SEED SOVEREIGNTY LAB

RECLAIMING THE ROOTS OF AGRICULTURAL KNOWLEDGE

REDESIGNING THE FUTURE OF SEED POLITICS

MEMBERS:

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PROBLEM STATEMENT

SEED SOVEREIGNTY LAB

BACKGROUND STORY

- In Java, Indonesia, farmers have long sustained their livelihoods by **saving and exchanging seeds** — a knowledge system passed down through generations.
- However, after the enactment of ***Law No. 12/1992*** on the ***Plant Cultivation System***, all seeds were required to **undergo official certification to be legally produced or sold.**
- Traditional practices of breeding, saving, and sharing seeds were thus **redefined as illegal activities.**

THE SPECIFIC INCIDENT

When Seeds Become Illegal:
The Politics of Farming in East Java

- In the mid-1990s, farmer **Tukirin** from East Java, was invited to join a seed-breeding program jointly run by **PT BISI** and the local government. He was told it aimed to **teach farmers breeding skills,** but was never informed of the company's commercial objectives.
- After the project ended in 1998—with no formal contract—**Tukirin** continued to develop **his own corn seeds** using **the skills he had learned**. In 2005, he was prosecuted for **"illegally producing and selling seeds,"** even though the seeds were his own, not PT BISI's.
- He was found guilty under Law No. 12/1992 and given a six-month suspended sentence plus a one-year ban on planting his own seeds.

This is not only a legal issue, but also a conflict of knowledge sovereignty, power, and ecological justice.

STRUCTURAL CONFLICT

Who Controls the Seeds?

ACTOR	POWER	IMPACT
 **Multinational Corporations**	***Control seed resources*** *through intellectual property rights and certification systems*	*Farmers lose the right to reproduce and exchange seeds autonomously*
 **State and Certification System**	***Define "non-certified seeds"*** *as illegal under Law No. 12/1992*	*Local knowledge and informal seed systems are excluded*
 **Farmers**	*Traditional seed-saving practices* ***redefined as "unofficial" or "illegal"***	*Livelihoods and cultural continuity are threatened*
 **Research Institutions**	*Scientific data and technology* ***concentrated in centralized agencies***	*Local farmers lack scientific and technical support*

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OUR RESPONSE:
SEED SOVEREIGNTY LAB

Restoring seed autonomy through design, science, and collaboration

We are a design and research office that supports communities in **regaining the power to manage, innovate, and share their own seeds**.

Through spatial design, data research, and educational collaboration, we **empower farmers to reclaim agency over seed cultivation and exchange, bridging local knowledge systems** with ecological policy frameworks.

OUR PHILOSOPHY

Make suppressed knowledge visible again.

Enable communities to regain the power of seed governance and innovation.

Use design as a bridge for ecological justice and policy innovation.

Ground local ecological restoration and sustainable agriculture in scientific evidence.

SEED AUTONOMY | COMMUNITY EMPOWERMENT | KNOWLEDGE REGENERATION

THEORETICAL FRAMEWORK

(URBAN POLITICAL ECOLOGY — SWYNGEDOUW & KAIKA, 2014)

KEY CONCEPT	APPLICATION TO CASE
URBANIZATION OF NATURE	Laws and certification redefine seeds as "legal/illegal nature," showing how governance produces ecology and why local seed knowledge must be restored.
COMMODIFICATION OF NATURE	Only certified corporate seeds enter markets; farmer seeds are excluded, revealing market-driven definitions of nature and the need to support non-commodified practices.
SOCIO-ECOLOGICAL INEQUALITY	Regulations privilege corporations and marginalize farmers, creating uneven ecological futures and reinforcing the need to strengthen farmers' agency.
POST-POLITICAL TECHNOCRATIC GOVERNANCE	"Scientific standards" depoliticize seed governance and suppress farmer knowledge and highlight the need for participatory ecological decision-making.

OUR VISION

We envision a future where seeds are not merely genetic resources,
but **living commons that connect culture, ecology, and politics**.

We strive to build **a multi-actor ecological governance system** where farmers, scientists, and governments **co-create the sustainable future of seeds**.

OUR MISSION

Make local seed knowledge visible again through design and research,

Equip farmers and communities with **actionable ecological and policy tools**

Contribute a future of **regenerative knowledge, ecological resilience, and food autonomy.**

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CORE SERVICE 1

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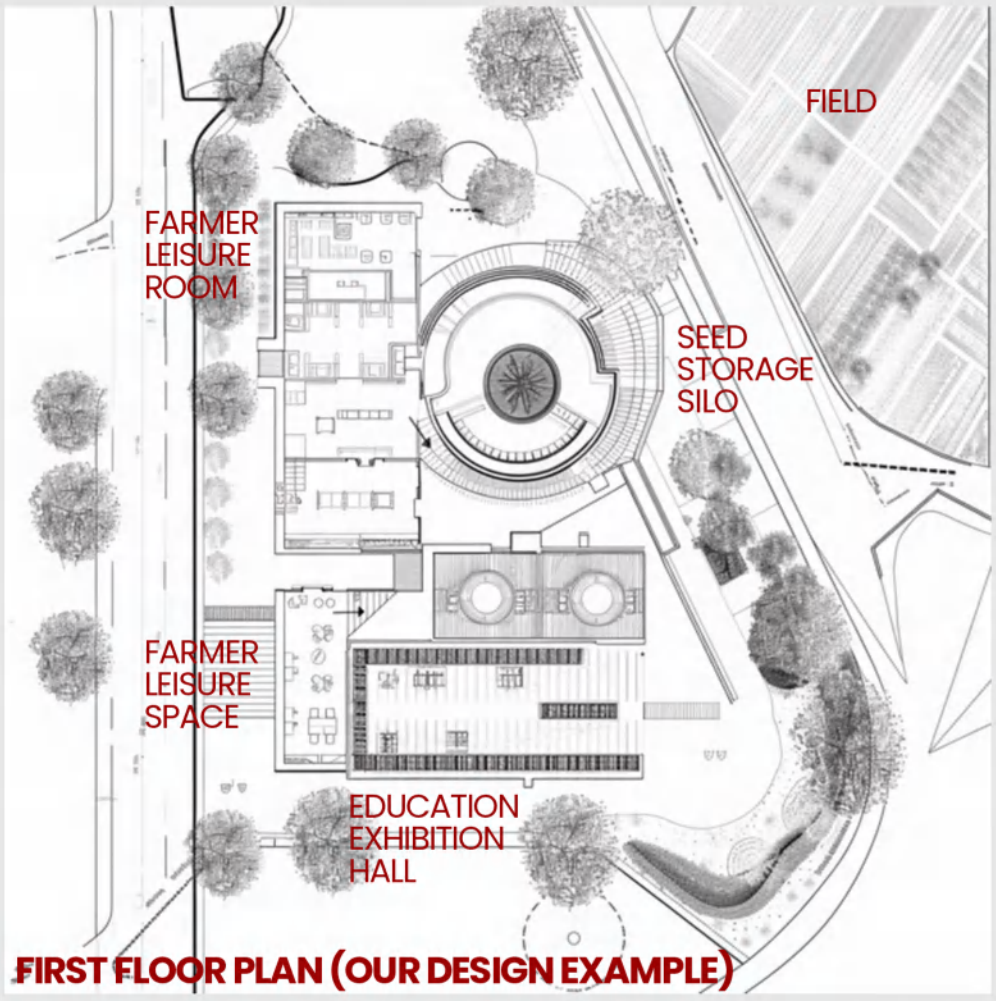
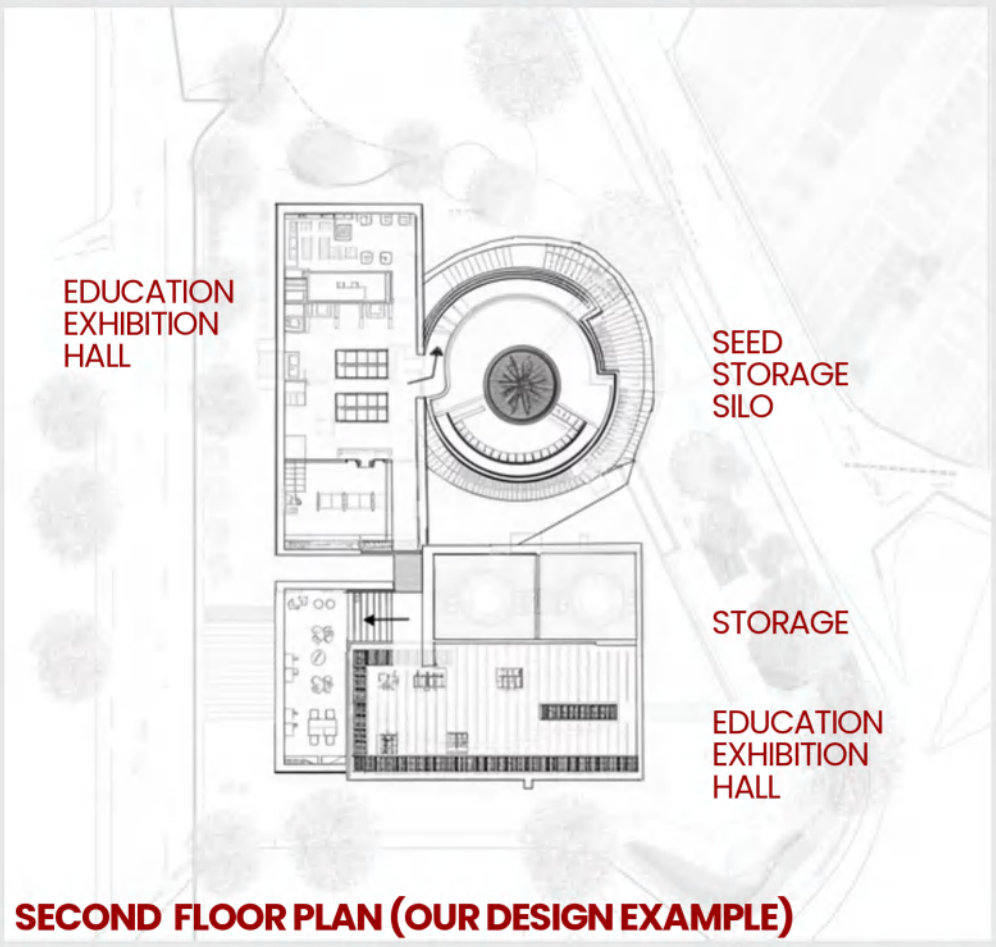
COMMUNITY SEED BANK DESIGN

--Designing ecological hubs for local seed systems

SEED STORAGE SILO + EDUCATION & EXHIBITION HALL + FARMER LEISURE SPACE



FIRST FLOOR PLAN (OUR DESIGN EXAMPLE)



SECOND FLOOR PLAN (OUR DESIGN EXAMPLE)

Establish "Ecological Hubs"

Integrate functions of storage, education, and exhibition within local communities.
These hubs serve as physical and social spaces where local seeds and knowledge can be preserved, displayed, and exchanged.

Integrate climate and soil data to generate locally adaptive crop solutions

By combining environmental data with local practices, we identify plant species and combinations best suited to each ecological condition.

WORKFLOW

UNDERSTAND COMMUNITY NEEDS

- Identify seed preservation challenges, preferred crops, and key traditional knowledge.
- Map farming cycles, seed exchange practices, and environmental constraints.
- Determine at-risk seed varieties and required storage capacity.

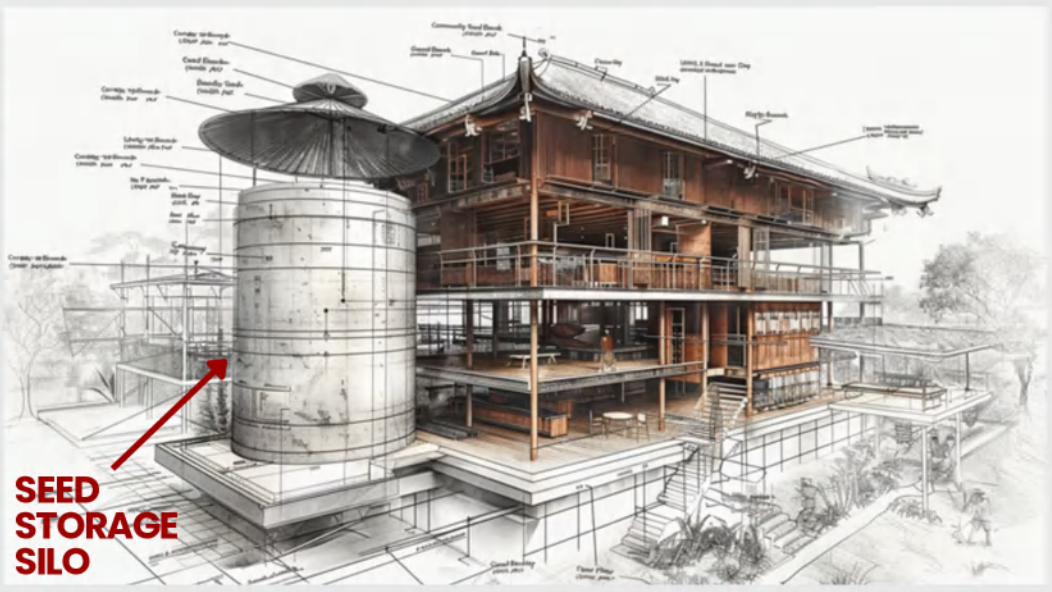
SELECT SUITABLE SITE

- Select sites near farmland for easy daily access.
- Evaluate soil stability, flood risk, water proximity.
- Avoid protected ecological zones while staying close to community nodes.
- Assess connections to roads, paths, markets, and agricultural areas.

DEVELOP ARCHITECTURAL & ECOLOGICAL DESIGN

- Spatial Programming: Seed Storage Silo, Education & Exhibition Hall, Farmer Leisure Space, Supporting Facilities
- Ecological Integration: Integrate climate-soil data, low-energy design, and links to surrounding farmland to create an adaptive and ecological community facility.

CONSTRUCT & IMPLEMENT



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CORE SERVICE 2

AGRICULTURE EXHIBITION

--Mapping the stories of seeds

- Transform farmers' narratives and seed samples into scientific and spatial visualizations.
- Reveal the dynamic relationships between policy, culture, and nature.
- Output formats: interactive installations / multimedia exhibits / documentaries.

Farmers' Stories & Local Seeds

- Transform farmers' lived experiences and local seed varieties into spatial narratives.
- This section documents indigenous seed knowledge, everyday agricultural practices, and the cultural memory embedded in rural farming communities.

Spatial & Scientific Visualization

- Regularly provide farmers with access to emerging agricultural technologies and training.
- This space offers hands-on demonstrations, updated techniques, and continuous learning opportunities to support innovation and improve sustainable farming practices.

Relationships between Policy, Culture, Nature

- Situate farmers' stories within broader frameworks of policy, culture, and nature.
- This space fosters dialogue between communities and institutions, highlighting how governance,cultural identity, and ecological systems intersect in shaping seed sovereignty.

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CORE SERVICE 3

SEED SOVEREIGNTY TOOLKIT

--Policy design for local legitimacy

- Integrate GIS and local ecological data to support sustainable evaluation and decision-making.
- Create visualized policy tools for NGOs and governments to propose alternative certification systems.
- Outputs: policy roadmap / visual reports / data manuals.

GIS Mapping & Ecological Database

- We analyze local GIS layers to understand where different seed varieties can best grow.
- This ecological database guides seed selection and landscape suitability decisions.

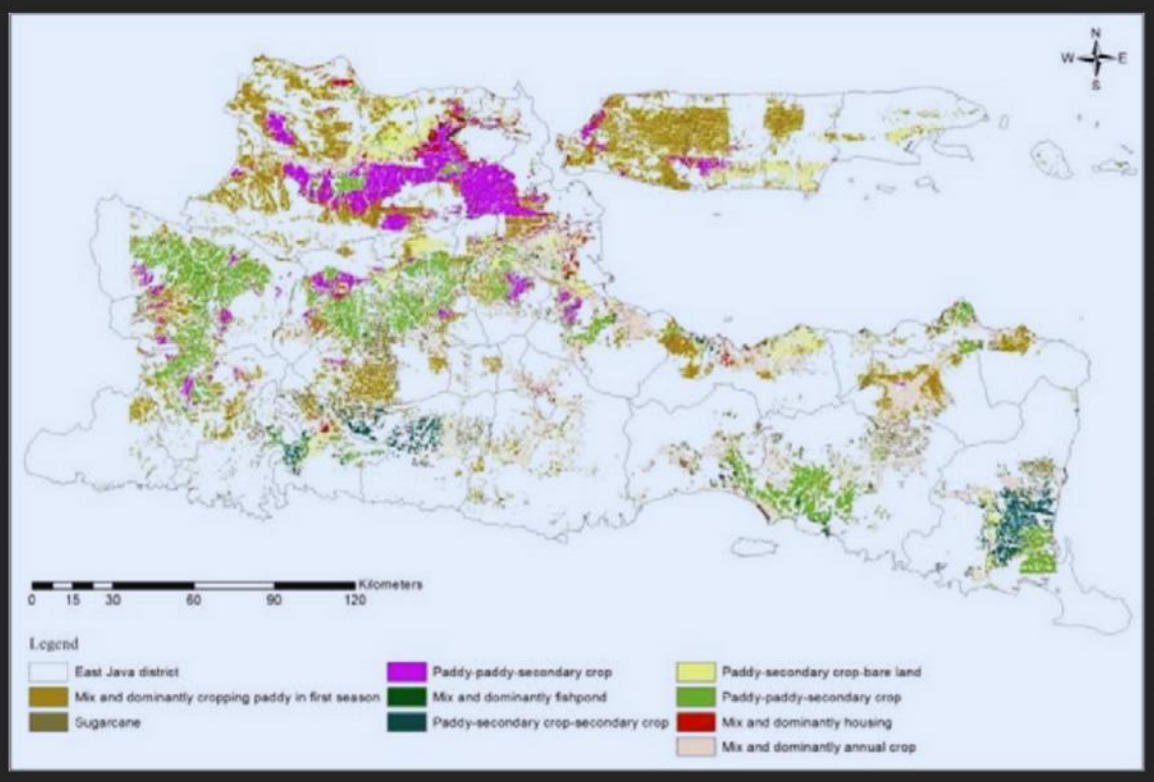
Collaborative Seed Policy Workshop

- Farmers, NGOs, and institutions work together to co-design seed policies using maps and field data.
- The process aligns regulations with community needs and local ecological conditions.

Policy Design for Local Legitimacy

- Policies are communicated through clear presentations and sharing sessions with local communities.
- This ensures understanding, trust, and long-term adoption by farmers and institutions.

SUPPLEMENTARY SUPPORT



Establish a Local Ecology Database

Compiles key spatial data on crop distribution to reveal ecological zones, climate-vulnerable areas, and patterns of paddy fields, mixed farming, and settlements. This database forms the basis for suitability analysis, crop recommendations, and community seed planning.

Develop Ecological Suitability Studies

Analyze how well different crops fit local conditions by examining climate, soil, water availability, and farming practices. These assessments identify crops that can thrive in each ecological zone and support resilient, locally adapted planting strategies.

Build Crop Recommendation Models

Integrate ecological suitability, yield potential, and market factors to identify crop combinations that are both productive and environmentally resilient. These models help farmers choose planting strategies that balance economic returns with long-term ecological stability.

Resource： Muhammad, Milion & Liyantono, Liyantono & Setiawan, Yudi & Fatikhunnada, Alvin. (2016). Analysis of the Dynamics Pattern of Paddy Field Utilization Using MODIS Image in East Java. Procedia Environmental Sciences. 33. 44-53. 10.1016/j.proenv.2016.03.055.

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Connecting farmers, governments, and companies to co-design equitable ecological futures.

Using data and design to balance ecology, economy, and equity.

Note: Most images were generated by the author using Midjourney and edited with Photoshop, except where otherwise noted.

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