



Left: Installation of Data Logger
Right: Erecting an ARL



Peat Management Integral to KPN's Recovery Plan

Highlights :

- As of 26 January, 2022, KPN has built 572 peat dams in PT GAN.
- KPN has introduced IoT (Internet of Things) for more accurate, real time monitoring of its water management within the peat forest and planted area
- KPN through its Recovery Plan is committed to jointly work with relevant stakeholders for peat forest conservation and restoration at landscape level.

KPN rolled out its Recovery Plan version one in June 2021. It highlighted the recovery sites in PT Graha Agro Nusantara (PT GAN), Kubu Raya regency, West Kalimantan and two other plantations in Merauke Regency, West Papua. The Recovery Plan aimed to conserve 28,108 hectares within KPN's present concession and 13,099 hectares of forest in the

wider landscape with communities, government and other stakeholders. Despite the continued stresses from Covid 19 we have made some advancements. The first progress update on the Recovery Plan will be on peat forest management particularly in Kubu Raya regency.

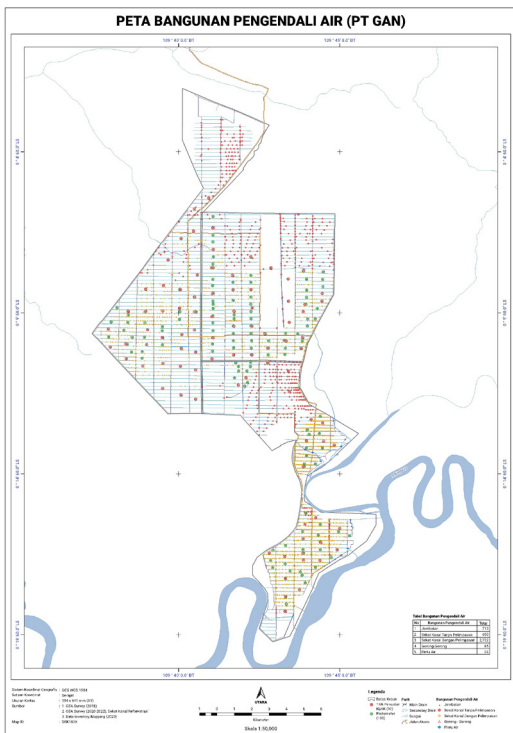
KPN with the guidance from Badan Restorasi Gambut & Mangrove (BRGM, Peat & Mangrove Restoration Agency) continue to sustainably manage 6,939 hectares of peat forest and 9,623 hectares of planted peat in PT GAN in accordance with the Ministry of Environment and Forestry (MoEF) requirements. Best management practices (BMPs) applied in developing the planted area in PT GAN now serves KPN in sustainably managing the peat forest in its Recovery Area within its concession.

Topography peat soil characteristic survey conducted for the plantation was used to develop peatland and water management zones and maps indicating optimal distribution for water control structures i.e. peat dams in the peat forest.

As of January 26, 2022, 572 out of the planned 642 peat dams have been built in PT GAN's peat forest. The peat dams are built 20-30 cms higher than the surrounding areas with fast-growing and deep rooting local vegetation planted on the top to ensure that the water flows back into the surrounding area. Equally important is the distance between the peat dams. KPN has developed peat dams in adequate distances according to the topography of the area. The main aim is to ensure that ground water levels are not more than 40 cms from the surface.



Recovery Plan Booklet launched in June 2021



Left: Indicating water control structures; Middle: Canal Dams, Right: An Automated Rainfall Station (ARL)

With optimal ground water levels, shrinkage, oxidization, irreversible drying and decomposition of peat is slowed and subsidence that will cause the peat to be compacted is prolonged. Both outcomes will contribute to lower carbon emissions and produce a better environment for the development of oil palms.

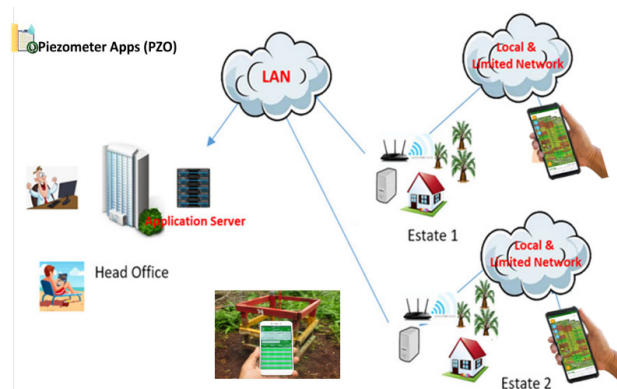
Understandably we also need to monitor and collect relevant data on all variables affecting the water table and subsidence in the peat forest and cultivated area. KPN has develop IT systems including android applications and automatic data logger to automate the process of monitoring water levels, water flows, water control infrastructures and rainfall. In managing peat, we find that it is important to understand the topography not only within the concession but the hydrology of the entire peat landscape including the peat forest. Water conservation starts from monitoring water levels at the peat dome all the way downstream to ensure sufficient water reserve. The monitoring further helps KPN to develop good agronomics for oil palm and prevent forest fires. MoEF also requires daily and monthly water level and rainfall data from KPN. The timely data obtained is also used to develop action points for optimal water levels i.e., the building of new peat dams, adjusting water gates or repairing damaged water control

infrastructures. KPN's android application is not new and has been adopted by other plantations serious about sustainably managing peat forest and planted peat in their concessions.

However recently, KPN is excited to share that it is exploring new technology with IoT (Internet of Things) for more accurate, real-time monitoring of water levels, water flows, soil temperature/moisture and rainfall (humidity, temperature, wind speed and direction). In PT GAN we have deployed 4 units of Automated Raingauge Stations (ARLs) and 3 Automated Water Level (AWL) units with IoT technology. These instruments allow KPN to retrieve data on water management remotely. "We can access data from the field while sitting in our office in Jakarta at any time. Furthermore, the data is more accurate, and we save on time and human resources", so says Anwarsyah, Water Management Compliance Officer.

KPN continues to invest in improving peat management i.e. in new technology as we acknowledge the cost effective importance of developing BMPs in our planted areas and conserving peat forest.

However, at present our focus has been mainly within our concessions. Although, our research in water management covers topography at the landscape level and water management decisions within the concession is made in consideration of its impact downstream. Our Recovery Plan will provide us the impetus to further reach out to the wider landscape which will also in turn help us to improve peat management within the concession. "We hope that KLHK with us, local communities and other plantations in the area would jointly develop an association to collaborate to conserve and manage peat through an integrated landscape approach." states Ibu Bia Ganefia, Compliance and Sustainability Certification Division Head. "Jointly we can accomplish our goals for peat forest management and restoration, forest fires prevention, stopping illegal logging and developing forest-based livelihoods for local communities. Jointly we can also cut carbon emissions." KPN in implementing its Recovery Plan will continue to take small, concrete steps to improve peat management but hopes in the long term will be able to contribute to this bigger picture.



How the Android Application works for a Piezometer