Digital Peatland Governance: Surveillance Technology for Haze-Free Region

By Rini Astuti

Synopsis

Indonesia is aiming to restore 2.5 million hectares of degraded peatland, out of which 1.4 million hectares are located in plantation and forest companies' concessions. Digital surveillance technology emerges as a solution to enable governance from afar and to ensure companies' compliance in protecting peatland and preventing haze crisis.

Commentary

WITH MORE than 25 million people dependent on the palm oil sector, Indonesia is situated at the frontier of ecological degradation while needing rapid economic growth driven by agribusiness opportunities. According to Indonesia's Ministry of Agriculture, there are currently 11 million hectares of palm oil plantation located mainly in Kalimantan and Sumatra islands.

Annual production of more than 32 million tonnes of metric palm oil has placed Indonesia as the biggest palm oil producer followed by Malaysia at 19.8 million tonnes. In addition, the projected growing demand for global paper from 394 million to 490 million tonnes by 2020 has also opened forest agricultural opportunities for Indonesia, with a tropical climate suitable for pulp plantation such as acacia and eucalyptus.

Digital Surveillance Technology for Peatland Restoration

Competing land uses for agriculture, infrastructure, mining, and urban settlements, have further increased the conversion of natural forest and peatland for pulp and palm oil plantations. The opening of peatland for plantation sector is commonly

accompanied by a practice of drying the peatland to make it more amenable for agricultural purposes.

An ecologically fragile frontier, peatland is a thick layer of decomposed materials that will be prone to fires if it becomes dry. According to the recent 2017 peatland map released by the Ministry of Environment and Forestry (MOEF), there are 2.5 million hectares of converted and degraded peatland in Indonesia that has to be restored due to its conservation value. The successful restoration of these degraded peatlands is one of the main elements in preventing the region's annual transboundary haze crisis.

Following the 2015 haze and fire crisis, the Government of Indonesia started to design a more stringent environmental governance to protect its ecologically precious peatland ecosystem. One of the most progressive policies is stricter rules that regulate the plantation companies' use of peatland. In March 2017, the MOEF issued a series of technical policies requiring the plantation companies to install the water logger system to monitor peatland's water table level.

To avoid fires, companies have to maintain the peatland's water table at 0.4 metres below the surface and to submit a regular report to the MOEF. With some million hectares of plantations to be monitored, a question that arises is a matter of effective law enforcement.

More Efficient Tackling of Haze Crisis

A scientific collaboration between the Peatland Restoration Agency and the Government of Japan is aimed at producing a water logger machine that can produce automatic reports using satellite technology. The use of satellite technology will enable the provision of a real-time digital data that can be relayed to a specific control room, whereby government agencies can conduct the monitoring.

Tackling the haze crisis is expected to become much more efficient. It is anticipated to reduce fire hotspots by placing companies under scrutiny and prohibiting them from illegally drying peatland. Moreover, the digitation of environmental monitoring encourages companies to self-govern their conduct in ways that fit broader environmental security interest.

This approach allows the Government of Indonesia to perform disciplinary governance, a process of securing the companies' compliance by designing a specific code of conduct which consequently enables the MOEF and Peatland Restoration Agency to execute governance from afar.

Challenges and Way Forward

Two elements will possibly contest the implementation of digital peatland governance-politics and technological affordability. Politics here refer to the possibility that green peatland governmental prescriptions will be challenged by critics motivated by different interests, such as economic growth without careful consideration of peatland conservation.

Peatlandrelated policies are not neutral, but rather the product of competition between many players with different interests. Technological affordability means innovation for surveillance and monitoring mechanisms have to be invented by taking cost into consideration. Therefore, financial and political infrastructures have to be put in place to allow the transition toward a more open and democratic digital peatland governance.

The way forward for more democratic peatland governance is by allowing environmental organisations and civil society to work alongside state agencies. The use of digital technology will open up new spaces of engagement with Non-Governmental Organisations to be able to take part in the monitoring processes. The underlying requirement for this democratic peatland governance is the willingness of the state to open the digital data to the public. An open and democratic digital data can be an effective technical solution to entrenched political problems around corruption, ambiguity and rent-seeking practices within the peatland-related agribusiness sector.

Rini Astuti is a Research Fellow with the Centre for Non-traditional Security (NTS) Studies, S. Rajaratnam School of International Studies, (RSIS), Nanyang Technological University, Singapore.