

ESG Risk Management

Recommendations for the AIIB

The AIIB has become a flashpoint for two conflicting views of ESG risk management: one prioritizing speed of implementation, the other effectiveness of protection. This paper shows that this is a false choice.

Engaging local populations as a counterparty offers a way to identify and manage a diverse range of ESG risks. Our analysis of hydropower and mining projects indicates that this approach can provide an efficient means of taking material risk off the table.

The final section of this paper details the design process for a system capable of facilitating local engagement, in part through technology. We hope that these proposed solutions prove useful to the AIIB and similar institutions struggling with ESG challenges.

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Foreword

This paper proposes a new approach to managing environmental, social and governance risks (ESG) within the Asian Infrastructure and Investment Bank (AIIB).

One cannot understand the AIIB without realizing how poorly international institutions like the World Bank, International Monetary Fund (IMF) and Asian Development Bank (ADB) align with Chinese interests – that is, the interests of the world's most populous nation and its second-largest economy.

The Chinese have a voting share in the World Bank that bears little relationship to their economic importance. When China asks the IMF to help address Asia's infrastructure gap, it finds the Fund preoccupied with helping the Eurozone nations bail out German banks who have lent to Greece. At the ADB, they must accept that Japan retains a permanent hold on the institution's presidency.

These institutions' ongoing failure to invest in Asian infrastructure will have an impact on the Chinese economy. China's forward-looking economic performance requires that places like Laos, Myanmar, Pakistan and Indonesia develop, not just as providers of raw materials for Chinese manufacturing, but also, sources of demand for Chinese goods. We therefore presume that the AIIB was born of the realization that, if China cannot influence the World Bank or Asian Development Bank to build the infrastructure its neighbors need, the only choice is an alternative.

Western countries such as Germany, France and the United Kingdom made a courageous decision to buck American opposition to the AIIB and join the project. But they did so with some reservation, which is that they are afraid the AIIB will make the rest of Asia look like China. They are worried that economic prosperity will be gained at the cost of irreversible environmental, social and political damage.

This is not a specious concern: China's model of economic growth has long favored implementation over environmental protection, transparency, minority rights and other similar issues. The longstanding position of the Chinese is that their trajectory of economic development is little different than that followed by the West more than a century ago. Look at the Ruhr Valley or Pittsburgh or Liverpool in the early 1900s, they say, and you will see the same problems you see in Guangzhou or Harbin today – and in regimes with similar corruption issues.

This is undeniably true. The difference is that those problems happened in a world where carbon emissions had not risen to the point they are today, largely because the planet's population is roughly five billion people larger than it was in 1900. This means less margin for environmental error and a far greater propensity for disruption of social cohesion. And so, the AIIB will have to adjust and innovate.

The following thoughts and analysis offer our view of why, how and when this might happen in practice.

1. Speed vs. Effectiveness: A False Choice

From four-hour traffic jams in Jakarta and Manila to the fact that 69% of Cambodians lack access to electricity¹, everyday Asian citizens suffer from a wide range of infrastructure problems. Addressing these issues is priority for economic development^{2,3} but it is also a necessary condition of Asian nations meeting Sustainable Development Goals (SDGs)⁴.

It is therefore laudable that the Chinese government has staked its international prestige on the creation of the Asian Infrastructure Investment Bank. If successful, the AIIB will spur regional development and cohesion while improving livelihoods and protecting the natural environment.

Some have fretted about whether the new institution will create a “race to the bottom” in which environmental, social and governance (ESG) standards are discarded in the interest of accelerating investment. These concerns often seem hopelessly naïve to those who live in places where this infrastructure is needed. And so, there is an increasingly divided view on the role ESG will play in the AIIB’s policies.

Divided, except for one point of agreement: both parties seem to think that ESG considerations slow down the implementation process. Where land-based projects are concerned, we disagree with that assumption because:

1. Site-specific ESG problems are easier to identify than most believe.

Quantitative data and case evidence support the view that a cross-cutting factor – how a project engages with local populations – can be used as a “one-stop shop” for identifying a wide range of ESG issues.

2. This approach can improve siting decisions and speed up implementation.

A thorough analysis of examples from hydropower and mining in Asia shows that proper engagement with local populations would greatly reduce the dangers and delays faced by infrastructure projects.

3. This is increasingly possible because of technology.

Whereas this approach would not have been feasible a decade ago, improvements in communications and satellite technology make it possible to engage local populations at scale, identify risks, and allocate capital, management bandwidth and ground-level human resources accordingly.

¹ <http://data.worldbank.org/indicator/EG.ELC.ACCS.ZS>

² International Monetary Fund. Infrastructure and Income Distribution in ASEAN-5: What are the Links? 2013 Available at: <https://www.imf.org/external/pubs/ft/wp/2013/wp1341.pdf> - see Appendix for further detail

³ This is well illustrated by China’s remarkable economic success, which has been built on investing more in infrastructure than all other developing countries combined (Bhattacharya Oppenheim & Stern (2015), *Driving Sustainable Development Through Better Infrastructure: Key Elements of a Transformation Program*, Brookings)

⁴ Asian Development Bank Institute. Financing Asia Infrastructure: Modes of Development and Integration of Asian Financial Markets. ADBI Working Papers N.229, July 2010. Available at: <http://www.adb.org/sites/default/files/publication/156084/adbi-wp229.pdf>

The subsequent pages offer data in support of this view. In doing so, we are mindful of the difficulties associated with standards, policies and procedures in other multilateral development banks (MDBs). According to Bhattacharya et al:

[T]he principal reasons that MDBs are not fulfilling their potential as intermediaries and facilitators of infrastructure investment appear to be more endogenous in nature: procedures and requirements are overly cumbersome, leading to costly and lengthy project approvals... While MDBs need to adjust their business model to be more cost effective, they cannot simply go back to old practices of business-as-usual infrastructure.⁵

In other words, long and detailed standards that rely on traditional monitoring and reporting techniques are extremely hard to apply⁶. Unfortunately, the state of the art leaves multilateral development banks (the AIIB included) with a choice of either pretending to adhere to standards that everyone in their investment team knows are not workable, or disregarding consideration of ESG issues – which works against the overall objective of improving people’s lives.

The World Commission on Dams (WCD) report⁷ is a good example of this dynamic. The WCD is a superb, exhaustive piece of work that provides the most comprehensive set of guidelines for hydropower development⁸. Yet according to industry experts, these guidelines are practically impossible to use, since their strict application “would virtually preclude the construction of any dam”.⁹

In response, industry players have therefore attempted to replace the WCD with the much-diluted Hydropower Sustainability Assessment Protocol (HSPA). This framework suffers from a different problem: it provides little effective guidance on to manage ESG risk effectively.¹⁰

The creation of a new institution like the AIIB offers an opportunity to break out of this dynamic. As suggested below, local populations as a counterparty¹¹ in any investment would break the

⁵ Bhattacharya Oppenheim & Stern (2015), *Driving Sustainable Development Through Better Infrastructure: Key Elements of a Transformation Program*, Brookings

⁶ The World Bank reached a similar conclusion. See The World Bank. Comparative review of Multilateral Development Bank Safeguard Systems. May, 2015. Available at: https://consultations.worldbank.org/Data/hub/files/consultation-template/review-and-update-world-bank-safeguard-policies/en/phases/mdb_safeguard_comparison_main_report_and_annexes_may_2015.pdf

⁷ World Commission on Dams, *Dams and Development: A new framework for decision-making* (London: Earthscan, 2000) Available at: http://www.unep.org/dams/WCD/report/WCD_DAMS%20report.pdf

⁸ Skinner, J; Haas, L. Watered down? A review of social and environmental safeguards for large dam projects. IIED Natural Resource Issues, 2014. Available at: <http://pubs.iied.org/pdfs/17517IIED.pdf>

⁹ The World Bank. Water Resources Sector Strategy: Strategic Directions for World Bank Engagement. 2004. Available at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2004/03/10/000090341_20040310154948/Rendered/PDF/281140PAPER0Water0Resources.pdf

¹⁰ International Rivers. Greenwashing Dams: A Critique of the Hydropower Sustainability Assessment Protocol (HSAP). Available at: <http://www.internationalrivers.org/files/attached-files/hsapfactsheet2013.pdf>

¹¹ Investopedia defines a counterparty as (author’s emphasis): “The other party that participates in a financial transaction. Every transaction must have a counterparty in order for the transaction to go through. More specifically, every buyer of an asset must be paired up with a seller that is willing to sell and vice versa.” (<http://www.investopedia.com/terms/c/counterparty.asp>) Effective and reliable deals explicitly and specifically negotiate a counterparty’s rights and obligations under every conceivable scenario. But in most jurisdictions counterparties are also protected by the law.

mold in a positive way. While it might seem more expensive in theory, evidence supports the view that it is the most efficient approach – particularly for large projects with long lifespans – and will ultimately prove the quickest and cheapest way for the AIIB to get results.

2. Local Opposition: A Key to the ESG Nexus

In many jurisdictions local people are a better guide than the law: they are likely to be far more attentive than regulators or officials to ESG impacts, for the simple reason that those impacts happen in their own backyards and they are the ones that must deal with their consequences. If a multilateral development bank wants to identify the key social and environmental concerns, and how they are prioritized, it makes sense to ask those who are likely to be affected.

In land-based investments, local opposition is the medium through which most ESG risks become material impacts. Water contamination becomes a problem when local people protest by blocking roads to the project; ineffective benefit sharing policies become expensive when local communities invade the site and damage equipment; biodiversity loss begins to cost when locals launch a law suit or lobby politicians.

This view is supported by an examination of 172 case studies (64 from hydropower and 108 from mining) involving local opposition to infrastructure. We found that local people were motivated by issues such as displacement¹², environmental destruction¹³, project-induced natural resource scarcity¹⁴, cultural offense¹⁵ and inadequacies in compensation packages¹⁶.

A wide range of social and environmental issues are translated into operational risk through the medium of local opposition (see Figure 1 below).

Contrary to the common view – indeed, we thought this before our own examination of the evidence! – these problems are not simply about negotiating terms and paying off local populations for their agreement.

In fact, just 2% of cases were driven by primarily by compensation, and compensation only factored as a primary or secondary driver in 11% of cases. This suggests that the only way to reduce the likelihood of dispute and delay is to engage directly with the diverse interests of the local population.

¹² In this paper “displacement” primarily refers to physical displacement i.e. actual relocation or loss of shelter. Cases involving economic displacement generally fall in the shortage of resources category

¹³ This refers to damage to the natural environment and ecosystem services, particularly related to water, soil contamination, major land use change or biodiversity loss

¹⁴ “Shortage of resources” refers to curtailed access to subsistence services like food and water

¹⁵ Any situation where there is a clear lack of respect. Typical examples include building on sacred sites and failing to recognize customary authorities

¹⁶ One of the more straightforward drivers, this generally relates to providing sufficient compensation, but that compensation must also be delivered in a timely and convenient manner

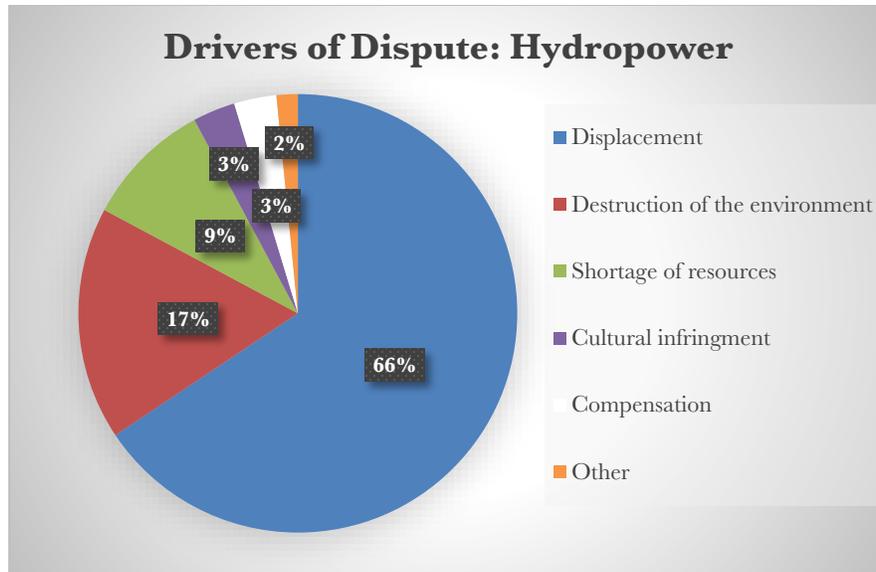


Figure 1: Primary drivers of dispute - Hydropower

It is abundantly clear that these interests vary widely. For example, large number of disputes in the hydropower sector were driven primarily by environmental impacts (17%), and in particular damage to ecosystems services around fishing economies. Others were driven by reductions in the availability of basic services, such as the supply of fresh water or the availability of sufficient food (9%). Still others were driven by cultural abuse.

We see similar drivers but different patterns in the mining sector, which substantiates the supposition that ESG risks are sector as well as context specific (see Figure 2 below).

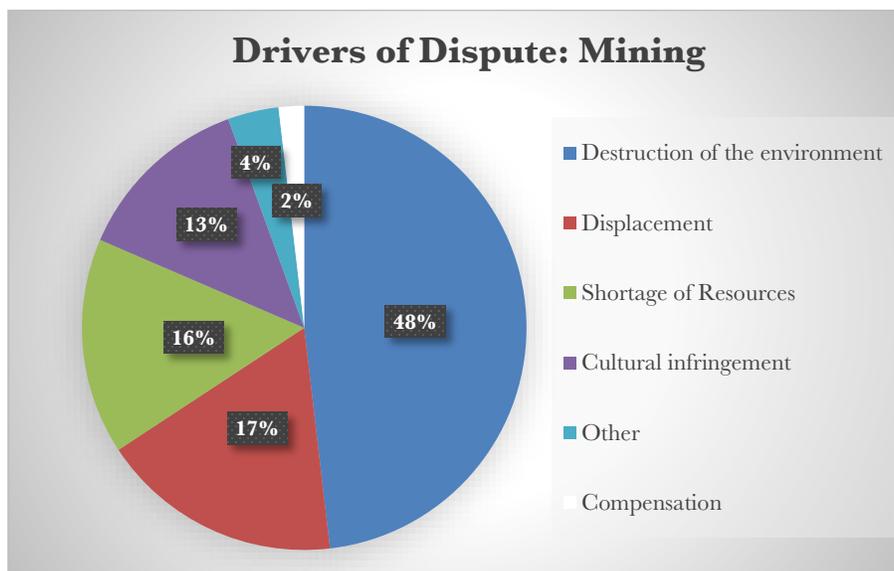


Figure 2: Primary drivers of dispute - Mining

This potpourri of ESG drivers becomes even more complex when we consider the factors that have contributed to the primary drivers. The results of our “secondary driver” analysis for hydropower are provided in Figure 3 below:

Secondary Drivers of Dispute: Hydropower

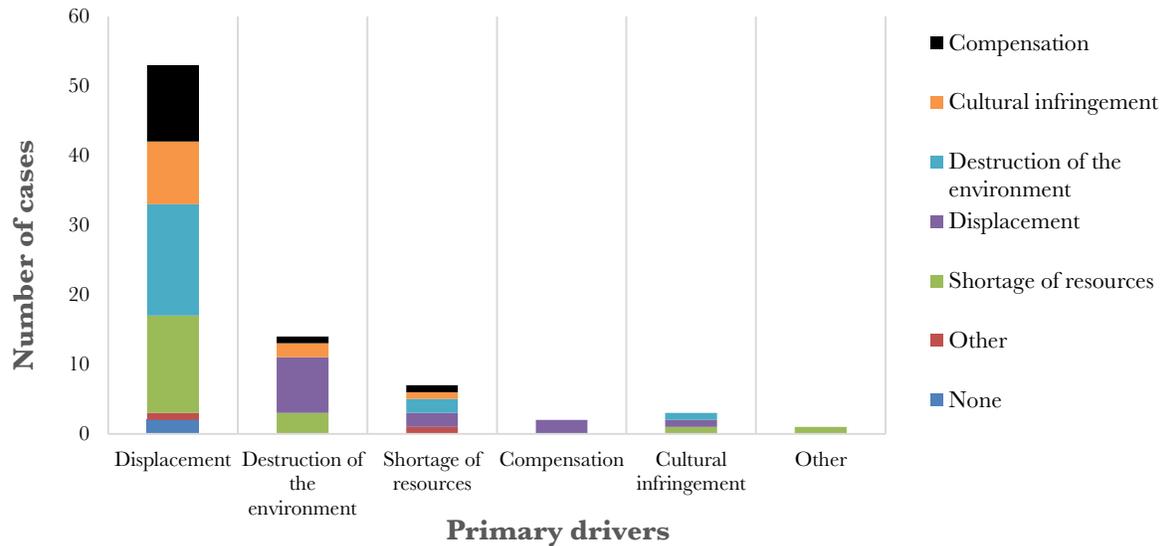


Figure 3: Contributing factors to disputes over hydropower projects

In other words, a significant number of ESG risks can be managed by gaining informed local consent for a project’s environmental impacts. Further, it also suggests the need for consultation on investments that are designed to reduce environmental impact and protect surrounding biodiversity, particularly in water management.

Our analysis suggests that the majority (66%) of disputes in the hydropower sector are driven by displacement. Further investigation of these cases indicates that many of these disputes could have been avoided if the developers had eschewed physical displacement (which would tend to support a view against large-reservoir dams and in favor of run-of-the-river systems), provided fair compensation or paid greater attention to environmental protection.

In the mining sector we can also identify a dominant driver: environmental destruction accounts for 48% of cases. In particular we noticed that water contamination and damage to locally important ecosystem services provoked determined and sometimes violent local opposition.

Minorities and Indigenous Peoples

There is a disproportionate amount of dispute in areas where minorities or indigenous peoples are present. Minority groups were involved in a significant majority of cases: 71% for hydropower and 52% for mining.¹⁷ This is a remarkable finding which strongly endorses policies that recognize and protect the interests of minority groups.

To be clear, land investments affect a wide range of constituencies – most of these cases involving minorities also involved a heterogeneous mix of the local population. So while tenure is not a minority issue, it is evident that minority groups are often more closely tied to the land, both

¹⁷ In a separate analysis of 90 agriculture projects we found that 71% involved minorities.

economically and culturally, than many other demographic groups¹⁸. This makes it more likely that they will oppose land-based investments, which is why evidence shows the tendency to denigrate or ignore minority interests - based on longstanding conflict between these groups and host governments - contributes significantly to the high likelihood of dispute.¹⁹

The fact that it is harder – or is seen as harder – to engage these groups as counterparties appears to have a close connection to project risk exposure. These findings provide quantitative and material rationale for processes that seek to negotiate directly with the diverse interests of local groups as a means of identifying ESG issues.

¹⁸ Minority Rights Group International. State of the World's Minorities and Indigenous Peoples 2015: Events of 2014. MRG, July 2015. Available at http://www.minorityrights.org/13061/attachments/_MRG-state-of-the-worlds-minorities-2015-FULL-TEXT.pdf

¹⁹ See, for example, the experience of the Mapuche in Chile: <http://www.unesco.org/library/PDF/MRG.pdf>

3. Engaging Local Opposition: Material Benefits

Geospatial analysis indicates that 93-99% of concession areas are inhabited.²⁰ So it is not just likely but almost certain that land-based investors will have to negotiate with local interests to reach a mutually acceptable arrangement on social and environmental performance. In doing so, it is important to understand that legal structures have surprisingly little bearing on this issue, at least from a purely operational point of view.

On the contrary, the legal standing of the local population's claim to govern the management of social and environmental resources is not particularly significant. What matters is that these people may deploy a range of tactics – from direct action to lawsuits – to influence social and environmental performance, using or ignoring the law as it suits their purposes. Therefore, performing legal diligence does not handle the issues we describe here.²¹

Our analysis of 172 cases (64 from hydropower and 108 from mining) confirms the fact that these disputes are often materially significant. The results of this analysis are provided below along with very brief descriptions of some specific events. These anecdotes further demonstrate that such disputes can have far-reaching impacts on financial performance and local stability – both topics of great interest to the AIIB.

To give some sense of how this changes by sector, the following two sections discuss how ESG risks are manifest via local opposition in hydropower and mining.

Risk Profile: Hydropower

Hydropower is exactly the kind of investment we hope the AIIB will promote. This is because of its unique ability to provide low carbon baseload energy at scale²², and the fact that there is no viable alternative to meet Asia's skyrocketing demand²³ (largely because the only possible alternative for baseload power – nuclear – is unviable).²⁴

But, for all its advantages, hydropower can have severe and deleterious ESG impacts at the local level, ranging from mass displacement to collapse of ecosystem services. These impacts are, for example, at the center of controversy over the Nam Thuen 2 project in Laos.²⁵

²⁰ The Munden Project. Communities as Counterparties: Preliminary review of concessions and conflict in emerging and frontier market concessions. October 2014. Available at: http://www.rightsandresources.org/wp-content/uploads/Communities-as-Counterparties-FINAL_Oct-21.pdf

²¹ This is not to say that laws and regulations (as well as reform thereof) do not matter, but rather, that one cannot assume that legal diligence is sufficient

²² International Energy Agency. Technology Roadmap: Hydropower. OECD/IEA, 2012. Available at: https://www.iea.org/publications/freepublications/publication/2012_Hydropower_Roadmap.pdf

²³ Energy demand in the Asia Pacific Region is projected to double by 2030 (<http://www.adb.org/sectors/energy/main>); similarly the IEA estimates that energy demand in Southeast Asia will grow by 83% between 2011 and 2035 (IEA (2013), *Southeast Asia Energy Outlook*, OECD)

²⁴ <http://www.world-nuclear.org/info/Country-Profiles/Others/Asia-s-Nuclear-Energy-Growth/>

²⁵ http://www.internationalrivers.org/files/attached-files/nt2_factsheet_dec10.pdf

And they are not isolated: we analyzed 64 cases of land and resource-related dispute over hydropower in 31 countries, almost half of which (48%) were in Asia. Our key finding was that disputes with local populations have caused materially significant problems²⁶ in 63% of cases.

These disputes have caused delays of decades for MDB funded projects. The Sardar Sarovar dam in India provides a particularly illustrative example. The World Bank backed this Indian dam in 1985, in contravention of its own standards, but was forced to pull out in 1993 after prolonged disputes between the developers and local population. To this date, the dam has yet to be completed despite consistent and high level political backing.

Disputes over hydropower can have also have far reaching effects, contributing to national and even regional instability. For example, the Myitsone dam in Myanmar – a joint venture between the Chinese Power Investment Corporation, CPI (80% shares), Ministry of Electric Power (15%), and Asia World Company (5%) – has aggravated relations between the national government and Kachin rebels.

In each of these cases, more effective engagement with local people could have significantly reduced financial loss while also delivering much improved ESG outcomes.

Risk Profile: Mining

The destabilizing effects of disputes over ESG performance are not restricted to hydropower. Although the AIIB will not (to our knowledge) finance mining projects, we think the experience of the sector is important for two reasons:

1. Unlike other sectors, mining is tied to very specific locations because their economic model requires that they place their site in close proximity to a viable orebody.
2. As a result, they probably have more experience of dealing with local opposition than any other.

In our analysis of 108 mining projects across 29 countries we found that disputes with local populations created materially significant problems in 76% of cases. Some of these cases also involved disputes over the construction of supporting infrastructure, from hydropower to new roads to ports.

Like hydropower investments, mining projects can become highly politicized. They can even drive public sentiment at a national level, creating considerable antipathy towards the host financier. China has direct experience of this from Wenbao's Letpadaung Copper Mine in Myanmar, where conflict erupted when Buddhist-led protests were crushed brutally by security forces, inciting widespread anger against Chinese investments in Myanmar.²⁷

As with hydropower, mining projects can appear to create a perfect storm of ESG problems. But again, local opposition is generally the eye of this storm. Engaging local counterparties in regular dialogue provides a way to navigate this complex weave of overlapping issues. But it also provides

²⁶ Situations where valuable property or equipment is damaged or destroyed by arson and violent invasion; interruptions lasting 5 days or more; and fines above US\$500,000

²⁷ <http://www.justicetrust.net/wordpress/>; <http://www.irrawaddy.org/burma/tensions-high-letpadaung-mine-police-gather-protest-camps.html>

a means of generating a reputation for responsible action which can pay dividends for the next project.

Other Sectors

The patterns described for hydropower and mining are prevalent across major land use sectors like forestry and transportation infrastructure. We will complete comparable quantitative analysis for these sectors by the end of 2015, but anecdotal evidence is widely available.

For example, the Cambodian Railway Rehabilitation Project, which was funded by the ADB, OPEC and the Australian Government, faced considerable problems thanks to inadequacies in its resettlement policy.²⁸ The initiative was cancelled in 2014 with 300 of 625 KM of track still to be laid.^{29,30}

In Mindanao mining and forestry activities have contributed to local radicalization among a number of demographic groups, particularly the Muslim separatist population. But indigenous people are also being militarized. The Talaingod Manobo tribe, who have taken up arms in the Pantaron Mountain Range following deforestation by timber company Alsons, provide just one example of this phenomenon.³¹

The AIIB will have to address the issue of local opposition head on if it is to manage a range of ESG risks. This in turn is vital if the AIIB is to deployment capital with the speed and efficiency that will be necessary to stimulate and nurture regional economic development.

Rising Risk

Moreover, these kinds of risks are increasing, primarily because investments in major land use projects are being pushed to more challenging locations. In parallel, the penetration of mobile phones means that individuals and communities that feel aggrieved can express that grievance to a broad and often sympathetic audience (see Figure 4 below).

At the same time, investments are being pushed to more challenging geographies where project developers come into contact with vulnerable groups and minorities groups. According to a First People's Review, 50% of future oil and gas production and almost 80% of future mining by US extractive companies will take place on land claimed by indigenous people.³² Given the important role played by minorities and indigenous peoples in many of the disputes we analyzed, this should make the AIIB even more attentive to the problem of how those local populations are treated.

²⁸ <http://www.opendevelopmentcambodia.net/briefing/cambodias-railway-system/>; <http://www.theguardian.com/global-development/poverty-matters/2014/mar/03/asian-development-bank-failing-protect-poor-vulnerable>

²⁹ <https://www.cambodiadaily.com/archives/national-rail-project-on-hold-indefinitely-51323/>

³⁰ Another example is provided by the BNDES-funded TIPNIS road project in Bolivia, which became the focus of a national movement that placed pressure on, and eventually enlisted, the previously-supportive President Morales. Ultimately the project was cancelled with considerable fallout for Brazilian-Bolivian relations

³¹ <http://www.rappler.com/move-ph/ispeak/58751-endangered-virgin-forests-threatened-indigenous-peoples-mindanao>

³² <http://firstpeoples.org/wp/the-missing-risk-how-indigenous-peoples-can-make-or-break-your-portfolio/>

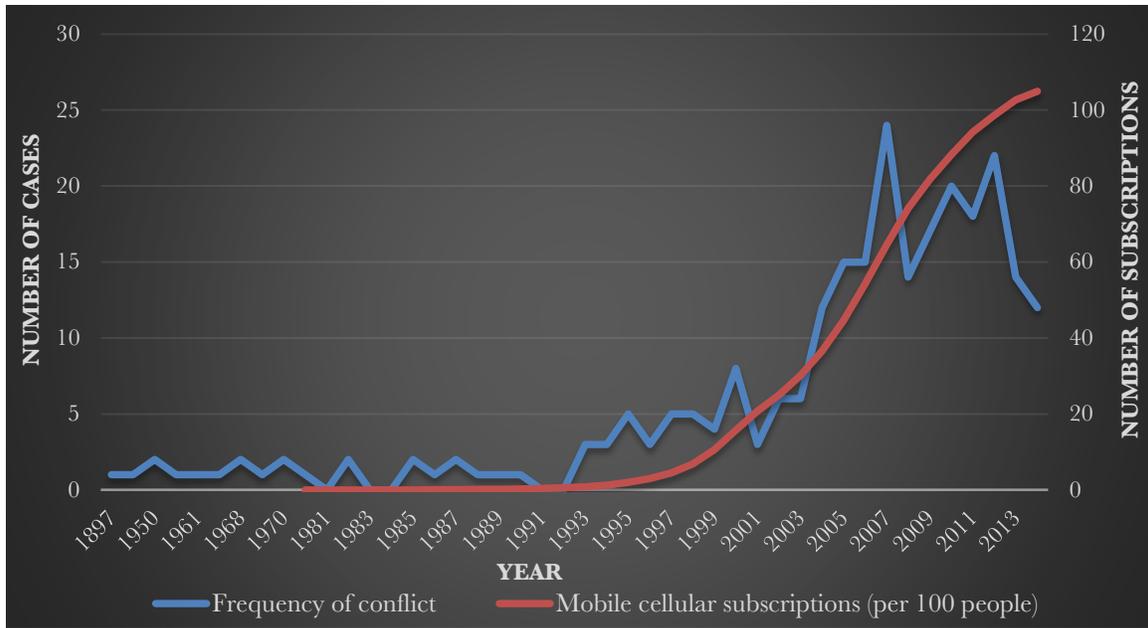


Figure 4: The relationship between rising risk and increasing transparency

4. Engaging Local Opposition: Process and Technology

If we accept the argument that local populations constitute a good lens through which to view ESG problems, and we also believe – as the evidence suggests – that failure to engage with those populations poses a significant risk to the smooth launch and operation of the project, we have only told half the story.

The other half is that the AIIB is in a very unique position to use this information in developing a different, better approach for its land-based investments. We estimate that such an approach would be feasible to develop and implement within roughly nine months, by taking the following steps:

1. Assembling human infrastructure

Many of the specialists needed for the design, development and implementation of the approach are familiar features of MDBs. For example, environmental scientists, country experts, statisticians, auditors etc. The main difference for the AIIB will be a much higher number of community engagement specialists.

Institutional infrastructure can be constructed according to conventional precepts: a diverse and dynamic secretariat will be required to review and amend the approach; an ombudsman will be needed to arbitrate stubborn disputes; and a large research and development department will be needed on an ongoing basis.

But some relatively unusual skills will also be required. The AIIB will need to recruit teams of data managers, hardware developers and software designers to establish the technological infrastructure demanded by a cost-effective approach based on local engagement. This will likely require the development of new recruitment processes and standards.

2. Assembling technological infrastructure

The technology experts described above will work with other relevant specialists to design, test and deploy assessment, monitoring and reporting processes.

The AIIB should concentrate on using existing data and data collection technology to engage local populations in the delivery rich and consistent data streams over the entire period of an investment (see below for further detail). Common data protocols and compatible hardware can lay the foundations for an ever-growing and easy-to-analyze database covering a whole range of environmental, social and governance concerns.

One of the most attractive aspects of this approach is that, once established, this data collection and analysis architecture is relatively self-sustaining. The AIIB will not require an army of expensive experts during operations.

3. Developing a template for local engagement

Using the human and technological capacities outlined above the AIIB can develop a generic, step-by-step model for implementing local engagement. TMP Systems has been working on tools to facilitate such a model, details of which can be found in Appendix I. Our investigation suggests that a successful approach will:

- a) Establish a methodology for site selection

- b) Identify key constituencies, their differences and the way that they are represented
- b) Identify the claims to land and natural resources
- c) Establish lines of communication that allow local people to provide their opinion and state their grievances quickly, easily and reliably
- d) Account for disparities in enforcement capacity between countries and locales through proactive allocation and procurement of diligence resources
- e) Establish procurement standards, particularly for hard-to-find experts

4. Pilot

The aim of the pilot should be to establish the feasibility of the process described above through application to a few test cases. This sample must cover a range of geographies, sectors and likely users.

The larger the sample and the more transparent the documentation of the process, the more persuasive and useful its results can be. These results should be released as a public databank to maximize credibility.

5. Final Consultation

The results of the pilot should feed into a consultation process designed to forge a consensus over the validity of an approach based on local engagement. The major sticking point here is likely to be agreement over instances in which the “public good” overrides local sentiment.

The AIIB can avoid a protracted dispute here by establishing a very clear definition of the concept of “public good”. This should reassure stakeholders concerned with the reliability of social and environmental protection afforded by this approach.

Thanks to its inherent flexibility the approach can be implemented as soon as the final consultation is complete. And by collecting and analyzing large amounts of standardized data for each of the projects it invests in, the AIIB can improve and refine the approach over time.

Technology to Identify Risk

One of the major reasons we feel that an approach anchored by local engagement process is advisable and possible is that technological improvements have enhanced our ability to identify the risk posed by local opposition in two key ways:

- 1) It has improved our capacity to collect and interrogate quantitative data;
- 2) It enables regular two-way communication with local people, even in remote areas

Gathering quantitative data through remote sensing technologies is considerably cheaper than traditional methods. It can also be more accurate over a much longer time series. This allows us to build and utilize detailed geospatial databases that can then be analyzed using the lessons of big data.

By “detailed”, we mean that it is now possible to develop global databases populated by areas as small as 30 square meters or less.³³ Substantial amounts of information can be inferred from this data, on issues that include the presence of people, access to water, vulnerability of local ecosystems and the pursuit of illegal activities.³⁴ In the future, with the launch of near-earth orbiting satellites, remote sensing will only become more powerful, enabling considerable scrutiny of areas of just a couple of square meters.³⁵

Furthermore, these databases can be supplemented with qualitative data gathered through mobile devices. The penetration of mobile communications can allow investors and operators to conduct low cost surveys or construct easily accessible grievance mechanisms. Smart devices allow for the creation of rich data streams that are updated regularly.

Specifically, it is possible to link smart devices to sensors which can take detailed samples of, for example, water or soil quality, multiple times a second over a period of months or years. Similarly, app-based surveys produce standardized, comparable data that can include GPS tagged videos and pictures.

We expect the main constraint on this kind of data collection – that is, the ability to transfer high bandwidth data cheaply – to erode over time as communications networks and methods improve. These technologies can provide a far clearer picture of local perceptions and (we believe) key ESG risks at a far lower cost than traditional models of field data collection.

Importantly, this approach does not require the AIIB to make massive technology investments or new innovations in hardware or software development. Simply engaging with current, widely understood and used technologies to improve data collection will be sufficient to make the diligence process quicker, easier and more reliable – so long as those technologies are informed by the right designs and target the right kind of data to capture.

This is consistent with the AIIB’s mission to reduce overhead and would effectively leverage large information technology talent pools in key Asian countries from Shanghai to Hyderabad.

AIIB Leadership

According to current estimates, multilateral development banks need to increase their infrastructure lending five-fold, from \$30-40 billion per year to over \$200 billion.³⁶ Specific to Asia, the ADB estimates funding gaps of \$8 trillion for infrastructure over the next decade. Against this background it is imperative for the AIIB to deploy capital quickly to project that perform.

Adopting effective processes for managing local opposition is key to the AIIB’s success in this mission. Local engagement provides a quick, reliable and ultimately cost-effective way of identifying and then managing ESG risk. These capacities will play a vital role in the AIIB’s

³³ <https://calval.cr.usgs.gov/wordpress/wp-content/uploads/Satellite-Trends-Poster-ASPRS-JACIE.pdf>

³⁴ <http://oceanservice.noaa.gov/facts/remotesensing.html>; <http://pubs.acs.org/doi/abs/10.1021/es300157u>; <http://gisgeography.com/100-earth-remote-sensing-applications-uses/>

³⁵ <http://ehp.niehs.nih.gov/122-a268/>

³⁶ Bhattacharya Oppenheim & Stern (2015), *Driving Sustainable Development Through Better Infrastructure: Key Elements of a Transformation Program*, Brookings

ability to develop a stable portfolio that enhances the reputation of the institution and its backers in the region.

First impressions count, particularly for large, well-known institutions like the AIIB³⁷. If these initial investments contribute to, rather than reverse, the rising tide of dispute over land based investments it seems likely that the AIIB will struggle to achieve its key goal of promoting regional growth and enhancing regional stability.

But the AIIB has the potential to become a world leader in ESG standards. Other MDBs and financial institutions are struggling to adopt effective measures and fresh blood is needed. If well designed, the AIIB standard could become the global standard.

³⁷ Newmont's Minas Conga mine provides the best many examples of reputational risk transforming into considerable operational problems. Dispute over this development escalated to the extent that the Peruvian government had to place a moratorium on all of Newmont's operations in the country, creating considerable problems for an ambitious proposed expansion in the country. Partly as a result, upcoming elections in Peru are likely to be contested by pro- and anti-mining groups. <http://www.wsj.com/articles/peruvian-voters-favor-anti-mining-candidates-1412634947>

Appendix I: Tools for Local Engagement

TMP Systems is attempting to facilitate local engagement in risk management through two open-source tools: IAN: Risk and IAN: Diligence (available at www.tmpsystems.net/ian). IAN: Risk provides a means of selecting and assessing potential project sites while the IAN: Diligence provides specific guidance for the rest of the investment cycle.

As such they take investors from end-to-end of the investment process. They will be released freely to encourage adoption and adaptation - indeed they are explicitly designed to reduce dependence on consultancy services, including and especially our own.

The IAN: Risk draws together publicly available datasets to provide a quick and easy assessment of the risks posed by insecure or unclear land and natural resource rights. It uses high resolution geospatial data to paint a detailed picture of the operating context of project-level investments. Specifically it currently contains information on the following publicly available indicators (see appendices for further details)³⁸:

Social	
Conflict	Social unrest/violence; disputes over land rights; displacement
Welfare	Access to basic resources and services; asset ownership; inequality
Demographics	Population count and density; presence of minorities
Environmental	
Land use	Land cover classes; soil health; infrastructure
Climate	Temperature; extreme events; projected climate change impacts
Water	Availability; variability; floods and droughts; storage capacity
Biodiversity	Biodiversity hotspots; vital ecosystem services

The key thing to recognize in the composition of this dataset is that tenure is about more than just land. It is about a range of natural resources. In fact, tenure is about having a significant say in the way that local resources are managed. As such we have collected data that describes this wide range of resource concerns.

We have paid particular attention to the leading drivers of materially significant tenure-related disputes. So, data on demographics is particularly important for displacement; environmental destruction is captured, in part, by data on land use and climate. Similarly, vulnerability to resource shortage is reflected in data on water and on soil health.

Since evidence suggests that it is easier to avoid conflict than to resolve it, we have also drawn together indicators on how conflict-prone an area is. Finally, we include indicators on governance because these disputes are much more likely in areas with poor or inconsistent regulation and/or enforcement.

³⁸ Sources for this data include the NASA's SEDAC, the European Space Agency's GlobCover, UN & Oxford University's Multidimensional Poverty Index, WRI's Aqueduct, the World Bank's Governance and Development Indicators, Google's GDELT, ACLED, SCAD, IDMC, INSCR, and Transparency International's CPI

As noted, this is the area that needs most augmentation. In particular, data on land claims is an important missing piece. Here we are waiting from data from dedicated initiatives which, once available, will be slotted in with the other factors that help indicate the likelihood of a dispute over tenure.

The sector-specific IAN: Diligence toolkits (transport infrastructure, hydropower, mining, forestry and agriculture) provide follow-on guidance at each stage in the project lifecycle for key processes like consultation, impact assessment, contract development and dispute resolution.

IAN: Diligence adheres to the following core principles:

1. It is easier to avoid a conflict than to resolve one;
2. Host governments, whether local or national, are not necessarily reliable counterparties;
3. A significant amount of information is required to assess how difficult it will be to include a new kind of counterparty—local people—in negotiations

To develop this information base, these tools begin to integrate technological advancements described below. IAN aims to minimize the need for expensive consultants while making project development and operation as smooth as possible. Technical and local expertise will always be needed in this process – for this reason we are working to establish procurement standards for hard-to-find diligence skills.

IAN helps to make processes quick and cheaper by improving the efficiency with which requisite expertise is allocated. They do this is through the automation of key pieces of information gathering and analysis. As described below, technology has enabled the creation of rich, consistent and standardized data streams without significant barriers of capital or expertise.

But some of the efficiency improvements are more straightforward. Ian: Risk, in particular, focuses on making sure that the right people are looking at the right thing. Diligence resources can therefore be concentrated on projects with the greatest chance of success and on the most challenging aspects of those projects. Improved data and better allocation of expertise can make a crucial difference because they can help investors and operators to get it right first time. Disputes that have been avoided never have to be resolved.

Essentially, both tools concentrate on improving the dialogue between operators and local populations so that they can develop a relationship of trust. We believe that this relationship of trust is the key to avoiding tradeoffs between the speed of implementation and the effectiveness of ESG protection. In short, it is not always the cheapest method but it does provide the basis for smooth project development. We think that this approach provides the most efficient way to manage ESG risk for portfolios weighted towards of large, land-based investments. As such, we hope that this approach can help institutions like the AIIB to achieve their goals.

Appendices: IAN: Risk Data

Social

We have split social data into three sub-divisions: social welfare, social conflict and demographics.

Social welfare

Metric	Unit	Coverage	Resolution	Source
Access to drinking water	% of population	71 key countries ³⁹	Administrative unit	MPI ⁴⁰
Access to sanitation	% of population	71 key countries	Administrative unit	MPI ³
Access to nutrition	% of population	67 key countries	Administrative unit	MPI ³
Access to electricity	% of population	70 key countries	Administrative unit	MPI ³
Child mortality ⁴¹	% of population	69 key countries	Administrative unit	MPI ³
Schooling	% of population	71 key countries	Administrative unit	MPI ³
School attendance	% of population	70 key countries	Administrative unit	MPI ³
Asset ownership	% of population	71 key countries	Administrative unit	MPI ³
Inequality	GINI coefficient (0-1)	70 key countries	Administrative unit	MPI ³

Social conflict

Metric	Unit	Coverage	Resolution	Source
Recorded incidents of civil	Event counts/	Global	Geotag (event)	GDELT ⁴² / ACLED ⁴³ /

³⁹ See appendix for full list.

⁴⁰ Available at: <http://www.ophi.org.uk/multidimensional-poverty-index/mpi-2014-2015/mpi-data/>

⁴¹ This is a proxy for access to health services which can be verified through strategic use of various WHO datasets.

unrest	proximity/severity			SCAD ⁴⁴
Case study database	Event counts/proximity (km)	Asia, Africa, Latin America	Geotag (event)	TMP
Conflict-related displacement	Number of displaced people	Global	National	IDMC ⁴⁵
Disaster-related displacements	Number of displaced people	Global	National	IDMC ⁴⁵
Forced displacement	Number of displaced people	Global	National	INSCR ⁴⁶

Demographics

Metric	Unit	Coverage	Resolution	Source
Population count	Number of people in a 30 arc-seconds cell	Global	30-seconds cell	SEDAC ⁴⁷
Population density	Number of people per square kilometer	Global	30-seconds cell	SEDAC ⁹

Environmental

Environmental issues are split into four sub-divisions: land use; climate; water; and ecology.

Land use

Metric	Unit	Coverage	Resolution	Source
Land cover classes	22 classifications ⁴⁸	Global	10-seconds cells (≈ 300 meters)	GlobCover ⁴⁹

⁴² <http://gdeltproject.org/>

⁴³ <http://www.acleddata.com/data/> (Africa only)

⁴⁴ <https://catalog.data.gov/dataset/https-www-strausscenter-org-ccaps-form-4-scad-download-register-html-dataset-1-tmpl-component> (Africa and Central America only)

⁴⁵ <http://www.internal-displacement.org/>

⁴⁶ <http://www.systemicpeace.org/inscrdata.html>

⁴⁷ <http://www.ciesin.columbia.edu/data/gpw-v4/> - this can be verified through use of Landscan, which we have access to but cannot publish as part of the complete dataset.

⁴⁸ see Appendix

⁴⁹ http://due.esrin.esa.int/page_globcover.php

			grid)	
Land cover classes	Varying classifications ⁵⁰	Global	30-seconds cell	GLCC ⁵¹
Anthropogenic land use	20 classifications ⁵²	Global	5-minute cells	SEDAC ⁵³
Soil health	Various soil property data ⁵⁴	Global	30-seconds cell	IIASA ⁵⁵
Transportation infrastructure	Road length/proximity	Global	Sub-national (line features)	SEDAC ⁵⁶

Climate and weather

Metric	Unit	Coverage	Resolution	Source
Temperature (min, max and mean; present and future)	Degrees Celsius	Global	1 km ²	WorldClim ⁵⁷
Forecasted impact of climate change	1-10 score	Global	National	WorldClim
Global hazards distribution	Event/proximity	Global	Varied	Columbia Centre for Hazards and Risk Research ⁵⁸

Water

Metric	Unit	Coverage	Resolution	Source
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⁵⁰ see Appendix

⁵¹ <https://lta.cr.usgs.gov/GLCC>

⁵² see Appendix

⁵³ <http://sedac.ciesin.columbia.edu/data/collection/anthromes>

⁵⁴ See HWSD publication, <http://www.fao.org/docrep/018/aq361e/aq361e.pdf>

⁵⁵ <http://webarchive.iiasa.ac.at/Research/LUC/External-World-soil-database/HTML/>

⁵⁶ <http://sedac.ciesin.columbia.edu/data/set/groads-global-roads-open-access-v1>

⁵⁷ <http://www.worldclim.org/download> - this can be compared with data from the IPCC, NOAA, CRU, CLiC and ECD&A

⁵⁸ <http://www.ldeo.columbia.edu/chrr/research/hotspots/coredata.html>

Available blue water	Cubic meter	Global ⁵⁹	Major river basin	WRI Aqueduct ¹⁷
Baseline water stress	Normalized (Range: 1 to 5)	Global	Major river basin	WRI Aqueduct ⁶⁰
Floods and droughts	Normalized (Range: 1 to 5)	Global	Major river basin	WRI Aqueduct ¹⁷
Upstream storage capacity	Normalized (Range: 1 to 5)	Global	Major river basin	WRI Aqueduct ¹⁷
Watershed boundaries	Area (square kilometer)	Global	Major river basin/ 15 arc-second/30 arc-second	WRI Aqueduct ¹⁷ / HydroSHED S ⁶¹ /GDBD ⁶²

Governance

Governance is the weakest area of the global dataset and will be a key point of focus for the second pass. For the time being, we are restricted to global datasets based on surveys and perceptions. Some of the most useful available data is listed below.

Metric	Unit	Coverage	Resolution	Source
Perception of Corruption	Score (1-100)	Global	National	CPI ⁶³
Control of corruption	Score (-2.5 to 2.5)	Global	National	WGI ⁶⁴
Rule of law	Score (-2.5 to 2.5)	Global	National	WGI
Regulatory quality	Score (-2.5 to 2.5)	Global	National	WGI
Voice and accountability	Score (-2.5 to 2.5)	Global	National	WGI

⁵⁹ Excludes Greenland and Antarctica

⁶⁰ <http://www.wri.org/our-work/project/aqueduct>

⁶¹ <http://hydrosheds.cr.usgs.gov/index.php>

⁶² http://www.cger.nies.go.jp/db/gdbd/gdbd_index_e.html

⁶³ <http://www.transparency.org/research/cpi/overview>

⁶⁴ <http://info.worldbank.org/governance/wgi/index.aspx#home>