AUO Biodiversity Risk Assessment

I. Assessment Summary

With ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure), AUO identify it's operation has dependent on ecosystem services include surface water as high materiality; ground water and dilution as low materiality; and impact through water pollutant and Soil pollutants with medium materiality; solid waste and disturbances with low materiality. Also, according to ENCORE Natural capital hotspot layers, AUO's Hwaya, Longke, Longtan, Hsinchu, Central Taiwan Science Park (Taichung and Houli), Tainan, Kaohisung, and Xiamen rate with 2 hotspots level; Kunshan, Suzhou, Singapore, and Slovakia rate with 3 hotspots level. In upstream and downstream, there are potential very high dependencies in ecosystem services from water related services and mass stabilization; and potential very high impacts from water use.

II. Biodiversity Risk Identify tool

AUO use ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure), which developed by the Natural Capital Finance Alliance in partnership with UNEP-WCMC and was financed by the Swiss State Secretariat for Economic Affairs (SECO) and the MAVA Foundation.

III. Assess Scope and Sector/Sub-industry

All AUO direct operate sites worldwide, which locate in Taiwan, China, other Asian regions, the Americas, and Europe.
Positioning AUO itself's sector for Industrials and a sub-industry for Electrical Components & Equipment.

IV. Possible Dependencies and Impacts

Dependencies

According to ENCORE, AUO may dependent ecosystem services as below:

1. Ground Water: due to production processes needed, and rate with medium materiality.
2. Surface water: due to production processes needed, and rate with medium materiality.
3. Dilution by atmosphere and ecosystems: due to production processes emission, and rate with medium materiality.

Impacts

According to ENCORE, AUO may impact as below:

1. Water pollutants: drive by production processes water discharge, and rate with high materiality.
2. Soil pollutants: drive by production processes waste discharge, and rate with high materiality.
3. Solid waste: drive by production non-hazardous or hazardous waste, and rate with medium materiality.
4. Disturbances: drive by production processes noise, lumens and duration of light, and rate with medium materiality.

V. AUO Dependencies and Impacts

Due to AUO's environment and process management, we identify dependencies and impacts as below:

Dependencies

1. Ground Water: due to sufficient amounts of water is important to panel production process but groundwater only takes 1% of the company's water withdrawal, we downgrade rate of materiality as low materiality.
2. Surface water: due to sufficient amounts of water is important to panel production process, and the surface water is source of third part (water company) which have high proportion of the company's total water use, we upgrade rate of materiality as high materiality.
3. Dilution by atmosphere and ecosystems: due to do have air pollutant emissions (such as NOx, SOx, VOC, etc.) during production processes and company follow and comply with local environmental and air regulations, we downgrade rate of materiality as low materiality.

Impacts

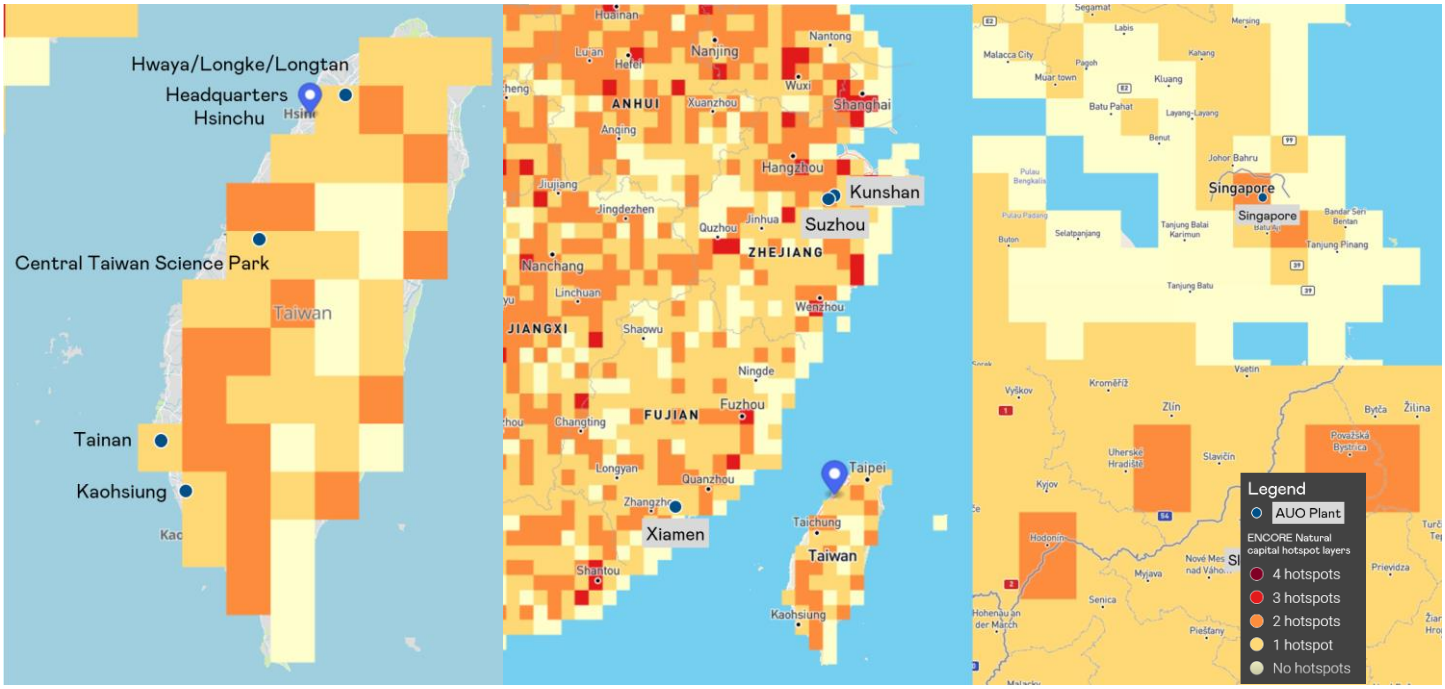
1. Water pollutants: due to most of company's discharge been monitor, record, tertiary treatment and discharge to third party (wastewater treatment plant), we downgrade rate of materiality as medium materiality.
2. Soil pollutants: due to only 2% of company's waste dispose with landfilling, which comply regulations, we downgrade rate of materiality as medium materiality.
3. Solid waste: due to 89% company's waste been recycle and the remaining wastes are properly disposed of in accordance with local regulations, we downgrade rate of materiality as low materiality.
4. Disturbances: due to all of company's plant locate at government designated science parks, or industrial parks, or industrial development zones, and through stakeholder communication to manage neighborhood noise and odor, we downgrade rate of materiality as low materiality.

VI. Location and Natural Capital hotspots

According to ENCORE Natural capital hotspot layers, AUO's Hwaya, Longke, Longtan, Hsinchu, Central Taiwan Science Park (Taichung and Houli), Tainan, Kaohisung, and Xiamen rate with 2 hotspots level; Kunshan, Suzhou, Singapore, and Slovakia rate with 3 hotspots level.

ENCORE hotspots map overlapping hotspots of depletion of stocks of natural capital assets (atmosphere, water, soil and sediments, biodiversity) in terrestrial environments. Hotspots correspond to the top 20% values of depletion, where human activities will be associated with higher risks of ecosystem service loss or degradation.

Taiwan China Singapore/Slovakia



VII.Upstream and Downstream Dependencies and Impacts

Due to AUO is part of electrical components & equipment industry value chain, based on value chain characteristic we identify electric utilities, water utilities (utilities), specialty chemicals, metal & glass containers (materials) and consumer electronics (consumer discretionary) as our upstream and downstream.

In short, in upstream and downstream, there are potential very high dependencies in ground water (water utilities), surface water (electric utilities and water utilities), water flow maintenance (water utilities), flood and storm protection (electric utilities), mass stabilization and erosion control (electric utilities); and potential very high impacts in water use (electric utilities).

According to ENCORE, this may dependent and impact as below:

Sector	Sub-industry	Dependencies(materiality)	Impacts(materiality)
Utilities	Electric Utilities	1. Ground Water: medium 2. Surface water: very high 3. Water flow maintenance: medium 4. Water quality: low 5. Bio-remediation: very low 6. Filtration: low 7. Climate regulation: medium 8. Flood and storm protection: very high 9. Mass stabilization and erosion control: high	1. Water use: very high 2. Terrestrial ecosystem use medium 3. Freshwater ecosystem use: high 4. GHG emissions: high 5. Non-GHG air pollutants: high 6. Water pollutants: high 7. Soil pollutants: medium 8. Solid waste: high 9. Disturbances: high
	Water Utilities	1. Ground Water: very high 2. Surface water: very high 3. Soil quality: medium 4. Water flow maintenance: very high 5. Water quality: high 6. Bio-remediation: medium 7. Filtration: medium 8. Mediation of sensory impacts: low 9. Buffering and attenuation of mass flows: low 10. Climate regulation: medium 11. Flood and storm protection: medium 12. Mass stabilisation and erosion control:	1. Water use: high 2. Terrestrial ecosystem use: high 3. Freshwater ecosystem use: high 4. Water pollutants: low 5. Soil pollutants: low

		low 13. Pest control: low	
Materials	Specialty Chemicals	1. Ground water: high 2. Surface water: high 3. Ventilation: very low 4. Water flow maintenance: low 5. Water quality: low 6. Bio-remediation: very low 7. Dilution by atmosphere and ecosystems: low 8. Filtration: low 9. Mediation of sensory impacts: low 10. Climate regulation: low 11. Flood and storm protection: medium 12. Mass stabilisation and erosion control: low	1. Water use: high 2. Terrestrial ecosystem use: high 3. GHG emissions: high 4. Non-GHG air pollutants: high 5. Water pollutants: high 6. Soil pollutants: high 7. Solid waste: high
	Metal & Glass Containers	1. Ground water: medium 2. Surface water: medium 3. Ventilation: very low 4. Water flow maintenance: medium 5. Water quality: low 6. Bio-remediation: low 7. Dilution by atmosphere and ecosystems: low 8. Filtration: low 9. Mediation of sensory impacts: low 10. Climate regulation: very low 11. Flood and storm protection: medium 12. Mass stabilisation and erosion control: very low	1. Water use: high 2. GHG emissions: high 3. Non-GHG air pollutants: medium 4. Water pollutants: medium 5. Soil pollutants: medium 6. Solid waste: high
Consumer Discretionary	Consumer Electronics	1. Ground Water: medium 2. Surface water: medium 3. Dilution by atmosphere and ecosystems: medium	1. Water pollutants: high 2. Soil pollutants: high 3. Solid waste: medium