

# Myanmar's Overlooked Industry Opportunities and Investment Climate

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## INTRODUCTION

With the recent flare up in Muslim and Buddhist tensions in Myanmar, it seems to have sent a message to those on the fence deciding to invest in the country or not, that the country should be labeled as “An emerging economy with religious instability”. The current government is working to resolve the issues diligently while keeping security a main priority. For those firms that have a strategy to position in this type of environment for the long term with a clear vision on the end goal, there are plenty of sectors that offer unique opportunities.

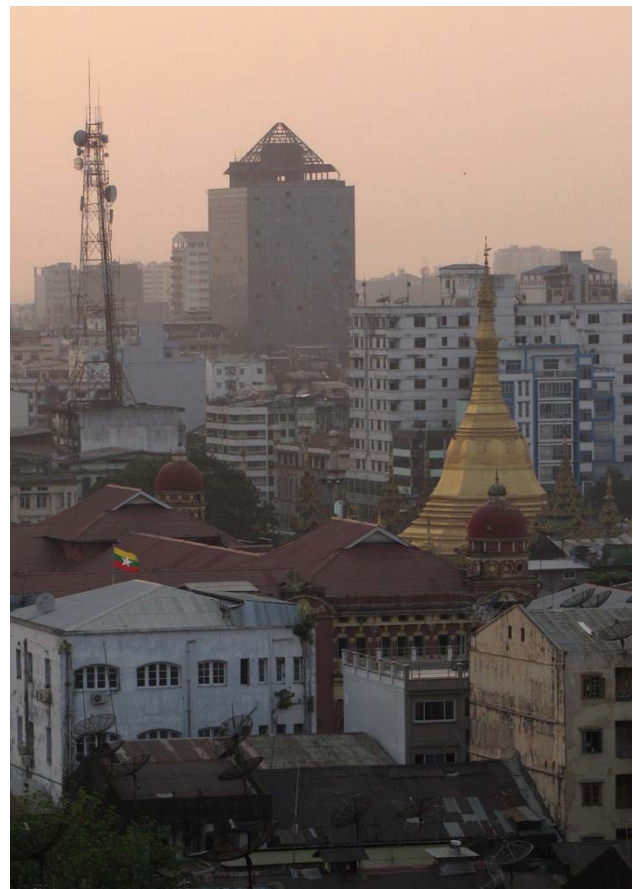
With the country's new 2013 Foreign Investment Law (FIL) now solidified, removing of media censorship and construction of overhead expressways, ports and roads, Myanmar is now showing even through a religious tension bump in the road, that this country is truly becoming a stable business opportunity.

One of the catch phrases current government ministers are using at meetings and conferences is “Commercial Common Sense” this is one way the government envisions itself moving toward a development strategy for a modern Myanmar.

A quick glance at a map of Asia could highlight the central location of the nation as a crossroad between China, India, Bangladesh, the N.E. States of India and Thailand. The strategic potential for shipping routes alone makes it worth exploring, but that only touches the surface.

One of the main reasons for entering Myanmar's infant market apart from its strategic location is the need to rebuild the entire country's infrastructure from the ground up. That leaves a plethora of avenues for well capitalized companies. Smaller entities can fit into some select industries if they possess special techniques or materials.

What the national level ministries and Directorate of Investment and Company Administration (DICA) want to see are companies



**Figure 1: Downtown central Yangon, Shwedagon Pagoda surrounded by modern buildings. Image provided by David DuByne.**

that create jobs and skills training along with sustainable development which can operate in the countryside outside large population centers to enhance local prosperity. Firms that are able to tick these boxes will greatly increase their chance for successful entry into Myanmar.

## **2013 FOREIGN INVESTMENT LAW (FIL)**

In the 2013 Foreign Investment Law, Tax holidays, majority shareholding and land use rights are assurances offered to lure foreign investors into the golden land. Here are some of the key changes:

- Foreign Ownership of Land and Immovable Property is Strictly Prohibited. Joint venture is the only way for land right use. By cooperating with a local company a foreign company is offered exemption on (a) Income-tax for a period extending to 5 consecutive years, (b) Income-tax on profits that are re-invested within one year, (c) Up to 50 percent income tax relief for profits earned from Exported Products, (d) Customs duty relief for imported machinery, equipment, and materials that are required for use during the period of construction for the first 3 years commercial production. Corporate Income Tax sits at 25%, reduced from 30%.
- If a Joint-venture is formed, the foreign capital and foreign equity ratio can be decided by mutual contract between Foreign and Myanmar partners.
- Myanmar's (2013 FIL) land use rights comes from notification NO. 39/2011 where investors can lease land which includes an initial 50 years, plus 10+10 extensions. Industrial or Special Economic zones have an initial term 30 years, which is negotiated directly with concerned ministry.
- If local employees are hired, The Settlement of

Labor Dispute Law of 2012 with its twin The Social Security Act of 2012 need to be abided by. Typical reasons for employee termination are; Theft, Carrying weapons in the workplace, Absent without leave for more than five days and Drunkenness on the job.

- The Myanmar Investment Commission (MIC) has set wages and factory workers salaries ranging from \$50-100 USD per month for factory personnel, a truck driver \$150, Sales people \$80-160.

Before making any final decisions a potential investor must consider the list of restricted business activities including; Sale of Teak, Forest plantations, Extraction of jade, precious stones and metals, Fish farming, Post and telecommunications, Air and rail services, Television broadcasting, Electrical generation above 2MW, Defense, Extraction of oil and natural gas, Hazardous poisonous wastes and Chemicals or Unapproved medical technologies. For these sectors a potential investor must take on a local JV partner.

Since several lucrative sectors are closed for direct foreign ownership, a potential investor must think creatively in the approach, blending technology and finding niches in the largest industries not yet tightly regulated or filled with speculative funds.

Having a well-positioned Myanmar partner who knows which states and industries are ripe for cooperation investment, will add strength and allow a potential investor connection into local, regional & national business networks. To bring up a more in-depth discussion, the following sections are focused on the Electricity sector.

## **GEOTHERMAL ELECTRICITY PRODUCTION**

DICA states that Electrical Power represented 41.5% of all Foreign Direct Investment at \$13 billion in 2012. The hydroelectric power plant at Lawpita Falls outside of Loikaw supplies over 20% of Myanmar's total electrical power. Electricity is what Myanmar needs most to develop along with an upgraded road and telecommunications network.

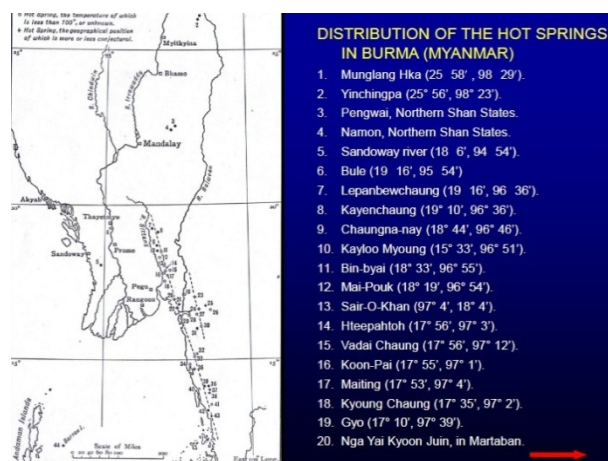
During the 2013 Myanmar Power Conference, several presentations presented the ways that Myanmar would increase electrical supply using national coal fields in the Kalawa, Lashio, Tigyit and Eastern Shan Areas of the country to supply yet un-built thermal power plants. The reasons being that Naypyidaw and Mandalay are in close proximity to coal bearing areas with minimal distance for power lines to reach the cities.

What wasn't discussed was the construction of Geothermal Power Plants. Geothermal resources actually lie close to Yangon where power demand is greatest. This suggests a significant undeveloped resource.

According to the Ministry of Electric Power (MOEP) new capacity must increase at 15% to stay even with forecast demand country wide. Also from MOEP's figures, total combined electrical generation from hydro, gas and coal was 3,495MW in 2012, but by 2030 the maximum demand will increase to 23,000MW. This represents a six fold increase in 20 years and the obvious question is: How will required electrical demand be produced and from which sources?

Hot spring systems with surface temperatures near or greater than 80°C have potential for Enhanced Geothermal Systems (EGS) or binary cycle power plant generation, with an estimated break even

power cost of 5.3- 8.6 U.S cents/kWh.<sup>1</sup> The exhaust hot water from the power plant can be used in greenhouse applications, heating water to speed growth of fish and drying process heat for crops.<sup>2</sup> Farmers employing geothermal heat crop drying methods would experience economic savings and aid in rural development.



**Figure 2: Image Presented by U Win Khaing, General Secretary, Myanmar Engineering Society.**

Preliminary investigations had been made on 43 hot springs in 1986 by Myanma Oil and Gas Enterprise (MOGE). Additionally in 1990 UNOCAL in cooperation with (MOGE) conducted preliminary analysis of geothermal data from sampling of 15 hot springs.<sup>3 4</sup>

Installed geothermal electric capacity worldwide is 11,200MW and supplies 80 million people with

<sup>1</sup> "Cost of Electricity from Enhanced Geothermal Systems", by Sanyal, Subir K.; Morrow, James W.; Butler, Steven J.; Robertson-Tait, Ann. Thirty-Second Workshop on Geothermal Reservoir Engineering, January 22–24, 2007. Stanford, California.

<sup>2</sup> "Geothermal exploration and development in Thailand", by Korjedee, T. World Geothermal Congress 2000. May 2000. Kyushu-Tohoku, Japan, p. 56-66.

<sup>3</sup> "Application of Geothermal Resources of Thailand, Vietnam and Myanmar to Tectonic Settings", by Punya Charusiri; Saman Chaturongkawanich; LsaoTakashima; SuwithKosuwan; Krit Won-in and NgoNgoccat. World Geothermal Congress, May 2000. Kyushu, Japan.

<sup>4</sup> Geothermal Energy Resources in Myanmar", Ministry of Energy, Myanmar 2012

power in 21 countries. Myanmar can develop this resource as well with international help.

## INDEPENDENT VILLAGE UTILITIES ( POWER ISLANDS)

In the case of Myanmar it must use an inverse approach to rural electrification. According to the Asian Development Bank (ADB) it will take 15 years minimum before the electrical lines from a conventional grid will reach the approximately 73% of people who are regularly without electricity in more distant towns and spread out populace.

The term “Off-Grid” refers to not being connected to an electrical grid, mainly in terms of not being connected to the main or national transmission grid. Off-grid electrification is an approach used in countries and areas with little access to electricity, due to scattered or distant populations.

By installing a combination of “Decentralized Renewables” such as wind turbines, solar panels, micro-hydro and residential geothermal up to 2MW along with anaerobic biogas digesters, mini-grids can provide a smaller community with electricity. The government can electrify from the countryside where cottage industries are located, back toward larger population centers and at the same time revitalize the rural economy as there would be a constant power supply.

Excess power not consumed in smaller outlying districts can be diverted into other cities languishing in the dark. Each geographical area can produce electricity by using what is most abundant in the local area including; year round streams, sunlight, wind or heated underground water. Electrical consumption per rural household in Myanmar averages 200 Watts and at 2MW that is 10,000

households.<sup>5</sup>

What power sources would be needed to implement such a project?

**Micro-Hydro:** Unlimited possibility as a large percentage of the population resides in remote locations with plentiful rainfall in elevated areas. Local power up to 100kW can be produced for a handful of homes from a small hydro generator with the option of having several generators powered by the same water source. Villages would terrace up and down year round flowing streams, if 10 small turbines were spaced at 100 meter intervals along the river that would produce 1MW. Electricity can be produced off of flows as small as 35 liters/sec.<sup>6</sup>

With Myanmar's expansive coastline and abundant estuaries there exists a possibility to install Tidal Current Turbine systems as was done in 2007 at Kanbalar village. A 3kW barrage style power plant provides electricity to 220 households (about 1,200 persons).

**Geothermal:** Direct heating applications can use much shallower wells with lower temperatures, so smaller systems with lower costs and risks are feasible. Residential geothermal heat pumps with a capacity of 10 kW are routinely installed for around \$1,000 per kW.<sup>7</sup>

**Small Wind Turbines:** Defined as having rated capacities of 100 kW or less. The industry is expected to continue strong growth through the next decade which means costs should continue

<sup>5</sup> “Myanmar Energy Sector Initial Assessment: Context and Strategic issues”, by Asian Development Bank, October 2012, p. 19-23.

<sup>6</sup> “Hydro for Remote Locations on the Thai/Burma Border”, by Lon W. House, Ph.D., University of California at Davis Energy Institute. Hydrovision International, July 20, 2011. Sacramento, California.

<sup>7</sup> “Profitability Analysis and Risk Management of Geothermal Projects”, by Reif, Thomas; Geo-Heat Centre, January 2008.

decreasing for installation. There are also numerous potential village sites for wind power generation of less than 50 kW and turbine generator installations of 5 kW or less in steep hilly regions. Wind Energy potential in Myanmar is estimated to be 365 terawatt-hours(TWh) per annum.<sup>8</sup>

**Solar Power:** Myanmar's tropical location is abundant sunshine year round, especially in the Central Dry Zone Area. The Energy Planning Department within the Ministry of Energy (MOE) states that the potential available solar energy of Myanmar is estimated at 51,973 terawatt-hours(TWh) per annum. Experimental measurements by the Myanmar Electric Power Enterprise (MOEP) indicate that irradiation intensity of more than 5 kW hours per square meter per day was observed during the dry season.

David Allan from Spectrum a Sustainable Development Knowledge Network said "Many people do have Independent Village Utility Grid plans, and if planning were done by the villagers for their own project, then capital constraints can be limited and tailored use of renewables for the project in their specific climate can speed implementation. This group or firm should be familiar with integrated energy planning and in particular decentralized renewables playing a role in an equitable resolution of national energy access difficulties."

A service company would need to set up a complete electrical power supply system "Power Island" that can be designed, configured and implemented to meet a broad range of remote power needs countrywide from 1-2 MW. Even if usage climbs to 500 watts from the average 200watts

consumed now for lighting that would be enough for 2,000-4,000 homes.

## POWER AUGMENTATION

When considering what specialized techniques or Intellectual Property (IP) companies can offer in Myanmar, firms needs to focus where the road to development is leading. It sounds simple but can firms offer what is needed most for development?

A good example of having a solid foundation in required systems is Energy Storage Power Corporation's (ESPC's) Power Augmentation add-on system for gas-fired turbines. Considering Naypyidaw doesn't want to wait, the government wants to fix its power grid and refurbish its antiquated power plants as soon as possible, simple repairs on electrical generation equipment would be the least expensive and fastest way to increase MW capacity.

Optimization of existing installed capacity to maximize generation through Rehabilitation and Modernization (R&M) can be an attractive, low-cost option to boost grid MW output. In this case, boosted power output would ease a percentage of Myanmar's electrical shortages in less than 18 months using Power Augmentation.

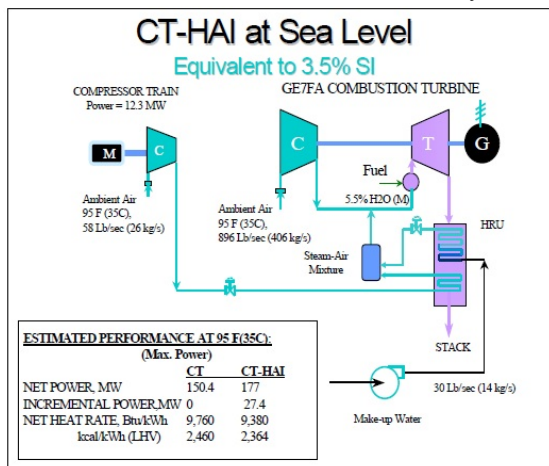
Power Augmentation technology, (HAI) for Humid Air Injection and (DAI) for Dry Air Injection is an add-on system that has a primary benefit of increasing the power of combustion turbine/combined cycle (CT/CC) power plants by 15-30% at a fraction of new plant cost and NOx emissions reductions.<sup>9</sup>

Experts estimate older equipment and

<sup>8</sup> "Wind Power Resources, Potential and Recent Initiatives in Myanmar", by Saw Si Thu Hlaing. Department of Electric Power Ministry of Electric Power, Myanmar. November 2012, p.3-6

<sup>9</sup> "Air Injection Power Augmentation Technology Provides Additional Significant Operational Benefits", Proceedings of GT2007 ASME Turbo Expo 2007. May 2007. Montreal, Canada.





**Figure 3: Image provided by Energy Storage Power Corporation.**

infrastructure currently result in about 40% of generated power not reaching its ultimate destination due to both technical and non-technical losses.<sup>10</sup>

In 2010, electricity production in Myanmar was approximately 7.5 Billion kWh. Of that, approximately 30% of all generation was natural gas.<sup>11</sup> If you were to increase power output of every existing natural gas turbine in Myanmar by even 10%, an additional 225 million kWh becomes available to the grid without installing any new production capacity, only an add-on system.

### ALGAE

What isn't discussed openly but is presented in writing was that most workers come from far away destinations throughout the country so a potential investor must include room and board for employees in addition to monthly wages. Additionally, there are so many different ethnicities, that different management techniques are needed for each group.

A way past both of these difficulties is to set up a project in the countryside, thereby using local supervision in management matters and bypassing

the need to provide housing as labor can be sourced locally. Land lease rates and operation costs are substantially less as well.

This is exactly the approach Nation First International Development Asia (NFIDAsia), entered the market, by focusing on job creation and sustainable development in rural settings by way of its algal based farming project to accelerate rural development.

NFIDAsia was the first U.S. entity to register as a Service Company in Myanmar, followed by Coca-Cola, General Electric and Pepsi Co. which provided an advantage by entering the marketplace early.

Networking, building connections and site surveying over the last year and a half resulted in Nation First International Development Asia (NFIDAsia) signing an MoU with Hisham Koh & Associates (HKA) to Facilitate Algal Based Farming Products for Rural Myanmar in April 2013.



**Figure 4: Signing of MoU between NFID Asia and HKA: Left to right, Hisham Koh, Jonathan Pierce, David DuByne.**

“NFIDAsia’s Algal Development Division, plans to facilitate local algal farming by seamlessly integrating processes using the year round climatic conditions in Myanmar. Current market demand for algae derived products is increasing, particularly in nutraceuticals, plus the need for a viable alternative export market and local economic benefit makes algae the right choice. “We will provide concept designs, algal cultivation, processing, operations plus

<sup>10</sup> “Myanmar Energy Sector Initial Assessment: Context and Strategic issues”, by Asian Development Bank, October 2012, p. 32-34.

<sup>11</sup> “Electricity Production of Myanmar, World Development Index”, by World Bank. Accessed January 8, 2013.

a full branding and marketing strategy onto our end buyers.” said NFIDAsia’s President Jonathan Pierce.

Additionally, by adding algal residue to anaerobic biogas digesters as biogas enhancement feedstock will increase methane output enough to generate electricity on the project site, thereby reducing electricity costs.<sup>12</sup>

Having the right partner who knows the business and governmental landscape is imperative. For example, Mr. Hishamuddin Koh spent 18 years in Myanmar working as a freelance Business Development Consultant, promoting and serving investors from both local and international organizations. He also worked closely with the Ministry of Agriculture and Irrigation, particularly because of his expertise in rural development and eradication of rural poverty, using agriculture as an accelerator.

Having a strong local partner and adopting a development approach where a company brings their experienced team of business associates, specialists and personnel who have proven track records to assist local partners is the only way to enter and thrive.

## **PARTNERING**

There are many opportunities for Taiwanese business men as they already communicate Chinese, and decades ago the Taiwanese government invested in the education of Myanmar born Kuomintang (MBK). After the civil war in China ended some Kuomintang took up residence in Myanmar and children of those soldiers are still there. From that time, education fees were paid for by Taiwan and opportunities given to study in Taiwan Universities.

This promotion was with the intent to educate MBK’s in Taiwan and let them return to Myanmar to set the stage for business in the future. A safe approach would to partner with Taiwan educated MBK business family if you take on a Myanmar JV partner. This would give Taiwanese business the advantage that company staff speaks Mandarin Chinese.”

What the MBK-Taiwanese businesses are focusing on is food and agriculture value chain branding by selling machinery to produce canned goods, juices and dehydrated foods. Farmers want to package and produce their own branded products and sell to buyers directly, thereby creating higher value in their integration from farm to end consumer.

It should be noted here that Many locally placed tycoons and highly placed business persons are former military regime on the U.S Treasury Departments Specially Designated Nationals (SDN) list of individually named and targeted “Frozen Asset” sanction list, which includes the current president Thein Sein. Persons on this list still control a majority of private enterprise. This could pose long-term risks to a investor’s finances or corporate responsibility reputation. One cannot over-emphasize enough the importance of Due Diligence when choosing a local partner.

## **DRAWBACKS**

Assessing any business, political and religious climate requires due diligence in emerging markets including Myanmar. Negatives include:

- Investment data is in chaos, different private and government resources will give different data and figures, plus no trustworthy nationwide census has been taken in Myanmar since 1931, but current estimated population is about 60 million.
- Import figures are grossly underestimated due to

<sup>12</sup> “Biogas as a Renewable Source of Energy in Nepal, Theory and Development”, by Biogas Sector Program Nepal (BSP) Nepal. July 2009. pg 46-48

the value of consumer goods, diesel fuel, and other products smuggled in from Thailand, China, Malaysia, and India.

- The business climate is widely perceived as non-transparent, corrupt, and highly inefficient, but the government is committed to change. The arrest in January of former Telecommunication Minister Thein Tun and removal of more than 50 officials from his ministry who are under investigation for corruption has sent a signal that Myanmar is indeed changing.
- Over the last 20 years there has been so much cooperation with the Chinese business owners that norms and operation standards are similar.
- Over 60% of the FY 2010-11 Budget was allocated to state owned enterprises (SOE's), most operating at a deficit, although they included the most productive sectors of oil and gas, mining, and timber. This too is changing as local industry is

now actively seeking foreign partnerships to boost efficiency and adopt current technology.

## CONCLUSION

Some people may see problem after problem concerning investment opportunities in Myanmar, but perceived problems could also hide backdoor opportunities. In this sense, this short essay provides useful hints for those who are looking into such opportunities.

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<https://www.dropbox.com/sh/7vc4l4h4njn1drc/cJQ25ohFMi> ◦