Best Practices in Implementation of Planned Transmission Systems

9-JUN-2026

Presented by

Pauk Kyaing Sahm (Mr.)
Assistant Director

Aye Myat Khaing (Ms.)
Staff Officer

The Republic of the Union of Myanmar
Ministry of Electricity and Energy
Department of Power Transmission
and System Control

PHOTO: 500 kV Kankaung – Sabakywe Transmission Line (Myanmar)

Quick Energy Facts

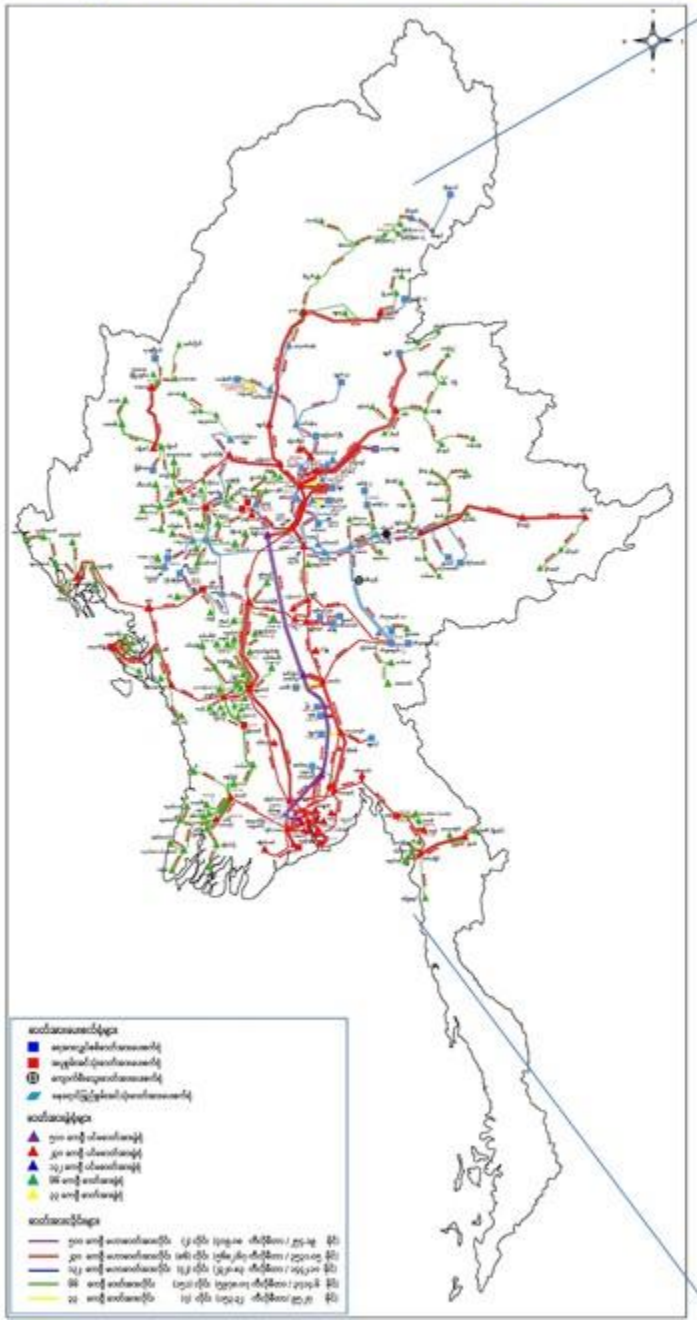
Member countries of BIMSTEC

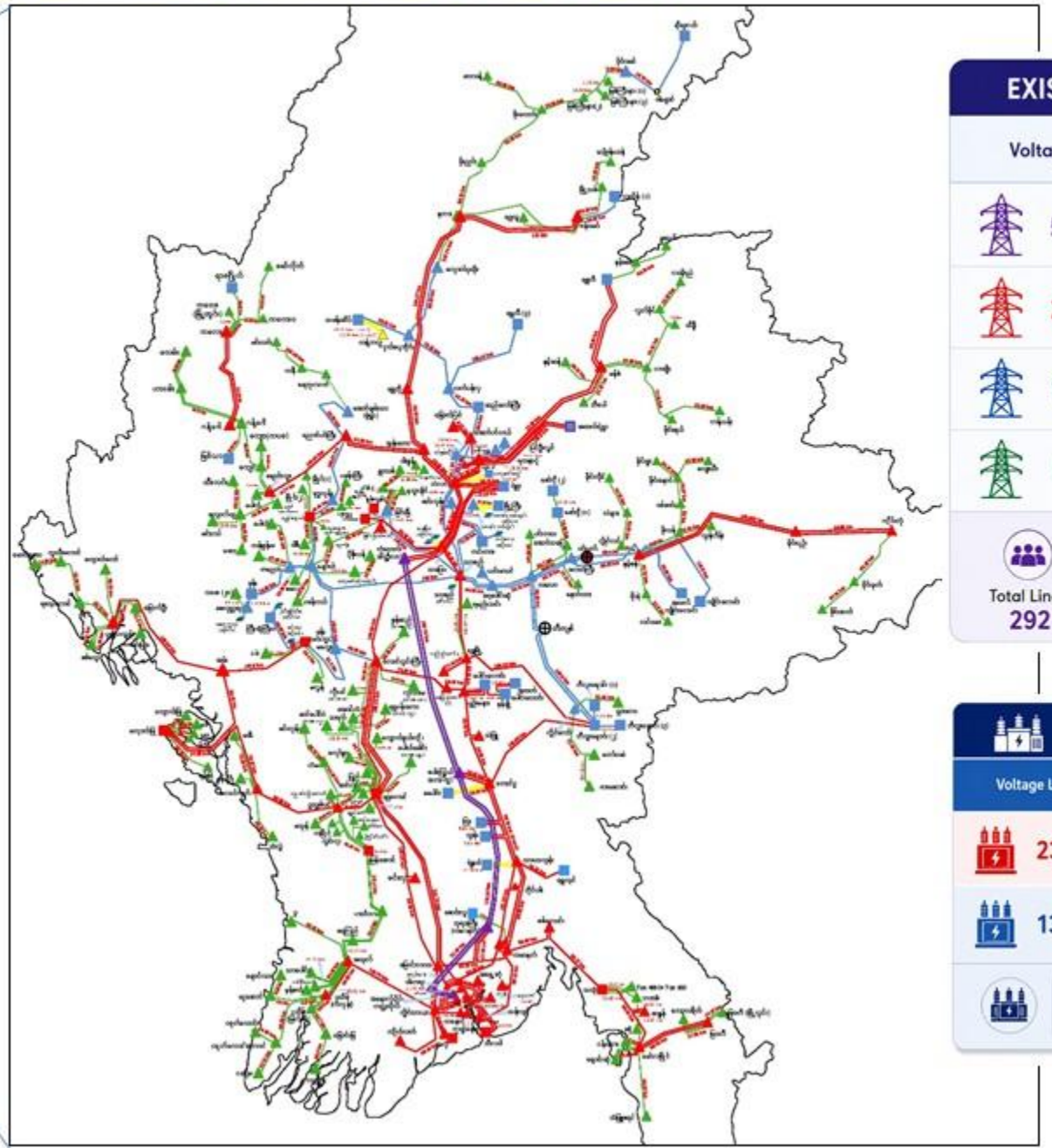
Indicator	Trend
Southeast Asia electricity demand	+60% over last 10 years
Expected future demand growth of SEAsia	~4–5% annually
South Asia energy demand growth	~5% annually
BIMSTEC GDP growth	4.7–7.4% annually
BIMSTEC GDP increase (2011–2019)	USD 2.5T → USD 3.7T
Global electricity growth contribution	Emerging Asia is among the largest contributors

Sources: IEA, BIMSTEC Energy Outlook, Reuters, World Bank.

PICTURE: https://epthinktank.eu/map_south-south-east-asia_highlights_gw/

Myanmar's Power Transmission Infrastructure





EXISTING TRANSMISSION LINES

Voltage Level	No. of Lines	Length (miles)
500 kV	3	313.65
230 kV	89	3,549.91
132 kV	44	1,532.82
66 kV	156	3,814.38

Total Lines	Total Length	Voltage Levels
292	9,210.76 miles	4

EXISTING SUBSTATIONS

Voltage Level	No. of Substations	Installed Capacity (MVA)
230 kV	55	11,261 MVA
132 kV	21	2,265 MVA

TOTAL SUBSTATIONS	TOTAL INSTALLED CAPACITY
76	13,526 MVA

Myanmar's Strategic Position for Regional Power Connectivity

A Natural Energy Bridge Linking BIMSTEC, ASEAN and China

BIMSTEC

Population
~1.8 billion

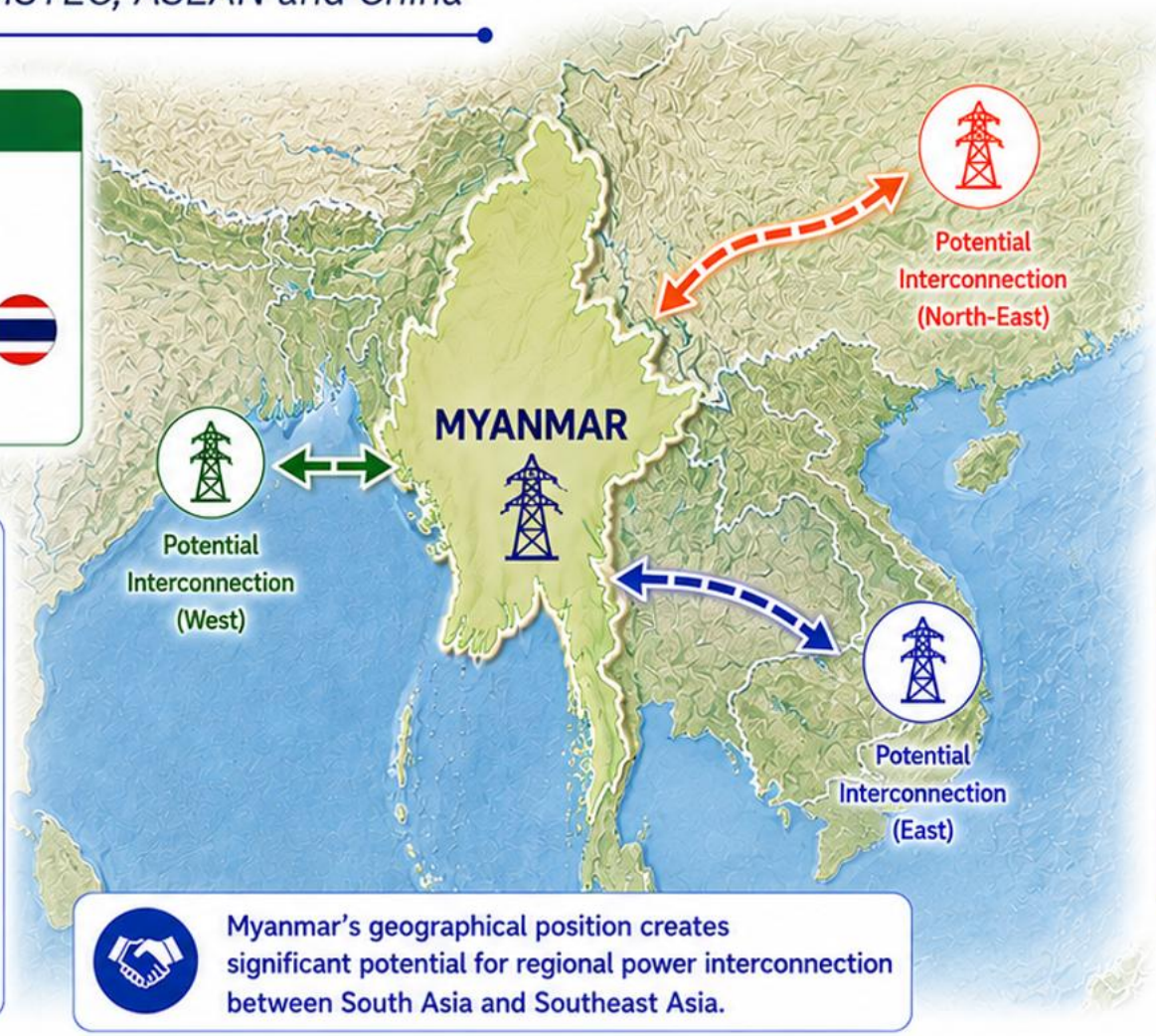
GDP
~USD 5 trillion

7 Countries

CHINA

Population
~1.41 billion

GDP
~USD 18.74 trillion



Key Strategic Advantages

- Borders BIMSTEC, ASEAN, and China – access to large and growing markets
- Gateway between South Asia and Southeast Asia
- Potential transit corridor for regional electricity trade
- Opportunity to strengthen regional energy security
- Potential to become a regional energy bridge

Myanmar's geographical position creates significant potential for regional power interconnection between South Asia and Southeast Asia.

ASEAN

Population
~690 million

GDP
~USD 4 trillion

11 Member Countries

Vision: To develop reliable transmission interconnections and become a key contributor to regional energy integration and sustainable development.

Sources:

- World Bank, World Development Indicators, 2024
- IMF World Economic Outlook, 2024
- ASEAN Statistical Yearbook, 2023
- BIMSTEC Energy Outlook 2035

Challenges in Transmission Project Implementation

Financial

- High Capital Investment
- Limited Concessional Financing
- Currency and Investment Risk

Land & RoW Challenges

- Land Acquisition
- Right of Way Negotiations
- Environmental & Social Concerns

External Challenges

- Supply Chain Constraints
- Accessibility Issues

Technical

- Grid Integration
- Design Challenges
- Construction Challenges

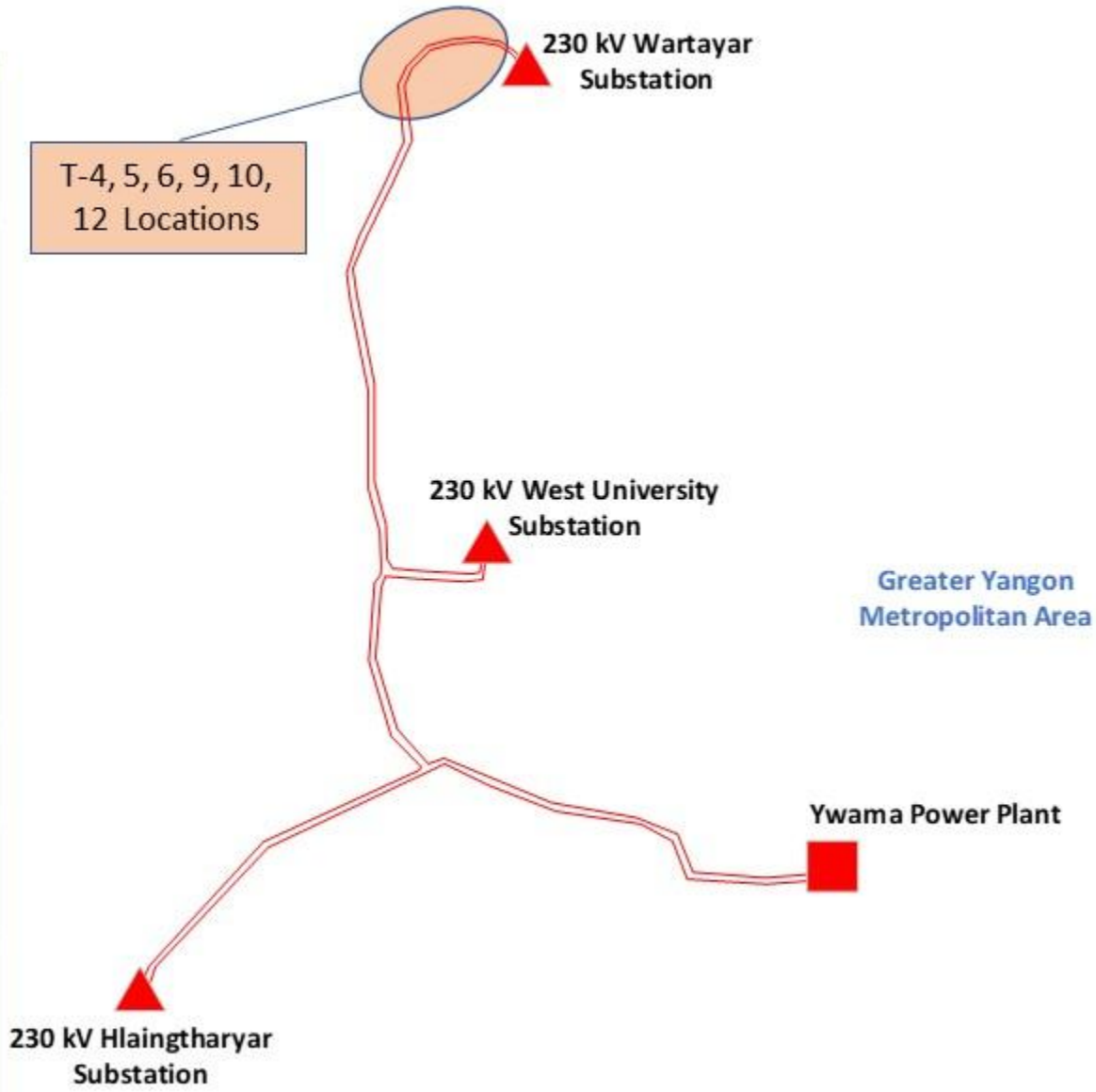
Institutional

- Coordination among agencies
- Multi Stakeholders Decision Making
- Regulatory Approval

Challenges in Transmission Project Implementation – Case Study-1

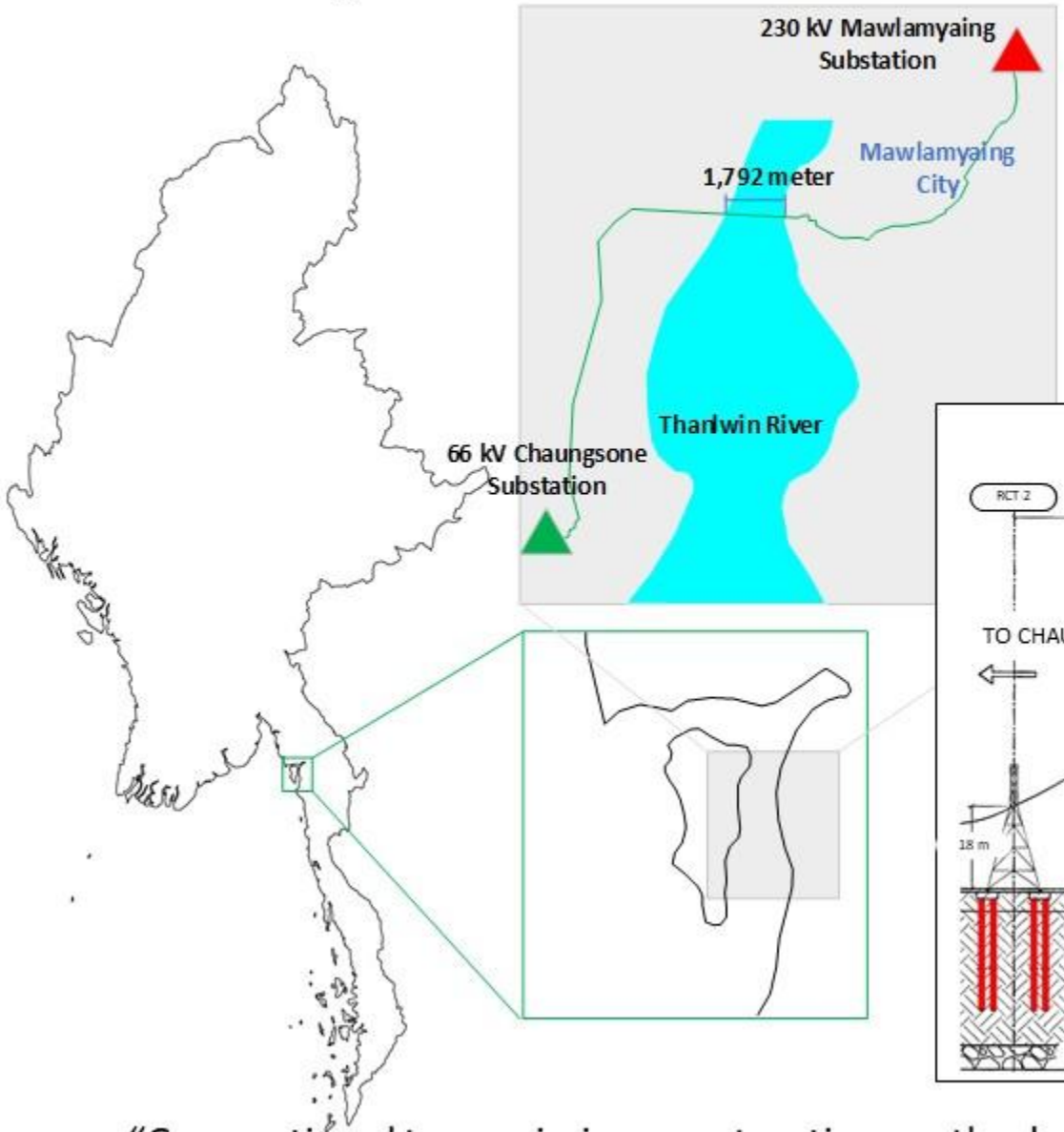
Delay due to Right of Way Negotiations

Project Name	**230 kV Wartayar - (Ywama - Hlaingtharyar) Transmission Line**
Objective	To Strengthen Power Grid in Yangon and Ayeyarwaddy Region
Line Length	(8.04) mile, (40 Lattice towers)
Objection	Objection at Tower No. T-4,5,6,9,10,12 *(Local objections from land owners and affected communities caused work suspension and delays)*
Construction Start	2018
Planned Finish Date	12/2020
Actual Finish Date	21-FEB-2022 ***(Delay mainly due to objection at Tower No. T-4,5,6,9,10,12)***



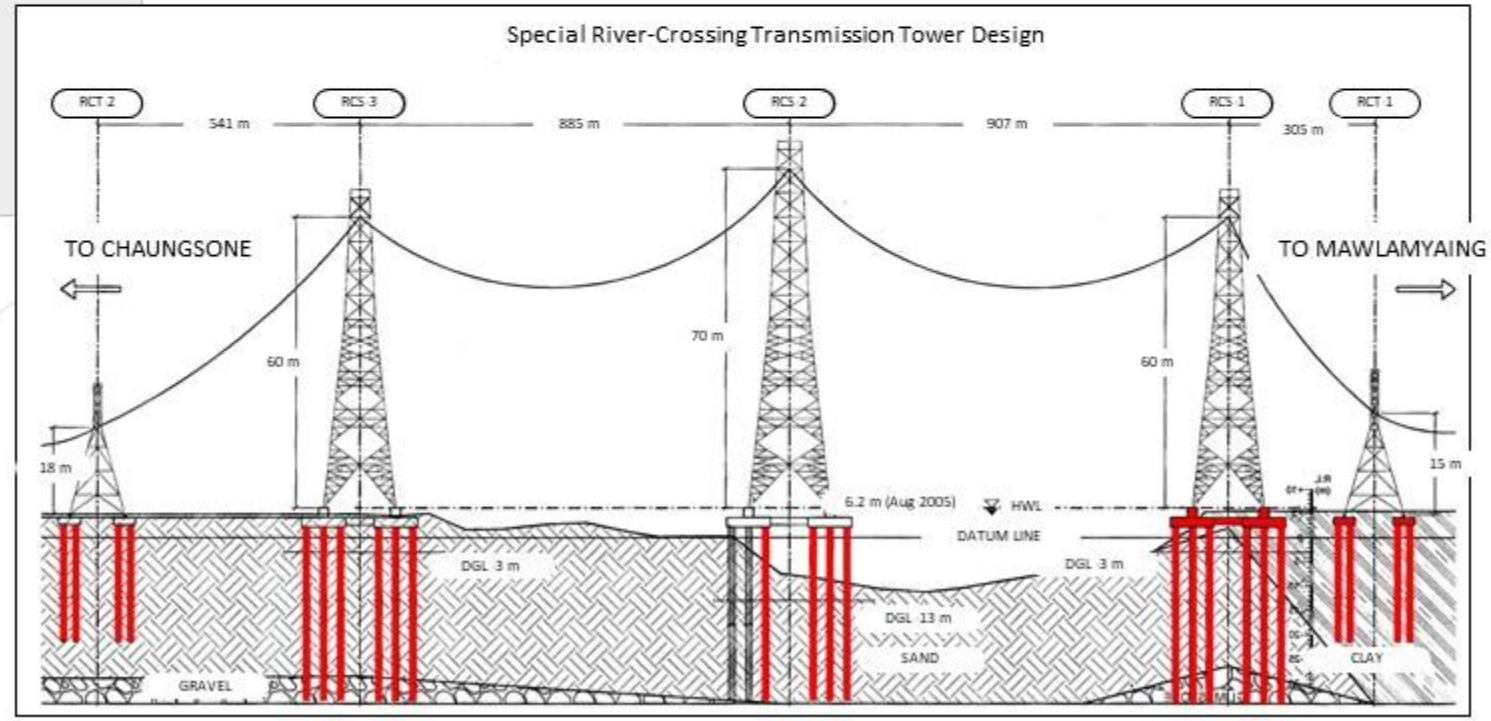
Challenges in Transmission Project Implementation – Case Study-2

Technical Challenges



Key Technical Challenges

- Long river crossing span of approximately 1.8 km
- Construction of 90-meter-high transmission towers
- Tidal river conditions and variable water levels
- Deep foundation construction in soft riverbed conditions
- Transportation and erection of heavy tower members over water



"Conventional transmission construction methods were not fully applicable under the river-crossing conditions."

Challenges in Transmission Project Implementation – Case Study-2

Overcoming Technical Challenges

Foundation of River Crossing Tower

Inter-agency coordination for marine foundation construction

Tower Erection in Progress

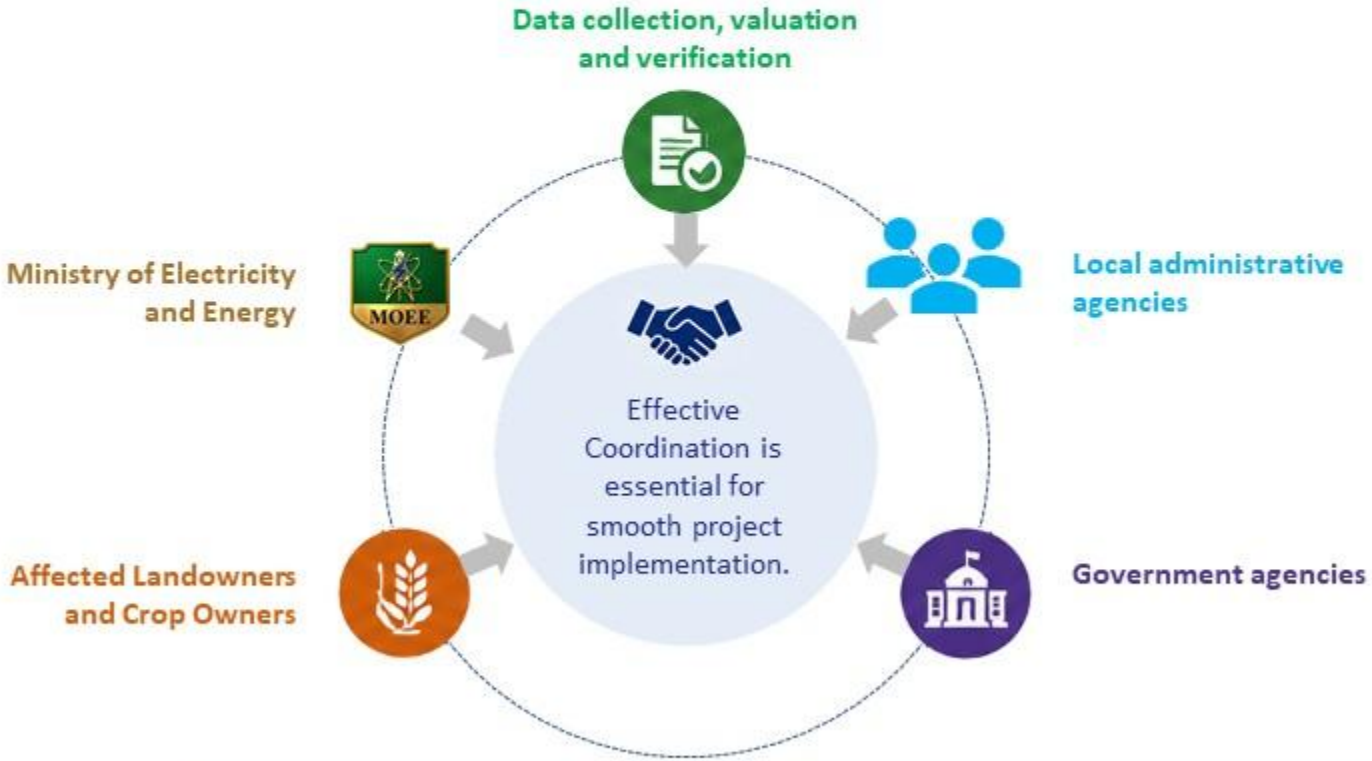
Key Best Practices

- Multi-agency coordination
- Specialized marine construction methods
- Detailed geotechnical investigation
- Careful construction sequencing
- Use of heavy lifting equipment and barges

Challenges in Transmission Project Implementation

Institutional Challenges

Compensation processes for transmission line and substation projects require extensive coordination among multiple government agencies and affected communities. Activities including data collection, verification, valuation, approvals, budget allocation, and compensation payment may require considerable time, which can affect project implementation schedules.



Good Practices for Improvement

- Early engagement with affected communities
- Regular inter-agency coordination
- Clear communication and information sharing
- Standardized procedures and data systems

Key Takeaway: Strengthening institutional coordination and stakeholder engagement is essential to ensure fair compensation and minimize delays in transmission project implementation.

Challenges in Transmission Project Implementation

External Challenges

External factors beyond project control can impact schedule, cost, and site accessibility.

1 Supply Chain Constraints

Manufacturing Delays → Shipping Delays → Logistics & Delivery Delays

- Delays in manufacturing and international shipping of equipment and materials.
- Port congestion
- Limited availability of critical equipment.

Impact: Schedule slippage.

2 Accessibility Issues

Difficult Terrain & Remote Areas | Adverse Weather Conditions

- Difficult terrain and remote locations increase mobilization time and cost.
- Limited access roads and long approach routes cause delays.
- Adverse weather (heavy rain, floods, storms) disrupts construction activities.

Impact: Work suspension and access delays.

Key Takeaway: Proactive planning, risk assessment, and strong coordination with suppliers, local stakeholders, and administrative agencies are essential to mitigate external challenges

Challenges in Transmission Project Implementation

Financial Challenges

Transmission projects require substantial investment.

1

Budget

Budget availability limits

2

Large Capital Requirement

High initial investment is required for transmission lines and substations.

3

Competing National Infrastructure Priorities

Competing infrastructure needs across sectors limit available funding.

4

Foreign Currency Exposure for Imported Equipment

Dependence on imported equipment exposes projects to currency fluctuation limit

Effective financial planning, prioritization and strategic partnership are essential to ensure sustainable and timely implementation

Key Best Practices for Transmission Project Implementation

Experience from Myanmar's transmission projects shows that successful implementation depends on careful planning, strong coordination, technical adaptability and sustainable financing.

1 Early Stakeholder Engagement

- Early consultation with affected communities
- Proactive RoW Management
- Fair and transparent compensation process
- Build trust and support from stakeholders

2 Strong Inter-agency coordination

- Close coordination among relevant government agencies
- Streamlined approval and clear communication
- Timely institutional support and decision making

3 Technical Adaptability

- Site-specific engineering solutions
- Detailed geotechnical and hydrological studies
- Appropriate construction methods and technologies
- Ensure safety, quality and reliability

4 Proactive Risks & Schedule Management

- Identify risks early and prepare mitigation plans
- Effective supply chain and logistics planning
- Consider site accessibility, weather and environmental factors
- Monitor progress and take corrective actions

5 Sustainable Financial Planning

- Prioritize projects based on national and regional needs
- Ensure timely budget allocation
- Optimize use of resources and control costs
- Explore strategic partnerships and financing opportunities

Successful transmission infrastructure implementation requires integrated coordination among technical, financial, institutional, and social stakeholders.

Thank you

ကျေးဇူးတင်ပါတယ်။