
8. Q&A

SUPPORTING HOLISTIC & ACTIONABLE RESEARCH IN EDUCATION (SHARE)

- Cooperative agreement between **USAID** and the **University of Notre Dame**, implemented alongside partners in higher education
- SHARE gathers, translates, and produces data and evidence that are accessible to inform decision making in **global education**.
- Guided by USAID's Learning Agendas, SHARE provides access to exceptional evaluation, research design, and research expertise to support USAID programs around the world.



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PULTE INSTITUTE
FOR GLOBAL DEVELOPMENT



GLOBAL CENTER
for the Development of *the Whole Child*



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About HEIGHTS



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- **HEIGHTS - IE** (*Higher Education Institutions Generating Holistic & Transferable Research - Innovation Ecosystems*) is a multi-country study aiming to produce research evidence to inform policy and practice to strengthen higher education systems in LMICs.
- HEIGHTS operates as two independent studies in the same three geographic regions: **HEIGHTS-Innovation Ecosystems (IE)**, and **HEIGHTS-Financial Sustainability (FS)**.
- **Innovation Ecosystems (IE)**: Explores how higher education institutions can positively influence an innovation ecosystem through a variety of roles while also considering resources, relationships, and social norms.

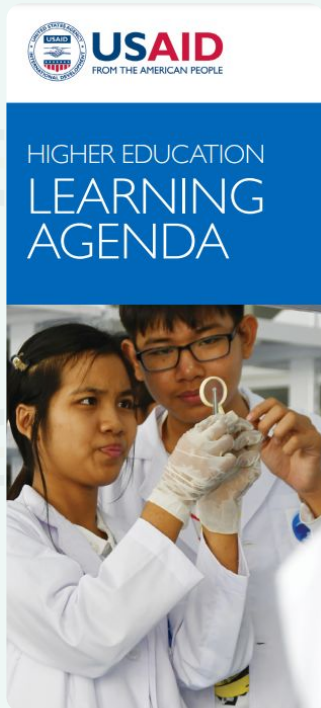
Study Countries



HEIGHTS Research Question



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- **USAID Learning Agenda Question 6**
 - How can HE systems and Higher Education Institutions (HEIs) play a more active role in the development and strengthening of national and regional innovation ecosystems?
- **HEIGHTS-IE Overarching Research Question**
 - What **lessons** can be derived from analyzing the involvement of HEIs in LMICs in specific local and regional innovation ecosystems that could inform policies and strategies to enable LMIC HEIs to engage more effectively in and strengthen national and/or subnational innovation ecosystems?



Why is this study important?



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- Crucial role of HEIs in producing human capital & generating knowledge and technological innovations through research
- Influence of HEI innovation activities on social and economic progress worldwide
 - Well documented in high-income, Western contexts
 - Gaps in the literature about understanding HEI involvement in LMICs
- Important to understand the barriers and enablers of HEI engagement in LMICs, with a goal to inform policy and practice in fostering HEIs' active engagement and leadership in innovation activity



Why HEIGHTS IE?

- **Lack of research on HEI engagement in innovation/innovation ecosystems in LMICs (Quitoras & Abuso, 2021)**
- **Tendency toward “one-size-fits-all” model often inappropriate to LMICs (Bartels et al., 2016; Kruss, Adeoti and Nabudere, 2012; Zanello et al., 2016).**
- **Lack of cross-national comparisons (Perckman et al., 2021)**

INNOVATION ECOSYSTEMS

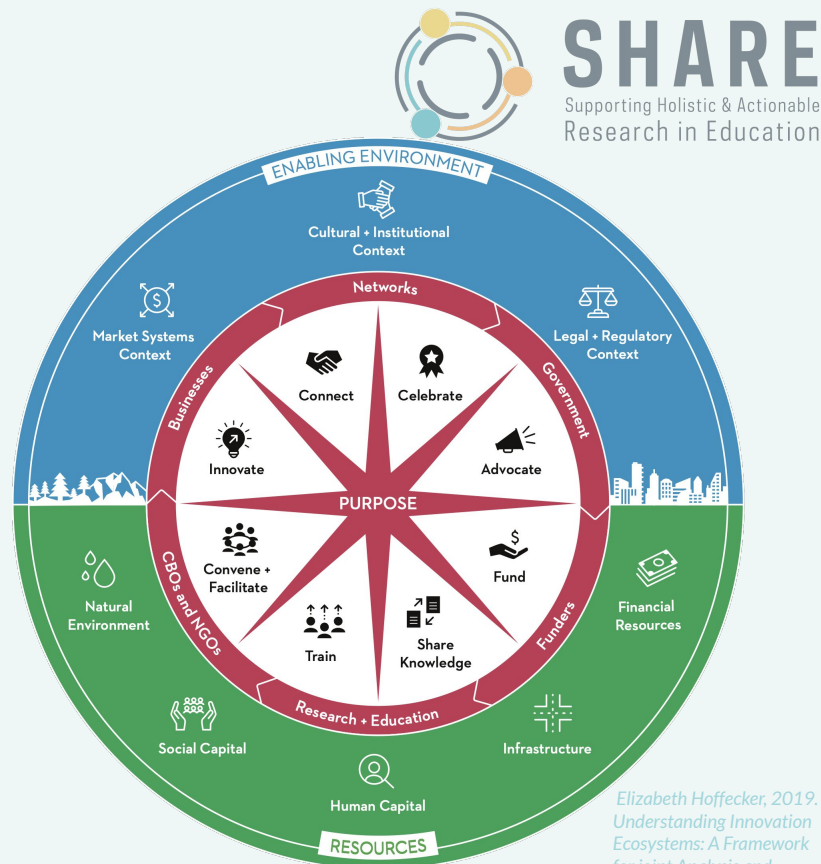
“...place-based **communities of interacting actors** engaged in producing innovation and supporting processes of innovation, along with the

infrastructure,

resources, and

enabling environment

that allow them to create, adopt, and spread more effective ways of doing things”
(Hoffecker 2019, 4).



*Elizabeth Hoffecker, 2019.
Understanding Innovation
Ecosystems: A Framework
for Joint Analysis and
Action.*

Guadalajara: Mexico's Silicon Valley



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- **Resources:**
 - High FDI
 - Strong university system & talent pipeline
- **Actors**
 - Well connected California-Guadalajara networks
 - Collaboration between industry and academia
- **Enabling environment**
 - Support from local gov (e.g., policies, subsidies, econ. zones)
 - Strong manufacturing base



Source: Grootjen, R. (2023). [10 Reasons why Guadalajara Transformed into Latin America's Silicon Valley](#).

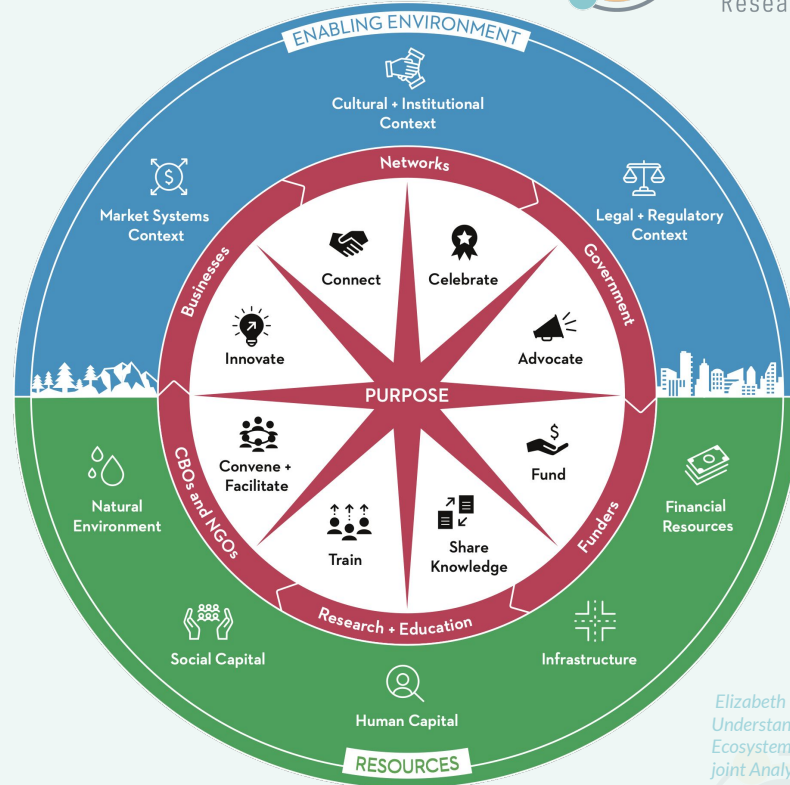
Ovcharenko, D. (2023). [History and Future of Guadalajara: Mexico's Silicon Valley](#).

PURPOSE, FUNCTIONALITY, LEVEL OF DEVELOPMENT

1: What are ecosystem actors' perceptions of the **purpose**, **functionality**, and the **level of development** of the innovation ecosystems (IE) under study?



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Elizabeth Hoffercker, 2019.
*Understanding Innovation
Ecosystems: A Framework for
Joint Analysis and Action.*

ROLES AND COORDINATION

2: What **roles** are higher education institutions (HEIs) in this study currently playing in the IE of focus?

3: What is the **level of coordination and partnership** between key actors in the HEIs under study and the actors engaged in the IE under study?



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Elizabeth Hoffercker, 2019.
Understanding Innovation
Ecosystems: A Framework for joint
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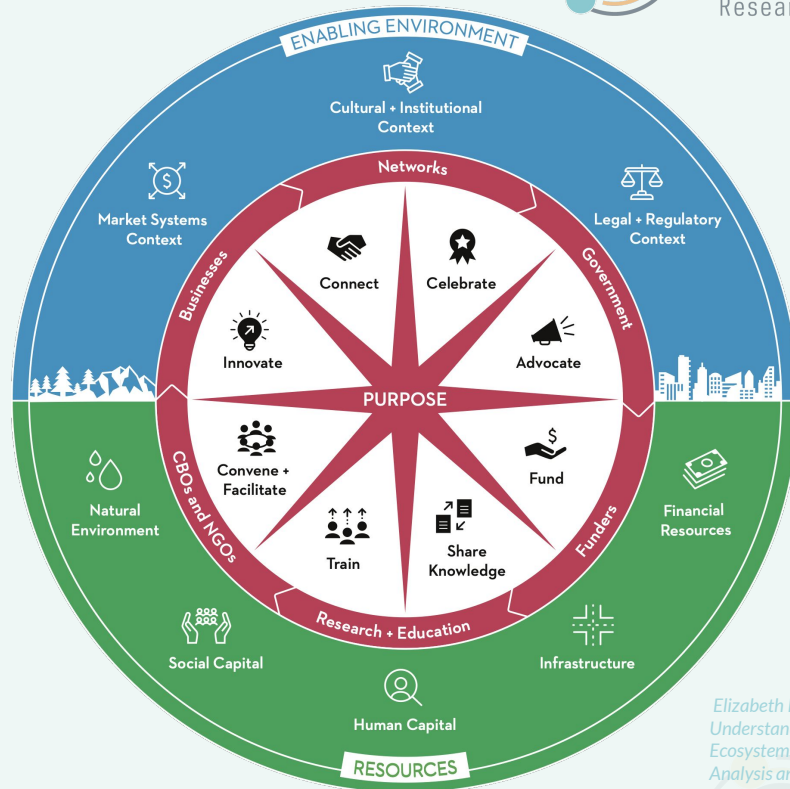
RESOURCES



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4: What **resources** do the stakeholders at the HEIs included in the study need to be able to engage effectively in the IE of focus?

5: What are ecosystem actors' perceptions of HEIs' provision of key resources needed for strengthening the IE of focus?



Elizabeth Hoffercker, 2019.
Understanding Innovation
Ecosystems: A Framework for joint
Analysis and Action.

ENABLING ENVIRONMENT

6a: How does the **policy/regulatory environment** shape the incentives and disincentives for HEI engagement in the IE?

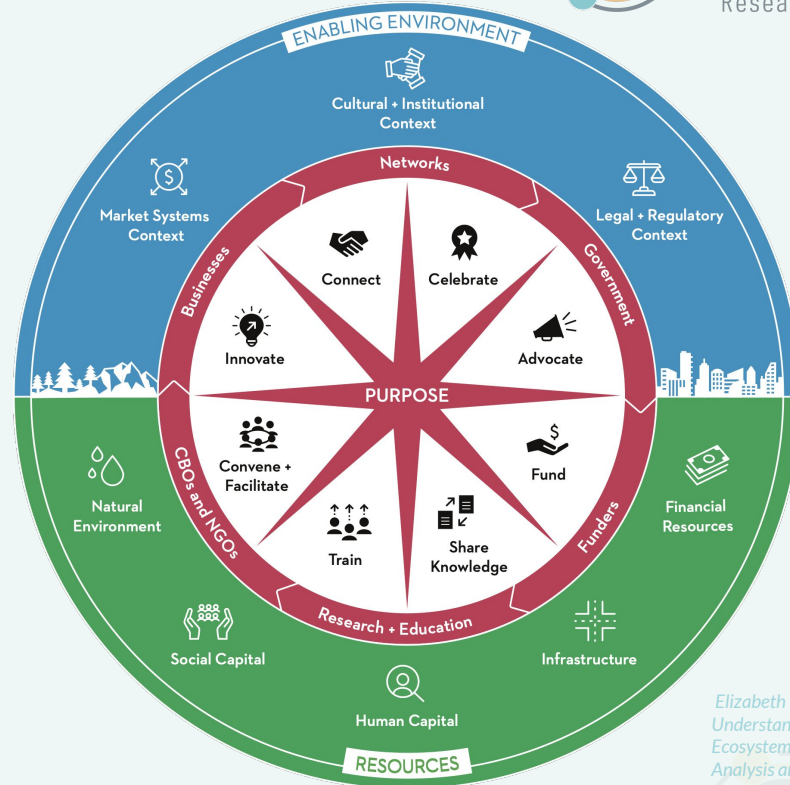
6b: How do **HEIs' policies** influence the incentives and disincentives for HEI engagement in IEs?

7: How do **market-related factors** in each country shape opportunities for HEI engagement in the IE?

8: How do **context-specific norms, perceptions, and values** affect HEI actors' proclivity to engage in IEs?



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Elizabeth Hoffercker, 2019.
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Ecosystems: A Framework for joint
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Research Phases

PHASE 1:

Scoping & Ecosystem Diagnostic

- Desk Review
- KIs
- Surveys

PHASE 2:

Systems Thinking Workshops & Formation of EAG

- Conduct systems thinking workshops with major stakeholders to map out the innovation ecosystem
- Engage key stakeholders to serve as the Ecosystem Advisory Group (EAG)

PHASE 3:

Study Contextualization, Data Collection & Analysis

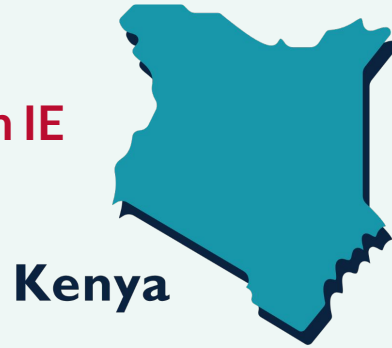
- Tailor study to country
- Develop global codebook
- Collect data and analyze
- Validation workshop

Innovation Ecosystem (IE)



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Agritech IE



Kenya

Philippines



Agribusiness IE



Indonesia

Agricultural IE

Analytic Strategy & Sample



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- **Qualitative data was:**

- collected through **FGDs** and **KIIs**
- analyzed in Dedoose using both **deductive** and **inductive** codes

Stakeholder Group	Philippines		Indonesia		Kenya	
	KIIs	FGDs	KIIs	FGDs	KIIs	FGDs
HEI stakeholders	6	10	28	28	18	18
Private Sector	2	3	8	8	8	17
Dev. Orgs/ Civil Society	2	6	3	3	8	4
Government	2	13	10	10	8	10
Total:	12	32	49	49	42	49



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Higher Education Institution Engagement in Innovation Ecosystems in LMICs: Findings from Indonesia

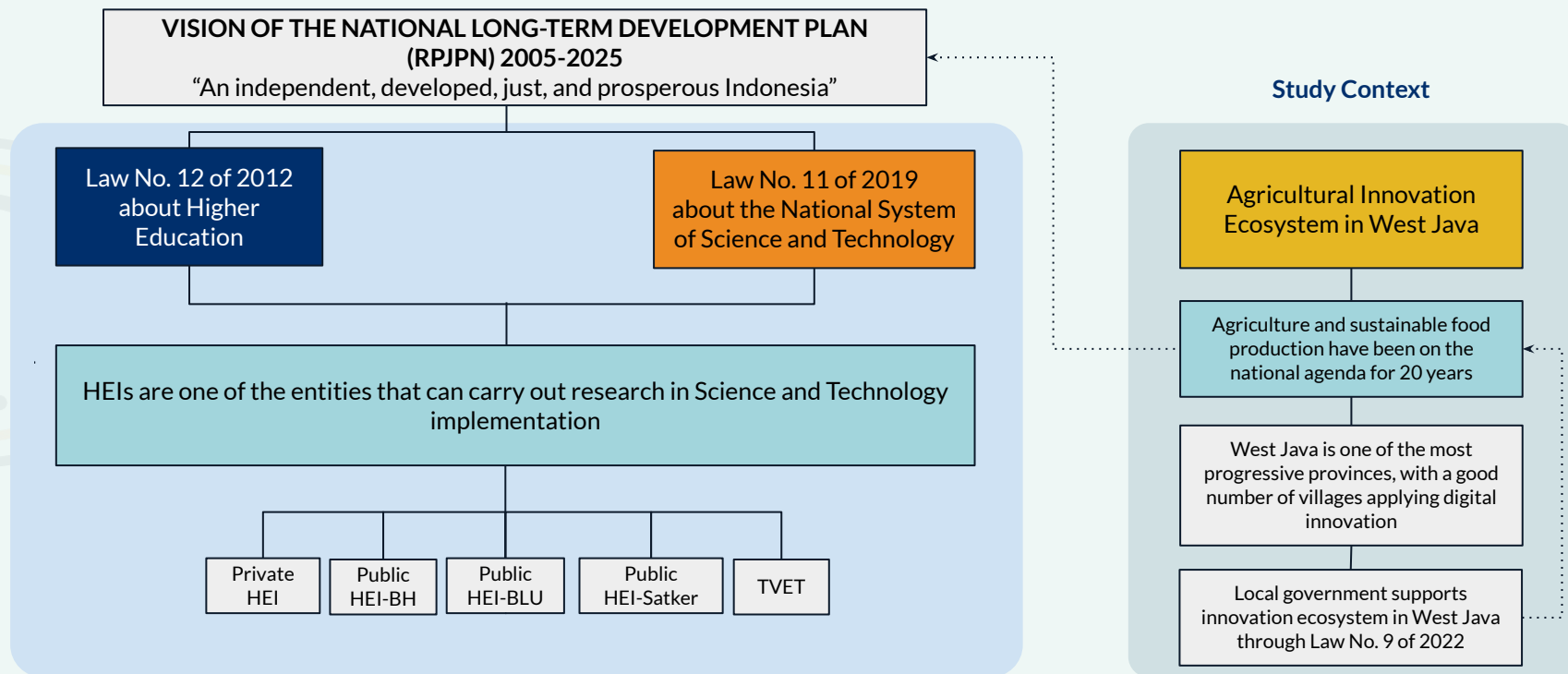
Barriers and Enablers for Fostering Sustainable Change Through Higher Education-Driven
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March 13, 2024

Indonesian Context: HEIs' Engagement in West Java Innovation Ecosystems



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Indonesian Context: HEIs' Engagement in West Java Innovation Ecosystems



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Although the innovation ecosystem in West Java is not yet at its peak, the involvement of esteemed HEIs is a crucial first step towards progress. The Science Techno Park has undoubtedly played an instrumental role in expediting the participation of HEIs in the innovation ecosystem, especially related to agriculture. Nevertheless, further endeavors are necessary to ensure that all HEIs participate in the advancement of West Java innovation.

Research products that do not meet industry and consumer needs

Lack of youth participation

Low uptake of innovations

Lack in sustainability aspects

Lack of synergies between ecosystem actors

The Missing Link in West Java Innovation Ecosystem

Sample

Stakeholder Types		FGDs & KIs
Public HEI	Leaders, innovators, researchers, and students	28 (2 to 4 people per institution)
Private HEI		
TVET		
Governmental Agencies		10
Industry / Private sector		8
Development organization / NGOs		3
Total		49



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FINDINGS

RQ 1: What are the perceived purposes, functionality, and the level of development of the agricultural innovation ecosystem in West Java?

Purpose

Actors from HEIs, governments, and private companies perceived the purpose of the West Java Agricultural Innovation Ecosystem is to address agricultural problems holistically and create products that benefit society by developing innovations, solutions, and agricultural business. These actors include farmers, companies, banks, and HEIs that innovate and ensure the sustainability of the products that can be sold to the market / off-taker.

Function

HEI and government actors perceive training, knowledge-sharing, research and innovating as functions of the West Java agricultural innovation ecosystem.

Level of Development

The perceived level of development of the agricultural innovation ecosystem in West Java is strong and vibrant, with its productive HEI-based research centers and many innovations produced at HEIs as well as government-supported research centers.



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RQ 2: What roles are HEIs in Indonesia currently playing in the West Java agricultural innovation ecosystem?



"We created "By Tani", an application to connect farmers with customers also to B2B, supply to merchants who sell agricultural products."

Private HEIs Innovation Unit Head

"...we discuss technology with our friends in a public university in West Java, they give us knowledge and insight into the topic. The technology is then applied to (our) farmers...."

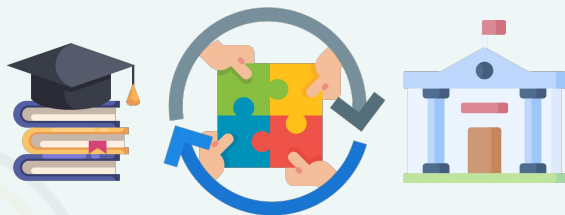
Head of a local NGO

The government and HEI actors recognize HEIs' roles as knowledge sources, advisors, trainers, and innovators. Specifically, local government actors mentioned the role of HEI as convenor. NGOs and private sector actors perceive the role of HEI as advisors, knowledge sources, and connectors in the West Java agricultural innovation ecosystem.

RQ 3: What is the level of coordination and partnership between key actors in the HEIs and the actors engaged in the West Java agricultural innovation ecosystems?



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There is **strong coordination and partnership** between HEIs and the Government in the West Java agricultural innovation ecosystem.

HEIs see the government as the main source of research funding. This evidence is reinforced by the importance of Law No. 12 of 2012 and Law No. 9 of 2022. However, changing government programs and intermittent funding make agricultural research support unsustainable.

Challenges of collaboration between HEIs and other actors in agricultural innovation ecosystem:

National Government

- Government research grant is limited by fiscal year (Jan - Dec) or the duration of the grant is limited to 1-2 years for one research grantee. Both are making it hard to sustain agricultural research
- The government's lack of a “grand design” hinders integration among actors in the agricultural innovation ecosystem

Local Government

Lack of local government involvement in research planning, so research carried out is not optimal

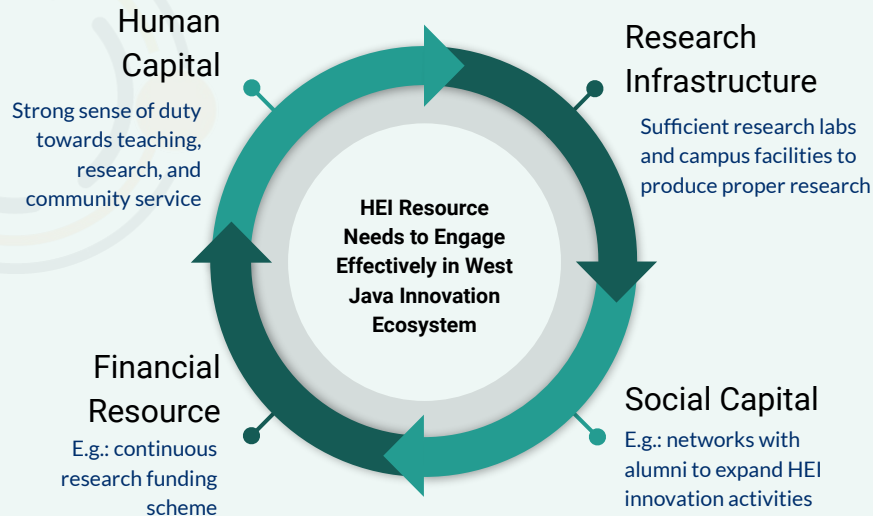
Companies and NGOs

- HEI's communication gap and bureaucratic channels limit the impact of their innovations on other actors
- Private companies and HEIs have mutual distrust regarding research result ownership



RQ 4: What resources do the stakeholders at the HEIs included in the study need to be able to engage effectively in the agricultural innovation ecosystems in West Java?

Actors consider HEI professors, lecturers, students, and technical staff as the main resource necessary for knowledge production and innovation development.



RQ 5: What are ecosystem actors' perceptions of HEIs' provision of key resources needed for strengthening the agricultural innovation ecosystem in West Java?

HUMAN CAPITAL



HEIs' human capitals are vital for West Java's agricultural innovation ecosystem

HEIs' human capital capacity must be improved; speaking, soft skills, and entrepreneur skills

INFRASTRUCTURE AND FACILITIES



HEIs' facilities are crucial for strengthening the West Java agricultural innovation ecosystems. HEI's facilities and infrastructure – such as laboratories, experimental fields, machinery, and the Science Techno Park, have aided innovation ecosystem actors by allowing them to utilize laboratories for agricultural testing, bringing together researchers, farmers, & business partners.

HEI

GOV

NGO

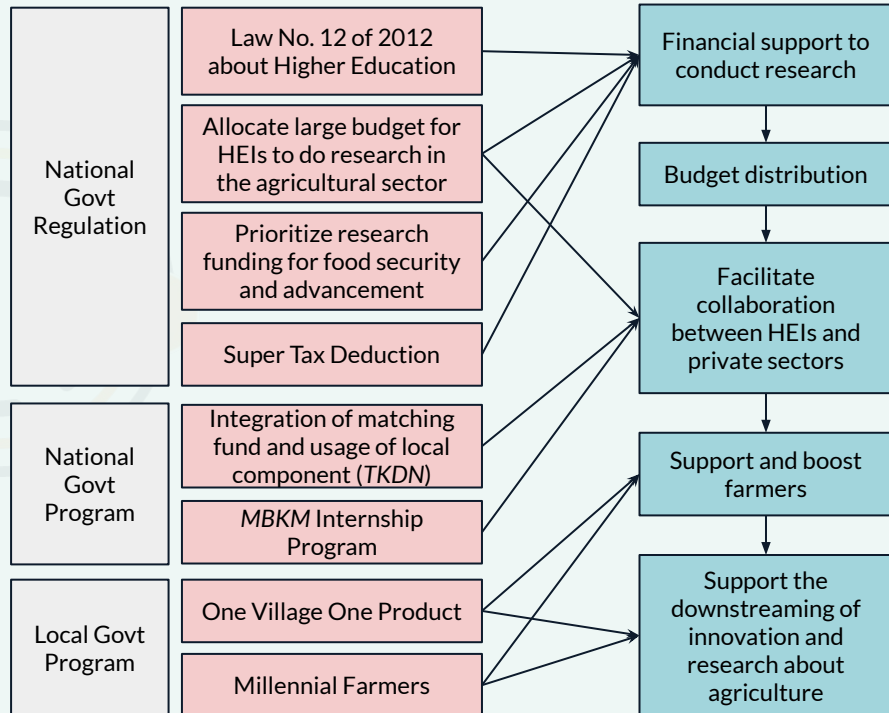
Industry

6a: How does the policy/regulatory environment shape the incentives and disincentives for HEI engagement in innovation ecosystems?

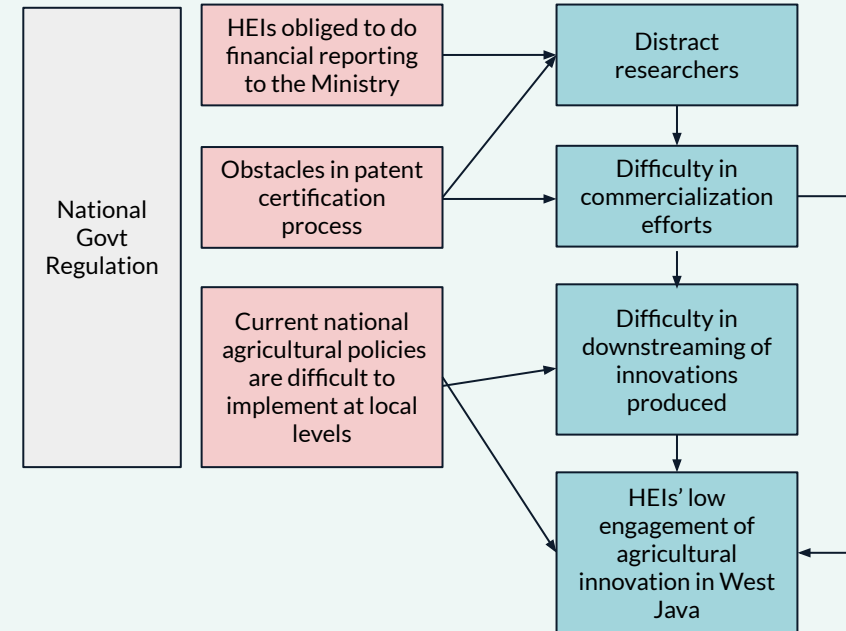


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Policy or Programs Creating Incentives



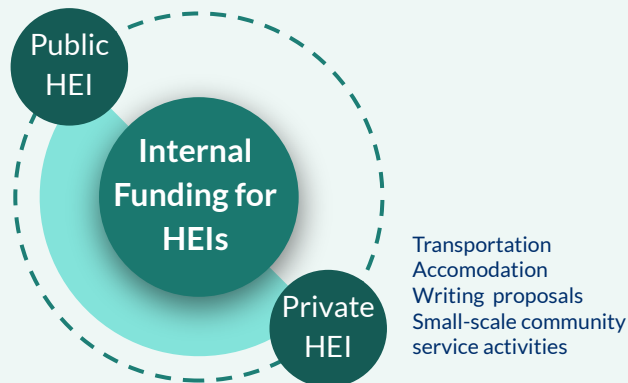
Policy or Programs Creating Disincentives



RQ 6b: How do HEIs' policies influence the incentives and disincentives for HEI engagement in innovation ecosystem?

HEI-Level Incentives

Teaching
Research
Community service



Internal Funding

West Java HEIs have policies that provide internal funding to support agricultural innovation by their lecturers and innovators.

The internal funds are used to finance activities not covered by government funds but are useful to support innovation activities, such as attending conferences.



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HEI-Level Disincentives

Overburdened with HEI routine tasks

The government actors believe that HEIs faculties are too busy with routine tasks –such as administrative matters and teaching, to conduct research sustainably.

No plan for long-term community services

The results of the community service program are not yet visible due to the short duration of the internal grant.

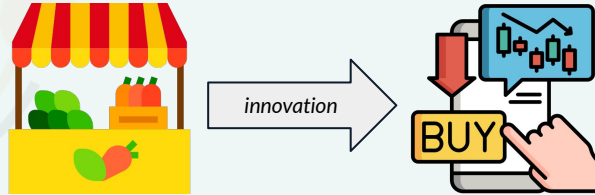
“So, everything is good (about the community service). But it hasn't been integrated and continued [...] with the funds. It's better if it isn't keep changing programs. If you already know the identification of problems in each village, at least it must be programmed for 10 years.”

Faculty at Public HEI

RQ 7: How do market-related factors shape opportunities for HEI engagement in the agricultural innovation ecosystem in West Java?

Currently, market factors do not exert a direct influence on the involvement of HEIs in the agricultural innovation ecosystem in West Java.

The government regulates the market through various policies that do not involve HEIs. In the market context, HEIs in West Java can only innovate by creating start-ups to solve supply chain issues. However, due to limited data to complete supply chain information, this approach still cannot address the problem in the West Java agricultural innovation ecosystem.



Limited data to complete supply chain information

The impact of existing innovations and start-ups on overcoming supply chain problems is limited

RQ 8: How do context-specific norms, perceptions, and values affect HEIs' proclivity to engage in the agricultural innovation ecosystem in West Java?

Lack of youth participation in agriculture due to perceptions of agriculture is a harsh work and low income

This perception has significantly reduced the number of young professionals opting for agricultural careers, despite completing their education in agricultural studies.

Low take up of agricultural innovation among farmers

If agricultural innovations are not verified due to inadequate resources by HEIs, farmers are unlikely to adopt them.

Small-scale farmers still rely on 'middlemen' due to market barriers and slow sales. This requires solving problems from various sectors and cannot be done by HEIs.

Farmers will not optimally adopt innovations developed by HEI to solve problems in the West Java agricultural innovation ecosystem unless other actors, particularly the government, are involved

Preliminary Recommendations for the Government



1. **Promote advanced innovation-driven activities for the younger generation, beyond researchers and professors.** This could be done through various new-media, such as social media, apps, forums, and communities.
2. **Create a grand design to formulate an institution-level specific, collaborative, actionable roadmap among HEIs, government agencies, and private companies.** A grand design will ensure that innovation is market-driven and problem-solving. While a grand design works in a top-down fashion, its formulation needs to use a bottom-up approach, getting the local government and local HEIs to be involved in the planning process.
3. **Overhaul funding schemes to allow for multi-year contracting to allow for more sustainable support for HEI's research.** This is necessary because each empirical study needs a significant amount of time to meet specific scientific and regulatory requirements to be considered empirically accurate and ready to be deployed to the market.

Preliminary Recommendations for the Government



4. **Align national regulations among Ministries** of Agriculture, Trade and Industry, Agraria and Space Planning, and Finance.
5. **Simplify the financial reporting procedures for research**, to allow researchers to focus on their research without worrying about administrative matters.
6. **Promote super tax deduction program extensively beyond HEI leaders and simplify the application process for private companies.** Currently researchers are less inclined to collaborate with the industry due to a lack of knowledge about it, and companies find the administrative burden cumbersome.
7. **Ensure and facilitate the availability of markets for agricultural commodities.** This approach involves creating formal agreements between farmers and relevant government authorities. Government needs to be the first adopters of new tech and innovation delivered by its HEIs.

Preliminary Recommendations for HEIs



1. **Teach researchers, students, innovators, and administrators about soft skills.** Soft skills are crucial so their research counterpart understand what they do, are willing to join their research endeavours, and interested in adopting their technology.
2. **Develop applicable solutions for farmers using a bottom-up approach.** This approach allows HEI to understand the real-world problems experienced by farmers, such as the presence of middlemen, issues with the supply chains, and logistics.
3. **Foster the social capital within HEIs as a resource for funding research and innovations.** Strengthen the involvement of alumni, such as those who work and study overseas and those who work in government or industry.



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Questions & Comments?

For additional information on HEIGHTS-IE Indonesia, contact Dr. Gamal at a.gamal@ui.ac.id

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Higher Education Institution Engagement in Innovation Ecosystems in LMICs: Findings from Kenya

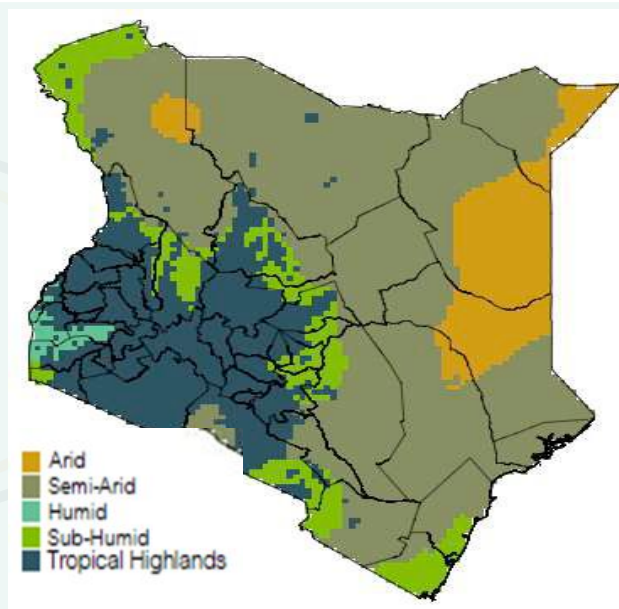
Barriers and Enablers for Fostering Sustainable Change Through Higher Education-Driven
Innovation

March 13, 2024

Kenyan Context: AgriTech Innovation Ecosystem (AIE)



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The Agroecological zones of Kenya

Kenya

- 85th economy, 8th most innovative country in Sub-Saharan Africa in the 2021 Global Innovation Index (Soumitra et al., 2021)
- 85% of Kenya is ASAL

Agritech

Using technology to improve agriculture and food production

Agriculture

Makes up 35% of Kenya's economy

AIE

Most vibrant digital agro-innovation in Kenya – central to provide **food security** and **environmental sustainability** through **creativity, innovation, and collaboration**

Challenges to Kenya's Agritech Innovation Ecosystem



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- Delayed finalization of *Kenya's Science, Technology and Innovation (ST&I)* policy (the 2020-2030 report remains in draft)
- Insufficient *funding* and *capacity*
- Weak links between *industry, research and academia*
- *Brain drain* and skills mismatch
- Low rate of *commercialization* of AgriTech startups

Sample



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	<i>KIIs</i>	<i>FGDs</i>
<i>Government</i>	8	10
<i>Private Sector</i>	8	17
<i>HEIs</i>	18	18
<i>Civil Society</i>	8	4
<i>TOTAL</i>	42	49

RQ1

What are ecosystem actors' perceptions of the *purpose*, *functionality*, and the *level of development* of AIE in Kenya?

Purpose

Improve *productivity* and *efficiency* of the agriculture value chain for *sustainable food security, livelihoods*, and *environmental conservation*.

Functionality

AIE involves actors with roles such as *knowledge generation* (HEIs, research institutions), *translation* (private sector, government, NGOs), *usage* (policy makers, farmers), and *idea incubation* (KCIC, C4D, DeHUB)

Level of Development

Medium stage and growing, as influenced by:

- actor interaction
- policies
- skilled human resource
- financial support
- products and services
- natural resources
- internet connectivity

RQ2

What are the *roles* of HEIs in AIE?

Training

Research

Innovation

Community Outreach

RQ3

What is the level of *coordination and partnership* between key actors in the HEIs and in AIE?

Coordination

- *Weak coordination* between HEIs and other actors
- *Unclear framework* in HEIs for internal and external engagement
- HEIs work as *silos* in training, research, and outreach

Partnership

- Academic *conferences and publications*
- Collaborative *research*
- *Fundraising*
- *Outreach activities*

RQ4

What *resources* do stakeholders at HEIs in the study need to be able to engage effectively in AIE ?

Innovation *leadership* (HEIs)

Improving digital and physical *infrastructure* for research (HEIs and civil society)

Developing of *science parks and innovation hubs* (HEIs, government, and civil society)

Developing *digital platforms* (HEIs, government, and society)

Developing *policy and institutional framework* for engagement (HEIs).

Financial resources for developing faculty, staff, and students (HEIs, society, private sector, and government)

RQ5

What are ecosystem actors' perceptions of HEIs' *provision of key resources* needed for strengthening AIE?



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Human Capital

- HEIs develop human capital for innovation but are not operating optimally in AIE
- Constrained by limited number of staff and resources

Agricultural Land and Infrastructure

- Quality of many laboratories is not up to the standard

Knowledge Resources and Incubation of Ideas

- Universities are *knowledge hubs* providing access to:
 - books, repositories, etc.
 - skill formation
 - physical and digital space
 - laboratories and offices

RQ6

How does the *policy/regulatory environment* shape the incentives and disincentives for HEI engagement in AIE?

Government policies incentives

Universities Act 42 (2012)

Kenya Information and Communications Act (2012)

Science, Technology, and Innovation Act (2013)

Government policies disincentives

Taxation and bureaucracy

- Unfavorable *tax and importation policies*
- *Taxes* for start-ups and raw materials
- *Lengthy and costly procedures* for licensing and standardization

RQ6

How does the *policy/regulatory environment* shape the incentives and disincentives for HEI engagement in AIE?

HEIs policy incentives

Internal policies

- Incentivize innovation by *linking staff promotion to individual contributions*
- *Foster collaboration* between HEIs and other actors
- *Support patenting.*

HEIs policy disincentives

Lack of clarity and ownership

- *Skewed benefit-sharing* arrangements
- *Poor commercialization*
- *Financial arrangements* do not favor innovators
- Lack of clarity in *patent ownership*

RQ7

How do *market-related factors* in Kenya shape opportunities for HEI engagement in AIE?

High Consumer Demand of HEIs' Brand Identity

- Kenya offers a *conducive environment for HEI engagement*
- *Consumers trust* HEI products and services

Market Imbalances

- HEIs-linked startups face *steep competition*

Regional Export Market Competitiveness

- HEI *skilled human capacity and research output* generate innovative solutions for Kenya and regional markets.

RQ8

How do *context-specific norms, perceptions, and values* affect HEI actors' proclivity to engage in AIE in Kenya?

Reputation of HEI faculty

- *High societal reputation and engagement* for faculty, staff, and students
- HEI research outputs *have not been commercialized*
- Other actors *steal* HEI innovations
- *Low levels of trust* among HEI faculty

Employment opportunities and knowledge transfer

- *Few employment opportunities* in agriculture
- Community members *intimidated by faculty expertise*

Cultural Values and Gender Dynamics

- *Patriarchal communities*
- Limited HEI focus on *enterprise development*

Preliminary Recommendations



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For the Kenyan Government

1. Develop and strengthen ***frameworks for interaction*** among actors
2. Increase mechanisms of ***knowledge dissemination***
3. Mobilize financial ***resources for entrepreneurial activities***
4. Provide funding to modernize ***infrastructure***
5. Review & update ***frameworks, taxation, and policy*** guidelines on partnerships and importation of raw materials
6. Address ***environmental challenges*** like land degradation and climate change impacts

Preliminary Recommendations



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For HEIs

1. Increase ***number of specialized faculty*** in fields like agriculture, IT, business, and intellectual property rights management
2. Review & update ***policies for benefit sharing and commercialization***
3. Mobilize financial ***resources for entrepreneurship and research infrastructure development***
4. Nurture ***trust*** with other AIE actors
5. Foster ***faculty and staff innovation activities*** through strong frameworks for collaboration and partnership



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Questions & Comments?

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Higher Education Institution Engagement in Innovation Ecosystems in LMICs: Findings from the Philippines

*Barriers and Enablers for Fostering Sustainable Change
Through Higher Education-Driven Innovation*

March 13, 2024



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Philippines Context: Agribusiness Innovation Ecosystem



HEIs and Innovation Ecosystems in the PH

New government and university programs have been developed to address challenges in the innovation ecosystem (CITE, 2019), such as:



Establishing industry connections to government and academia



Spurring entrepreneurship, education, human capital, research quality, and output;



Enabling knowledge transfer and collaboration. However, procurement regulations remain a major barrier to innovation

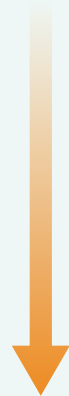
Declining Innovation Performance of the PH



The Philippines dropped from 51st (2021) to **59th** of 132 countries on the Global Innovation Index (2022).

This drop was driven by decreases in:

- **Human Capital & Research** (sub-indicators: Education & Tertiary Education);
- **Knowledge & Technology Outputs** (sub-indicators: Knowledge Creation & Knowledge Impact);
- **Creative Outputs** (Sub-indicator: Creative Goods and Services);
- **Intellectual Property** (Sub-indicators: Industrial Designs, Cultural and Creative Service Exports; Utility Models; Patent Families; University-Industry R&D Collaboration; Trademarks)



Philippines Context: Agribusiness Innovation Ecosystem

Region VII Innovation Landscape

17th

The 2022 Cities and Municipalities Competitiveness Index (CMCI) of highly urbanized cities ranked **Cebu City 17th** in the innovation pillar, **Mandaue 18th**, and **Lapu-Lapu 31st**



Widespread use of the **Electronic Business Permit and Licensing System (eBPLS)** software and online payment facilities



Recently generated **notable IP filing figures**



Established a **Regional Inclusive Innovation Committee (RIICom)**



R&D expenditures of PhP 795 million+, the sixth highest among the regions—in 2018

Agri-business in Region VII

- Agribusiness encompasses all activities related to agriculture.
- Involves farmers, processors, distributors, and consumers in a system responsible for producing, processing, transporting, marketing, and distributing agricultural goods (BOI n.d.).
- Agribusiness mainly contributes to the regional economy by supplying inputs, such as food and beverage, wood products, paper, and furniture, to industry
- While Region VII is dominated by manufacturing & services sectors, **agribusiness is considered an emerging industry**

1.2%

Contribution to total employment

0.9%

Agriculture, fisheries and forestry establishments in Region 7

5%

Agri-business related manufacturing of the total number of Region 7 firms

Philippines Context: Agribusiness Innovation Ecosystem



HEI Involvement in R&D and Innovation in Region VII

Despite the limitations in R&D personnel and centralized sources of funding for R&D, there have been bright spots in R&D and innovation in recent years. These have been achieved through the NICER and CRADLE projects of the S4CP.



NICER CRADLE



Current Issues Related to HEI Involvement

Funding for HEIs is focused on the country's capital

Limited innovation and R&D participation of HEIs

HEIs not regarded as important sources of information by the private sector

Different perspectives of innovation actors and timeliness of research and innovation production

Sample



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Stakeholder Groups		FGD	KII
Government Representatives		13	2
Regional Offices of National Government Institutions		7	1
Local Government Units within Region VII		6	1
HEI Representatives		10	6
Public		7	4
Private		3	2
Private Sector Representatives		9	4
Industry		3	2
Development Leaders		6	2
Total		32	12
Gender	Male	13	3
	Female	19	9



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Findings

RQ1: What are ecosystem actors' perceptions of the **purpose, functionality, and level of development** of the agribusiness innovation ecosystem?



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What are ecosystem actors' perceptions of the level of development, functionality, and purpose of the innovation ecosystems under study?



The innovation ecosystem serves as a network for knowledge and resources sharing.



The Agri-business Innovation Ecosystem in Region VII is in its infancy.



The Agri-business sector remains fragmented despite the innovation ecosystem's introduction of new farming techniques and products.

RQ2: What **roles** are HEIs in this study currently playing in the agribusiness innovation ecosystem?

HEIS ARE PERCEIVED BY IE ACTORS TO PRIMARILY FUNCTION AS KNOWLEDGE SHARERS, CONVENERS, INNOVATORS, AND TRAINERS.



Conveners: HEIs have the ability to bring together diverse stakeholders, including those from the government, private sector, civic organizations, farmer groups, and other educational institutions.



Knowledge Sharers: Often acting as the research arm for both the government and private sector, HEIs contribute to knowledge production and dissemination within the ecosystem



Innovators: HEIs play a role in advancing agricultural technology, processes, and products through research and development



Trainers: Impart knowledge to students and industry professionals in both technological aspects and entrepreneurship

RQ3: What is the level of **coordination and partnership** between key actors in the HEIs under study and the actors engaged in the agribusiness innovation ecosystem?



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DEGREE OF COOPERATION BETWEEN HEIS AND OTHER IE ACTORS IS HIGH

Most stakeholders in the ecosystem affirm that collaboration between HEIs and other participants in agribusiness is strong.



According to the FGD respondents, there is substantial involvement with the local/regional government. A bidirectional relationship is observed between HEIs and government units.



Respondents cited collaborations with PhilExport, Cebu Export, and the Cebu Chamber of Commerce and Industry



HEIs are actively engaged, with certain universities introducing an Entrepreneurship curriculum due to significant student interest.

Partnerships between HEIs and stakeholders are influenced by:

1

Funding

2

Infrastructure

3

Extension Services Support

4

Human Resources

5

Leadership within HEIs

RQ4: What **resources** do the stakeholders at the HEIs included in the study need to be able to engage effectively in the agribusiness innovation ecosystem?

Perceived primary challenges to HEIs:

INTERNAL



Funding



Bureaucratic Red-Tape



Political Challenges and Prioritization



Shortage of Manpower

EXTERNAL



Evolving Trends in courses offered



Limited awareness of HEI initiatives for agri-business



Slow adoption of technology



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HEI require the following to attain the objectives of the Agri-business innovation ecosystem:



Enhanced collaborations and partnerships among IE stakeholders



Infrastructure to sustain the IE (e.g. extension services, fabrication laboratories, shared services facilities)



Financial support



Training support and knowledge transfers to upskill faculty and students



Human resources/manpower



Supportive leadership from government and HEIs

RQ5: What are ecosystem actors' perceptions of **HEIs' provision of key resources** needed for strengthening the agribusiness innovation ecosystem?



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Supplying human capital, fostering knowledge transfer, and even in allocating financial resources related to the development of a successful agribusiness innovation ecosystem.



Industry respondents value the human capital that HEIs provide as they mentioned that they need the knowhow of teachers and they value cloud of the HEI personnel (including graduates) who are able to relate to various stakeholders.



HEI respondents focused mainly on the capabilities (knowhow, technical expertise) of teachers which they disseminate through various modes (extension services, providing training, teaching, research collaboration).



Industry respondents also recognized the importance of financial resources allocated by HEI to aid their input needs, among others.



Respondents perceive HEIs as key players especially in their role in promoting innovation through strategic partnerships and advanced technological applications.



Extension programs and collaborations with local government units (LGU) and non-governmental organizations (NGO) by respondents suggests that HEIs are instrumental in fostering partnerships that facilitate resource exchange and knowledge transfer.



An HEI respondent mentioned providing a maker-space for the development of prototypes using technologies like 3D printing and laser cutting, indicating a focus on innovation.

RQ6: How does the **policy/regulatory environment** shape the incentives and disincentives for HEI engagement in the agribusiness innovation ecosystem?



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MIXED VIEWS ON THE LEVEL OF POLICY SUPPORTIVENESS TOWARDS HEI INVOLVEMENT, WITH SOME EXPRESSING A LOW LEVEL OF SUPPORT AND OTHERS ACKNOWLEDGING HIGH SUPPORT.



TAX INCENTIVES HELP PROMOTE AGRICULTURE BY INCREASING AGRI-RELATED ACTIVITIES:

- Idle Land Conversion Tax Incentive promote undertaking of innovations by plot owners
- Tax breaks are provided for Start-ups



DOCUMENTARY REQUIREMENTS SET BY NATIONAL AGENCIES DELAY THE ACCREDITATION AND REGISTRATION PROCESSES, WHICH HEIS FIND TAXING AND DISCOURAGING.

- Numerous and complex food safety licensing requirements discourage development of agribusiness activities



GOVERNMENT AGENCIES PLAY A CRUCIAL ROLE IN CREATING A SUPPORTIVE ENVIRONMENT FOR AGRIBUSINESS PLAYERS:

- Assist HEIs in Registration of innovations and Intellectual Property

RQ6: How do **HEIs' policies** influence the incentives and disincentives for HEI engagement in innovation ecosystems?



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HEI'S MEMBERSHIP AND PARTICIPATION IN THE IPO AND THE PROMOTION OF ORGANIC AGRICULTURE HELP THEM ENGAGE MORE WITH GOVERNMENT AGENCIES IN PROMOTING AGRIBUSINESS INNOVATIONS AND IN KNOWLEDGE AND TECHNOLOGY TRANSFERS.

Eg. HEIs have a representative in the Intellectual Property Office helps increase HEI undertaking of innovation



HEIS REALIGN ACADEMIC PROGRAMS AND INTEGRATE AGRICULTURAL APPRECIATION SUBJECTS INTO EDUCATION TO ADDRESS DECLINING INTEREST AMONG YOUNGER GENERATIONS.

Eg. 1. Respondent HEI partners with LGUs who provide scholarships to students who enroll in agri-related programs helps HEIs attract youth

Eg 2. Developing new curriculum to support agri-related programs



HEIS MOBILIZE FUNDS TO INCENTIVIZE FACULTY TO INVOLVEMENT IN RESEARCH AND DEVELOPMENT ACTIVITIES.

Eg. Provision of grants and allowances (i.e. travel expenses, paid leave) in HEIs that conduct research motivates faculty and students to undertake studies

RQ7: How do **market-related factors** in shape opportunities for HEI engagement in the agribusiness innovation ecosystem?



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MARKET INFRASTRUCTURE IN TERMS OF SUPPORT TO BUSINESS ENVIRONMENT, INSTITUTIONAL SET UP, AND INFORMATION ON THE SOURCES OF INPUTS, ENHANCE HEIS CAPACITY FOR INNOVATION AND SUPPORT HEIS ENGAGEMENT IN INNOVATION ECOSYSTEM ARE RELATED TO FUNDING, POLICY AND COLLABORATIONS.



MARKET INFRASTRUCTURE ALSO POSE AS BARRIERS AND CHALLENGES TO HEI ENGAGEMENT IN THE AGRIBUSINESS IE.



LACK OF COMPETITIVE ENVIRONMENT DUE TO SOME ENTITIES MONOPOLIZING THE INDUSTRY AND MARKET RELATED ISSUES MAY ADVERSELY AFFECT HEI PARTICIPATION IN THE AGRIBUSINESS IE.

RQ8: How do context-specific norms, perceptions, and values affect HEI actors' proclivity to engage in the agribusiness innovation ecosystem?



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The HEIs' institutional commitment for innovation is the foundation for the development of plans and programs for the agribusiness IE but their plans depend on availability of funding and personnel.



External Recognition and Strategic Relationships are key influencers of HEI Innovation or R&D activities, in general, and to the agribusiness innovation ecosystem, in particular.



Cultural trends and shifts in Educational landscape have a key role in promoting innovation activities of HEIs in the agribusiness IE.

Preliminary Recommendations



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NATIONAL-LEVEL

POLICY FRAMEWORKS

Develop and implement clear policy frameworks that outline objectives, strategies, and responsibilities for promoting innovation in the agribusiness sector.

FUNDING SUPPORT

Harmonize funding processes and support for HEIs research and innovation activities

HEI-LEVEL

MARKET ACCESS, BUSINESS ENVIRONMENT, AND SUPPLY CHAIN INTEGRATION

Strengthen the market access and development, business environment, and supply through:

- Funding mechanisms for accessing technology and materials
- Foster stronger institutional partnerships between HEIs and other industrial and institutional partners
- Promote supply chain connectivity and access to markets

ENGAGE INTEREST AND CONFIDENCE

Incentivize HEIs to continually engage with social groups and industry players and in the education of communities as agents of technology transfer and adoption.



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Questions & Comments?

For additional information on HEIGHTS Philippines IE

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Cross-national Synthesis

Cross-national Findings (1)



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Agriculture-related Innovation Ecosystems (AIE)				
Purpose, function, & level of development	Roles of HEIs in AIE	HEI partnerships & collaboration in AIE	HEI resource needs to engage in AIE	HEI provision & contribution to AIE
Purpose & function: create agricultural products through innovations and agricultural business	Knowledge sharers, trainers	Indonesia: Strong (with gov't) Philippines: Strong (with gov't private sector, and HEIs)	Sustained financial resources/funding	Human capital
Varying degrees of development	Advisors, conveners	Kenya: Weak (Other than research)	Research infrastructure (digital & physical)	Infrastructure / land & facilities
	Innovators		Human capital & social capital	Knowledge resources
			Leadership within HEIs	
			Policy and institutional framework at HEIs	

Cross-national Findings (2)

Factors Influencing HEI Engagement in AIE

National policy & programs creating incentives	National policy & programs creating disincentives	HEI-level policy - incentives	HEI-level policy - disincentives <i>*All from Kenya</i>
Financial support for research at HEIs	Indonesia & Philippines: Paperwork & bureaucracy in financial reporting to gov't	Indonesia: Internal funding for research, esp. in agricultural innovation	Lack of clarity in patent ownership
Tax incentives for HEIs & agricultural activity	Difficult patent certification	Kenya: Linking faculty promotion to innovations	Poor policy implementation on commercialization
Indonesia: Specific financial support for agricultural sector research	Lengthy & costly procedures for licensing and standardization	Kenya: Support patenting	Skewed benefit-sharing arrangements (i.e., not favoring innovators)
	Kenya: Unfavorable tax & importation policies	Philippines: Internal funding for research	

Cross-national Findings (3)

Factors Influencing HEI Engagement in AIE	
Market & cultural factors: incentives	Market & cultural factors: disincentives
Kenya: High consumer demand for HEI products & services	Lack of interest in agriculture among youth
	Indonesia: Inefficient supply chain management
Philippines: External recognition and strategic relationships	Indonesia: Low take up of agricultural innovation by farmers
	Kenya: Steep competition for HEIs-linked startups

Implications for policy, directions for future research, and limitations



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Implications for Policy	Directions for Future Research	Limitations of the Study
Comprehensive and long-term policy framework that lays out clear goals, plans, and financing for HEIs' innovation activity, with a focus on agri-related sectors	Selection of an innovation ecosystem that is more narrowly defined and comparable across countries	Findings cannot be generalized: • Small number of countries participating in the study • Qualitative methodology • Views of respondents in the sample are not representative of the population • Variations across AIEs in the 3 countries
Enhanced coordination between national and local governments for determining research priorities with HEIs	Mixed-method design incorporating both standardized surveys for a great number of LMICs as well as qualitative approaches to understand the nuances	
Increased efficiency in governance and resource management in financing HEIs (and researchers)		
Provision of enhanced financing to HEIs to improve research infrastructure (physical & digital) for innovation		
Expanded incentives and frameworks for HEIs & faculty to develop partnerships to collaborate with other actors on innovation, ensuring alignment with goals and sustainability		
Improved capacity of HEIs in leading innovation	Analysis of HEIs' financial data on innovation activities	

Discussion: Implications for Policy



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- Comprehensive and long-term policy framework that lays out ***clear goals, plans, and financing*** for HEIs' innovation activity, with a focus on agriculture-related sectors
- ***Enhanced coordination between national and local governments*** for determining research priorities in collaboration with HEIs
- ***Increased efficiency in governance and resource management*** in financing HEIs
- Provision of enhanced financing to HEIs to ***improve research infrastructure*** (physical & digital) for innovation activity
- ***Expanded incentives and frameworks*** for HEIs & faculty to develop partnerships to collaborate with other actors on innovation, ensuring alignment with goals and sustainability
- ***Improved capacity of HEIs in leading innovation*** through sustained capacity strengthening

Looking Forward: Upcoming Publications and Dissemination Events



Upcoming **publications**:

- **Country reports:** Kenya, Indonesia, and the Philippines
- Multi-country report

Upcoming **dissemination event**:

- Global Education Conference (Washington, D.C.): April, 2024



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Thank you!

Please contact HyoJung Jang
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