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Infrastructure Development in ASEAN

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1. Introduction

Since the formation of ASEAN Free Trade Area (AFTA) in 1992, the Association of Southeast Asian Nations (ASEAN) has made significant strides in transforming the region into an area for free movement of capital, goods, services and its people. In 2003, ASEAN moved a step closer towards a greater regional integration by adopting the Bali Concord II that comprises three pillars - ASEAN Economic Community (AEC), the ASEAN Security Community (ASC), and the ASEAN Socio-Cultural Community (ASCC). ASEAN Leaders later agreed to accelerate the establishment of the AEC from 2020 to 2015, with the belief that integration can close the development gap amongst its member states.

The AEC vision is ensure that the ASEAN region be a single market and a production hub by 2015. One of the measures for achieving this vision this is the level of regional intra-trade. The intra-ASEAN trade is stagnant at around 25 per cent, with trade between Malaysia and Singapore accounting for more than half of the total. Economists believe that to ensure self-reliance, ASEAN has to achieve at least a 40 per cent of intra-regional trade. The availability of a good physical infrastructure system that connects ASEAN member countries is an important and necessary factor that can increase intra-regional trade and contribute to regional integration.

According to the ASEAN Development Bank Institute¹, there are four reasons why infrastructure can generate a higher cycle of higher demand, productivity and growth, consistent with ASEAN's long-term development goals. These are:

1. Infrastructure plays a significant role in promoting and sustaining economic growth in the region;
2. Infrastructure development is necessary to accelerate economic integration within the region, particularly in the area of trade and investment;

¹ *ADB Working Paper Series No. 138, Infrastructure Development for ASEAN Economic Integration by Biswa Nath Bhattacharyay, May 2009*

3. Addressing inequalities in infrastructure development is critical to the wider objective of reducing development gaps among ASEAN countries and income inequality and poverty within each country; and
4. Infrastructure development is necessary to improve resource sharing and efficiency in the region to provide basic needs, such as water and electricity.

Realising the importance of infrastructure, ASEAN countries had initiated co-operation in the areas of transport, ICT and energy facilities even before the AEC. However, more progress needs to be made. In addition, ASEAN countries have built national infrastructures but the level of achievement varies between countries, depending on the stage of development and availability of resources. Acknowledging the importance of having a good national as well as cross-border infrastructure, ASEAN launched the Master Plan on ASEAN Connectivity (MPAC) in 2009. The Plan, which focuses on improving regional connectivity through national and cross-border infrastructure development, will hopefully bring ASEAN countries closer together towards the realisation of AEC.

This paper will examine the ASEAN infrastructure cooperation in transportation (roads, bridges and railway) as well as in energy (electrical power network, gas and petroleum pipelines), water (pipes and storage reservoirs systems) and communication (telephone cables, satellite and undersea cables) facilities. The issues discussed will include the evaluation of the current status and the framework of co-operation and assessment of progress towards the milestones as set out in the AEC. There are gaps between the progress made and the targets set and hence there is a need for policy reforms to ensure that the goals will be met.

Section 2 of this paper will examine the infrastructure policy framework in ASEAN while Section 3 assesses the infrastructure achievements in the AEC Blueprint. Section 4 will analyse the progress towards a well-connected region including the Master plan on ASEAN Connectivity and infrastructure financing. Issues, challenges and policy recommendations will be discussed in Section 5 and Section 6 concludes with some thoughts on future initiatives.

2. Infrastructure Policy Framework in ASEAN

Seven out of the ten of ASEAN members are geographically connected by land and as such, cooperation in the transport sector represents the biggest subset of the region's infrastructure development. Besides building national and regional infrastructure, a key challenge is to ensure the smooth movement of goods and services across borders, which have to undergo various processes that complicate the flow and increase the cost of trade. Evidently, ASEAN is continuously building a more effective mechanism in to reduce the physical barriers for better movement of trade and people that can further strengthen connectivity, where member states operate according to the same standards.

ASEAN began its infrastructure policy framework that will eventually assist regional connectivity through developing common commitments and priorities in transportation, energy and information and communication technology (ICT).

2.1 Cooperation in the Transport Sector

Prior to the formation of AFTA in 1992, ASEAN adopted sectoral approach in dealing with its transport cooperation whereby shipping, ports, rail, road and air networks were developed independently. There was little push to develop a comprehensive transport model within the region. As a result, little effort was made towards the realisation of a single regional transport market. However, as tariff rates were being reduced in AFTA, it was realised that if trade facilitation was not improved, intra-regional trade would not increase. Hence, trade facilitation became the main policy drive, which results in the formation of a comprehensive transport policy. Since then, ASEAN had recognised that transport cooperation in logistics and service support sector was critical in achieving regional economic integration and international competitiveness.

Table 1: Policy commitments in transport cooperation in ASEAN

PROGRAMMES	TIMELINE
ASEAN Plan of Action in Transport and Communications	1994-1996
ASEAN Plan of Action in Transport (Ministerial Understanding)	1996-1998
Successor Plan of Action in Transport	1999-2004
ASEAN Transport Action Plan	2005-2010
ASEAN Strategic Transport Plan	2011-2015

Source: ASEAN Secretariat

ASEAN Plan of Action in Transport and Communication (1994-1996) was the region's starting point in achieving the objectives of transport cooperation. The Action Plan, endorsed by SEOM in March 1995, identified six key objectives for ASEAN cooperation in transport and telecommunications, namely:

1. Development of multimodal transport and trade facilitation;
2. Development of ASEAN interconnectivity in telecommunications; including fixed and mobile voice and data and EDI services, for trade and business communications and to enhance land, sea and air transport;
3. Harmonisation of road transport laws, rules and regulations in ASEAN;
4. Improvement of air space management in ASEAN;
5. Development of ASEAN rules and regulations for carriage of dangerous goods and industrial wastes by land and sea; and
6. Human resources development in transport and communications.

ASEAN Transport Ministers met for the first time in March 1996 in Bali to further institutionalise its transport cooperation programmes and to endorse the Ministerial Understanding on ASEAN Cooperation in Transportation. The Ministerial Understanding has four main objectives, namely to:

1. Establish and develop a harmonised and integrated regional transport system in order to provide safe, efficient and innovative transportation infrastructure network;
2. Enhance cooperation in the Transport sector amongst Member States in order to contribute towards the achievement of the objectives of the AFTA;
3. Establish a mechanism to coordinate and supervise cooperation projects and activities in the transport sector; and
4. Promote interconnectivity and interoperability of national networks and access thereto taking particular account of the need to link islands, land locked, and peripheral regions with the national and global economies.

The 1997/1998 Asian Financial Crisis did not decelerate much ASEAN's push for greater integration in transport cooperation. In fact, ASEAN continued to strengthen its transport commitments by adopting the Successor Plan of Action in Transport 1999-2004 to translate the Hanoi Plan of Action's Transport Priorities into action. The Plan had 55 projects and activities

during the six-year period with four sectoral working groups in Transport Facilitation, Air Transport, Land Transport and Maritime Transport. During that period, ASEAN transport cooperation was focused on the development of the trans-ASEAN transportation network, transport facilitation agreements, cooperation with private sectors (most noticeably in amongst airlines, forwarders, ports, shippers' councils and ship owners) and strategic partnerships with ASEAN dialogue partners such as China, India and Japan. ASEAN needed to realise the Leaders' goal of AEC by 2020 (which was subsequently accelerated to 2015) and the ASEAN Transport Action Plan 2005-2010 was endorsed as a foundation to achieve this aim.

The Policy Agenda under the ASEAN Transport Action Plan (ATAP) 2005-2010 were carried out through 48 proposed actions, goals and strategic thrust as shown in Table 3. Out of these 48 actions, 13 actions are for land transport, 10 actions for air transport, 14 actions for maritime transport and 11 actions for transport facilitation. The Action Plan was complemented by three sectoral roadmaps, i.e. Roadmap for Integration of Air Travel Sector (RIATS), Roadmap towards an Integrated and Competitive Maritime Transport in ASEAN and Roadmap for the Integration of Logistics Services (RILS).

Under ATAP, the transport cooperation went beyond comprehensive roadmaps, collaboration with dialogue partners and other sub-regional initiatives. However, sub-regional transport cooperation made little progress due to, mainly, financial constraints.

In 2010, ASEAN Transport Ministers endorsed the Brunei Action Plan, or ASEAN Strategic Transport Plan (ASTP) 2011-2015, to provide the main reference that guides the ASEAN transport cooperation and integration over the next five years. The ASTP'S goals are shown in Table 3. The ASTP identified strategic actions to be implemented in the period 2011-2015 to support the realisation of the AEC as well as the new priority of enhancing regional connectivity identified in the MPAC. The specific objectives of ASTP are to:

1. Maintain continuity of actions for the implementation of AEC Blueprint to develop an integrated and harmonized trans-ASEAN transportation network;
2. Enhance connectivity of intra-ASEAN transport networks to support the MPAC;
3. Leverage on the strong Asian economic growth and increased external ASEAN cooperation by strengthening transport connectivity with Dialogue Partners and other regional partners;

4. Capitalise on the strategic geographical location of ASEAN and accelerated pace of globalisation to upgrade selected transport infrastructure components and services, which serve as vital links to international supply routes;
5. Incorporate environmental and climate change considerations in planning, development, operations and management of ASEAN transport networks in line with relevant global initiatives; and
6. Enhance regional capability to further improve the level of safety and security in the provision of transport services.

The transport sector infrastructure cooperation cannot be realised in one master plan. Therefore, ASTP is not very much different from earlier plans but rather a continuation of major infrastructure cooperation and projects such as the ASEAN Highway Network and Singapore-Kunming Rail Link (SKRL). These infrastructure projects require large financial investments and involve other critical considerations such as construction, network upgrading and close project monitoring. ASEAN countries are committed in realising these projects but progress is slow. As most of the basic rail and road networks are already in place, the bigger task now is to finance the interconnection links between participating countries.

2.2 Cooperation in the Energy Sector

Since 1999, ASEAN aspires to reach optimum levels of energy security and sustainability in an affordable way and plans to achieve this through two long-term energy cooperation projects, namely the ASEAN Power Grid (APG) and Trans-ASEAN Gas Pipeline (TAGP). As the demand for energy is increasing, and at the same time, supply of energy is decreasing, securing a stable supply of energy at a reasonable cost in an environmentally friendly manner remains ASEAN's biggest challenge in the energy sector.

ASEAN's cohesive cooperation in the energy sector is guided by its five-year ASEAN Plan of Action for Energy Cooperation (APAEC). The first APAEC (1999-2004) blueprint aimed to:

- a. Ensure security and sustainability of energy supply, efficient utilisation of natural energy resource in the region and the rational management of energy demand, with due consideration of the environment; and

- b. Institute the policy framework and implementation modalities by 2004 for the early realisation of the Trans-ASEAN energy networks covering the APG and the TAGP as a more focused continuation of the medium-term programme of action (1995-1999).

During the period 1999-2004, ASEAN's energy security framework was enhanced by the conclusion of Trans-ASEAN Gas Pipeline Master Plan and the ASEAN Interconnection Master Plan Study. The subsequent APAEC (2004-2009), saw the advent of APG as well as the establishment of ASEAN Council on Petroleum Gas Centre and APG Consultative Council.

The late 2000s oil crisis and the projection of the region's energy supply sparked greater collaboration in energy security by accelerating the implementation of action plans to bring energy security, accessibility and sustainability closer together. The third APAEC (2010-2015) strategies are shown in Table 5 and it contains 26 strategies and 91 actions and expected to reduce regional energy intensity by at least eight percent based on 2005 levels and to achieve a 15 percent collective target for regional renewable energy in the total power installed capacity by 2015².

Energy cooperation in the region appears to have gained some traction over the years due to the price and supply volatility in the global energy market. Achieving the desired level of energy security would be worthwhile if it reduces the costs of electricity generation, regional investment on power development projects and promoting adequate power reserves. ASEAN countries have shown interest in pooling their resources to exploit the collective benefits of energy interdependence. However, domestic political and social dimensions have to be taken into context as energy security is also a part of national security. As APG and TAGP are very intricate cross-border investments, it would take more than just regional energy framework to translate these projects into national priorities.

2.3 Cooperation in the Information and Communication Technology (ICT) Sector

The development of ASEAN ICT infrastructure framework started in 2000 when ASEAN Leaders endorsed the e-ASEAN Framework Agreement³ to:

² ASEAN Plan of Action for Energy Cooperation (APAEC) 2010-2015 - Bringing Policies to Actions: Towards a Cleaner, more Efficient and Sustainable ASEAN Energy Community

³ e-ASEAN Framework Agreement, Article 3, The Fourth ASEAN Informal Summit, 22-25 November 2000, Singapore

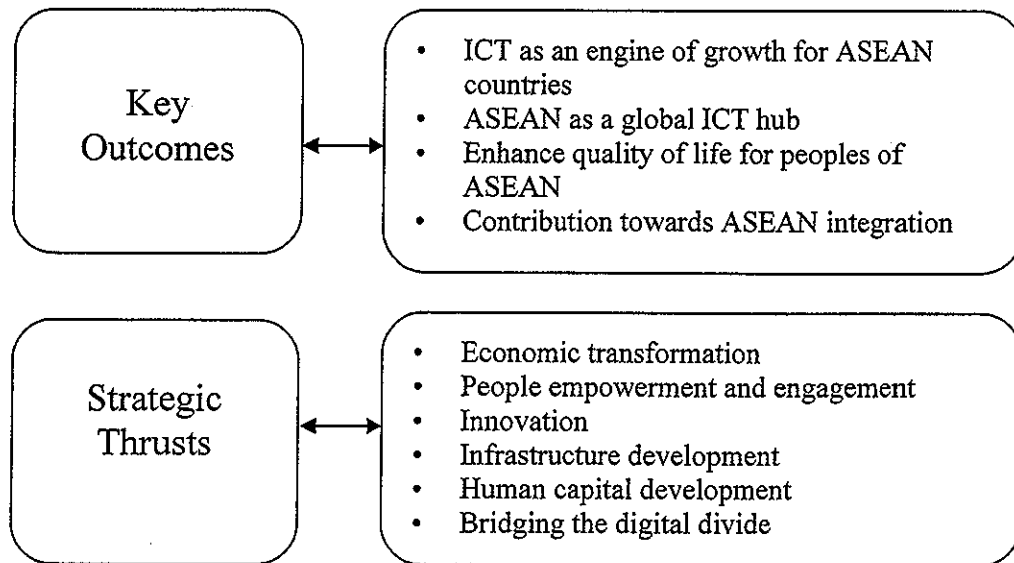
1. Develop of the ASEAN Information Infrastructure;
2. Facilitate the growth of electronic commerce in ASEAN;
3. Promote and facilitate the liberalisation of trade in ICT products, ICT services and of investments in support of the e-ASEAN initiative;
4. Promote and facilitate investments in the production of ICT products and the provision of ICT services;
5. Develop an e-Society in ASEAN and capacity building to reduce the digital divide within individual ASEAN Member States and amongst ASEAN Member States; and
6. Promote the use of ICT applications in the delivery of government services (e-Government).

Since then ASEAN has achieved two major milestones in the ICT sector namely the Ministerial Understanding on ASEAN Cooperation in Telecommunications and IT (2001) and ASEAN ICT Master Plan 2015 (2011).

Bridging the large gap in digital divide amongst ASEAN members remains the region's biggest challenge in developing a common region-wide IT infrastructure. However, as countries continue to embrace the advancement of IT applications, ASEAN has formed the ASEAN ICT Master Plan (AIM) 2015. The AIM, whose strategic thrusts and key outcomes are shown in Figure 1, was endorsed in the 10th ASEAN Telecommunications and Information Technology Ministers Meeting in 2011 and consists of a set of comprehensive actions and projects to be implemented from the period 2011 to 2015. The six strategic thrusts are economic transformation, people empowerment and engagement, innovation, infrastructure development, human capital development and bridging the digital divide.

In addition to the growing number of ICT usage, ASEAN's ICT framework has provided a platform to benchmark best practices to narrow the region's digital divide. As a result, the level of ICT advancement by the least developed ASEAN countries are catching up fast. This is largely contributed by internet service providers that are investing in higher bandwidth technologies to keep prices low.

Figure 1: Key outcomes and strategic thrusts of ASEAN ICT Masterplan 2015



Source: ASEAN

ASEAN's infrastructure framework in the ICT cooperation sector cannot be static and has to move along with the rapid advances in the global technology to remain relevant. However, infrastructure investment in this sector is very dependent on the economic condition and income level of its people. There are also ICT operators who are not keen to invest due to economic viability of investing in costly hardware ICT infrastructures. As these ventures require large capital outlay, operators will find it hard to assess returns on investment.

Additionally, ASEAN's progress in ICT infrastructure development will also depend on political and legal institutions, which must be ready to embrace the exponential growth rate of information flow as a result of rapid changes in ICT advancement and applications. There needs to be a balance ICT privacy and security requirements and suitable legal frameworks that do not impede the basic freedom to information.

3. Assessment of Infrastructure Development in the AEC

In 2007, ASEAN leaders adopted the AEC Blueprint that sets out specific priorities and targets toward achieving the AEC by 2015. The AEC Scorecard, developed to monitor the progress of AEC measures serves as a checklist of actions that are specified in the AEC Blueprint is under

the responsibility of the ASEAN Secretariat. The progress of the scorecard is presented to the ASEAN Economic Ministers (AEM) in four biennial phases from 2008 to 2015.

As of December 2011, the overall implementation rate under Phase 1 and 2 of the AEC Scorecard were 67.5 per cent⁴. ASEAN did better in the Phase 1 where it completed 86.7 per cent of measures⁵. It fared much lower in Phase 2 with 55.8 per cent implementation rate with 76 outstanding measures.

The Infrastructure Development checklist falls under the second pillar of the AEC Scorecard - "Competitive Economic Region" - as illustrated in Table 2. In Phase 1, all outstanding measures are under the transport sector. At the time of writing, none of ASEAN countries have ratified Protocol 2 (Designation of Frontier Posts) and Protocol 7 (Customs Transit System) of the ASEAN Framework Agreement on the Facilitation of Goods in Transit (AFAFGIT). In addition, there are three ASEAN countries that have yet to ratify Protocol 1 (Designation of Transit Transport Routes and Facilities) of AFAFGIT.

Table 2: Competitive Economic Region Scorecard (2008-2011)

Key Areas	Phase I (2008-2009)		Phase II (2010-2011)		TOTAL MEASURES	
	Fully Implemented	Not Fully Implemented	Fully Implemented	Not Fully Implemented	Fully Implemented	Not Fully Implemented
Competition Policy	2	0	2	0	4	0
Consumer Protection	2	0	5	4	7	4
Intellectual Property Rights	0	0	4	1	4	1
Transport	15	10	6	8	21	18
Energy	0	0	2	1	2	1
Mineral	1	0	7	0	8	0
ICT	2	0	4	0	6	0
Taxation	0	0	0	1	0	1
E-Commerce	0	0	1	0	1	0
Total Number of Measures	22	10	31	15	53	25
IMPLEMENTATION RATE*	68.7%		67.4%		67.9%	

* Implementation rate is calculated as the ratio of measures that are fully implemented to total number of measures targeted

Source: ASEAN Economic Community Scorecard, Charting Progress Toward Regional Economic Integration Phase I (2008-2009) and Phase II (2010-2011)

⁴ Source: ASEAN Economic Community Scorecard, Charting Progress Toward Regional Economic Integration Phase I (2008-2009) and Phase II (2010-2011)

⁵ Ibid

In Phase 2, transport sector continues to be the biggest laggard in the competitive economic region scorecard as per Table 3. Under the Infrastructure Development sub-heading, problem areas for full implementation are in the enactment of necessary domestic legislations for the ASEAN Framework Agreement on Multimodal Transport, ratification of ASEAN Framework Agreement on Inter-State Transport, ratification of ASEAN Multilateral Agreement on the Full Liberalisation of Passenger Air Services (MAFLPAS), conclude Protocol 6 under the AFAPGIT, complete activities scheduled under ASEAN Single Shipping Market and implement the ASEAN Interconnection Projects. In addition, ASEAN countries find it hard to reach a common position on implementing other infrastructure-related initiatives such as in trade facilitation and customs integration.

Table 3: Implementation of AEC Scorecard under the Transport Sector by Country under Phase I and II

ASEAN Countries	Transport Cooperation	
	Phase I (2008-2009)	Phase II (2010-2011)
Brunei Darussalam		
Cambodia		
Indonesia		
Lao PDR		
Malaysia		
Myanmar		
Philippines		
Singapore		
Thailand		
Vietnam		
ASEAN		

- Indicates that all measures targeted in this area were implemented
- Indicates that more than half of the measures targeted in this area were implemented
- Indicates that less than half of the measures targeted in this area were implemented

Source: ASEAN Economic Community Scorecard, Charting Progress Toward Regional Economic Integration Phase I (2008-2009) and Phase II (2010-2011)

Overall, the shortfall in the implementation rate is due to the delay in ratification of ASEAN's existing soft infrastructures (regional agreements) and translating them into respective national laws. Most of these regional agreements are signed after years of consultation with respective capitals. It is imperative for ASEAN countries to intensify efforts and aligning regional goals into national priorities.

Having said that, ASEAN cannot risk putting all eggs in one basket as all outstanding measures will 'snowball' to the subsequent phase of AEC Scorecard. It is very optimistic for ASEAN to believe that it will implement all outstanding measures on top of the current year of AEC Scorecard prior 2015. Without immediate attention in addressing this shortfall, ASEAN would find itself in a position to rush implementing them in the final phase of the Scorecard. This would weaken ASEAN's relevance as a regional organisation as it will be criticised for having limited drive to pull its resources in achieving its goals.

4. Progress towards a well-connected region

4.1 Complementary Policy Framework for Infrastructure Development in ASEAN

In addition to the infrastructure policy frameworks as discussed earlier, there are also other similar initiatives outside the scope of AEC. Since the inception of ASEAN in 1967, various sub-regional initiatives have been introduced to physically link ASEAN countries. These include the Greater Mekong Sub-Region initiative (GMS), Brunei-Indonesia-Malaysia-Philippines East Asia Growth Area (BIMP-EAGA), Indonesia-Malaysia-Thailand Growth Triangle (IMG-GT) and the Indonesia-Malaysia-Singapore Growth Triangle (IMS-GT). There are also other projects under the transport sector such as the ASEAN Highway Network and the Singapore-Kunming Rail Link, as well as in the energy sector such as ASEAN Power Grid and Trans-ASEAN Gas Pipeline. These initiatives have somewhat facilitated the movement of economic resources and supported the increase in intra-ASEAN trade by 70 per cent over the period of 2004-2009.

On 20 December 2011, the ministers of GMS countries endorsed the Third GMS Economic Cooperation Program Strategic Framework 2012-2022 that includes strengthening transport linkages and telecommunications and ICT development. Together with assistance from the

ADB, the resource-rich region is expected to grow at a faster rate after Japan pledged its support by providing financial aid of USD\$7.5 billion over the next three years⁶. In addition to the financial aid, Japan also presented a list of 57 infrastructure projects planned in the region, estimated to cost around USD\$28 billion.

In April 2012, leaders of BIMP-EAGA adopted the Implementation Blueprint 2012-2016 with a greater emphasis on project implementation and to follow through the progress made under the BIMP-EAGA Roadmap to Development (2006-2010). The new blueprint will be aligned with the projects under the MPAC⁷.

For the IMT-GT, the ADB, as a development partner and regional advisor of the sub-region, is formulating the Implementation Blueprint 2012-2016 for the sub-region. It was reported that the new blueprint will consist of 43 projects in which half of them will be on infrastructure and transportation cooperation⁸.

Notwithstanding these planned initiatives, economic activities in these sub-regions remain slow. The issue of connectivity (availability of infrastructure) remains the biggest challenge that hinders these sub-regional initiatives as it adds to the high cost of doing business as indicated by the private sector. Participating countries requires a very large sum of funds to realise the infrastructure investments. Presently, it is difficult to justify with the returns on investment based on the level of economic activity in these under-developed regions. It is estimated that the BIMP-EAGA sub-region alone requires at least USD\$1 billion to fund its priority projects⁹.

In addition to financing problems, another difficulty is the close coordination required in implementing these connectivity projects because many of the projects involve cross-border infrastructure investments. This demands it is agreement in prioritising these investment projects as there are more infrastructure development projects than financial resources available.

⁶ *Japan pledges US\$7.4b for Mekong development, 21 April 2012*

http://www.channelnewsasia.com/stories/afp_asiapacific/view/1196663/11.html

⁷ *BIMP-EAGA underscores strong connectivity within the region, The Borneo Post, 4 December 2011*

<http://www.theborneopost.com/2011/12/04/bimp-eaga-underscores-strong-connectivity-within-the-region/>

⁸ *Indonesia, Malaysia, Thailand Sepakat Tak Ada Proyek Baru, Okezone.com, 13 April 2012*

<http://economy.okezone.com/read/2012/04/13/320/610865/indonesia-malaysia-thailand-sepakat-tak-ada-proyek-baru>

⁹ *EAGA airlines complement efforts for subregional connectivity, Philippine Information Agency, 25 April 2012, <http://www.pia.gov.ph/news/index.php?article=1701335315743>*

4.2 Master Plan on ASEAN Connectivity (MPAC)

In July 2009, Thailand proposed the idea of enhancing ASEAN connectivity as a strategic goal of ASEAN in building a more competitive ASEAN Community by 2015. It aims to bring people, goods, services and capital closer together in accordance with the ASEAN Charter. The idea behind the MPAC is to allow freer travel passage for goods, services, investment and people, with minimal impediments within the ASEAN region. The MPAC will cover physical, institutional and people-to-people connectivity in 15 prioritised projects.

The MPAC is a result of two overarching needs. First, it aims to consolidate the existing three pillars of ASEAN (political-security, economic and socio-cultural) and prioritise actions toward achieving the ASEAN Community by 2015. Second, to put in place a well-coordinated infrastructure system that will produce an integrated physical, institutional and people-to-people link within as well as with outside the region. A well-functioning ASEAN connectivity will ultimately yield higher intra-regional trade and economic growth.

According to ADB and ADBI's study, ASEAN needs about USD60 billion a year for infrastructure investment for the 2010-2020 period¹⁰. With a well-developed physical infrastructure, ASEAN is envisaged to increase its intra-regional trade to 40%, at the very least (currently at 24.5%).

Under the MPAC, there are 15 priority projects to enhance ASEAN connectivity:

A. Physical connectivity projects

1. Completion of the ASEAN Highway Network (AHN) Missing Links and Upgrade of Transit Transport Routes;
2. Completion of the Singapore Kunming Rail Link (SKRL) Missing Links;
3. Establish an ASEAN Broadband Corridor (ABC);
4. Melaka-Pekan Baru Interconnection (IMT-GT: Indonesia);
5. West Kalimantan-Sarawak Interconnection (BIMP-EAGA: Indonesia); and
6. Study on the Roll-on/roll off (RoRo) Network and Short-Sea Shipping.

B. Institutional connectivity projects

¹⁰ *Infrastructure for a Seamless Asia, Asian Development Bank and Asian Development Bank Institute, 2009.*

1. Developing and Operationalising Mutual Recognition Arrangements (MRAs) for Prioritised and Selected Industries;
2. Establishing Common Rules for Standards and Conformity Assessment Procedures;
3. Operationalise all National Single Windows (NSWs) by 2012;
4. Options for a Framework Modality towards the Phased Reduction and Elimination of Scheduled Investment Restrictions/Impediments; and
5. Operationalisation of the ASEAN Agreements on Transport Facilitation.

C. People-to-people connectivity projects

1. Easing Visa Requirements for ASEAN Nationals;
2. Development of ASEAN Virtual Learning Resource Centres (AVLRC);
3. Develop ICT Skill Standards; and
4. ASEAN Community Building Programme.

In order to successfully implement of these priority projects, a technical assistance is must be available to facilitate project identification, preparation, monitoring and evaluation. ASEAN also needs to determine an indicative funding size and sources for technical assistance from ASEAN-led institutions, dialogue partners and other multilateral bodies such as the World Bank and the ADB. This will also involve the development of a clear funding mechanism for these infrastructure needs. Moreover, ASEAN has to address other externalities arise from a region with a well-connected infrastructure, namely national priorities and social impact.

4.3 Infrastructure Financing

There is clearly a need for a large amount and continuous flow of capital to finance ASEAN infrastructure projects. In the past, national governments provided most of the capital outlay for infrastructure development. But today, a hybrid model of public-private partnership for infrastructure financing is becoming more practical as constraints and priorities of national governments change over time.

In May 2012, the long-awaited ASEAN Infrastructure Fund (AIF) is set to commence operations following the first meeting of its Board of Directors on the side line of the

ADB 45th Annual Meeting. The AIF is the largest ASEAN-led initiative in the association's history with a planned start-up capital of USD485.2million. The idea was first mooted in May 2005 by then Malaysian Prime Minister Tun Abdullah Ahmad Badawi in the hope that each ASEAN country would utilise more than USD\$700 billion of their foreign exchange reserves to promote infrastructure development and support the realisation of the AEC by 2015¹¹.

The AIF, domiciled in Malaysia, is a limited liability company owned by ASEAN governments and the ADB. It will subsequently issue bonds for additional funding. AIF's basic equity structure comprises of Member States' contribution, a hybrid capital of USD\$162million and debt. All AIF shareholders have agreed that the disbursement will not commence unless and until at least 80 percent of the first tranche equity contributions, i.e. USD\$129.4 million, have been contributed.

Table 4: Structure of ASEAN Infrastructure Fund

Assets (USD\$ mil)	Equity (USD\$ mil)
Various assets 647.2	ASEAN contribution 335.2
	ADB's contribution 150
	Hybrid capital 162
647.2	647.2

Source: ADB

Malaysia, followed by Indonesia, is the largest contributor to the AIF from ASEAN. The ADB plans to contribute USD\$150 million to the AIF but it seems that it will be contributing even more to the fund than the stipulated amount because each project under the AIF will also be co-financed by the Bank.

Although the proposal of AIF was mooted some time ago, its implementation took quite a while to be realised. Reaching a consensus on the establishment of AIF took more than six years and without a clear institutional set-up, ASEAN member countries may not be able to utilise the fund fully.

¹¹ *Fiscal Policy Coordination in Asia: East Asian Infrastructure Investment Fund* by Dato' Dr. Mahani Zainal Abidin, ADBI Working Paper Series No.232, July 2010

However, ASEAN cannot just depend on AIF to fund its infrastructure financing as its fund size of USD\$485.2 million is too small and will not be sufficient to finance major infrastructure projects. Thus, there is a need for a larger funding through the participation of Plus Six partners, which may give a sizable financing to effectively implement these planned infrastructure projects¹².

Apart from the conventional multilateral development banks such as the ADB and World Bank, the role of ASEAN dialogue partners is also important in providing sufficient financing infrastructure projects. The idea to establish an East Asian Infrastructure Development Fund and the newly set-up USD\$10 billion China-ASEAN Fund on Investment Cooperation will provide a much needed boost for a bigger financing mechanism than the AIF. In addition, China is also considering setting up a USD4.7 billion "ASEAN Bank" with the aim to promote SMEs development, as well as financing infrastructure projects within ASEAN and south-western China¹³. Members of ASEAN, Japan and South Korea are invited to take a stake in the ASEAN Bank.

5. Issues, challenges and policy recommendations

a) The need for an effective regional institutional mechanism to implement infrastructure co-operation and projects

Over the years, ASEAN has introduced various infrastructure development frameworks and projects to make the region a truly integration single market and production base. This vision is supported by ASEAN Dialogue Partners and multilateral development institutions. But the latest AEC scorecard shows that there is still a lot more improvements that can be made in infrastructure development in ASEAN. The fundamental ASEAN concept of non-interference and national sovereignty remain may be the key reason why infrastructure development remains low and progress is slow.

It is noted that despite various initiatives made by ASEAN, the level of cooperation among member countries remain low, most notably amongst GMS countries. The GMS project,

¹² *One ASEAN: What must we do? And how close are we?* by H.E. Abhisit Vejjajiva, Bangkok Post, 13 October 2011

¹³ *EXCLUSIVE - China eyes creation of ASEAN Bank* by Reuters, Thursday 27 October 2011

although initiated by the ADB in 1992, was started much earlier in 1957 under the auspices of United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). The Xayaburi Dam Project, for example, although is not part of any of regional initiatives, highlights the differences amongst GMS countries in finding an agreement for a collective and shared benefit¹⁴. Another example, the operationalization of the AFAFGIT under the AEC Scorecard 2008-2009, which was initially signed in 1998, remains as a stumbling block in increasing intra-trade within ASEAN. If ASEAN delays the implementation of key measures in the AEC Scorecard, they will be added to the next phase of the scorecard with a shorter implementation period.

Thus, ASEAN need a stronger institutional implementation mechanism to ensure that the AEC datelines are met. This implementation mechanism should supersede national government in matters of implantation of infrastructure policies and projects already agreed by the Leaders at the regional level. As long as the regional implementation body is unable to converge or mediate national concerns and interest, there may be a possibility of delaying the implementation rate of AEC Scorecard even further. To establish such a mechanism, ASEAN needs to decide on the issue of giving up some degree of non-interference and national sovereignty to regional body.

b) Limitations to the regional infrastructure planning and monitoring

Although ASEAN has vast experience in infrastructure planning at the national level, it has limited capability in such planning at the regional level. Most of the planning of cross-border infrastructure projects in ASEAN is done by multilateral development institutions. Infrastructure planning is complex because the projects are large and they require long-term payback periods, project operators are exposed to revenue risks, due to pricing and currency fluctuations and related socio-economic externalities such as environmental and societal impact.

In this context, national planning and regulatory coherence amongst ASEAN Member States is important to ensure convergence and streamlining of national projects with regional infrastructure plans. This is important to:

¹⁴ *Opening the floodgates, A giant dam is about to be built. Protests are about to erupt, The Economist*, 5 May 2012, <http://www.economist.com/node/21554253>

- Avoid duplication, conflicting or burdensome enforcement systems to facilitate smoother movement of goods, services, capital and people;
- Promote economic growth in a transparent, effective, enforceable and mutually coherent regulatory system based on international best practices; and
- Greater transparency and consultation process in national and regional infrastructure plans.

Regional infrastructure projects usually involve additional project management that complicates the implementation process. In some cases, the lengthy process of vetting, appraisals, tendering practices can significantly delay implementation with some being aborted due to a variety of reasons, including unrealistic cost assumptions, poor technical design and inability to realize adequate financial returns.

Thus, it is crucial for ASEAN to establish a planning mechanism that can co-ordinate and streamline national and regional infrastructure planning and needs. Likewise, ASEAN has very little capacity at the regional level to monitor effectively the implementation of the infrastructure projects. In this case, it may have to seek assistance from multilateral development institutions such as the ADB to assist in this work.

c) *Financing requirements*

As the financing needs are large, ASEAN may face stiff competition in securing the sufficient funds for implementing its infrastructure projects. One source is the Plus Three partners, namely China, Korea and Japan. However, these funds will likely to be invested in the GMS region because of the rising trade and investment links with China and Japan. Another source of funds is the recycling of the significant reserves held by East Asian countries including some ASEAN members. This idea has been raised since the Asian financial crisis in 1997/98 but little progress has been made.

Another source of funding is of course the private sector. However, the cost may be higher because the funds are raised commercially and the risks are set at a higher level. Often, to mitigate the risks associated with infrastructure projects, private investors would seek

support or guarantees from governments. In addition, the higher costs are also due to the reasonably high returns demanded by these private sector investors.

Despite being backed by ASEAN governments, the AIF has similar limitations as other sources of financing. There are risks associated to the AIF's capital structure and operations that may affect its ability to raise funds. Firstly, the AIF has to attain a high investment-grade rating in order to ensure that the lending rate, lending volume and return on equity can keep borrowing costs low. Secondly, as the AIF will finance risky and complex non-sovereign projects, the issue of disbursement and prioritising infrastructure projects will further complicate the allocation of the fund. Thirdly, currency mismatch may increase the project cost and ability of a country to pay back the loans. The long gestation of infrastructure projects will expose borrowing countries to currency fluctuations that some time can go beyond the estimated range of currency movement. This is further aggravated when borrowing countries may face difficulties when project revenues are in local currencies while the loans are in foreign currencies.

Besides challenges in raising and costs of funds, AIF is also exposed to additional risks that may delay the implementation of projects. Prioritising cross-border infrastructure projects requires coordination between two or more sovereign countries, particularly when there is a mismatch between countries and regional interests for infrastructure projects. For example, preliminary projects for 2012 and 2013 are still subject to further approval by recipient countries even after being agreed by the AIF Board.

The issue of duration of mismatch and size of investment plays an important role in the complexities of cross-border infrastructure financing. Infrastructure investments can take a long time to yield financial returns. Furthermore, forecasting accurately potential traffic outcome of usage of infrastructure developed that could give the financial returns especially in less developed or populated areas is always difficult. This will make the estimation of future costs and revenue streams hard to ascertain and potential investors may demand financial support, which often pose a heavy burden on the government.

Since financing is a key factor in the successful implementation of ASEAN infrastructure projects, its Leaders should take a bold approach in getting Member States with strong financial capacity to invest in AIF. For this to work, ASEAN leaders should then come to

an agreement in terms of balancing countries' financial contribution with having a role in the prioritising and effective implementation of projects.

d) National priority versus regional benefit

A major challenge in regional infrastructure development is co-ordinating the various national needs with the regional vision and plans. Often, member countries' priorities do not coincide with the regional plans. Overlapping projects will result in non-optimal use of resources and in some cases can even produce negative outcomes. Although Members States are committed to join regional initiatives, national needs often take precedence because governments have to fulfil the aspirations and demands of its own constituencies. The task for governments is how to rationalize national infrastructure needs so that it correspond and fit in with the regional vision. In other words, if regional benefits are a total sum of national priorities, then there will be a greater commitment by ASEAN members to achieve regional infrastructure vision.

Each Member State has its own infrastructure plans and programs. The challenge is how to co-ordinate these national plans into a regional framework with minimum investments. A good example is the road projects: a good standard ASEAN road network can be built by linking the various national road systems. Additional investments may be needed to link the missing parts of the national road systems, which can be undertaken by a regional body.

Another important element for developing a regional infrastructure network is the harmonisation of the various national infrastructure standards into a regional one. Without harmonised regional standards, a free flow of movement of vehicles, people, goods and services cannot take place. As such an urgent initiative is to accelerate the work on harmonising infrastructure standards among the ASEAN Member States.

6. Conclusion

A more globalised world will present greater challenges for ASEAN in sustaining economic prosperity and well-being. The achievement of AEC vision of being a truly integrated market and a production base is very important for ASEAN to enhance its economic

prosperity and competitiveness. Infrastructure development and cooperation are essential to attaining the AEC vision for without it there will not be the seamless flow of goods, services, investment and people.

ASEAN's effort in this area started with co-operation in transport, energy and ICT. Under the AEC, these initiatives have been expanded to include cross-border infrastructure projects and the creation of region-wide infrastructure networks. The progress of infrastructure measures under the AEC made so far could be further improved. Going forward, it is imperative that ASEAN overcome the challenges and accelerate the implementation of the committed co-operative work plans and infrastructure projects. Among the key issues for consideration is the establishment of regional institutional mechanism for project implementations, enhancing regional planning and monitoring capacity, meeting financing needs, streamlining national infrastructure priorities with regional visions and accelerating the work to harmonise infrastructure standards. ASEAN also needs a more effective mechanism in further strengthening information sharing and close the legal, regulatory and capacity gaps.

Without doubt, closer regional cooperation and integration will benefit everybody in the region. For this, the infrastructure development and co-operation requires the involvement of all parties – the ASEAN governments, Dialogue Partners, public sector, private sector and multilateral development institutions.

Table 5: Goals and Strategic Thrust Area in ATAP 1999-2004

	GOALS	STRATEGIC THRUST
Land Transport	<ul style="list-style-type: none"> • Establishing efficient, integrated, safe and environmentally sustainable regional land transport (road and railway) corridors linking all members and neighbouring trading partners. 	<ul style="list-style-type: none"> • Improving land transport infrastructure integration and intermodal interconnectivity, with principal airports, ports, and inland waterways, and ferry links. • Promoting concerted and coordinated efforts at policy and operation level to develop ASEAN land transport trade corridors.
Air Transport	<ul style="list-style-type: none"> • Establishment of a regional open sky arrangement to support regional economic integration. • Achieving globally-acceptable standards in aviation security and safe. 	<ul style="list-style-type: none"> • Implementing the regional plan on the ASEAN Open Sky Policy, on a staged and progressive basis. • Promoting satellite-based air navigational and automatic sensing systems to effectively control air traffic and improve safety in airspace.
Maritime Transport	<ul style="list-style-type: none"> • Creating a more efficient and competitive regional maritime transport sector. • Achieving globally-acceptable standards in maritime safety and security and protection of marine environment. 	<ul style="list-style-type: none"> • Formulating and implementing a common regional shipping policy. • Improving maritime safety and security and protection of the marine environment by enhancing cooperation amongst AMSs to facilitate the acceptance and implementation of IMO conventions.
Transport Facilitation	<ul style="list-style-type: none"> • Creating an integrated and efficient logistics and multi-modal transportation system, for cargo movement between logistics bases and trade centres within and beyond ASEAN. 	<ul style="list-style-type: none"> • Operationalising the ASEAN Framework Agreements on the Facilitation of Goods in Transit, Inter- State Transport and Multimodal Transport. • Enhancing capacity and skills development to further progress regional transport facilitation cooperation. • Conceptual planning for an integrated inter-modal transport network.

Source: ERIA

Table 6: Goals under the ASEAN Strategic Transport Plan 2011-2015

TRANSPORT	GOALS
Land transport	<ul style="list-style-type: none"> • Accomplish the implementation of SKRL project; • Complete the ASEAN Highway network (AHN); • Reduce road fatalities by 50% in AMSs by 2020; • Establish efficient and integrated inland waterways network; • Develop 'Intelligent Transport System' (ITS); • Enhance human, technical and institutional capacity in AMSs; and • Establish a sustainable, energy efficient and environmentally-friendly transport system.
Air transport	<ul style="list-style-type: none"> • Establish an ASEAN Single Aviation Market (ASAM); • Promote environmentally-friendly aviation; and • Enhance engagement with Dialogue Partners to promote greater connectivity
Maritime transport	<ul style="list-style-type: none"> • Accomplish an integrated, efficient, and competitive maritime transport system; • Develop safety navigation system and establish advanced maritime security system in line with international standards; and • Accomplish the Eco-Port and environmentally-friendly shipping
Transportation facilitation	<ul style="list-style-type: none"> • Establish integrated and seamless multimodal transport system; • Enhance the competitiveness of ASEAN Logistics Industry; • Establish safe and secure inter-state transport system; and • Develop environmentally-friendly logistics.

Source: ERIA

Table 7: APAEC 2010-2015 Strategies

PROGRAM AREA	STRATEGIES
ASEAN Power Grid	<ul style="list-style-type: none"> • Accelerate the development of the ASEAN Power Grid Interconnection projects • Optimize the generation sector vis-à-vis the available indigenous energy resources in the region • Encourage and optimize the utilization of ASEAN resources, such as, funding, expertise and products to develop the generation, transmission, and distribution sectors
Trans-ASEAN Gas Pipeline	<ul style="list-style-type: none"> • Collectively implement the ASEAN MOU on TAGP by ASCOPE Members • PERTAMINA and PSC Partners to undertake detailed feasibility study for East Natuna Gas Field Development • Implement the approved Roadmap for TAGP by respective ASCOPE Members • Implement the approved 5-year ASCOPE Gas Centre Work Program
Coal and Clean Coal Technology	<ul style="list-style-type: none"> • Strengthen Institutional and Policy Framework and build an ASEAN Coal Image • Promote Coal and Clean Coal Technologies • Promote Intra-ASEAN Coal Trade & Investment • Enhance environmental planning and assessment of coal projects
Energy Efficiency and Conservation	<ul style="list-style-type: none"> • Develop Energy Efficiency Policy and Build Capacity • Enhance awareness raising and dissemination of information • Promote good energy management practices, especially for industrial and commercial sectors • Facilitate Energy Efficiency Financing
Renewable Energy	<ul style="list-style-type: none"> • Increase the development and utilization of renewable energy sources to achieve the 15% target share of renewable energy in ASEAN power generation mix • Enhance awareness and information sharing and strengthen networks • Promote intra-ASEAN cooperation on ASEAN-made products and services • Promote renewable energy financing scheme • Promote the commercial development and utilisation of biofuels • Develop ASEAN as a hub for renewable energy
Regional Energy Policy and Planning	<ul style="list-style-type: none"> • Enhance energy policy and supply security information sharing network • Conduct capacity building in energy and environmental policy planning and energy supply security assessment • Prepare regional energy outlooks and conducting ASEAN energy policy reviews and analysis series

	<ul style="list-style-type: none"> • Strengthen collaboration and dialogues with ASEAN partners and with national, regional and global institutions • Monitor and evaluate the progress of APAEC programs
Civilian Nuclear Energy	<ul style="list-style-type: none"> • Conduct capacity building among ASEAN Member States • Strengthen public information and public education on nuclear power generation • Strengthen institutional, legal and regulatory capacities on nuclear energy for power generation.

Source: ASEAN Secretariat