

UNFINISHED CONNECTIVITY IN THE BAY OF BENGAL

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Fellow, Energy & Environment Studies Programme

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Amit has worked in the business media and financial markets for over a decade. He started his career with Economic Times, where he tracked the energy sector. He was a part of the startup team of ET Now, the business news channel. Amit was responsible for setting up India Reality Research, a new research outfit within CLSA India, a stock broking firm. He has also worked with Deccan Chronicle Group as the business editor for their general dailies. He holds an Masters in Business Administration from IIM- Ahmedabad and a Bachelors degree in Technology from IT-BHU.

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Unfinished Connectivity in the Bay of Bengal

The Bay of Bengal, the natural bridge between South Asia and Southeast Asia, is gaining economic and strategic relevance as a significant sub-region within the Indo-Pacific. Almost 1.4 billion people live in the surrounding countries, and almost one-quarter of trade in global goods cross its waters every year. The Bay of Bengal increasingly matters in global strategic competition.

Yet despite its importance to regional security and prosperity, this series of maps reveals inadequate financial, physical, and energy connectivity. India's strategic and political pre-eminence and influence in the Bay of Bengal is diminished by its limited connectivity with Bangladesh, Myanmar, Thailand, Nepal, and Sri Lanka. This is in sharp contrast to China, which in recent years has built a significant presence in the Bay of Bengal and its resident nations with its connectivity projects and large-scale infrastructure finance.

India's efforts to engage its eastern flank since 2014 through its Act East Policy are in part a response to the expanding Chinese position in the region. It has also shifted its neighbourhood lens eastwards, from the architecture of South Asia (SAARC) to that of the Bay of Bengal (BIMSTEC). However, its ties with West Asia remain far stronger: India holds less immediate political and economic equity in the Bay of Bengal, compared with its massive oil imports from the Gulf and the seven million-strong diaspora, which is estimated to send home nearly half of India's total remittances of \$80 billion. Can this be changed, and can India support its Bay of Bengal neighbours to leverage their strategic location for economic prosperity? Can India and partners offer countries a choice other than China to help realise the region's potential?

This project maps the reality as well as the promise of the Bay of Bengal.

This research explores these questions looking at the energy, transport, and financial connectivity across the Bay of Bengal, focusing on projects initiated by China, India, and multilateral partners.

Current State

India's central position in the region means that without its participation, cross-border connectivity is a non-starter. India is, however, capital-deficient, relying on third partners to invest in large projects. This is unlikely to change in the medium term, particularly given the economic and humanitarian impacts of the COVID-19 pandemic.

In contrast, China, which shares a land border with most of the Bay of Bengal states, has become a regional player with multiple rail, ports, and power projects.

Building infrastructure in this region faces governance and operational challenges, including small-scale insurgencies, migration, environmental stress, and crime. Nevertheless, China has succeeded in this environment due to its willingness to fund otherwise unviable projects, often on opaque terms. Where transparency is lacking, local elites are open to capture, and sustainability standards are sidelined. India's continuing inability to counter China's cheque-book diplomacy has allowed the latter to assert its interests in the region, not always to the long-term economic and development benefit of those countries.

Findings

1) Physical Connectivity

China is a clear winner in the physical connectivity stakes in the Bay of Bengal because of its strategic planning, large-scale investments, and an ambitious scope. Chinese projects connect to one another, from rail to the road to the port. An example is the proposed 2,800 km railway line connecting Kunming to Kolkata via Myanmar and Bangladesh. China also invests heavily in maritime infrastructure in the region – even if it is seen only for its own benefit. Projects like Sri Lanka's Hambantota, Kyaukpyu in Myanmar, and the Kra Canal in Thailand are viewed as white elephants by some in those host countries.

India, in contrast, has successful cross-border road and rail infrastructure projects with Nepal, Bangladesh, and Myanmar. However, almost all of these are small in scale and scope – very often, it is an extension of an existing railway line or highway into Nepal or Bangladesh, but without the greater ambition of building direct rail connectivity between Nepal and Bangladesh. Projects in rail, ports and power. Despite China's investment being viewed as predatory, India's continuing inability to counter China's cheque-book diplomacy leaves that country as the dominant player.

The focus on road and rail also demonstrates India's terrestrial or subcontinental bias and focus on connectivity through its northeast into southeast Asia. India should be doing more to invest in the vast maritime potential of the Bay of Bengal, where it trails China in maritime infrastructure and has not maximised the potential of the critical Andaman and Nicobar Islands.

2) Energy Connectivity

This is a region with significant energy potential. Several Bay of Bengal countries—especially Myanmar, Nepal, and Bhutan—are rich in hydropower but do not have the resources to build dams or have the electricity demand to justify the expense. Bangladesh and most of India are net energy importers with large populations and growing demand, providing a ready market to make projects viable. What would seem a natural match is unexplored. No projects in the region connect three or more countries—for instance, Nepal-India-Bangladesh. The lack of regional electricity trade has encouraged Bangladesh to consider thermal power projects funded by China.

This is where India can lead, supported by multilateral institutions. Strong Bhutan-India hydropower ties, evident from the large concentration of hydropower projects in Bhutan and power transmission lines taking this power to India, offer a blueprint for the rest of the region. India has financed and built over half a dozen dams in Bhutan, owned by Bhutan's state-owned Druk Green Power Corporation. The electricity therefrom is exported to India, and the incoming revenue is Bhutan's largest export. However, India has not been able to replicate this model in Nepal or Myanmar. In the absence of connectivity, Bangladesh is also unable to buy electricity from these two.

Multilateral institutions could provide initial support for these long-gestation and big-ticket investments in hydropower in Nepal and Myanmar, which India and Bangladesh would ultimately purchase power from.

3) Financial connectivity:

Regional financial connectivity between the Bay of Bengal states is lacking or skewed, with some exceptions such as India-Thailand. India's exports to Bangladesh, Nepal, and Sri Lanka are far higher than its imports from these states. The biggest export markets for countries of this region are elsewhere—so the intra-region trade is less important. Foreign Direct Investment (FDI) within the region is low except for Thailand-Myanmar. Through its investments in infrastructure projects led by state-owned enterprises, China has a larger FDI footprint in the region. India's FDI is far lower and is led by private sector firms, which are more focused on consumer-oriented sectors rather than infrastructure.

The imbalance can be corrected using technology, which can promote greater connectivity in data and finance. India has a large and vibrant start-up economy, catalysed by its vast population and hence market size. It has been a magnet for global tech and e-commerce companies and venture funds.

These foreign and even Indian tech investors rarely veer into the relatively smaller Bay of Bengal countries, which lack tech ecosystems, making it difficult for companies to scale up or be considered attractive for venture money. Successful tech entrepreneurs are big backers of new start-ups – this category of investors needs to be created. The Tech sector is also less impacted by systemic inefficiencies that plague physical infrastructure.

As with energy, multilateral funding can play a constructive role. The International Finance Corporation, and perhaps even the development assistance funds or EXIM Banks of the individual Quad or EU countries, can play a transformative role. China has not expanded its tech sector in the region yet and prefers monopolistic penetration in these markets. With multilateral funding, start-ups in fintech, healthcare, and agri-tech can provide tremendous benefits by helping develop a local ecosystem and better access to seed funding – and build strong ties with the Indian market.

Recommendations

For India

1. Help Nepal and Myanmar set up national hydropower companies to own and operate hydropower assets as it has previously done with Druk Power. These companies will be the equivalent of national oil companies elsewhere.

For Multilateral Partners

1. Enable easier financing by multilateral institutions like the World Bank, IFC, and AIIB for heavy-investment infrastructure projects to avoid unsustainable debt and use of infrastructure finance as a tool for political influence.
2. Multilateral venture-funding and private equity for tech start-ups in the region (ex-India) to enable the creation of a local tech ecosystem. Identify and support promising locally owned start-ups in key sectors – fintech, healthcare, and agri-tech with a patient, long-term capital.

For Bay of Bengal nations

1. Set up a Special Purpose Vehicle company to build a Bay of Bengal Power Grid with regional governments as shareholders. This can serve as a template for cooperation in other infrastructure projects.
2. Set up a Bay of Bengal Venture Fund with regional governments as an anchor (but not the majority) investor focused on regional tech start-ups. This could be done under the BIMSTEC umbrella to help make the organization more relevant.



TRANSPORT PROJECTS IN THE BAY OF BENGAL

AIRPORTS

CODE	NAME	COORD.	CODE	NAME	COORD.
C2	Pokhara International Airport	A1	SIN1	Kazi Nazrul Islam Airport	B1
C3	Mattala Hambantota International Airport	A3	SW1	Nijgadh International Airport	A1
C4	Shwe Kokko International Airport	C2	U10	Hanthawaddy International Airport	C2
J6	Bandaranaike International Airport (Phase II)	A3	U11	Heho Airport Upgrading Project	C2
J7	Mandalay/ Tada-U International Airport	C2	U12	Kawthoung Airport Development Project	C3
M4	Paro International Airport	B1	U13	Mawlamyine Airport Upgrading Project	C2
M5	Tribhuvan International Airport (Infrastructure)	A1	U14	Phase II Expansion of Suvarnabhumi Airport	C3
M6	Gautam Buddha International Airport/ Bhairahawa Airport	A1			

PORTS

CODE	NAME	COORD.	CODE	NAME	COORD.
C1	Colombo International Container Terminals (CICT)	A3	M3	Regional Connectivity Project I	B1/2
C9	Kyaukpyu Special Economic Zone Deep-water Port Project	B2	U1	Chittagong Port Enhancement, Phase I	B2
I1	Sittwe Port	B2	U2	Laem Chabang Port, Phase III	C3
I2	Kaladan Multi Modal Transit Transport Project	B2	U3	Payra Port	B2
J1	Matarbari Port	B2	U5	Dawei Deep Sea port & SEZ	C3
J2	Galle Port (Phase I)	A3	U6	Hambantota Port	A3
J3	Yangon Port Rehabilitation and Main Inland Water Transport	C2	U7	East Container Terminal (Colombo Port)	A3
J4	Mandalay Port	C2	U8	Oluvil Port Development Project	A3
M1	Colombo Port Expansion Project	A3	U9	Nepal Birgunj Dry Port	A1
M2	Regional Waterway Transport Project I	B1	U21	Kra Canal	C3

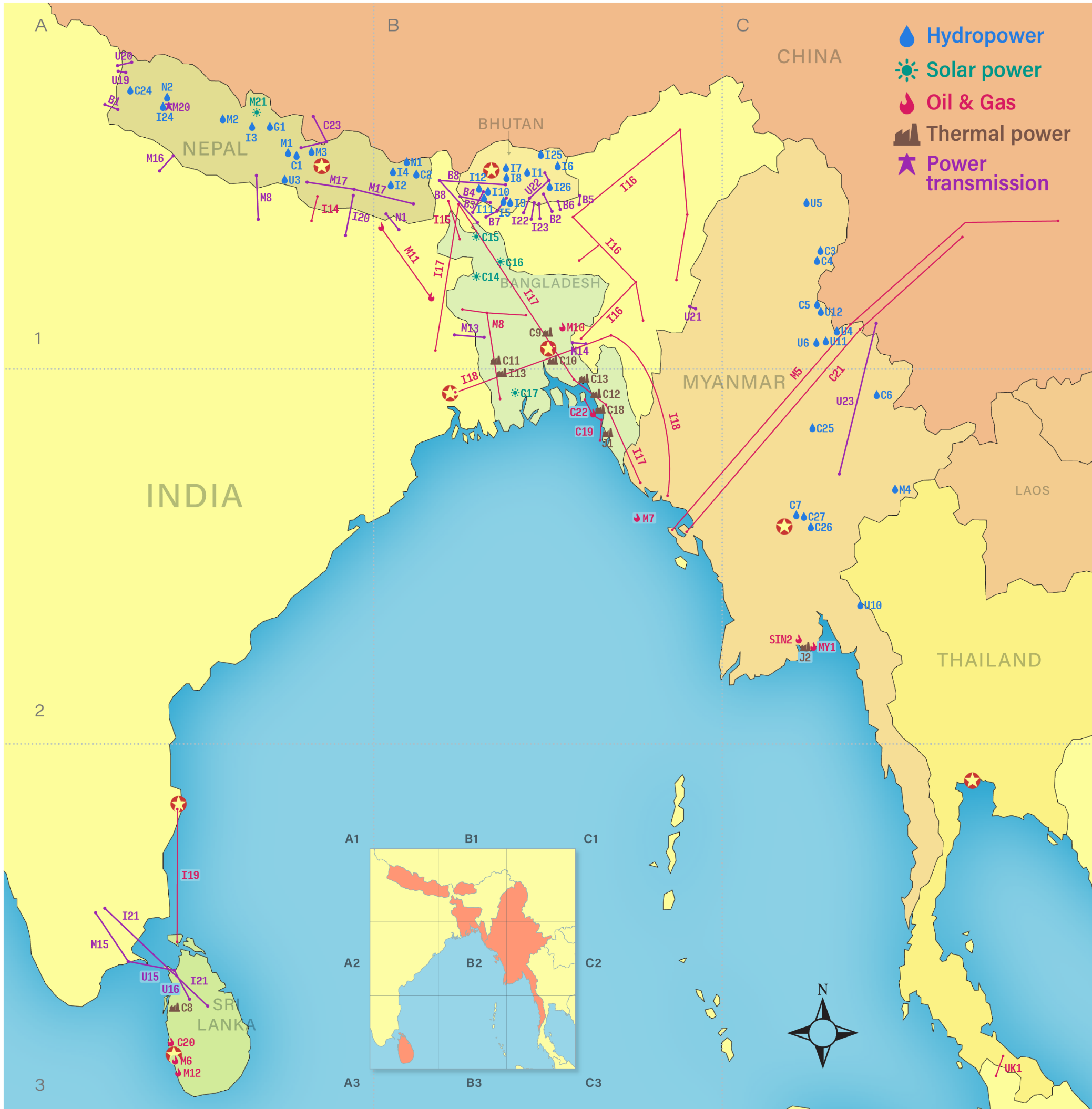
ROADS

CODE	NAME	COORD.
I13	Trilateral Highway	B1/C2
M9	Kakarvitta (Nepal) – Panitanki (India) – Fulbari (India) – Banglabandha (Bangladesh)	B1
M10	Phuentsholing (Bhutan) – Jaigaon (India) – Hasimara (India) – Changrabandha (India) – Burimari (India)	B1
M11	Thimphu (Bhutan)–Phuentsholing (Bhutan)–Jaigaon (India)– Changrabandha (India)–Burimari (Bangladesh)–Mongla and Chittagong (Bangladesh) [SAARC Corridor 8]	B1/B2
M12	Kathmandu (Nepal)–Bhairahawa (Nepal)–Sunauli (India)– Lucknow (India)	A1
M13	Mechi River Bridge	B1
U20	Piprakothe- Raxaul Bridge	A1

RAILWAYS

CODE	NAME	COORD.	CODE	NAME	COORD.
C5	Kunming–Muse–Mandalay–Kyaukphyu Railway Line	B2/C2/C1	I9	Nautanwa- Bhairahawa (15km)	A1
C6	Lhasa-Kathmandu Railway Line	A1/B1	I10	Jalpaiguri- Panitanki/ Kakkarvitta (70 km)	B1
C7	Kerung-Kathmandu	A1	I11	Khushinagar- Kapilavastu	A1
C8	Padma Bridge Rail Link Project (PBRLP)	B1/B2	I12	Barhni- Kathmandu	A1
I3	Raxaul-Birgunj-Kathmandu	A1	M7	Dohazari-Gundum	B2
I4	Jaynagar- Janakpur-Bijayalpura- Bardibas	A1	MY1	Ban Kao- Ban Phu Nam Ron- Dawei	C3
I5	Agartala-Akhaura	B1	U14	Haldibari-Chilahati	B1
I6	Khulna-Kolkata Railway Service	B1/B2	U15	Singhabad-Rohanpur	B1
I7	Mujnai-Nyoenpaling	B1	U16	Radhikapur-Birol	B1
I8	Nepalgunj Road (India)- Nepalgunj (Nepal)	A1	U18	Kunming-Kolkata	B2/B1/C1
			U19	China-Thailand Railway Project	C1/C2/C3

PROJECT CODE KEY	
I	INDIA
C	CHINA
M	MULTILATERAL
U	UNCERTAIN
J	JAPAN
SW	SWITZERLAND
SIN	SINGAPORE
MY	MYANMAR



ENERGY PROJECTS IN THE BAY OF BENGAL

PROJECT CODE KEY					
I	INDIA	M	MULTILATERAL	G	GERMANY
C	CHINA	B	BILATERAL	N	NEPAL
MY	MALAYSIA	UK	UNITED KINGDOM	U	UNCERTAIN

HYDROPOWER PROJECTS

CODE	NAME	COORD.	CODE	NAME	COORD.	CODE	NAME	COORD.	CODE	NAME	COORD.
C1	Budhi Gandaki Project	A1	C27	Lower Paunglaung Project	C2	I7	Punatsangchhu-1	B1	M2	Simrutu River Small Project	A1
C2	Tamor project	B1	C28	Laiza Dam	C1	I8	Punatsangchhu-2.	B1	M3	Trishuli 3B Hub Project	A1
C3	Myitsone Project	C1	C29	Tarpein 2 Dam	C1	I9	Sunkosh Project	A1	M4	Mong Ton project	C2
C4	Chipwe Nge Project	C1	G1	Middle Marsyangdi power plant	A1	I10	Wangchhu Project	B1	N1	Arun- Kimathanka Project	B1
C5	Dapein 1 Project	C1	I1	Mangdechhu project	B1	I11	Amochu	B1	N2	Phukot-Karnali project	A1
C6	Nong Pha Project	C2	I2	Lower Arun Project	B1	I12	Bunakha	B1	U3	Madi Storage Project	A1
C7	Ywathit Project	C2	I3	Rahughat Project	A1	I24	Upper Karnali Project	A1	U4	Shweli 1 Project	C1
C24	West Seti Dam	A1	I4	Arun III Project	B1	I25	Dorjilung Project	B1	U5	Shweli 2 Project	C1
C25	Yeywa Project	C2	I5	Mangdechhu project	B1	I26	Kuri Gongri Project	B1	U6	Shweli 3 Project	C1
C26	Upper Paunglaung Project	C2	I6	Kholongchhu project	B1	M1	Nepal Tanahu Project	A1	U10	Hat Gyi Project	C2

OIL & GAS PROJECTS

CODE	NAME	COORD.	CODE	NAME	COORD.	CODE	NAME	COORD.
C19	Single Point Mooring with Double Pipeline	B2	I17	Sitwe-Chittagong-Siliguri-Durgapur gas pipeline	B1/C2	M10	LPG Transport and Distribution Project	B1
C20	Muthurajawela Oil Tank Farm	A3	I18	India-Myanmar Gas Pipeline	B1/C2	M11	Gas Rehabilitation and Expansion Project	B1
C21	Myanmar-China Crude Oil Pipeline	C1/C2/B2	I19	Tamil Nadu to Sri Lanka Diesel and ATF	A3	M12	Kerawalapitiya LNG Terminal	A3
C22	220 kms Oil Pipeline Project	B2	M5	Myanmar-China Oil Pipeline	C1/C2/B2	MY1	PTTOR Oil Terminal	C2
I14	Cross-border oil pipeline (Motihari- Amlekhgunj)	A1	M6	Colombo LNG Terminal	A3	SIN2	Petroleum Products Terminal	C2
I15	Friendship Pipeline (Siliguri- Parbatipur)	B1	M7	The Shwe Gas Project	B2	UK1	Thai-Malaysian Pipeline and Gas Separation Plant	C3
I16	Northeastern gas pipeline	B1	M8	Gas Transmission and Development Project	B1			

OTHERS PROJECTS

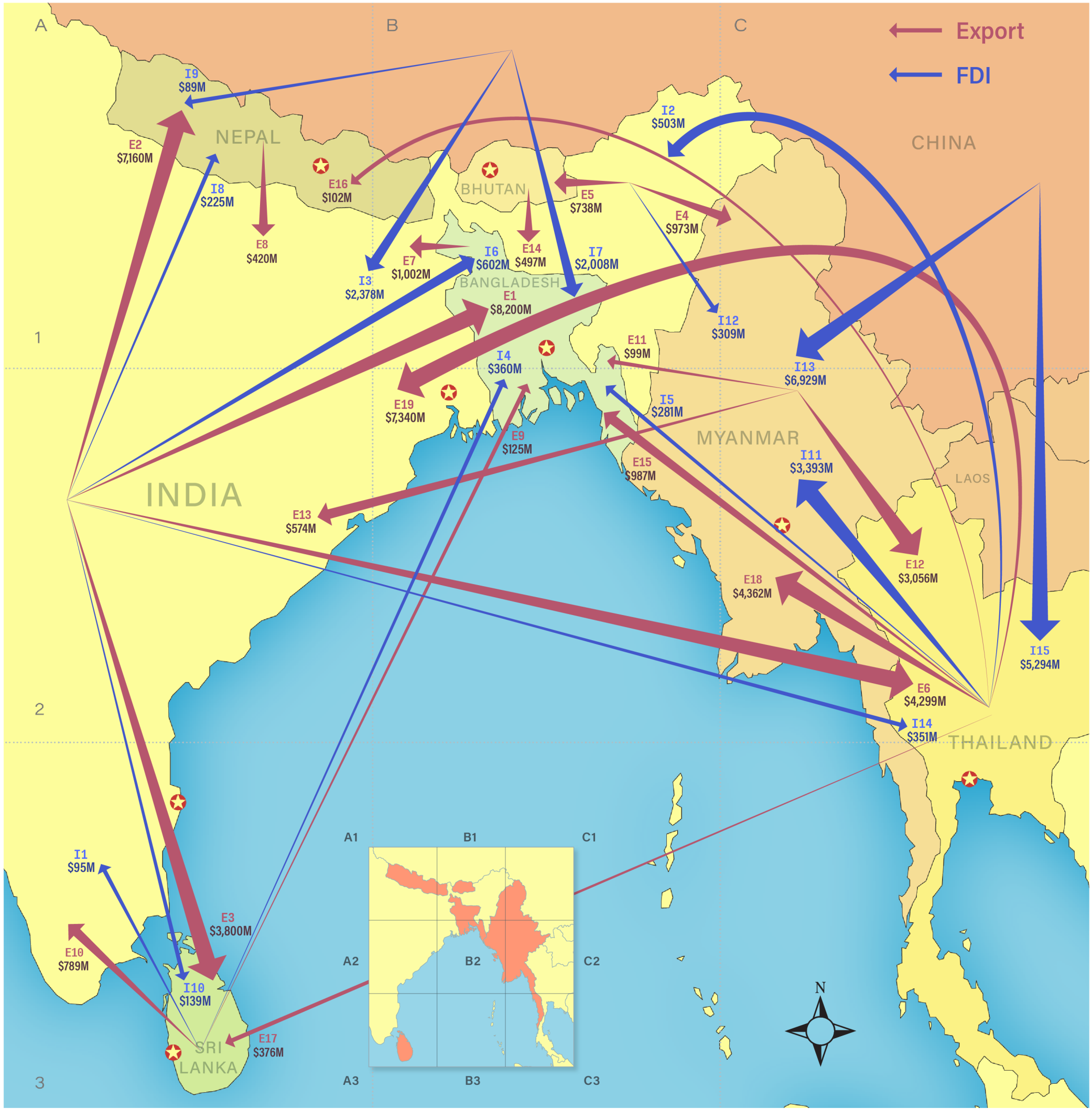
CODE	NAME	COORD.
C14	Solar Park at Panchgarh	B1
C15	Solar Park at Tista Barage	B1
C16	Solar Park at Gaibandha	B1
C17	Solar Park at Bagerhat	B2
M21	South Asia Subregional Economic Cooperation Power System Expansion	A1

THERMAL POWER PROJECTS

CODE	NAME	COORD.	CODE	NAME	COORD.
C8	Puttalam coal project	B1	C13	Banshkhali Coal Power Project	A3
C9	Gazaria Coal Power Project	B1	C18	Boalkhali Coal Power Project	B1
C10	Daudkandi Coal Power Project	B2	I13	Khulna Coal Power Project (Rampal Powerplant)	B2
C11	Payra Coal Power Project	B2	J1	Matarbari Ultra Super Critical Coal Project	B2
C12	Mirsarai Coal Power Project	B2	J2	LNG Project	C2

POWER TRANSMISSION PROJECTS

CODE	NAME	COORD.	CODE	NAME	COORD.
B1	Tanakpur - Mahendranagar Transmission line	A1	M14	Surjyamaninagar (Tripura) - Bangladesh border 400 kV D/C line	B1
B2	Kurichhu HEP- Rangia (111km) single circuit line	B1	M15	Madurai- Panaikulam Transmission Line	A3
B3	Tala HEP- New Silliguri/Binnaguri Power Pooling point	B1	M16	Nanpara-Nepalganj S/C line	A1
B4	11kV lines through Sibsoo/JholungandChumarchi/Samtse	B1	M17	Hetauda-Dhalkebar-Duhabi 400kV Transmission Line	A1/B1
B5	11kV line from Udalguri/AssamtoDaifarm/Bhairabkunda	B1	M18	Nepal-India Electricity Transmission and Trade Project	A1
B6	33kV line from Rangia/Tamulpur to Darranga/Samdrupjongkhar	B1	M20	Nepal-Bangladesh Transmission Line	A1
B7	220kVD/CLine(Chukha-Pling-Birpara)viaPhuntsholing	B1	N1	Kushaha Kataiya 132 kV Second circuit Transmission Line Project	B1
B8	220kVS/Cline Chukha-Malbase-Birpara	B1	U15	Sea Route Panaikulam (India) to Thirukketiswaram(SL)	A3
C23	Transmission Line between Galchhi- Rasuwagadhi- Kerung	A1	U16	Thirukketiswaram to Anuradhapura (New)	A3
I20	400 kV link (Dhalkebar-Muzaffarpur)	A1	U19	Pipli (Nepal) - Dharchula	A1
I21	370-km power line from Madurai to New Habarana	A3	U20	Jaljibe (Nepal) - Dharchula	A1
I22	Gelephu-Salakati(Assam) single circuit line	B1	U21	Moreh-Tomu town Transmission Line	B1
I23	Deothang- Rangiya transmission line	B1	U22	Salakati SubstationTransmission line	B1
M13	Baharampur (India)-Bheramara (Bangladesh) 400kV D/C line	B1	U23	Dhong Dai- Hopong	C1/C2



FINANCIAL FLOWS IN THE BAY OF BENGAL

EXPORT (ANNUAL)

CODE	EXPORT FROM	EXPORT TO	VALUE (MIL \$)
E7	Bangladesh	India	1,002
E14	Bhutan	India	497
E1	India	Bangladesh	8,200
E2	India	Nepal	7,160
E3	India	Sri Lanka	3,800
E4	India	Myanmar	973
E5	India	Bhutan	738
E6	India	Thailand	4,299
E11	Myanmar	Bangladesh	99
E12	Myanmar	Thailand	3,056
E13	Myanmar	India	574
E8	Nepal	India	420
E9	Sri Lanka	Bangladesh	125
E10	Sri Lanka	India	789
E15	Thailand	Bangladesh	987
E16	Thailand	Nepal	102
E17	Thailand	Sri Lanka	376
E18	Thailand	Myanmar	4,362
E19	Thailand	India	7,340

FDI (TOTAL)

CODE	EXPORT FROM	EXPORT TO	VALUE (MIL \$)
I3	China	India	2,378
I7	China	Bangladesh	2,008
I9	China	Nepal	89
I13	China	Myanmar	6,929
I15	China	Thailand	5,294
I6	India	Bangladesh	602
I8	India	Nepal	225
I10	India	Sri Lanka	139
I12	India	Myanmar	309
I14	India	Thailand	351
I1	Sri Lanka	India	95
I4	Sri Lanka	Bangladesh	360
I2	Thailand	India	503
I5	Thailand	Bangladesh	281
I11	Thailand	Myanmar	3,393

ARROW KEY		
TYPE 1		\$100 - 500 MILLION
TYPE 2		\$500 - 2,500 MILLION
TYPE 3		\$2,500 + MILLION

