An Innovative Early Warning System to Tackle Illegal Deforestation

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Key words: Geoinformation/GI; Remote sensing; Spatial planning; Deforestation; Predictive Modelling; Machine Learning; Big Data

SUMMARY

Forest cover loss is a persistent problem with 10.2 Mha gross deforestation annually on a global scale in the period from 2015 to 2020 (FAO, 20201). Besides implications for biodiversity, fauna habitats, and local communities, deforestation causes 11% of the global greenhouse gas emissions of which parts can be attributed to illegal deforestation (FAO, 20202). Forest monitoring systems that use remotely sensed data are widely available (FAO, 20203). To effectively curb illegal deforestation however, these systems are often too reactive, are hampered by cloud cover, or are not inclusively developed, implemented and used by stakeholders in well-defined protocols. Early Warning Systems (EWS) have the potential to deliver accurate and timely information on likely deforestation events in order to inform decision-making and adoption of interventions. The World Wide Fund for Nature (WWF) is developing an EWS program with the aim to predict deforestation 6 months in advance to enable national and local governments to act on illegal deforestation as early as possible in the chain of deforestation events. Hence, the approach is two-fold: 1) develop technological predictive capabilities and 2) follow a development and implementation process to ensure proper on-the-ground enforcement practices. The EWS program is based on an agile approach which allows the technical and operational feasibility to be tested on a small scale before rolling out to larger landscapes. To this end, a proof of concept (PoC) and pilot were developed by WWF and partners in Central Kalimantan, Indonesia. Local stakeholders have started in-field interventions leveraging the EWS dashboard that visualizes the deforestation predictions and allows follow-up of alerts. Several governance mechanisms were set up to further improve intervention protocols, ensuring active engagement of local stakeholders. Encouraged by the promising uptake of the system, the EWS program is currently being rolled out for further pilots within the landscapes of Sarawak (Malaysia), Gabon, Suriname and Guyana. Calibrating and applying the predictive deforestation model to these respective landscapes resulted in good model performance across all landscapes (>80% User's accuracy and 40-50% detection rate). This paper showcases EWS's

innovative proposition and setup, discusses preliminary results and provides an overview of the next steps.