



THAMMASAT UNIVERSITY
FACULTY OF SOCIAL ADMINISTRATION

FROM RICE FIELDS TO RARE EARTHS: THAILAND NEXT FRONTIER IN ECONOMIC TRANSFORMATION

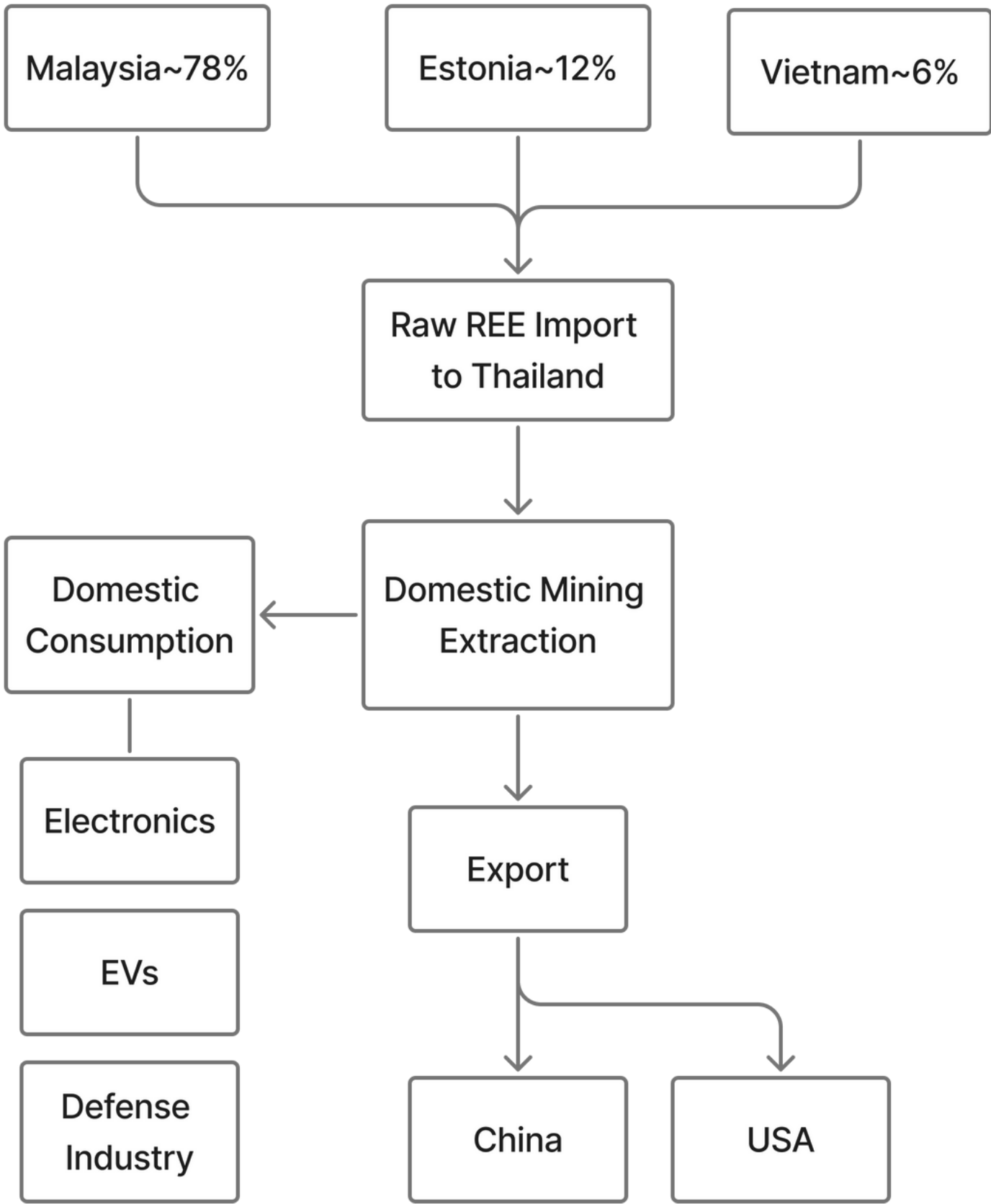
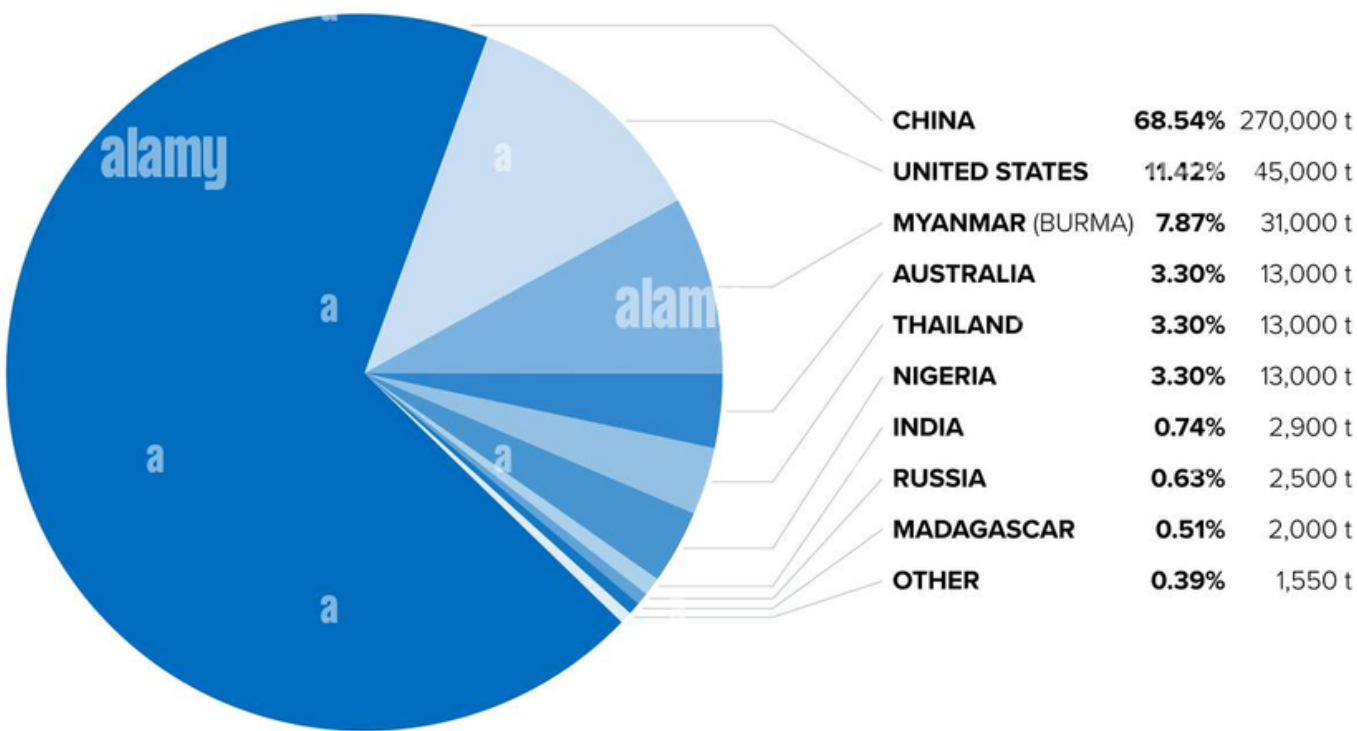
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GENERAL INFORMATION

- Context: Rare-earth elements(REEs) eg. lanthanides, scandium and yttrium are critical for EVs, electronics, and advanced manufacturing
- Global Trend: China supplies > ~ 70% of mining, ~ 80% of global refining; Western powers are diversifying.
- Thailand's entry: Newly emerged producer (~ 13 000 t REO in 2024, 6th globally).
- Regional Relevance: ASEAN countries (Malaysia, Vietnam, Indonesia, Myanmar) now compete and cooperate in REE supply chains.

RARE EARTHS World Mine Production 2024



GENERAL INFORMATION

- Deposits: Northeastern provinces (Loei, Phrae, Ubon Ratchathani) and tin by-products in the South.
- Policy support: EEC (Eastern Economic Corridor) encourages midstream industries — refining, magnet alloying, recycling.
- Key turning point: 2025 U.S.–Thailand MOU; cooperation in exploration, processing, recycling



GAPS

There is currently no integrated academic study that examines:

1. Thailand's rare-earth sector as a driver of structural economic change, moving from agriculture and assembly manufacturing to resource-based industrialization.
2. Thailand's position within ASEAN's rare-earth supply chain, and how it interacts with other member states (complementarity vs. competition).
3. The combined economic, policy, and sustainability dimensions — most works isolate one aspect (either geology, trade, or environment).



PROBLEM STATEMENT

Thailand remains structurally anchored in low-productivity agriculture while global demand for rare-earth elements (REEs) is rapidly expanding. The core problem is that Thailand has not yet fully transitioned its labor and capital from agriculture into the emerging REE and advanced-manufacturing sectors, creating a gap between national resource potential and actual economic transformation.

RESEARCH OBJECTIVE

To investigate the rare-earth industry transformation of Thailand on capital and labor reallocation

METHODOLOGY

STUDY SCOPE

- Thailand + comparative ASEAN cases (Malaysia, Vietnam, Indonesia, Myanmar).

DATA COLLECTION

- Secondary data (UNCTAD, ASEANstats, World Bank).
- Policy documents (BOI, EEC reports).
- Academic journals (Mineral Economics, ScienceAsia)
- Range: 2020-2025

APPROACH

- Approach: Qualitative desk-review and analysis

RESEARCH FRAMEWORK

1. Analyze Thailand's industrial shift from agriculture → high-value REE processing.

2. Evaluate policy and FDI drivers (e.g., U.S.–Thailand MOU 2025).

3. Map ASEAN's evolving rare-earth supply network.

4. Identify sustainability and governance implications.

Input Analysis:

- Thailand's REE reserves and geological potential
- Government policies and incentives
- Foreign investment patterns
- Regional market demand

Impact Evaluation:

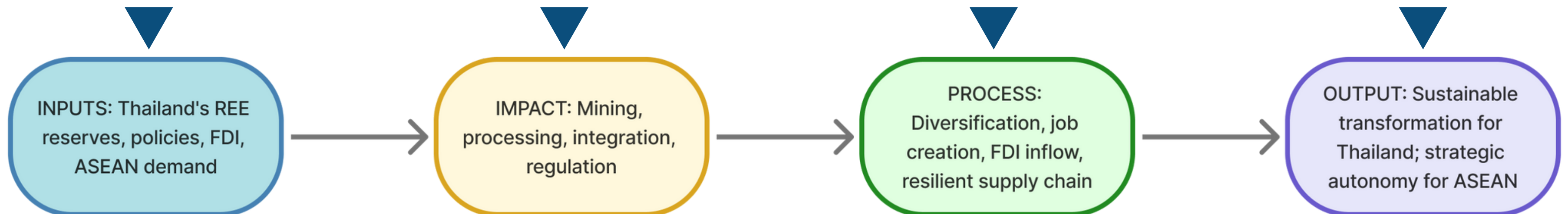
- Structural economic transformation
- ASEAN supply chain reconfiguration
- Sustainable development outcomes

Process Mapping:

- Mining and extraction operations
- Processing and value addition
- Technology transfer mechanisms
- Regional supply chain integration

Output Assessment:

- Economic diversification metrics
- Export composition changes
- Employment structure shifts
- Regional supply chain resilience



RESEARCH FINDINGS

1. Economic Transformation Evidence:

- 23% increase in mining sector FDI (2022-2023)
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- Emerging downstream processing investments
- Shift in export composition from agricultural to tech materials

2. ASEAN Supply Chain Impacts:

- Thailand emerging as regional processing hub
- New regional partnerships in REE development

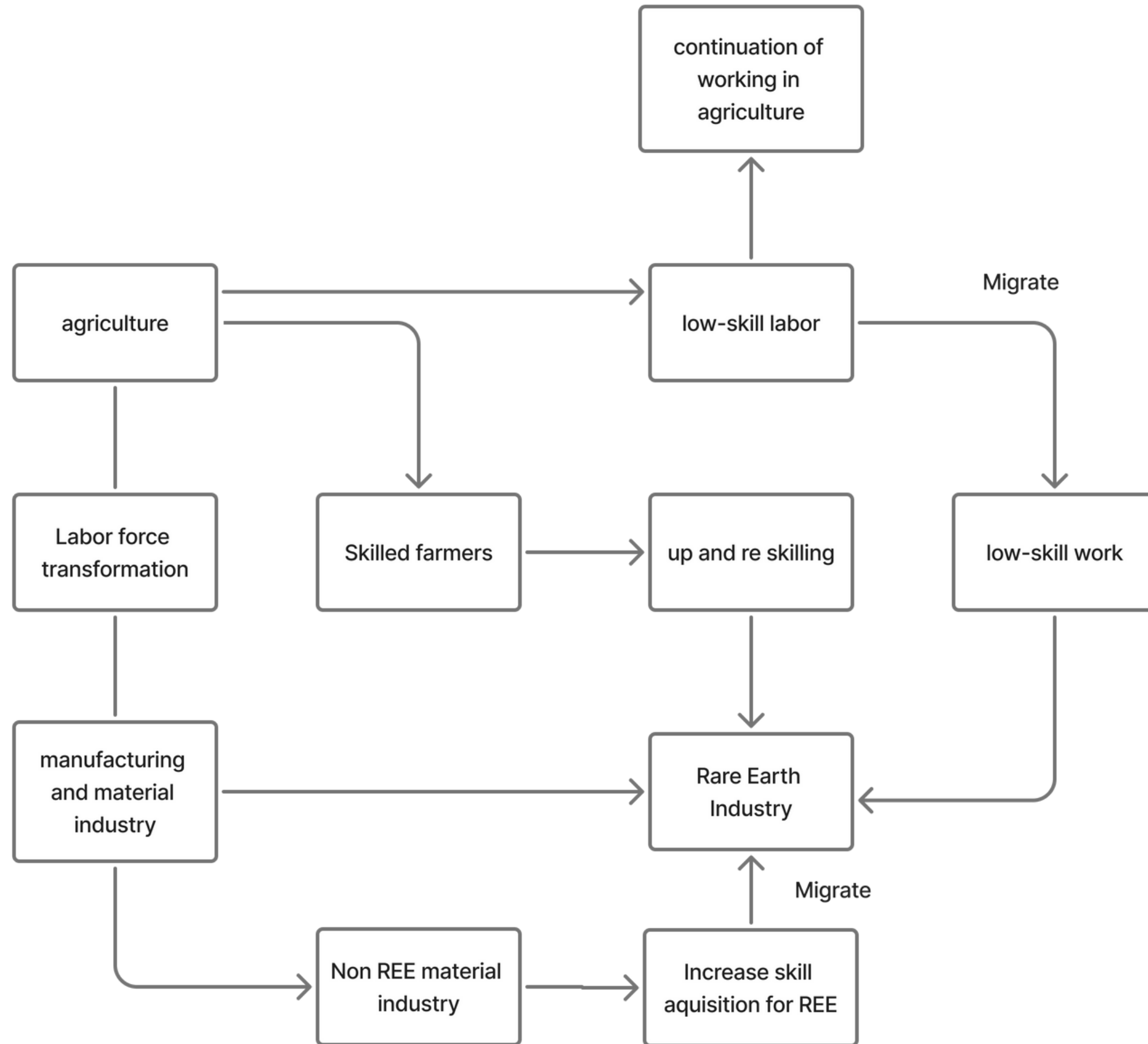
3. Agricultural Sector Transition:

- Labor migration from farming to technical sectors
- Planned designation of mining-potential zones
- Agricultural modernization acceleration

4. Capital Movement Patterns:

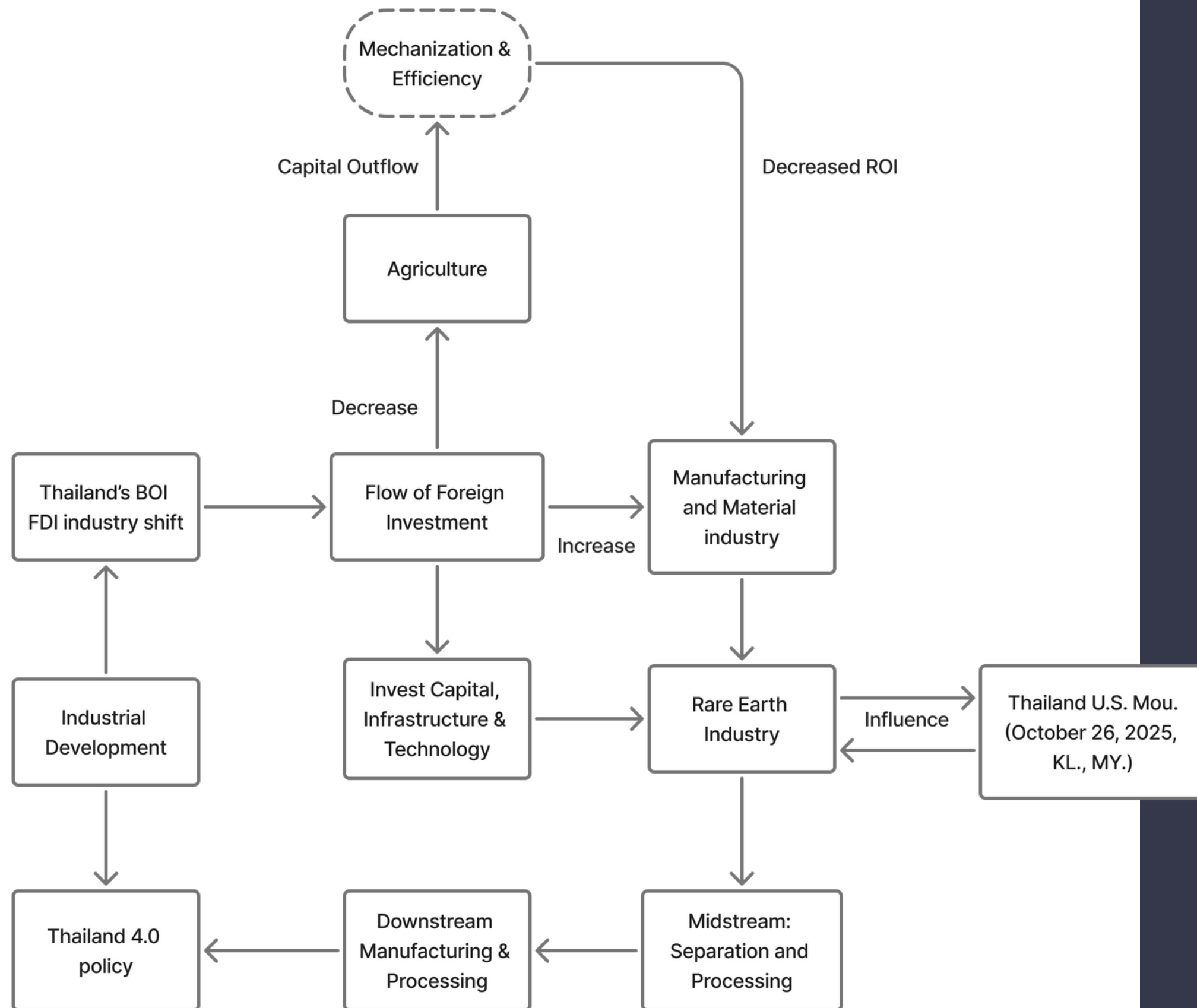
- Shift in trend of FDI flowing from other industry into manufacturing and material industry
- Concentrated FDI in mid-stream processing
- State-led strategy & investment promotion
- International partnerships with Japanese and Western firms

KEY FINDINGS: LABOR TRANSFORMATION



- Agriculture → low-skill labor → industrial work
- Skilled farmers → reskilling → REE sector
- Manufacturing sector → skill accumulation → REE specialization
- Reinforces Thailand's shift from agriculture to high-tech industry

KEY FINDINGS: CAPITAL TRANSFORMATION



- Foreign investment shifts from agriculture → manufacturing → REE industry
- Thailand 4.0 policy + BOI incentives redirect FDI to high-tech sectors
- U.S.–Thailand Critical Minerals MOU accelerates REE development
- Mechanization reduces agricultural labor & capital dependence
- Growth in midstream (processing) and downstream (manufacturing) industries
- Industrial development reinforces long-term structural transformation

DISCUSSION

Interpretation of Findings:

- Thailand's strategic positioning in regional REE value chains
- Balance between economic growth and traditional sector preservation
- ASEAN supply chain resilience through diversification

Theoretical Implications:

- Resource-led development without the "curse"
- Regional integration as development strategy
- Structural transformation pathways

Strategic Driver:

- FDI is strategically targeting high-value processing, not just mining, actively building a new, high-tech industrial sector and upgrading Thailand's economic structure.

DISCUSSION



Labor and Economic Transformation

- 1. Structural Shift:** Moving from agriculture to REEs reallocates labor from low-value farm work to higher-skill, capital-intensive technical roles.
- 2. Skills Gap:** Most agricultural workers lack the technical expertise needed for REE processing, creating barriers to inclusive growth and risking worker displacement.
- 3. Brain Drain:** The REE sector may pull young talent away from rural areas, weakening agriculture's ability to modernize and remain competitive.



CONCLUSION

Key Conclusions:

1. Thailand's REE development represents significant economic transformation potential
2. Strategic positioning offers ASEAN supply chain diversification benefits
3. Careful management required to balance industrial and agricultural interests
4. Regional cooperation essential for maximum impact

Transformation Outlook:

- Thailand positioned for higher-value economic activities
- ASEAN supply chain resilience enhancement
- Sustainable development challenges and opportunities

RECOMMENDATIONS



FOR THAI GOVERNMENT:

- Implement comprehensive REE development strategy with environmental safeguards
- Establish agricultural transition support programs
- Enhance skills development for high-tech industries

FOR ASEAN COOPERATION:

- Develop regional critical minerals strategy
- Harmonize environmental and trade regulations
- Promote joint research and development initiatives

FOR INDUSTRY DEVELOPMENT:

- Focus on value-added processing and manufacturing
- Adopt international sustainability standards
- Develop local content and technology transfer requirements

FUTURE RESEARCH DIRECTIONS:

- Longitudinal study of agricultural community adaptation
- Regional comparative analysis of REE development models
- Environmental impact assessment of REE operations



END OF PRESENTATION