#PahlawanGambut

From Assessment of Livelihoods and Landscape to Increase Resilience to Roadmap for Sustainable Peatland Villages (*Peta Jalan Gambut Lestari* – Pegari)

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The Assessment of Livelihoods and Landscapes to Increase Resilience or ALLIR is developed as a research tool to explore PHU restoration and sustainable management in the Peat-IMPACTS Indonesia programme. The objectives of ALLIR are listed below.

1. Characterize agricultural-based livelihood capital components (capital, access, strategy, and outcomes) of specific community groups under local context in peatland landscapes

2. Understand the process: (1) how capital and access can be modified; (2) decision making in choosing livelihood strategies in conditions of trends and shocks; and (3) how strategies shape livelihoods

3. Identify intervention options for specific community groups, community groups in general, landscapes and regions

4. Induce behavioural change from stakeholder groups to increase adoption and achieve desired outcomes of sustainable livelihood intervention options

5. Monitor and evaluate changes in outcomes and behaviour as a result of the intervention

ALLIR is designed to incorporate a multidiscipline and multiscalar approach to understanding the agricultural-based livelihood landscape of peatland areas in Indonesia. This research tool harnesses both qualitative and quantitative research methods spread across 6 analytical tools, namely: VILLAPOT, AFLIC, LUCBI, LISTRA, IBUSS and LIGOTS.

While each analytical tool has its own distinct research scope and depth (Table 1), all fit together to explore 4 main goals:

a. Assessment and characterisation

b. Decision shaping and decision making process

c. Intervention identification

d. Behaviour change induction

Table 1. Scope of ALLIR Tools

	VILLAPOT	AFLIC	LUCBI	LISTRA	IBUSS	LIGOTS
Unit of analysis and level	Village - landscape	Village – sub-landscape – province - national	Village-community groups - sub-landscape –province - national	Community groups – households – village - landscape	Farming systems x commodities – village - province – national - global	Community groups – households – village - landscape
Extent	All villages within the 4 PHU	Village assessment samples (# types *3*4), incl. village pilot samples (3*4)	Village assessment samples (# types *3*4), incl. village pilot samples (3*4)	Village assessment samples (# types *3*4), incl. village pilot samples (3*4)	Village assessment samples (# types *3*4), incl. village pilot samples (3*4)	Village assessment samples (# types *3*4), incl. village pilot samples (3*4)
Main source of data	PODES, land cover/changes maps, planning unit map, suitability map	Primary and secondary data, VILLAPOT, planning unit maps, policies	Primary and secondary data, land cover map and changes (from spatial analysis), planning unit map, policies, VILLAPOT, AFLIC, LISTRA	Primary and secondary data, VILLAPOT, AFLIC, LUCBI, IBUSS	Primary and secondary data, VILLAPOT, AFLIC, LUCBI, LISTRA	Primary and secondary data, LISTRA

|	VILLAPOT	AFLIC	LUCBI	LISTRA	IBUSS	LIGOTS
Data collection, engagement, analysis	Secondary data, statistical analysis	FGD, interviews, Q-Q analysis, stakeholder engagement and facilitations	FGD, interviews, Q-Q analysis, stakeholder engagement and facilitations	FGD, interviews, Q-Q analysis, outcome mapping	FGD, interviews, Q-Q analysis, stakeholder engagement and facilitations	FGD, interviews, Q-Q analysis
Main Output	Typology and characterization of villages, sampling frame	Characterization, Process understanding, Intervention options, Behavioral change induction, agreement and M&E	Characterization, Process understanding, Intervention options, Behavioral change induction, agreement and M&E	Characterization, Process understanding, Intervention options, Behavioral change induction, agreement and M&E	Characterization, Process understanding, Intervention options, Behavioral change induction, agreement and M&E	Characterization, Process understanding, and M&E
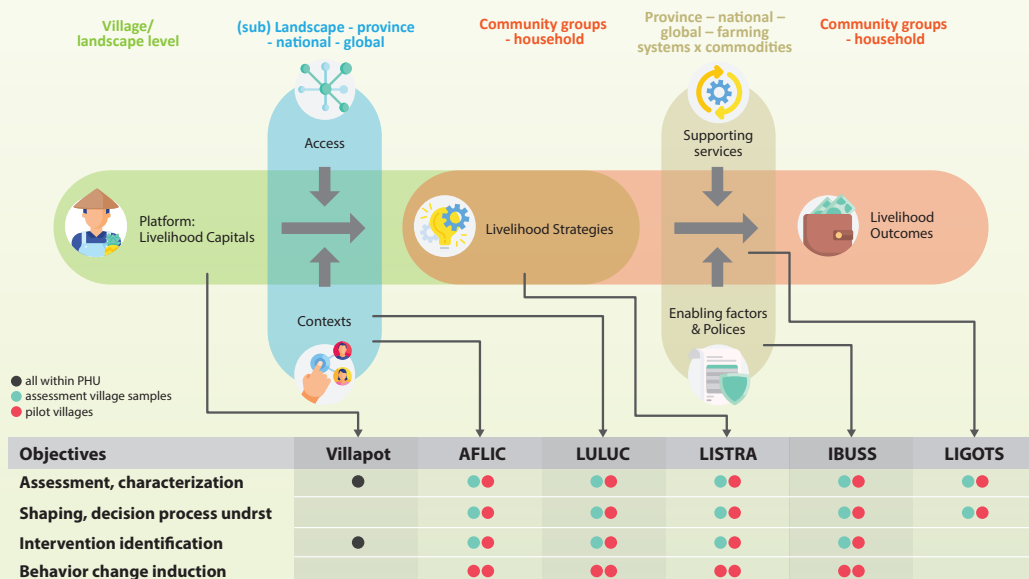
Figure 1. ALLIR framework

Evidence-based peatland management and restoration findings from all of ALLIRs diagnostic tools in South Sumatra and West Kalimantan are integrated into a comprehensive diagnosis of livelihoods and land use activities at village level. This diagnosis includes:

a. Diagnoses of livelihoods and land uses at the landscape level

b. Analysis of tenure and instutions at the landscape level, linked to regional and national contexts

c. Cross-cutting and landscape analyses of women and marginalised groups' capacities and ways to build them

d. Analyses of value chains and markets for agroforestry and paludiculture

e. Synthesis of the drivers-pressures-states-impacts-responses of peat degradation

f. Estimation of emission from peat drainage and fire, and impact of peat rewetting on emission reduction

These findings were then formulated into a roadmap of sustainable peatland management for 27 villages in West Kalimantan and 34 villages in South Sumatra. The data collection comprises of a series of FGDs, interviews, household surveys, and participatory mapping, which involved young researcher programs under Peat-IMPACTS project (Figure 2).

Figure 2. Data collection in peat villages in South Sumatra and West Kalimantan

Understanding the different patterns of household and community level mechanisms to adapt to certain agricultural practices and decision-making processes, forged within social, cultural, and ecological contexts and power dynamics, become the forefront of conceptualizing a comprehensive diagnosis and forward-looking approach to improving peatland livelihoods and resilience.

Key findings can be drawn from the analysis and transformed into the basis of intervention options. Through outcome mapping, formulated intervention options also attempt to induce behaviour change in hopes of increasing livelihood and capacity of peatland communities and improve the sustainability of peatland ecosystems.

1 **Improving peatland farming systems.** Moving forward, these farming systems should be supported by enhanced implementation of Good Agricultural Practices to increase land productivity while ensuring appropriate cultivation of commodities within peatland environments, including agroforestry systems, in order to maintain the surrounding ecosystem services. Complimentary to improving the take up of agroforestry systems, certain farming system interventions particular to each province are also recommended such as product diversification of rubber plantations with agroforestry in West Kalimantan and fostering partnerships for innovative funding in reducing land fires in South Sumatra.

2 **Commodity value chain and market.** Improving commodity value chains and markets include addressing the whole value chain, from the core value chain to the supporting services and enabling factors.For West Kalimantan, recommendations for market and value chain interventions comprise of increasing capacity and infrastructure support for marketing and enhancing partnerships for market expansion, particularly for key products such as rubber, rice, ginger, and palm oil. As for South Sumatra, key market and value chain recommendations include strengthening BUMDes as a village-based commodity sales point, development of rubber auction markets with quality sap, improving palm oil partnerships and processing training for swallow nests.

3 **Promotion of better peatland agriculture governance.** Through improving access to resources and empowering farmers and women groups to actor-networks are crucial steps to promoting better governance of peatland-based agriculture livelihoods. In West Kalimantan and South Sumatra, among the significant actors to peatland agriculture governance include farmer groups, village-owned enterprises, women groups, youth groups, as well as more strategic, issue-based groups such as cooperatives, disaster alert groups, and farmer's water usage groups. The aim of promoting better collaboration and partnership between these actors with decision-making stakeholders and institutions is to increase collective resilience for the sustenance of peatland-based livelihood and from social, economic, and environmental shocks, such as peat and forest fires.

4 **Optimizing enabling factors for resilient peatland livelihoods.** Along with appropriate farming system equipment, extensive and stable value chains, and strong multiscale governance, sustainable peatland livelihoods also benefit from having sound enabling factors to attain and strengthen resilience. For South Sumatra and West Kalimantan, general recommendations on harnessing enabling factors include, but are not limited to, improving multisector and multiscalar governance that focuses on promoting and sustaining green growth, optimizing land use planning and restoration programs that meet specific challenges in different locations, and harnessing blended finance, including ecological fiscal transfers, that are incorporated into a landscape or jurisdictional approach to promote green growth.

Key Takeaways from ALLIR

● Achieving the goal of sustainable, climate-smart management of Indonesia's peatland needs a transformative landscape approach, combining technical and institutional capacities in peat landscape restoration with the alignment of the public and private sectors.
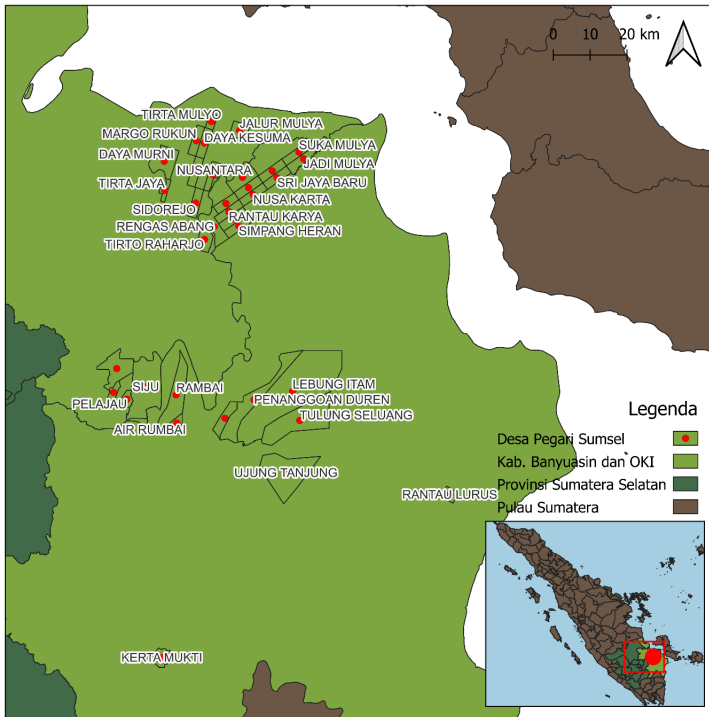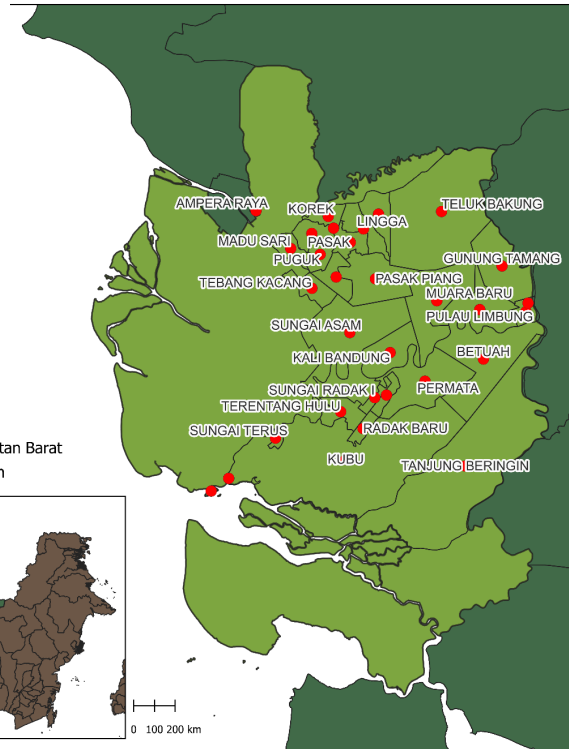
Figure 3. Assessed peatland villages in South Sumatra

Figure 4. Assessed peatland villages in West Kalimantan

- Evidence-based options that are developed inclusively and integrated into the local development pathways are essential. However, diagnostic tools that are holistic in looking at the problems through a systematic management of knowledge and focused and targeted in finding solutions/ options is rare (Duguma and Minang, 2015; Dewi et al., 2017). It is noted that while reducing poverty in agricultural-based contexts is important, single-size interventions are more commonly offered and fail to address the complexity of rural poverty, climate change and natural resource management (van Noordwijk et al., 2019).

- As a diagnostic tool, ALLIR is designed to incorporate a multidiscipline and multiscalar approach to understanding the livelihood landscape of peatland areas in Indonesia. This tool harnesses qualitative and quantitative research methods, encompassing livelihood capitals, access to capitals, context, livelihood strategies, enabling factors and policies, and livelihood outcomes.

- Based on the findings of ALLIR in South Sumatra and West Kalimantan, we are able to formulate and recommend evidence-based solutions to increase diversification of livelihood strategies, improve community resilience, and advance inclusive, people-centered policies and restoration efforts in peatland ecosystems.

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