



HEALTH AND SAFETY ISSUES IN HANDLING INVENTORIES IN EI SECTOR

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Presentation

Outline

1

BACKGROUND

2

RELATED PARTIES

3

CASE AND CHALLENGE

4

WHAT GOVERNMENT DID

5

WHAT ENTERPRISE DID

6

WHAT SAI DID



1. BACKGROUND

- ❑ Mining is an activity that has a high risk in relation to Occupational Safety and Health
- ❑ Increase in activities of the mining industry have resulted in the emergence of various problems



2. RELATED PARTIES

Ministry of Energy
and Mineral
Resources

Ministry of
Labor

Ministry of
Environment
and Forestry

Auditors and other
(Internal and eksternal auditor,
Corruption Eradication
Commission)

Extractive Sector
Enterprises

Local
Government

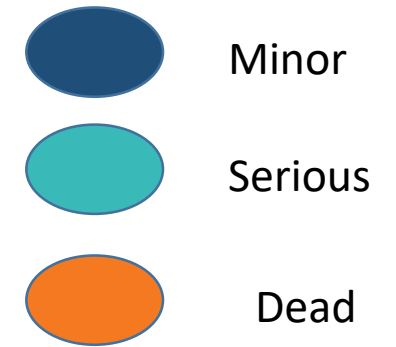
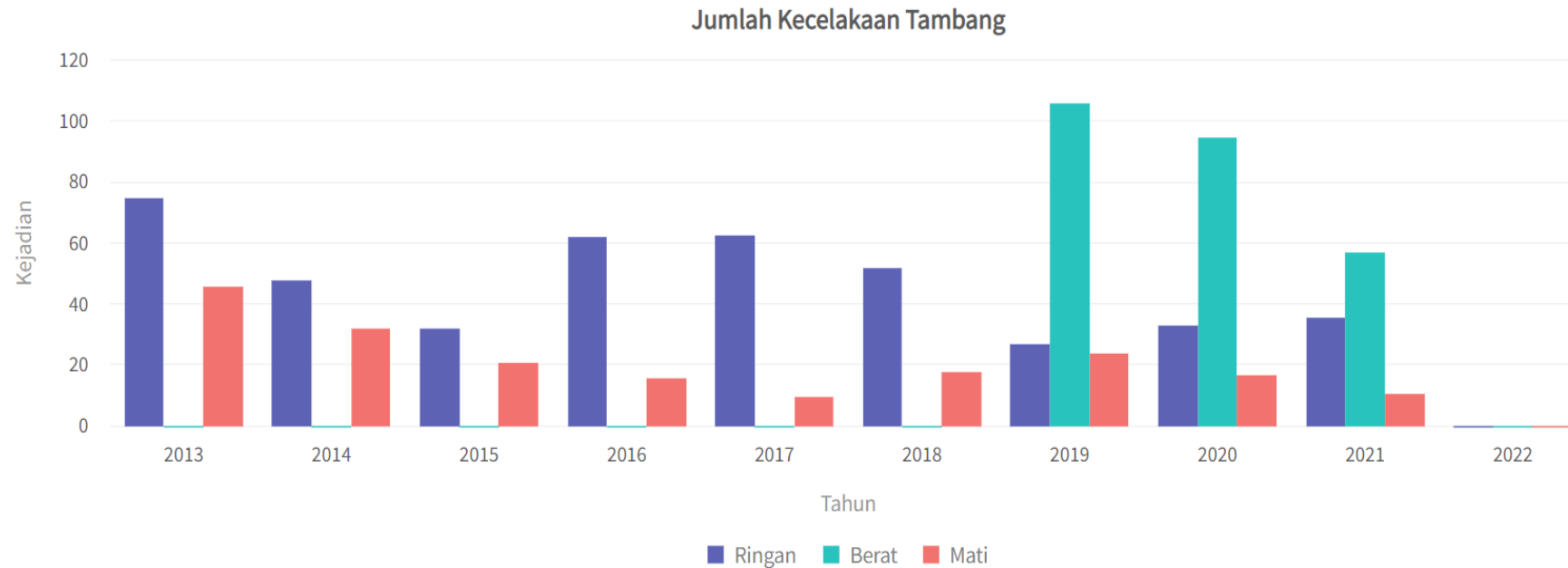
Special Taskforce
for Upstream Oil
and Gas Business
Activities

3. CASES & CHALLENGE

CASES

Level of Severity of Mining Accident

Tingkat Kekerapan dan Keparahan Kecelakaan Tambang



Catatan

CHALLENGE (1)

HIPOTETICALY

A well-managed extractive sector proceed revenues & royalties

- Improve health outcomes
- Reduce inequities via redistribution to equitably improve living conditions, including through investments in health care systems

(Ridde et al., 2015).

REALITY

Resource revenue flows can have the opposite effect:

- Wealth is concentrated and financial gains are subject to corruption and illicit financial flows that avoid taxation and reduce governments' fiscal capacity
- Exacerbating inequalities

CHALLENGE (2)



Poverty and Equality exacerbation

Weakened health/public health, education, social services, inequitable access to health care

Workplace hazard

Physical, chemical, biological

Environmental degradation

Air pollution, water depletion, water & land contamination. Climate change effect

Livehood loss & dispossession

Depleted fisheries, loss of live stock, deforestation, soil erosion

Violence

Targeting activities, forced displacement (linked to dispossession), conflict over control of resources.

Schematic of Political Economy of Global Extraction and Health (Birnat Alil 2017)

CHALLENGE (3)

Human Health Consequences

Direct

- ☐ Toxic exposures and poisoning
- ☐ Cancers
- ☐ Cardiovascular diseases
- ☐ Respiratory infections and chronic diseases
- ☐ Water borne diseases and infection
- ☐ Food borne illness
- ☐ Trauma/injury
- ☐ Deaths (including assassination of activists)

Indirect

- ☐ Cultural and aesthetic loss
- ☐ Sustained impoverishment
- ☐ Water insecurity
- ☐ Loss of food sovereignty
- ☐ Undernutrition
- ☐ Stress and mental health effect, conflict/war
- ☐ Vector borne diseases, biodiversity/ medicine loss.

4. WHAT GOVERNMENT DID

ISSUING REGULATIONS

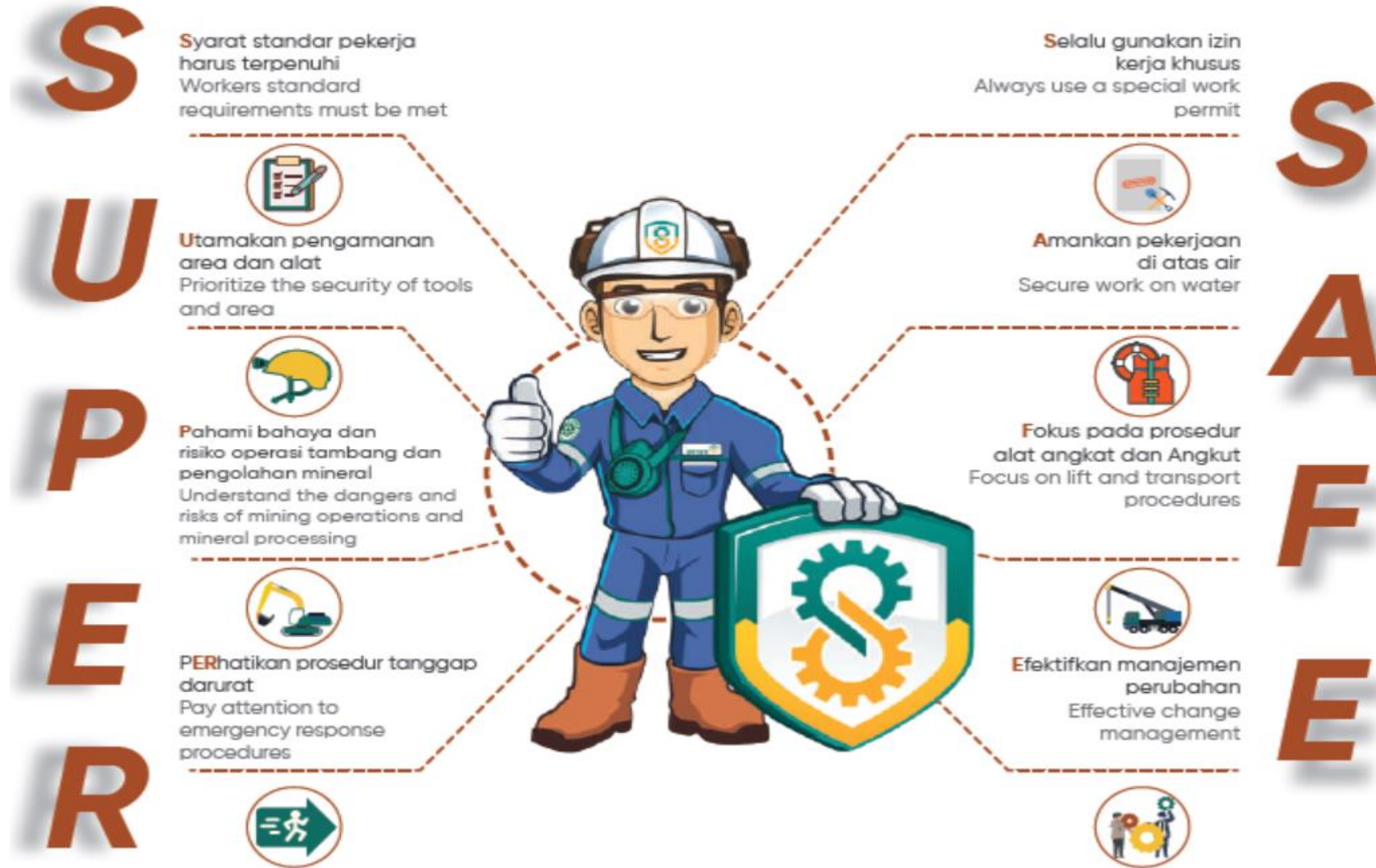
1. Government Regulation No. 41/1999 on Air Pollution Control
2. Law Number 32 of 2009 concerning Environmental Protection and Management
3. Manpower Act No. 13 of 2003 article 87, Occupational Safety and Health
4. Regulation of the Minister of Manpower Number 26 of 2014 concerning **Implementation of Assessment of the Implementation of Occupational Safety and Health Management Systems**
5. Regulation of the Minister of Energy and Mineral Resources Number 38 of 2014 concerning the Implementation of the Coal Mining and Mineral Safety Management System
6. Regulation of the Minister of Energy and Mineral Resources Number 43 of 2016 concerning Application of Standards for Enforcement of Special Competency Standards for Operational Supervisors in the Mining Sector
7. Regulation of the Minister of Energy and Mineral Resources Number 26 of 2018 concerning Implementation of Good Mining Rules and Supervision of Coal Mineral Mining



5. WHAT ENTERPRISE DID

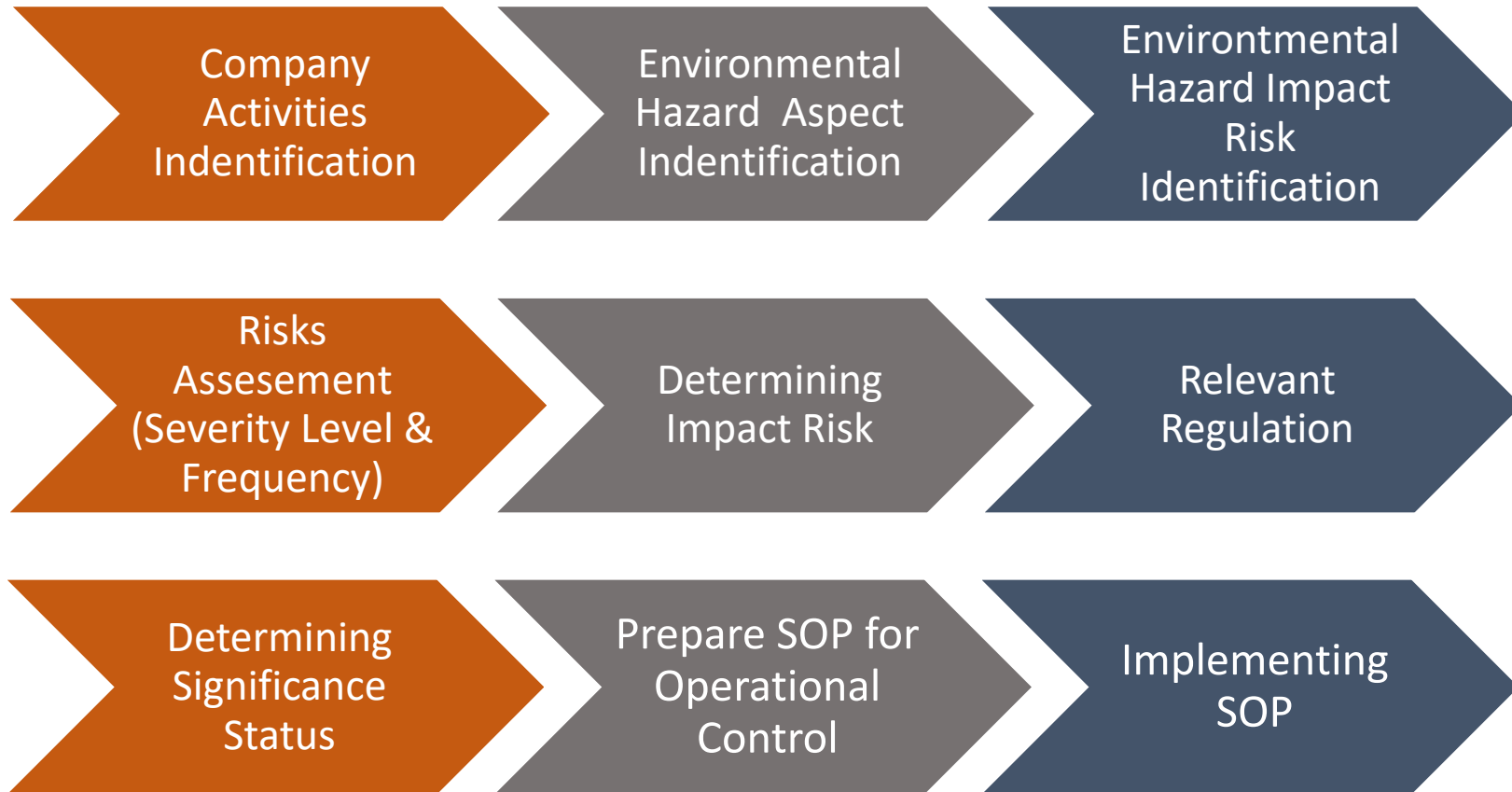
Review on one of extractive sector SOE: nickel and bauxite inventory

Mining
Safety
Management
System



5. WHAT ENTERPRISE DID (Cont)

Review on one of extractive sector SOE: nickel and bauxite inventory



Activities, Enviromental Hazard & Impact Risks

Company Activities Identification

1. Mining Pile Management
2. Sump and Trench Development dan Maintenance
3. Preparation and Monitoring of Ore for Export
4. Preparation and Monitoring of Ore for Factory
5. Excavation and Loading of Ore
6. Ore transport
7. Water truck operation
8. Manual Cleaning

Environmental Hazard Aspect

- ☐ Dust Exposure
- ☐ Machine Noise
- ☐ Hit by Heavy Equipment/Vehicle
- ☐ Overridden/buried material during spillage
- ☐ Fuel Emission
- ☐ Oil/fuel spill
- ☐ Hit by fallen tree
- ☐ Computer Radiation
- ☐ Wrong Body Position
- ☐ Energy Consumption
- ☐ Got Electric Shock
- ☐ Hit/hit a boulder throw
- ☐ Tool collision
- ☐ Hit the swing excavator
- ☐ Clashing heavy equipment with manual grizzly
- ☐ Falling from a height

Environmental Hazard Impact Risk

- ☐ Respiratory Disorder
- ☐ Visual disturbances
- ☐ Hearing loss
- ☐ Body injury
- ☐ Health problems
- ☐ Land Polution
- ☐ Tired Eyes
- ☐ Back and neck pain
- ☐ Energy Reduction
- ☐ Tool Malfunction

Risks Asseement
(Severity Level & Frequency) Level 1 - 4

Determine the level
of impact risk

Determine the **status of significant**
(important or not important)

CONTROL RISK IDENTIFICATION

No.	Activity	Environmental Hazard		Condition	Risk Assessment		Effect Level Risk	Significance	Control
		Inverontmental Hazard	Impact Risk		Severity	Probability			
1	Mining Pile Management	Dust Exposure	Respiratory Disorder	N	4	2	8/M	P	Maskers
			Visual disturbances	N	3	2	8/M	P	Safety Googles
		Machine Noise	Hearing loss	N	4	2	8/M	P	Ear Plug
		Hit by Heavy Equipment/Vehicle	Body injury	AN	4	1	4/L	TP	Supervision of Heavy Equipment Operations and Horn Signals between heavy equipment
		Overridden/buried material during spillage	Body injury	AN	4	1	4/L	TP	Restriction of the work area outside the reach of the tool, safety talk
2	Sump and Trench Development dan Maintenance	Machine Noise	Hearing loss	N	4	2	8/M	P	Ear Plug
		Dust Exposure	Respiratory Disorder	N	3	2	6/L	TP	Maskers
			Visual disturbances	N	3	2	6/L	TP	Safety Googles
		Fuel Emission	Health problems	N	4	2	8/M	P	Perform regular maintenance
		Oil/fuel spill	Land Pollution	N	4	2	8/M	P	Retrieval of spilled soil before contaminating the surrounding land
3	Preparation and Monitoring of Ore for Export	Hit by fallen tree	Body injury	AN	4	1	4/L	TP	Restriction of the work area outside the reach of the tool, safety talk
		Computer Radiation	Tired Eyes	N	2	3	6/L	TP	Screen filter installation
		Wrong Body Position	Back and neck pain	N	2	2	4/L	TP	Relaxation
		Energy Consumption	Energy Reduction	N	2	2	4/L	TP	
		Machine Noise	Hearing loss	N	4	2	8/M	P	Ear Plug
4	Preparation and Monitoring of Ore for Factory	Computer Radiation	Tired Eyes	N	2	3	6/L	TP	Screen filter installation
		Wrong Body Position	Back and neck pain	N	2	2	4/L	TP	Relaxation
		Energy Consumption	Energy Reduction	N	2	2	4/L	TP	
		Got Electric Shock	Body injury	N	2	1	2/L	TP	Arrange cables neatly
		Machine Noise	Hearing loss	N	4	2	8/M	P	Ear Plug

CONTROL RISK IDENTIFICATION (cont. 1)

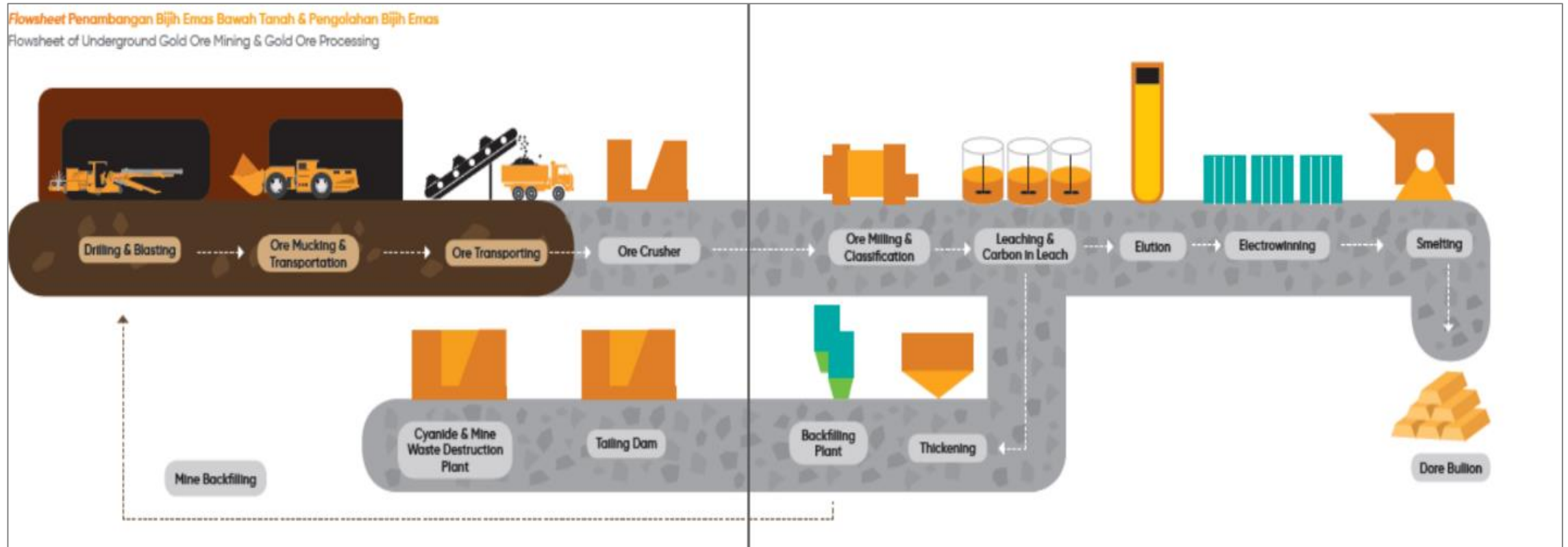
No.	Activity	Environmental Hazard	Environmental Hazard Impact Risk	Condition	Risk Assessment		Effect Level Risk	Significance	Control
					Severity	Probability			
5	Excavation and Loading of Ore	Dust Exposure	Respiratory Disorder	N	3	2	6/L	TP	Masks
			Visual disturbances	N	3	2	6/L	TP	Safety Goggles
		Machine Noise	Hearing loss	N	4	2	8/M	P	Ear Plug
		Fuel Emission	Health problems	N	3	2	6/L	TP	Perform regular maintenance
		Oil/fuel spill	Land Pollution	N	4	2	8/M	P	Retrieval of spilled soil before contaminating the surrounding land
		Hit a bolder throw	Body injury	AN	4	1	4/L	TP	Restriction of the work area outside the reach of the tool, safety talk
		Tool collision	Tool Malfunction	AN	4	1	4/L	TP	Supervision of Heavy Equipment Operations and Horn Signals between heavy equipment
			Body injury	AN	4	1	4/L	TP	Safety Shoes
		Hit the swing excavator	Body injury	AN	4	1	4/L	TP	Restriction of the work area outside the reach of the tool, safety talk
6	Ore transport	Machine Noise	Hearing loss	N	4	2	8/M	P	Ear Plug
		Tool collision	Tool Malfunction	AN	4	1	4/L	TP	Safety Goggles
			Body injury	AN	4	1	4/L	TP	Perform regular maintenance
		Hit a bolder throw	Body injury	AN	4	1	4/L	TP	Safety Helmet
		Dust Exposure	Respiratory Disorder	N	3	2	6/L	TP	Masks
			Visual disturbances	N	3	3	6/L	TP	Safety Goggles
		Fuel Emission	Health problems	N	3	2	6/L	TP	Perform regular maintenance
		Oil/fuel spill	Land Pollution	N	4	2	8/M	P	Retrieval of spilled soil before contaminating the surrounding land

CONTROL RISK IDENTIFICATION (cont. 2)

No.	Activity	Environmental Hazard	Environmental Hazard Impact Risk	Condition	Risk Assessment		Effect Level Risk	Significance	Control
					Severity	Probability			
7	Water truck operation	Machine Noise	Hearing loss	N	4	2	8/M	P	Ear Plug
		Tool collision	Tool Malfunction	AN	4	1	4/L	TP	Supervision of Heavy Equipment Operations and Horn Signals between heavy equipment
			Body injury	AN	4	1	4/L	TP	Safety Shoes
		Dust Exposure	Respiratory Disorder	N	3	2	6/L	TP	Maskers
			Visual disturbances	N	3	2	6/L	TP	Safety Goggles
		Fuel Emission	Health problems	N	3	2	6/L	TP	Perform regular maintenance
		Oil/fuel spill	Land Pollution	N	3	2	8/M	P	Retrieval of spilled soil before contaminating the surrounding land
8	Manual Cleaning	Machine Noise	Hearing loss	N	4	2	8/M	P	Ear Plug
		Clashing heavy equipment with manual grizzly	Tool Malfunction	AN	4	1	4/L	TP	Supervision of Heavy Equipment Operations
		Hit a bolder throw	Body injury	AN	4	1	4/L	TP	Restriction of the work area outside the reach of the tool, safety helmet
			Tool Malfunction	AN	4	1	4/L	TP	Restriction of the work area outside the reach of the tool
		Falling from a height	Body injury	AN	4	2	8/M	P	Safety Belt, Body Hardness
		Dust Exposure	Respiratory Disorder	N	3	2	6/L	TP	Maskers
			Visual disturbances	N	3	2	6/L	TP	Safety Goggles
		Fuel Emission	Health problems	N	3	2	6/L	TP	Perform regular maintenance
		Oil/fuel spill	Land Pollution	N	4	4	8/M	P	Retrieval of spilled soil before contaminating the surrounding land

EXAMPLE OF IMPLEMENTATION OF OSH

Flowsheet of Underground Gold Ore Mining & Gold Ore Processing



EXAMPLE OF IMPLEMENTA TION OF OSH Rescue Tim & Blasting Preparation

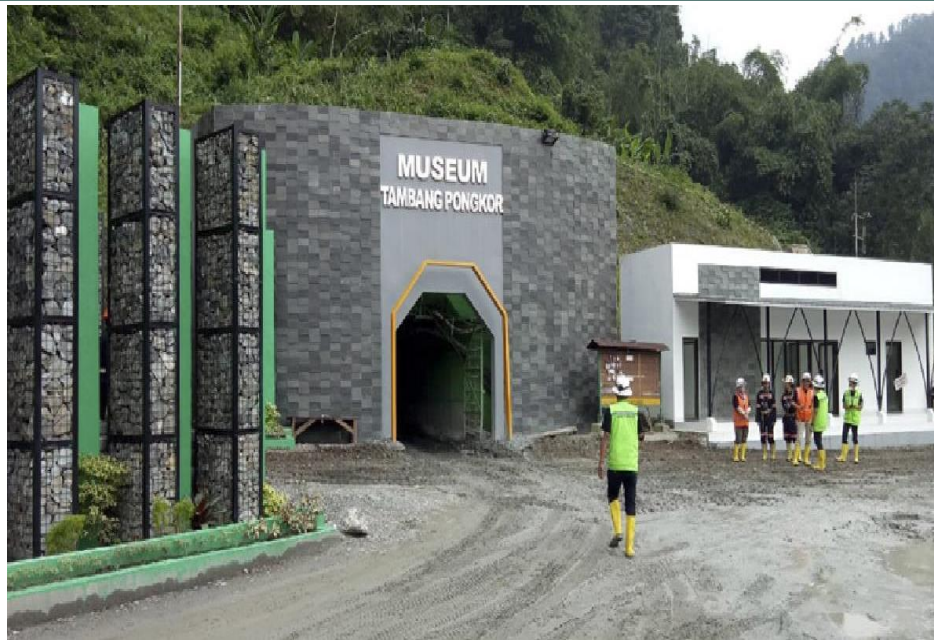
Rescue Team



Blasting Preparation



**Gold Mine
Museum
Pongkor, West
Java**



**Coal Mine
Museum
Sawah Lunto,
West Sumatra**



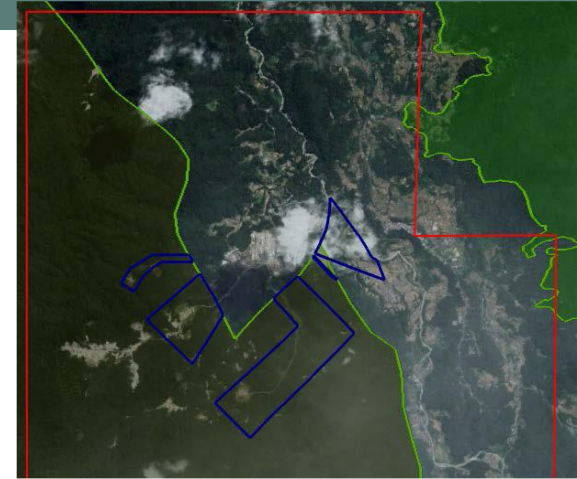
MINE CLOSURE PLAN

**Mangrove planting in Southeast
Sulawesi Nickel Mining Business
Unit.**



AKN IV

Audit with a Specific Purpose on the Management of Non-Tax State Revenue of Natural Resources and Minerals and Coal Licensing



- Ministry of Energy and Mineral Resources, Ministry of Environment and Forestry, Related Agencies in DKI Jakarta Province, South Kalimantan, And North Sulawesi
- Utilization of Geographic Information System
- Key findings:
 - Areas disturbed in forest areas by the community in the form of mining activities that do not have permits in the mining business area
 - Disturbed area in forest not yet supported by Borrow-to-use Forest Area Permit



AKN VII

Audit with a Specific Purpose (Compliance)

- Extractive (Mineral and Coal) Sector SOEs :
coal, nickel, bauxite, tin, gold, silver
Audit on revenue, expenditure, and investment
- Extractive (Oil and Gas) Sector SOEs :
Audit on revenue, expenditure, and investment
Fuel Subsidy
- Oil and Gas Contractors (KKKS)
Audit on project implementation and supply chain
Audit on cost recovery



Problem need attention

- Weaknesses in inventory management or finished goods/warehouse goods (excess stock, unsold goods, inappropriate stock taking, inventory purchases not paying attention to stock availability, safety stock and insurance parts have not been determined)
Lead to inefficiency on operating expenses (such as storage, maintenance)
- Miscalculated transportation distance (FOB) increases selling costs
- Losses during the refining process



THANK YOU



GET IN TOUCH



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LET'S HAVE A BREAK

