

## Brief Description of the Living Lab and the challenge in Siak, Riau province, Indonesia

A Living Lab is a real-life, user-centered research and innovation environment where diverse stakeholders collaborate to develop, test, and refine solutions to complex challenges. It brings together civil society, academia, companies, and government actors to co-create innovations in real-world settings. By prioritizing experimentation and contextual learning, Living Labs foster practical, sustainable outcomes tailored to local needs.

The Siak Living Lab is led by Institut Pertanian Bogor (IPB, the largest agricultural university in Indonesia) and focuses on western Siak, Riau province, Indonesia. Key partners include IPB, Van Hall Larenstein (VHL), private sector stakeholders, local communities and farmer groups, and government stakeholders at both district and provincial levels. This Living Lab is part of SustainPalm project (WP3). The program aims at developing a more sustainable oil palm sector, by providing alternatives to oil palm there where it should not be cultivated (meaning on peat).

Riau is located on the east coast of Sumatra and has the largest oil palm acreage in Indonesia. The province is one of richer provinces in Indonesia has experienced a massive transformation from a forested landscape 50 years ago, to a production landscape currently. However, the area also covers significant peat domes in which huge amounts of peat area stored. Many villagers in Siak are oil palm farmers and sell their produce to large oil palm companies. The project area is located about 65 km from Pekanbaru, the provincial capital with approximately 1.1 million inhabitants. This implies a large market is relatively nearby.

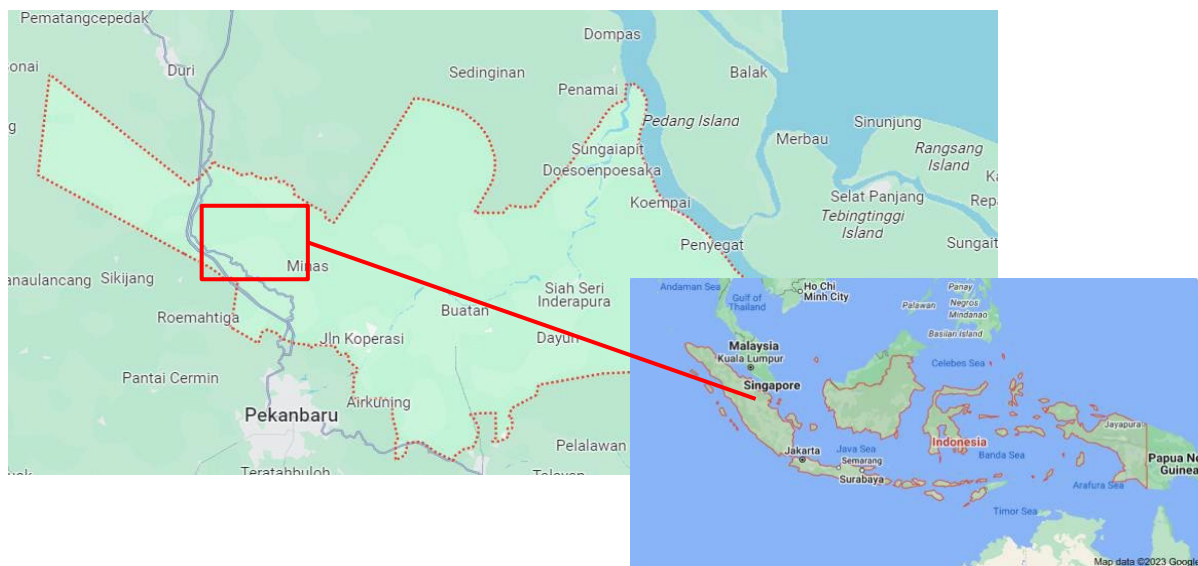


Figure 1: Location of the Siak Living Lab which is coordinated by IPB.

## The challenge

Peatlands, essential ecosystems for carbon storage and biodiversity, face severe threats due to their conversion for agriculture, particularly for oil palm and paper-pulp plantations. Oil palms require water tables between 40-70 cm below the surface, necessitating massive peatland drainage. This drainage triggers peatland subsidence and oxidation, releasing huge amounts of CO<sub>2</sub> into the atmosphere and contributing significantly to global greenhouse gas emissions. Additionally, drained peatlands become highly flammable, increasing the risk of catastrophic fires that harm millions through toxic haze and makes Indonesia a leading CO<sub>2</sub> emitting nation.

One of the major challenges in Indonesia's peatland management is balancing economic development with environmental sustainability. Maintaining high water tables is essential for preserving peatland ecosystems, preventing land subsidence, and reducing CO<sub>2</sub> emissions. However, many communities and industries continue to lower water tables to support conventional agriculture—particularly oil palm cultivation—leading to a direct conflict between economic interests and ecological preservation. Resolving this tension is critical to Indonesia's broader efforts to protect its peatlands and reduce its global carbon footprint. Within this context, we ask you to develop a **Sustainable Business Model Canvas** that aligns ecological goals—such as maintaining carbon stocks and biodiversity—with the socio-economic needs of local stakeholders. Exploring viable alternatives to oil palm that are both economically attractive and environmentally sound will be central to this process. The ultimate aim is to pilot and scale this model through the Living Lab framework.

### Involved coaches

- Doni Yusri (IPB)
- Ibu Dyah (IPB)
- Prof. Sri Wilarso Budi (IPB)
- Peter van der Meer (VHL)
- Idsert Jelsma (VHL)

For more details on this Living Lab contact: [dyahita@apps.ipb.ac.id](mailto:dyahita@apps.ipb.ac.id), [doniyusri@apps.ipb.ac.id](mailto:doniyusri@apps.ipb.ac.id), or [idsert.jelsma@hvhl.nl](mailto:idsert.jelsma@hvhl.nl)

### Relevant sources

- <https://www.siakpelalawan.net/> ← this site provides information from a nearby case.
- <https://www.globallandscapesforum.org/video/manage-peatland-sustainably-lessons-learned-from-indonesia/>
- <https://www.youtube.com/watch?v=uDRMiD20WeU>
- <https://sustainpalm.org/>



Figure 2 Land preparation in Siak for oil palm intercropping on peat (Source: IPB).