An ICT solution in Ecosystem Service Payment System?
– Case studies with Rimba Raya REDD+ Project

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1. Introduction

Fifteen years after it was first introduced, the idea of REDD+ is being criticised for failing to deliver the results it promised. These projects have failed to improve the wellbeing of participating stakeholders (Sunderlin et al., 2017), marginalized local communities (Sarmiento Barletti and Larson, 2017; Larson et al., 2013), and perpetuated violence (Cavanagh and Benjaminsen, 2014). Extensive reviews and case studies have highlighted the lack of transparency, lack of accountability and all sorts of distributional inequities arise in REDD+ initiatives (Hufty and Haakenstad 2011; Brightman 2018; Forest People Programme, 2012; Pokorny et al 2013 and REDD-Moniter 2020). It is estimated that 'up to 30% of official development assistance is lost due to fraud and corruption'.

It is against this backdrop that advocacy for innovating REDD+ arises, with blockchain being one of the solutions. While there is a lot of excitement around this innovative technology's potential, there is also scepticism (Lang, 2018; Sullivan, 2018). Drawing on the example of the Rimba Raya REDD+project and the like, this dissertation aims to offer a practical appraisal on the implementation of blockchain in REDD+projects.

2. Methodology and Data

This essay applies a mixed-methods research combining desk review, qualitative interview and indirect observation.

Publicly available databases were examined. These included the ID-RECCO, a database registering all project-based REDD+ projects; CoinMarketCap, a database registering all cryptocurrencies; as wellas other global databases of REDD+ such as ONF International and Forest Carbon Portal.

Purposive sampling was used. Since this research covers two specialised domain of knowledge, purposive sampling is well-suited to find out those who can inform this research.

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3. Results

1) Of the 362 subnational and local REDD+ projects that have been identified in the ID-RECCO database, 38% of them are run by for-profit organisations, 41% by conservation organisations and NGOs, 16% are from the public sector, and 3% are from research institutes. The figures indicate two main profile types of project-based REDD+ developers: non-profit organisations, and actors from the private sector (Simonet et al. 2014). REDD+ is financed by substantial donations, grants, loans and payments from several donor countries and organisations as well as actors from the private sector familiar with the specific REDD+ project, rather than through the market mechanism such as carbon markets. This reinforces what Angelsen et al. (2017) concluded that REDD+ has evolved from the initial PES and MBI vision to a light-form of result-based 'aid'. On a national level, public funding, not the market mechanism, is the major pathway that supports the continuity of REDD+ projects.

2) Funds pledged by donor countries for REDD+ in 2006-2019 amounts to $7.59 billion USD, while recipient countries report a much lower number of $4.68 billion USD finance received (Gross 2020). A summary of a study (Suaib 2012) and a statement from respondent A1 pointed out the fact that there was a strong presence of lobbying and bribery from timber and palm oil companies. As blockchain's distributed ledger is open for all users to see, corruption and bribery, usually in large figures or high frequencies, would be clear to be spotted by all.

3) However, the figures of these short-lived cryptocurrency projects cast doubts on whether a REDD+ project can obtain sustainable funding through blockchain platforms to support its operation period, projected to last 30 years or more.

4) While private funding can reflect a lack of longevity. Public funding through bilateral agreements between countries can be affected by geopolitical risks and international relations. Furthermore, weak legal protection of natural resources (such as land, forest) can pose default risks to achieved efforts. In May 2024 the Indonesian authorities revoked the carbon credit license to the REDD+ Rimba Raya project, on allegations that the project infringed local rules. The project developer has been working to challenge the government at an Indonesian court.
Government interventions in privately run carbon projects, as well as more inspections of the cash flows associated with large nature-based projects, could become more common as projects come increasingly under scrutiny."