



Monitoring

CASE STUDY 1



For members and stakeholders of the Fire Free Alliance (FFA), land and forest fires represent a major threat to lives and livelihoods; a transboundary challenge that demands collective action.

A multi-layered approach is needed, supported by multi-level collaboration. Using a mix of landscape data and community action, the FFA provides a comprehensive picture of potential threats and facilitates a more cohesive, better-informed response.

Effective monitoring provides companies, local government, and communities with a potentially life-saving head start – by directing patrols and firefighting task forces to high-risk areas before they ignite, and providing fire management operations with a wider view of potential risks. Long-term climate forecasts (up to three months) have proven to be useful, especially when combined with regular and widespread monitoring at ground level.

Riau, Indonesia experiences the peak of its dry season from July to September, when many regions are particularly susceptible to forest and land fires. Indeed, operational evidence has shown that eight days without rain is enough to trigger a forest fire during the annual dry season. In 2015, when there

was less than half the normal rainfall during this three-month period, vegetation dried out and quickly became a tinderbox for large-scale fires and haze.

Nearly ten years on from the catastrophic events of 2015, major lessons have been learned. First and foremost, monitoring of environmental conditions in at-risk areas offers an essential first line of defense against fires. Members of the FFA closely monitor their concession areas and the surrounding landscape for warning signs, while also carefully tracking weather patterns to preempt any forthcoming droughts. They can then take the necessary steps to mitigate risks and mobilize response teams to affected areas.



Boots on the Ground and Eyes in the Sky: Tackling Fires, Together

Each FFA member applies their own monitoring strategy inside their concession areas and in high-priority areas – generally a three-mile (5 km) buffer zone surrounding the concession.



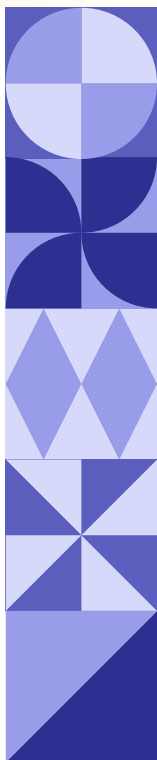
With the exception of PM Haze (who, unlike other FFA members, does not manage any plantations), each member has integrated their monitoring system with satellite data and can notify teams on the ground via an internal instant messaging system.

Monitoring technology is not a silver bullet for fire management; it only offers 60 percent prediction accuracy, while delays in reporting mean that responses based on monitoring data alone will be too little too late. Thus, to complement the technology, FFA members enlist local rangers and provide them with the infrastructure and equipment they need to monitor accurately, effectively, regularly, and in real time.



Patrolling activities are conducted during the dry season with workers and communities, to prevent forest and land fires and raise awareness of slash-and-burn farming.

Ahmad Fauzy - IOI Conservation Team,
Air Hitam Hulu Village, Kendawangan,
Ketapang, West Kalimantan





KPN Plantations

Headquartered in Jakarta, KPN manages oil palm plantations in Riau and Jambi in South Sumatra; West Kalimantan; East Kalimantan; West Sulawesi; and Merauke, Papua.



They have implemented their own Zero Burning and Fire Prevention Policy, which focuses on the Ring 1 area around unit operation and nearby peatland areas. Outside of concession areas, KPN cooperates with neighboring villages, government agencies, and stakeholders in monitoring efforts that utilize Early Warning

Systems (EWS), patrolling, and hotspot monitoring. KPN monitoring data come from three satellites (NASA, SiPongi, Lapan), with GIS-based reporting able to provide danger ratings.



A market leader in global integrated sustainable palm oil, IOI has upstream plantations in Malaysia and Indonesia, and a downstream resource-based manufacturing business that covers refining, oleochemical, and specialty oils and fats.



IOI has a strict commitment to Zero Burning Policy and forbids slash-and-burn land clearance throughout its concession areas. Their monitoring and response activities include a dedicated Emergency Response Programme (ERP); the establishment of a Fire Monitoring System which combines fire alerts, fire towers, drones, and patrols; and radar satellite imaging. In addition, the IOI fire prevention and control

task force conducts weekly and bi-weekly patrolling activities alongside members of local communities to ensure maximum coverage in monitoring efforts, while also enabling buy-in among farmers and villagers. As a result of these efforts, from 2021 to 2022, there were zero fire incidents reported within IOI concessions in Indonesia.



APRIL

Asia Pacific Resources International Limited (APRIL) Group is one of the world's largest, most technologically advanced and efficient makers of pulp and paper products.



As part of its Sustainable Forest Management Policy 2.0, APRIL is committed to protecting forest and peatland landscapes. The group's No Burn policy encompasses fire detection and EWS; air quality monitoring activities in Riau; patrols and weather monitoring in 28 estates; and haze monitoring in seven locations across Riau. In addition, the Fire Free Village Program (FFVP) recruits and trains local crew leaders

to monitor 40 villages around concession areas, supported by towers, CCTV, patrols, and satellites. Working via a dedicated cluster committee, APRIL also collaborates with 12 companies outside these areas to produce risk assessments based on the most current data projections.



Musim Mas

Headquartered in Singapore, Musim Mas has 18 mills in Indonesia, with a total planted area spanning 118,452 ha.



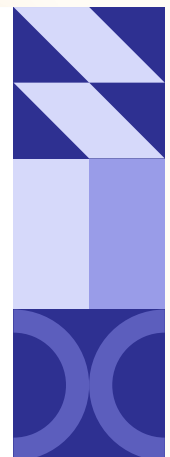
Musim Mas adheres to a strict zero-burning policy incorporated into its Sustainability Policy. The Policy established the framework for Musim Mas' No Deforestation, No Peat, and No Exploitation (NDPE) commitments, which is communicated to all third-party suppliers. Musim Mas is part of a coalition known as Radar Alerts for Detecting Deforestation (RADD), a radar-based forest monitoring system which helps to visualize deforestation in near-real-time and with greater accuracy. Daily hotspot monitoring is carried out by the Sustainability and Traceability teams within Musim Mas

concessions and the surrounding area; this monitoring work is supported by a fire risk warning system based on color coding, which provides alerts for firefighting teams on all plantations. The company also considers local communities to be the first line of defense, tasked with monitoring and stopping fires at source before they get out of control. In 2016, Musim Mas established the *Masyarakat Bebas Api* (MBA) program to raise awareness of the importance of a fire-free environment among villagers and facilitate monitoring efforts at the local level.



The MBA program has educated the community on fire risk, and has motivated them to monitor and prevent fires more effectively. Multi-stakeholder efforts are helping keep community lands fire-free.

Anastasius Delik - Palangan Village Head





Wilmar

Wilmar is one of the world's largest oil palm plantation owners, with a total planted area of 231,697 hectares.



Around two thirds of this land can be found in Indonesia, where Wilmar has 140 manufacturing plants in Sumatra and Kalimantan. As part of the first pillar in its No Deforestation, No Peat, No Exploitation (NDPE) policy, Wilmar is committed to a policy of No Burning. It operates a 24/7 fire monitoring system that covers approximately 200,000 hectares (ha); an area patrolled every day during the dry season, with Wilmar's own fire brigade on standby. In addition to having

boots on the ground, Wilmar has eyes in the sky – the company's Central GIS Department conducts fire monitoring through remote sensing technologies that include NASA's Active Fire data and INDOFIRE. This enables Wilmar to quickly and accurately identify hotspots in its palm oil concessions throughout Indonesia.



Asian Agri



Asian Agri is one of the leading private companies in Indonesia, managing 100,000 hectares of oil palm plantations in North Sumatra, Riau and Jambi.



In 1994, Asian Agri implemented a strict 'zero burning' policy for land clearing in all subsequent replanting activities and became one of the pioneers of zero burning policy. Today, the Company continues working to strengthen its fire prevention and mitigation measures,

by examining hotspot information via their internal Fire and Prevention Management Team, consulting satellite imagery and strengthening the company's own community-based initiative, the Fire Free Village Program (FFVP).

Measuring the Impact of Monitoring: A Look at the Numbers

The following data points provide a snapshot of positive developments, combining results from all FFA members and collective FFA impacts.

ZERO FIRE INCIDENTS

in Indonesian concession areas in 2021 (IOI)



26 HONORARY

Forest Rangers and
17 Honorary Wildlife
Wardens trained in
Sabah during 2021 (IOI)



1 MILLION HECTARES

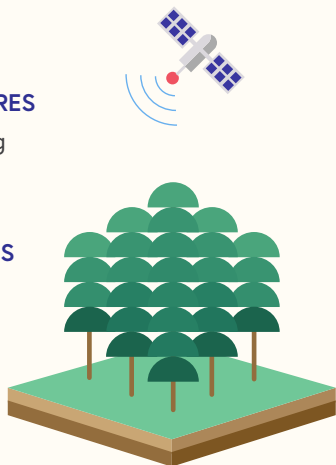
monitored outside
concession areas (APRIL)

200,000 HECTARES

covered by 24/7 monitoring
system (WILMAR)

727,163 HECTARES

covered by satellite
monitoring in Sumatra,
Kalimantan, Sulawesi and
Papua (KPN)



28 LOCATIONS

monitored for weather
danger signs in Riau
(APRIL)

SIX COMPANIES

and **three villages**
supporting fire prevention
and control efforts in West
Kalimantan (IOI)





Monitoring: The First Line of Defence

In conclusion, careful monitoring can be seen as the key to fire management.



With its shared resources and combined knowledge, the FFA has devised a collective approach to monitoring that offers a strong defense against forest and land fires in Indonesia. Utilizing lessons learned from the events of 2015, FFA members have implemented inside/outside concession monitoring in ring/buffer zones, with particular focus on high-risk areas and critical periods during dry season months.

For many FFA members, No Burn policies have been implemented and monitored through patrols in collaboration with task forces made up of local rangers, members of staff, and representatives from government agencies. Satellite monitoring has enabled these groups to complement science-based observation data with targeted ground checks.

FFA members' activities have addressed the challenges posed by dry season dangers, made tangible impacts to slash-and-burn farming, and facilitated positive change. Developments in monitoring technology and manpower have been the catalyst for improvements in mitigation, evaluation, and response. Working both independently and collectively, FFA members have successfully delivered on their commitment to support government targets regarding forest fire prevention and management challenges.



firefreealliance.org