



# HEALTH AND SAFETY ISSUES IN HANDLING INVENTORIES IN EI SECTOR

Cecilia Tri Wuryantiningsih



# 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

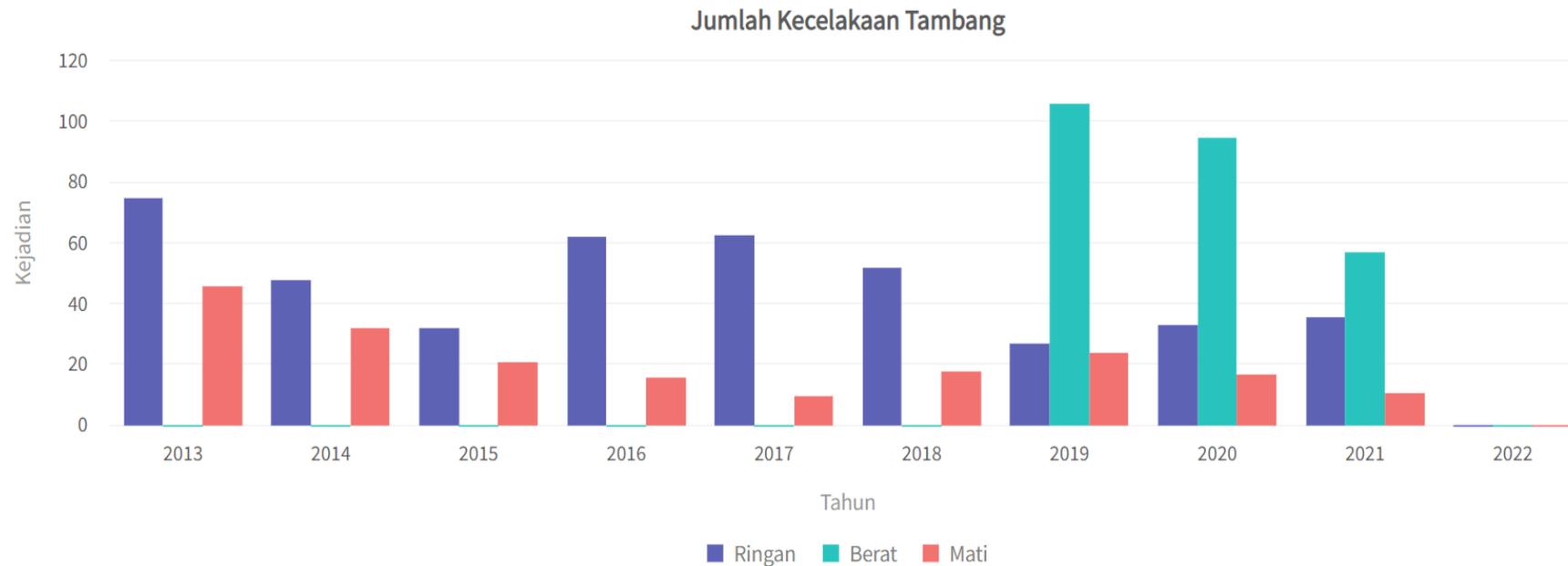
Special Taskforce  
for Upstream Oil  
and Gas Business  
Activities

# 3. CASES & CHALLENGE

## CASES

### Level of Severity of Mining Accident

Tingkat Kekerapan dan Keparahan Kecelakaan Tambang



- Minor
- Serious
- Dead

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 (Birn at All 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

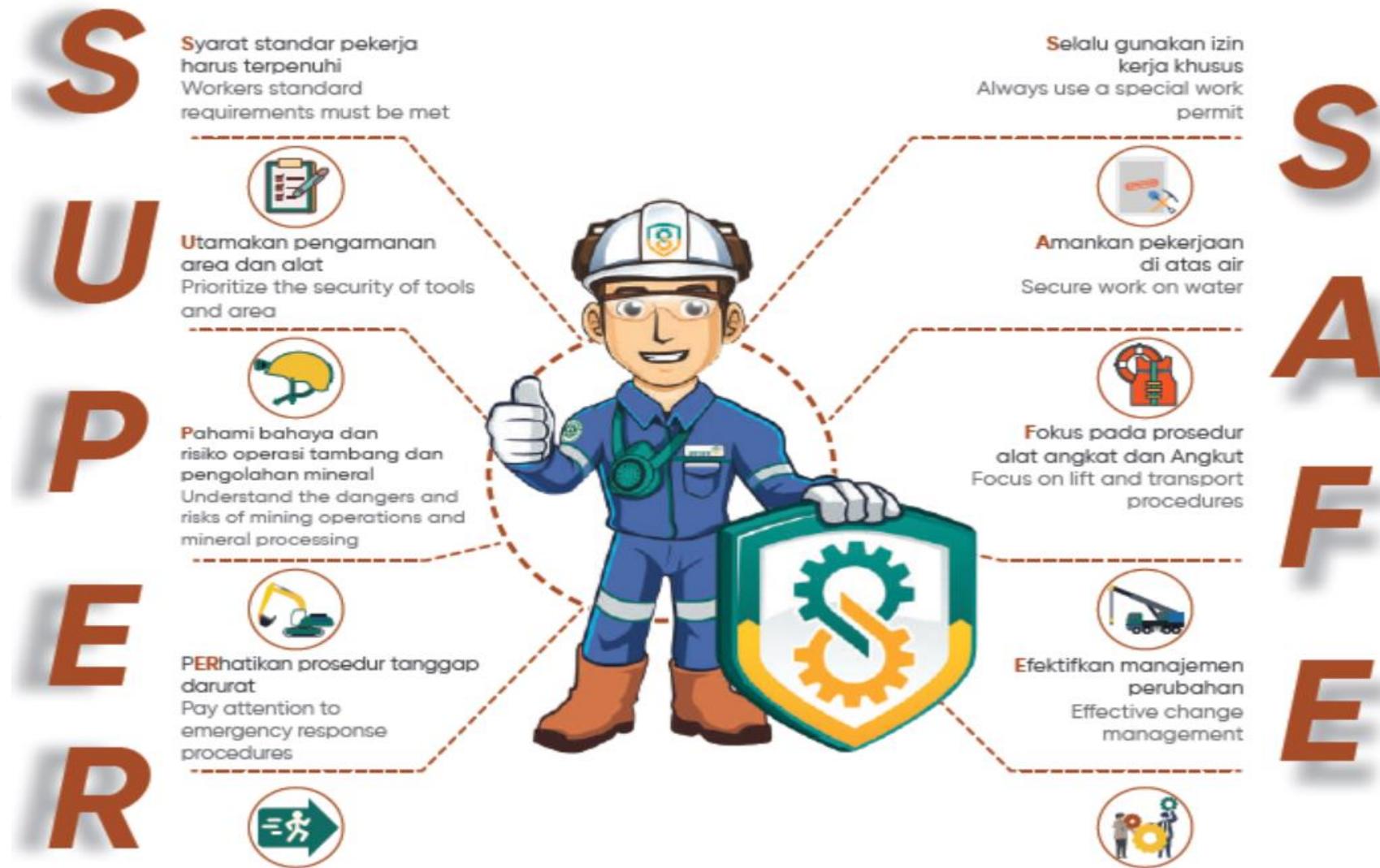
1. Government Regulation No. 41/1999 on Air Pollution Control
2. Law Number 32 of 2009 concerning Environmental Protection and Management
3. Manpower Act No. 13 of 2003 article 87, Occupational Safety and Health
4. Regulation of the Minister of Manpower Number 26 of 2014 concerning **Implementation of 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

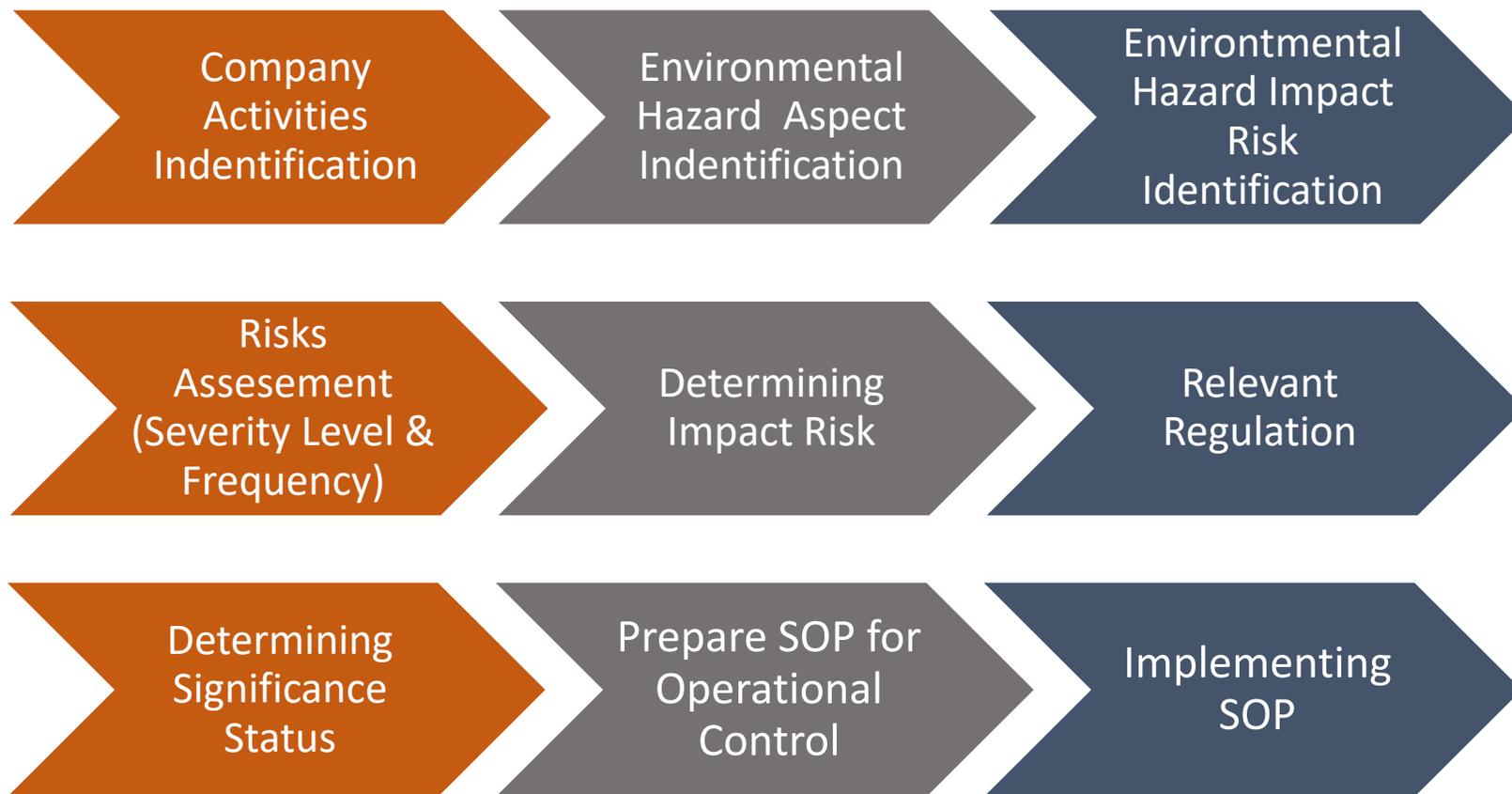
Review on one of extractive sector SOE: nickel and bauxite inventory

Mining Safety Management System



## 5. WHAT ENTERPRISE DID (Cont)

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



## Activities, Environmental 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 Pollution
- Tired Eyes
- Back and neck pain
- Energy Reduction
- Tool Malfunction

Risks Assesement  
(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	Impact Risk	Condition	Risk Assessment		Effect Level Risk	Significance	Control
					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 Goggles
		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 Goggles
		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
	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	
3	Preparation and Monitoring of Ore for Export	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)

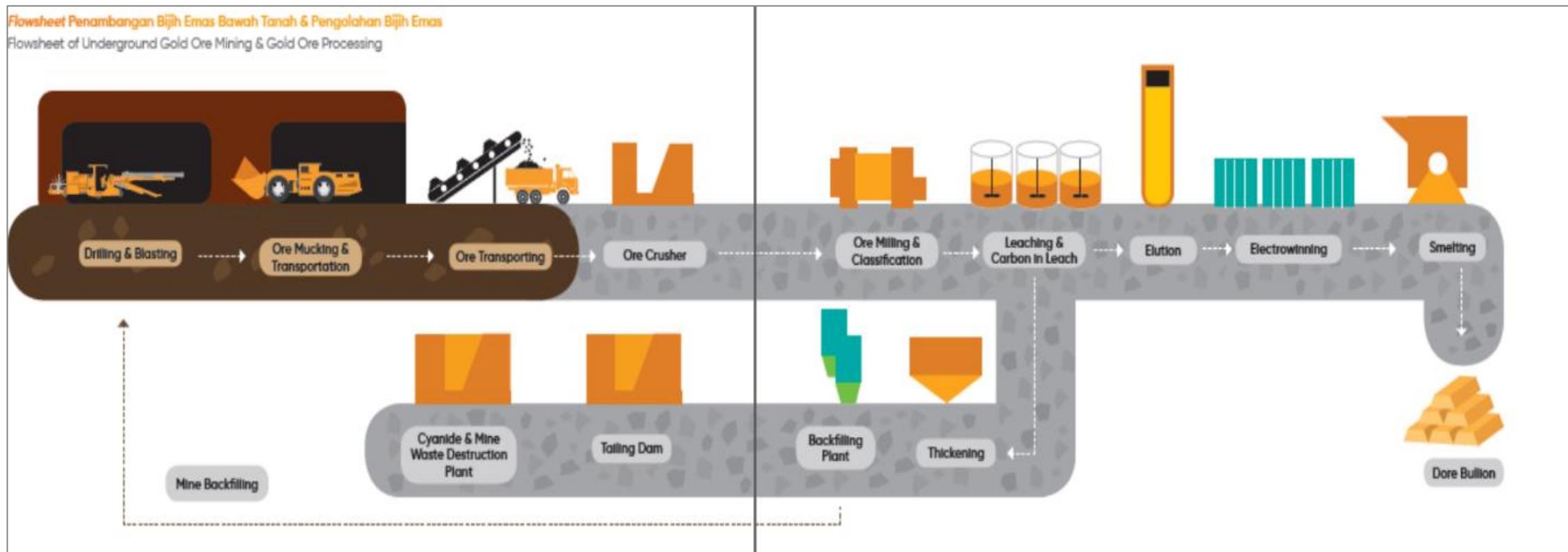
No.	Activity	Inverontmental Hazard	Environmental Hazard Impact Risk	Condition	Risk Assessment		Effect Level Risk	Signifi- cance	Control
					Severity	Proba- bility			
5	Excavation and Loading of Ore	Dust Exposure	Respiratory Disorder	N	3	2	6/L	TP	Masks
		Visual disturbances		N	3	2	6/L	TP	Safety Goggles
		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 Hom Signals between heavy equipment
		Hit the swing excavator	Body injury	AN	4	1	4/L	TP	Safety Shoes 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	Inverontmental Hazard	Environmental Hazard Impact Risk	Condition	Risk Assessment		Effect Level Risk	Signifi- cance	Control
					Severity	Proba- bility			
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
		Dust Exposure	Body injury	AN	4	1	4/L	TP	Safety Shoes
			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 helemt
			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  
IMPLEMENTATION OF OSH  
Rescue Tim &  
Blasting  
Preparation**

**Rescue Team**



**Blasting Preparation**



**Gold Mine  
Museum  
Pongkor, West  
Java**



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



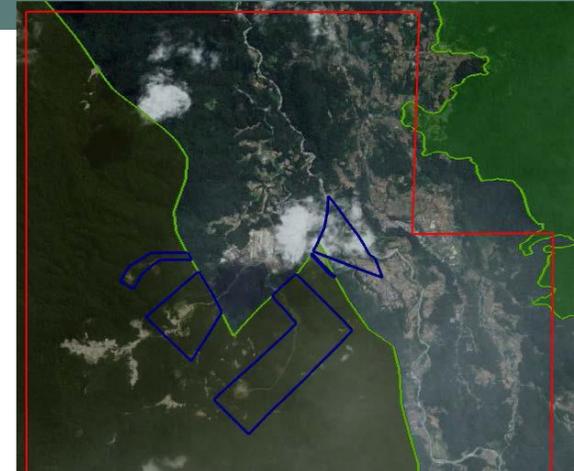
# MINE CLOSURE PLAN

**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



Jenderal Gatot Subroto Kav.31  
Jakarta Pusat 10210  
Indonesia



[international@bpk.go.id](mailto:international@bpk.go.id)



+62 21 25549000 ext. 3199  
Fax +62 21 5720909



[www.bpk.go.id](http://www.bpk.go.id)

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[www.wgei.org](http://www.wgei.org)



[wgei@oag.go.ug](mailto:wgei@oag.go.ug)



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**LET'S HAVE A BREAK**

