BAUXITE MINES TO ALUMINIUM MARKET: A VALUE CHAIN GAP ANALYSIS

BY

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2ND LECTURE OF IBAAS 2026 TECHNICAL LECTURE SERIES

ON 27TH FEBRUARY 2026, FRIDAY.

BAUXITE MINES TO ALUMINIUM MARKET: A VALUE CHAIN GAP ANALYSIS

- ALUMINIUM INDUSTRIES VALUE CHAIN (AIVC)
- AIVC - STATE OF ODISHA
- DOWNSTREAM DEFICIT
- ODISHA – LINEAR VALUE ADDITION
- GERMANY – CIRCULAR ALUMINIUM ECONOMY
- ODISHA – INDUSTRIAL STATE OR LOCATION
- CONCLUSION

ALUMINIUM INDUSTRIES VALUE CHAIN (AIVC)

- RAW BAUXITE HAS LOW VALUE PER TONNE
- AFTER REFINING VALUE RISES TO MULTIPLE TIMES FOR ALUMINA, IT FETCHES GLOBAL ALUMINA PRICE WHEN EXPORTED
- FINAL ALUMINIUM METAL FETCHES GLOBAL INDUTRIAL PRICING
- DOWNSTREAM FABRICATED AND MACHINERY EVEN MORE

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ALUMINIUM INDUSTRIES VALUE CHAIN – PRICING OF PRODUCTS

- RAW BAUXITE – 70 TO 80 US DOLLAR PER TONNE
- ALUMINA – 400 TO 600 US DOLLAR PER TONNE
- ALUMINIUM METAL – 3000 US DOLLAR PER TONNE
- DOWNSTREAM FABRICATED AND MACHINERY - EVEN MORE
- 5 TO 6 TONNES OF BAUXITE PRODUCE ONE TON OF PRIME METAL ALUMINIUM.

ALUMINIUM INDUSTRIES VALUE CHAIN (AIVC)

Stage	Input required in tonne/ tonne of metal	Share of Aluminium value in %	Rough price/ tonne in US dollar	Value in US dollar/ tonne	Value addition gap in dollar/ tonne
Raw Bauxite	5 to 6	2 to 3	70 to 80	350 to 480	2920 to 2930
Alumina	2	13 to 20	400 to 600	800 to 1200	2400 to 2600
Aluminium	Final product	100	3000	3000	

ALUMINIUM INDUSTRIES VALUE CHAIN (AIVC) -ODISHA

- ROYALTY ON BAUXITE
- DISTRICT MINERAL FUNDS (DMF)
- CSR FUNDS,
- GST FROM OPERATIONS,
- LOCAL JOBS OF LOW SKILL,
- LOW VALUE CIVIL WORKS

ALUMINIUM INDUSTRIES VALUE CHAIN (AIVC) COST - ODISHA

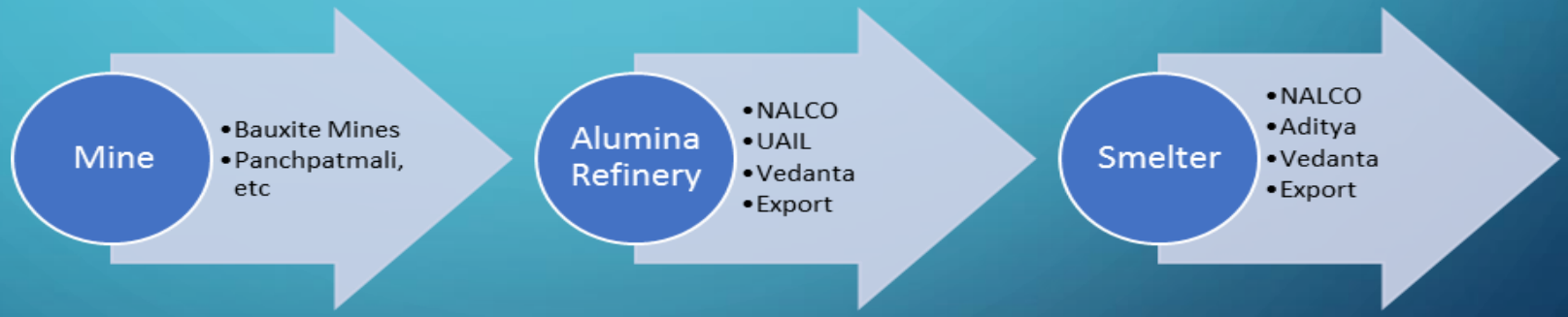
- BAUXITE AND ALUMINA DOMINANCE
- RED MUD BURDEN,
- WATER CONSUMPTION,
- ENVIRONMENTAL COST,
- DISPLACEMENT OF PEOPLE.

DOWNSTREAM DEFICIT IN ODISHA

- No secondary smelting
- Very limited extrusion
- Limited Rolling Mill facilities, no extruded profiles, automotive parts
- No alloy plants
- No Electric Vehicles manufacturing base
- No construction items production
- No packaging industries
- Poor consumption Aluminium per capita

ODISHA – LINEAR VALUE ADDITION

EXTRACTIVE ECONOMY



GERMANY – CIRCULAR ALUMINIUM ECONOMY

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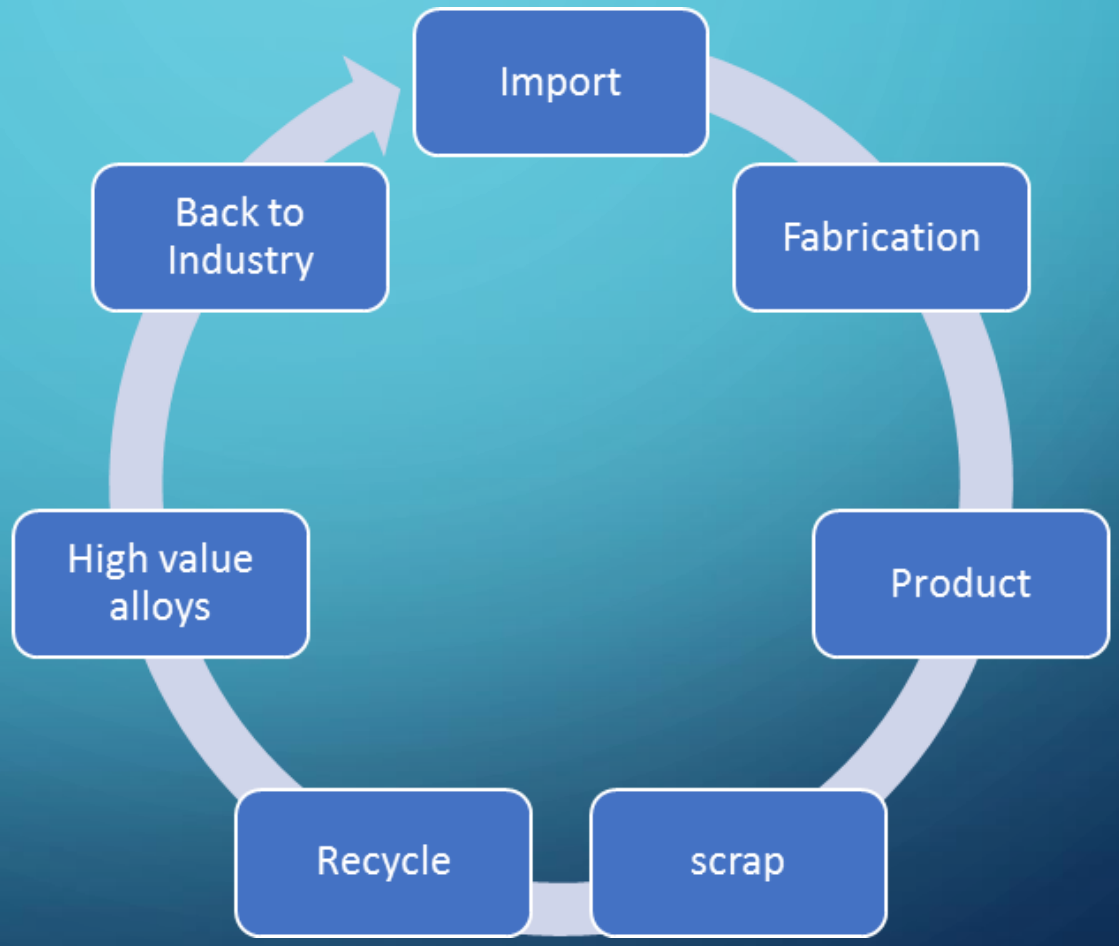

ALUMINIUM VALUE CHAIN COMPARISION

- CHINA OR GERMANY DEMONSTRATES THAT ALUMINIUM LEADERSHIP IS NOT DETERMINED BY GEOLOGICAL ENDOWMENT
- BUT BY INSTITUTIONAL DESIGN,
- DOWNWARD INDUSTRIAL DEPTH,
- CIRCULAR ECONOMY GOVERNANCE

ALUMINIUM VALUE CHAIN COMPARISION

- ODISHA VS GERMANY

Odisha	Germany
Mining	Fabrication
Refining	Product design
Primary Smelting	Recycling
	Advance Alloys

ODISHA – LINEAR VALUE ADDITION

- ACHIEVING ATMANIRBHAR BHARAT IN ALUMINIUM WILL THEREFORE REQUIRE A STATE POLICY
- STRATEGIC TRANSITION FROM LINEAR EXTRACTIVE GROWTH TO CIRCULAR ECONOMY NEED MATERIAL INTELLIGENCE
- PRIME ALUMINIUM AND SCRAP WILL BE RAW MATERIALS FOR GROWTH OF MSME
- THE SCRAP WILL BE RECYCLED TO TURN INDUSTRIAL PILLAR RATHER THAN AN EXPORT-ORIENTED UNITS OF ALUMINA AND ALUMINIUM.
- ODISHA WILL NO MORE BACKWARD STATE RATHER THE REGION IS UNDER-UTILIZED IN THE ALUMINIUM VALUE CHAIN.

ODISHA – INDUSTRIAL STATE OR LOCATION

- STATE DIRECT BENEFITS ARE ROYALTY ON BAUXITE, DMF AND CSR FUNDS, GST FROM OPERATIONS, LOCAL JOBS OF LOW SKILL, AND LOW VALUE CIVIL WORKS
- ARE RECURRING, BUT OF LOW VALUE AND LIMITED.
- HIDDEN OPPORTUNITY COSTS WHICH AREAS OUTSIDERS CAPTURE
- STATE IS LOSING - EPC CONTRACTS, STEEL, CONSTRUCTION, PROCESS EQUIPMENT, AUTOMATION AND DIGITAL, TECHNOLOGY, SPARES AND MAINTENANCE.
- CONSULTING AND DESIGN DURING PROJECT STAGE PROJECT SUPPLIES.
- THIS INDICATES THAT ODISHA HOSTS THE ALUMINIUM INDUSTRIES
- DOES NOT OWN THE INDUSTRIAL PROJECT AND KNOWLEDGE ECONOMY
- WHERE THE STATE IS RESOURCE- RICH BUT MANUFACTURING CAPABILITY REMAINS OUTSIDE SINCE INCEPTION OF THE PROJECT.

ODISHA – INDUSTRIAL STATE OR LOCATION

- ODISHA CAN BENEFIT BY INCREASING THE INDUSTRIAL CAPABILITY RATHER PRODUCTION CAPACITY.
- INDUSTRIAL CAPABILITY SHALL BEAR WITH WORKING ON METAL AND MACHINERIES BY THE PEOPLE OF THE STATE.
- LOCAL MANUFACTURING SHALL START WITH VESSELS, MATERIAL HANDLING EQUIPMENT, FABRICATED STRUCTURES, REFRACTORIES, MINING EQUIPMENT, PLANT SPARES, DESIGN FIRMS AND CONSTRUCTION COMPANIES.
- THE MEGA PROJECTS ON ALUMINIUM INDUSTRIES IN ODISHA HAVE MASSIVE INVESTMENT, OPENS JOBS TO LIMITED, CREATED INDUSTRIAL PARKS
- VALUE IS ADDED TO BAUXITE, AND TO ALUMINA TO MAKE ODISHA AN ALUMINIUM HUB. IN REALITY THE TECHNOLOGY HUB IS OUTSIDE.
- LOCAL HAS LIMITED INVESTMENT CAPABILITY, JOBS ARE LIMITED TO LOW-SKILL,
- INDUSTRIAL PARKS ARE STILL ASSEMBLY, NOT MANUFACTURING,
- VALUE ADDITION TO SOME PART OF ALUMINA AND TO ALUMINIUM HAPPENS AT ABROAD/ OUTSIDE THE STATE.

CONCLUSION

- ODISHA REPRESENTS THE PARADOX OF INDIAN INDUSTRIALISATION
- FEEDS THE GLOBAL ALUMINIUM ECONOMY BUT REMAINS EXCLUDED FROM THE GLOBAL ALUMINIUM VALUE CHAIN
- ATMANIRBHAR BHARAT IN ALUMINIUM WILL NOT BE ACHIEVED BY DIGGING DEEPER INTO THE EARTH
- CAN BE ACHIEVED BY CIRCULATING THE SAME ALUMINA
- SETTING UP SECONDARY SMELTERS, DOWNSTREAM INDUSTRIES IN CIRCULAR ECONOMY
- IT APPLIES TO OTHER MINERALS IN EASTERN INDIA

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ANY QUESTION PLEASE

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THANKS