

Menelusuri Realitas Kebutuhan Petani
Menggunakan *Grounded Theory*
dan Pengembangan Teknologi Berbasis Kebutuhan
dengan Pendekatan *Transdisciplinary*

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SEMINAR NASIONAL LAHAN SUB-OPTIMAL,
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LATAR BELAKANG



Amanah Konstitusi

*“Pemerintah memajukan iptek dengan menjunjung tinggi nilai-nilai agama dan persatuan bangsa untuk memajukan peradaban serta **kesejahteraan umat manusia**”*

Undang-Undang Dasar 1945, Pasal 31 Ayat (5)

Iptek hanya akan meningkatkan kesejahteraan dan memajukan peradaban jika iptek tersebut digunakan ...

*What is not disseminated **and** used
is not an innovation*

- The World Bank (2010)

PENGEMBANGAN TEKNOLOGI



SOPHISTICATED
& SENSITIVE
TECHNOLOGY

HIGH
OPERATIONAL
COST

HIGH
INVESTMENT

REQUIRING
HIGH SKILL
USERS

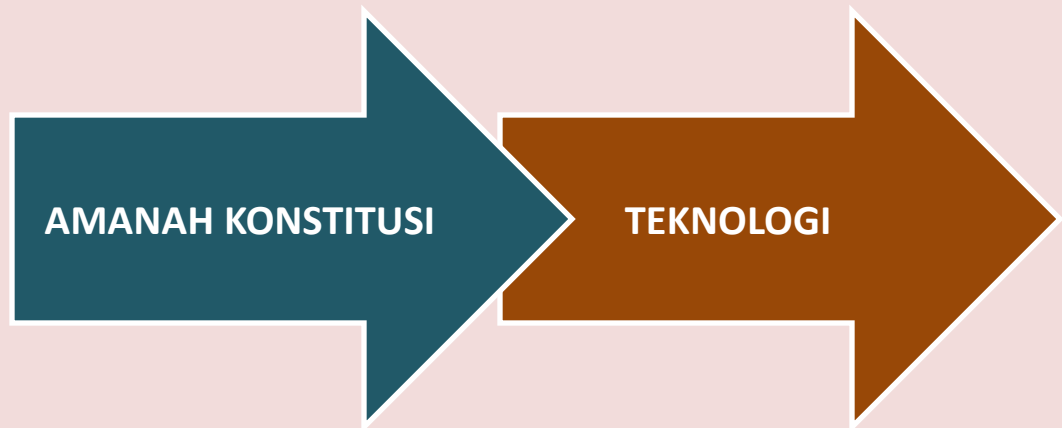
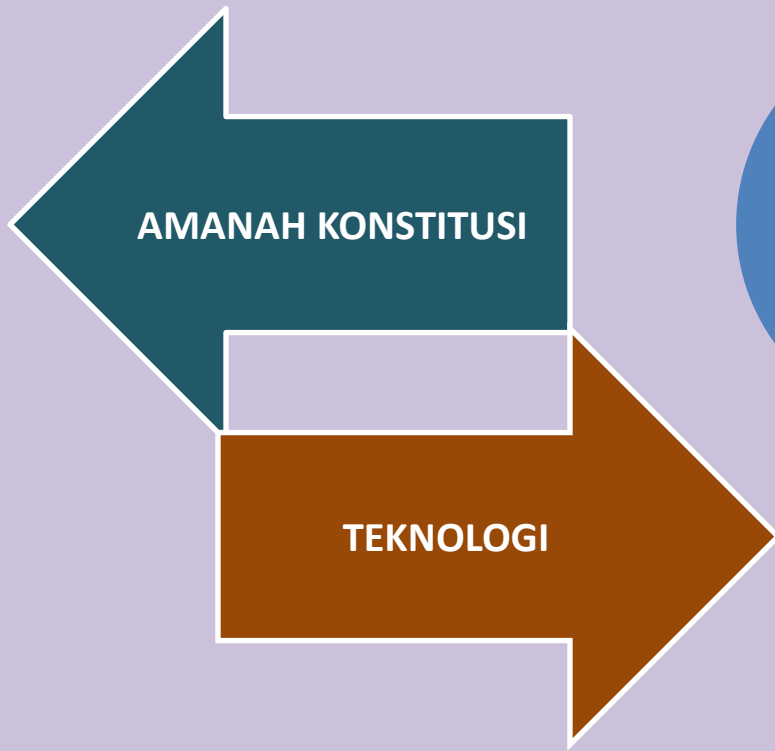
REALITAS PETANI & PERTANIAN

LOW PRICE OF
AGRICULTURAL
COMMODITIES

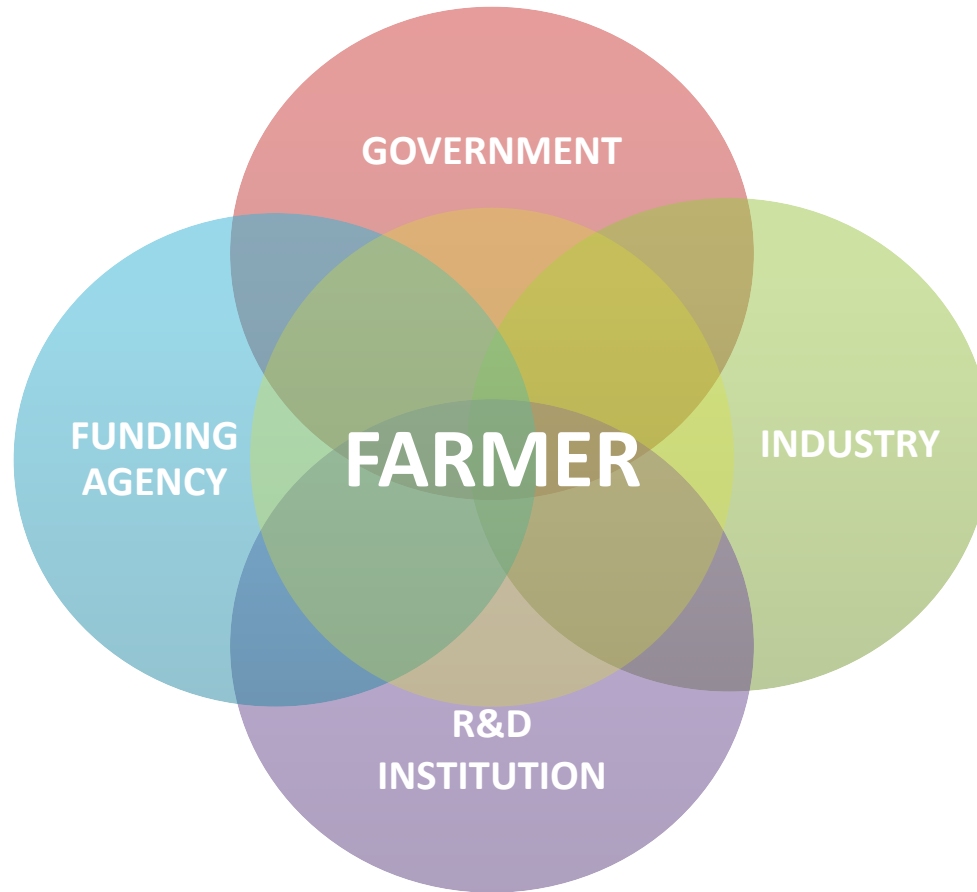
SMALL-SCALE
FARMING

LOW FARMER'S
ABSORPTIVE
CAPACITY

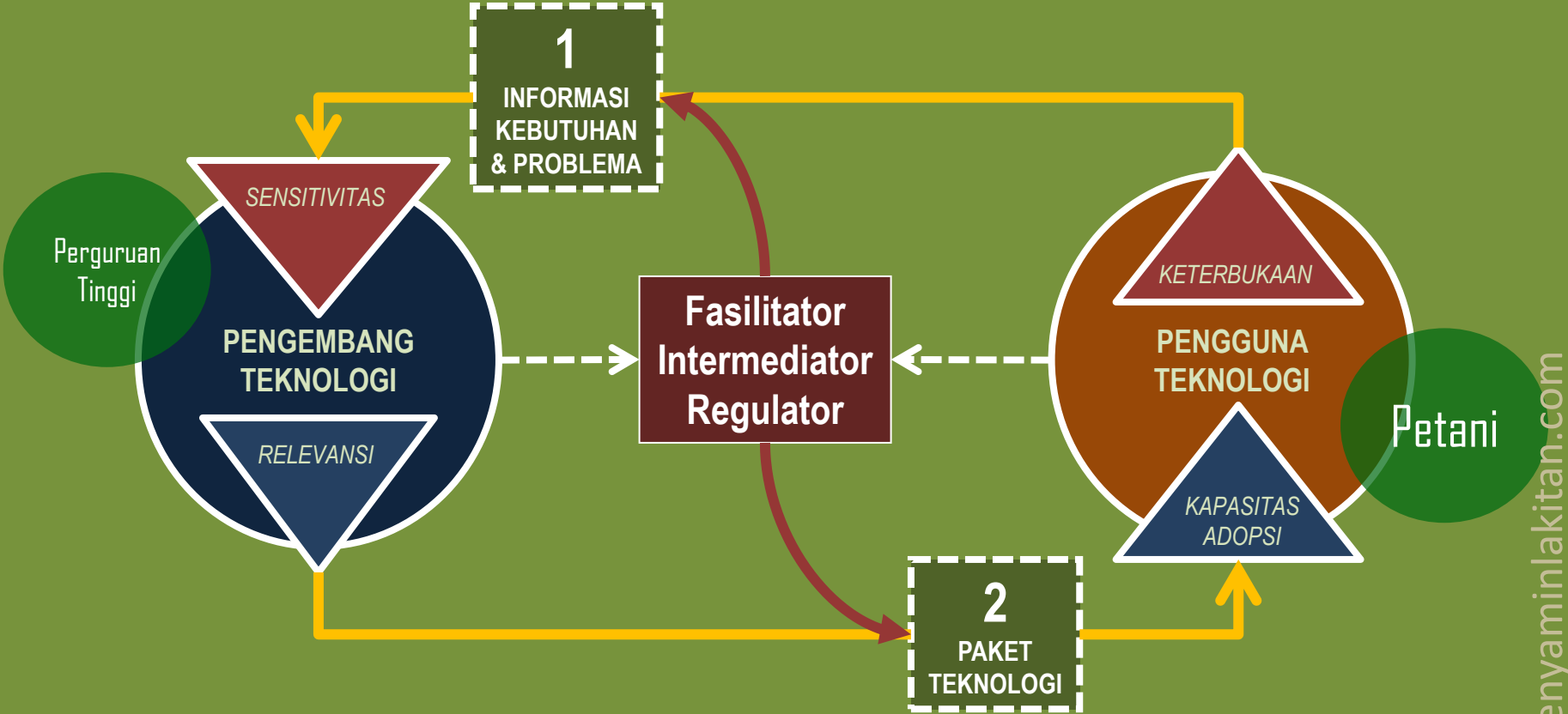
INADEQUATE
INFRASTRUCTURE



Farmers at the Center Stage



Sistem Inovasi



Technology is clearly needed to increase productivity.

Agriculture-related colleges and research institutions in Indonesia have the required capacity to develop agricultural technology.

However, ...



R&D
Capacity



**Not
Demand-
Driven**

... most of the indigenous technologies are **not relevant** to real needs and/or problems of domestic farmers. Even if the technologies are substantially relevant; in many cases, they are **not financially affordable** by domestic farmers, do **not significantly increase profit** if used, and/or **less competitive** compared to similar technologies available in the market.

4 Pre-requisites for Technology to be Used

1. **Relevant** to User's Need
2. Within Range of User's **Absorptive Capacity**
3. Increase **Profit**
4. **Competitive** to Similar Technology Available in the Market

**Required
Technology**

MEMAHAMI PETANI & PERTANIAN SETEMPAT





'Deep Dive'

MEMAHAMI PETANI SETEMPAT

- Status dalam Kegiatan Budidaya
- Kebutuhan
- Kapasitas Adopsi
- Preferensi
- Faktor yang Memotivasi

DIALOG

Audio Recording

MEMAHAMI PERTANIAN SETEMPAT

- Kondisi Agroklimat
- Pilihan Komoditas
- Teknik/Cara Budidaya
- Kearifan Lokal
- Infrastruktur Pertanian
- Aksesibilitas Lokasi

OBSERVASI

Visual Recording

Grounded Theory

Grounded theory **bukan** merupakan pendekatan atau metodologi baru. Giat dianjurkan oleh Glaser and Strauss di era tahun 1960-an. *Grounded theory* merupakan metodologi **kualitatif** yang bersifat **generik**, dapat digunakan untuk berbagai disiplin ilmu atau topik riset

Glaser, B.G. and A.L. Strauss. 1967. The discovery of grounded theory: strategies for qualitative research. Aldine Publication Company, Chicago

Aplikasi *Grounded Theory*

membuka peluang untuk secara sistematis membangun **teori baru** berdasarkan data dan informasi yang dikumpulkan dan ditelaah melalui tiga fase, yakni terbuka (*open*), selektif (*selective*), dan pengkodean (*coding*) yang kemudian dielaborasi.

(Faggiolani, 2011)

Fase Aplikasi

Fase	Sifat	Target	Analisis	Coding
<i>background research</i>	<i>Open Free Flow</i>	<i>problematic lines dan critical areas</i>	Identifikasi isu-isu penting	<i>Open Coding</i>
Pendalaman	<i>Semi-structured</i>	pemahaman yang tepat, komprehensif, dan mendalam	Jaring keterkaitan antar isu	<i>Axial Coding</i>
Formulasi Teori	Spesifik	memilih kategori inti/sentral	kontekstualisasi dari hasil analisis	<i>Specific Coding</i>

TEKNOLOGI BERBASIS KEBUTUHAN



Demand-driven R&D

- Pemahaman yang tepat, komprehensif, dan mendalam tentang kebutuhan petani dan kondisi pertanian harusnya menjadi landasan untuk pengembangan teknologi pertanian.
- Teknologi yang dikembangkan berbasis kebutuhan akan lebih berpeluang untuk digunakan

Iptek untuk Pertumbuhan Ekonomi

- Knowledge-based Economy
 - 'Triple Helix'
 - Kerjasama A-B-G
- Sistem Inovasi Nasional

On Innovation System

- A national **innovation system is a complex system** which can perform well if all actors communicate and interact intensively in a mutualistic manner;
- A national **innovation system is country-specific** and characterized not only by its developed technologies, but also by social, cultural, and political sphere in which the NIS is established;
- A national **innovation system is not an isolated system**, many internal and external factors could influence its characteristics and effectiveness; therefore, these factors should also be comprehensively considered.

4 Challenges at the core level

- **Low adoption** of indigenous technology
- **Low technological demand** of domestic users
- **Limited of interaction** between technology users and developers
- **'Ivory Tower' Syndrome is still existed** at universities and public R&D institutions

Lakitan, B. 2013. Connecting all the dots: Identifying the “actor level” challenges in establishing effective innovation system in Indonesia. Technology in Society 35:41–54

3 Challenges at the ecosystem level

- **Uncoordinated** human resource and technology development
- The priority of technology development is **not linked with natural resource** potential
- **Ineffective regulations and policies** for supporting innovation

Lakitan, B. 2013. Connecting all the dots: Identifying the “actor level” challenges in establishing effective innovation system in Indonesia. Technology in Society 35:41–54


3 Challenges at the anatomical level

- **Low R&D collaboration** among domestic technology developers
- **Low technological absorptive capacity** of domestic industry
- **Inadequate** contribution of government-affiliated intermediation agencies


Lakitan, B. 2013. Connecting all the dots: Identifying the “actor level” challenges in establishing effective innovation system in Indonesia. Technology in Society 35:41–54

**Pengembangan
Teknologi dengan
Pendekatan
Transdisiplin**

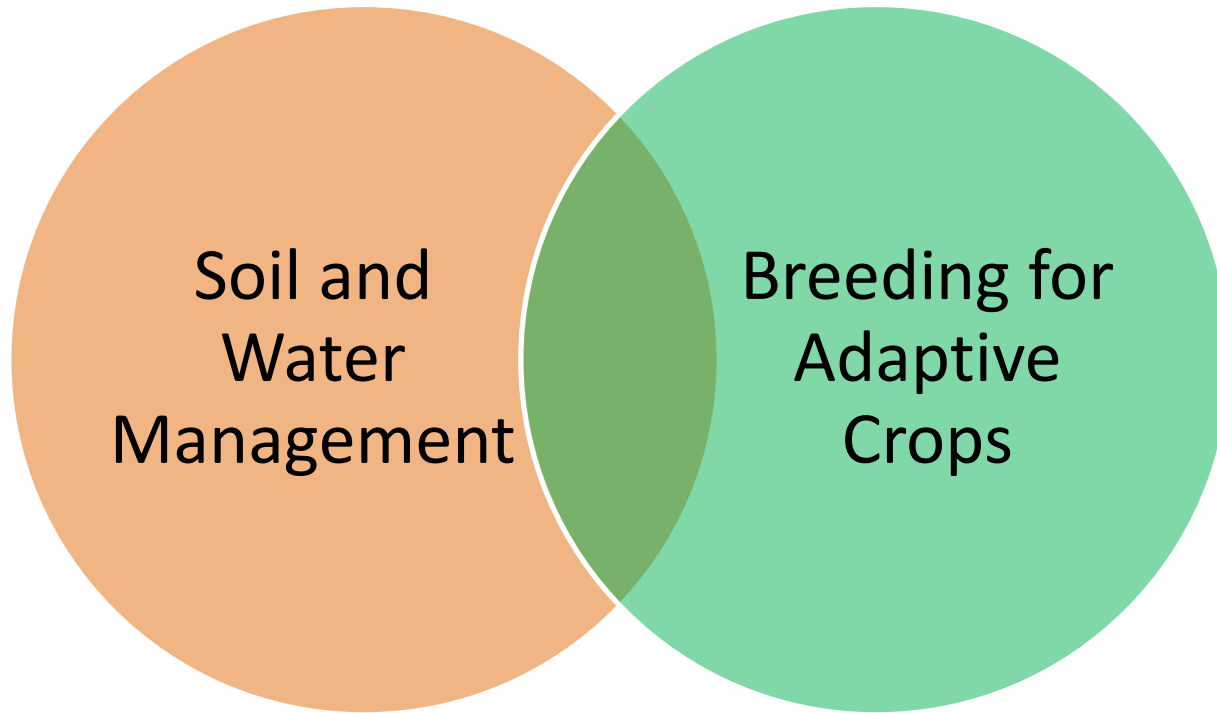


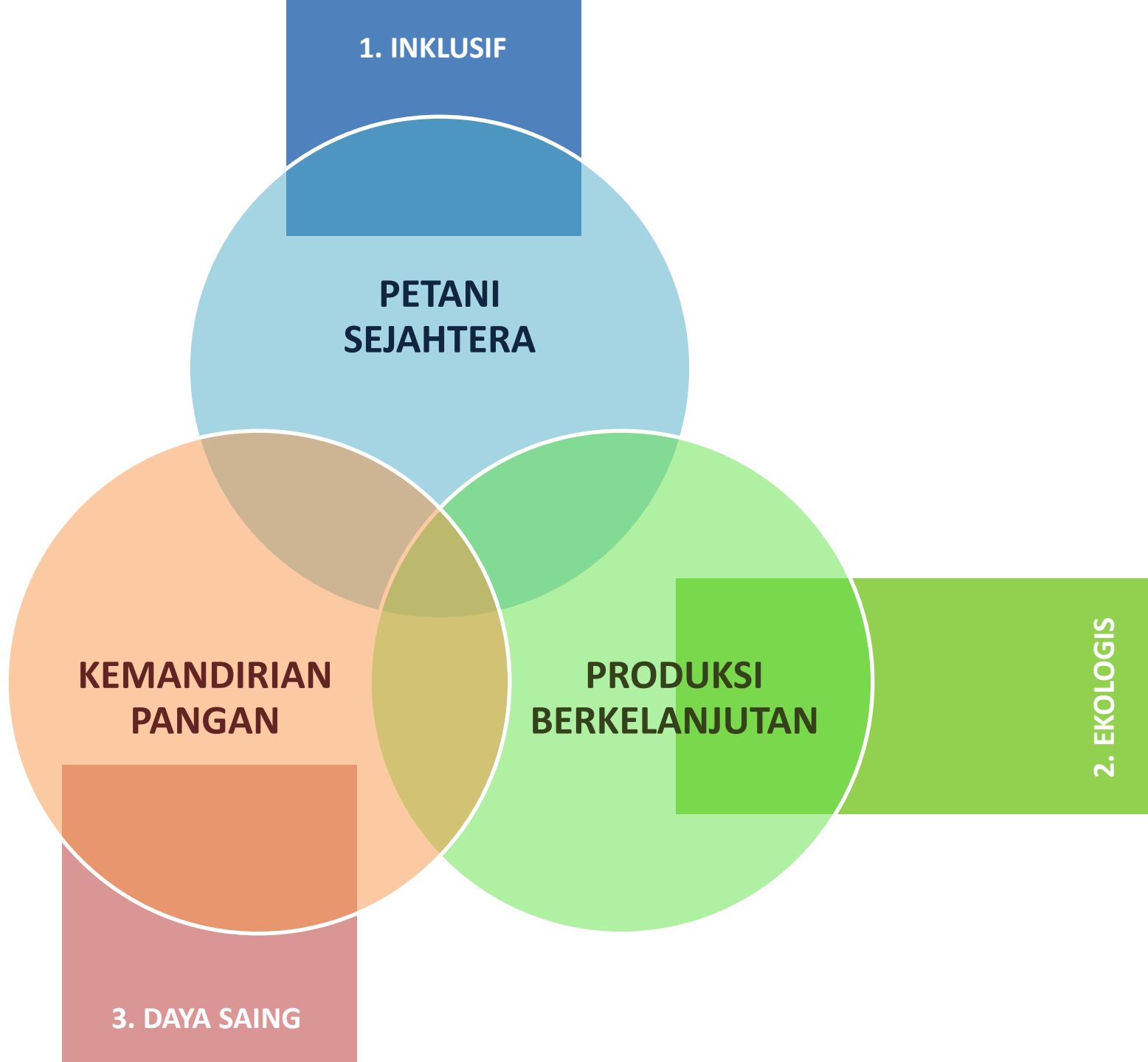


Pengembangan teknologi yang
substantially-relevant,
economically-profitable,
dan
socially-inclusive
membutuhkan banyak keahlian



Sub-optimal Lands

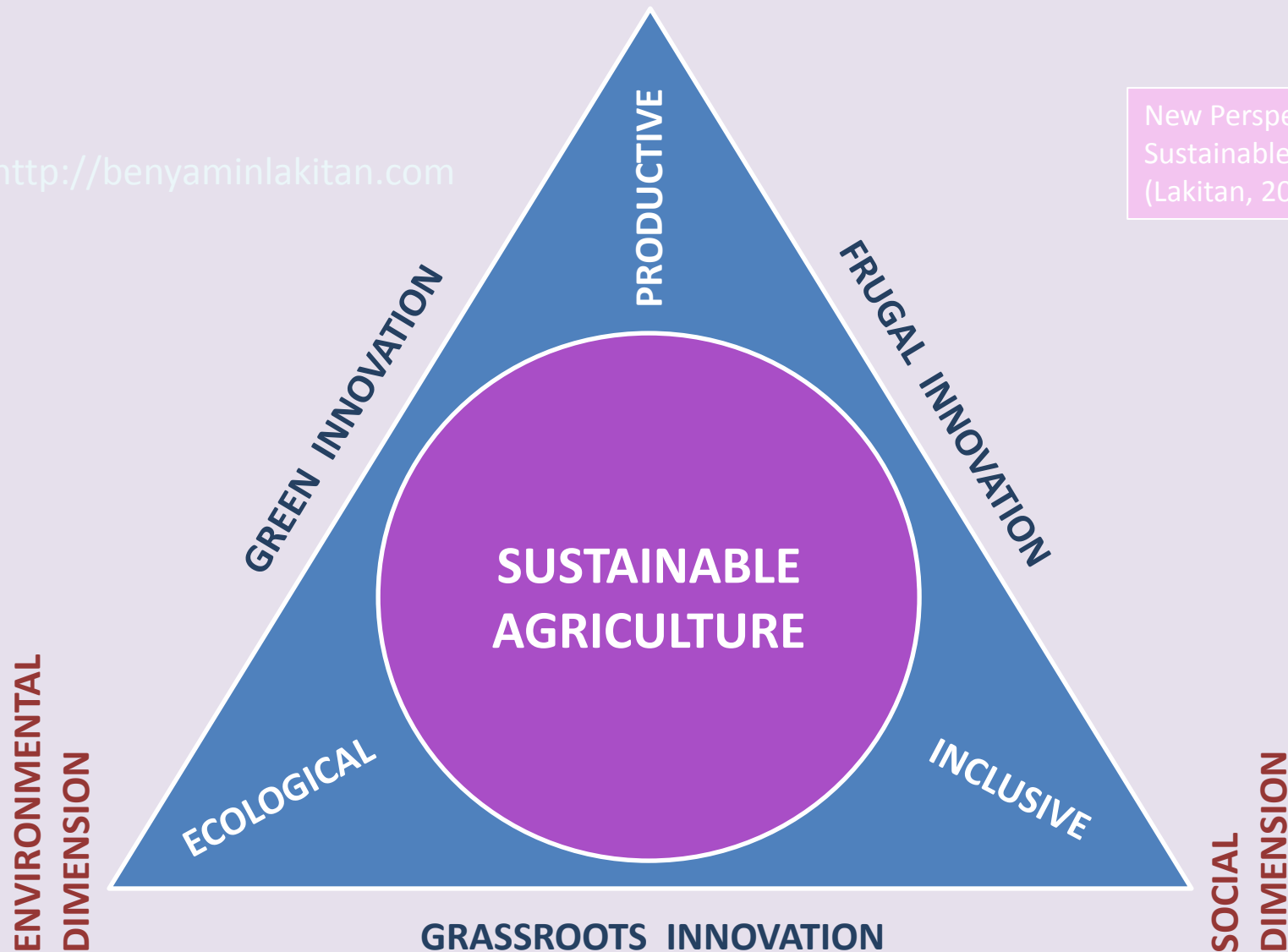




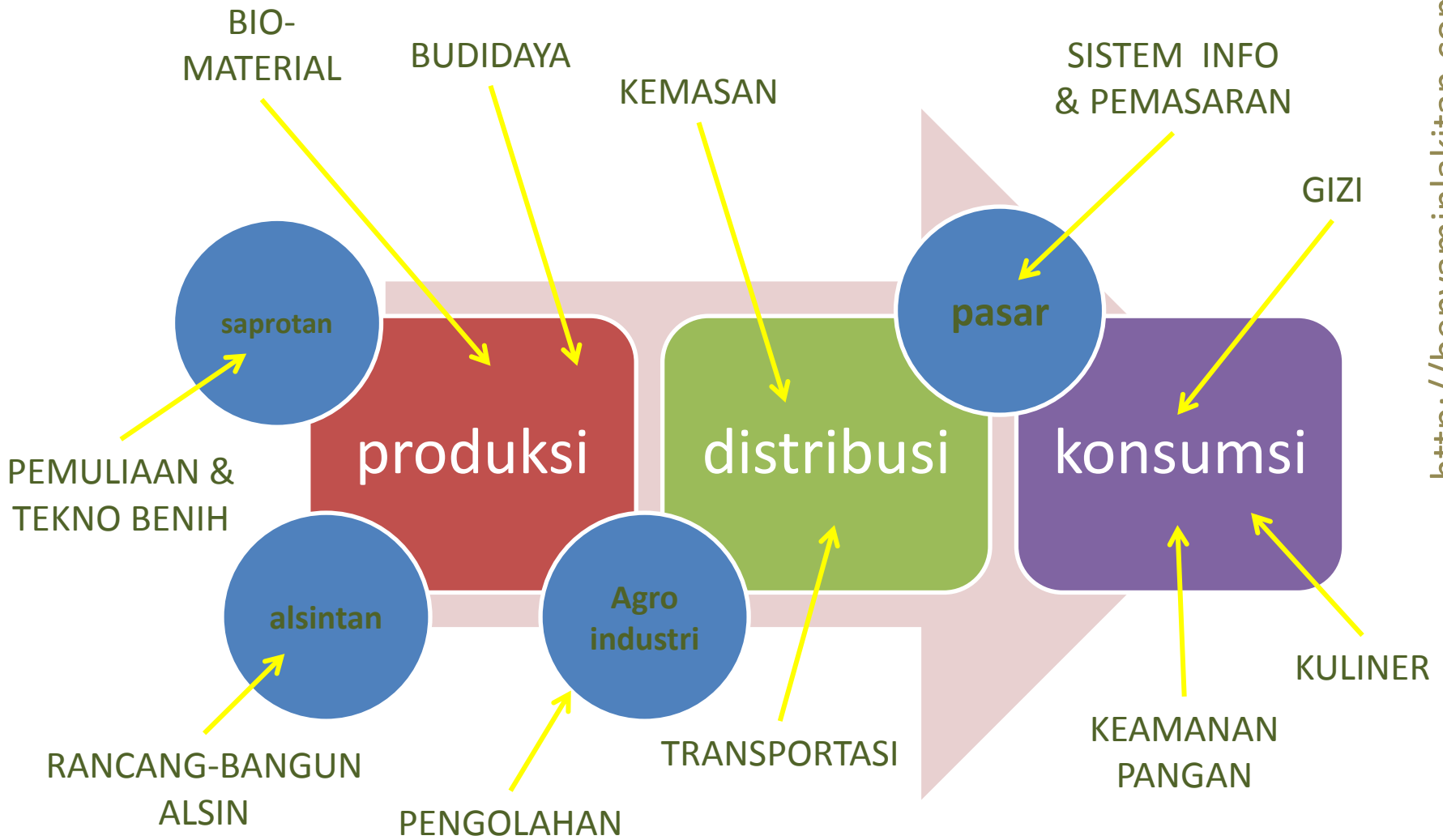
ECONOMIC DIMENSION

<http://benyaminlakitan.com>

New Perspective on Sustainable Agriculture (Lakitan, 2014)



Riset Pangan & Pertanian



Transdisciplinary Research

Research efforts conducted by investigators from different disciplines working jointly to create a new conceptual, theoretical, methodological, and translational innovations that integrate and move beyond discipline-specific approaches to address a common problem.

REKOMENDASI

1

Untuk memahami persoalan secara tepat, komprehensif, dan mendalam yang lebih dibutuhkan adalah informasi yang benar dan bukan data pseudo-empiris yang banyak; sehingga metodologi yang berbasis pada prinsip-prinsip *grounded theory* diyakini lebih patut untuk digunakan.

REKOMENDASI

2

Pengembangan teknologi wajib berbasis realitas kebutuhan (*demand-driven*) agar dapat menghasilkan teknologi yang relevan secara substansial, menguntungkan secara ekonomi, dan bersifat inklusif secara sosiokultural.

REKOMENDASI

3

Menghadapi persoalan yang kompleks, perlu pendekatan transdisiplin dengan melibatkan bidang-bidang keahlian yang relevan sesuai dengan kompleksitas persoalannya.

<http://benyaminlakitan.com>