

Climate risk, Impact & Mitigation in TAPG Palm Oil Operations

Climate Risk	Impact	Mitigation
Long dry period which causes drought	• Loss of yield	• Fire mitigation measures • Increase Land Fertilization with POME • Preservation of Natural Ecosystems
Extreme rainfall which causes flooding	• Loss of yield • Reduce worker productivity and transport activity • Property and infrastructure damage cause by flooding • Erosion and sedimentation • Reduce water quality	• Buffer zones • Bunds to protect from Floods • Conservation of Buffer Zones & Natural Ecosystems • Improve drainage infrastructure • Emergency Flood & Water Management System • Riparian management
Extreme Weather	• Damage crop • Reduce mobilisation • Damage Infrastructure	• Meteorological data collection and analysis • Weather monitoring
Increase Temperatures	• Loss of yield likely to drier soil • Reduce worker productivity • Increase hot spot • Forest or land fires may destroy crop and property	• Maintain water level quantity in the basin of the surrounding project area. • Review worker operation hours and increase mechanisation. • Identify factors causing a forest fire. • Develop tools to monitor hotspot within the landscape • Perform forest fire prevention and mitigation procedures. • Establish an emergency and response team • Prepare equipment and infrastructure for forest fire mitigation (i.e., fire monitoring tower) • Apply zero burnings during land preparation • Conduct regular fire drills

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Increase Carbon dioxide level	• Increase in carbon dioxide level may cause increase in yield up to 75% which depends on the increase of temperature	• Energy efficiency (periodic maintenance of machinery, using low energy technology) • Using renewable energy from waste utilization
Pests and diseases	• Potential increase in Pests & Diseases • When conditions are sub-optimal for oil palm, such as when temperatures are high or there is limited water availability, palms may be less able to resist pests and diseases, causing yield loss.	• Monitor increase in Pests & Diseases • Develop disease and pest tolerant crops
Pollination	• Possible that the rate of pollination of oil palm in Southeast Asia will decrease under climate change • It is still uncertain whether it will impact on oil palm yield	• Monitor key species population (Pollinators & Beneficial Species)