



That one step
will shift the future.

In Partnership with Events at Expo 2025

INTERNATIONAL SYMPOSIUM

Days on Safety, Health & Well-being for All

Expo & Intex - Osaka, Kansai, Japan

16 to 19 July 2025

**Hardrock requires Strong Culture:
ESG and Sustainability begin in Mining**



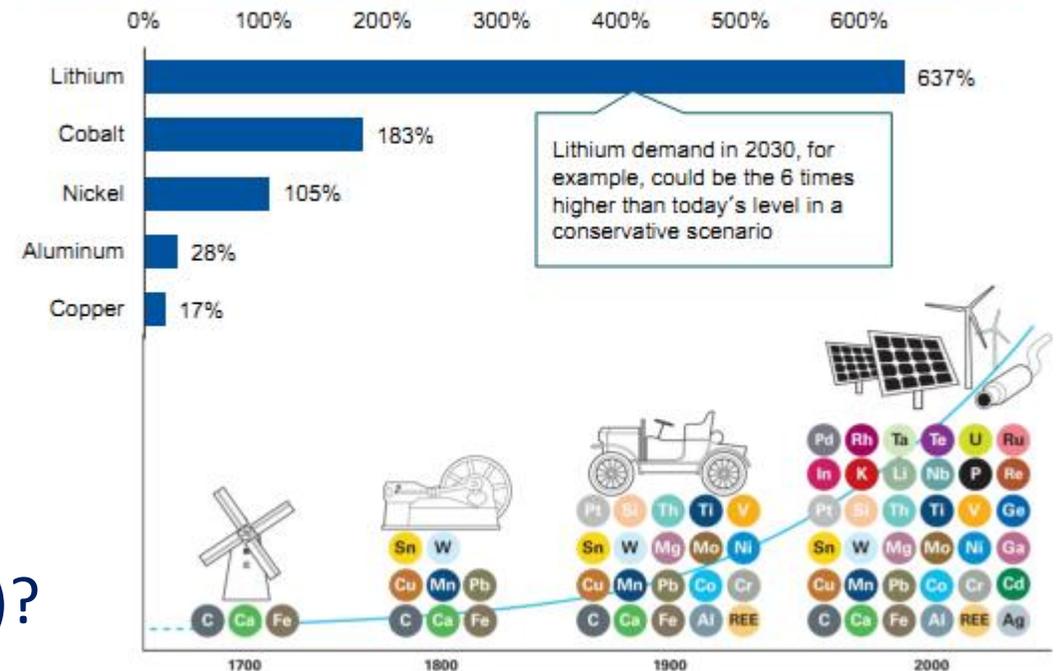
The Evolution of the Prevention Culture in Southeast Asian Mining

Dr. Nga Nguyen, Hanoi University of Mining and Geology, **VIETNAM**

OUTLINE

- Introduction
- Mining and its contribution to sustainable development in Southeast Asia
- Safety and prevention culture in Southeast Asian mining countries
- How ISSA Mining and VISION ZERO can help?
- What do we need (in the new mining context)?
- Some takeaways

Forecast for the increase in demand for strategic metals worldwide up to 2030, based on 2019



Zepf et al. (2014); OECD, 2019, Global Material Resources Outlook to 2060; Morgan Stanley; Canaccord Genuity; Comisión Chilena del Cobre; Experte(n) (Xinxai Fu et al.) (2019)

INTRODUCTION

- Mining in Southeast Asia

- Rich mineral resources
 - Gold, copper, nickel, tin, coal, bauxite, rare earths, precious stones
 - Limestones and other construction materials
- Types of mining:
 - Large-scale Mining
 - Artisanal and small-scale Mining
 - Illegal/informal mining
- Contribution to the GDP
 - Direct
 - Indirect
- Contribution to society
 - Workers and staff
 - Induced labor forcé
 - Environmental protection
 - CSR/ESG



Phu Kham Copper Gold Mine, Laos



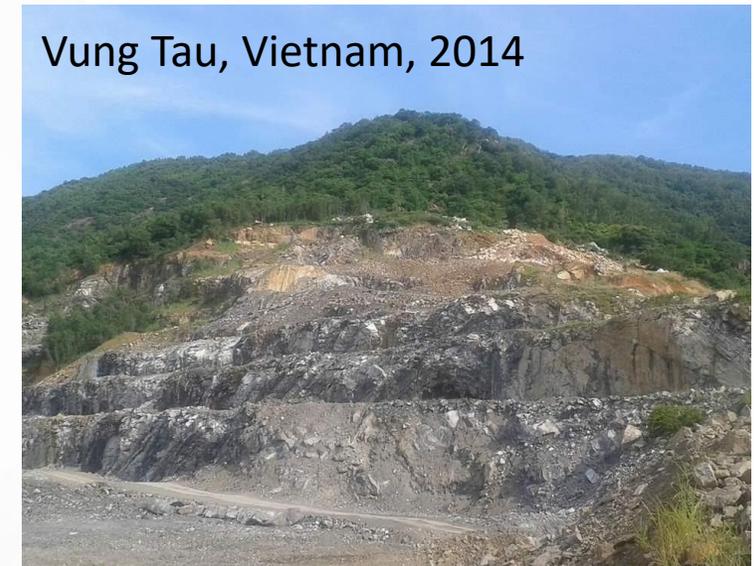
Jade miners take photos at the mud pond where more than 50 people were killed in collapse, in Hpakant, Kachin, Myanmar April 28, 2019. REUTERS/Shoon Naing

INTRODUCTION

- Limestone in Southeast Asia:
 - Small scale (major)
 - Domestic operations
 - Local market: cement, expressways, etc.
 - Low value



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SAFETY AND PREVENTION CULTURE IN SOUTHEAST ASIAN MINING COUNTRIES

Before 1990s

- Small scale
- Informal/illegal operations
- OSH standards were minimal/nonexistent
- Accidents and health issues were not fully reported (silicosis, mercury poisoning, landslides, mine collapse, etc.)

1990s-2000s

- Policy responses emerged owing to rising awareness of environmental and human costs
- Governments adopted basic mining safety regulations and created government agencies for supervision/management
- **International partnerships and donor influence** pushed for reforms in safety and environmental standards
- However, **enforcement remained weak** due to low sanctions, lack of funding, and inadequate training

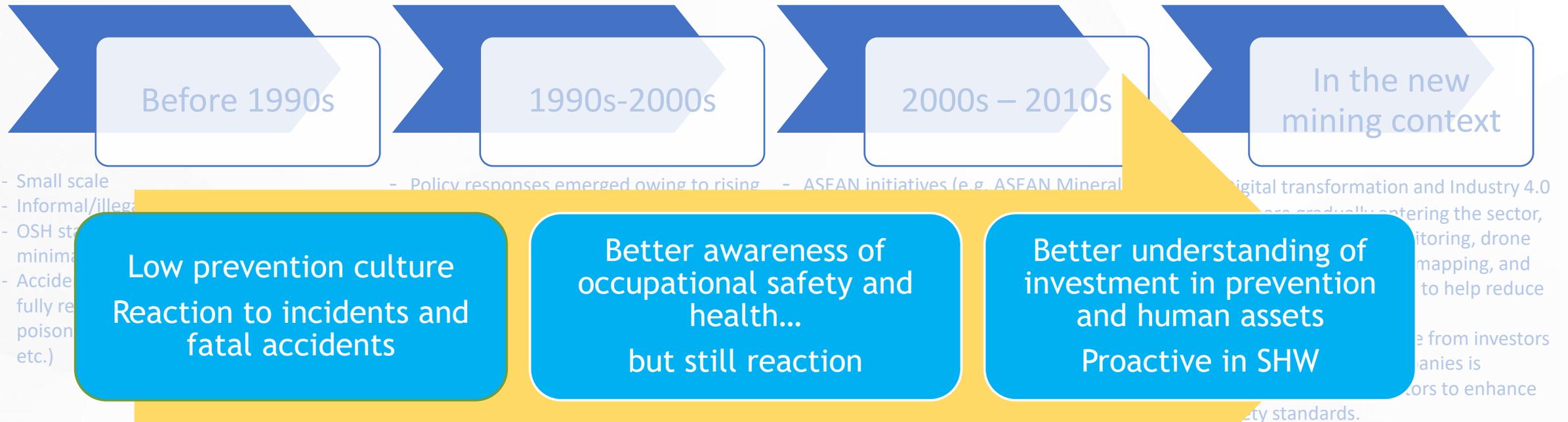
2000s – 2010s

- ASEAN initiatives (e.g. ASEAN Minerals Cooperation Action Plan) focused on **harmonized safety practices and sustainable mining**
- Larger mining companies began adopting ISO Standards (OHSAS 18001, ISO 45001, etc.)
- Introduction of **training programs, PPE policies, and emergency response plans** in medium and large operations.
- **Technology improvements** (better ventilation, automated machinery, hydraulic props, nails, etc. were used).
- Artisanal and small-scale mining still posed major safety concerns, often operating outside safety regulations.

2010s – now In the new mining context

- **Digital transformation and Industry 4.0 tools** are gradually entering the sector, enabling real-time monitoring, drone inspections, geospatial mapping, and predictive maintenance to help reduce hazards.
- Increasing **ESG pressure** from investors and multinational companies is prompting local operators to enhance safety standards.
- Governments are **enhancing legal frameworks**
- **Women’s safety, mental health, and climate risk management** are emerging focus areas.
- COVID-19 catalyzed improvements in hygiene protocols and remote safety monitoring.

SAFETY AND PREVENTION CULTURE IN SOUTHEAST ASIAN MINING COUNTRIES



due to low sanctions, lack of funding, and inadequate training

automated machinery, hydraulic etc. were used).

- Artisanal and small-scale mining are major safety concerns, often due to inadequate safety regulations.

Prevention is the key to safety success



SAFETY AND PREVENTION CULTURE IN SOUTHEAST ASIAN MINING COUNTRIES



SAFETY AND PREVENTION CULTURE IN SOUTHEAST ASIAN MINING COUNTRIES

- 4 main causes of fatal accidents:
 - Landslides/soil movement
 - Uncontrolled explosion
 - Fall from heights
 - Vehicle operation



Landslides in limestone mines in Vietnam (left) and the Philippines

HOW CAN ISSA MINING AND VISION ZERO CAN HELP?

- Organizing plenty of international conferences and workshops

2011

CONFERENCE "SAFETY CULTURE, RISK MANAGEMENT AND COMPETENCE AND TRAINING"

QUANG NGAI, VIETNAM
March 18, 2011



2012

INTERNATIONAL CONFERENCE "PREVENTION IN HIGH RISK ENTERPRISES"

QUANG NINH, VIETNAM | July 16, 2012



2013

CONFERENCE

Strengthening National OSH Systems in Hazardous Work Areas

HANOI, VIETNAM
March, 2013



2013

WORKSHOP

"The Role of Labour Inspectors for Promoting Proactive Prevention"

VIETNAM
July 16/17, 2013

Labour inspectors from 32 provinces and 10 international experts.



2014

WORKSHOP

"Strengthening the National Occupational Safety and Health Policies referring to the ILO Convention No. 187"

HUE, VIETNAM
March 2014



2018

MOLISA – ILO – KISA – ASEAN – OSHNET WORKSHOP

Legislation & Database on OSH Statistics and Reporting Systems in ASEAN Countries

DA NANG CITY, VIETNAM | July 21, 2018



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2014

14TH NATIONAL OCCUPATIONAL SAFETY AND HEALTH CONGRESS

QUEZON CITY, PHILIPPINES
November 2 – 21, 2014



2015

33RD GENERAL ASSEMBLY OF ISSA MINING

BA RIA, VUNG TAU | VIETNAM
March 15, 2015



2015

WORKSHOP

Workshop of MOLISA/ISSA Mining/ILO/ASEAN-OSHNET "National Week for Occupational Safety and Health and Fire-explosion Prevention"

BA RIA, VUNG TAU | VIETNAM
March 16/17, 2015



2015

ISSA MINING CONFERENCE

ISSA Mining Conference "Seven Golden Rules" at the Directorate General of Mineral and Coal

JAKARTA, INDONESIA
April 20, 2015



2016

ASEAN-OSHNET EVENT

17TH ASEAN-OSHNET Coordinating Board, 3RD ASEAN-OSHNET Conference with 1ST ASEAN-OSHNET Awards

DA NANG, VIETNAM
April 25 – 28, 2016



2016

30TH NATIONAL SAFETY WEEK CONFERENCE AND EXHIBITION AND ISSA SEVEN GOLDEN RULES WORKSHOP IN BANGKOK

BANGKOK, THAILAND
June 30 – July 4, 2016



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2017

“TOWARDS SUSTAINABLE SAFETY CULTURE OF PREVENTION – THE VISION ZERO STRATEGY” ORGANIZED BY SHAWPAT

BANGKOK, THAILAND
June 16, 2017



2017

21ST WORLD CONGRESS ON SAFETY AND HEALTH AT WORK 2017 INCLUDING ISSA MINING SYMPOSIUM

S03 – Management of OSH in the mining sector: Seven Golden Rules in Mining

SINGAPORE | September 3 – 6, 2017



2018

MOLISA – ILO – KISA – ASEAN – OSHNET WORKSHOP

Legislation & Database on OSH Statistics and Reporting Systems in ASEAN Countries

DA NANG CITY, VIETNAM | July 21, 2018



2018

INTERNATIONAL OCCUPATIONAL SAFETY AND HEALTH SEMINAR DIALOGUE FORUM ON “SAFETY CULTURE”

BANGKOK, THAILAND
September 13/14, 2018



HOW CAN ISSA MINING AND VISION ZERO CAN HELP?

- Improving ToT programs

2019

VISION ZERO WORKSHOP “TRAIN THE TRAINER”

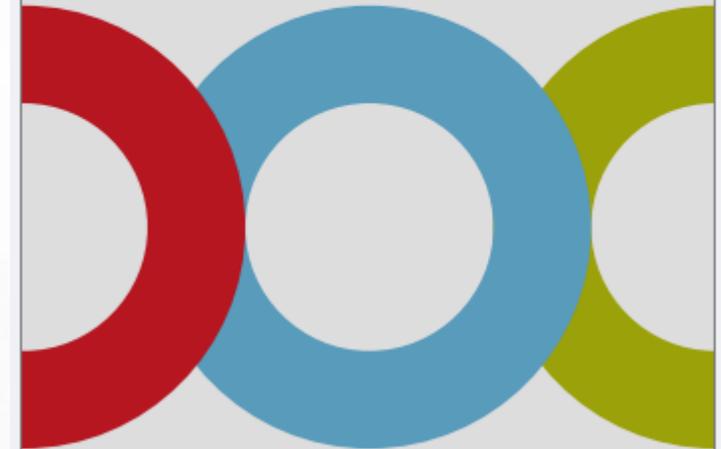
BERLIN, GERMANY
January 10/11, 2019



VISION ZERO

7 Golden Rules –
for zero accidents and healthy work

A guide for employers and managers



HOW CAN ISSA MINING AND VISION ZERO CAN HELP?

- Implementation



Teaching in the colleges and universities



Introduction of VZ and 7 GR in specific magazines and journals

Results of safety culture in HLC

Rule	Leaders and managers		Department officers		Foremen		Workers	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Total	2.712		2.896		2.934		2.705	
Rule 1: Take leadership – demonstrate commitment	2.669	5	2.903	2	2.938	4	2.743	2
Rule 2: Identify hazards – control risks	2.715	3	2.902	3	2.897	6	2.738	3
Rule 3: Define targets – develop programs	2.746	2	2.899	4	2.901	5	2.712	5
Rule 4: Ensure a safe and healthy system – be well-organized	2.669	5	2.887	6	2.889	7	2.717	4
Rule 5: Ensure safety and health in machines, equipment, and workplaces	2.762	1	2.935	1	2.972	2	2.633	6
Rule 6: Improve qualifications – develop competence	2.646	7	2.853	7	2.978	1	2.774	1
Rule 7: Invest in people – motivate by participation	2.692	4	2.893	5	2.961	3	2.588	7



Application of 7 Golden Rules in Coal mining companies, 2020 - 2022

WHAT DO WE NEED

VISION ZERO

Safety.Health.Wellbeing.



**everybody returns safe and healthy
from his work back home everyday**

WHAT DO WE NEED

- Better safety - better value
- Investment for safety prevention

Return of Prevention (ROP) = 1.4

- SOS: Sanitation - Order - Safety
- TOP: Technology - Organization - Personal

WHAT DO WE NEED

- New generations of mining engineers and managers, who:
 - Understand not only mining technology but also the essence of safety



Mining.com

WHAT DO WE NEED

- New generations of mining engineers and managers, who:
 - Understand that CSR/ESG can win the Social License to Operate (SLO)/ the acceptance of the community for the mining



Southeast Sulawesi Nickel Mining
Business Unit, Indonesia
Community Development programs

(ASEAN Secretariat, 2017)



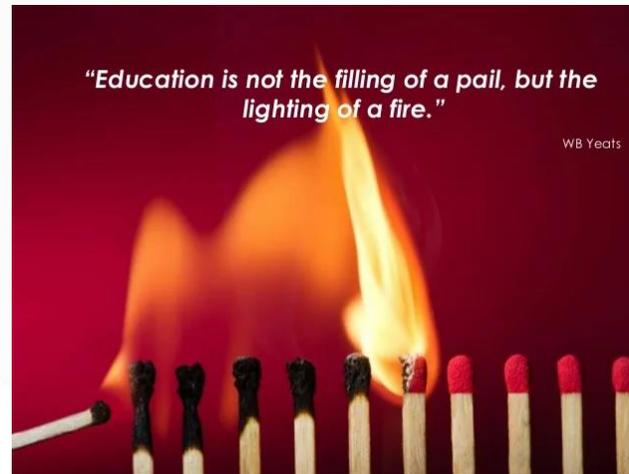
WHAT DO WE NEED

- New generations of mining engineers and managers, who:
 - Understand how to better communicate with the community



WHAT DO WE NEED

- More experiences sharing and knowledge exchange
 - From VZ and 7 Golden Rules users
 - From accredited trainers
 - Capacity building for local safety experts and trainers
 - Engagement of ISSA Mining in Southeast Asia



SOME TAKEAWAYS

EVERY ACCIDENT IS ONE TOO MANY
PREVENTION MUST ALWAYS COME FIRST



A STRONG PREVENTION CULTURE IS THE FOUNDATION OF EVERY SUCCESSFUL SAFETY AND HEALTH SYSTEM



“Snow White and the seven Dwarfs”
is not the last positive image of the
mining industry

THANK
YOU
FOR
LISTENING



ありがとう
うございます



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