

RECLAMATION & POST-MINING

“REHABILITATION AND MINE CLOSURE EXCELLENCE”

1 SEPTEMBER 2015

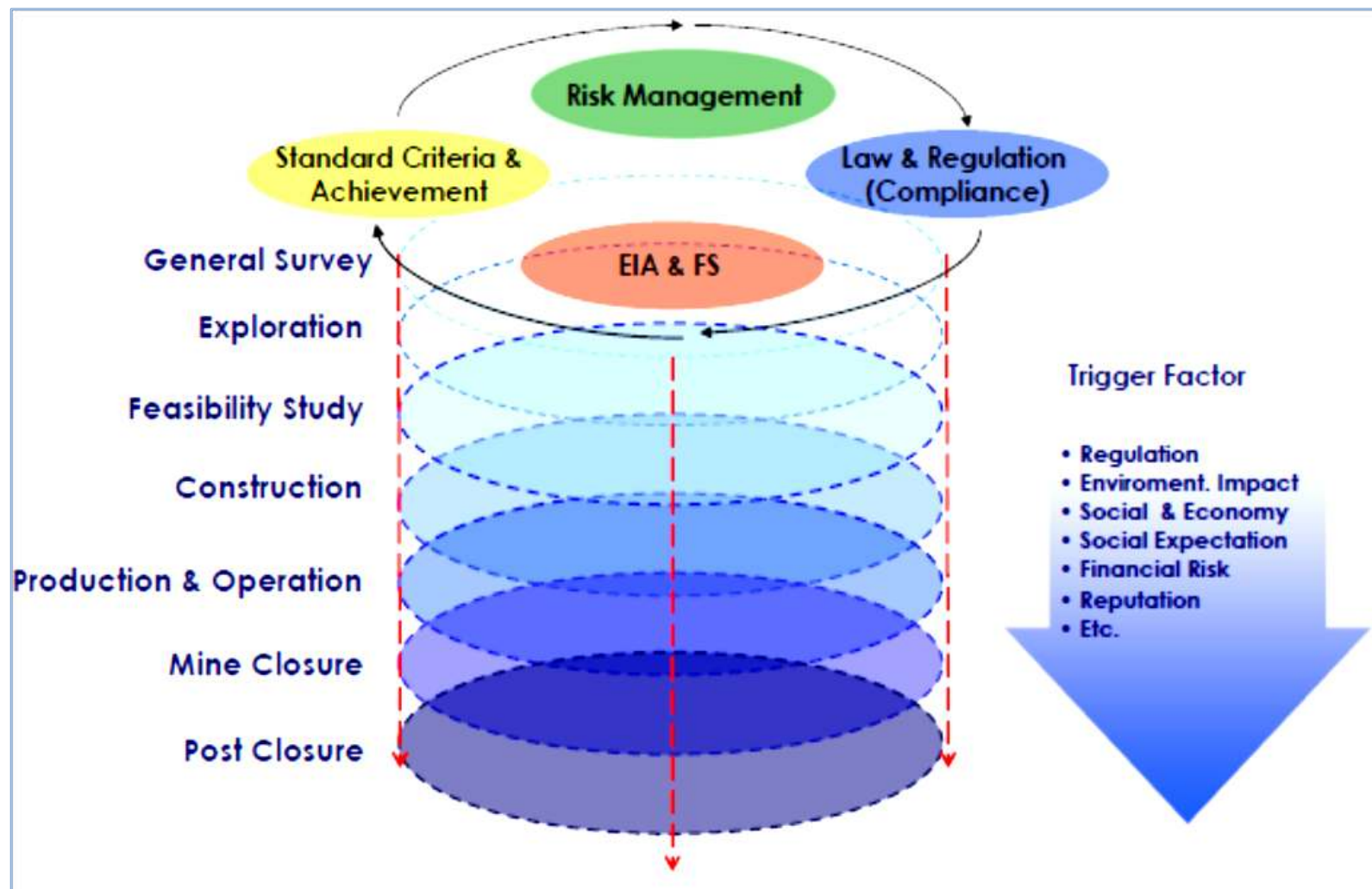


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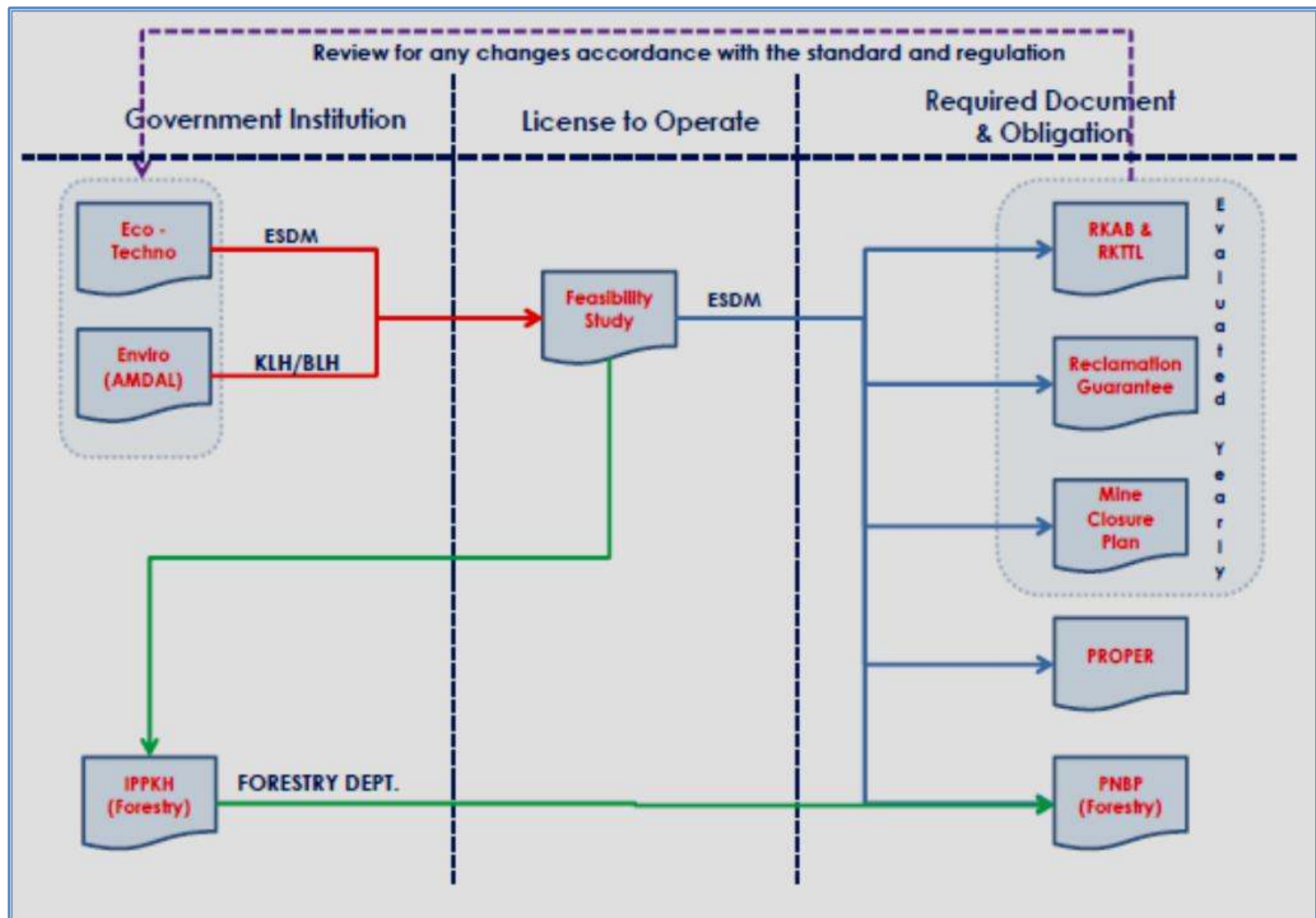
Professional Mining Services



Mining Industry Stages



Mining-Environment Documentation Process



What's Activity Deal With ?

Soil – Water - Air

Environmental Aspect

Quality Degradation

ACTIVITIES

Lose Quantity

Declining biodiversity

People – Flora - Fauna

Environmental Impact

Activities, Process & Effect

No.	Aspect	Activities	Effects
1	Soil	<ul style="list-style-type: none"> • Clearing • Digging • Handling • Placing / Dispose • Treatment 	<ul style="list-style-type: none"> • Exposed & chemical reaction • Mixed & chemical reaction • Mixed & spreaded • Mixed & compacted • Chemical process
2	Water (Ground & Surface)	<ul style="list-style-type: none"> • Drainage / Channeling • Settling pond • Water void • Aquifer 	<ul style="list-style-type: none"> • Chemical reaction & erosion • Chemical process • Chemical process • Chemical leaching

*) AMD Focus



Soil Constraint on Mine Closure

No.	Activities	Constraints – Risk Event
1	Drilling	<ul style="list-style-type: none">• Soil analysis• Standard classification
2	Modelling	<ul style="list-style-type: none">• Soil (PAF/NAF) structure• Distribution (quality and quantity)
3	Mine planning	<ul style="list-style-type: none">• Soil management (material balance)• Soil area allocation planning• Soil placement design (layering)• Disposal design• Soil treatment (e.g IPCC)
4	Mining	<ul style="list-style-type: none">• Contractor (equipment) preparation• Determine boundaries (area and layer)• Supervision of material handling• Placement (final) checking• Benching, contouring and drainage• Compacting
5	Monitoring	<ul style="list-style-type: none">• Final layering ; soil checking• Top soiling• Contour smoothing

Water Constraint on Mine Closure

No.	Activities	Constraints – Risk Event
1	Ground water	<ul style="list-style-type: none">• Flow direction – elevation• Flow rate• Aquifer character
2	Drainage pattern	<ul style="list-style-type: none">• Flow rate – eroded• Flow direction ; maximizing settling pond• Selected area (PAF/NAF)
3	Settling pond	<ul style="list-style-type: none">• Design capacity and flow direction• Coverage area ; minimize number of pond• Selected area (PAF/NAF)• Selected elevation• Sequences pond
4	Erosion control	<ul style="list-style-type: none">• Slope / bench design• Channeling design
5	Water treatment	<ul style="list-style-type: none">• Passive treatment• Active treatment• SAP (Successive Alkalinity Producing System)

Mine Closure Standard Criteria

No.	Aspect	Standard Achievement	Government Institution
1	Soil	<ul style="list-style-type: none"> Mine reclamation <ul style="list-style-type: none"> Soil management Soil degradation Erosion Void (Forestry Area) Safety 	<ul style="list-style-type: none"> Mining Dept. Environmental Dept.
		<ul style="list-style-type: none"> Mine rehabilitation <ul style="list-style-type: none"> Planting (quality & quantity) Biodiversity Land usage 	<ul style="list-style-type: none"> Forestry Dept. Corruption Eradication Commission (KPK)
2	Water	<ul style="list-style-type: none"> Water Quality 	<ul style="list-style-type: none"> Environmental Dept.
		<ul style="list-style-type: none"> Post mine utilization <ul style="list-style-type: none"> Pond Void 	<ul style="list-style-type: none"> Local Government
		<ul style="list-style-type: none"> River 	<ul style="list-style-type: none"> Local Government

Regulation and Document Reference

Mining Regulation (ESDM)

- Ministerial Decree No. 7/ 2014 : Reclamation & Post Closure
- AMDAL (EIA – Environment Impact Assessment Document)
- Feasibility Study
- Reclamation Guarantee (5 years basis)
- RTKKL & RKAB (yearly basis)

Forestry Regulation (Forestry Dept.)

- Ministerial Decree No. P.60/Menhut-II/2009; Forestry Reclamation Achievement Valuation Guidelines
- Ministerial Decree No. P.4/Menhut-II/2011; Forestry Reclamation Guidelines
- Ministerial Decree No. P.16/Menhut-II/2014 ; IPPKH Guidelines
- Government Regulation No.33/2014 : Type and Tariff on Non Tax State Income for Forestry Area Usage

Provision in Local Regulation

- Kaltim Local Regulation No. 1/2014
- Kalsel Local Regulation No. 15/2010
- Kalsel Local Regulation No. 13/2013

Reclamation (Ministerial Decree ESDM No.7/2014)

- ❑ Reclamation plan should consider of, system and mining method **based on FS**, specific conditions of local area and entire related laws and regulations.
- ❑ The placement of reclamation guarantee does not eliminate the obligation to carry out the reclamation.
- ❑ Areas that have been **reclaimed to re-open**, shall submit the plan and take into account the economic value of reclamation that has been carried out.
- ❑ Mining activities which are technically **leaving voids shall make utilization of void plan** in detail in accordance with related regulations.
- ❑ If after 2 years of consecutive assessment period has not reached success **60% reclamation based on approved reclamation guarantee**, the government have authority to appoint a third party to perform reclamation. The activities are prohibited prior to reclamation is done by third party achieve at least 80%.
- ❑ The amount of disbursement or release of guarantee adjusted with the assessment in the field.

Post-Mining (Ministerial Decree ESDM No.7/2014)

- ❖ Post-mining guarantee shall be collected entirely 2 years prior entering the post-mining activities.
- ❖ If does not meet the criteria for successful (accordance with the approved mine closure plan document) based on **evaluation and review is less than 60% until the end of the period**, the Government have authority to appoint a third party to perform the post-mining.
- ❖ The responsibility of maintenance and monitoring the land ended after the Government (many parties Forestry, Environmental, Local Government) gave the approval to handling over the land.
- ❖ If the permit expired, does not eliminate the obligation to carry out post-mining.
- ❖ The amount of disbursement or release of guarantee adjusted with the assessment in the field.

Provision in Local Regulation

- ❑ Mining activities that could potentially cause pollution and/or damage to the environment in terms of upgrading the production, has been obliged to **carry out the reclamation and re-vegetation of at least 40% of the land area that has been opened.** (Kaltim Local Regulation No. 1 of 2014)
- ❑ Mining activities that could potentially cause pollution and / or damage to the environment in terms of upgrading the production, has been obliged to **carry out the closure of at least 70% of the number of holes that have been opened.** (Kaltim Local Regulation No. 1 of 2014)
- ❑ Governor may send the monitoring result to Minister for further follow up, if the implementation of reclamation and post-mining may not in accordance with the document. (Kalsel Local Regulation No. 13 of 2013)
- ❑ Company should make study in detail that related to **special design for void in accordance with post-mining document and related regulations** (including forestry regulation). Company shall appoint the officer to lead in directly for the implementation of void design engineering. (Kalsel Local Regulation No. 015 of 2010)

Mine Planning Constraint and Consequences

Long-Term Plan (LOMP) for Mine Closure

- Forestry tax
- Forestry Reclamation Achievement Valuation
- Long liabilities period (cost)
- Take over by 3rd parties to do

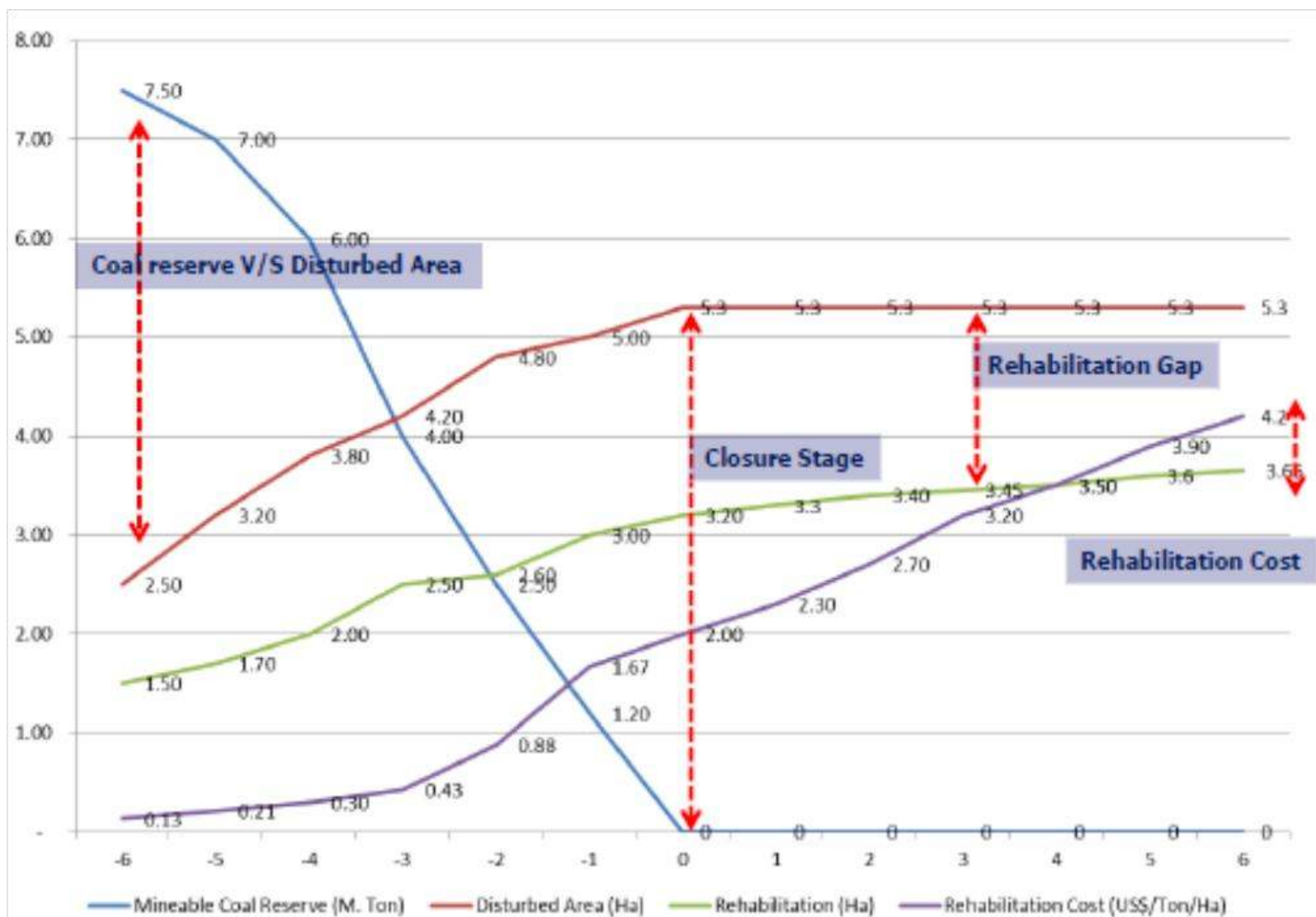
Medium – Term Plan for Reclamation Guarantee

- Reclamation Guarantee withdrawal
- Yearly production evaluation and approval
- Take over by 3rd parties to do

Yearly Plan for RKTTL

- Warning letter by Mining Department
- Temporary stop operation

Mine Rehabilitation Cost – Graph Analysis



THANK YOU



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