Chinese attitudes toward mining

Citizen Survey – 2014 Results

Airong Zhang, Kieren Moffat, Naomi Boughen, Junxiu Wang, Lijuan Cui & Yan Dai
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#csiromining
Chinese attitudes toward mining: Citizen survey – 2014 Results.

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This funding is gratefully acknowledged.
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Mining in China

China has the largest mining and mineral processing industry in the world and mining development has contributed greatly to China's rapid economic and social development over the past 30 years. Yet, with the social unrest and conflict regarding the development of resources in China, as in many countries around the world, the industry must also demonstrate that it has a ‘social licence to operate’ among communities that are close to operations and within society more broadly. This report aims to bring the voice of the citizens of China, on whose behalf China's mineral and energy resources are managed, more clearly into a conversation about the role of the mining industry in Chinese society.

Not just a consumer of mined materials

As an emerging industrial country, China is moving through a process of rapid industrialisation and urbanisation. Driving this development is China’s status as the world’s largest manufacturer, creating an enormous demand for mineral and energy inputs. From 2000 to 2011, for example, coal consumption increased by 240% and steel consumption by 360%. In line with this increased consumption, China’s domestic mineral production has correspondingly increased.

China is the world’s largest consumer of minerals and the leading producer of many mineral commodities including aluminium, coal, gold, iron and steel, and rare earths. China’s significant demand for bulk imports such as iron ore for steel making from Australia and Brazil are well publicised, with China representing Australia’s largest trading partner. Less well known, however, is that China itself has a significant domestic mining industry to support its industrial and energy needs.

China possesses large volumes and a diversity of valuable mineral and energy commodities. China is ranked third in total mineral deposits internationally, holding large deposits of coal, iron ore, manganese, lead phosphate rock, zinc, tungsten, antimony, and rare earths. Non-oil and gas mining and production is dominated by coal (67%), iron ore (9%), non-ferrous metals (7%), sands and aggregates (10%), with other types of mining and processing comprising the remaining 7%.

China’s domestic mineral production translates into a significant contribution to China’s economy. From 2008 to 2011, the mining industry contributed a yearly average 5.53% of China’s gross domestic product (GDP). In 2010, the total output value of the mining sector was more than that of the agro-food processing, textile, and machinery and equipment manufacturing industries.

In 2010, China had approximately 9,000 large state-owned mining companies and some 100,000 medium to small sized state-owned and collectively owned mines. According to the China Statistical Yearbook 2013, the mining industry employed 6.31 million people in 2012, an increase from 6.12 million in 2011. In 2010, the annual average wage of employees in the mining sector was 44,496 Yuan (USD$7,266), which is 7,349 Yuan (USD$1,200) higher than the industry-wide average wage.

While the domestic mining industry has made significant contributions to China’s economic growth, enhancing the national income, and providing employment opportunities, it has also created negative environmental and social impacts, particularly in mining regions. For example, the waste water, waste gas, and solid waste from mining activities represent a large proportion of the total industrial wastes in China, and has caused heavy pollution of mining regions and impacted the life of local residents. Over-dependence on mineral development in many mining regions has also created mono-industrial regions and a decline in sustainable social and economic development. In turn, this has led to mining regions prone to unemployment, poverty, and sustainability challenges.

The safety of mines in China represents an issue that may affect its social acceptance. China’s mine safety record is significantly worse than that of other countries at a similar development stage, with thousands of coal mine accident fatalities reported each year in China.

Across China, there have also been an unprecedented number of large-scale public protests against projects with negative environmental and social impacts in recent years. These protests have shut down or suspended a number of large industrial projects and sparked local social unrest. Social conflict of this nature represents significant risk for companies operating in China.

2 Lei, Cui, & Pan. 2013. Economic and social effects analysis of mineral development in China and policy implications, Resources Policy, 38, 448-457
3 GHD. 2013. Clean energy and environmental opportunities in the Chinese mining and minerals sector - Market research report, The Australian Trade Commission, Canberra, Australia
Understanding the mining industry’s social licence to operate

Mining is an integral part of social and economic development in China, but the relationship between mining and society is not an easy one. In collaboration with the Chinese Academy of Social Science, East China Normal University, and Sichuan Normal University, CSIRO is keen to understand more about what people in China think about mining. Importantly, we want to understand how the impacts and benefits of mining, and the relationship between the mining industry, government and society, affect the level of acceptance of mining among China’s citizens – we want to understand what constitutes a social licence to operate for mining in China.
Introduction

This report summarises the key findings from a survey of 5,122 Chinese citizens about their attitudes toward the mining industry. This project was funded by the Australia-China Council (ACC) of Australia’s Department of Foreign Affairs and Trade (DFAT), with in-kind contributions from Australian’s Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Chinese Academy of Social Science, East China Normal University, and Sichuan Normal University. This survey forms part of a larger CSIRO program of work to understand and articulate the views of citizens in mining jurisdictions around the world. This is the third published report as part of this program, alongside national reports of Australia\textsuperscript{13} and Chile\textsuperscript{14}.

Following an environmental scan, literature review and discussions between project collaborators, the CSIRO national citizen attitude survey instrument was adapted for the Chinese context and translated into Chinese. The survey of citizens in mining regions, comparable non-mining regions and metropolitan areas was conducted between late 2013 and the first quarter of 2014.

Data was collected in two ways; through an online survey and face-to-face using a paper and pen interview method. A professional survey company, Wenjuan Xing, recruited online participants using their participant panels. Postgraduates from East China Normal University and Sichuan Normal University conducted the face-to-face interviews. Participants for face to face surveys were recruited in mining regions, non-mining regions and in the cities of Shanghai and Chengdu. We used a broad definition of mining in this study, which includes: coal mining, oil and gas extraction, metal ore mining, non-metallic mineral mining and quarrying, exploration and other mining support services (i.e. mineral exploration).

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Figure 1 Key demographic information about the sample

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Chinese attitudes toward mining
What does mining mean to people in China?

To understand how people in China view mining in the broader national context, we asked participants to rate their level of agreement with a number of statements about mining in China on a scale from 1 (strongly disagree) to 7 (strongly agree).

Mining is important for China
Overall, moderately positive responses were recorded for statements regarding mining’s importance to China’s economy, standard of living and future prosperity (Table 1).

Comparing the responses of those living in different parts of the country, we found that participants living in mining regions more strongly believed that mining was important to China’s economy, standard of living, and future prosperity, relative to those living in metropolitan areas.

We also asked participants about the proportion of China’s GDP that they believed was contributed by mining. Participants living in mining regions reported that mining contributed around 25% of the country’s GDP, 21% by those living in non-mining regions, and 18% by participants living in metropolitan areas. The perceived contribution to GDP is far above the official report of 5.75% in 2011, suggesting that mining is seen to be strongly connected to China’s economic position.

Table 1 Mean scores* for items examining the position of mining in China, overall and by region.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEAN AGREEMENT (STANDARD DEVIATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OVERALL</td>
</tr>
<tr>
<td>Mining is central to China</td>
<td>5.26 (SD = 1.30)</td>
</tr>
<tr>
<td>Mining contributes to the standard of living in China</td>
<td>4.72 (SD = 1.36)</td>
</tr>
<tr>
<td>Mining will support China’s future prosperity</td>
<td>4.45 (SD = 1.37)</td>
</tr>
<tr>
<td>Mining contributes significantly to China’s economy</td>
<td>4.61 (SD = 1.36)</td>
</tr>
</tbody>
</table>

*Rated on a scale from 1 (strongly disagree) to 7 (strongly agree)

15 Only statistically significant results are reported as differences in this report. Predominately these differences were calculated using an Analysis of Variance (ANOVA) test, and are significant at the p<.001 level. Due to the large sample size, caution has been taken to use a conservative significance level of difference testing.

Is China too dependent on mining?
While participants felt mining was important for China, they were also concerned that China as a country, and their communities in particular, were too dependent on mining. As shown in Figure 3, participants overall and across all three geographic areas felt the country was more dependent than the communities they lived in. Those living in mining areas perceived this level of dependency at both country and community level to be highest, followed by those in non-mining areas and then those in metropolitan areas.

To what extent do people in China accept mining?
We asked participants to indicate their agreement with the statement, ‘to what extent do you accept mining in China’ on a scale from 1 (not at all) to 5 (very much so). Overall, the mean response was 3.31 (SD = 0.95), which is above the midpoint of the scale used (i.e., 3). In addition, participants living in mining regions were most accepting of mining, while those living in metropolitan areas were the least accepting by comparison. Figure 4 shows a distribution of acceptance scores across the whole sample.
The benefits of mining

To examine the positive benefits that mining creates, we asked participants to respond to a range of benefits that may come from mining for the country, regional communities and areas, and individuals. These included employment, improvement to regional infrastructure, and general economic benefits. In general, as shown in Table 2, participants living in mining regions perceived the benefits from mining much more positively than those living in non-mining and metropolitan areas.

Job creation

Overall, the creation of jobs for people in China was the most important perceived benefit for the country (see Table 2). This included jobs for Chinese people, as well as employment and training opportunities in regional areas. The perceptions were much stronger for participants living in mining regions than those living in non-mining and metropolitan regions. However, employment opportunities for women were not perceived as positively, especially by participants living in non-mining and metropolitan regions. In addition, the contribution mining makes to the development of young Chinese were regarded as being quite positive by participants living in mining regions, but less so among those living in metropolitan areas.

Table 2 Mean ratings* of the perceived benefits of mining overall and for each region sampled.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEAN AGREEMENT (STANDARD DEVIATION)</th>
<th>OVERALL</th>
<th>MINING</th>
<th>NON-MINING</th>
<th>METROPOLITAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining creates jobs for people in China</td>
<td></td>
<td>5.21</td>
<td>5.45</td>
<td>5.18</td>
<td>5.10</td>
</tr>
<tr>
<td>Mining provides opportunities for regional employment and training</td>
<td></td>
<td>5.00</td>
<td>5.25</td>
<td>4.98</td>
<td>4.89</td>
</tr>
<tr>
<td>Mining provides employment opportunities for women</td>
<td></td>
<td>3.78</td>
<td>4.00</td>
<td>3.75</td>
<td>3.70</td>
</tr>
<tr>
<td>The mining industry makes an important contribution to the development of young Chinese</td>
<td></td>
<td>4.11</td>
<td>4.50</td>
<td>4.17</td>
<td>3.87</td>
</tr>
<tr>
<td>Mining has positive effects on regional communities in China</td>
<td></td>
<td>4.45</td>
<td>4.79</td>
<td>4.41</td>
<td>4.29</td>
</tr>
<tr>
<td>Mining has helped improve transport infrastructure such as roads and ports in regional China</td>
<td></td>
<td>4.83</td>
<td>5.00</td>
<td>4.78</td>
<td>4.78</td>
</tr>
<tr>
<td>Mining has helped improve communications and IT infrastructure in regional China</td>
<td></td>
<td>4.57</td>
<td>4.82</td>
<td>4.53</td>
<td>4.47</td>
</tr>
<tr>
<td>Mining has helped improve social infrastructure such as community centres and sporting clubs in regional China</td>
<td></td>
<td>4.41</td>
<td>4.71</td>
<td>4.41</td>
<td>4.26</td>
</tr>
</tbody>
</table>

*Rated on a scale from 1 (strongly disagree) to 7 (strongly agree).
Infrastructure improvements
The next strongest ratings around benefits were related to improvements in infrastructure (transport, social, as well as communication and information technology) in regional China as a result of mining activities. In particular, participants living in mining regions reported significantly higher levels of infrastructure benefits than those living in non-mining and metropolitan regions. Moreover, participants from mining regions reported the strongest positive effects created by mining compared to those living in non-mining and metropolitan regions.

Personal benefits and life satisfaction
Participants, especially those living in mining regions, believed that the average Chinese is wealthier because of mining. However, benefits in terms of personal and family financial benefits from mining were both rated quite low, particularly when compared with the perceived benefits to the “average Chinese” (see Figure 5). Comparatively, participants living in mining regions felt the most personal and family financial benefits, while those living in metropolitan areas reported the lowest level of personal and family benefits.

When asked about their level of satisfaction with living in their community, participants from all regions responded positively (M = 4.69, SD = 1.30). In particular, participants living in mining (M = 4.70, SD = 1.37) and metropolitan (M = 4.76, SD = 1.19) areas reported a higher level of satisfaction than those living in non-mining regions (M = 4.59, SD = 1.38).

Figure 5. Economic benefits from mining.
The negative impacts of mining

To examine the perceived negative impacts of mining, we asked participants to respond to a range of issues including environment, other industry sectors, cost of living, and the health of communities surrounding mining operations. In general, the negative impacts of mining were rated significantly more strongly by those living in mining regions, followed by those in non-mining regions, and then participants in metropolitan areas.

**The environment**
Overall, statements regarding the negative impact of mining on the environment received the strongest level of agreement. This included negative perceptions of impacts on water quality (both groundwater and surface water), the environment in general, and mining’s contribution to climate change (see Table 3). When asked to rate the extent to which they agreed with the statement ‘mine site rehabilitation is important to me’, participants were strongly in agreement (M = 5.14, SD = 1.46), with those living in mining regions most positive in their response (M = 5.37, SD = 1.48).

**Other industry sectors**
Participants, especially those from mining and non-mining regions, perceived strong negative impact of the mining industry on the agricultural sector. Participants from all regions also rated the negative impact on the tourism sector as high.

**Health and cost of living**
Participants from all regions equally agreed that mining had negative impacts on the health of local communities, while the impacts on cost of living and housing were rated comparatively low. Increased costs of living and housing attributed to mining activities were most keenly felt by participants in mining regions, and the least by those living in metropolitan areas.

**Safety**
When asked specifically about mining associated safety issues, participants from all regions reported strong perceptions that mining creates significantly stronger health risk to local residents and that accidents causing casualties are frequent in mining.

**PERCEIVED NEGATIVES**

| The environment | The agricultural sector |
| Health of communities and cost of living | Safety |

**IS IT WORTH IT?**

Considering the benefits and costs associated with mining, it is worthwhile to pursue mining in China
Table 3 Mean ratings* of the negative impact of mining overall and for each region sampled.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEAN AGREEMENT (STANDARD DEVIATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OVERALL</strong></td>
<td><strong>MINING</strong></td>
</tr>
<tr>
<td>Mining has negative impacts on the environment</td>
<td>5.72 (SD = 1.18)</td>
</tr>
<tr>
<td>Mining impacts negatively on water quality (groundwater and surface water)</td>
<td>5.81 (SD = 1.10)</td>
</tr>
<tr>
<td>Mining contributes to climate change</td>
<td>5.29 (SD = 1.27)</td>
</tr>
<tr>
<td>Mining negatively impacts on the agricultural sector</td>
<td>5.46 (SD = 1.26)</td>
</tr>
<tr>
<td>Mining has negative impacts on the tourism sector</td>
<td>5.21 (SD = 1.33)</td>
</tr>
<tr>
<td>Mining has negative impacts on the health of local communities</td>
<td>5.58 (SD = 1.22)</td>
</tr>
<tr>
<td>Housing is more expensive in my area as a consequence of mining activity</td>
<td>4.06 (SD = 1.56)</td>
</tr>
<tr>
<td>The cost of living, excluding housing, increased in my area as a consequence of mining</td>
<td>4.03 (SD = 1.56)</td>
</tr>
<tr>
<td>The high probability of accidents in mining represents a danger for local residents</td>
<td>5.49 (SD = 1.23)</td>
</tr>
<tr>
<td>Disastrous accidents and casualties occurred very often in mining</td>
<td>5.58 (SD = 1.26)</td>
</tr>
</tbody>
</table>

*Rated on a scale from 1 (strongly disagree) to 7 (strongly agree).
Fairness, faith in governance and trust

Mining has a broad and complex relationship with society. It creates jobs and economic opportunities for many, and is an important component of the national economy. Yet, mining also brings challenges for people living alongside the industry and for governments who are charged with managing mineral resources on behalf of their citizens.

In this survey, we asked participants about the distributional fairness of mining associated benefits, the extent to which they felt they could influence how decisions about mining were made, the level of faith they had in legislative and regulatory frameworks for managing mining, and more broadly, the degree to which they trusted the important players in the industry.

Distributional fairness

We asked participants to rate the extent to which they believed mining associated benefits were distributed fairly, and the extent to which China received its fair share of tax from mining. Overall, participants across all regions perceived that the benefits from mining were not distributed fairly, with the average rating across the whole sample below the midpoint of the scale used (see Figure 6). In particular, participants from metropolitan areas reported significantly lower benefits in comparison to those from mining and non-mining regions.

Moreover, participants from mining regions more strongly believed that incomes were less equitable in their area as a consequence of mining, followed by participants from non-mining regions and those in metropolitan areas.

We also asked participants the extent to which they believed China as a nation received its fair share of tax from the mining industry. Mean responses were just above the midpoint of the scale used (M = 4.30, SD = 1.52), with participants from mining regions most supportive of this statement (M = 4.53, SD = 1.60), followed by those from non-mining regions (M = 4.41, SD = 1.56), with participants from metropolitan areas least positive (M = 4.10, SD = 1.44).

Figure 6 Mean level of perceived distributional fairness of benefits from mining, overall and by region
Procedural fairness

Procedural fairness in the present research refers to whether individuals perceive that they have a reasonable voice in decision-making processes\(^\text{17}\). Therefore, the more people feel they can participate in decision-making processes about mining and feel respected by important decision makers (e.g., governments and mining companies), the fairer they will regard procedures relating to mining in China.

We asked participants to rate the extent to which the mining industry and local government listen to and respect community opinions. As shown in Figure 7, the mean responses were just above the midpoint of the scale used. In particular, participants from metropolitan areas reported significantly lower levels of perceived procedural fairness regarding both the mining industry and local governments relative to those from mining and non-mining regions.

In addition, we asked participants to rate the extent to which people in China have opportunities to participate in decisions about mining (1 = strongly disagree, 7 = strongly agree).

The mean rating was just above the midpoint of the scale used. In particular, participants from mining (M = 4.37, SD = 1.91) and non-mining (M = 4.39, SD = 1.89) regions reported significantly stronger beliefs that they had opportunities to participate in decision making processes than participants from metropolitan areas (M = 3.94, SD = 1.85).

Ensuring the mining industry does the ‘right thing’

Governments play a central role in setting the standards by which the mining industry should operate through legislation and regulation. We asked participants to rate the extent to which they believed legislation and regulation, and local and central governments can hold the mining industry to account. In both of these areas, responses across all regions were quite high: there appears to be a strong belief that these formal institutions are sufficiently able to influence how mining takes place (see Table 4).

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Table 4 Mean ratings* of governance capacity, overall and for each region sampled

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEAN AGREEMENT (STANDARD DEVIATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OVERALL</td>
</tr>
<tr>
<td>Local and central governments are able to hold the mining industry accountable</td>
<td>4.05 (SD = 0.89)</td>
</tr>
<tr>
<td>Legislation and regulation can be counted on to ensure mining companies do the right thing</td>
<td>3.98 (SD = 0.90)</td>
</tr>
<tr>
<td></td>
<td>MINING</td>
</tr>
<tr>
<td>Local and central governments are able to hold the mining industry accountable</td>
<td>4.14 (SD = 0.88)</td>
</tr>
<tr>
<td>Legislation and regulation can be counted on to ensure mining companies do the right thing</td>
<td>4.10 (SD = 0.88)</td>
</tr>
<tr>
<td></td>
<td>NON-MINING</td>
</tr>
<tr>
<td>Local and central governments are able to hold the mining industry accountable</td>
<td>4.06 (SD = 0.90)</td>
</tr>
<tr>
<td>Legislation and regulation can be counted on to ensure mining companies do the right thing</td>
<td>4.03 (SD = 0.90)</td>
</tr>
<tr>
<td></td>
<td>METROPOLITAN</td>
</tr>
<tr>
<td>Local and central governments are able to hold the mining industry accountable</td>
<td>3.99 (SD = 0.87)</td>
</tr>
<tr>
<td>Legislation and regulation can be counted on to ensure mining companies do the right thing</td>
<td>3.89 (SD = 0.89)</td>
</tr>
</tbody>
</table>

*Rated on a scale from 1 (not at all) to 5 (very much so).

Mining communities and the public
Mining communities and the public more generally also feel they have the ability to influence the way mining takes place, either through directly influencing mining companies or through influencing government policy. Responses overall to items examining citizen agency were all above the midpoint of the scale (see Table 5). In particular, participants from mining regions reported the highest level of agency or influence over the way the industry operates, followed by those from non-mining regions. Participants from metropolitan areas scored the lowest level of agency in influencing government policy and mining companies’ practice.

Finally, there was a very strong sentiment regarding the need to gain the consent of local communities before mining development takes place.

Table 5 Mean ratings* of public efficacy and need for consent, overall and by region

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MEAN AGREEMENT (STANDARD DEVIATION)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OVERALL</td>
</tr>
<tr>
<td>I think mining communities can successfully defend the national interests.</td>
<td>4.27 (SD = 1.49)</td>
</tr>
<tr>
<td>I think the public in China can successfully defend its national interests.</td>
<td>5.08 (SD = 1.50)</td>
</tr>
<tr>
<td>I think mining communities can influence governments’ mining related policies</td>
<td>4.44 (SD = 1.45)</td>
</tr>
<tr>
<td>I think the public in China can influence governments’ mining related policies</td>
<td>4.51 (SD = 1.59)</td>
</tr>
<tr>
<td>I think mining communities are capable of ensuring the mining industry does the right thing for the country</td>
<td>4.31 (SD = 1.50)</td>
</tr>
<tr>
<td>I think the public in China are capable of ensuring the mining industry does the right thing for the country</td>
<td>4.57 (SD = 1.62)</td>
</tr>
<tr>
<td>It is necessary to gain the consent of local communities before mining development takes place</td>
<td>6.05 (SD = 1.13)</td>
</tr>
<tr>
<td></td>
<td>MINING</td>
</tr>
<tr>
<td>I think mining communities can successfully defend the national interests.</td>
<td>4.54 (SD = 1.57)</td>
</tr>
<tr>
<td>I think the public in China can successfully defend its national interests.</td>
<td>5.34 (SD = 1.51)</td>
</tr>
<tr>
<td>I think mining communities can influence governments’ mining related policies</td>
<td>4.67 (SD = 1.51)</td>
</tr>
<tr>
<td>I think the public in China can influence governments’ mining related policies</td>
<td>4.68 (SD = 1.64)</td>
</tr>
<tr>
<td>I think mining communities are capable of ensuring the mining industry does the right thing for the country</td>
<td>4.60 (SD = 1.57)</td>
</tr>
<tr>
<td>I think the public in China are capable of ensuring the mining industry does the right thing for the country</td>
<td>4.79 (SD = 1.67)</td>
</tr>
<tr>
<td>It is necessary to gain the consent of local communities before mining development takes place</td>
<td>6.14 (SD = 1.05)</td>
</tr>
<tr>
<td></td>
<td>NON-MINING</td>
</tr>
<tr>
<td>I think mining communities can successfully defend the national interests.</td>
<td>4.36 (SD = 1.45)</td>
</tr>
<tr>
<td>I think the public in China can successfully defend its national interests.</td>
<td>5.17 (SD = 1.46)</td>
</tr>
<tr>
<td>I think mining communities can influence governments’ mining related policies</td>
<td>4.50 (SD = 1.43)</td>
</tr>
<tr>
<td>I think the public in China can influence governments’ mining related policies</td>
<td>4.61 (SD = 1.56)</td>
</tr>
<tr>
<td>I think mining communities are capable of ensuring the mining industry does the right thing for the country</td>
<td>4.43 (SD = 1.47)</td>
</tr>
<tr>
<td>I think the public in China are capable of ensuring the mining industry does the right thing for the country</td>
<td>4.70 (SD = 1.58)</td>
</tr>
<tr>
<td>It is necessary to gain the consent of local communities before mining development takes place</td>
<td>6.06 (SD = 1.20)</td>
</tr>
<tr>
<td></td>
<td>METROPOLITAN</td>
</tr>
<tr>
<td>I think mining communities can successfully defend the national interests.</td>
<td>4.07 (SD = 1.45)</td>
</tr>
<tr>
<td>I think the public in China can successfully defend its national interests.</td>
<td>4.88 (SD = 1.50)</td>
</tr>
<tr>
<td>I think mining communities can influence governments’ mining related policies</td>
<td>4.27 (SD = 1.41)</td>
</tr>
<tr>
<td>I think the public in China can influence governments’ mining related policies</td>
<td>4.36 (SD = 1.57)</td>
</tr>
<tr>
<td>I think mining communities are capable of ensuring the mining industry does the right thing for the country</td>
<td>4.07 (SD = 1.45)</td>
</tr>
<tr>
<td>I think the public in China are capable of ensuring the mining industry does the right thing for the country</td>
<td>4.36 (SD = 1.59)</td>
</tr>
<tr>
<td>It is necessary to gain the consent of local communities before mining development takes place</td>
<td>5.99 (SD = 1.12)</td>
</tr>
</tbody>
</table>

*Rated on a scale from 1 (strongly disagree) to 7 (strongly agree).

Social responsibility and the mining industry
When asked about the extent to which participants agreed that the mining industry was socially responsible, the mean response was above the midpoint of the scale used (M = 4.30, SD = 1.48). In particular, participants from mining regions were the most positive (M = 4.71, SD = 1.50), followed by those from non-mining regions (M = 4.42, SD = 1.43), while participants from metropolitan areas scored the lowest (M = 4.01, SD = 1.45).

Similarly, when asked about the extent to which participants agreed that the mining industry is prepared to change its practice in response to community concerns, the mean response was just above the midpoint of the scale (M = 4.16, SD = 1.83), with participants from both mining (M = 4.34, SD = 1.89) and non-mining (M = 4.34, SD = 1.83) regions more positive compared to those from metropolitan areas (M = 3.95, SD = 1.77).
Trust

We asked participants to rate their level of trust in a range of important actors in the mining industry in China: the mining industry itself, local government, and non-government organisations (NGOs). We averaged responses on three items assessing trust in each of these groups: the extent each was trusted to ‘act in the best interests of society’, ‘act responsibly’, and ‘do what is right’.

As shown in Figure 8, trust in these actors was around midpoint of the scale. In particular, participants from mining regions reported the highest level of trust in the mining industry, followed by those from non-mining regions, while participants from metropolitan areas reported the least amount of trust. Participants from both mining and non-mining regions reported more trust in local government than those from metropolitan areas. Finally, participants across all regions held similar levels of trust in NGOs.

Figure 8 Mean level of trust in mining industry actors, overall and by region.
Going a little deeper... what leads to acceptance of mining?

Mining is an important part of life in China, and the survey results reported above provide a strong foundation for better understanding the complexity of its relationship with society. However, if the mining industry is to be sustainable in China, it is important that we understand what underpins its ‘social licence to operate’, or its acceptance within society. We explored this question in the national survey data in two ways. First, we investigated how people in China weigh up the benefits and impacts of mining in determining their level of acceptance of the industry. Second, we examined the role of China’s governance systems and behaviour of the mining industry in building trust and acceptance with China’s citizens.

Is it worth it? Weighing up the benefits and impacts of mining

Using multiple regression analysis\(^\text{18}\), we examined how Chinese perceptions of mining associated impacts and benefits relate to acceptance of mining. We included composite measures of the three main impact and benefit areas in this analysis, respectively:

- Impacts on cost of living, on other industry sectors including agriculture and tourism, and on the environment including climate change;
- General economic benefits (including personal, family, and average Chinese), development of regional infrastructure (including transport, social, and communications), and employment and regional benefits.

As shown in Figure 9, the strongest positive predictor of acceptance of mining was general economic benefits (financial benefits for family, self, and average Chinese), followed by employment and community benefits, then regional infrastructure development. These findings suggest that the more participants felt mining created benefits in these areas, especially general economic benefits as well as employment and community benefits, the greater their acceptance of mining.

The strongest negative predictor of the acceptance of mining was impact on the environment, followed by impact on agricultural and tourism sectors, then impact on living cost. These findings suggest that the more impacts that participants felt that mining had on environment, agriculture and tourism, and living cost, the less they accepted mining in China. Notably, the effects of impacts on acceptance of mining were weaker in comparison to mining associated benefits.

\(\beta\) weights represent the relative strength of each relationship. Positive \(\beta\)-values indicate a positive relationship; negative \(\beta\)-values indicate a negative relationship. \(***\) indicates relationship is significant at the \(p<.001\) level.

\(\beta = \) Beta weights

Figure 9 Stylised regression model of impacts and benefits predicting acceptance of mining.
Finally, we were interested in understanding whether people in China felt that the benefits of mining outweigh the perceived impacts of mining, and how this affected their level of acceptance of the industry. To do this, we asked participants to indicate their agreement with the statement: “Considering the benefits and costs associated with mining, it is worthwhile to pursue mining in China.” The mean response to this item was below the midpoint of the scale used (M = 3.74, SD = 1.42). In particular, participants from metropolitan areas (M = 3.54, SD = 1.36) were least supportive that mining is worthwhile to pursue in China, followed by participants from non-mining regions (M = 3.82, SD = 1.39). Participants from mining regions held a more positive view by comparison (M = 4.01, SD = 1.52).

Social licence is everyone’s business

While impacts and benefits of mining are important in shaping the level of acceptance of mining among Chinese citizens, achieving a social licence is also about building trust between mining companies, governments and society. There is growing understanding that the way people are treated in decision making processes, the way that benefits from mining are distributed, and the role of governance in setting the rules of mining, are important to developing this trust and acceptance of mining.

19,20

We explored this in our data by examining the role of the following measures in predicting trust in industry, and acceptance of mining, in China:

- **Procedural fairness** – the extent to which the industry listens to and respects community opinions, and changes its practice in response to community concerns;
- **Distributional fairness** – the extent to which economic benefits from mining are distributed fairly, and each citizen receives a fair share of the benefits from mining;
- **Governance capacity** – the extent to which people in China feel that their central and local government as well as legislation/regulation can ensure mining companies do the right thing.

21

To do this, we used path analysis, a statistical modelling technique that allows us to examine the relationships between these measures simultaneously. The results of this analysis can be seen in Figure 10: high numbers indicate stronger relationships, and all of the relationships are positive. This means that higher levels of trust lead to higher levels of acceptance, for example.

The results suggest:

- Trust in the industry was a strong predictor of acceptance of the industry. Or put another way, the industry’s social licence is facilitated by the level of trust that the Chinese public have in it.
- Distributional fairness was the strongest predictor of trust in the mining industry. That is, the more participants felt that the benefits from mining were distributed fairly, the more they trusted the industry.
- Distributional fairness also directly predicted acceptance of the mining industry. That is, the more participants perceived that benefits associated with mining were distributed fairly, the more likely they were to accept the industry.
- Higher perceived levels of procedural fairness in the way that the mining industry engages the public led to higher levels of trust in the industry.
- Governance capacity was also associated with trust in the industry. That is, the more faith that people have in China’s governance capacity to ensure mining companies do the right thing, the more they trust the industry. Governance was, however, the weakest predictor of trust in the mining industry.
- Distributional fairness, procedural fairness, and governance capacity were all positively related to each other – more of one leads to more of the others.

**A MODEL FOR SOCIAL LICENCE TO OPERATE**

<table>
<thead>
<tr>
<th>Distributional fairness</th>
<th>Procedural fairness</th>
<th>Trust in the mining industry</th>
<th>Acceptance of mining</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.40</td>
<td>0.48</td>
<td>0.25</td>
<td>0.18</td>
</tr>
<tr>
<td>0.18</td>
<td>0.25</td>
<td>0.25</td>
<td>0.18</td>
</tr>
<tr>
<td>0.11</td>
<td>0.13</td>
<td>0.02</td>
<td>0.25</td>
</tr>
</tbody>
</table>

**Figure 10** Societal acceptance of mining path model.


20 Zhang, A; Moffat, K. A balancing act: The role of benefits, impacts and confidence in governance in predicting acceptance of mining in Australia. Resources Policy. 2015. 44: 25-34. http://dx.doi.org/10.1016/j.resourpol.2015.01.001

21 A brief overview of path analysis may be found at the following link: http://en.wikipedia.org/wiki/Path_analysis_%28statistics%29
Taken together, these results suggest that building trust and acceptance of mining (i.e., a social licence) requires more than just the actions of either industry or governments alone—a social licence is dependent on these important parts of the mining industry working together.

People in China trust and accept the industry more when benefits from mining are shared equitably, when they feel heard by an industry that is also responsive to their concerns, and when the legislative and regulatory frameworks in place provide confidence that the mining industry will do the right thing. Distributional fairness in particular appears to be very important in China for building trust and acceptance of the mining industry. In this data, when citizens felt that they received a fair share of the benefits from mining, and that these benefits were distributed fairly they felt more positive about the industry. The direct path between distributional fairness and acceptance demonstrates the power of this factor in shaping the industry’s social licence to operate, independent of any other variables.

From this data, it is evident that obtaining and maintaining a social licence is the responsibility of governments and industry working together with communities to promote effective, constructive, and mutually beneficial relationships.

What do citizens in other countries think about mining?

This project is part of a larger program of work to understand and articulate the views of citizens in mining jurisdictions around the world. To date, national scale surveys have also been conducted in Australia and Chile. This report is the third published as part of this program.

To download these reports, head to www.csiro.au and search for ‘mining attitudes’, or email the Project Leader Dr Kieren Moffat at kieren.moffat@csiro.au for a copy.

In Australia, 5,121 citizens were surveyed from across the country. Results show that respondents, overall, consider it worthwhile to mine in Australia after weighing up the benefits and costs of the industry. Australians trust and accept the mining industry more when they feel heard by the industry and when it is responsive to their concerns.

In Chile, 1,598 citizens were surveyed from across the country. Governance capacity in particular appears to be very important in Chile for building trust and acceptance of the mining industry: the more faith that Chileans have in the capacity of legislation and regulation to ensure mining companies do the right thing, the more they trust the mining industry.
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