

Bhattacharyay, Biswa

Working Paper

Institutions for Asian connectivity

ADB Working Paper, No. 220

Provided in Cooperation with:

Asian Development Bank Institute (ADBI), Tokyo

Suggested Citation: Bhattacharyay, Biswa (2010) : Institutions for Asian connectivity, ADB Working Paper, No. 220, Asian Development Bank Institute (ADBI), Tokyo

This Version is available at:

<https://hdl.handle.net/10419/53637>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



ADB Working Paper Series

Institutions for Asian Connectivity

Biswa Nath Bhattacharyay

No. 220
June 2010

Asian Development Bank Institute

Biswa Nath Bhattacharyay is Lead Professional and Adviser to the Dean, ADB Institute, Tokyo, and Lead Professional, ADB, Manila. This is a revised version of a background paper prepared for ADB's Flagship study "Institutions for Regionalism: Enhancing Integration in Asia and the Pacific".

The views expressed in this paper are the views of the authors and do not necessarily reflect the views or policies of ADBI, the Asian Development Bank (ADB), its Board of Directors, or the governments they represent. ADBI does not guarantee the accuracy of the data included in this paper and accepts no responsibility for any consequences of their use. Terminology used may not necessarily be consistent with ADB official terms.

The Working Paper series is a continuation of the formerly named Discussion Paper series; the numbering of the papers continued without interruption or change. ADBI's working papers reflect initial ideas on a topic and are posted online for discussion. ADBI encourages readers to post their comments on the main page for each working paper (given in the citation below). Some working papers may develop into other forms of publication.

Suggested citation:

Bhattacharyay, B. 2010. Institutions for Asian Connectivity. ADBI Working Paper 220. Tokyo: Asian Development Bank Institute. Available: <http://www.adbi.org/working-paper/2010/06/25/3915.institutions.asian.connectivity/>

Please contact the author(s) for information about this paper.

Author's email: bbhattacharyay@adbi.org

Asian Development Bank Institute
Kasumigaseki Building 8F
3-2-5 Kasumigaseki, Chiyoda-ku
Tokyo 100-6008, Japan

Tel: +81-3-3593-5500
Fax: +81-3-3593-5571
URL: www.adbi.org
E-mail: info@adbi.org

© 2010 Asian Development Bank Institute

Abstract

To make Asia more economically sustainable and resilient against external shocks, regional economies need to be rebalanced toward regional demand- and trade-driven growth through increased regional connectivity. The effectiveness of connectivity depends on the quality of hard and soft infrastructure. Of particular importance in terms of soft infrastructure which makes hard infrastructure work are the facilitating institutions that support connectivity through appropriate policies, reforms, systems, and procedures and through promoting effective coordination and cooperation. Asia has many overlapping subregional institutions involved in national and regional energy, transport, and telecommunications infrastructure connectivity. However, these institutions are characterized as being less effective, informal, and lacking a clear and binding system of rules and policies. This paper draws linkages between connectivity, growth and development, governance, and institutions. It details the benefits the region could achieve by addressing needed connectivity enhancements and the connectivity and financing challenges it faces. In addition, it presents various institutional options for regional infrastructure financing. To build seamless Asian connectivity, Asia needs an effective, formal, and rules-based institutional framework. The paper presents a new institutional framework together with the organizational structures of two new regional institutional mechanisms, namely the Pan-Asian Infrastructure Forum and the Asian Infrastructure Fund.

JEL Classification: R10, R40, R42, R48, R50, R51, R58

Contents

1.	Needs For and Benefits of Infrastructure Connectivity	1
2.	Concept And Challenges Facing Asian Connectivity.....	3
3.	Institutional Governance And Infrastructure Development	5
4.	Role Of Subregional And Regional Institutions In Effective Asian Connectivity	6
5.	Institutions For Financing Asia's Infrastructure Demand	15
6.	An Institutional Framework For Seamless Asian Connectivity.....	18
7.	Conclusion.....	22
	References	23

1. NEEDS FOR AND BENEFITS OF INFRASTRUCTURE CONNECTIVITY

Asia is playing an increasingly important role in global production, trade, capital formation, and productivity growth. It is also home to more than half of the world's population, spread across countries with a wide variety of sizes, income levels, stages of economic development, technical capacities, political regimes, population densities, resources, religions, cultures, languages, and ethnicities or races. This diversity, combined with some Asian economies being much richer and more developed than others, creates challenges as well as huge potential for trade and economic integration through increased connectivity. In particular, there is great potential for the development of production networks and supply chains that span the region to take advantage of countries' various comparative advantages—countries whose competitiveness depends on cost-effective, quick, and reliable infrastructure links. The rapid economic and population growth of Asian economies in recent years has put huge pressure on its existing infrastructure, particularly in transport and energy, but also in communications. Asia's infrastructure is world-class in parts, but is generally below the global average. This is a bottleneck to future growth, a threat to competitiveness, and an obstacle to poverty reduction.

Asian connectivity requires physical infrastructure connectivity across the regions as well as a facilitating or supporting framework consisting of effective policies, strategies and institutions at the national, subregional and regional levels (Kuroda et al. 2008). The concept of connectivity in this paper is the creation of physical and nonphysical facilitating linkages within the region through the development of required infrastructure to enable the free movement of goods, persons, and services across the region.

Physical connectivity is essential for the smooth and cost-effective flow of goods and services within Asian economies and across Asian borders. This will require physical, or "hard," infrastructure, such as transport (roads, rail lines, airports, and seaports), energy (oil and gas pipelines, and electricity grids), and telecommunications (cross-border fiber optic cables); as well as facilitating, or "soft," infrastructure, such as appropriate policies (e.g., trade facilitation policies such as effective border and customs procedures for smooth flow of people, services and goods into and out of the country); and, effective laws and regulations, systems and procedures; and institutions to make hard infrastructure work properly.

Transport connectivity is not new to Asia. "Until the 13th century, the ancient silk route of Asia was the world's most important cross-border artery, when Asia was a major trade and economic center of the world. The Silk Road refers to an extensive pan-Asia interconnected network of trade routes across the Asian continent connecting East, South, Central, and Western Asia with the Mediterranean world, including North Africa and Europe" (Bhattacharyay and De 2009a). Regional transport infrastructure is considered to be one of the major determinants of the economic integration process (Vickerman 2002). It enhances international (and regional) connectivity through the free flow of goods and factors across borders, allowing countries to benefit from a more optimal allocation of resources. A transportation network linking neighboring countries increases market size and helps national economies to grow further through higher trade and production (Bhattacharyay and De 2009a). Decreasing communication and transport costs in conjunction with technological development could reshape countries' comparative advantages (Krugman 1991). In this globalized world, national comparative advantages may be wiped out unless complemented by regional advantages such as regional physical connectivity.

Various studies have shown that infrastructure investments can strongly influence agricultural productivity and non-agricultural employment particularly among the poor, which can lead to income and economic growth thereby reducing poverty (Ali and Pernia 2003). Empirical evidence also suggests that infrastructure projects help foster the growth of

industrial clusters by lowering search costs and information asymmetries among product buyers and input sellers (Sonobe, Hu, and Otsuka 2004).

Connecting Asia's developing countries, particularly the smaller and land-locked economies, though enhanced physical connectivity to the production network and major markets and business centers of the larger economies, such as India and the People's Republic of China (PRC), can narrow the development gap among Asian economies. It also further promotes free trade with and investment in the least developed countries or subregions. Enhanced connectivity helps to increase standards of living—thereby reducing poverty, by connecting isolated places and people with major economic centers and markets—and can deepen economic integration, leading to an Asian common market.

Enhanced energy and transport connectivity would also help Asia to address environmental and energy security problems through properly designed regional infrastructure projects, such as greener transport connectivity and cross-border energy grids (e.g., railway connectivity and hydro-electric grids) across the region to efficiently facilitate the flow of goods and trade green energy, respectively. This could promote greater technological innovation and application and more efficient use of scarce regional resources. By working together for green connectivity through regional cooperation, countries in Asia could unlock their vast economic potential, achieve sustained and inclusive rapid growth, and reduce poverty. Collective regional initiatives would support trade and investment expansion, financial market development, and regional macroeconomic stability, as well as improved environmental, health, and social conditions.

The members of the Association of Southeast Asian Nations (ASEAN) strive to create an ASEAN Economic Community (AEC) by 2015. The AEC aims to establish ASEAN as a single market and production base with free flows of goods, services, investment, and capital, while striving to ensure balanced and inclusive economic development and poverty reduction (ASEAN 2008). On a similar front, at the most recent ASEAN summit in November 2009, the leaders of Australia, PRC, India, Japan, Republic of Korea, and New Zealand discussed a proposal to establish an East Asian community to unify the region. Infrastructure connectivity could play a significant role in the creation of an ASEAN, East Asian, or Asian Community, an integrated community that would seek to maximize the advantages of its diversity and capitalize on its potential for trade and market growth. To create a European Union-style Asian community that ensures a free flow in goods and services and establishes regional production bases for industry and services in Asia, connectivity needs to be enhanced and more focus put on becoming a seamless Asia. Improved infrastructure connectivity could help move the region toward the development of a common market or "Asian Economic Community" by accelerating regional cooperation and integration, facilitating regional trade integration via reduced costs and enhanced institutional linkages, and helping to narrow the development gap between Asian economies. Green (environmentally sustainable) Asian connectivity would also require promoting and strengthening the institutions, governance, and technical capacity of Asian economies.

Asia has become the world's production center for exporting manufacturing goods to advanced economies through a well integrated export platform. Traditionally, most Asian countries have prioritized exports to markets outside Asia, especially the US and Europe, and their current infrastructure reflects this. At present, Asian economies, especially East Asian economies are highly export dependent, and trade is more integrated with advanced economies than within East Asia, and even less with the rest of Asia. This excessive dependency on external demand in particular makes Asia more vulnerable to external shocks as recently evidenced by the global financial crisis and economic recessions in the West and the fall of growth in the East. Asia also has very high savings and international reserves most of which are invested with low returns in the markets of advanced economies such as the US and Europe. Hence, Asian savings are funding excess consumption of advanced economies.

The prospect of a prolonged downturn in major advanced markets as a result of the recent crisis and recession underscores the urgent need for a rebalancing of Asia's economies to make them less vulnerable to external shocks and thus would reduce global imbalances. Growth rebalancing should be geared to increasing demand and consumption within the region, increasing intra-regional trade to compensate for reduction in exports to advanced economies, and increasing investment by redirecting capital flows to Asia's productive sectors such as infrastructure. To achieve rebalancing would require many policy changes, especially prioritizing increased Asian infrastructure connectivity to promote expanded regional economic integration, which would assist in enhancing intraregional trade and demand. Asian connectivity could enhance competitiveness and productivity, speed up economic recovery, and help sustain growth in the medium- to long-term. Asian countries need to implement counter-cyclical policies and measures to compensate for lost export demand from advanced economies. Infrastructure financing could form an important part of fiscal stimulus packages, especially if the crisis is prolonged. Coordinated infrastructure financing by Asian countries could enhance regional connectivity through investment in regional infrastructure development, maximize the efficient use and application of resources, and contribute to a sustained, high-growth path in the medium- and long-terms.

As discussed earlier, connectivity needs corresponding soft infrastructure, including policies, institutions, systems, procedures, rules, and regulations, to make the physical assets that make up hard infrastructure work effectively. To successfully promote greater physical connectivity, it is necessary to develop effective national, subregional, and region-wide institutions in Asia taking into account its great diversities, as well as create an appropriate institutional framework for effectively identifying, designing, and implementing regional infrastructure projects through proper coordination among various stakeholders.

As Asia's integration has been primarily market-led and its institutional arrangements for infrastructure cooperation are fragmented at subregional levels, a regional Asian approach to pan-Asian connectivity is required with subregional cooperation institutions as building blocs. Bottom-up, market-driven cooperation needs to be complemented by top-down cooperation led by leaders at the highest level, and institutionalized. This chapter examines (i) the challenges facing connectivity, (ii) the role of governance and institutions and, (iii) the existing institutions for connectivity and proposes a new institutional framework for building Asian connectivity through regional cooperation in infrastructure development.

2. CONCEPT AND CHALLENGES FACING ASIAN CONNECTIVITY

The concept and benefits of Asian connectivity has the following dimensions:

- A Seamless Asia—a physically, economically, and financially integrated region connected by world-class, efficient, and environment-friendly infrastructure networks in transport, energy, water, and telecommunications that promote trade and investments within the region and with global markets, widen access to markets and public services and thereby promote inclusive and sustainable economic growth and reduce poverty;
- Expanding, deepening, and increasing the efficiency of regional production network and supply chains by streamlining policies, systems and procedures such as customs procedure and other bureaucratic impediments;
- Developing efficient regional financial markets that channel savings from around Asia and the rest of the world in to productive investments, notably infrastructure throughout the region; and
- Efficient and seamless connections across Asia and with the rest of the world to create a more competitive, prosperous, and integrated region, and to take advantage of Asia's enormous untapped economic potential.

Asia is the world's largest and most populous region, covering 26 million square kilometers, and with 3.77 billion habitants, accounts for about 60% of the world's population and 30% of the world's total land area. Asia's economic size today is almost equal to that of Europe and North America. The region consists of some archipelagic subregions such as Southeast Asia with more than 24,000 islands and the Malay Peninsula. Connecting such large and diverse economies is a big challenge. A survey conducted in 2008 by ADB of 600 Asian leaders' opinions found that they saw great potential for developing regional or cross-border infrastructure such as transport and energy, but they acknowledged little progress had been made thus far (ADB 2008).¹

There are many challenges facing increasing regional integration through regional connectivity in Asia. Among these is the challenge of building regional infrastructure that will support the continuing growth and development of Asian economies by both linking them together, particularly with large markets like PRC and India, and linking Asia with the rest of the world. To achieve this will require the proper coordination and integration of existing national, subregional, and regional infrastructure programs.

Another challenge in the coming decades will be how connectivity can address the pressing basic human needs (or basic services) of over two billion people for road and rail transportation, clean water, sewage treatment, electricity, health facilities, communications, etc. Nearly two-thirds of the world's poor live in developing Asia, with over 620 million people in the region living on US\$1 or less a day and about 1.9 billion people living on less than US\$2 a day (ADB 2007). Regional integration through greater infrastructure connectivity would allow Asian economies to share scarce resources, such as energy and water, to meet these basic needs.

Achieving inclusive growth through connectivity is another major challenge. Rural populations, landlocked or small or less developed countries, villages in mountainous and remote areas, islands, etc., are often left behind. Such regions may have special demands not faced by other regions, such as port and communications facilities for islands, for example. Appropriate regional infrastructure can benefit such special groups by connecting them to the centers of business activities, making physical connectivity crucial for landlocked, island, and small countries.

The main challenge, however, is to find ways to finance the huge infrastructure investment needs. According to a recent study, "Infrastructure for a Seamless Asia" (ADB/ADBI 2009), during 2010–2020 Asia needs an average US\$750 billion per year in national and regional infrastructure projects (see Box 1 for definition) in energy, transport, telecommunications, and water and sanitation (including new capacity and replacement) to meet current and future demand. This US\$750 billion represents spending that exceeds the available resources of many Asian countries. The shrinking of international and regional financial markets means a corresponding decline in infrastructure and trade financing. It is essential that Asia finds ways and means to mobilize its huge savings to fund its infrastructure development.

¹ The survey was conducted by ADB in August–September 2007 and collected responses from 600 opinion leaders in business, media, government, and academia. The study covered 12 countries, with roughly equal representation from East Asia, Southeast Asia, and South Asia.

Box 1: Definition of a Regional Infrastructure Project

In the absence of a standard or universally accepted definition of regional infrastructure, for the purpose of this paper a regional (or cross-border or transnational) infrastructure project is a project with activities such as physical construction works and coordinated policy and procedure actions (involving both “hard” and “soft” infrastructure) spanning over two or more countries, or a national infrastructure project that has a significant cross-border impact—in stimulating regional trade and income or in connecting with the network of neighboring or third countries. A national infrastructure project has significant cross-border impact if it satisfies one or more of the following criteria: (i) The planning and implementation of a project that involves cooperation and coordination between governments of two or more countries; (ii) A project that produces significant sales of goods or services across regional borders, where significant means at least twenty-percent or more of the total; (iii) A project that involves the construction of specific infrastructure, such as a road, bridge, or tunnel located on, or mostly on, the territory of a country near the border and is necessary to link the country to the network of a neighboring country or a third country (Bhattacharyay 2008).

Dealing with the negative externalities of infrastructure development, including the social and environmental consequences; and asymmetric distribution of cost and benefits to participating countries, is yet another challenge. Finding “win-win” solutions for all related parties or stakeholders, managing Asia’s diversity, and avoiding or mitigating costs from negative externalities would allow the benefits of infrastructure development to be widely shared and are essential measures to create and sustain effective regional integration. Asia needs to create a green connectivity with minimal adverse impact on environment and climate change.

The present institutional structure is neither adequate nor effective in addressing the above challenges (see a review of existing institutions in Section 2.4). If regional integration is to succeed, it is essential to build or strengthen national, subregional and regional institutions involved in infrastructure development within an effective institutional framework.

3. INSTITUTIONAL GOVERNANCE AND INFRASTRUCTURE DEVELOPMENT

Without the creation of institutional specialization, building capacities and knowledge, governments will remain at a disadvantage compared with regional and global neighbors, and also in situations such as negotiations with large international corporations and developers. Lack of transparency and accountability, and poor governance in general, leading to unmanageable political risk can discourage private sector participation and funding. Regional institutions including multilateral development banks can play an important role in these areas by providing guarantees against such risks and both technical assistance and capacity building and training. Aspects of good governance including autonomy, transparency, accountability, effective decision making processes and decision tools are essential for developing an effective regional infrastructure (ADB 1995, 2006; ADB/ADBI 2009).

- Good governance requires sound financial and legal systems, the systemic protection of rights, and the support of strong regulatory bodies to provide oversight and to monitor

and enforce rules. ADB defines four aspects of sound governance that it considers relevant for all Asian countries as²:

- “Accountability: Officials must be answerable to the entity from which they derive their authority; work must be conducted according to agreed rules and standards, and reported fairly and accurately.
- Participation: Public employees must be allowed a role in decision making; citizens, especially the poor, must be empowered by promoting their rights to access and secure control over basic entitlements that allow them to earn a living.
- Predictability: Laws, regulations and policies must be applied fairly and consistently.
- Transparency: Low cost, understandable, and relevant information must be made available to citizens to promote effective accountability, and clarity about laws, regulations and policies” (ADB 1995, 2006; Wescott 2005).

The quality of governance in Asian countries varies widely. One possible measurement or means for defining and quantifying the multidimensional structure of a country’s governance is through six indicators developed by the World Bank Institute, namely: Voice and Accountability (VA), Political Stability and Absence of Violence (PS), Government Effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL), and Control of Corruption (CC). According to a recent empirical study by De and Bhattacharyay (2009b), governance as measured by the composite governance indicator (composed of the six indicators listed above) is a significant determinant for national infrastructure and hence for regional infrastructure development. A comparative analysis of the global ranks of selected Asian countries in the six governance indicators listed above for 1996 and 2007 is presented in Table 1. The analysis of rank correlations shows a strong and significant correlation between the ranking in 1996 and 2007. This implies that global ranks in governance of Asian countries have not seen significant changes during 1996–2007.

All individual governance indicators except for regulatory quality and political stability had significant positive relationships with regional infrastructure. In terms of the impact of subregional groupings on infrastructure, Northeast Asia showed a strong positive relationship with all six indicators. Southeast Asia had a similar relationship except for government effectiveness and regulatory quality. In the case of Central Asia and South Asia, the indicators do not show a significant relationship with infrastructure. Therefore, the improved governance and capacity of national and regional institutions may help reduce risks and transaction costs for regional infrastructure projects and thus make such projects bankable. It can be concluded that strong and formal national and regional institutions with appropriate governance structure need to be developed to achieve effective regional infrastructure connectivity in Asia.

4. ROLE OF SUBREGIONAL AND REGIONAL INSTITUTIONS IN EFFECTIVE ASIAN CONNECTIVITY

Several studies on the history, role, and effectiveness of regional institutions in Asia, Europe, and Latin America have been conducted. Most of them deal with trade and investment, including the need for soft infrastructure. Komori (2007), Poole (2008), Jazic (2005), Cockerham (2009), and Aslan and Aslan (2006) discussed Asia-Pacific institutions such as ASEAN, Asia-Pacific Economic Cooperation (APEC), and Central Asia’s Central Asia Regional Economic Cooperation (CAREC). Gomez-Mera (2008) discussed regional institutions and implementation of trade blocks, while Shimizu (2007) compared regional

² ADB’s Long-term Strategic Framework (2001–2015), recognized governance as a core strategic area of intervention as well as the importance of capacity development and identified these four key inter-related elements that are considered necessary to sustain efforts and ensure results.

approaches in Europe and Asia. Stinnett (2007) and Davis (2008) examined the structure and impact of regional trade institutions on investment. Laursen (2005a, 2005b) studied institutional requirements for regional economic integration, comparing the EU and the North American Free Trade Agreement (NAFTA) and presented the need for institutions and leadership in EU, the Southern Common Market (MERCOSUR) and other regional integration cooperation programs, while Nabers (2008) compared institution building in Asia and Europe.

Asia has a short history of regional institution building involved in hard and soft infrastructure (e.g., trade facilitation) development. The pioneer regional institute was the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), with 62 member countries and under the umbrella of the United Nations, which was established in 1947. UNESCAP created two major pan-Asia transport initiatives, namely the Asian Highway and Trans-Asian Railway, which were formalized in 1992 even though the concept was realized as early as 1952.

Other major Asian institutions have been developing since 1966 when the Asian Development Bank (ADB) was established. ADB is now a major multilateral development bank with 67 member countries including 46 Asian countries. This was followed by the establishment of ASEAN in 1967 in which 10 Southeast Asian member countries cooperated initially on security issues and later also on trade, finance, and infrastructure. Asia slowly moved towards trade and economic cooperation through the creation of organizations and forums such as APEC, with 21 Asian and non-Asian countries, in 1989, the ASEAN regional forum in 1994, and most recently a comprehensive trade cooperation East Asia Summit in 2005, which brought together the ASEAN member countries, Australia, India, Japan, Republic of Korea, New Zealand, and PRC.

Table 1: Global Ranks of Governance Indicators for Asia (1996–2007)^a

Subregion	Country	VA		PS		GE		RQ		RL		CC	
		1996	2007	1996	2007	1996	2007	1996	2007	1996	2007	1996	2007
Central Asia	AFGHANISTAN	167	148	158	171		159		169	148	173		172
	ARMENIA	119	117	68	96	118	92	150	67	98	99	107	119
	AZERBAIJAN	141	146	118	128	139	125	143	121	132	132	127	154
	KAZAKHSTAN	127	140	103	66	148	115	123	115	122	131	118	143
	KYRGYZ REPUBLIC	118	121	50	144	109	132	126	109	112	158	115	161
	TAJIKISTAN	162	155	165	138	165	149	164	148	157	156	148	137
	TURKMENISTAN	164	172	73	101	164	162	166	170	144	161	144	164
	UZBEKISTAN	154	169	93	155	147	131	157	164	137	151	130	147
South Asia	BANGLADESH	92	120	132	157	120	135	110	140	121	130	96	157
	BHUTAN	152	128	36	48	56	74	72	133	148	57		36
	INDIA	72	65	137	141	81	73	100	94	57	70	88	91
	MALDIVES	140	131	70	85	74	85	72	81		73		130
	NEPAL	83	130	114	168	86	136	132	130	75	117	80	118
	PAKISTAN	120	138	149	172	110	124	121	126	108	138	128	135
	SRI LANKA	94	107	159	163	105	90	60	84	74	71	77	72
Southeast Asia	BRUNEI DARUSSALAM	142	142	9	14	27	40	1	36	45	64	46	59
	CAMBODIA	131	127	146	118	153	138	92	122	140	150	134	160
	INDONESIA	143	92	124	145	57	100	66	98	93	125	103	125
	LAO PDR	138	163	16	95	69	137	155	149	160	143	123	150
	MALAYSIA	99	115	45	76	32	33	42	56	41	54	37	62
	MYANMAR	172	173	141	150	157	169	145	171	147	164	140	171
	PHILIPPINES	70	91	108	154	65	75	54	86	69	112	78	133
	SINGAPORE	91	108	13	16	2	1	2	4	14	11	6	9
	THAILAND	61	118	81	142	44	66	63	75	46	76	82	97
Northeast Asia	VIET NAM	153	162	66	69	83	101	115	112	114	103	102	123
	PRC	161	164	100	113	59	67	83	95	85	95	67	117
	HONG KONG, CHINA	65	55	85	19	26	13	4	3	24	20	20	17
	JAPAN	39	39	34	21	23	23	59	32	19	21	26	29
	REPUBLIC OF KOREA	54	51	76	60	31	26	61	42	42	38	53	51
	MONGOLIA	56	74	48	49	111	127	133	103	67	92	46	113
	TAIPEI, CHINA	53	48	26	58	21	34	31	40	31	46	32	48
Pacific	AUSTRALIA	12	16	10	30	22	7	20	9	10	12	14	12
	FIJI	95	113	37	88	69	110	119	116	60	88		100
	NEW ZEALAND	1	7	11	11	5	10	3	8	3	5	4	5
Rank correlation		0.91*		0.80*		0.90*		0.87*		0.89*		0.93*	

Notes: *Significant at 1 % level.

aVA = Voice and Accountability, PS = Political Stability, GE = Government Effectiveness, RQ = Regulatory Quality, RL = Rule of Law, CC = Control of Corruption.

Source: De and Bhattacharyay (2009b)—calculated based on World Governance Indicators (WGI), World Bank Institute (WBI).

Table 2 presents the structure of international, regional, subregional, and bilateral institutions and programs involved in Asian Infrastructure development. In terms of hard infrastructure development, ADB is the major multilateral financial institution supporting Asian economies in pursuing national, subregional, and regional infrastructure projects for enhancing regional integration, where the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) proposed and supported the pan-Asian projects like the Asian Highway and the Trans-Asian Railway. Regional infrastructure links in Asia so far have been realized through 11 major subregional initiatives including GMS, ASEAN, CAREC, South Asian Association for Regional Cooperation (SAARC), South Asia Subregional Economic Cooperation (SASEC), Pacific Island Forum (PIF), Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT), Brunei Darussalam Indonesia Malaysia Philippines – East Asian Growth Area (BIMP-EGA), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), Subregional Economic Cooperation in South and Central Asia (SECSCA) and Greater Tumen Initiative (GTI) IN Northeast Asia. Pan-Asian initiatives such as Asian Highways and Trans-Asian Railway (TAR) have been implemented as part of subregional and national programs. Of the subregional initiatives, Greater Mekong Subregion (GMS) has made the most significant progress in strengthening connectivity, mainly through cross-border transport corridors.

The World Bank (WB) has also supported infrastructure development in Asia, but it has been primarily engaged with national infrastructure projects. The European Investment Bank (EIB) has a small infrastructure operation in Asia and since 1993 has been undertaking projects in countries such as Bangladesh, PRC, India, Indonesia, Laos PDR, Maldives, Pakistan, Philippines, Thailand, Sri Lanka, and Viet Nam (EIB 2008).

The institutions involved with infrastructure projects in Asia vary widely in terms of their key characteristics including: major sectoral focus; region of operation; major functions; form of the institution (e.g., formal or informal); highest level of participation from governments of participating countries; and modalities (ADB/ADBI 2009). Table 3 presents these key characteristics of international, regional, subregional, and bilateral institutions and programs involved in Asian infrastructure development. The key features of Asian subregional institutions and programs can be summarized as follows:

1. Most institutions are engaged with both hard and soft infrastructure, including such areas as economic integration, trade facilitation, and transport and energy infrastructure.
2. With the exception of ASEAN and SAARC, all institutions are informal in nature (without any legally binding or enforcement capacity) and even the formal ASEAN follows non-interference, sovereignty, incrementalism, and consensual decision-making.
3. Most institutions have multiple objectives (such as integration, trade, infrastructure, and socio-economic) and a dedicated institution for regional infrastructure is lacking.
4. Most institutions have advisory and regulatory modalities without any financing modality.
5. Most institutions enjoy summit or ministerial-level participation from governments.

As such subregional institutions typically lack financing facilities, they would need to establish strong cooperation and coordination arrangement with financing institutions such as ADB, WB, and Japan Bank for International Cooperation (JBIC) Japan International Cooperation Agency (JICA).

The architecture of major subregional and regional infrastructure institutions shows a similar trend to that of major trade cooperation institutions (see Figure 1). In order to accommodate the diversities in Asian economies, Asia's regional infrastructure development is being undertaken through many overlapping subregional institutions, which in turn are operating at varying speeds, addressing different degrees of regional infrastructure issues in, and contain

a range of objectives. This pattern reflects political situations in Asia where some subregions are more eager to engage in infrastructure cooperation than others

Table 2: Structure of Major International, Regional, and Subregional Institutions and Programs

Name	Year Established	Members/ Participants	Objective in infrastructure Development
UNESCAP	1947	62 members	Aims to integrate road, rail, sea, and air links through improved logistics and intermodal interfaces
AH	1992	32 countries; 28 signed agreements 23 ratified agreements	Aims to be a network of 141,271 km of standardized highways
TAR	1992	28 countries; 9 ratified agreements	Aims to span 141, 000 km of railways across 28 countries
WB	1944	186 countries	Primarily national Infrastructure development operation in all Asian countries
ADB	1966	67 countries	Aims for infrastructure connectivity through regional cooperation
JBIC-JICA	JBIC - 1961JICA- 1974 Merged- 2008	Involved in 100 countries	Infrastructure development for people's empowerment operation in most Asian countries
EIB	1958	142 countries	The mandate focuses on private sector development, infrastructure development, security of energy supply and environmental sustainability operation in 11 Asian countries.
APEC	1989	21 countries	A forum to facilitate economic growth, cooperation, trade and investment
ASEAN	1967	10 countries	Seeks to promote greater cooperation and coordination among nations and aims for the integrated energy, transport, and communication networks for regional trade and investment.
GMS	1992	6 countries, ADB	Main goal is to improve connectivity in the subregion through improving transport, energy and telecommunications links.
MRC ^a		4 countries	
IMT-GT	1993	3 countries	Aims to expand opportunities for trade and investment through improved infrastructure and connectivity
BIMP-EAGA	1994	4 countries, ADB	Seeks to expand opportunities for trade and investment through infrastructure development.
BIMSTEC	1997	7 countries	Aims for economic integration through free trade agreement and improving transport infrastructure and logistics among its member countries
CAREC	1997	8 countries, 6 multilateral institutions, including ADB	Aims for regional integration and trade, with infrastructure (transport and energy) as one of its major functions. Aims to enhance energy security through regional energy projects and develop transport corridors to improve connections to regional and world markets.
SAARC	1985	8 countries, 9 observers	Main objective is economic integration through free trade area.
SASEC	2001	4 countries, ADB	Vision is to develop, utilize and optimize power links
SECSCA	2003	6 countries, 1 observer, ADB	Aims to promote transport connectivity and facilitate the movement of goods and people across South and Central Asia.
GTI	1995	5 Countries, UNDP	Promotes regional cooperation to ensure energy security, improve basic infrastructure, develop tourism, and promote international environmental standards in Northeast Asia
PIF	1971	16 countries, 4 country observers, ADB	Aims to expand trade in goods and services and enhance governance mechanisms and strategies related to maritime and aviation security

^a Covers only management and use of the Mekong River.

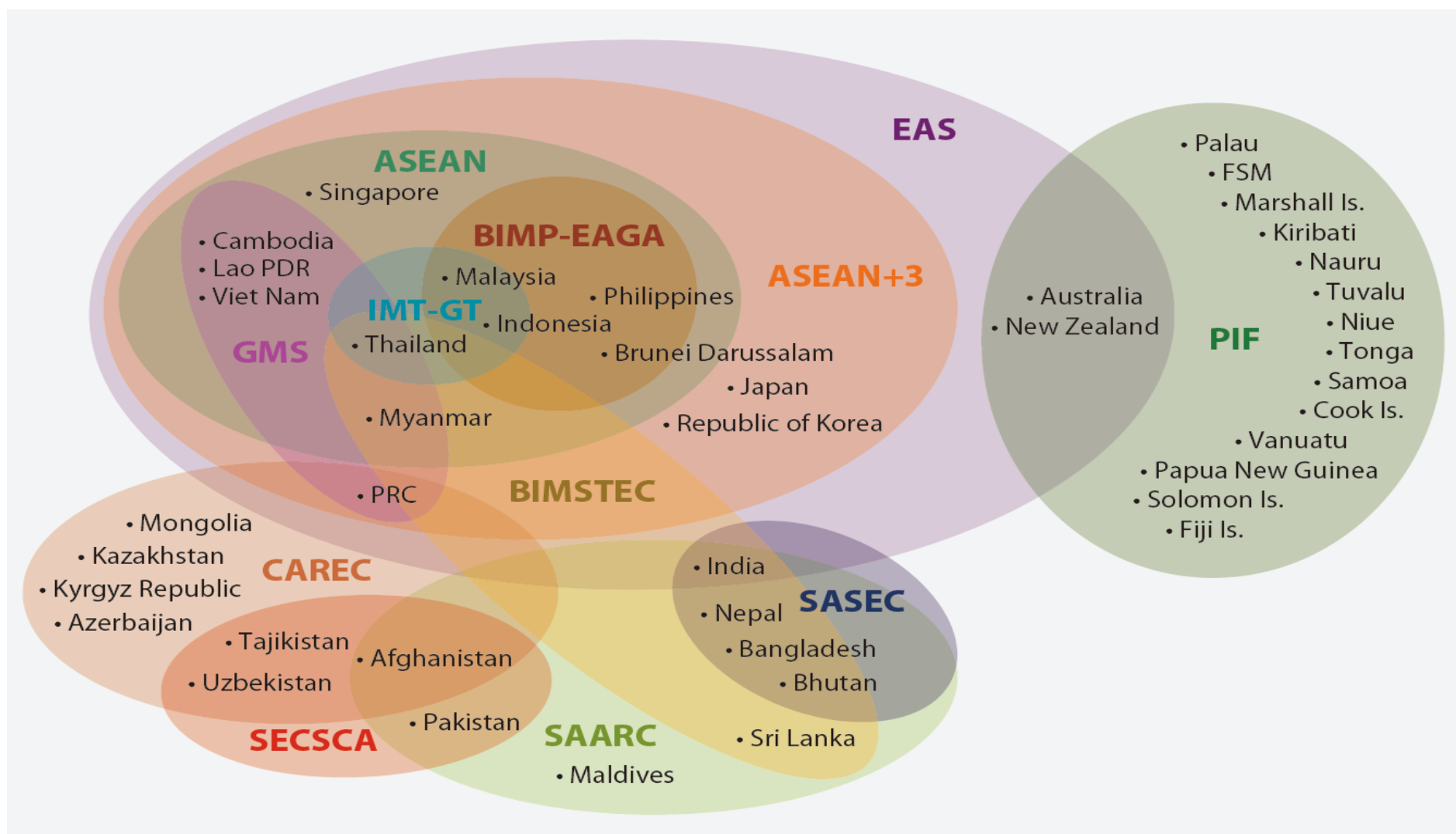
Sources: Adapted from ADB/ADBI (2009), Bhattacharyay and De (2009a), and compilation from subregional programs.

Table 3: Key Characteristics of Regional and Subregional Institutions and Programs

Name	Major Focus	Region of Operation	Functions						Form of Institution	Highest Level ^a	Modalities ^b
			Integration	Security	Trade	Finance	Infrastructure	Socioeconomic			
ESCAP	Transport, Logistics	Asia-Pacific	✓		✓		✓	✓	Formal	Summit/ministerial	A, R
AH	Transport/Highway	Asia-Pacific	✓		✓		✓	✓	Informal	Summit/ministerial	A, R
TAR	Transport/Railway	Asia-Pacific	✓		✓		✓	✓	Informal	Summit/ministerial	A, R
WB		World			✓	✓	✓	✓	Formal		A, F, R
ADB	Infrastructure, environment, regional cooperation and integration, financial sector development and education	Asia-Pacific	✓		✓	✓	✓	✓	Formal	Summit/ministerial	A, F, R
JBIC-JICA	Energy and natural resources, environment and climate change, international business development, international finance and knowledge assistance	World	✓		✓	✓	✓	✓	Formal	Summit/ministerial	A, F, R
EIB	Cohesion and convergence, SMEs, Environmental sustainability, Innovation, TEN and energy security	World	✓		✓	✓	✓	✓	Formal	Summit/ministerial	A, F, R
APEC	Free trade and investment	Asia-Pacific	✓	✓	✓		✓	✓	Informal	Summit	A, R
ASEAN	Economic integration; Trade and logistics, infrastructure	Southeast Asia	✓	✓	✓		✓	✓	Formal	Summit	A, F, R.
GMS	Infrastructure, trade and logistics	Southeast Asia	✓		✓		✓	✓	Informal	Summit/ministerial	A, R.
MRC	Economic integration, trade, infrastructure	Southeast Asia	✓	✓			✓	✓	Informal	Senior officials	A, R.
IMT-GT	Economic integration, trade, infrastructure	Southeast Asia	✓		✓		✓	✓	Informal	Summit	A, R.
BIMP-EAGA	Economic integration, trade, infrastructure	Southeast Asia	✓		✓		✓	✓	Informal	Summit	A, R.
BIMSTEC	Economic integration, trade, infrastructure	Southeast and South Asia	✓		✓		✓	✓	Informal	Summit/ministerial	A, R.
CAREC	Economic integration, trade, infrastructure	Central Asia	✓	✓			✓	✓	Informal	Ministerial	A, R..
SAARC	Economic integration, trade, infrastructure	South Asia	✓		✓		✓	✓	Formal	Summit/ministerial	A, F, R.
SASEC	Economic integration, trade, infrastructure	South and Central Asia	✓		✓		✓	✓	Informal	Senior officials	A, R.
SECSCA	Economic integration, trade, infrastructure	South and Central Asia	✓				✓	✓	Informal	Ministerial	A, R.
GTI	Economic integration, trade, infrastructure	North East Asia	✓	✓	✓		✓	✓	Informal	Senior Officials	A, R
PIF	Economic integration, trade, infrastructure	Pacific	✓	✓	✓		✓	✓	Informal	Forum leaders	A, R

^a Summit refers to summit of heads of state and government; ^b Modalities: A =advisory, F =financing, and R =regulatory

Source: ADB/ADBI (2009), Bhattacharyay and De (2009a), Linn and Pidufala (2008), and compilation from subregional programs

Figure 1: Architecture for Major Subregional Infrastructure Institutions involving Asian Countries

Source: ADB/ADBI (2009) and Bhattacharyay (2008)

It is evident from these trends that to achieve pan-Asian connectivity existing subregional programs would need to be coordinated and integrated to accommodate varying needs, speeds, and interests in subregional and regional integration. These overlapping subregional programs could be the fundamental building blocks for enhancing connectivity across subregions such as East Asia, Southeast Asia, Central Asia, and South Asia, which could in turn extend connectivity across the Asian region as a whole.

Strong and effective national and regional institutions with effective governance and accountability structures are essential for the successful development of an effective pan-Asian connectivity. The roles of these institutions would include the harmonization and standardization of rules, regulations, policies, processes, systems and procedures for the free movements of goods and services across borders. Such institutions would also work to help create enabling environments for private sector participation through Public Private Partnership (PPP) mechanisms.

A regional system will only be as successful as its weakest link, a concept known as the “network challenge”. For a system to be “seamless”, it must have common rules and regulations, which is only possible through stable and transparent frameworks and regulatory regimes. The degree of involvement of the private sector will depend on the clarity and transparency of rules and regulations. Therefore, regional institutions need to play an active role to establish common or harmonized rules and regulations.

Another institutional challenge is to coordinate regional infrastructure projects involving many stakeholders. These include harmonizing standards and regulations and equalizing interests, costs, and benefits, among others. A supranational coordinating body is needed, to demonstrate the political incentive to various stakeholders such as Asian governments and private sector entities joining the forum. This body needs to ensure trust and confidence through transparent and accountable processes and good governance, and should be able to address the information asymmetry between the public and private sector and other stakeholders. The APEC business forum, which fulfills a similar role regarding trade and business facilitation, could be used as an example.

As a result of the global financial crisis and the global economic downturn, many Asian governments have insufficient resources for the required infrastructure investments. Enabling environments for public-private partnerships and mechanisms to mobilize funds from regional capital markets for bankable regional projects need to be created. Many less developed Asian economies need to develop greater technical skills and capacities to be capable of designing and implementing regional projects. This calls for a dedicated institution for identifying and preparing bankable regional projects, mobilizing funds and facilitating their implementation. It also calls for assisting participating countries with capacity building, particularly in terms of human capital, to create appropriate soft infrastructure systems.

Through cost-benefit analysis, this institute needs to demonstrate the comparative advantage of regional projects vis-à-vis national projects. Less developed countries lacking strong debt repayment and technical capacities should be assisted through concessional or grant funds. Ensuring that regional infrastructure is environmentally friendly should be a guiding theme when developing project proposals. As environmentally friendly projects may in some cases be more expensive, they may need to be supplemented with concessional loans, grants, or other means such as clean development mechanism (CDM) certification and carbon credit trading, along with technical assistance from Multilateral Development Banks (MDBs) and other bodies.

5. INSTITUTIONS FOR FINANCING ASIA'S INFRASTRUCTURE DEMAND

ADB/ADBI's 2009 flagship study "Infrastructure for a Seamless Asia" showed that the total infrastructure needs of the Asia-Pacific region over 2010 and 2020 are an estimated US\$7.9 trillion (Tables 4 and 5) to replace aging infrastructure and build new infrastructure, to keep pace with fast economic growth. In view of the global financial crisis and the global economic downturn, Asian economies will find it difficult to meet this infrastructure demand. The region's governments are faced with severe budgetary constraints, while the private sector is reluctant to take on the risks involved in funding large and complicated infrastructure projects.

Asia must continue to develop new or strengthen existing institutions and regional capital markets to address the resource and funding gaps, but international and regional financial institutions, bilateral institutions of major economies, and multilateral development banks may also need to step in to fill the gaps in resources and funding and facilitate where possible. Multilateral development banks, such as ADB and WB, would need to play a more active role in facilitating infrastructure financing. Asia needs an effective financing framework and further integration and strengthening of Asian capital markets to mobilize the region's savings and encourage public-private partnerships (PPPs) for finance and technology. Furthermore, a comprehensive financing strategy, appropriate financing mechanisms and an institutional framework would be required to finance priority projects.

However, these institutions also face various fiscal constraints and they lack the capacity to fill the entire financing gap. Bhattacharyay (2010) proposed several options for new institutions or mechanisms dedicated to regional infrastructure financing (Table 6). Creating many of these proposed new institutions at the regional level could be a very complicated and expensive process, and may require considerable effort and time. Given several multilateral and bilateral infrastructure financing institutions already exist in Asia, the creation of a new investment bank may not be worthwhile or practical. Moreover, generating political support from Asian countries for a new regional institution could prove very difficult and it may be more cost-effective to simply use existing institutions. New institutions would need to establish credibility and strong track records, as well as such things as the highest Triple A credit ratings (all of which ADB have already acquired), to ensure trust and confidence among member countries and potential private sector partners, and to be able to borrow at low interest rates in international capital markets. Furthermore, the overall cost of borrowing would be higher compared to costs for the existing regional institution, namely ADB who have already have in place large-scale operations and effective systems and business processes of international standard. It would also be challenging and would take time for a new institution to create an adequate base of knowledge and relevant expertise comparable to ADB (Bhattacharyay 2009).

ADB's 40 years of experience in national and regional infrastructure development, and its recent increase in capital and manpower, means it is well-positioned to make a contribution to meeting possible and existing gaps in infrastructure financing. It has a good track record in providing significant and effective financial assistance for infrastructure development in Asia and of conceiving and implementing regional projects under several subregional programs, such as GMS, SASEC, CAREC, BIMP-EGA, and BIMSTEC. However, for the ADB to be able to meet the huge infrastructure needs of the Asia-Pacific region, it would have to further increase in size and general capital. Even though ADB has recently tripled its capital, to reach \$165 billion, ADB's own resources are still limited and would be insufficient to fill Asia's financing gap (Bhattacharyay 2010). Nevertheless, ADB has been playing a catalytic role in mobilizing financial resources through infrastructure funds and through co-financing.

Table 4: Asia's overall national infrastructure investment needs for connectivity by major sector, 2010–2020 (in 2008, US\$ million)

Sector/ Subsector	New capacity	Replacement	Total
Energy (Electricity)	3,176,437	912,202	4,088,639
Telecommunications	325,353	730,304	1,055,657
Mobiles	181,763	509,151	690,914
Telephones	143,590	221,153	364,743
Transport	1,761,666	704,457	2,466,123
Airports	6,533	4,728	11,261
Ports	50,275	25,416	75,691
Railways	2,692	35,947	38,639
Roads	1,702,166	638,366	2,340,532
Total	5,263,456	2,346,963	7,610,419

Source: Adapted from ADB/ADBI (2009) and Bhattacharyay (2010)

Table 5: Indicative investment needs for specific regional pipeline infrastructure projects for Asian connectivity, 2010–2020

Region/ Subregion	Transport Projects		Energy Projects		Total	
	Cost (US\$ million)	No.	Cost (US\$ million)	No.	Cost (US\$ million)	No.
Asia	177,077	931	–	–	177,077	931
Asian Highway	43,276	121	–	–	43,276	121
Trans-Asian Railway	82,801	45	–	–	82,801	45
Asian Container Ports ^a	51,000	765	–	–	51,000	765
East/Southeast-Central-South Asia ^b	–	–	22,975	5	22,975	5
Southeast Asia ^c	5,858	17	41,444	33	47,302	50
GMS	5,858	17	2,604	14	8,462	31
Trans- ASEAN Gas Pipeline	–	–	7,000	1	7,000	1
BIMP-EAGA	–	–	100	1	100	1
Others	–	–	31,740	17	31,740	17
Central Asia	21,414	38	11,131	44	32,545	82
CAREC	21,414	38	10,861	43	32,275	81
Others	–	–	270	1	270	1
South Asia	293	3	6,846	6	7,139	9
Total	204,642	989	82,396	88	287,038	1,077

– data is not available

a Dry and sea ports, container depots (UNESCAP, 2007: pp.79–82);

b Projects involving countries belonging to more than one subregion

c Some projects involved countries in East Asia, such as PRC and Mongolia

Source: ADB/ADBI (2009), and Bhattacharyay (2008)

Table 6: Institutional Options for Regional Infrastructure Financing

Reserve Bank of Asia¹	<ul style="list-style-type: none"> • Combines functions of a reserve bank and an infrastructure financing bank • Authorized capital of about \$300 billion (10% paid-in capital) • Authority to borrow 10% from Asian central bank reserves to invest globally
Strengthened Multilateral Development Banks (MDBs)	<ul style="list-style-type: none"> • MDBs such as ADB, WB and EIB have an important role to play in reducing gaps in funding when private sector funds do not meet financing needs • ADB has been a reliable funder of a large and broad variety of development projects in Asia, including cross-border infrastructure • MDBs can both create bankable projects and mobilize long-term funding through capital markets, explicit guarantees, and special co-financing arrangements
Asian Infrastructure Financing Bank (AIFB)² or Asian Infrastructure Financing Fund (AIFF)	<ul style="list-style-type: none"> • Either a new specialized investment bank (IFB) or a new Asian Infrastructure Fund (AIF) administered by MDBs, such as ADB • Intermediate the use of financial assets for infrastructure and other development projects • Provide infrastructure loans and collaborate with the banking community, co-financing and guaranteeing private investment financing • Direct Asian savings to infrastructure development and develop expertise in cross-border infrastructure bond finance • Negotiation, planning, and implementation of a large new institution will be lengthy and less cost-effective
Regional Companies for Financing Specific Sectors	<ul style="list-style-type: none"> • Finance and manage regional projects for specific sectors • Can also raise funds from capital markets through equity or infrastructure bonds • May take the form of a regional company, e.g., the European Aeronautic Defense and Space Company (EADS)
Subregional Infrastructure Funds or Companies	<ul style="list-style-type: none"> • Funding subregional Initiatives on infrastructure development in Asia, such as the GMS, ASEAN, SAARC, CAREC, and SASEC • Subregional companies can also be established to manage these infrastructure projects
Islamic Infrastructure Bank	<ul style="list-style-type: none"> • Configure financial packages to meet requirements of Islamic investors • Develop individual and community-level instruments that provide basic banking services to the large Asian Islamic communities • Create an official regional Islamic Infrastructure Financing Bank to provide financial packages for Shariah complaint regional infrastructure projects
Infrastructure Companies or Projects under PPPs	<ul style="list-style-type: none"> • Projects undertaken under partnership of public sector companies and private sector companies • Both private and public sector provides fund

¹ Agarwala (2008)² Agarwala (2005)

Source: Bhattacharyay (2010).

It is clear that the public sector alone cannot meet the estimated infrastructure investment demand of \$750 billion per year and that the private sector would have to play a major role. To attract private sector participation in regional projects creating a favorable investment would be a prerequisite. Commercially attractive and bankable projects need to be developed by mitigating, providing guarantees for, and removing additional risks and uncertainties involved in regional projects where possible. This again calls for establishing effective institutional mechanisms, both nationally and regionally.

6. AN INSTITUTIONAL FRAMEWORK FOR SEAMLESS ASIAN CONNECTIVITY

Regional financial institutions should take responsibility and provide resources for region-specific public goods such as regional infrastructure (Kanbur 2002). Therefore, regional institutions should be most suitable for regional infrastructure development. The major roles of an effective institutional framework for Asian connectivity are:

1. Facilitation of the preparation of pan-Asian infrastructure strategies for energy, transport, and telecommunications networks;
2. Identification, prioritization, and preparation of priority bankable regional programs and projects;
3. Facilitation of financing the investment requirements;
4. Coordination of various stakeholders responsible for the implementation of projects at national, subregional, and regional levels;
5. Coordination and integration of bilateral and subregional initiatives concerning pan-Asian connectivity;
6. Creation and putting in place of harmonized and common standards, regulatory policies, and legal frameworks;
7. Strengthening capacity of various national, subregional, and regional authorities and implementing agencies;
8. Addressing adverse social and environmental impacts and ensuring symmetric distributions of cost and benefits for participating countries;
9. Ensuring good governance in the implementation of the projects including accountability and transparency; and
10. Encouraging private sector participation.

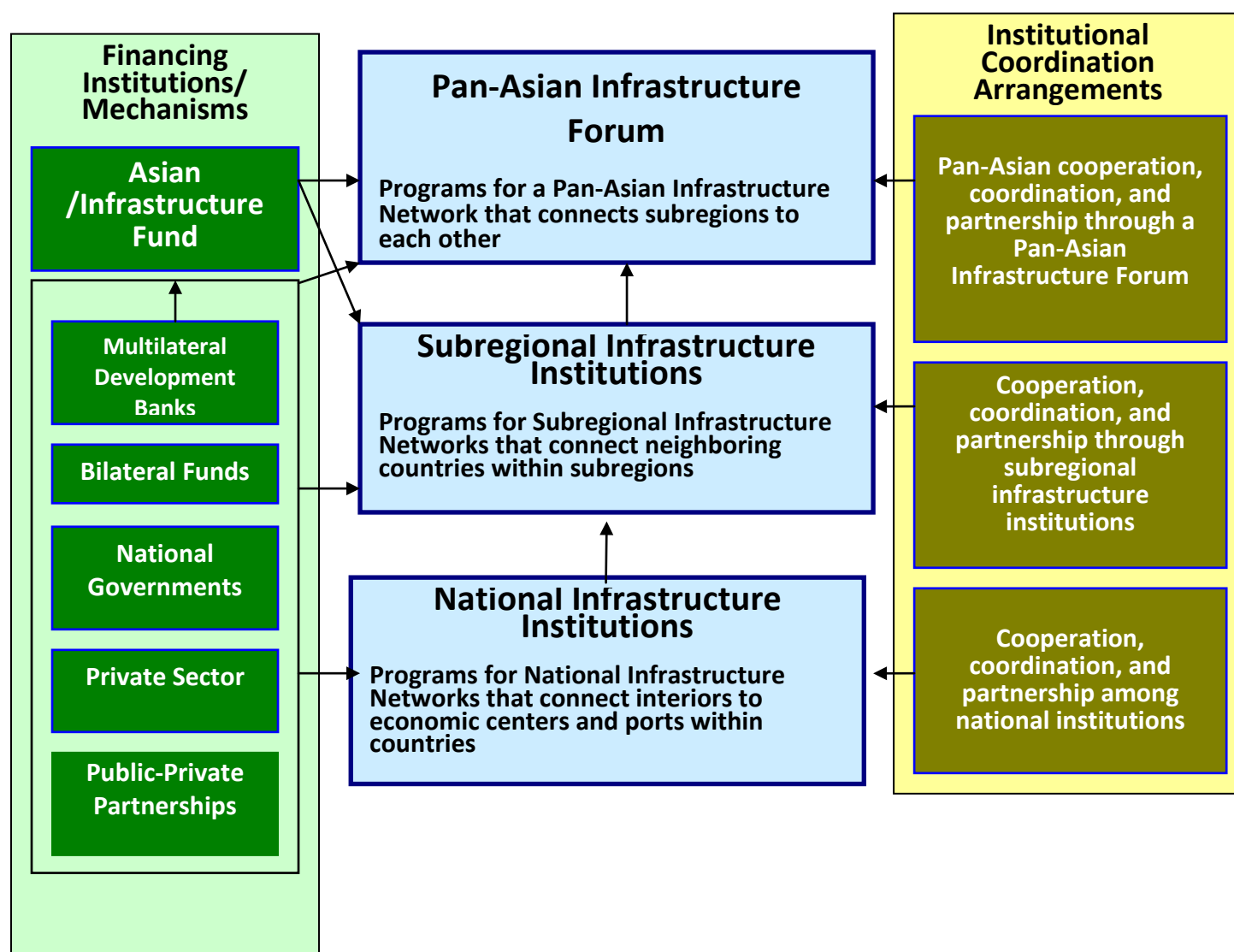
As explained above, Asia has many overlapping subregional and regional institutions involved in regional infrastructure development. However, these institutions tend to have a multitude of tasks and goals, and they often are informal, weak, and ineffective. Asia should not set up more new institutions, which would be costly and time-consuming. What is needed is an effective and supportive institutional framework for integrating, strengthening, and improving such existing institutions and mechanisms, helping them to work together with a common vision. Such a framework needs to be formal, equipped with explicit, treaty-based, legally-binding rules and regulations, and a standing body or secretariat to monitor compliance with those rules.

A pan-Asia institutional framework consisting of coordinating and financing regional mechanisms or entities is proposed in Figure 2. The proposed Pan-Asian Infrastructure Forum (PAIF) would be a major coordinating mechanism at the pan-Asia level, the goal of which would be to help coordinate and integrate existing subregional infrastructure institutes toward regional infrastructure development for a seamless Asia. An entity such as PAIF would have representatives from all of the existing subregional infrastructure institutions and would have a governing secretariat, in which regional institutions like ADB and UNESCAP could take a leading role.

A dedicated regional financing mechanism or entity, such as an Asian Infrastructure Fund (AIF), could also be established to funnel regional and international savings and investments toward Asian regional infrastructure development projects. The main goal of AIF would be to mobilize regional and international funds (public and private) and help prioritize, prepare, and finance “bankable” regional infrastructure projects (ADB/ADBI 2009). AIF could be established as a trust fund under ADB, the latter having adequate experience and expertise in this area and has already initiated a process to establish its Asian Infrastructure Financing Initiative. At the request of ASEAN countries; ADB has also started developing a framework for an ASEAN infrastructure fund.

Figure 2 presents a new framework for achieving Asian connectivity. As can be seen here, both the public and private sectors would play integral roles in mobilizing capital and technology for, and contributing knowledge and guidance to, the Asian Infrastructure Fund, which would in turn contribute in various ways to both the Pan-Asian Infrastructure Forum and subregional programs and institutions. Such forums and institutions at the regional, subregional, and national levels would be supported and facilitated by coordination and partnership arrangements and agreements.

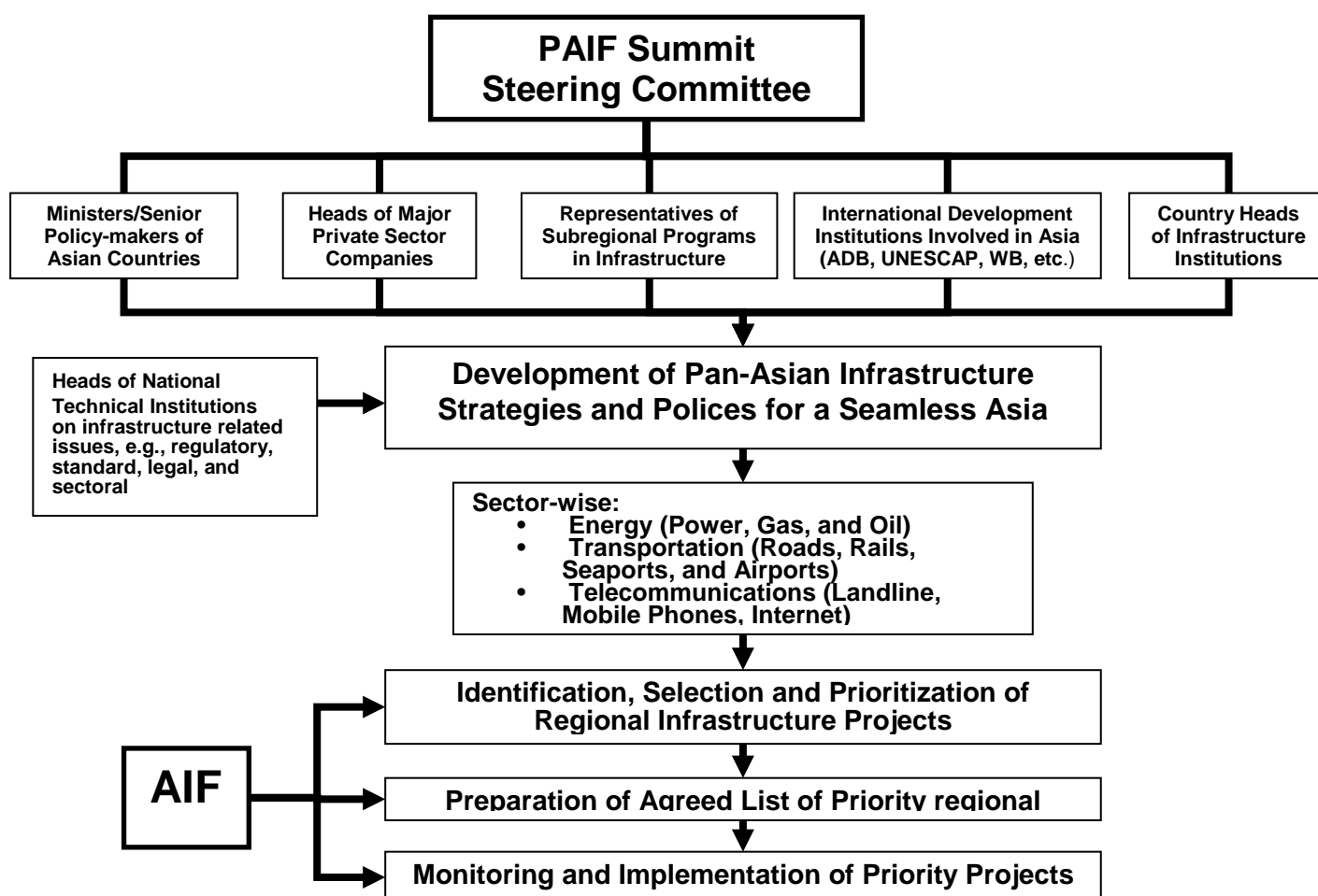
Figure 2: An Institutional Framework for Asian Connectivity



Source: Author, adapted and modified from ADB/ADBI (2009).

A recommended framework for PAIF and AIF and the process of interaction to support infrastructure projects is presented in Figure 3. The PAIF Summit would bring together senior Asian policymakers, heads of major private corporations, representatives of subregional infrastructure programs, international development institutions, and heads of national infrastructure financing institutions, and would be given the task of developing sector-wide, pan-Asian infrastructure strategies and policies. The heads of national technical institutions who concentrate on infrastructure-related issues would also assist in the development of these sector-wide strategies and policies, which would include the Asian energy, transportation, and telecommunications networks. AIF would contribute to the process of identifying, prioritizing, and selecting infrastructure projects; preparing or designing the agreed list of priority regional projects; and monitoring and implementing projects.

Figure 3: Institutional Framework for PAIF and AIF

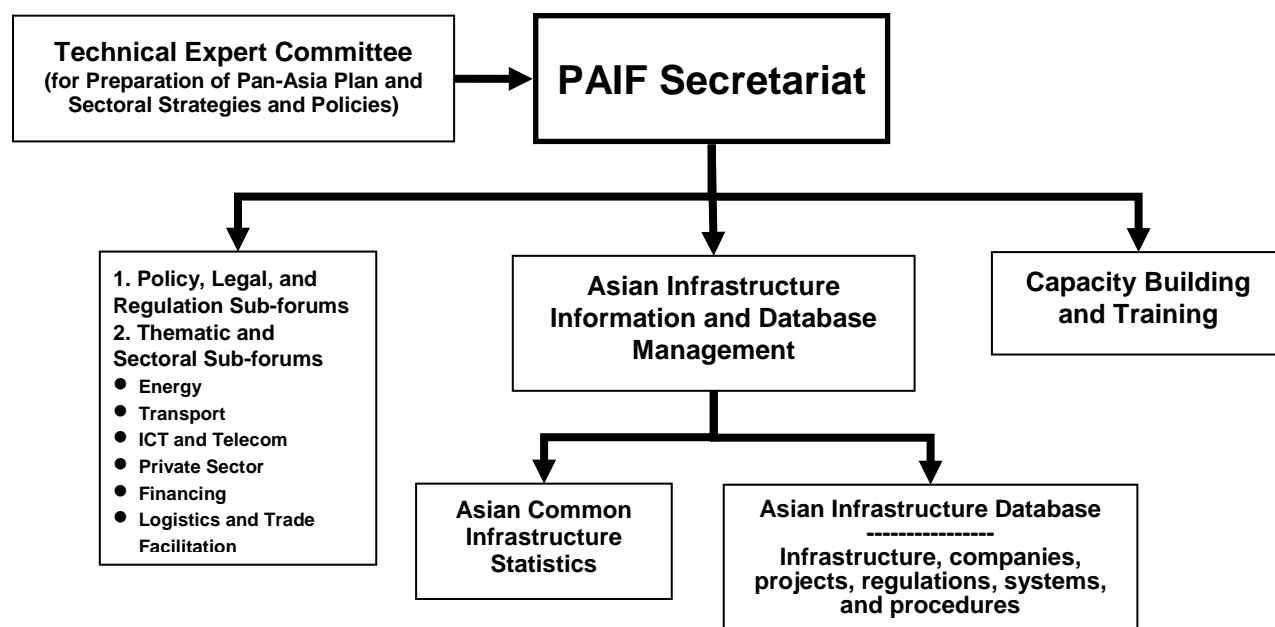


Source: Author and Bhattacharyay (2009).

Figure 4 illustrates the proposed organizational structure of the PAIF Secretariat. The Secretariat would be assisted by a Technical Expert Committee, which would prepare a pan-Asian plan and sectoral strategies and policies for regional infrastructure projects. The secretariat would support: (i) policy, legal, and regulation sub-forums for the formulation, standardization, and harmonization of legal and regulatory policies and for discussion of other key policy challenges; (ii) key thematic and sectoral sub-forums such as energy, transport, ICT, and telecommunications, private sector and public private partnerships, financing, and logistics and trade facilitation; (iii) gathering common or harmonized infrastructure statistics and information, and database management; and (iv) capacity building and training, and other activities. Lastly, Figure 5 presents the envisioned

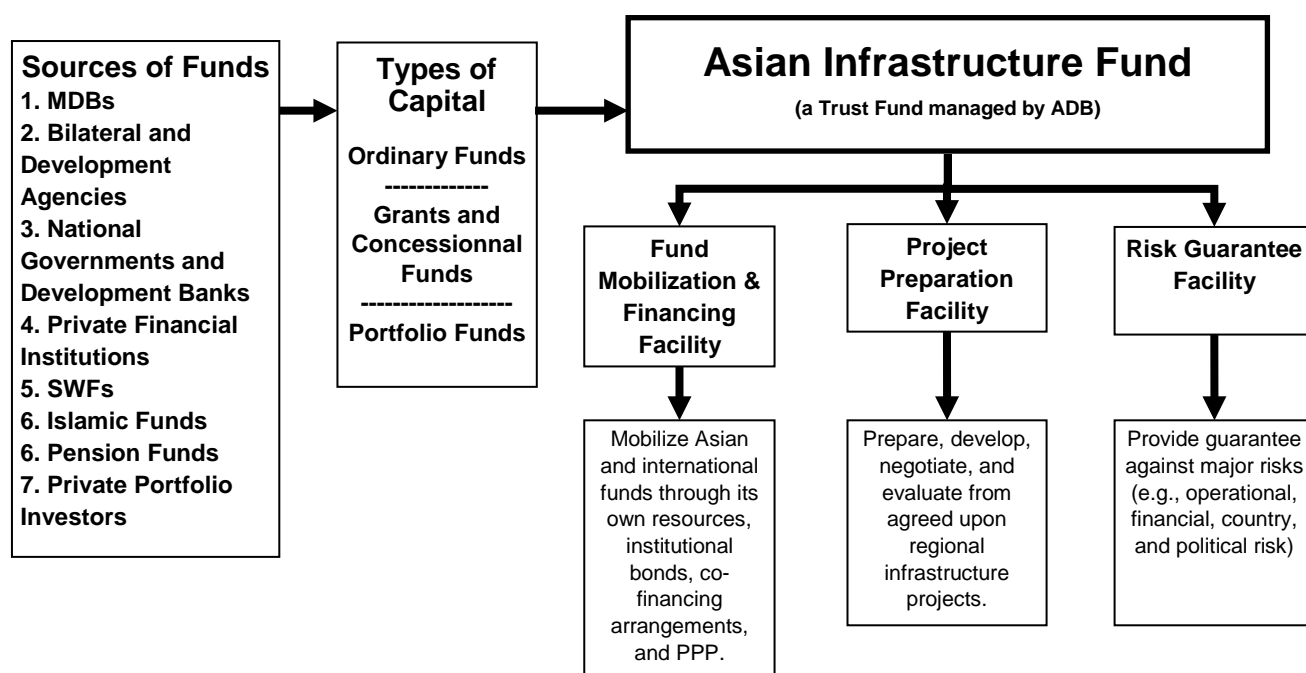
organizational structure and the role of AIF in financing regional and subregional infrastructure projects. The sources of funds could include multilateral development banks, bilateral and development agencies, national development banks, sovereign wealth funds, Islamic funds, pension funds, private companies and private investors. These entities could source the funds from their ordinary capital resources, through grants and concessionary funds, or through their portfolio funds. These funds could then be pooled to form AIF, which would be divided into a fund mobilization and financing facility, a project preparation facility, and a risk guarantee facility.

Figure 4: Organizational Structure of PAIF Secretariat



Source: Author and Bhattacharyay (2009).

Figure 5: Organizational Structure and Role of Asian Infrastructure Fund



Source: Author and Bhattacharyay (2009).

7. CONCLUSION

Over the past decade Asia has experienced market-driven economic integration through infrastructure development. Given the region's great diversity, cooperation between different groups of countries (or subregions) has been progressing at varying speeds using numerous institutions, frameworks, and forums to address a wide range of policy interests. A number of subregional infrastructure cooperation initiatives have been undertaken for formulating and implementing cross-border or regional infrastructure projects to enhance economic integration through physical connectivity. Overall, the progress of these projects has been slow with the exception of the Greater Mekong Subregion (GMS) program. It is time to take an Asian approach to regional integration and support subregional programs to move towards realizing the vision of a seamless and integrated Asia as set out by the recent ADB/ADBI Flagship Study, "Infrastructure for a Seamless Asia" (ADB/ADBI 2009).

In view of Asia's enormous untapped economic potential and the ongoing global financial crisis and economic recession, this is the time to build efficient and seamless regional infrastructure in transport, energy, and telecommunications for a more competitive, prosperous, and integrated region. This would be the foundation for Asian common markets, and a step toward realizing the vision of an EU-style Asian community. Asia has many existing infrastructure cooperation institutions, most of which are informal, weak, and have limited effectiveness. What Asia needs now to support and complement these institutions is an effective institutional framework for Asian connectivity by strengthening existing institutions and creating a mechanism for ensuring effective coordination and cooperation among them toward achieving Asian connectivity.

In order to build seamless Asian connectivity, Asia needs an effective, formal, and rule-based institutional framework. This could be achieved through the creation of two new institutional mechanisms, PAIF and AIF, which would cooperate with existing national, bilateral, subregional, and regional institutions. ADB and UNESCAP, as well as the variety of national, regional, and subregional institutions currently dealing with infrastructure development, can play an important role in managing this new framework. Strengthened and improved national and subregional institutions can work together towards a common goal of seamless connectivity within such a framework. The creation and effective operation of this proposed framework—which would require political leadership, vision, capacity, commitment, and partnership of Asian countries at the highest level—could help unleash the region's economic potential.

REFERENCES

- ADB. 1995. *Governance: Sound Development Management*. Manila: ADB.
- . 2006. *Review of the Implementation of ADB's Governance and Anticorruption Policies: Findings and Recommendations*. Manila: ADB.
- . 2007. *ADB Annual Report 2007*. Manila: Asian Development Bank.
- . 2008. *Building a Sustainable energy Future: The Greater Mekong Subregion. Discussion Draft for the Final Regional Workshop*, Bangkok, 5–6 June.
- ADB/ADBI. 2009. *Infrastructure for a Seamless Asia*. Tokyo: Asian Development Bank Institute and Asian Development Bank.
- Agarwala, R. 2005. *High Risks of Global Imbalances: Role of Infrastructure Investments in Asia*. RIS Policy Briefs No. 16. New Delhi: Research and Information System for Developing Countries.
- . 2008. *Role of Regional Financial Cooperation in Sustaining Dynamism of Asia*. A paper presented at an informal seminar at Asian Development Bank Institute, Tokyo, 25 March.
- Ali, I., and E. M. Pernia. 2003. *Infrastructure and Poverty Reduction: What is the Connection?* ERD Policy Brief Series, Economics and Research Department, Number 13. Manila: ADB.
- Aslan, K., and M. Aslan. 2006. *Institutional Factors that Shape Regionalization in Central Asia*. Paper presented at the *Annual Meeting of the International Studies Association*, Town & Country Resort and Convention Center, San Diego, CA, USA, 22 March 2006. Accessed online: http://www.allacademic.com/meta/p100611_index.html.
- Association of Southeast Asian Nations (ASEAN). 2008. *ASEAN Economic Community Blueprint*. Jakarta: ASEAN Available at: <http://www.aseansec.org/5187-10.pdf>.
- Bhattacharyay, B. N. 2008. *Demand for Regional Infrastructure in Asia and the Pacific: 2010–2020*. Background paper prepared for ADB/ADBI Flagship Study, “Infrastructure for a Seamless Asia”. Tokyo: Asian Development Bank Institute.
- . 2009. *An Institutional Framework for Pan-Asian Connectivity*. Paper presented at the *ADBI/OREI Workshop on Asian Architecture and Global Governance*, ADB, Manila, Philippines, 29 October 2009.
- . 2010. *Financing Asia's Infrastructure: Modes of Development and Integration of Asian Financial Markets*. Forthcoming ADBI Working Paper. Tokyo: Asian Development Bank Institute.
- Bhattacharyay, B. N., and P. De. 2009a. *Restoring the Asian Silk Route: Towards the Vision of an Integrated Asia*. ADBI Working Paper. Tokyo: Asian Development Bank Institute.
- . 2009b. *Does Governance Matter for Efficient Regional Infrastructure Development in Asia?* Forthcoming ADBI Working Paper. Tokyo: Asian Development Bank Institute.
- Cockerham, G. 2009. *Regional Integration in Southeast Asia: Institutional Design and The ASEAN Way*. Paper presented at the *ISA's 50th ANNUAL CONVENTION, EXPLORING THE PAST - ANTICIPATING THE FUTURE*, New York Marriott Marquis, New York City, NY, USA, 15 Feb 2009. Accessed online: http://www.allacademic.com/meta/p314277_index.html.
- Davis, G. 2008. *The Spatial Effect of Regional Trade Institutions on Investment Inflows*. Paper presented at the *Annual Meeting of the WESTERN POLITICAL*

- SCIENCE ASSOCIATION, Manchester Hyatt, San Diego, CA, 20 Mar 2008. Accessed online: http://www.allacademic.com/meta/p237910_index.html.
- EIB. 2008. The European Investment Bank's Operations in Asia: Supporting environmental sustainability and the EU's presence in Asia. EIB Regional Fly Sheet August 2008. Luxembourg: European Investment Bank. Accessed online at: http://www.eib.org/attachments/country/asia_regional_2008_en.pdf.
- Gomez-Mera, L. 2008. The Impact of Regional Institutions: An Empirical Study of Compliance and Implementation in Regional Trade Blocs. Paper presented at the *ISA's 49th ANNUAL CONVENTION, BRIDGING MULTIPLE DIVIDES*, Hilton San Francisco, San Francisco, CA, USA, 26 Mar 2008. Accessed online: http://www.allacademic.com/meta/p252505_index.html.
- Jazic, Z. 2005. Regional Integration and Globalization European Union and Comparison with Asian Regional Institutions (ASEAN and APEC). Paper presented at the *Annual Meeting of the International Studies Association*, Hilton Hawaiian Village, Honolulu, HI, 05 March 2005. Accessed online: http://www.allacademic.com/meta/p70469_index.html.
- Kanbur, R. 2002. Conceptualizing RFI's versus GFI's. Paper presented to the *IADB/ADB Conference on Regional Public Goods and Regional Development Assistance*, Washington, DC, 6–7 November 2002.
- Komori, Y. 2007. Constructing Regional Institutions in Asia: APEC and ASEAN+3. Paper presented at the *International Studies Association 48th Annual Convention*, Hilton Chicago, Chicago, IL, USA, 28 Feb 2007. Accessed online: http://www.allacademic.com/meta/p179422_index.html.
- Krugman, P. 1991. Increasing Returns and Economic Geography. *Journal of Political Economy* 99(3): 483–499.
- Kuroda, H., M. Kawai, and R. Nangia. 2008. Infrastructure and Regional Cooperation. In *Rethinking Infrastructure for Development*, edited by F. Bourguignon, and B. Pleskovic. Washington, DC: World Bank.
- Laursen, F. 2005a. Institutional vs. Leadership Requirements for Regional Integration: The European Union, MERCOSUR and Other Integration Schemes Compared. Paper presented at the *Annual Meeting of the Political Research Online*, Pontifical Catholic University, Rio de Janeiro Campus (PUC-Rio), Rio de Janeiro, Brazil, 2005.
- . 2005b. Institutional Requirements for Regional Economic Integration: A Comparative Perspective on the EU and NAFTA. Paper presented at the *Annual Meeting of the International Studies Association*, Hilton Hawaiian Village, Honolulu, HI, 05 Mar 2005. Accessed online: http://www.allacademic.com/meta/p71501_index.html.
- Linn, J. F., and O. Pidufala. 2008. The Experience with Regional Economic Cooperation Organizations: Lessons for Central Asia. Wolfsteinsohn Center for Development Working Paper 4. Washington, DC: Brookings Institute.
- Nabers, D. 2008. Talking Regions into Existence: Institution-building in Asia and Europe. Paper presented at the *ISA's 49th ANNUAL CONVENTION, BRIDGING MULTIPLE DIVIDES*, Hilton San Francisco, San Francisco, CA, USA, 26 March 2008. Accessed online: http://www.allacademic.com/meta/p251101_index.html.
- Poole, A. 2008. Processes of Socialization in Regional Institutions: The Evolution of ASEAN Norms. Paper presented at the *ISA's 49th ANNUAL CONVENTION, BRIDGING MULTIPLE DIVIDES*, Hilton San Francisco, San Francisco, CA, USA, 26 Mar 2008. Accessed online: http://www.allacademic.com/meta/p251387_index.html.

- Shimizu, S. 2007. The ASEM as a regional institution: A comparative regional approach between Europe and Asia. Paper presented at the *International Studies Association 48th Annual Convention*, Hilton Chicago, Chicago, IL, USA, 28 Feb 2007. Accessed online: http://www.allacademic.com/meta/p180876_index.html.
- Sonobe, T., D. Hu, and K. Otsuka. 2002. Process of Cluster Formation in China: A Case Study of a Garment Town. *The Journal of Development Studies* 39(1): 118–139.
- Stinnett, D. 2007. Depth, Compliance, and the Design of Regional Trade Institutions. Paper presented at the *Annual Meeting of the Midwest Political Science Association*, Palmer House Hotel, Chicago, IL, 12 April 2007.
- UNESCAP. 2007. Trade Facilitation in Selected Landlocked Countries in Asia. Studies in Trade and Investment No. 58, Trade and Investment Division (TID) UNESCAP Reference No. ST/ESCAP/2437. 18 June.
- Vickerman, R. 2002. Restructuring of Transportation Networks. In *Regional Development Reconsidered*, edited by G. Atalik, and M. M. Fischer. Berlin: Springer.
- Wescott, C. 2005. Improving Road Administration in the Asia-Pacific Region: Some Lessons from Experience. In *Infrastructure and Productivity in Asia: Political, Financial, Physical and Intellectual Underpinnings*, edited by J. B. Kidd, and F. J. Richter. New York, NY: Palgrave MacMillan.