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Creating a Future: Using Natural Resources for New Federalism and Unity

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Proximity Designs | Myanmar

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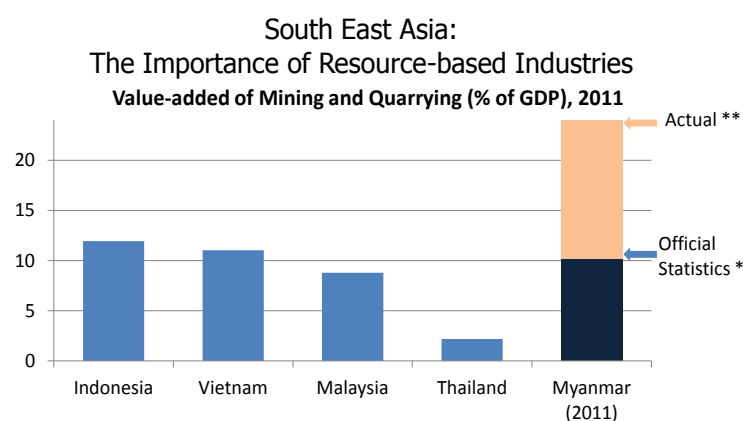
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Main Points

Myanmar is a very poor country with some promising political developments but up to now limited economic reform. The historically low growth and high poverty rates have fed social tensions, most evident in the current Buddhist-Muslim violence. The continuing military pressure on ethnic states that do not effectively surrender to the Myanmar Army represents an old extractive almost feudal approach that foregoes real political negotiation in favor of occupation and exploitation of resource-rich areas. However, there are tentative signs of changes by the government. This paper proposes a set of policies to transform the current situation by combining greater tax revenues from mineral resources with better governance to create political unity and market-based economic progress. These policies include a “new federalism” in which states are allowed to elect their own governors and local parliaments and run their own local affairs, supported by a share of the natural resource revenues that now often go mainly to well-connected private investors and the powerful with low or no effective taxation. However, a strong “rule of law” is needed to protect minorities. “New federalist” local administrations will need checks and balances, as developments in Rakhine state indicate and a section in this paper highlights.

As the graph below shows, when properly counted, natural resources are much more important in Myanmar than in its neighbors. If reasonable taxes were imposed on natural resources, there would be adequate funds to finance enhanced efficient infrastructure investment and spending on health and education. In that sense, the surge of optimism over the resumption of aid is misplaced. The major development problem is getting agreement on the political economy of growth, efficiently executing it and fairly taxing the abundant natural resources. It is not a lack of adequate national sources for investment. Only if aid enhances the efficiency and stability of the governing system will it promote broad and rapid development. Getting a comprehensive public finance system with all revenues and spending in the budget – with adequate revenues and well-directed spending – would transform the future.



➤ Official statistics puts the value of Myanmar's mining sector at a very low level.

➤ The resource-rich economy of Myanmar:

- GDP estimate (2011, IMF): US\$51.9 bn
- Gas: US\$ 3.3 bn
- Jade (estimated): US\$ 8.8 bn

* Official exports of minerals for 2011 include official gas and 80% of “other.” No other mineral exports were specified.

** Actual exports include official gas exports and authors' estimates of jade at emporium values.

The obvious question is why those who have benefitted from the old arrangements and in many ways still retain influence should want to change them. There are several reasons. One is that the political opening has raised expectations and awareness and returning to the previous style of oppression or even maintaining current levels of extraction would prove unstable. Another, more appropriate for those concerned with the nation as a whole, is that the current mix of poverty and disunity leaves Myanmar weak and likely to be dominated by more powerful neighbors. Unless a better mix of political and economic policies is developed, the Army may remain strong but the nation will falter. A third reason is that in spite of current and substantial diplomatic gains, a return to oppressive government would reduce the ability of Myanmar to develop a fully independent foreign policy. Finally, there are already millions of young Myanmar workers who have left the country to find work elsewhere. If Myanmar cannot find a way to use young and talented workers well, it will continue to export its future.

This paper is written for those who want a better future for Myanmar, both politically and economically. If widely spread economic progress quickens, the destructive religious conflicts will be less attractive and easier to condemn and defuse. If political progress allows for less conflict with ethnic states, the size and role of the military can change in a way that supports future economic progress and real national unity. This paper assumes that important parts of both the elites within Myanmar and also the general population want this kind of change. Getting there will be hard, but necessary.

This paper is organized into several sections. It starts with the Background – the past – and shows how poorly the economy has performed. It moves on to the present and the overwhelmingly low income and reliance on raw materials. It moves to the future: a “New Federalism” and renegotiation of raw material revenues, which is perhaps the only way to a united and prosperous nation.

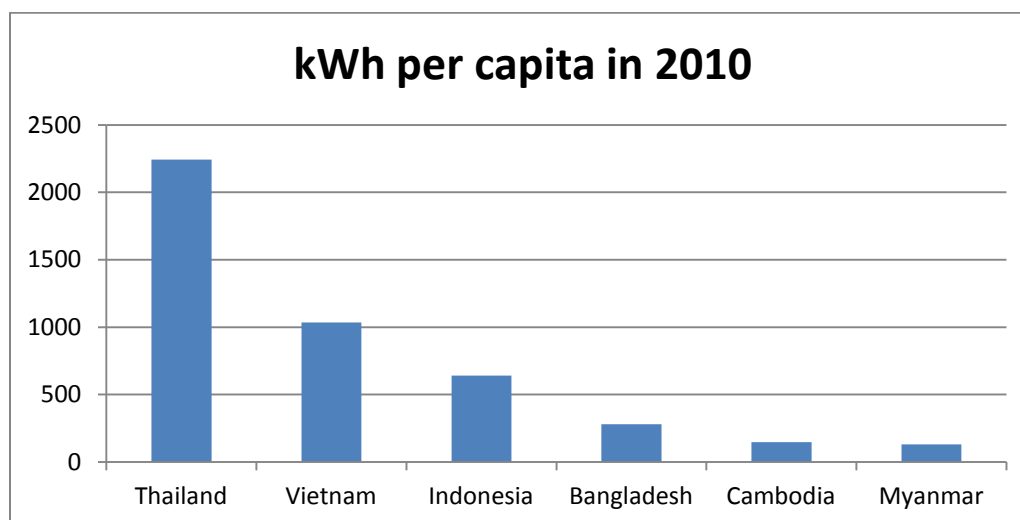
Background

I. Starting Point as of 2010

“The experience of Burma for most of the second half of the twentieth century has been one of tragic failure, with political repression and economic stagnation mutually reinforcing each other in a vicious downward spiral.”¹

Older people remember the 1950’s and 1960’s when Burma (as it was then) was the leading country in Southeast Asia. However, since the coup in 1962, Burma began an isolationist and repressive set of policies that resulted in stagnation or very slow growth in per capita output – even if the official data did not always reflect this reality. To summarize where Myanmar is, the World Bank data on electricity consumption per capita are graphed below. They compare Myanmar in 2010 with other Asian nations.

¹ Professor Ronald Findlay in The Political Economy of Reform Failure, Lundahl and Wyman, 2005 (Routledge). Findlay’s article, “The pathology of economic decline and political repression” is Chapter 12 in that book. The quote is on page 257.

Graph 1: Electricity Consumption Per Capita in 2010 – Selected Asian Nations

All data from the World Bank data bank, accessed May 21, 2013: <http://data.worldbank.org/indicator/EG.USE.ELEC.KH.PC>

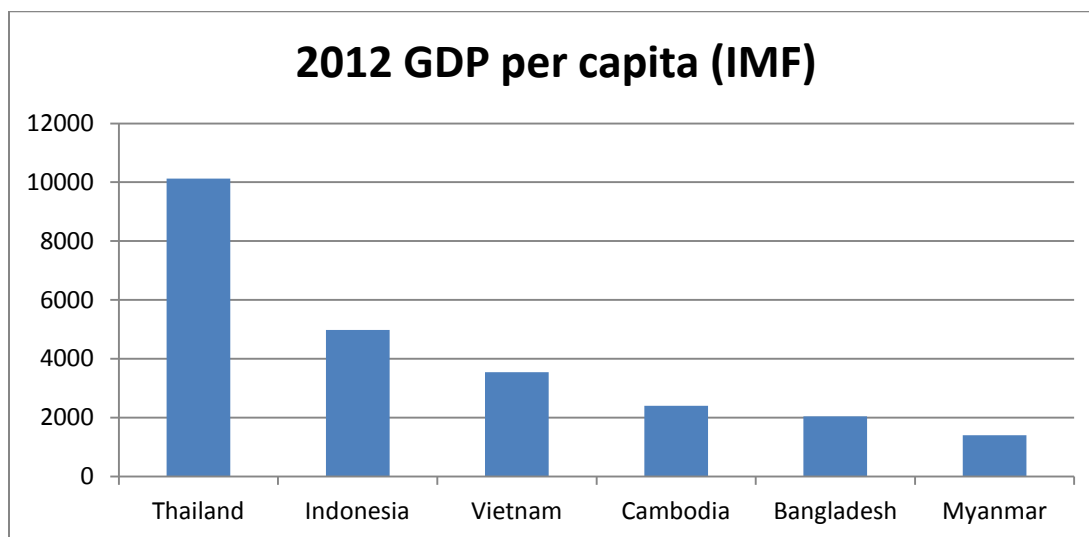
Notice that Myanmar, even in 2010, had less than half of the level of Bangladesh's per capita electricity – that is 131 kWh per capita compared to 279 for Bangladesh. As East Pakistan, Bangladesh was neglected for decades and finally became a nation after a bloody civil war in 1971 followed by two decades of corrupt and inefficient military rule, frequent natural disasters and a famine. It was only in 1991 that it finally had a civilian government and – in spite of serious corruption – per capita power grew twice as fast as Myanmar. Likewise, Cambodia and Vietnam had long periods of conflict and only began effective development policies around 1990. Indeed, in 1995 Cambodia had only 13 kWh per capita compared to a 1995 level of 60 kWh per capita for Myanmar. In fifteen years Cambodia has jumped by a factor of more than ten times while Myanmar has only roughly doubled and has fallen behind Cambodia. Since electricity growth tends to grow two or three times as fast as real GDP at very low levels of per capita income, it is likely that per capita GDP growth in Myanmar was quite modest, perhaps 1-1.5% a year from 1995 to 2010. (Electricity is chosen since it is one of the more reliable indicators and is generally available across countries.)

If a direct measurement of GDP per capita is used, it is best to compare it in PPP (purchasing power parity) terms – a way of correcting for differences in prices of non-traded goods like services or rents. By this measure as the next graph shows, Myanmar in 2012 was estimated by the IMF to have \$1400 per capita, compared to more than \$2000 for Bangladesh, \$3500 for Vietnam, \$5000 for Indonesia and \$10,000 for Thailand.² In 1960, Burma and Indonesia had the same GDP per capita according to one

² From the IMF data bank accessed on May 23, 2013:

<http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weorept.aspx?pr.x=77&pr.y=8&sy=2011&ey=2012&scsm=1&ssd=1&sort=country&ds=.&br=1&c=513%2C518%2C516%2C558%2C522%2C924%2C566%2C536%2C578%2C548%2C582&s=PPPPC&grp=0&a=>

scholarly source.³ In the fifty years since then, Indonesia's per capita income has grown to be three and one-half times more than Myanmar's. Clearly, Myanmar has lagged behind its neighbors, even though it started out close to or ahead of them in terms of GDP per capita. The last fifty years or even the last two decades have not seen much progress – certainly much less than other Asian nations.



The reason to dwell on this is that many official sources, including surveys, presented a false picture of where Myanmar was and how it was progressing. Even now, the UN states that Myanmar had faster progress since 1990 in its Human Development Index than China or Vietnam and that severe poverty fell in half from 2005 to 2010 – at a time when per capita food production was falling and the share of food in total spending was increasing. Literacy rates are said to be in excess of 90%, even though about a third of rural people in one survey cannot understand simple written passages regarding rice pests.⁴ Unless more people understand how far behind Myanmar has fallen, it will be hard to agree on the changes needed to allow it to begin to catch up.

It is worth mentioning that the electricity growth in 2012/13 was only 0.3% above that of 2011/12. This coincides with very modest import value growth (0.4%) in the same years and a 1.7% **decline** in export value.⁵ Taken together with a 20% decline in oil product imports it is very difficult to see how the 6.3% growth in GDP in 2012 estimated by the ADB could be accurate if the trade and power data are correct. It is likely that in 2013 rising gas sales to China will give a boost to GDP, but the benefits of this may be limited. Few Myanmar citizens work producing or transporting the gas and unless the gas and other resource revenues are spent in a way that spreads the benefits, people will doubt there is progress.

³ Economic Development and Cultural Change, volume 18, #1, part II, October 1969, p. 20. Other sources such as The Economist put Burma's GDP per capita at three times that of Indonesia's in 1962: <http://www.economist.com/news/special-report/21578169-why-myanmars-military-rulers-are-giving-power-people-democracy-prescription>

⁴ This was a small survey by Proximity Designs in its project areas and was not nationally representative, but is likely indicative of a widely observed problem. Those getting zero or one correct response out of three were judged functionally illiterate.

⁵ Both the trade and electricity data are taken from the official Selected Monthly Economic Indicators, also available online at: https://www.mnped.gov.mm/index.php?option=com_content&view=article&id=95&Itemid=112&lang=en

More generally, patterns of growth need to be broadly based to be sustainable – raw materials alone won't support decades of fast growth. If low wages, limited jobs and little opportunity continue, the export of young workers will persist and political support for inclusive political reform will be weak. Democracy without decent jobs is a bad mix!

II. Raw Materials Still Dominate and Are Substantial

What is striking about the economy of Myanmar, apart from its low level of income, is its reliance on raw materials, as the graph on page five indicated. In 2011/12, official data report \$9.1 billion in exports of which nearly 75% are in identified products. Of the identified part (which excludes gold, gems and most jade), only six percent or \$540 million were in garments and processed wood, the only manufactured products identified. While the World Bank reports 30% of total exports are manufactures, this must include processed or refined ores whose main value comes from the raw material. There are few exports of equipment or machinery or of labor-intensive exports, aside from garments.⁶

Jade exports in 2011/12 were **reported** as \$34 million⁷, while sales of jade in the Nay Pyi Taw emporium in 2011 were \$2655 million or *77 times more*. Since most jade bought in Nay Pyi Taw goes to China or other Asian buyers, it is certain that very little of actual jade exports were recorded. Indeed, direct inquiries into jade production and trade in the Kachin state in 2012-13 produced information that most jade production was sent directly to China and informal domestic markets rather than to Nay Pyi Taw. Since jade is valuable per kilogram, easily carried and lightly taxed if not sold in Nay Pyi Taw, it is likely that these reports were correct. Actual jade exports are uncertain, but are likely in the \$6 to \$9 billion dollar range for 2011. If jade were added to natural gas, gold, gems and food, fish and timber, then the overwhelming majority of exports are raw materials⁸, either raw or slightly processed. This is much the same as under British colonialism – the economy has had only limited structural change which is usually taken as an important measure of economic development.

It is not only that most exports are raw materials, but also that many of the raw material exports are similar to jade, where the rights to mine or remove it are very profitable. This is also true for gas, gems, gold and timber. The products' market value is worth far more than its cost of production. In such cases, the control of the resource is very valuable. This often leads to conflict over the right to control the resource – Nigeria, Sudan and Congo (Zaire) would be obvious examples where the "resource curse" has led to violence, oppression and poverty. In such cases where there is not political skill in compromise, conflict can last for decades, as indeed it has in Myanmar. This prevents development as large amounts of resources are either diverted directly to military use or siphoned off by powerful officials or their business associates. In Myanmar, most of the resources are in ethnic states, and the unresolved questions of limited local autonomy have been rendered insoluble due to the value of raw materials and now land for hydroelectricity, rubber, tea and palm oil estates. Rumors of extensive mineral wealth in

⁶ The official GDP reports mining and energy at 0.7% of GDP in 2010-11 but "processing and manufacturing" at 18.9%. Given that jade and gas sales certainly exceed 20% of recorded GDP, this reflects problems with the data rather than reality.

⁷ Selected Monthly Economic Indicators, December 2012, p. 17

⁸ The graph on page one shows only jade and gas, and excludes many other raw or semi-processed goods.

Rakhine state would add or perhaps are now adding fuel to the existing ethnic tensions. The graph on page 1 indicates how important raw materials such as jade and gas are in Myanmar.

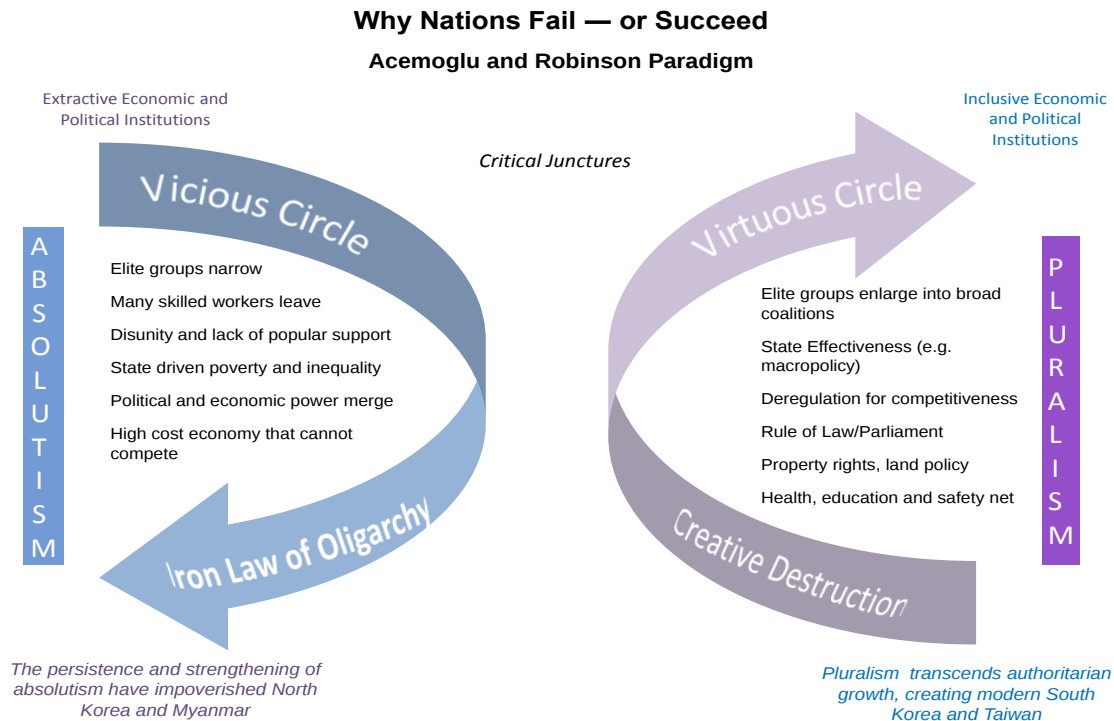
The past fifty years have seen limited economic progress and oppressive authoritarian extraction of mineral and timber wealth, except for some changes in the past two years.⁹ Those who have benefitted from these resources must now ask themselves if they prefer the *status quo* of poverty, division and violence or if they and their children would benefit if the system became more equal with economic and social progress. This question applies not only to those in Nay Pyi Taw and Yangon, but also to the ethnic armies and militias which have also extracted but to a lesser extent. In other words, will Myanmar's people be cursed to have strong military forces but be a weak and poor nation, or will the nation grow strong?

A final point is that jade and some other minerals have been understated in GDP and exports, so it is not widely appreciated just how large the amounts are. Billions of dollars of timber sales (forest area fell from 60% in 1990 to 48% in 2010), billions of dollars a year in jade sales, and other revenues from gold, gems and other minerals all add up to a huge potential source of tax base which is not yet tapped nearly as much as in other nations. Add to this the rising gas exports to China and the potential hydroelectric sales and there are many billions of dollars a year that could be reasonably taxed to finance economic growth. The main *economic* issue then would be how to invest sensibly, not if there were sufficient revenues to lay the ground for rapid and equitable growth. The main *political* issue would be how to divide up the resource rents among the central government and the states and divisions. That of course has to be negotiated – the illustrative numbers in the paper are only an example of what sort of division might be settled on. The division of natural resource taxes is a political and not a technical issue.

⁹ For example, gas revenues in dollars used to be converted into kyat at a rate of K 6 = \$1 for the central budget when the market rate was about 1000 kyat = \$1. This has been changed to about 800 kyat = \$1 since 2012. It was and is not clear where the remaining value of gas revenues goes – there is certainly no public record of it.

Choices to be Made

I. Extractive Oppression or Democratic Inclusion?



The above diagram, based on the recent book, Why Nations Fail¹⁰, links political inclusion with economic development on the one hand (the right hand side) and political exclusion and oppression with economic failure on the other. The authors do not deny that many nations can get started with a developmental authoritarian regime, but unless these regimes find a way to liberalize, they get bogged down and ultimately flounder. In the case of Myanmar, nearly fifty years of authoritarian rule have not worked well from either a political or economic perspective and the prospect of persuading people that another few decades of wise dictatorship is needed now is not promising. Myanmar must attempt what few have achieved – combine economic development from a low level with political inclusion. To do this, it has several long-standing issues to sort out.

II. New Federalism or Old Cease Fires?

Two related issues are the status of the ethnic groups and the governing of their states within the nation and the handling of resource profits and rents. For more than half a century, the Burmese Army has intermittently fought the various ethnic militias. Support from China and revenues from jade, timber and natural gas have given the Myanmar army more weapons and they have applied relentless pressure

¹⁰ Why Nations Fail: The Origins of Power, Prosperity and Poverty, by Daron Acemoglu and James Robinson, Crown Publishing Group, 2012

against the ethnic groups excepting only the Wa. The most intense current armed conflicts are in the Kachin and Shan states where there are significant natural resources. However, even in relatively resource-poor states such as Chin, there has been a growing movement to take land for large estates and plantations. It is likely that the military can prevent the ethnic groups from winning, but that is not the same as creating a peace. The “cease fires” started in the 1990’s and renewed recently did little more than allow the military to continue extracting while letting ethnic militias to do the same but with a lower share.

In order to create peace, the ethnic groups have to be given a prospect of dignity, socio-economic progress and a degree of self-government. This encompasses many things and has been named the “new federalism” because it envisions a kind of limited self-government that binds the nation together and strengthens it rather than being a code word for its dissolution. First of all, the states would elect their governor and parliament and decide local issues. For self-government at the state level to be meaningful, a way of sharing resource revenues is needed. Self-government without resources is not really meaningful. Investigations into hydroelectricity, jade and copper have revealed that significant raw material revenues are available and if they were shared among interested parties, there would be substantial resources for investing in infrastructure and social programs throughout Myanmar.

However, even if local democracy and a degree of self-government were adopted, there would still be challenges. Local gangs could force out legitimate political representatives and take over the resource flows. “Illiberal democracy” – a phrase coined by Fareed Zakaria¹¹, a noted writer – could result in the persecution of minorities, as discussed later in the section on Rakhine. There is a need for building up a strong rule of law and Supreme Court to temper the proposed local governments who would be democratic but have few checks and balances to restrain their excesses. For example, some international monitoring of local elections may be needed to ensure that all parties are allowed to compete fairly and the votes are accurately counted.

The “new federalism” proposal has many implications. These are sketched out in the diagram on the next page and discussed in depth in a recent Harvard paper “*Against the Odds*”¹². There are economic and political pre-requisites and then aspects of the policy itself relating to land, natural resources, democratic governance and security. This paper will focus on land and natural resource revenues. Those interested in other aspects of the “New Federalism” are referred to the other paper just cited.

¹¹ See The Future of Freedom: Illiberal Democracy at Home and Abroad, Fareed Zakaria, Norton, 2003

¹² <http://www.ash.harvard.edu/extension/ash/docs/against.pdf>

**PREREQUISITE #1
ECONOMIC REFORM**

1. Promote growth strategy
2. Prevent emerging monopolies
3. Develop smallholder based policy (amend national land and natural resources laws)
4. Adopt limited amnesty policy for past wealth accumulation
5. Strengthen environmental laws

New Federalism for Nation Building

**PREREQUISITE #2
RECALIBRATE 2008 CONSTITUTION**

1. Rebalance military and civilian power
2. Hold elections for state governors
3. Amend definition of citizenship
4. Strengthen Supreme Court
5. Adopt proportional representation

LAND	NATIONAL RESOURCES	DEMOCRATIC GOVERNANCE	SECURITY
Land law and process of unwinding seizures based on 1. History 2. Productivity 3. Political influence of owners 4. Land taxes with deductibles 5. Small plot experiments for compensation alternative	1. Calculate rents = sales - costs 2. Factor in extra environmental costs 3. Split net profits among owners, state and central governments	1. 2014 elections for governors 2. Vibrant political parties; no restriction on entry 3. Public finance system – provide for state revenues and resource sharing 4. Infrastructure and integration investments 5. Semi-autonomous regions; plebiscite with differentiated revenue sharing	1. Election monitoring 2. Armed forces integration and real police force 3. Social safety net, including adult literacy 4. Transportation costs – lower them so states connect to national economy

One point, related to past natural resource rent extraction is relevant here. Some past wealth accumulation would probably have to be accepted. The acceptable amounts and conditions under which the wealth was accumulated have to be negotiated. This is not a suggestion for a blanket amnesty, but for recognizing the murky legal environment of the past regime and the need to bring all elements into agreement on future sharing of natural resource revenues.

III. Land

If the “new federalism” is to be politically and economically inclusive, there must be a policy to help small holders keep their land or recover it and then institutions to support their economic activity. Land is now a messy and complicated business. The latest land laws have made it easier for large landowners to take land and provide very limited protections to those who have long used land, especially but not only in area of shifting cultivation. Millions of acres have been taken from small farmers, often with little or no compensation. This land has been allocated to large local or foreign investors or sometimes government or military groups. Some land has been taken and then rented back to those who had farmed it themselves and had previously been considered owners! Revisiting these land takings is needed, if only because many of them are of uncertain legal status. If a land court or arbitration body were set up, they would have to consider the law that pertained at the time of taking, the history of who had owned the land, subsequent investments in the land, and the political influence of those who have

taken the land. In cases where the land cannot reasonably be returned, there should be fair compensation paid to the previous owner. In some cases, it might be preferable to take other land, invest in it (tea with drip irrigation, for example may generate as much income on two acres as ten acres of normal farm land) and use it instead of the original farm land as compensation. In any case, imposing a modest annual land tax with a deductible of twenty acres or so (the upper 7% of holdings are twenty acres or more) would help fund local services and perhaps compensation for past seizures. It would also discourage large speculative and unproductive holdings of land.

IV. Natural Resources

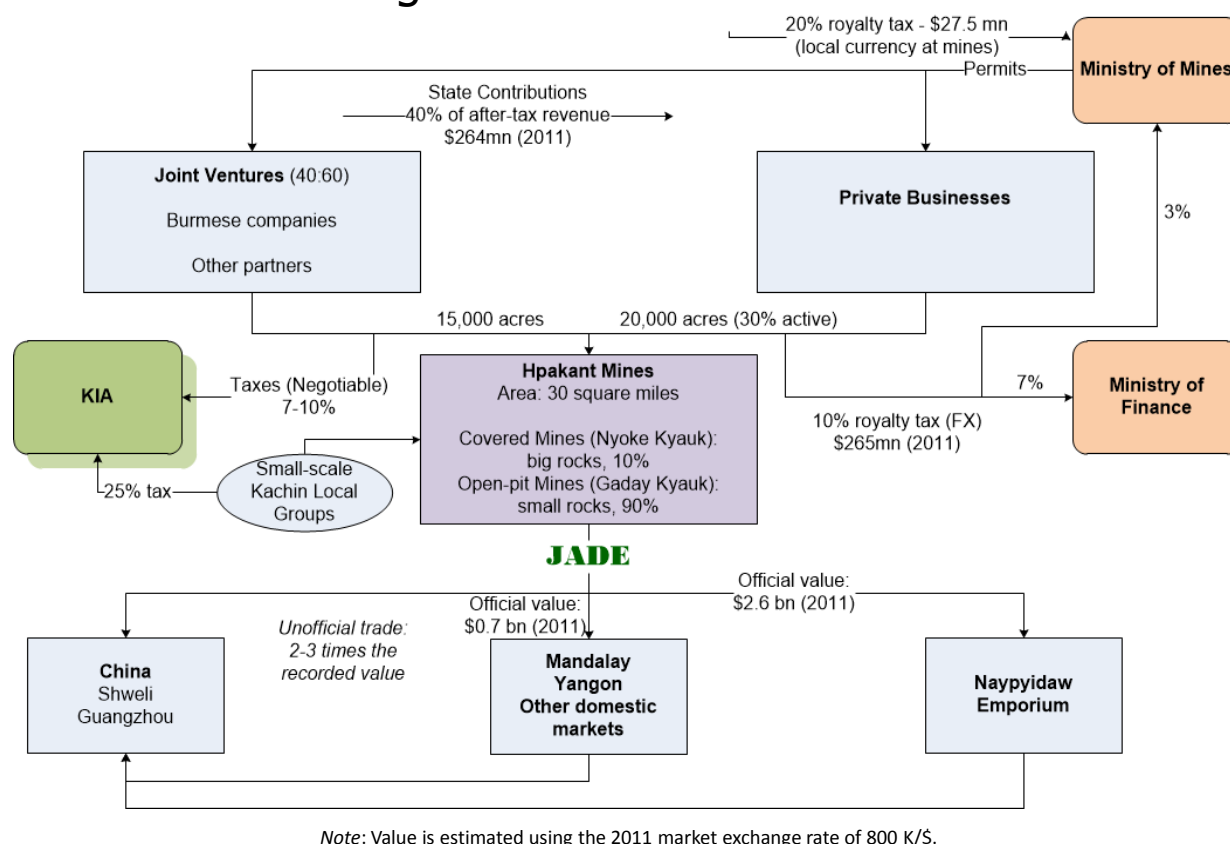
It has been noted in an earlier section that natural resource sales and profits are large relative to the economy. It is likely that several billion dollars a year in resource taxes could eventually be imposed – albeit sometimes at a cost to current well-connected businesses that are now lightly taxed – and spent on nation building activities. This section discusses three resources – jade, hydroelectricity and copper – that have become visible for different reasons in the past few years. Jade has been fought over in the Kachin state – so much so that production has contracted sharply. Hydroelectricity contracts, again in the Kachin state and other places, were signed by the previous government but on unequal terms and the Myitsone project has been suspended. The future of those contracts is now under discussion. The Letpadaung copper mine has had extensive demonstrations and is the focus of ongoing protests. The crux of the new federalism and of hopes for a period of rapid, inclusive and poverty-reducing growth lies with proper development and taxation of natural resources. If Myanmar can impose taxes similar to those in other nations with healthy resource industries, and if it can spend the revenues wisely, then the prospect of peace and development are much stronger. This section explores how each of the three resources might be managed to better promote national goals. It presents EXAMPLES of what revenue sharing might look like. The actual shares will have to be negotiated by the parties concerned.

A. Jade

Most natural resources have production costs well under their sales price. This gives rise to high profits (or “rents” as economists call the excess profit rate above the normal level) that are normally taxed. In most countries the state owns the natural resources but may allow private companies or individuals to extract the resource – but only if some of the “rents” are given to the government as royalties, fees and taxes. In some cases, such as jade, the taxes amount to a rather modest share of the actual production and sales, as the table below shows – only about \$550 million out of \$2.65 billion in Nay Pyi Taw emporium sales in 2011 and several times that in unofficial sales outside of formal channels.¹³ ***In other words, jade taxes were only 20% of official emporium sales and less than 10% of total jade sales.*** (In addition, a small amount was paid to KIA/KIO groups.)

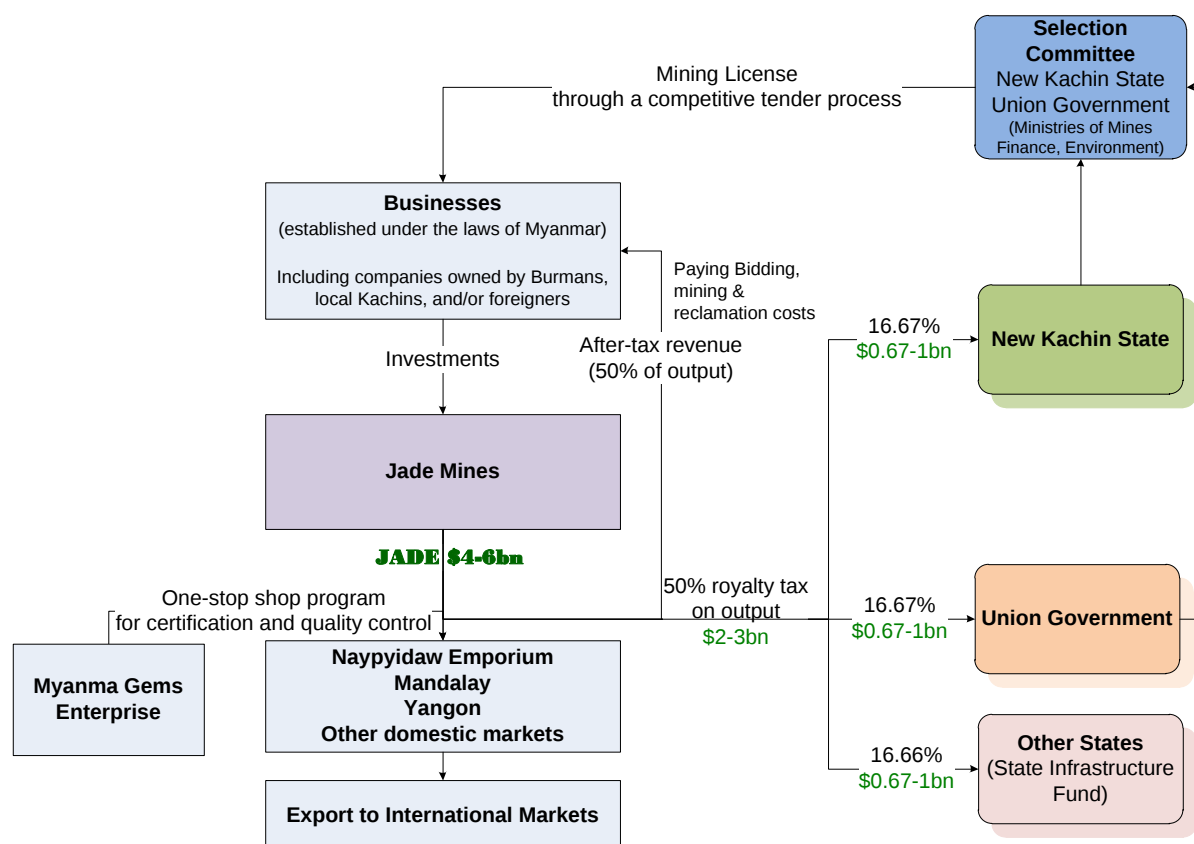
¹³ We wish to acknowledge the full support and cooperation of the Myanmar government in making these previously confidential data available to us. Their permission was essential to our analysis.

Existing Structure of Jade Business



With the cost of jade production at less than \$500 a ton (estimated) and the price of jade in Nay Pyi Taw in 2011 at \$126 a kilogram or \$126,000 a ton, the net profits from jade mining are certain to be very considerable, given that even official jade production in 2011 was 43,100 tons – and that is likely understated. After discussions with jade producers and traders, a different structure for jade more consistent with a fair share for both state and national governments might look like the diagram on the following page, which is an example only. Actual shares need to be negotiated.

Example of Jade Sharing Structure



This *example* of a possible revised industry structure would allow a newly elected state government to recapture a sixth of the sales or up to \$1 billion a year in this example.¹⁴ The union government and other states would also benefit with similar shares equal to a sixth of sales. It is worth noting that the union government in this example would get **more** revenues than it did in 2011 when actual jade sales were very likely higher than in this example. Anecdotal information suggests there are currently payments from jade producers to those “protecting” them and these payments would be transferred to the Ministry of Finance or state revenue department rather than directly to the armed or influential groups currently receiving payments. This change from protection payment to normal tax payment lies at the heart of a change from the “downward” spiral to the “upward” nation building spiral in the diagram on page 11. In order to have progress, the mineral wealth of Myanmar has to be used for infrastructure investments and improving health and education, not enriching powerful individuals or groups. If this change is not made, then mineral wealth will continue to be a source of conflict and its value will continue to enrich a few rather than strengthen the entire nation. For jade alone, the amount

¹⁴ Even though the 2011 jade sales were probably in the \$6 to \$9 billion range at emporium prices, future jade production and sales may be lower. There seemed to be a rush to extract as much as possible in 2011 due to uncertainty over future terms and jade prices in China had reached very high levels. That is why the \$4 to \$6 billion range of jade sales is used for projections.

is equal to billions of dollars a year in lost revenues. The following “Box” from Appendix B shows estimated 2011 values.

2011 Nay Pyi Taw jade emporium sales *	\$2655 million
<i>Of which:</i>	
10% royalty tax on Nay Pyi Taw emporium sales	\$265 million
40% contribution from jade Joint Ventures	\$274 million
Total Taxes and Fees (includes 20% royalty at mines) (A)	\$530 million
After-tax Revenue of jade producers for Nay Pyi Taw sales only	\$2125 million
Estimated jade sales of other “official” output	\$1769 million
Estimated “unofficial” jade sales	\$3434 million
Sum of estimated and official sales (B)	\$7858 million
 Jade taxes and royalties/Estimated Total Jade Sales (A)/(B)	 6.7%
*From Nay Pyi Taw interviews – See Appendix B	

B. Hydroelectricity

There are tens of thousands of megawatts of potential hydroelectric sites in Myanmar, mostly in the states. The previous government signed an agreement with Chinese and local companies to allow the construction of 10-12 thousand megawatts of capacity in Kachin state. The Chinese were to build the dams themselves and also the transmission lines and were to take 90% of the power and give 10% of the power to Myanmar. (There were other taxes, but these could be minimized by transfer pricing – setting the sales price very close to the calculated cost of production.) The contract discussions did not include the opinion of the Kachin on whose land the dams were to be built and many of whom would be flooded out. They also did not get any benefit from the dams. It is not surprising that they objected to these agreements. When Chinese construction crews moved in, removed forests and began mining the areas to be flooded, the Kachin objected and prevented further construction.

One of the larger dams in this group was the 4100 MW Myitsone Dam at the headwaters of the Ayeyarwady River. There was intense popular controversy among many in Myanmar concerning this dam and President Sein Thein suspended work on it unilaterally in September 2011. However, the other dams were allowed to go forward – except due to unsettled conditions in Kachin state, there was little or no progress on these other dams, even though the union government had permitted them to proceed. CPI (China Power Investment) was the major investor, and intended to sell most of the power to the Southern Grid in Yunnan. The Southern Grid is a huge company with 160,000 MW of capacity –

mostly coal – and it delivered 524 billion kWh in 2009. The Southern Grid pays 7-8 cents per kWh as a wholesale price for most of its power.

There are several problems with the old contracts. First, they do not include the Kachin who are interested parties to the contracts. Second, they only provide a 10% share of the value of the dam to Myanmar. This is a modest amount, lower than in Nam Theun 2, a recent dam in Laos supplying power to Thailand. That dam provides 1.33 cents per kWh to the Laotian government. Third, they do not allow the Myanmar Electric Company to buy electricity above the 10% share. Since Myanmar is far behind in providing electricity to its people and businesses, it would be desirable to allow (but not require) electricity purchases at the same price paid by the Southern Grid. The company owning the dams should not mind if another customer takes some of their power at the same price. The Southern Grid is so large that it could easily adjust to the modest amounts of power likely to be purchased by Myanmar.¹⁵

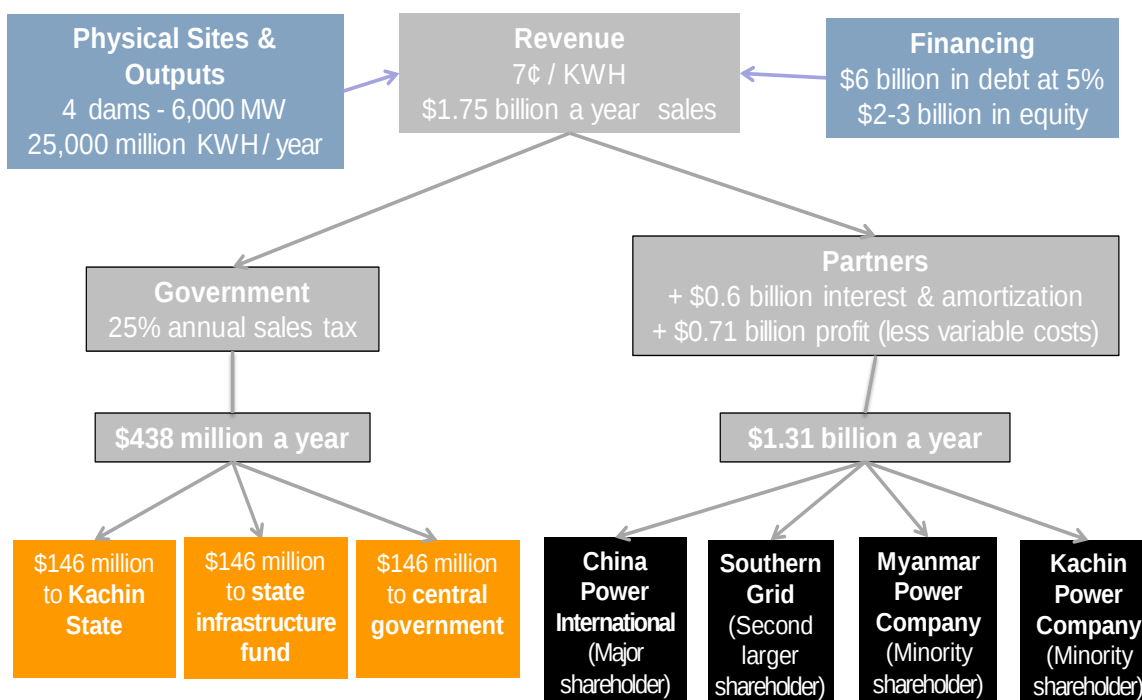
The example of renegotiation of the hydroelectric contracts could allow for the construction of some of the other dams, subject to the approval of the newly elected Kachin state government and the union government. All electricity could be sold at about 7 cents per kWh, close to the current wholesale price in Yunnan. There could be a 25% sales tax on those sales, to be split equally among the Kachin, other states and the union government. Myanmar could be permitted but not required to buy electricity at the same price paid by the Southern Grid up to some pre-determined maximum, such as 30%. It is estimated that this arrangement could provide up to \$145 million a year each to the Kachin, other states and to the union government. The actual revenue amount would depend on construction, interest costs and current electricity prices. Again, actual shares need to be negotiated. CPI would get a competitive rate of return on their equity and pay all debt off in ten years. (See diagram on next page.)

The exact arrangements of this proposal are less important than the principles. First, the elected government of the state hosting the dams should be able to determine if they should be built. Second, some of the output should be available, at a market price, to help speed the electrification of Myanmar and not only to provide power to China. Paying a market price allows other power producers to compete and add to overall supplies – if power were given at a zero price it is likely that electricity prices would stay low while supplies would be limited. Successful economies price electricity so that any buyer can get it and blackouts are avoided.¹⁶ Third, a fair share of benefits should be paid to Myanmar and spread among the regions, with more to the state hosting the dam. Fourth, the union government should also have a say in licensing the dams since downstream impacts on sediment and flooding could create problems in other regions. If all sides are given a fair deal, it should be possible to use hydropower to build peace and economic development rather than have it become a source of conflict.

¹⁵ Myanmar produces less than 1 billion kWh a month compared to 50 billion a month for the Southern Grid!

¹⁶ It is possible to provide a “lifeline rate” for very small users of perhaps 1 kWh a day. These households could continue to pay the current price, but users with air conditioners or refrigerators would have to pay the real cost of making and delivering the electricity. In most countries, the delivered cost of power is 10-15 cents per kWh.

Illustrative Sino-Kachin Hydro Power Company- pro-forma example*



*Sells power at 7¢/KW (no free power); negotiates amount and seasonality of power bought by Myanmar; World Bank and ADB supply environment and governance help

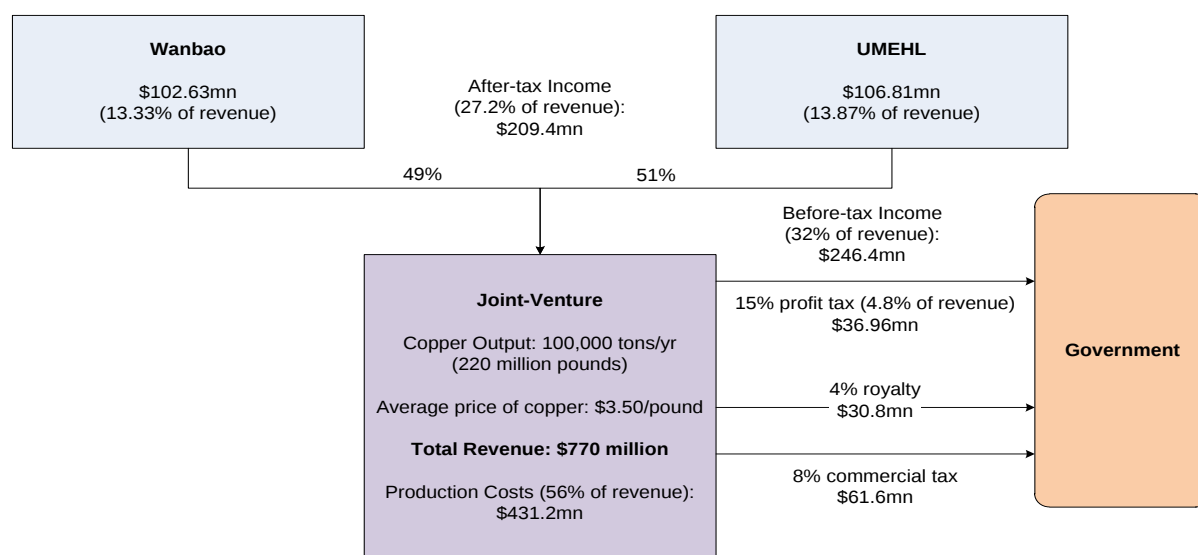
C. Copper at Letpadaung

The demonstrations and problems at the Letpadaung copper mine have raised important issues, some of which were addressed in the thoughtful Final Report of the Letpadaung Copper Mine Project by the Investigation Commission. The background is that a smaller deposit in the area was developed by a Canadian company then named Ivanhoe. They split the profits from their mine equally with the government and also followed environmental and safety rules. However, political complications compelled Ivanhoe to withdraw in 2007 and their share was sold. In a complicated series of arrangements, the much larger adjacent copper mine, Letpadaung, ended up in the hands of a Chinese company, Wanbao, which provided essentially all of the reported \$1 billion in capital for investing in mining and Union of Myanmar Economic Holdings, Limited (UMEHL) that had acquired the mining rights. UMEHL negotiated a 51% share of after-tax profits and the Chinese company received 49%, with the government getting only about 9% of profits in taxes and royalties. Information provided to us stated that the government received \$100 million from UMEHL, though it is not clear whether this covered Letpadaung or only the smaller mine. In any case UMEHL, which is mainly owned by the Ministry of Defense and individuals once or now associated with or linked to the military, apparently acquired the

rights to more than \$1 billion worth of assets for no more than \$100 million. UMEHL has not contributed capital or expertise to the mine itself – we were told it is strictly a passive partner.

The Letpadaung mine itself is designed to produce 100 thousand tons a year worth \$770 million (at \$3.50 a pound for copper¹⁷) and should produce after-tax profits at that price of \$209 million. Wanbao would receive \$102.6 million a year and UMEHL \$106.8 million a year, as the diagram below indicates. A 10% return on an announced \$1 billion investment, all provided by the Chinese partner, is not excessive, though the amount actually invested is uncertain. The split is similar to that negotiated with Ivanhoe. The difference is not in the share of the foreign company but in the share going to the government – it has dropped from 50% to less than 9% of profits! While many issues have been properly raised about land compensation and excessive land taking, or pollution, the main *financial* issue is not with Wanbao but with UMEHL.

Copper Mining: Estimated Current Structure (No Commercial Tax Exemption)

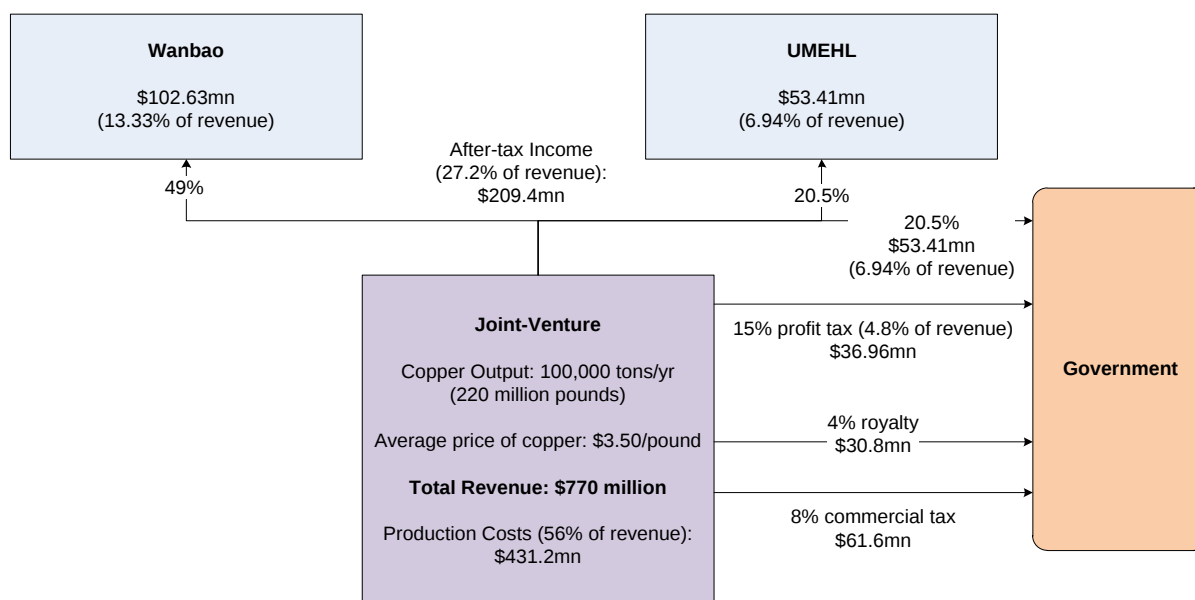


There is no reason the Ministry of Finance – should not again receive a one-half share of the after-tax profits from UMEHL, if indeed it does not re-examine the entire transaction that placed Letpadaung with UMEHL. A diagram on the next page gives an example of a revised structure for copper taxes which does not reverse the transaction which gave UMEHL control of the large copper mine but treats UMEHL as an entity that should pay half of its profits to the Ministry of Finance. Actual changes, including any payments to local governments, would need to be negotiated or become a matter of legislation and may be addressed by the Implementation Commission, whose work will follow that of the Investigation

¹⁷ The price of copper has varied since late 2009 between \$3 and \$4.50 a pound. It has varied between \$3 and \$3.50 a pound in world markets in the first half of 2013. A planning price of \$3.50 a pound is used in this discussion. Production cost is about \$2 a pound. Actual pretax profits would of course depend on realized prices and actual incurred costs.

Commission. However, the Investigation Commission was correct in not suggesting revision of the FDI contract, which is in line with previous contracts and comparable to other nations.

Illustrative Sharing Structure of Copper



In general, if the reasonable tax proceeds from all natural resources including natural gas, jade, copper and hydroelectricity were added to gold, gems, timber and other minerals, there could be billions of dollars a year more for investments than there are now. These revenues have to be levied, collected and spent wisely. If public investing and spending could avoid massive mistakes and waste, much of the capital constraint facing Myanmar would be eased. Getting a public budget with all revenues and spending in it would help achieve this outcome. Thus, the “new federalism” is a way to both strengthen national unity and accelerate broadly-based development. That is the future. Simply adding money or loans to the old system will create debts but not development.¹⁸

¹⁸ In states such as Kachin which might negotiate a large revenue stream, creating a trust fund from which an annual income for government spending would be drawn could be considered.

The Problem of Rakhine – A Challenge to Federalism and Democracy

The outbreak of sectarian violence is a mortal threat to the future of Myanmar. If the state cannot ensure minorities their civil rights, then a huge fraction of the nation will feel insecure and like second-class citizens. This will cripple coalition building, increase the role of the military, and decrease the likelihood of effective economic reform. Who will engage in “creative destruction” of entrenched monopolies when actual destruction threatens investors? This violence not only threatens the creation of a new federalism but also represents a fatal flaw *even if federalism and democracy were adopted*. This is why a strong Supreme Court and rule of law is so important.

If local autonomy means the majority in a state would oppress or even expel the minority, there will be no growth of inclusive democracy. This may be the case in Rakhine where a fifth to a quarter of the 3.3 million residents are Muslim. In Rakhine there appears to be a process of ethnic cleansing going on¹⁹, potentially leading to the largest sea-borne international refugee flows since the Vietnamese boat people. There seems to be popular support for this, at least as expressed by Dr. Aye Maung and the RNDP (Rakhine Nationalities Development Party). Dr. Aye Maung is a member of parliament and the chairman of the RNDP. The Party has called for segregation of Muslims from Buddhists and “repatriating” non-citizen Bengalis.²⁰ The problem of course is that many Muslims never had papers or have had their papers destroyed or taken in various civil disturbances and cannot prove citizenship. It is heartening that both President Thein Sein and Aung San Suu Kyi have spoken up clearly against the anti-Muslim violence. Ensuring adequate protection of minorities and prosecution of the guilty should follow.

Appendix A to this paper argues that there is no evidence of large post-1950 migratory flows into Rakhine – indeed both the official data and information on income and poverty would suggest the opposite. The origin of the Muslims now living in Rakhine are debated with many Burmese believing that the vast majority are recent migrants, while others argue that any inflow after the British colonial masters took over and encouraged cheap labor to migrate from Bengal after the 1820’s is illegitimate.²¹ Such views encourage violence against those who have lived in Myanmar for generations. It is encouraging that President Sein Thein has spoken out clearly against such violence²².

It is noteworthy that the 1947 constitution considered all people born in Rakhine to be citizens of Burma and this was the law of the land until the 1960’s. Returning to this definition would not solve the

¹⁹ See “Apartheid Arises in Myanmar”, Jason Szep, Reuters, Special Report, May 15, 2013, at <http://www.reuters.com/article/2013/05/15/us-myanmar-rohingya-specialreport-idUSBRE94E00020130515>

²⁰ Reporting by Jason Szep of Reuters on the Rohingya issue has been extensive. See for example, *Apartheid arises in Myanmar*, May 14, 2013: <http://www.reuters.com/article/2013/05/15/us-myanmar-rohingya-specialreport-idUSBRE94E00020130515>

²¹ There is no doubt that there was a high level of migration from Bengal in the decades before and after 1900. The British Census of 1891 recorded 58 thousand Muslims in Arakan and this rose to 178 thousand by 1911, suggesting over 100,000 migrants in those two decades. A 1.4% annual increase for 100 years would give 700 thousand by 2011.

²² However, there does seem to be official support of the “969” movement which is praised by government officials but likened to radical groups in its incitement against Muslims. See the Reuters story “Myanmar gives official blessing to anti-Muslim monks” by Andrew R. C. Marshall, June 27th, 2013. The story points out that police or army seem to stand by while thousands of Muslims have their homes burned.

problem of those who are now living in Rakhine but have no papers, but would at least create a reasonable standard similar to that of many other nations.²³ Using this definition would not exclude other paths to citizenship, including birth in any place when at least one parent is a legal citizen. A fair legal path to hearing evidence of birth or very long residence in Rakhine would be needed when citizenship is claimed and no papers are available.

Whatever the specific solution taken with regard to the Rohingya, the dangers of populist but unfair and illegal actions taken by a local government need to be considered. The ‘rule of law’ should take precedent over these actions and this may require a larger degree of central presence to ensure that minorities get fair treatment. This is a common problem of federalism, as the US experience with civil rights for minorities has shown. Such legal protection and even temporary central rule may be needed until the tensions and questions involving religious frictions are resolved.

Conclusions

Myanmar is at a critical juncture. It can maintain the rule by narrow military and business elites which extract raw material and monopoly rents for military use and private gain, and suppress attempts at effective self-government. Or it can expand its experiment with a transfer of more authority and control over all revenues and spending to an elected government that uses raw material taxes to invest productively in the country. Successful development would require genuine peace and a degree of self-government with the ethnic groups, not an imposed and unequal surrender. It would mean taxes on valuable raw materials similar to levels in other countries that flow to the Ministry of Finance and the elected state governments²⁴ and then to needed infrastructure and social investments. The likely amount of revenues, if properly levied, is so large that aid that merely provides capital will be less important than aid that promotes governance and efficiency. Because aid does not always promote governance, the arrival of aid is not certain to make the task of nation building easier. This tends to be overlooked by consulting groups that project a quadrupling of GDP by 2030 – though, to be fair, they only say it is possible and it is certainly possible. However, it will be difficult in any case to move from the old system to a new and better one. It will require groups who in the past have had conflicts or differences to cooperate. Unless these groups can work together and persuade or compel the incumbent elites to change, the troubled past will define the future, except that with rising international pressures from others the degree of independence and ability to determine the nation’s future will diminish. More talented workers will leave and those left behind will be dominated by foreign and local elites. That is an avoidable future and one that should act as a spur to real nation-building.

²³ The doctrine of *jus soli* which is Latin meaning “right of the soil” refers to the right of someone born in a country to be an automatic citizen. This is nearly universal in the western hemisphere as well as in Cambodia and Pakistan. It exists in modified form (that at least one parent has to be a citizen or legal permanent resident) in many other nations including Thailand, South Africa and Iran as well as much of Europe.

²⁴ The discussion has focused on the ethnic states, but the divisions in central Myanmar should likely be treated in the same way and allowed to elect their own governors and local legislatures and get a share of raw material taxes.

Appendix A: Muslim Population Growth and Migration from Bangladesh into Rakhine State: What Do We Know?

Background

The violence in Rakhine state has led to many remarks about the uncontrolled migration of Bangladeshi migrants into Rakhine. As many of those who were actually born in Rakhine often cannot prove it, some argue that any person who is Muslim and appears to be South Asian must be a migrant and should be expelled. In addition to migration, the rate of births of the Muslim families are said to be higher than the Buddhist and there is fear expressed that the proportion of Islamic people will increase and make the Buddhists a minority in their own country. Given the poor state of population registration, it is not easy to discuss these issues with reliable data. This research note uses historical and official data to investigate the proportion of the Rakhine and Muslim population since the 1953 Census.

Demographic Data

The 1953/54 Census was partial due to security issues in various parts of Burma. Based on the complete urban enumeration and partial rural sampling, the nation's population in 1955 was projected to be 20.4 million. The proportion of urban population is not given, but was independently estimated at 19% in 1960 by a World Bank source. The 1953/54 Census found 8% of urban national population was Muslim and 3% of rural, for a weighted average of 4% for the whole country. The Arakan population had 52% of the national rural Muslim population and 10% of the urban Muslim population. Using the 1955 population, there would have been 805 thousand Muslims in all of Burma, 310 thousand in urban and 495 thousand in rural areas. In the Arakan (now Rakhine) state, there would have been 31 thousand urban Muslims and 257 thousand rural Muslims for a total of 288 thousand Muslims out of a total state population of 1.4 million or 20.6% Muslim to total population in the state.²⁵ After 1962, Buddhists but not Muslims in Rakhine were allowed to migrate to other parts of Burma, which may have raised the Muslim share of the total population since then.

The population of the state, which was renamed Rakhine, was listed at 1.71 million in the 1973 Census and 2.05 million in the 1983 Census. The 2011 *Statistical Yearbook* puts 2010 Rakhine state population at 3.3 million. The table below shows the state and total national population in millions over time:

<i>Population in Millions</i>				
<u>Year</u>	Rakhine	Burma/Myanmar	Rakhine/National	Muslim/National
1955	1.40	20.4	6.86%	3.95%
1973	1.71	28.9	5.92%	
1983	2.05	34.1	6.01%	3.9%
2010	3.30	50.4	6.55%	

Sources: Statistical Year Books from 1967, 1997 and 2011. The national Muslim proportion was also 4% in 1931.

²⁵ The 1967 *Statistical Year Book* provides an estimate of 1.56 million for 1961 Arakan population. This is adjusted to 1955 by taking the ratio of national 1955 to national 1961 population, or .895 to get 1.4 million in 1955.

The official data show a slightly **lower** population growth rate in Rakhine compared to all of Myanmar for the 1955-2010 period. If the population of Rakhine had grown at the national rate from 1955, the 2010 population would be 3.46 million instead of 3.3 million. Unless there is a severe underestimation of the Rakhine population, it does not appear that the population changes are large enough to shift relative population shares much. This also shows up in the national Muslim population share which was no higher in 1983 than in 1953 – more recent and reliable data are not available.²⁶ Note that this data is completely inconsistent with widely circulated fears that the rapidly growing Muslim share of population is threatening Myanmar's Buddhists.

The migration issue is implicitly downgraded by the slower growing population of Rakhine compared to the national population growth. However, in addition, there are official data on movements between Burma and India/Pakistan in the official data. From 1950 to 1969, the net recorded movement was an **outflow** of 152.5 thousand people with the biggest exodus in 1964-66 when more than 117 thousand people left. There are no recorded movements from 1970 onwards. The number of Pakistani (which would include Bangladeshi) foreigners in all of Myanmar was listed as 28,334 in 1960 and the number fell steadily to under five thousand by 1993.²⁷ Thus the official data tell a story of net outflows and dwindling numbers of "Pakistani" foreigners. This supports the recorded slightly slower rate of growth of Rakhine's population than of Myanmar's.

Comparative Economic Statistics

The IMF has estimated 2011 PPP GDP per capita at \$2039 for Bangladesh and \$1405 for Myanmar.²⁸ This would suggest an average Bangladeshi would take a 30% income reduction by moving to Myanmar and getting an average Myanmar income. However, the 2010 Integrated Household Living Conditions Survey found the poverty rate in Rakhine to be 38%, well above the national poverty rate of all of Myanmar which was estimated at 32%. The landless rate in Rakhine was 31.5%, among the highest in the nation. This suggests there is not "surplus" land on which to settle. It is hard to imagine why many Bangladeshi Muslims would want to move to a poor region of a poorer country where they would be an unwelcome minority with few rights. In addition, Rakhine Moslems have no right to move to other parts of Myanmar. Indeed the Rakhine in that same survey had a moderate child malnutrition rate of 60.5% and an additional 26.8% were severely malnourished, the highest state or division in all of Myanmar. This gives a total malnutrition rate of an incredible 87%. The latest recorded national malnutrition (moderate + severe) rate for Bangladesh was 41.3%, less than half of the combined Rakhine rates. It is hard to imagine migrants seeking worse conditions for themselves and their children. The national under-five mortality rate in 2011 was 46/1000 in Bangladesh and 62/1000 in Myanmar. Since malnourished

²⁶ One estimate in Wikipedia put all Rohingya in Myanmar at 800,000 in 2012, but not all of these would be in Rakhine. If 90% of these were in Rakhine, the ratio of Rohingya to total population would be 21%, similar to the 1955 ratio.

²⁷ Statistics on the Burmese Economy: The 19th and 20th Centuries, Saito and Kiong, p. 15

²⁸ PPP stands for "Purchasing Power Parity" and it is a way to adjust non-traded (services) prices so that comparable international comparisons of income per capita can be made. The 1999 PPP GDP per capita for Bangladesh was \$1530 per capita, above the 2011 estimate for Myanmar and also in dollars then of greater value. No estimate is available for PPP GDP per capita of Myanmar in 1999, but it is likely to be lower because of dollar inflation after 1999 and any per capita growth.

children are more likely to die, the child mortality rate in Rakhine is almost certainly well above the national average.

For those who doubt these data (and the 2010 Integrated Household Survey has been criticized as being more favorable than conditions merit – suggesting the differences could be worse than described above!), the amount of electricity per capita is perhaps one of the most reliable sources available. In 2010, Bangladesh had 279 kilowatt-hours per capita, more than double Myanmar's 131. This suggests a large gap in living standards, more even than the GDP per capita data do. Rakhine had only 23% of (mostly urban) households with electricity, below the Myanmar average. Another item – the quality of flooring – showed Rakhine had 95% of homes with less desirable flooring (earth, wood planks or palm/bamboo), compared to 83% for all of Myanmar. Here again, Rakhine shows itself to be well below the national average. For safe drinking water, Rakhine had only 41% of homes with access compared to 62% for all Myanmar and 81% for all of Bangladesh.²⁹ In summary, there appears to be no compelling reason for most people living in Bangladesh to want to move into Myanmar. The fact that millions have left Myanmar to work elsewhere underlines this fact that people tend to leave poor countries, not seek to enter them. The claims that there are large inflows of migrants from Bangladesh appear to lack both motive and any indications of their logical impact.

Accuracy of Official Data and the Next Census

It is well known that due to political and practical difficulties and various pressures, the data published in Myanmar are not always reliable. The question for those fearing migration from Bangladesh and high Muslim birth rates is if there are really only about 4% of Muslims in the population, unchanged from 1931, or if the real proportion is higher. The best way to be certain would be to conduct an accurate census – and indeed one is scheduled in the near future. If the proportion is similar to what it has been, there would appear to be no factual basis for fears of a Muslim “population explosion” in Myanmar, whether from migration, naturally larger families or conversions. In that case a rational reaction would be to reduce the anti-Muslim rhetoric and propaganda and revert to harmonious living with the small minorities who are not Buddhist.

However, even if the Muslim proportion of total population turned out to be somewhat larger than last measured, the most effective way to prevent further escalation in the share of Muslims from high birth rates is to ensure that they too receive equal education, access to health care and voluntary family planning and economic opportunity. Under such conditions, birth rates tend to drop – the fertility rate in mainly Muslim nations such as Bangladesh dropped from 4.5 in 1990 to 2.2 in 2010 and in Indonesia it dropped from 3.1 in 1990 to 2.1 in 2010. This is very close to Myanmar's 2.0 in 2010 – a rate that may be

²⁹ Bangladesh data are from Table 3 of the World Bank's [2013 World Development Indicators](#). Rakhine data are from the 2010 Integrated Household Living Conditions Survey. Note that Rakhine's access to clean water is half of the national average for Bangladesh.

depressed due to the migration of millions of younger workers. (Myanmar's 1990 fertility rate was 3.4 children per woman – its rate declined less in absolute terms than that of Bangladesh.)³⁰

The share of Muslims in Rakhine will also be measured in the new Census. Since Rakhine has not had a strong economy, Buddhists who have been able to leave often did so, while Muslims had to remain in the state unless they were forced out. This might have resulted in the Muslim population share in the state rising. If this is so, the “solution” is to improve economic conditions in the state so that Buddhist workers return and young Myanmar workers not originally from the state also come. If export processing zones, better infrastructure and raw materials processing were combined, the economic future of Rakhine would be much brighter. Likewise, treating Rakhine Muslims as others would allow them to migrate elsewhere in Myanmar if they wanted to. This would lead to a peaceful balancing of minority population throughout Myanmar. A “rising tide lifting all boats” should be the goal, not attempts to have one group benefit at the expense of the other. Past experience shows that cooperation among different groups is easier if there is brisk growth in which all can participate.

Other Factors

The recent and ongoing explosion of national anti-Muslim violence is hard for some to understand, although the tensions in the Rakhine go further back. The leader of the anti-Muslim “969” movement had been jailed but now is seen leading many rallies. Often police or army officers seem reluctant to get involved in preventing or controlling violence, even when they are nearby in adequate numbers. Some have speculated that the anti-Muslim violence is being encouraged by those who would stand to benefit from a weakened government more reliant on the security forces. The probability that this violence is being organized and is not merely spontaneous is high.³¹

Yet the larger environment is also important. The lack of progress in many areas such as preventing blackouts and attracting labor-intensive investment creates a sour temperament so that appeals to narrow sectarianism are more effective. Without broad and rapid economic progress, it will be hard to get agreement on many ethnic and religious issues and this would sustain ethnic and religious conflict. The prospect of Myanmar being squeezed between Al Qaeda³² and China is not one that is likely to foster progress. If a way to calm tempers, work together and share revenues from raw materials is not found, the outlook is for more violence between the largely Burman military and ethnic groups as well between extremist Buddhist groups and minorities such as Muslims. This will depress investment, political development and wider diplomatic acceptance. The current trajectory is one that will benefit very few and have high costs.

³⁰ The recently proposed policy of limiting Muslim families to two children but not limiting others is directly opposite the Chinese one-child policy which allowed a more liberal policy for minorities. The Myanmar policy seems to feed off popular but unsubstantiated conceptions of a population explosion among Muslim families.

³¹ See [The Buddhist war on Myanmar's Muslims](#), Jason Szep, April 8, 2013

³² Muslim extremists tend to use maltreatment of co-religionists as a rallying cry and then step up recruiting and terrorist efforts in those places where persecution is seen. The trouble with this kind of terrorist threat is that it often strikes “soft” targets such as tourist spots or religious buildings rather than “hard” targets such as police or military bases. This makes it very hard to suppress.

Appendix B: Calculation of Jade Values

The table below shows a calculation of jade production and sales values in 2011. It uses official data gathered from interviews at the Ministry of Finance and the Ministry of Mines as well as published sources. These show official jade production of just over 43,000 tons and the sales in 2011 at the Nay Pyi Taw emporium of \$2.655 billion. However, it also builds on interviews which included various sources in jade production and trade in Kachin state as well as sources in Yangon. This information allowed us to estimate the proportion of jade grades and their prices.

Value of Jade in 2011

Naypidaw Emporium (21,000 tons)

Official Value (US\$ million): 2,655

Official Jade Output Outside Naypidaw (22,131 tons)

Jade Class	Average Price (\$/kg)		Share	Weight	Value (US\$ million)	
	Mine	Emporium			Mine	Emporium
A	500	800	5%	1,107	554	886
B	60	96	35%	7,646	459	734
C	7	10	60%	13,279	93	149
				Total	1,106	1,769

Unofficial Jade Output (1X Official: 43,131 tons)

Jade Class	Average Price (\$/kg)		Share	Weight	Value (US\$ million)	
	Mine	Emporium			Mine	Emporium
A	500	800	5%	2,157	1,079	1,726
B	60	96	35%	15,096	906	1,449
C	7	10	60%	25,879	181	259
				Total	2,166	3,434

Total Value of Jade (US\$ million): 5,927 – 7,858

These interviews built on discussions in Nay Pyi Taw and Yangon with others either involved in collecting jade tax revenues, running the jade emporium in Nay Pyi Taw, or supplying inputs to the jade miners. For example in 2011, the official jade output was 43,131 tons while emporium sales were 21 thousand tons. That leaves 22,131 tons that was sold elsewhere.

However, in addition, there was “unofficial” jade production, here estimated at an amount equal to official jade production. The percentage of each grade comes from interviews, as does the price at the mine and emporium level. This calculation assumes the non-Nay Pyi Taw sales of official production and the unofficial production sales are the same as the production shares. This may not be correct – the Nay Pyi Taw jade is more highly taxed and the best jade may be sold directly into China as it is valuable per kilogram and relatively easy to carry out. The Nay Pyi Taw jade sold for \$126 per kilogram while the non-Nay Pyi Taw official jade at emporium value sells for only \$80 a kilogram. Thus, if the more valuable jade really were smuggled out, this estimate (\$80 per kg) would be too low. It is also possible that unofficial jade output was greater than the amount of officially recorded jade production. Efforts have been made here to be conservative and reflect the lower end of information we received. For example, in the proposed resource sharing diagram on page 13, the projected sales of jade were only \$4-\$6 billion. Much depends on the price of jade in China which peaked around 2010 and has softened since then. Inquiries were also made into jade sales on the Chinese side of the border.

The official and estimated values of 2011 jade sales and exports are given below:

2011 Nay Pyi Taw jade emporium sales *	\$2655 million
<i>Of which:</i>	
10% royalty tax on Nay Pyi Taw emporium sales	\$265 million
40% contribution from jade Joint Ventures	\$274 million
Total Taxes and Fees (includes 20% royalty at mines) (A)	\$530 million
After-tax Revenue of jade producers for Nay Pyi Taw sales only	\$2125 million
Estimated jade sales of other “official” output	\$1769 million
Estimated “unofficial” jade sales	\$3434 million
Sum of estimated and official sales (B)	\$7858 million
Jade taxes and royalties/Estimated Total Jade Sales (A)/(B)	6.7%
*From Nay Pyi Taw interviews	