



A CASE STUDY ON:- SURFACE MINERS

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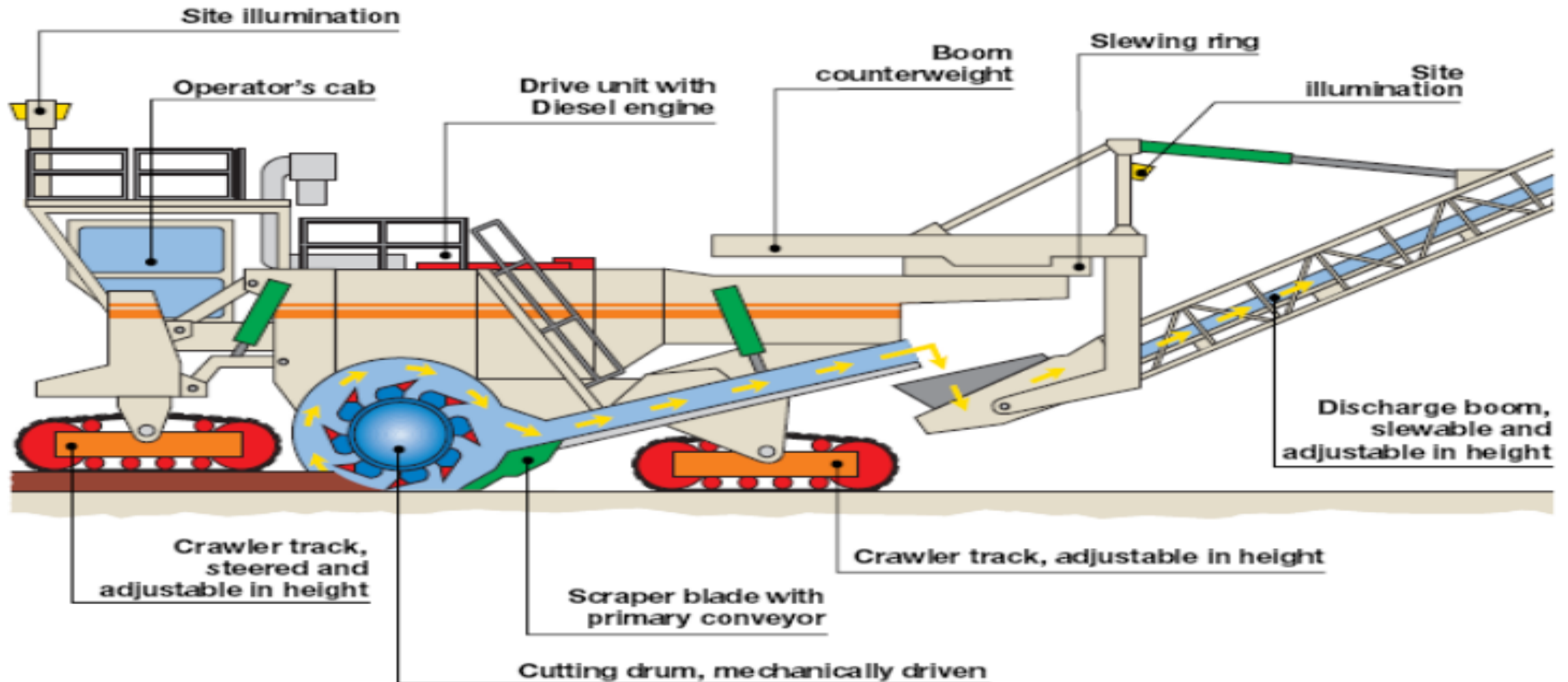


WHAT IS A SURFACE MINER?

- ❑ Continuously operated **mobile opencast machine**
- ❑ Expertise in cutting solid and semi-solid rocks **without drilling or blasting**
- ❑ Cut-material is **pre-crushed** and suitable for belt conveying, loading, transporting and send to downstream means of transportation



SURFACE MINER SCHEMATIC DIAGRAM



SURFACE MINER VS CONVENTIONAL MINING METHOD

SURFACE MINER

- ❖ No requirement of drilling, blasting and crushing is not here
- ❖ Stability of bench and high wall is comparatively much better
- ❖ Less capital investment and infrastructure is required
- ❖ Thin seam mining is possible as a result non-workable seam becomes workable
- ❖ Top of bench and high wall is smooth

CONVENTIONAL MINING METHOD

- ❖ Requirement of drilling, blasting and crushing
- ❖ Stability of benches and high wall is comparatively poor due to induced stress caused by blasting
- ❖ High capital investment and infrastructure is required
- ❖ Thin seam mining is not possible
- ❖ Top of bench and high wall is uneven

TYPES OF SURFACE MINER

1



Surface miner with front cutting drum

2



Surface miner with front boom cutting drum

3

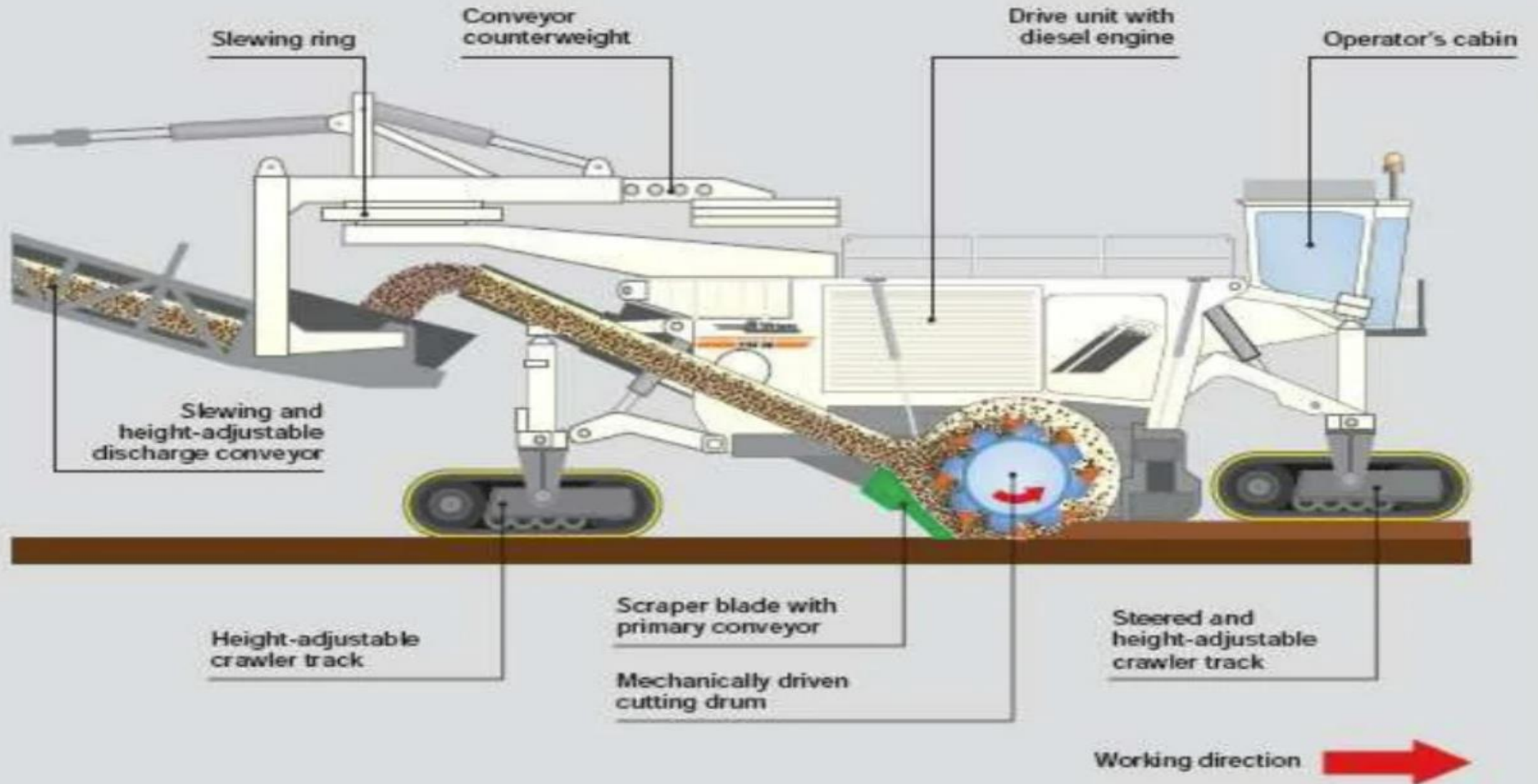


Surface miner with middle drum

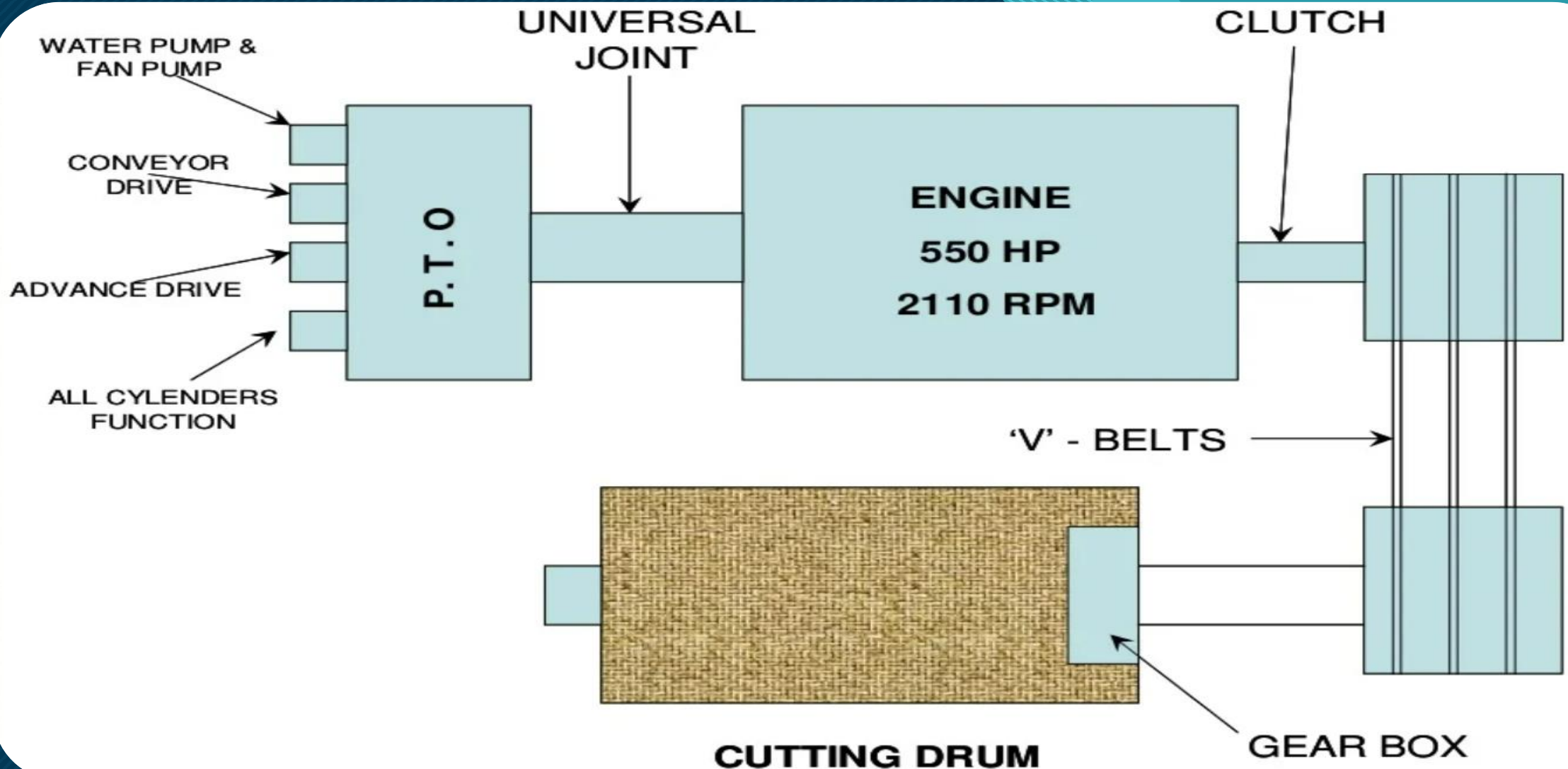
SPECIFICATIONS OF SURFACE MINERS UNDER DEPLOYMENT

	<u>2200SM</u>	<u>2100SM</u>
Overall length	18200 MM	15500 MM
Overall width	3800 MM	2500 MM
Overall height	4500 MM	4500 MM
Milling/Cutting Width-	3800 MM	2100 MM
Milling/Cutting depth-	0 – 300 MM	0 – 250 MM
Engine output	670 KW/900 HP	448 KW/610 HP
Make of the Engine	CATER PILLAR	CATER PILLAR
Engine Model	3412 E	3412 E
Maximum longitudinal tilting while milling:	5 Degrees	
No. of crawlers	4	4

HOW A MODERN SURFACE WORKS ?



SCHEMTIC DIAGRAM OF POWER TRANSMISSION



ADVANTAGES OF USING SURFACE MINER



**1. Direct
Excavation of
hard materials
without drilling /
blasting**



**2. Low cost for
multi seam
mining including
hard coal and
overburden**



**3. High recovery
rate of coal from
mines in very
harsh conditions**



**4. Possibility to
link the machine
directly to
continuous
conveyor
transport systems**



**5. Higher
productivity, less
hazard, eco-
friendliness and
better exploitation
of mines**

CONCLUSION

- **Surface Miner is a versatile equipment and quality equipment for mining quality coal in high inter-banded coal seams of geological blocks located at ecologically sensitive areas.**
- **Deployment of Surface Miners in most of public sectors undertakings like SECL, etc. due to improvement of quality by selective mining of coal especially in areas sensitive to mining.**





Thank You