

A Grand Bargain: What It Is and Why It Is Needed

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This policy note was written by David Dapice (David_Dapice@harvard.edu) following trips to the region in January and July 2016. *The views expressed herein are the author's alone and do not necessarily reflect those of Proximity, the Government of the Union of Myanmar, or Harvard University.* This piece, along with other recent Ash-Proximity reports on Myanmar, is posted at <http://ash.harvard.edu/journal-articles> and www.ash.harvard.edu/myanmar-program

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Summary

This paper argues that Myanmar needs a “Grand Bargain” that includes the military, the NLD government, the armed ethnic groups and the large jade producers. The essence of the bargain is that jade sales need to be taxed at a rate of about 50% and the sharing of the proceeds of the jade taxes need to be negotiated in advance. This bargain is needed to create a stable peace and give content to federalism.

Achieving sustainable peace requires a comprehensive effort which involves real negotiations between the army, government and remaining non-signatory armed ethnic groups. The resulting Grand Bargain will have to involve some degree of limited autonomy of states and resource revenue sharing. It will provide a basis for compensating armed groups on both sides for lost revenue, bringing revenues to Kachin State for development, and facilitating the NLD government’s investment in development spending for the rest of Myanmar in line with its priorities. It differs from the past peace process which has been slanted towards army demands and has excluded most questions of resource sharing and land issues.

The sharing of the revenues could occur as follows:

- Compensate the military for its lost informal revenues by increasing the official military budget,
- Pay for jobs for ex-KIA and other combatants that are acceptable to the KIA and other ethnic leaderships and members. Training and jobs in construction or police could be part of any bargain.
- The NLD government could ensure that Kachin State gets a share of the revenues well above Kachin State’s 3% share of population in Myanmar (in part to employ the KIA militia who lay down arms). The government would insist that other regions of Myanmar also benefit from the jade revenues.

This paper proceeds in a question and answer format.

1. How much are jade sales worth?

The most recent serious estimate was made by Global Witness, which gave a range as high as \$31 billion in 2014. Even if the actual figure were half as much, it would still be a huge amount – one-fifth of GDP – in an economy officially estimated in 2014 at less than \$70 billion. In 2015, there was greatly accelerated jade mining by companies fearing the NLD would change the rules – official physical production in 2015 was more than 2.3 times that in 2014. That rate of exploitation is excessive and for planning purposes, a much lower level of output and sales is prudent. Harvard’s estimate of 2011 sales of \$8 billion will be used as a planning figure for future sales, though the actual figure could be higher or lower. Potential jade revenue is so large that without it, Myanmar will find it hard to make peace or grow richer as a society.

Some parties have argued that jade sales are much less than the tens of billions of dollars estimated by Global Witness or even the more conservative Harvard estimates. However, several facts suggest that this criticism is misplaced. First, the UN trade data report \$12.3 billion in 2014 imports into China of “jade and

gems” from Myanmar. This is certainly likely to be almost entirely jade and an underestimate, given China’s tariff on jade imports and its ease of being smuggled. Second, the jade processing industry in China has several hundred thousand workers according to reliable reports and has expanded greatly since 2005. One township alone in Guangzhou has 200,000 workers, while Yunnan province has 50,000 workers. This volume of employment is consistent with a high value of production. Third, a number of cases of very valuable boulders of high quality jade have been reported, and at least one went straight to China without paying taxes – and those alone could have been worth hundreds of millions of dollars each if not more. Finally, talks with very well informed jade industry experts allowed a refined set of estimates of the amount and value of imperial and commercial grade jade – the two highest. Even allowing for differing grades by mining site, it appears that **most of the value (over 90%) comes from less than 5% of the jade by weight, and most of this is shipped directly to China to avoid taxes.** This explains the wide gap between the jade sold in the Nay Pyi Taw emporium sales and the estimates of total value. (Appendix D)

Because of the huge increase in officially reported jade production (nearly 30 million kg in 2015, up from 12.75 million kg in 2014), the prices of lesser grades of jade have fallen sharply. One jade trader in Mandalay cited a B-grade piece of 150 kg with a refused bid of 500 million kyat in 2013 that was finally sold in 2016 for 40 million kyat! However, the top grades have not suffered any such decline. Some argue that this is due to the insatiable demand for top quality jade in China. Others suggest that a cartel is supporting the price of the best jade to protect confidence in the highest grades, as well as the value of their previous stockpiles. Whatever the reasons, the recent suspension of new jade mining licenses will allow the jade market to recover from oversupply – if slowly. Estimates of the size of stockpiles vary, but it is likely to be at least five years of normal demand, and probably more¹. If substantial stockpiling of superior grades exists, it would complicate taxation since about half of high-quality production would have to be sold to cover tax payments. This would put downward pressure on these jade prices unless total production contracted.

2. What is a realistic tax rate for jade?

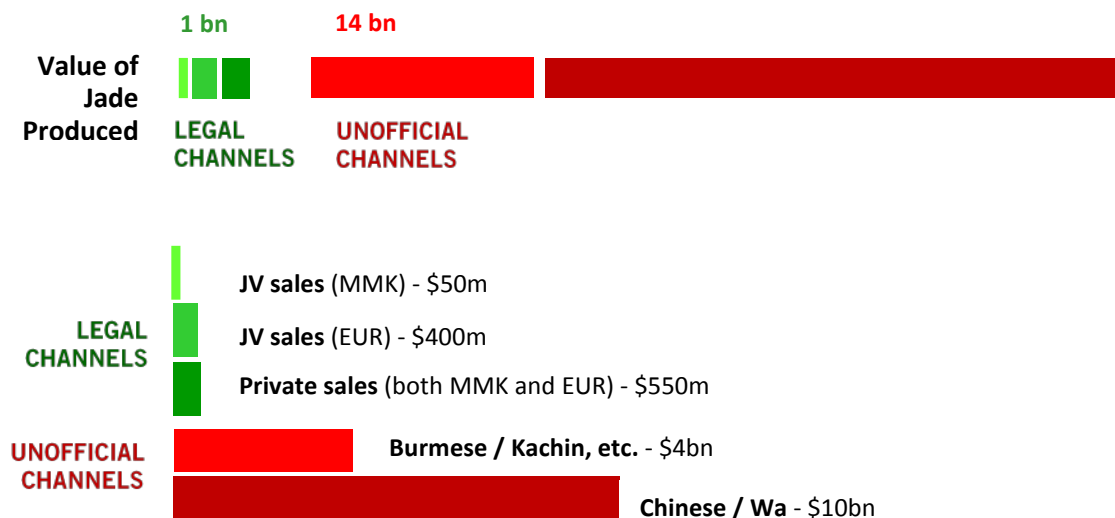
The mining cost of jade extraction is low (less than 10%) relative to its value. That is, on average, most jade sales net of taxes, fees or unofficial payments would be profits. However, some producers may realize super-profits if they get a high concentration of superior grades, while others will only break even if they are unlucky. Unfortunately, since most high grade jade is smuggled to China, and it is not very much by weight, it is hard to tell who is making very high profits and who is unlucky. The best system is probably employed by the KIA. It has a network of paid informants who let them know when valuable stones are found and this elicits a visit from KIA tax collecting agents. The KIA’s ten tax agents in Hpakant (the center of jade production) collect more than their thousands of counterparts working for the Ministry of Mines.

¹ One estimate is that joint venture and private company stocks of jade in Myanmar are about 50,000 tons while a typical Naypyidaw jade emporium sells about 2000 tons and an emporium in China (which go on 20 times a year in each city with a jade wholesale market, but only 2-3 a year in Myanmar) sells 150-400 tons each. If mining were to stop, the jade trade would continue. It is likely that China’s stocks of jade are higher by value but weight is unknown.

Of course, penalties for avoiding KIA taxation can be violent. However, a tax scheme focusing mainly on the best grades might allow unlucky producers to remain in business.

Most minerals have a higher ratio of extraction costs to value. By way of comparison, Indonesia’s province of Aceh received \$80 million in taxes in 2010-11 from natural gas production while all mining (mainly gas) GDP in Aceh was \$1.5 billion.² Aceh’s portion of taxes received from gas represented 70% of net natural gas revenues, but less than 6% of sales value. **Current total official government collections for jade now amount to only 3% of sales, a very low fraction. Very little of that goes to Kachin State.** The following graph of 2014 jade sales shows how only \$1 billion (green) out of \$15 billion is legally sold!

Bar Graph of Estimated Structure of Jade Business in 2014 (Provisional)



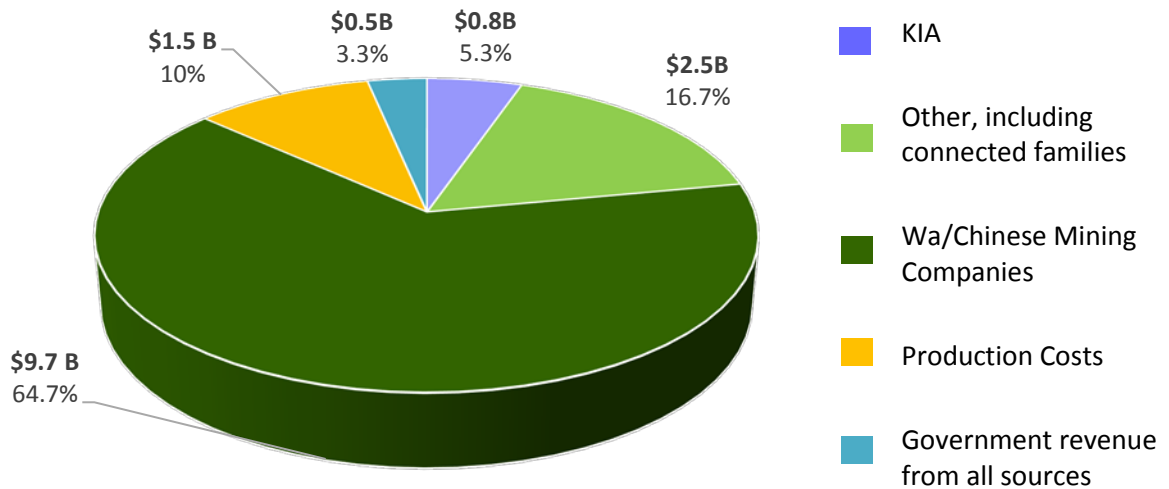
In conversations with jade producers in Kachin State, some non-Wa business people said they already pay 50% of sales in total taxes and unofficial payments. The Wa and Chinese owners tend to incur somewhat lower payments, or so we were told. An uncertain and unconfirmed estimated distribution of jade revenues, conservatively estimated at \$15 billion in 2014, is shown in Appendix B. A simpler graph is on the next page, illustrating how little goes to the government or even to KIA accounts, compared to the companies and other groups. If total jade production in the future were \$8 billion and if a 50% tax can be imposed with no other informal payments, then \$4 billion could be available for revenue sharing – ten times the current amount. Based on interviews and other information, it appears that a 50% tax, absent other informal payments, is realistic if a way can be found to distinguish among “lucky” and “unlucky” producers³.

² Aceh is a province in Indonesia that ended a long-running conflict with the central government and Indonesian Army by agreeing to a peace deal that included 70% of net natural gas revenues going to the province.

³Producers often complain that taxes are too high due to their high production costs. This is only correct if they are unlucky and do not mine much really good quality jade. Most will be profitable with a 50% tax IF there are no other payments to be made.

The following graph is provisional and uncertain, but reflects our interviews to date. Please see Appendices B and C for a more detailed discussion of how the graph was developed, and its weak points. However, the main point is that in spite of uncertainties, only 3% of conservatively estimated 2014 jade sales went to official taxes or royalties, and only a limited amount to production costs. The largest amount, by far, went to private producers and side payments to powerful groups. This contrasts with historical jade mining practices in pre-colonial times, as described in Appendix E.

Estimated Provisional Distribution of 2014 Jade Sales
Total Sales = \$15 Billion



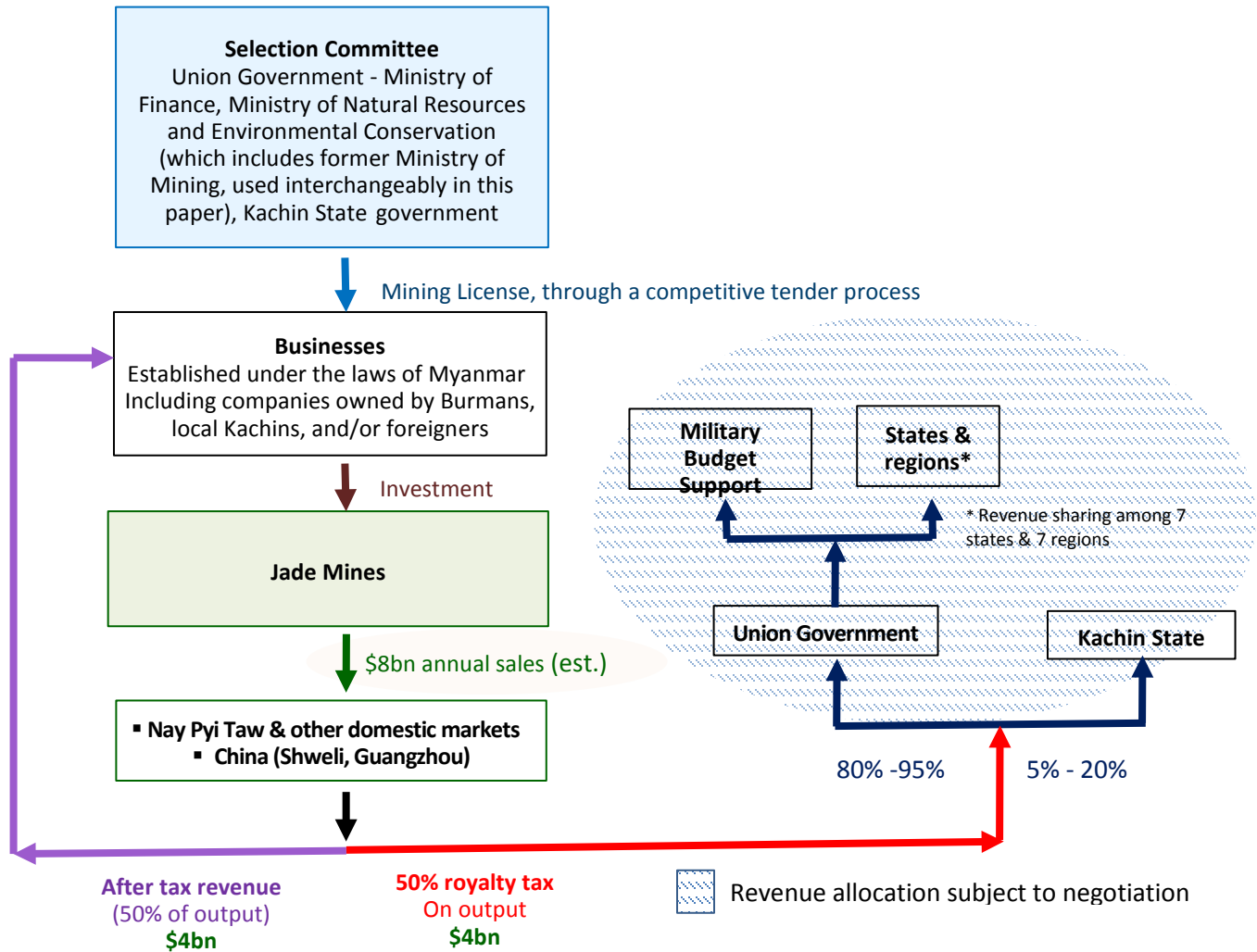
A Valuable Jade Boulder: Negotiations and Consequences

According to informed sources, a huge jade boulder with very high quality jade was unearthed and could not be smuggled. It was worth at least hundreds of millions of dollars, probably more. So it was brought to Nay Pyi Taw by one of the Wa controlled companies who proposed splitting it in two rather than waiting for it to be sold and pay a 40% tax. This was agreed to, and they were free to dispose of their half. However, they neglected to and refused to pay the KIA who were aware of the boulder and its quality. As a result, the KIA sent a truck filled with explosives into the area filled with machinery and guarded by the Tatmadaw. The huge explosion killed 80 soldiers and destroyed much machinery. Presumably further negotiations ensued and payments were made to allow continued mining.

3. How can the jade revenue be shared?

First and foremost, revenue sharing is a political issue to negotiate, not a technical issue to calculate. Even providing guidelines would be difficult given the lack of precise knowledge of how existing unofficial payments are distributed. The figure below provides a framework.

Provisional Future Structure of Jade Revenues (Subject to Negotiation)



In Aceh, the entire state budget totaled about \$500 per person – a generous amount, greater than in other provinces, in a country with more than \$10,000 (PPP) GDP per capita, double that of Myanmar. If Kachin State were to receive the same \$500 per capita budget as Aceh, they would need about \$800 million, most of it from jade. This would represent a 20% share of jade tax revenues, which could be a suggested maximum. If Kachin State were to receive a 5% share, it would represent the same share of tax revenues to the value of gas value added (sales) as in Aceh. Given the lack of investment and outright destruction in Kachin State and the need to employ militia who disarm, a percentage higher than 5% may realistically be needed. The remaining revenues could go to the central government and through the normal budgetary process.

However, it will require the active and enthusiastic cooperation of the Tatmadaw if jade taxes are to be collected in full. The Tatmadaw's loss of existing informal payments from jade would have to be offset.⁴ The share going to the military has to be negotiated keeping in mind that the NLD government will also need jade revenues to pay for other national priorities. In this respect, the pre-colonial history of jade mining around 1800 shows how the Burmese king and Kachin nobles basically split jade revenues, giving each a portion of revenues. (See Appendix E, which also shows a large role for Chinese miners around 1900.)

If there is a real negotiated and not imposed peace agreement, it should be possible to reduce the personnel size and budget of the military gradually, but the budget would not shrink by as much as the reduction in manpower. It would be reasonable for the military to want improved equipment and training, both of which are costly. There might also be a need to develop a modern and separate police force, as was done in Indonesia after the Aceh settlement.

There is also the contentious issue of how the central revenues would be distributed. This has to be settled by parliaments in all democratic nations of course, but if a few billion dollars of extra revenue suddenly appeared, there would be many claimants. One method is to develop formulas to give funds down to the state/region or even township levels. An obvious approach, widely used in Indonesia with their Inpres (rural infrastructure) Programs, was to distribute on a per capita basis. But these programs were often modified away from a strict per capita approach based on a locality's lack of development and other variables. A second approach would be to distribute funds on the basis of physical area, i.e. budget per square mile. This could respond to large, sparsely populated states where road building or the extension of electricity would be more expensive than in densely populated areas. By combining the per capita and physical area formulas, it should be possible to respond to a variety of needs with a minimum of friction. An illustrative calculation of \$1 billion in distributed revenue is shown in Appendix A.

4. Would a "Grand Bargain" be all-inclusive?

It would include as many groups as possible. If the Wa/Kokang companies (which predominate) wanted to continue jade mining, they could be asked to join in the bargain, though the bargain would not need to wait on their approval. Joining the bargain would mean disarming company security militias, which is uncertain in their case – though a loss of jade mining licenses might cause some reflection. The Kokang region may not agree to disarm if they can rely on covert support from China⁵, but their participation, while desirable, should not prevent an alliance of almost all ethnic groups, the military and the NLD government. If the NLD government offered limited autonomy, a share of mineral revenues for development uses, and a non-extractive and respectful environment for ethnic regions, the ethnic groups

⁴ The active military may not be the main beneficiaries of informal payments, but we were told some part of informal jade payments go to them. It would be a major decision for the Tatmadaw to unite with the NLD government and curtail informal payments, including to others such as retired military members. Increasing the formal military budget is probably necessary to secure the Tatmadaw's full cooperation.

⁵ The cooperation of Chinese companies that mine the jade could be allowed if they also pay 50% tax in addition to environmental cleanup. This is similar to the Wa companies.

could be willing to join in. Making realistic political and economic offers is the primary method of resolving ethnic conflict; military pressure can suppress conflict but not create lasting peace and unity.

A special aspect of achieving peace and unity is the situation in Rakhine State. The Buddhist majority there has a very dim view of many Muslims, with some arguing that more than one million Muslims are there illegally and should be expelled, though the facts do not support this belief – the share of Muslims in Myanmar has changed little since 1882. Violence, often encouraged by radical Buddhist groups, has resulted in 100-150 thousand Muslims living in camps in poor conditions, and another million living mainly in the north where they cannot move freely, even within Rakhine State. This situation creates tension within Rakhine State, damages its economy and could become a magnet for even greater troubles. It has to be resolved. The growth of Islamic extremism in Bangladesh is a warning to all to settle differences before sabotage and mayhem spread to Myanmar. The long-term stability of Muslims in Myanmar's general population effectively demolishes the arguments that Buddhism is under threat from conversion, migration or excess fertility of Muslims.

A development program to invest in irrigation, roads and power in Rakhine State would be a start – making jobs available to any who are willing to work. Increasing the freedom of movement for work purposes within Rakhine State might be met with widespread approval, even many in the Arakan National Party. The Rakhine State parliament's approval would need to be secured before making this change. Even better would be allowing Muslims, even those without a full citizenship card, freedom to move within all of Myanmar. This difficult step would reduce the concentration of Muslims in Rakhine State, and might reduce tension. The difficult questions of how to decide on citizenship could be worked on, while allowing those who have obviously lived in Myanmar for a long time to work and earn a living. They could be given residence cards for security purposes. By increasing the potential number of crops per acre through improved irrigation, and thus the demand for farm labor, it would become more attractive for largely Buddhist land owners to employ Muslim labor. Likewise, many construction jobs would not be attractive to younger and better-educated Buddhist workers – many of whom have already left the State – but the infrastructure projects would benefit from the supply of Muslim workers. Taken together, these steps to increase work opportunities and to reduce poverty and frictions would help defuse a dangerous situation.

More generally, the durability of peace agreements depends on robust economic growth that will create acceptable jobs for young workers who might otherwise turn or return to violence. Given the need for construction of roads, irrigation, dams, electricity transmission and other infrastructure, a program to train ex-militia and others to work on these projects would help to ensure that any agreements take root and endure. Jade revenues could help fund the projects.

5. What about the Constitution?

The current Constitution is largely a military government creation approved by a vote that had limited legitimacy. However, this does not mean it cannot form the basis of the current government or of future

negotiated changes. It is only by governing inclusively that any civilian government will persuade the military that it is safe to go further down the democratic road. If new government policies are erratic, disruptive or fail to deliver progress, the military will be reluctant to give up its considerable influence within the system. Since it takes time to establish a track record and build up confidence, it will be a matter of years before substantial changes to the Constitution are likely. This does not mean that work-arounds, such as Daw Aung San Suu Kyi effectively leading the government and NLD, even if not holding the office of President, cannot proceed. Indeed, by allowing this pragmatic leadership, the chances of building trust may increase. However, a “Grand Bargain” over the jade sector need not and probably would not include immediate changes to the flawed Constitution. It would create conditions that could later promote such changes in the Constitution as confidence grows based on ending ethnic conflicts, reducing religious strife, making economic and social strides that reduce tensions and create a stronger, more resilient and more united Myanmar.

6. Are there alternatives to a “Grand Bargain”?

If jade remains under the control of narrow groups with few benefits going to development, it will be very difficult for a durable peace to be negotiated in Kachin State or for the NLD government to make progress. Many billions of dollars – an outsized part of the economy -- would remain in play, a prize for whoever has the force available to take it. Jade is, in effect, the sovereign fund of Myanmar, but its benefits are now going mainly to very narrow groups with little for government budgets or development. In such distorted conditions, a democratically elected government would be unable to provide either peace or progress. It may be possible to move forward, but progress would be very much more difficult. The various parties in the conflict would have no reason to compromise. Myanmar would remain weak, poor, divided, violent and prone to foreign influences. The “Grand Bargain” is very difficult, but the alternative is perhaps best described by a Burmese scholar, J. S. Furnivall in 1931: “If...the obstacles prove insurmountable, [it] can only be a matter of time and, after a period of anarchy more or less prolonged, our descendants may find Burma a province of China.”⁶ The alternative to the Grand Bargain is the effective loss of sovereignty, not mainly due to China’s strength but because of Myanmar’s weakness.

7. What Else is involved in a Grand Bargain?

Within Kachin State, the other most pressing issue is the design and approval of large hydro-electric projects. The pre-2010 government agreed to terms and conditions which were extremely unfavorable to Myanmar and virtually ignored the voices of the Kachin people who lived in the areas to be flooded. This is incompatible with the kind of federalism needed to keep the nation together. However, China has indicated it is committed to the old terms and conditions, even though the previous government had serious reservations about the unpopular Myitsone dam and many within the NLD – including specialists

⁶ The quote is from [An Introduction to the Political Economy of Burma](#), 1931. Furnivall argued that colonialism had created a “plural society” that cooperated economically but had no real social or cultural bonds. He saw that this combination was not stable and a new basis was needed to create a unified nation of consent and harmony.

– share significant reservations about the environment and local impacts. Norway has suggested forming a hydroelectric advisory commission with different interests and specialists represented to revisit all relevant questions about development of any large proposed project, even if previously approved by an earlier government. These questions could include the financial terms, the environmental consequences, the views of local people and the feasibility of different designs at a given project site. Developing these facts and viewpoints is needed in order to produce a negotiating position with China.

The decisions on jade and hydro are complicated by the interests of China. China has already indicated it plans to play a role in the peace process. There is little doubt that, at least according to reliable news reports, advanced Chinese weaponry (drones for the Tatmadaw and shoulder-launched anti-aircraft missiles for the Wa) is being provided or sold to both sides. There are even unconfirmed reports of PLA soldiers fighting for ethnic minorities in Shan State. In short, China has ways to exert pressure on Myanmar that need to be addressed.

In addition, China has developed a “one nation, two oceans” approach which surely means an interest in Kyauk Phyu as a Chinese dominated if not owned base bordering the Indian Ocean. China has proposed large investments, well beyond anything commercially justified. The Chinese Communist Party hosted the Arakan Party leader on a visit in which large Chinese investments were proposed in Rakhine State. It may be that a Chinese-controlled port at Kyauk Phyu is the real prize for China. This puts Myanmar in a difficult position. If Myanmar wants a real peace deal, it may have to cede effective control of part of its territory or give up a large share of potential mineral and hydroelectric revenues. The issues raised here need further analysis and would need to be decided based on a comprehensive definition of national interests.

Appendix A: Illustrative Use of Population and Area for Revenue Distribution

The following table gives an example of how central government revenues might be distributed to state or even township governments. Such revenue transfers will be needed if federalism is to have any reality. This example uses the recent Census population and areas of states and regions. Population is in thousands of people and area is in thousands of square kilometers.

<u>State or Region</u>	<u>Population</u>	<u>Area</u>	<u>People per Km2</u>
Ayeyarwady	5,300	35.0	151
Bago	4,900	39.4	124
Magway	3,900	44.8	87
Mandalay	6,200	37.9	164
Nay Pyi Taw	1,200	7.1	169
Sagaing	5,300	93.7	57
Tanintharyi	1,400	44.3	32
Yangon	7,400	10.3	718
Regions	35,600	312.5	114
Chin	500	36.0	14
Kachin	1,700	89.0	19
Kayah	300	11.7	26
Kayin	1,600	30.4	53
Mon	2,100	12.3	171
Rakhine	3,200	36.8	87
Shan	5,800	155.8	37
States	15,200	372	41

This table shows what is well known. Most of the population – more than two-thirds – lives in regions while most of the country’s physical area – about 54% – is in the states. While Magway, Sagaing and Tanintharyi regions are relatively sparsely populated and Mon and Rakhine States relatively densely populated, it is more often true that the regions are more densely settled than the states.

Areas with many people will need more revenue for schools, clinics and urban infrastructure. Areas that are lightly settled will need more for roads and other infrastructure. (For example, extending grid electricity will cost more per household.) If federalism is to work, the local governments will need revenue to function. Providing revenue on a predictable basis will help them function better.

It is also a fact that most mineral revenues (and eventually hydro revenues) come from the states. It may be – indeed should be - that some fraction of these revenues goes straight to the originating state or region budget before the rest goes into the central budget. But for the central budget, distributing some portion of central revenues to the states will be necessary, as some states will have few resources.

If there were \$1 billion hypothetically available to distribute locally, one way would just be to give about \$20 per person. Another, less plausible approach, would be to give about \$1450 per square kilometer of area. Most regions would prefer the pure per capita approach and most states would prefer the area allocation. In practice, a compromise might be to allocate some portion of the hypothetical \$1 billion to the per capita formula and the rest to the area formula.

Suppose two-thirds of the revenue were allocated per capita and one-third on an area basis. Then each person would get \$13 (paid to the local government) and each unit of area (one square kilometer) would be paid about \$484, again paid to the local government. In this hypothetical illustration, the regions would get about \$620 million and the states would receive \$380 million. Adjusting the fractions going to population or area would move the relative proportions in the desired direction. In the given example, each person living in a division gets \$17.40 and each person living in a state would get \$25. A pure per capita allocation would be \$19.70 per capita. The table below shows various outcomes for distribution. The total amount distributed under each formula is rounded and the 67% per capita + 33% area example is not a recommendation, but simply an illustration of what such a compromise would look like.

Distribution of Hypothetical \$1 billion in Federal Revenue Sharing (\$ Million)

Regions/ States	\$ 1 bn share by population	\$1 bn share by sq km	\$1 bn by population <i>and</i> area (2/3 by population; 1/3 by area)
Regions			
Ayeyarwaddy	\$104	\$51	\$86
Bago	\$96	\$58	\$83
Magway	\$77	\$65	\$73
Mandalay	\$122	\$55	\$100
Nay Pyi Taw	\$24	\$10	\$19
Sagaing	\$104	\$137	\$115
Yangon	\$28	\$65	\$40
Tanintharyi	\$146	\$15	\$102
Total regions	\$701	\$456	\$619
States			
Chin	\$10	\$53	\$24
Kachin	\$33	\$130	\$66
Kayah	\$6	\$17	\$10
Kayin	\$32	\$44	\$35
Mon	\$41	\$18	\$34
Rakhine	\$63	\$54	\$60
Shan	\$114	\$228	\$152
Total states	\$299	\$544	\$381
Grand Total	\$ 1,000	\$ 1,000	\$ 1,000

In some states, there are semi-autonomous townships that may take time to integrate into the state government. By distributing some revenues directly to townships for spending on education (for example), the townships would have a degree of governing responsibility and be able to develop their governing ability. This could ease the convergence problems – the problem of combining of newly elected state governments with the ethnic administration in areas previously not under government control.

This proposal is only one of many that might be adopted. The advantage of a formula is that it is predictable and transparent. It could lead to alliances across the state-region divide and give rise to a more national and fluid political give-and-take. It would also allow local governments to focus on the allocation of revenues to the work of development, since the amount would be known in advance and hard to adjust – unless from local taxes. If jade taxes were to provide additional revenue, some substantial transfer of tax revenues to the states and regions would be possible, even after the reduction in the central government deficit and additional on-budget military spending.

Appendix B: Discussion of the Pie Chart Showing Jade Revenue Distribution

The distribution of jade revenues is uncertain and needs further research – which is difficult since not many participants are eager to share information. However, certain facts are clear. In 2014, China indicated \$12.3 billion in jade and gem imports from Myanmar, almost all of which were jade. It is very likely that at least some jade going into China was not reported by importers and also likely that some jade was sold in Myanmar for local use or exported to other countries. Thus, the \$15 billion sales figure for 2014 is conservative – and less than half of the maximum estimate made by Global Witness for jade sales in 2014. It does not reflect the greatly accelerated mining activity in 2015.

The EITI (Extractive Industries Transparency Initiative) reported \$0.42 billion in government taxes and royalties in 2014 going to the Ministry of Finance. Adding in royalties and fees to the Ministry of Mines brings total government income to \$0.5 billion. It was likely less than this in 2015 due to the falling prices of lesser grades of jade, which are mainly those sold in the Naypyidaw emporium. Those sales provide most of the government funds, largely from joint venture profit sharing.

We were told in various interviews in Kachin State and in Yangon that the KIA received more revenues than the government, with varying taxes levied on jade producers⁷. We estimate these KIA taxes at \$0.8 billion.

The 10% cost of production estimate⁸, which is only for labor, fuel, materials and capital is based on interviews and seems high, though if environmental cleanup were included, the total cost fraction might approach one-tenth. The 10% cost of production figure excludes legal and informal taxes, royalties, fees and other payments.

We were told that 80-85% of jade production is from mines controlled by Wa and Chinese owners (or renters) and the remaining 15-20% production is done by Burmese or ethnic (non-Wa) mine owners/renters. The top 6-10 companies, or companies controlled by major figures, accounted for about three-quarters of jade production.

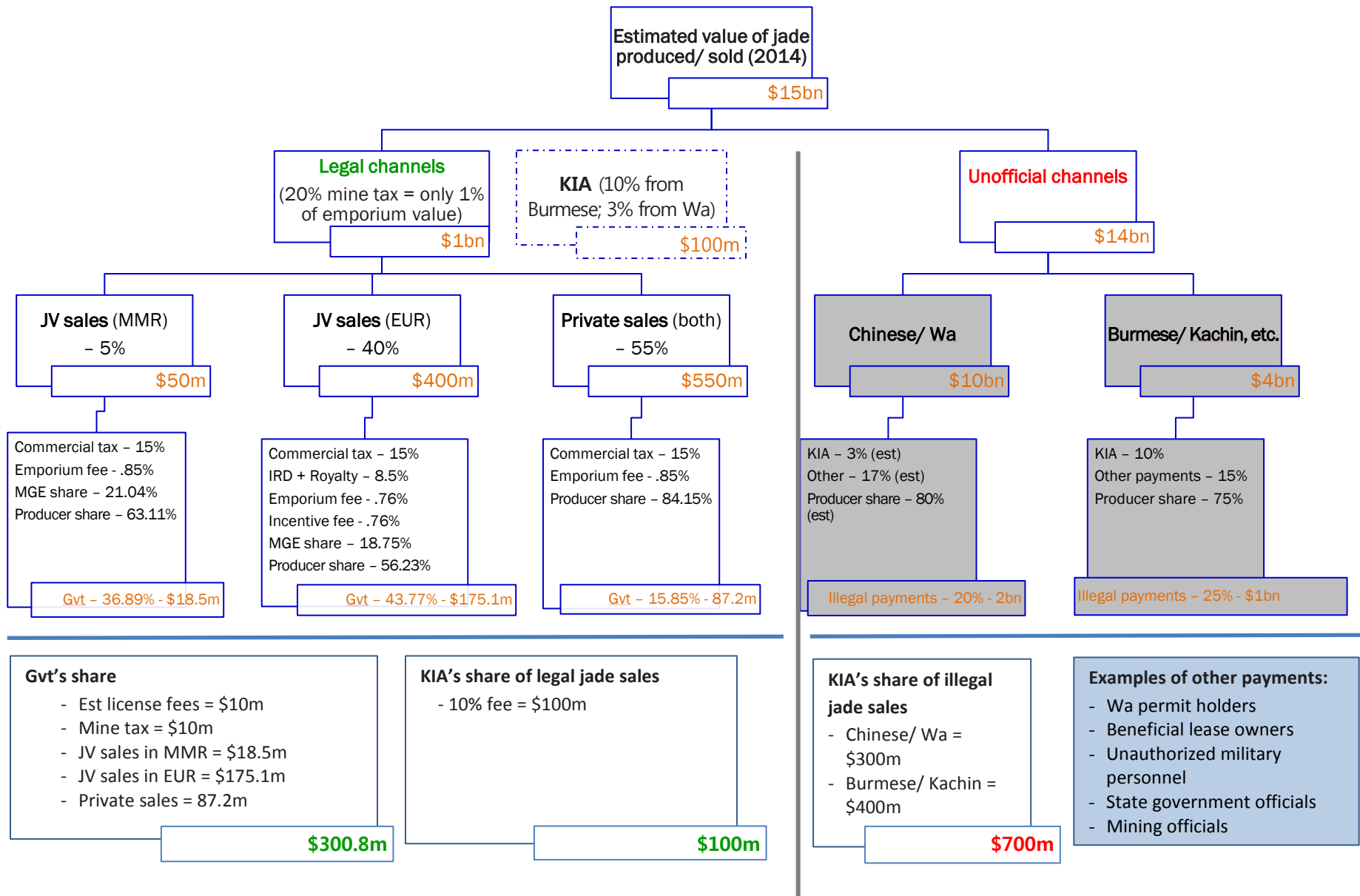
We were told that non-Wa ethnic or Burmese producers already paid a total of half of their sales in legal and informal taxes, fees and payments; Wa and Chinese producers paid somewhat less. Some payments are made to influential families but it is not clear how much. These payments are included in the large slices going to Wa/Chinese and “Other” producers.

⁷ Although precise data is not available for KIA payments, there seems to be general agreement that the KIA with fewer than a dozen “tax collector” employees obtain more payments from jade producers than the government does with over 1000 employees in Kachin State. Reportedly, the KIA have a network of informants who are paid for information on top grade jade finds – for that is where most of the value is. The tax collectors contact those who are identified and ask for a percentage of the value – and are willing to wait until the jade is sold. Producers have learned to comply since resistance is dangerous.

⁸ Production costs are hard to estimate, but a large producer can easily invest \$200 million in equipment, pumps, and permits with running costs of about \$1 million a week. If we depreciate the equipment over four years and allow for some downtime in normal operations, the total cost of a large operation is in the neighborhood of \$100 million annually. However, they will produce more than \$1 billion a year in jade and their costs as a fraction of output are less than 10%. If proper environmental remediation were done (it is not now), these costs would rise – as they would if underground mining became necessary.

The main lesson from the graph is that most jade revenues go to private hands and very little go to official taxes or payments – perhaps 3% of total sales, while some producers pay up to 15 times as much in total payments to informal and formal groups.

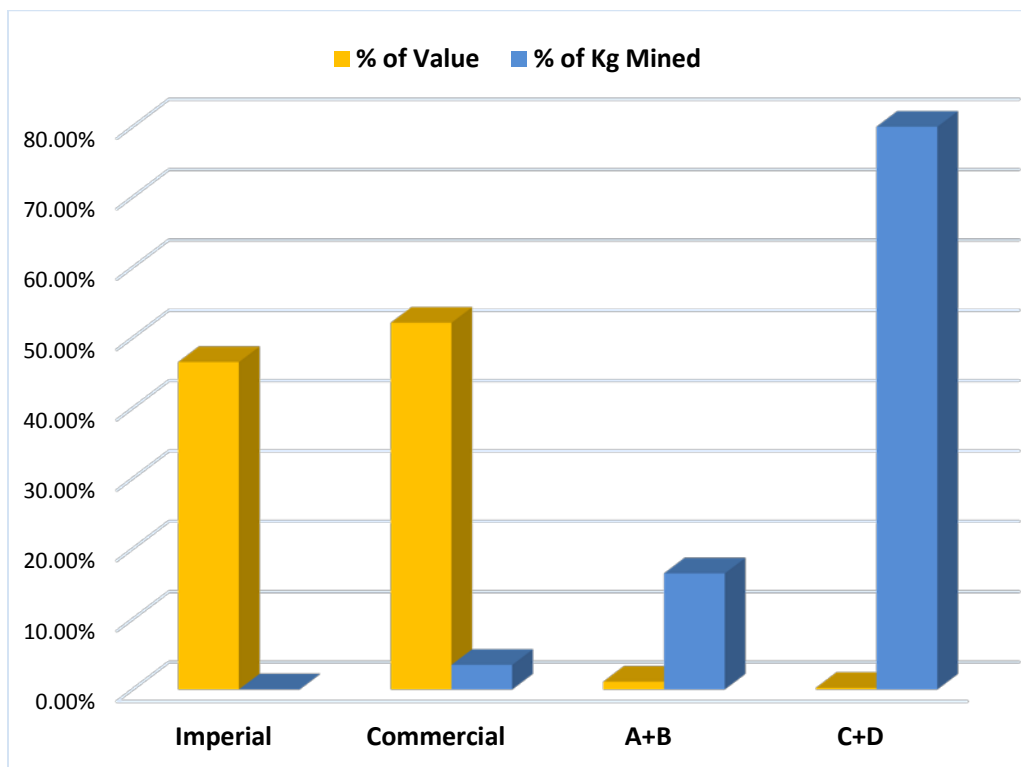
Appendix C: Possible Structure of Jade Business in 2016 (Provisional)



Appendix D: Illustrative Table of the Distribution of Jade Quality and Prices in 10,000 kg of Jade Mined

Quality	Kg. Mined	Price per Kilogram	Value	% of Value
Imperial	1	\$25,000,000	\$25,000,000	46.50%
Commercial	350	\$80,000	\$28,000,000	52.20%
A	650	\$800	\$520,000	1.00%
B	1000	\$75	\$75,000	0.10%
C	2000	\$30	\$60,000	0.10%
D and lower	5999	\$10	\$60,490	0.10%
ALL GRADES	10,000	not meaningful	\$53,715,490	100%

Notes: These are blended values based on several interviews with jade traders and mining experts. Any given deposit may differ from this illustrative average. Prices vary by large amounts, even within grades, as well as over time. One story told of a particular stone in China that rose by 100 times from 2000 to 2011 in terms of Chinese currency. A decline in value in kyat terms of more than 90% was reported from 2013 to 2016 within Myanmar. There is no easy way to establish precise values of jade stones since so many variables intrinsic to the stone, as well as to the external market conditions affect their worth.



Appendix E: Jade Mining in Burma and Myanmar, 1800-2016

Early History

Jade from what is now Kachin State in Myanmar was brought out into China in the 13th century, but a regular trade never developed due to insecurity, poor roads and malaria. By the later 1700's, this began to change, though mortality rates of Chinese traders were still high. By the early 1800's, the Burmese king became aware of the jade trade and the following 1888 history and description of the early jade industry by a western observer gives a sense of how the relations were between the Burmese and the Kachin in the early 1800's:

“Early in the present century [1800's] the Burmese Kings seem to have become aware of the importance of the jade trade and of the revenue which it might be made to yield them. In 1806, a Burmese Collectorate was established at the site of what is now the town of Mogaung, and a guard of some thirty Burmese troops under a Military Officer was regularly stationed at the mines during the working season to protect the trade and to maintain order. This force was always accompanied by the Amatgyi, or hereditary noble, of the Mogaung district, whose special duty was to control the hill-tribes. The principal Kachin Sawbwas [princes] were also in the habit of meeting the Burmese official in Mogaung and escorting him up to the mines, where they provided him with entertainment during his stay.

Mogaung now became the headquarters of the jade trade in Burma. Comparatively few Chinese actually went up to the mines; the Kachins themselves brought down most of the stone to Shuitunchun, a sandbank opposite Mogaung, where a large bazaar was held during the season. The Burmese Collector imposed no tax upon the stone until it was ready to leave Mogaung, when he levied an ad valorem duty of 33 per cent, and issued a permit which was examined by his deputy at Tapaw, one day's journey from Mogaung by river. After this the stone passed freely anywhere in Burma without further charge or inspection. The value of jade was determined for purposes of taxation by an official appraiser. This officer, however, by private arrangement with the traders and the Collector, estimated all stone about one-third of its real value. The actual duty paid was therefore small and business proceeded smoothly, cases of friction between the traders and the customs officers being of very rare occurrence. All payments were made in bar silver. The metal used was at first fairly pure, but it was soon debased by a large admixture of lead. Rupees did not come into general use until 1874.

Besides the duty leviable at Mogaung, the stone had to bear certain charges, authorized and unauthorized, at the mines and Namiakyaukseik (Nanyaseik), one day's journey from the mines: – (1) The Burmese officer at the mines imposed a monthly tax of 1 tael (about 4 annas) on everybody who came to trade; from this charge Burmans and actual workers in the mines were exempt; (2) a further sum of 2.5 taels (about 10 annas) was charged for a pass which was issued for each load of jade leaving the mines for Namiakyaukseik; (3) at Namiakyaukseik 4 taels (about a rupee) was paid on the arrival of every load to an agent of the Mogaung Collector permanently stationed there. Of these charges the Chinese regarded the first and third as legitimate, and the second as an unauthorized gratuity to the subordinates of the Mines Officer. All the above charges seem to have varied slightly from year to year.

The Kachins levied no toll on stones at the mines or proceeding down to Mogaung. Their rights appear to have been well understood and respected. They were regarded as the absolute owners of all the stone produced in their country. This ownership was never directly called in question by the King of Burma. As I shall point out below, the furthest length he went in this direction was to exclude all competition during the years when he bought jade from the Kachins. The Kachins on their side acknowledged the sovereignty of the King of Burma by admitting his officers to mines; by allowing them to purchase a certain quantity of stone for the King's use at a nominal price; and by acquiescing in certain charges imposed by those officers and in certain interferences at the mines, whereby the price of their stone was injuriously affected. I shall advert below to the rights of Kachin Sawbwas over their own people engaged in the jade-mining.

Under the system just described, the jade trade continued to flourish for many years. The period of its greatest prosperity is comprised within the years 1831–40, during which time at least 800 Chinese and 600 Shans were annually engaged in business or labour at the mines. All the stone was sent by one of the abovementioned routes to Yunnanfu, at this time the great emporium of the trade. The business there was mainly in the hands of Cantonese merchants, who bought the rough stone in large quantities and carried it back to be cut and polished at Canton.”

W.Warry, 1888

Quoted by Hertz, 1912

Burma Gazetteer: Myitkyina District

A description of the jade trade around 1900 was written by a British colonel

“There is a very large trade carried on in Jade between the Kachin owners of the mines and Chinese speculators. Jade is a green stone which is found in large blocks or slabs in the mines and in the bed of the Uyu river. The Chinese Jade licence-holder pays the Kachins for the mines and leases them out in sections. The speculators then dig in their sections and the Jade is taken out in large masses and carried by road first to Nanyaseik, and thence by boat to Kamaing, Morgaung [sic], and Bhamo. I have seen as many as 20 Shan Chinese coolies struggling along with a huge block of Jade, which was attached to long poles by ropes and carried shoulder high. The Jade is then taken to one of the agents of the licensee, who values it, say, at Rs.5,000. If the speculator is prepared to pay this sum he takes the Jade away with him to China, where after being cut – and the Chinese are, I believe, the only people who know how to cut Jade – it may be found to yield more than 100 per cent, or, perhaps, to be worth nothing at all.”

Colonel John Peile, "Trouble at the Mines" Times of London, 1893

Reprinted from Bulletin of the Friends of Jade, 1988

A further history and other details can be found at:

<http://www.ruby-sapphire.com/burma-jade-mines.htm>

Jade Mining and Markets After World War II

The period after World War II to about 1990 was marked by relatively low production and artisanal mining methods. In 1990-1992, official production was about 200 tons a year.⁹ As late as 1995-96, recorded production was less than 2,000 tons. After the Khin Nyunt ceasefires, there began an expansion – by 2000-01, production had jumped to 11,000 tons and to 20,000 tons by 2005-06, which is ten times the 1995 level.¹⁰ Increasing mechanization and a lack of constant conflict made this possible.

As production further increased to more than 40 thousand tons a year in 2010-2012, the capital requirements became an entry barrier for Kachin and even some Burmese jade producers. Increasingly, Wa and Chinese companies became predominant, helped in part by drug profits and bank loans from China. It was, however, not just capital barriers – the Wa had fewer alternatives places to put their money and therefore bet on jade production. They and the Chinese were willing to take risks. The local jade producers did not want to risk so much and thus withdrew to owning permits, scavenging, and putting their jade earnings mostly in other lines of business. They could not have foreseen the run-up in jade prices as China's economy grew. It may also be true that jade was seen as a good way for wealthy Chinese in China to invest and avoid the controlled interest rates in the Chinese banking system or the instability in the Chinese stock market and real estate. It was also relatively anonymous, which was helpful for money that wished to avoid legal attention or taxes. Prices in Chinese yuan rose 100 times from 2000 to 2011 for top grade jade with a quoted price for an unfinished stone at \$157 thousand per kg or 1 million yuan.¹¹ A jade necklace sold for \$27 million in 2014¹² and prices of top quality jade prices have held up in spite of high production, likely due to a combination of rising demand and stock piling.

Recent Developments¹³

Increased Output, Mechanization and Lack of Seasonality

Jade production, as noted above, has risen sharply from a few hundred tons a year in 1990 to more than 40,000 tons in 2010 and nearly 30,000 tons in 2015, as shown in the following graph. This increase in production has been marked by a huge increase in the scale of open pit mining. Jade mining had been done on a small scale using hand tools and dynamite. It is now done using huge excavators, bulldozers and trucks working day and night and year round, even in the rainy season. Driven partly by a fear of changing mining rules, the levelling of entire mountains and illegal dumping of huge piles of waste rock have created dangerous land slides and other environmental damage. Land slides have killed hundreds of people. A large mining operation can easily involve \$200 million in initial outlays and cost \$1 million a

⁹ Statistical Yearbook 1997, p. 161 for 1990-91 and 1991-92

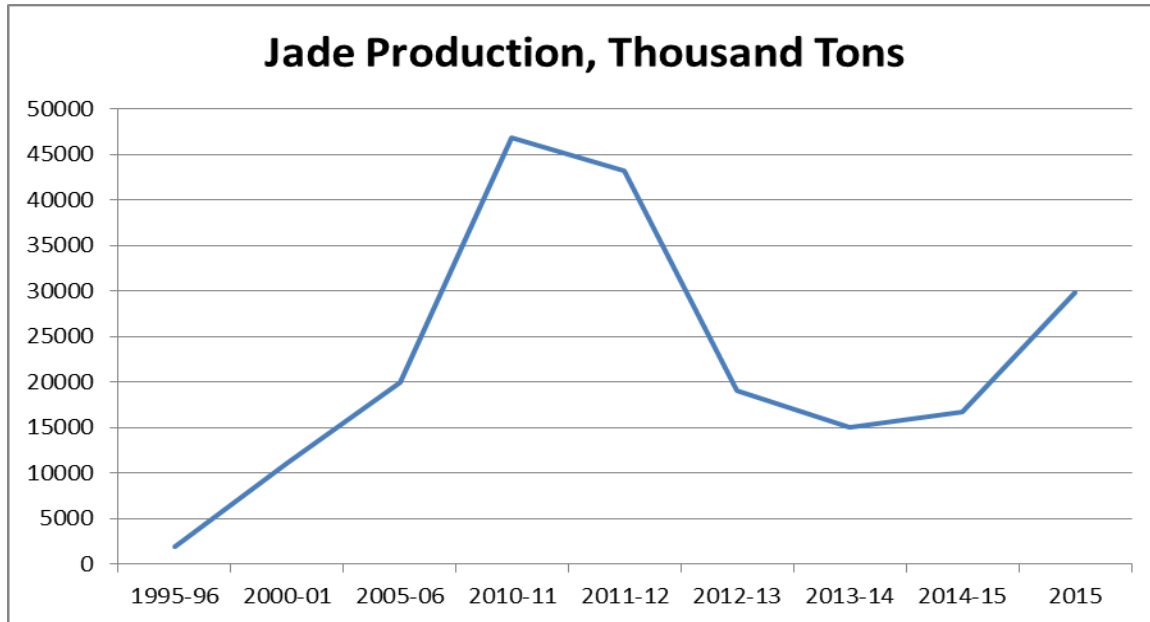
¹⁰ Statistical Yearbook 2008, p.165 for 1995-96, 2000-01 and 2005-06.

¹¹ http://www.chinadaily.com.cn/2011-11/30/content_14184678.htm

¹² <http://www.nytimes.com/2015/05/14/fashion/beyond-green-jade.html>

¹³ From Statistical Yearbooks and other official sources

week in labor, parts and diesel. However, the payoff can be many hundreds of millions of dollars a year of jade sales or even more.



Due to political uncertainty and also due to more capital and better technology (bigger excavators, bull dozers and trucks) and more pumping of water, the pace of mining has picked up in recent years. (Legal mining was shut down from 2012 to part of 2014.) Output more than doubled from 2005 to 2010. More recently, official reported jade production in 2014 was 12.75 million kg while 2015 production was nearly 30 million kg. In December 2014, jade output was less than half of that in December 2015. Such large increases in output have put pressure on lower quality jade prices but, reportedly, not so much at the highest grade levels. Jade mining is increasingly not a seasonal or daytime process, but year-round and 24/7. Total estimated employment in jade production and associated services runs to several hundred thousand workers.

Minimal jade processing takes place in Myanmar. Most processing is in China, as it has been for over a century. The main processing center is in Guangzhou and a lesser amount is in Yunnan, with perhaps 400 to 500 thousand workers in total. Given the level of stock piles and Myanmar's need for jade tax revenues, any attempt to lure investment into processing in Myanmar would need to focus more on cooperation with existing processors than forcing them through squeezing jade supplies. Rising labor costs in China are a push factor for moving processing into Myanmar, but training labor, forming a Myanmar producer's association, marketing, technology and capital are all issues to contend with.

Supply and Demand Issues

There are complicated cross currents for both supply and demand – much jade investment is financed by Chinese loans which are being squeezed – which could reduce future output. The anti-corruption drive in China could reduce demand for top quality jade, which was used to store and transfer wealth outside of the formal financial system. On the other hand, rising numbers of wealthy Chinese are buying more jade

for both financial and cultural purposes and that may continue, especially if housing and the stock market in China falter. If the price of the best jade began to fall sharply, it is unclear if this would tarnish its appeal as a form of wealth holding or attract buyers who would bet on a rebound in prices. Meanwhile, there is still a high level of extraction going on in Kachin State with little attention to environmental damages, and minimal taxes paid relative to the actual value of jade produced and sold.

It has been suggested by some in Kachin State that closing the jade mines entirely for a period of time may be a good first step to gaining control of the mining and initial trade, which is now loosely regulated. If this were done, it would have negative employment implications for hundreds of thousands of workers in Hpakant, and any positive impact would depend on the policies and follow-up steps taken to introduce meaningful controls – or even just enforcing existing laws. As it is, the new government is not renewing leases as they expire and almost all legal mining will cease by the end of 2018. Scavenging of waste piles is hard to control and would likely continue without a major military or government effort. Under the revised 2015 mining law, the central government administers large and medium plot rights while Kachin State controls the small and scavenger plots.

Amount of Jade left in Kachin State

A natural question is how long jade deposits in Kachin State will last. There are two types of jade deposits, primary and secondary. Most current jade mining is open pit and this recovers secondary jade, about 2/3 of which has already been mined. Relatively little primary jade has been mined because it is in mountains and requires tunneling. There are reportedly large estimated amounts of primary jade still in Kachin State. It should be easier to control access and taxing of jade which can only exit from a mine mouth tunnel. Environmental impacts are also likely to be reduced compared to the open pit mines. An evaluation of the environmental impact of open pit mines is planned and if it requires more careful disposal of waste rock, it would modestly increase mining costs. Tunneling costs are higher in general than open pit mining costs, but since extraction costs are low (less than 10% of value at present), this will not be a major problem.

Concluding Comments

Formulating future jade policy is difficult. Major producers are secretive and have little incentive to cooperate, unless they are faced with an expiration of leases and no renewal without reform. Many producer/traders benefit from the present relatively light taxation of smuggled jade and do not want the system to change. Those who get payments on the side, including the KIA, will be reluctant to lose their revenues. Identifying the sources of honest knowledge inside and outside of the Ministry of Mines (these sources exist, even if they are often ignored), and working with them and producers, will be necessary to work out procedures and techniques for ensuring legal and reasonable taxation¹⁴ of jade production.

¹⁴ Focusing on taxing top quality jade would allow “unlucky” producers with little high quality jade to avoid heavy taxation. If there is a wide ranging agreement among the military, KIA, NLD and large producers (about ten Wa/Chinese owners control multiple companies and most production) about how to tax the jade industry, the KIA’s techniques for distinguishing highly profitable mines from average ones may be worth studying.