Recent developments in Myanmar:

Opportunities for sub-regional energy cooperation

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Introduction

Myanmar, today, is in the throes of significant political and economic change. The wave of political reform that has swept Myanmar over the last few years, after the electoral victory of the military-backed Union Solidarity and Development Party (USDP) in 2010 and the installation of a quasi-civilian government led by President Thein Sein, has held out great promise for a country marked by years of repressive rule by the military junta. The reforms being affected have been welcomed by the international community and a number of bilateral and multilateral visits have marked Myanmar's return to the fold of international diplomacy. This enthusiasm is also reflected in the world business community. Undoubtedly, Myanmar's rich energy minerals and power sector is being seen as an important element of Myanmar's business engagement with the world. Myanmar has shared long-standing economic ties with its neighbours – Bangladesh, China and India, including joint energy development projects. The turn of events in Myanmar provides an opportunity for these sub-regional partners to assess possibilities for furthering cooperation. Energy deficient South Asian and East Asian economies can significantly gain from engagement with Myanmar. At the same time, Myanmar's neighbours are crucial for its stable and multi-sectoral development.

This paper seeks to assess the opportunities for sub-regional energy cooperation between four countries: Bangladesh, China, India and Myanmar, with Myanmar as a node. It delves into the political and economic context offered by reforms in Myanmar, and delineates the economic opportunities for mutual gain available in the fossil fuels and power sectors. The paper also analyses the strategic importance of these initiatives and the politico-economic and social undercurrents that may determine relationships in the future. **The emphasis, the paper suggests, needs to be on building win-win energy partnerships that address common concerns and harness complementarities. Myanmar, abundant in natural resources, stands to gain significant strategic mileage if its decisions are governed by a balance of enlightened self-interest and the need to forge ties with varied political partners.**

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Myanmar: Reconnecting with the world

Thecurrent government of Myanmar, under President Thein Sein, has ushered in a host of changes: electoral reform and freedom to political parties and leaders; amnesty to political prisoners; dialogic engagement with ethnic rebel groups fighting for self-rule; ushering in of new investment laws; and a stated willingness to build domestic capacity for sustained development. Development of capital markets, establishment of special economic zones and liberalisation of foreign exchange controls are being listed as priority areas on the government's agenda. For long, the dual exchange rate system,with segregated foreign exchange markets for public and private sector external transactions, has created a range of economic distortions including an under-estimation of government revenue (Hori and Wong 2008; Reuters 2012).To address this, Myanmar has now introduced a managed float of the *kyat*.

The recent by-elections' outcome that saw Aung San SuuKyi's election to the Parliament was welcomed with cautious optimism. The process of reform has, however, marked Myanmar's movement back into the mainstream of world politics. Not seen as a pariah state anymore, the country has seen a series of high-level political visits and a let-up in sanctions imposed by the US and the European Union. The EU recently decided to suspend most punitive sanctions against Myanmar for a year, though keeping in place some (including an arms embargo), while also announcing additional support for development and welfare programs.

The opening up of Myanmar is also being seen as a significant economic opportunity. A consultant in Singapore, quoted in the The Economist (2012), captures this mood well: "It doesn't happen every day that a country of 60m people in the most dynamic region of the world is suddenly open for business."The large market size offered by the country and its critical sectors including natural resources (wood, oil and gas, jade and gems), agriculture, forestry, fisheries and textiles, have generated significant interest in theinternational business community. From $300m in 2009-10, the flow of foreign direct investment in the country grew to $20bn in 2010-11. While this is largely a good development, this has also meant a rise in the value of the *kyat*, and therefore, a fall in the value of Myanmar's exports. It is clear that the path to development will not be an easy one. Political instability and ad hoc laws and processes, if not remedied,will result in uncertainty, deterring investment.

Chinese, Indian and Thai business interests are already prominent in the Myanmar energy sector, and this engagement may only increase with the spate of changes in the country. Other countries' business engagements with Myanmar are also expected to rise with time, bringing in a new set of European and American investors.

Opportunities for Cooperation in the Energy Sector

Being a gas exporter, and a country with large potential for hydropower development, in the midst of highly energy-deficient, growing economies, the opportunities offered by Myanmar's energy sector are at the centre of the policy discourse on regional cooperation. Table 1 gives a summary of the fossil fuels' production in Bangladesh, China, India and Myanmar. Apart from Myanmar, in the case of coal and gas, all other countries are net importers. Table 2, additionally, provides a snapshot of Myanmar's energy potential. Accurate reserves-related figures for Myanmar are difficult to come by. The order of these figures (though overtly optimistic) reflects

large untapped potential.[1] The complementarity of interests evident in available energy data can be translated into mutually beneficial economic and strategic sub-regional partnerships.

Table 1. Fossil fuel production: What and Where

	Bangladesh	China	India	Myanmar
Crude Oil	5	3798.9	680.4	18.1
(tb/d; 2009)	NI	NI	NI	NI
Natural Gas	0.7	3.3	1.8	0.4
(tcf; 2010)	--	NI	NI	NE
Coal	1	3196	565.9	1.4
(MT; 2010)	NI	NI	NI	NE

NI = Net Importer; NE= Net Exporter

Source: US Energy Information Administration 2012

The new political circumstances in Myanmar necessitate a re-assessment of the possibilities for sub-regional energy cooperation. It forebodes a renewed optimism for regional energy ties even though it needs to be recognised that energy cooperation has been a real and tangible strand of economic ties in the sub-region even in the years marked by authoritarian rule of the junta. The following sections, with a focus on specific energy sources, enlist some of the available opportunities for drawing energy linkages in the sub-region, and the past and/or ongoing energy initiatives that the sub-region, comprising Bangladesh, China, India and Myanmar, has witnessed. The latter provide the basis for fortifying energy relationships further, but at the same time, the failures and roadblocks of the past provide a preview of some of the challenges that cooperative attempts will encounter in the future. Energy cooperation in the sub-region, notably, has not been ransom to the political atmosphere in Myanmar but to other factors: lack of trust in inter-state ties, inadequate resource-related information,and resource nationalism. Myanmar's politics, however, did determine the content of the cooperation and its benefactors. For instance, the military junta's close ties with China were seen, in part at least, as determinants of resource allocation decisions. China's support at the United Nations Security Council, with Myanmar under criticism from the international body for human rights violations, was critical for Myanmar and, therefore, necessitated the adoption of a pro-China stance in business deals.

[1] Data released by Myanmar Oil and Gas Enterprise in April 2002 pegged Myanmar's ultimately recoverable gas reserves at about 51 tcf(cited in Than 2005) – a figure that pales in comparison to some estimates available currently.

Table 2. Myanmar's Energy Potential

Resource	Potential
Crude Oil	609.39 million barrels
Natural Gas	166.13 tcf
Hydro	108,000 MW
Coal	711 MT
Biomass	Potential available annual yield of wood-fuel: 19.12 million cubic tons
Wind	365.1 TWH per year
Solar	51,973.8 TWH per year
Geothermal	93 locations

Source: Lin 2011

The unfolding of the democratic process today can be expected to have a three-pronged impact on the energy sector and the participation of external actors in it. First, democratisation is going hand-in-hand with easing sanctions and the re-establishment of diplomatic ties with important actors on the world stage. This will only add to ease of international energy business and dialogue. Second, the establishment of governmental processes and institutions, and the institution of appropriate business laws and regulations, will add to the sanctity of contractual obligations and enhance the credibility of state and non-state energy actors in the country. Third, the energy sector will be open to a larger range of commercial and state players, bringing more competition in the sector, and possibly, shifting the terms of engagement in Myanmar's favour in its dealings with foreign players.

Varied windows for cooperative initiatives and business linkages, from bilateral projects to plurilateral mechanisms, exist across different energy resources.

Fossil fuels: Oil, gas and coal

The oil and gas sector, by far, has generated the most interest amongst Myanmar's neighbours. A review of the sectoral investments reveals considerable foreign companies' participation. Even though the uncertainties around oil and gas reserves remain,[2] the overall estimated potential in

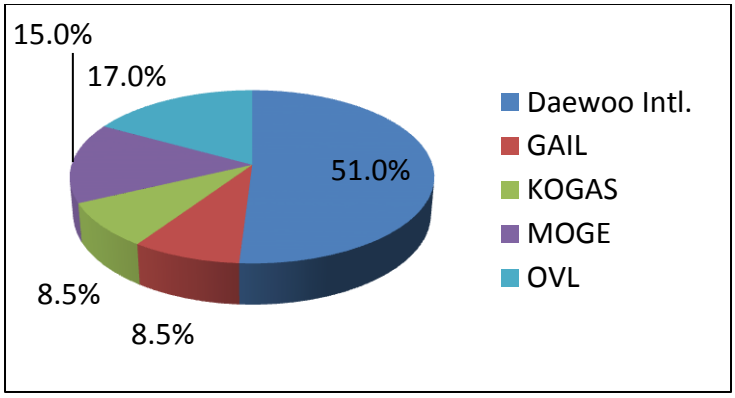
[2]There exist variable estimates of natural gas reserves in the western province of Arakan and adjoining seaboard; A1 and A3 blocks' proven reserves are estimated at between 5.7 tcf to 10 tcf, with recoverable reserves at 4.8 tcf to 8.6 tcf.

the sector is high. China National Petroleum Corporation (CNPC) operates in Block IOR-3, TSF-2 and RSF-3 part of the Bagan project. It is also working in Block IOR-4 with the Myanmar Oil and Gas Enterprise (MOGE) to improve oil recovery. CNPC also has exploration and exploitation rights in three deep-water blocks: AD-1, AD-6 and AD-8. Blocks AD-2, AD-3 and AD-9 were wholly acquired by ONGC Videsh Limited (OVL), the overseas arm of one of India's largest public sector oil and gas companies, in 2007. These blocks were, however, relinquished when found to be high-risk and offering uncertain hydrocarbon potential and rewards.The further opening of exploration and production of oil and gas will offer more opportunities for Chinese and Indian firms. Sinopec, in a JV with MOGE, discovered oil and gas in Central Myanmar in 2011.

These firms have been active in helping develop Myanmar's resources and bilateral/plurilateral projects provide a context for furthering cooperation in the region. As energy engagement increases, foreign firms' role in building Myanmar's energy capabilities and infrastructure will increase and will need to be carefully planned so as to build state-of-the-art assets and energy facilities – drilling platforms and gas pipelines. It was reported in 2011, that Shell may return to Myanmar, in partnership with Thailand's PTT, especially given its capacity in deepwater offshore drilling and PTT's requirement of a partner for the development of the M11 offshore block (Shwe 2011). In a research paper authored in 2002, Tim Maung Maung Than, suggested that the future would tell if, given the absence of Western players and domestic challenges in developing the energy sector, China and India, with their large and growing appetites for energy, would be able to "take up the slack and fulfill Myanmar's aspirations to become a major regional player in gas exports…" While Thai, Chinese and Indian firms have invested in Myanmar's oil and gas sector in the last decade, this situation will be significantly altered by the entry of new foreign players in the sector.

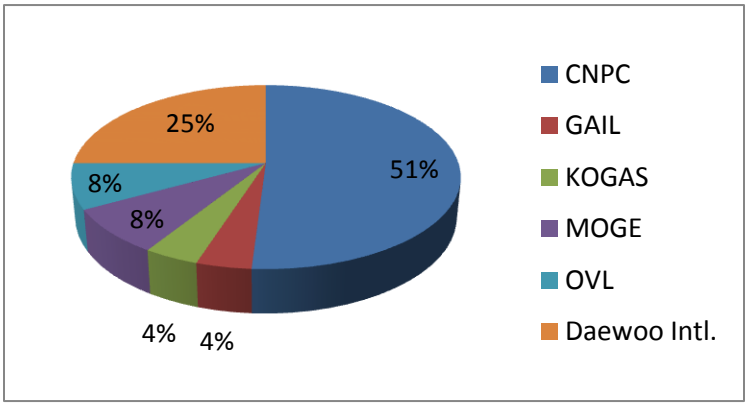
Amongst Myanmar's most important gas finds, the Shwe gas fields in the A1 and A3 blocks include 3 discoveries Shwe, Shwe Phyu and Mya. These gas fields are being developed by a consortium that includes Daewoo International, Gas Authority of India Limited (GAIL), Korean Gas Corporation (KOGAS), MOGE and OVL. The gas purchase rights for the fields were awarded to China in 2008. The agreement with CNPC is towards export of 6.5 tcf of gas to China over 30 years. The gas will be transported first to Ramree Island and then to China through a sub-sea pipeline, to be operated by the consortium and being built by Hyundai Heavy Industries. Further, the onshore Shwe gas pipeline (see Figure 2) is expected to connect the natural gas terminal at Ramree to Kunming in China's Yunnan province, entering China at Ruili. A parallel crude oil pipeline, 771 km in length, will run from Made Island in Western Burma to Nanning in China. The strategic value of China's pipeline projects in the region is immense; seen largely as part of a move to bypass the Straits of Malacca – a sea route vulnerable to sea piracy, and gain easier access to East Africa, and West and Central Asia (see Figure 3).

Figure 1.Shwe Consortium: Ownership and Operation



Source: EarthRights International (2011); PTI (2009)

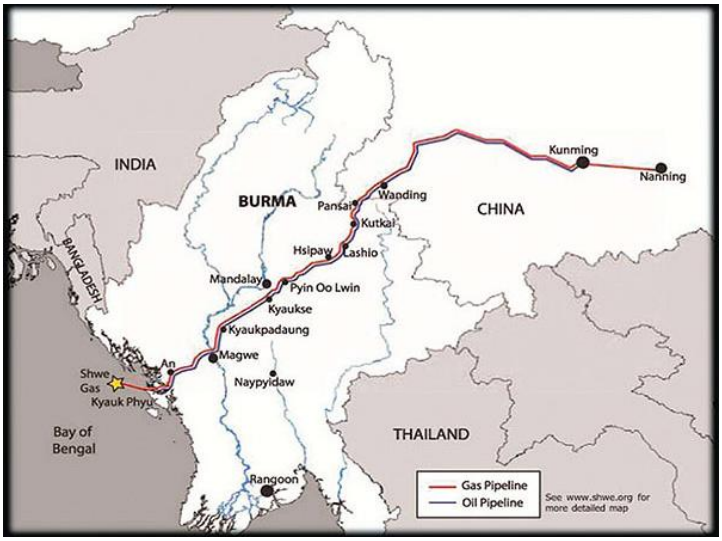
Figure 2.Shwe Gas Pipeline Ownership



Source: EarthRights International (2011)

Amidst the successes, the story of the Myanmar-Bangladesh-India gas pipeline – an energy projectthat could have been a watershed for regional cooperation in South Asia, reflects some of the impediments to cooperation.The pipeline was expected to bring gas from Rakhine, Myanmar to Kolkata, India, through the Indian states of Mizoram and Tripura and the territory of Bangladesh. Bangladesh was set to gain revenue from granting right of way, and annual wheeling charges of the order of USD 100 million per annum. However, bunching of several demands by Bangladesh pushed India to back-track: Dhaka asked India for a free trade corridor to Nepal, allowing purchase of power from Nepal and Bhutan, and removal of all trade barriers(Kumar 2005, Bose 2007).India, on the other hand, was not amenable to free transnational movement through the Siliguri corridor. In addition to the differences between India and Bangladesh, it is also suggested that China moved fast on ironing out details on pricing of gas, and infrastructural logistics and cost, trumping India in its efforts to source gas from Myanmar.

Figure 3. Myanmar-China Onshore Oil and Gas Pipelines



Source: Thornton 2010

Following the dampening of negotiations on the tri-nation pipeline, an alternative route was proposed to bring gas from Sittwe port (being developed by India) through Aizwal-Silchar-Guwahati-Siliguri to Gaya, further linking it to the Jagdishpur-Haldia pipeline. GAIL completed a feasibility study in 2006 on this pipeline route but no significant movement on the project was registered. At the same time, the tri-nation pipeline has been brought up bilaterally between India and Bangladesh, and India and Myanmar, repeatedly and an interest in seeing the project through has been articulated by all parties. Given the uncertainty around Bangladesh's gas reserves and its unwillingness to export gas, import of natural gas from Bangladesh into India has not been tenable. However, since Bangladesh is itself seeing its natural gas consumption increase, providing a transit route to the pipeline may also allow Bangladesh to secure a route to import gas from Myanmar for its own use, if the need arises. It is also, notable, that the contracting out of the Shwe gas to China through a long-term agreement, implies that gas from these fields is now off the table for Myanmar-India talks. While political will and agreement on contractual obligations are necessary conditions for revival, the resource availability across fields and requirement complementarities point to an unutilised opportunity.

Apart from joint development of oil and gas fields and regional infrastructure, another area of possible cooperation that can be envisaged for the sub-region is the building of strategic oil reserves. In the region, China has planned to build 475.9 million barrels of state reserves plus enterprise reserves of 209.44 million barrels.Out of this, 101.9 million barrels of state reservesand 35.33 million barrels of commercial reserves have been built. India has begun the construction of phase 1 of its reserves comprising 37.5 million barrels of oil, which along with available commercial stocks,would meet 78 days of import requirement.Could the countries in the sub-region define an arrangement whereby these reserves offer assistance to Bangladesh and Myanmar in a crisis situation, thereby preparing the region for supply shocks? The mechanism could provide access to the reserves, on mutually agreed terms, to Bangladesh and Myanmar, in the event of an oil crisis. This access could be provided in lieu of capital investment/rental payments and/or participation in the procurement of oil for building the reserves. Lessons can be

drawn from other countries' experience of sharing strategic reserves as agreed between Japan and New Zealand, and Japan and South Korea, for instance.

In coal too, opportunities for investment will arise with the opening of the mining sector. Also, since coal is the mainstay of many countries' energy supply in the region, clean coal technologies provide an important area for cooperation; the cleaning of coal as an energy resource holds significance in the context of reducing emissions from energy production.Underground coal gasification to exploit unmineable reserves and production and use of coal bed methane are other interventions in the coal sector that are of relevance to the countries in the sub-region.

Power (Thermal/Hydro/Renewables)

The power sector, especially with the abundance of hydropower in some countries in the region, has been a pivot for discussions on energy cooperation. While some countries are characterised by high peak and total power deficits, others are well-endowed with resources but need technology support and engineering solutions to develop their power generation capacities, creating synergies that can be harnessed for collaborative action. Seasonality in electricity supply and demand, and variations in power demand at different times during a day, can also open up opportunities for power trade. In Bangladesh, for instance, a sizeable generation capacity remains unutilised during off-peak hours though the country faces shortage of power during peak hours. This unutilised capacity during a certain time in the day is a resource for regional power trade (Nanda and Goswami 2008).

Table 3. Myanmar's Installed Power Capacity, 2010

	Hydro	Coal	Gas	Steam	Diesel	Total
Installed capacity (MW)	2046.3	120	549.9	165	65.8	2947

Source: Thein 2011

Table 3 provides a snapshot of Myanmar's installed power generation capacity. Joint hydropower development projects and extension of transmission lines for sharing surplus power have been part of inter-state consultations in the sub-region and need to be further strengthened.Myanmar and Bangladesh signed an MoU in July 2007 to build hydropower projects in Rakhine State and export electricity to Bangladesh. The government of Myanmar and India's National Hydroelectric Power Corporation (NHPC) signed a Memorandum of Understanding for the construction of the Tamanthi Hydel Project in 2004. The dam project's construction on the Chindwin River in western Sagaing Division began in 2007 but, thereafter,

the project has been stalled for a variety of reasons. Clearances from the government of Myanmar have been slow in coming, allegedly under Chinese pressure. The NHPC was unable to tie with a local partner, and the pace of procedures has strained relations between officials of the NHPC and the Department of Hydropower Implementation, Myanmar (Shivananda2011, The Economic Times 2011).

The 2004 MoU between National Hydroelectric Power Corporation, India, and Myanmar was further strengthened by another agreement in September 2008 between the NHPC and the Department of Hydropower Implementation (DHPI) of Myanmar. Under this agreement, the DHPI was to form a joint venture with NHPC to develop the Tamanthi project and another dam at Shwesayay. The 80 m high Tamanthi dam, with an installed generation capacity of 1200 MW, is estimated to cost USD 3 billion. About 80% of the generated power was meant for India's north-eastern states and the rest was expected to power mining operations in Myanmar (Shivananda 2011). The project's future, however, remains uncertain and does not augur well for future endeavours.While there is a recognition of potential, movement on hydropower projects between India and Myanmar has not reflected any sense of urgency.[3]Nevertheless, it is clear that it is procedural tasks and bureaucratic red tape that have delayed or scuttled projects; if governments in the region are committed to operationalise projects, these challenges can be addressed by the participating parties.

Chinese presence in Myanmar's hydropower sector is spread across various hydropower and transmission line projects. However, last September, the government of Myanmar suspended the China-backed $3.6 billion Myitsone hydropower project, with a capacity of 6000 MW, designed to ship a bulk of the electricity produced to China. The project, the largest in a network of seven hydropower projects being built by China on the Irrawaddy river, was being developed jointly by the Myanmar Ministry of Electric Power, the privately-owned Asia World Company of Burma and the China Power Investment Corporation. It was suspended following public opposition given the location of the dam on a seismic faultline, its adverse environmental impact on a region rich in biodiversity, and the impact of potential flooding on cultural and historical sites important to the Kachin people. The minority Kachin ethnic rebels are locked in conflict with the Myanmar army. The dam's siting at the birthplace of the Irrawaddy – a river revered as the lifeline of Myanmar, rallied significant interest and public outcry that eventually led to the suspension.

The opposition to the project was also symptomatic of public resentment of China's growing presence in Myanmar – a presence that is characterised by energy and infrastructure projects established without public consultation or regard to local impacts (Harvey 2011).China, in turn, urged the Myanmar government to protect the interests and rights of the Chinese firms involved. The construction arm of the China Power Investment Corporation had already built supply roads and living quarters for Chinese workers, and had moved people from the area to a resettlement village (The Economist 2011). Despite President Sein's declaration that the project will not be revived during his term that ends 2015, according to recent media reports, the project construction is set to re-start.Though the fate of the project will be clear over the next few

[3] Lack of implementation of planned projects is not limited to the energy sector alone. The slow movement on the Kaladan Multi-Modal Transport Project between Mizoram (India) and Myanmar, is one example in the area of transport and connectivity.

months, the Myanmar government's decision to suspend the Myitsone project was seen as a reflection of the new internal dynamics of the country – the presence of governmental will to take popular sentiment on board in decision-making.

In 2030-31, according to one estimate, domestic requirement for power in Myanmar will be 20,000 MW.While hydropower currently dominates the country's electricity mix and is expected to do so, as the country industrialises and further exploits its resources, the share of coal-based power too is set to increase. The export of coal-based power to neighbouring countries has been proposed but is under a cloud.The 4000 MW coal-based power plant part of the Dawei special economic zone has been scrapped after concerns were raised around its environmental impact. The power plant formed part of Italian-Thai Development's plan for the Dawei deep sea port and economic zone. Thai energy company, PTT, was to invest in the project which was slated to export power to Thailand. Following the project's suspension, a smaller 400 MW plant is under discussion in Myanmar government quarters to power Dawei business park, and reports suggested that coal-based power will be used only for domestic purposes and will not be exported (Kate 2012). Foreign investment in collaborative thermal power projects provides an opportunity for the inception of multi-country projects but it remains to be seen if this will become a reality.

Myanmar also has considerable potential for renewable energy development. Good wind energy potential is on offer in coastal regions of south and west Myanmar, central Myanmar, and the hilly regions of Chin and Shan states. Government agencies including the Ministry of Electric Power, Department of Meteorology and Hydrology, Ministry of Science &Technology, have worked to assess potential and develop wind power. Myanmar, in this regard, has received assistance from New Energy and Industrial Technology Development Organisation (NEDO), Japan. There is also large solar energy potential in central arid regions but solar energy in the country is in very initial stages of development (See Table 4). Pilot projects have been initiated for solar power generation and village electrification, and community-based income generation programs assisted by solar energy have been instituted. Further, sites for harnessing geothermal energy been identified. With inadequate penetration of modern fuels, use of biomass continues. The most common use of biomass in the country is in households, in the form of solid fuels i.e. firewood and charcoal (Than 2005).

Lack of capital, technology and capacity, however, remain impediments to the development of renewables. This gap provides a window of opportunity for sub-regional cooperation. Clearly, China and India will need to take a lead in this regard. The two countries, as large manufacturers of wind sets, solar PV modules, and solar thermal systems, can assist Myanmar in its RE program. Also, India, in the recent past, has made significant advances in cleaner and more efficient use of biomass, and has emerged as a pioneer in the development of clean cookstoves and biomass gasifiers. India could share efficient biomass-based technologies with its neighbours (Nanda 2011). Joint technology incubation centres can be considered to enhance R&D activities in renewables in the region.

Table 4. Installed RE Capacity in Myanmar, 2009

	Solar	Wind	Biomass/Biogas	Others	Total
Installed capacity (MW)	0.60	0.52	1.92	21.50	24.54

Source: Lin 2011

Leveraging regional organizations

The South and South-East Asian regions have, over the last few decades, been witness to a number of regional cooperation/integration initiatives with variable success. Through the establishment of norms and principles, directives on specific sectors, free trade initiatives, and collaborative projects, these organisations have sought to bring coherence in region-wide policies and strengthen cross-country linkages. The aim of this paper is not to comment on the performance and potential of these organisations but to examine if these can be leveraged for sub-regional energy cooperation. All four countries – Bangladesh, China, India and Myanmar, have overlapping and distinct memberships across these organisations. Figure 4 depicts the member countries part of three organisations: Association of South East Asian Nations (ASEAN), Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC), and the Greater Mekong Sub-region (GMS). The two countries colour-coded yellow – Myanmar and Thailand, are the only two countries which are members of all three. Clearly, Myanmar is a significant ASEAN member for China because of access to the Indian Ocean. For India's states in the north-east, Myanmar holds access to the Bay of Bengal. For Bangladesh, Myanmar is the gateway to East Asia.

ASEAN+3 and the East Asia Summit provide important regional forums to work together on energy. The ASEAN Power Grid and the Trans-ASEAN Gas Pipelines Project, having been extensively studied for their feasibility and potential by ASEAN members, provide a vision for regional cooperation that can be extended westward to cover relevant actors.In 1996, ASEAN members and China signed the Basic Framework of ASEAN-Mekong Basin Development Cooperation, with the objective of strengthening interconnections in multiple areas including energy. In addition, Myanmar recently became a member of ASEAN Forum on Coal, holding out opportunities for investment in its coal sector. ASEAN's focus on small-scale CCTs for rural electrification and greening of coal power plants hold interesting opportunities for the four countries to work together on common concerns.

Figure 4. Regional Organisations: Member Countries

Source: Author compilation, on TargetMap

BIMSTEC brings together Bangladesh, India, Myanmar, Sri Lanka and Thailand into a common framework. Energy is identified as a priority sector for cooperation for which Myanmar has been earmarked as the lead country.[4]A feasibility study has been conducted for a Trans-BIMSTEC Gas Pipeline Project. Various workshops have also been organised in order to build capacity for a Trans-BIMSTEC Power Exchange and Development Project. The establishment of region-wide efficient and competitive gas and power markets would benefit countries in the region which are currently plagued by distortions in their domestic gas and power markets. Geared towards economic and technical cooperation, BIMSTEC is of utmost relevance for furthering regional collaborations on energy. The 13th Ministerial Meeting of BIMSTEC was held at Nay Pyi Taw, the capital of Myanmar, on 22 January 2011. At the meeting, the member countries specifically agreed to promote utilisation of natural gas in order to reduce the oil import dependence of the region and to increase reliance on a clean resource. It was noted that gas trade amongst member countries could be one significant element of "energy security policy" and the meeting called for more cooperation to draw governmental and private investment into gas infrastructure (BIMSTEC 2012).

The Greater Mekong Sub-region offers a good example of the development of cross-country power linkages. Regional power trade amongst the GMS countries – China, Lao PDR, Myanmar, Thailand and Vietnam, has been planned to evolve through a process that has emphasized on the

[4] For roles and functions of the lead country, refer to http://www.bimstec.org/sector.html.

gradual development of a regional power market from bilateral arrangements to a more centralised trading system (Castalia Limited 2009). In 1995, with ADB assistance, the GMS Power Forum was established. In 2003, the GMS governments signed the Intergovernmental Agreement on Regional Power Trade. This Agreement created the Regional Power Trade Coordination Committee which is entrusted with the task of coordinating power trade activities and conducting system operation studies in order to move towards common power trading guidelines. Over the last two decades, both the ADB and the World Bank, have supported regional power trade through technical assistance packages. The ADB has also provided debt finance for specific projects.

The advantages offered by the development of a regional power market include competition and its downward influence on prices, and efficiency and environmental benefits through fuel substitution. These advantages call for the lessons of the GMS power initiatives – that allow power trade between Myanmar and China, to be applied to quadrilateral power trade between Bangladesh, China, India and Myanmar.

It is clear that sub-regional and regional cooperation on energy has been highlighted as a priority area by most regional initiatives. However, a number of regional energy arrangements have remained on paper and action on these energy projects remains elusive. This also merits the question whether existing regional frameworks are the appropriate forums to launch any new discussions on cooperation between Bangladesh, China, India and Myanmar. Often, new initiatives dovetailed with older programs/institutional frameworks may be saddled by historical challenges and ineffectiveness. On the other hand, it can be argued that employing existing institutional frameworks helps avoid replication of initial steps of institution building and definition of terms of engagement. However, for the plurilateral cooperation being proposed in this paper, new bilateral/trilateral/quadrilateral frameworks seem to be the best way forward, without relying on existing regional frameworks.

Looking to the future

Recent energy decisions made by Myanmar reflect the tugs and pulls of economic growth, dissent and trade in a developing, limited democracy. Decision-making procedures around the Dawei thermal power project and the Myitsone hydropower project are good examples. The empowerment of civil society and the focus on environmental and social concerns in defining Myanmar's future development paradigm hold significant implications for how the energy sector in the country would develop. The willingness of a range of investors from all over the world to invest in Myanmar has resulted in a hitherto unseen confidence in Nay Pyi Taw which, while being appreciative of China's role in development, has shown signs of the recognition of decreasing dependence.Chinese investors have been prominent in the power and minerals sector in Myanmar, along with Thailand. With new investors available, Myanmar's options have increased.

Nevertheless, with the presence of both regional and extra-regional players, especially in its oil and gas sector, Myanmar will need to tread cautiously lest it emerges as a playfield for a US-China and India-China power game. It will require astute and visionary thinking for Myanmar to safeguard its interests while maintaining dynamic economic ties with multiple trade partners.

Myanmar's abundant energy resources provide it strategic depth at the outset. It stands to gain significantly with its participation in energy dialogues as an equal partner and as a responsible and reliable investment destination that is cognizant of its local needs and constraints and is willing to engage with an array of countries and firms.

Not only does Myanmar's opening to the world offer opportunities for its sub-regional neighbours but it also makes it incumbent on Bangladesh, China and India to facilitate the process of democratization and development in the country. A stable and strong Myanmar is in the interest of the Asian region. As is clear from the above analyses, opportunities for mutual gain are many. What is required is the political will to exercise these options. Building transport and other infrastructure links across the region will help facilitate movement of goods and people. While security interests will be primary, countries need to evolve confidence building measures and strong legal and regulatory frameworks that protect cross-country and multi-partner infrastructure and deter their use for unlawful practices.

In the energy sector, as a first step, China and India need to assist Myanmar in devising an energy data collection mechanism to help determine accurate resource potential. The uncertainty about energy reserves in the sub-region is detrimental to both individual country and regional interests. Along with trade in energy goods and services, a few key themes can be identified around which collaborative energy projects can be built:

- *Energy access* remainsan important concern for all countries in the sub-region. This is also one issue that is largely ignored by multilateral energy institutions which are, in most instances, driven by the agenda of supply security. Energy access is a priority area for all countries in the region, grappling with the challenge of providing lifeline energy to all and making accessible modern energy. This common concern can form the basis for sub-regional cooperation. The interface of rural electrification and renewable energy development holds promise in this regard.
- *Demand-side energy efficiency* is an important policy objective, the pursuit of which holds co-benefits for energy security and climate change mitigation. India and China have embarked on ambitious plans to reduce the energy intensity of their economies and efficiency interventions are integral to these plans. As the two countries introduce market mechanisms, incentivize R&D efforts, and establish labeling standards to increase efficiency of energy use in industrial and residential sectors, they could look to share learnings with their counterparts in the region.
- *Management of environmental and social externalities of energy development* is another significant challenge being faced by all four countries. With large sections of their populations without access to basic needs and welfare services, governments in these countries need to pay heed to the additional risks and vulnerabilities that their people are exposed to by new infrastructure projects and energy policies. At different stages of energy policy reform, the countries stand to gain from each other's experiences in emerging energy regulation.

The possibilities for energy cooperation in the sub-region are largely centred on Myanmar because of its abundant gas and hydro resources.However, the two largest economies in the region, China and India, will need to take a lead in designing and implementing energy cooperation projects, particularly in the renewable energy domain. It is also clear from historical

instances that often opportunities for collaboration have beenlost due to lack of trust and policy inertia. If Bangladesh, China, India and Myanmar look to build linkages for mutual benefit and regional growth, they will need to adopt a new vision for sub-regional cooperation that enjoys both governmental and popular support.

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