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Mining institutions, contention and credibility: Applying the Conflict Analysis Model to court cases in China

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ABSTRACT

China features a fast-growing mining industry with mounting environmental problems. This study examines the dilemmas posed by this growth from the perspective of credibility and conflict. In doing so, we assess the source of, and actors, timing, intensity, and outcomes linked to, mining-related conflicts using the Conflict Analysis Model. Based on a set of court decisions (n = 123), conflicts can be grouped according to: 1) land acquisition; and 2) mining-induced land subsidence. We ascertain that conflicts linked to land acquisition feature low intensity; revolve around disagreement over (illegal) land rents (instead of legally required expropriation); and are between villages/farmers versus mining companies. However, conflicts over land subsidence are high intensity; revolve around compensation; and are between farmers and government. It is concluded that the institutions governing the mining sector are a double-edged sword. On the one hand, rules on land acquisition and lease function as an 'empty institution' as rural land is illegally leased to mining companies rather than formally expropriated. This situation facilitates mineral exploitation while gaining credibility from a collusion of government, companies, villages, and farmers. Contrarily, the rules on land subsidence generate significant conflict amongst the rural populace and call for greater involvement of the central government.

1. Introduction

Since implementing economic reforms in 1978, China has undertaken numerous legislative efforts to govern and control mining. The most important laws and regulations that directly pertain to the mining industry are the Mineral Resources Law (1986, amended 1996) and the Coal Industry Law (1996). Considering mining's enormous impact on land and the environment, the Land Reclamation Law (1988, amended 2011) and the Environmental Protection Law (1989, amended 2015) are also considered important to the governing of China's mining industry. In addition to the national Environmental Protection Law, China has also promulgated separate laws and regulations with regard to contaminating the air and water and pollutants such as dust and wastes. Mining-related environmental protection measures can be found dispersed among pre-existing laws and rules. While lawmakers aim to reduce and mitigate the multiple risks of mining, observers have signaled three main issues that impact China's mining institutions: 1) the outdated nature of the current legislative framework (Jiang and Luo, 2013; Xie and Dai, 2011); 2) ambiguity in the regulations (MLR, 2013; Sun and Xiao, 2011); and 3) administrative fragmentation between involved authorities (Greenovation Hub, 2014).

As a result of these issues, China has witnessed a fast-growing mining industry and currently ranks among the largest mineral producers in the world. Meanwhile, mining has caused severe environmental degradation including land subsidence, water and air pollution, acid mine drainage, and disturbance of hydro-geology, amongst others (Bian et al., 2010; Greenovation Hub, 2014; Yang and Ho, 2018). Mining projects disrupt soil and water quality which subsequently reduce the viability of other industries such as agriculture, tourism, and fishing that are dependent on those resources. Environmental degradation has led to significant public health issues including higher incidences of cancer, mercury-related diseases, and elevated lead levels in blood (Li et al., 2014; Zhuang et al., 2009). Mining also induces the risk of large-scale livelihood dispossession and resettlement (Yang et al., 2017). For example, in Shanxi Province, there are reportedly over 1000 'floating villages' (*xuankongcun* in Chinese) that are severely affected by land subsidence, forcing farmers to be evacuated. It is estimated that the number of displaced farmers as a result of mining is more than 2.3 million, exceeding the number of people displaced by the Three Gorges Dam (VanderKlippe, 2015; Xinhua, 2015; Zhang, 2013).

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Despite these externalities, there is a broad coalition of interests in favor of mining in China as it has long been hailed as a complementary livelihood to alleviate rural poverty (Ge and Lei, 2013; Lei et al., 2013; Rui, 2005; Shen and Gunson, 2006). Local authorities especially have a strong interest in supporting the mining industry as it provides a source of revenue and economic growth. The presence of mining industries also offer ample rent-seeking opportunities for local officials and village cadres. Markedly, although often portrayed as victims, even local residents are rarely consistent or unanimous in their views on mining as a large proportion depends on the income derived from that industry (Yang and Ho, 2019).

Given China's booming growth of the mining industry and the double-sided nature of its presence for local communities as well as the profound impacts it has had on the social and natural environment, it is important to establish functioning institutions that reduce the risks and hazards of mining. This study aims to explore the credibility of mining institutions with particular reference to the rules that govern land acquisition, land lease and mining-induced land subsidence. A primary, but not sole, determining factor of institutional credibility is conflict. However, as will be shown in the literature review below, there is insufficient understanding of resource conflict, its measurement, and assessment in general as well as that for mining conflicts in particular. In this context, this paper aims to answer the following questions: 1) *How can we better qualify and quantify resource conflicts, and in particular, mining conflicts? 2) How can we characterize the credibility of the mining institutions that regulate land acquisition, lease and mining-induced subsidence in China*?

By applying an adapted version of the Conflict Analysis Model (Ho, 2016a, 2014) on 123 court decisions, we first arrive at a more quantitative and qualitative understanding of the current state of mining conflicts in China. It is found that conflicts pertaining to land acquisition are mostly between farmers and mining companies and involve low-intensity disagreement over land lease, and more particularly the rent. The conflicts over mining-induced land subsidence and, by extension, displacement and resettlement feature a high degree of government involvement. More importantly, those insights into conflicts help to understand the underlying regulatory roots and the magnitude of conflicts. In many instances, it has led to a situation in which state regulations were cast aside as an 'empty institution' (Ho, 2016b, 2005): a functional compromise to show authorities that certain procedures are in place while leaving enough leeway at the local level to carry out rapid, unchecked mineral exploitation. In other words, the intended function of the institution is undermined and overshadowed by the intentions of local actors.

This study makes a double contribution to the study of resource conflicts. First, it demonstrates that the Conflict Analysis Model in this study that is predicated upon a dataset of court decisions can be successfully employed for quantitative and qualitative insights into environmental resource conflicts. Those insights help to understand the underlying root causes and the magnitude of conflicts, and it is suggested that the model can be applied to other types of conflicts as well. Second, this study has conducted an institutional analysis at the macro-level and offers a view of those directly affected by mining in China which, at the time of this writing, is the world's largest producer of numerous mineral resources including coal, iron ore, aluminum, tin, zinc, bismuth, and gold (Reichl, 2018). It needs to be mentioned that there are few studies that examine the social, economic and environmental impact of mining at the (rural) community level in China.

This paper is structured as follows. Section 2 provides a literature review on resource conflict and describes the background and rationale for the Conflict Analysis Model. Part 3 operationalizes the model in the context of China's legal conflicts and describes the dataset. Section 4 applies the model to analyze Chinese mining conflicts. Section 5 concludes the article.

2. Opportunities and constraints in the analysis of resource conflicts: a review

In light of their variety and complexity, conflicts are often addressed separately in literature and include peace and conflict studies, contentious politics, and legal studies. As Le Billon (2010) commented on the research of resource wars, it is challenging to assess the trend and explanatory factor of these conflicts due to the inconsistency of the record of the form of conflicts. On the one hand, detailed case studies use a broad-ranging definition that attempts to account for the various physical, environmental, and cultural forms of violence; on the contrary, most of the quantitative literature adopts a narrow definition of violence as armed conflict.

Similarly, most academic work on resource protests takes place through case studies using a processing-tracing methodology (Eisenhardt, 1989). In general, emblematic cases of successful or large-scale mobilization are selected (Pu and Scanlan, 2012; Zhan, 2013). The literature has been most interested in the process of how grievances emerge and transform into action, how citizens mobilize social, political and financial resources and receive effective remedies, and what constraints and opportunities they face (Felstiner et al., 1980).

The disciplinary approach helps to improve our understanding of conflicts because it focuses on the role of selected aspects in great depth. However, they are often descriptive in nature and may not be sufficient for providing a comprehensive approach to conflict analysis, and it is difficult to generate a comparative and generalized pattern. For example, the degree of involvement of each actor varies and yet is unknown, inasmuch as the level and nature of resources conflicts often remains uncertain. It is partially due to a low number of studies but, more importantly, also to the absence of a conceptual framework for the quantification and qualification of resource conflict.

In response to this, we adopted the Conflict Analysis Model as expounded in the credibility thesis and its underlying theory, in which credibility is conceptualized as a continuum that ranges from 'fully' or 'partially credible', to 'empty' or even 'non-credible' (Ho, 2016a, 2013). It puts forward that the opposite extreme of a credible institution is a non-credible one while an empty institution is situated in the middle of the theoretical continuum. An empty institution emerges as a symbolic compromise for sensitive social and political issues as it is not enforced and, therefore, causes fewer disputes. Stated differently, an empty institution is a set of rules that:

> "…*is, by and large, ineffective and ignored, yet simultaneously socially accepted, little contested and, in effect, to a certain degree credible*" (Ho, 2016b:1147)

It needs to be noted that an empty institution is not equal to a non-credible set of rules. In effect, the empty, symbolic rules may shift into non-credible rules when they are forcedly imposed, generating more conflicts and social divides. The credibility thesis has been adopted in a variety of empirical studies on conflicting claims over resources such as grassland degradation in China (Fan et al., 2019; Zhao and Rokpelnis, 2016), water resource distribution in Bangladesh (Gomes and Hermans, 2018) and India (Mollinga, 2016), and artisanal mining in Ghana (Fold et al., 2018).

Accordingly, the Conflict Analysis Model measures disputes through social actors' aggregate perceptions of conflict (Ho, 2016a, 2014) that are operationalized through a comprehensive set of indicators: 1) *source*, defined as the type of conflict; 2) *frequency*, defined as the number of times a type of conflict occurs during a specified period; 3)

timing, defined as the historical period or project stages of the most frequent conflicts.[1] 4) *intensity*, defined in this context as the level of litigation and appeal rate; 5) *duration*, the amount of time that a conflict lasts as can be measured in days, weeks, months, or years; 6) *nature*, i.e., violent or non-violent, which can be further divided into civil disobedience such as roadblocks, demonstrations, or acts of open violence such as beatings, kidnappings, etc.; and 7) *outcome* as the result of the conflict which may be measured as being positioned on a scale ranging from solved, partly solved, to unsolved or a satisfaction ranking from 'totally satisfied' to 'totally unsatisfied'.

The Conflict Analysis Model has been applied successfully for evaluating the conflicts generated by agricultural land expropriation in China (Ho, 2014) and dam projects in Malaysia (Ho, 2014; Nor-Hisham and Ho, 2013). For example, it is generally believed that the Chinese countryside is rife with conflicts over land. However, by measuring the farmers' perception of the source, frequency, and timing of land disputes, it was actually ascertained that the overall perceived level of conflict is low, albeit undeniably and critically linked to land evictions. In this sense, the model thus helps to debunk perceived wisdom regarding resource conflict. The application of this Conflict Analysis Model could also contribute to identifying the primary cause and intensity of conflicts and prioritize areas for policy intervention.

In this paper, we apply the Conflict Analysis Model to study mining conflicts as they are a suitable case for the following reasons. First, the mining industry has generated some of the most contentious rural conflicts in China. In the context of mineral extraction and processing, mining activities can be incredibly environmentally destructive and, over the course of many years, cause irreversible damage to surrounding landscapes and disrupt local communities (Wang and Yuan, 2013; Zhan, 2013; Zhang, 2013). Second, mining-induced conflict is a continuum of which the spectrum includes, on the one hand, those that are violent in nature while, on the other hand, also encompassing those that feature less violent acts of civil disobedience such as sit-ins or peaceful demonstrations (Conde and Le Billon, 2017; Davis and Franks, 2014; Gutiérrez Rodríguez, 2019; Katz-Lavigne, 2019).

3. The Conflict Analysis Model and data description

3.1. Indictors for the level of conflict

In this paper, we examine the mining conflicts with four of the seven indicators listed in the previous section: source, timing, intensity, and outcome. The three remaining indicators (frequency, duration, and nature), that relate something about the seriousness of a conflict are not included here due to data availability. As a result, one may have a less comprehensive understanding of conflict. Having said that, we may still derive the seriousness of the conflict through the intensity assessed from the level of litigation and appeal rate. Moreover, in addition to the seven indicators mentioned above, we propose adding an additional indicator, the *actor,* to the Conflict Analysis Model. Examining the actor will help investigate the interaction between those involved and understand how their respective roles facilitate or frustrate the solution of a conflict. An overview of the original and adapted Conflict Analysis Model is provided below (see Table 1).

This study aims to highlight two fundamental *types* of mining conflict, those relating to: 1) mining land acquisition; and 2) mining-induced land subsidence and the resulting displacement and resettlement. By examining the causes of litigation, we can trace the underlying source of the conflict. We consider the plaintiffs and defendants in courts to be the *actors*. The *timing* is represented by the various stages of mining operation: exploration, site design and planning, construction, production, closure and reclamation. By examining this indicator, one may conceptualize which stage of mine development is most prone to conflicts.

As for the *intensity* of conflict, we examine the level of courts and appeal rate of the cases. China's court system is characterized by 'four levels and two instances of trials' (Song, 2007). There are three levels of courts of first instance (lower or *jiceng*, intermediate or *zhongji*, and high courts or *gaoji*).[2] Important cases may bypass the lower court and proceed immediately to the intermediate or higher court (Stern, 2011). Thus, to examine at which court level a conflict is adjudicated at the first instance is an indication of the importance of a case.[3] If the litigants do not agree with the judgement made by a local court in the trial of first instance, they have the right to appeal the case to the next higher-level court, and ultimately, the Supreme People's Court. An appeal to a higher court entails additional costs which indicates that the litigants are not satisfied and are willing to invest more resources. Therefore, the rate of appeal could also be a suitable indicator for the intensity of conflict.[4]

With regard to the *outcome* of conflicts, we investigated the judgments at the first instance trial and also those that were appealed to a higher level of court. This helps us to understand the consistency of judgments and the preference towards certain parties. More importantly, it also indicates whether these conflicts can be resolved in court or not. Particularly unresolvable cases in which no court will hear the case reflect the institutional loopholes which prevent farmers from resolving their conflict.

3.2. Data

Our databases on mining cases are derived from two sources. The first is the China Online Judgements Database[5] (*Zhongguo Caipan Wenshu Wang*) maintained by China's Supreme People's Court which ordered that all levels of courts shall publish their finished cases online beginning January 2014. Another complementary database is the PKU Law Database (*Beida Fabao*)[6] established by Peking University Law School in 1985. It contains a great number of judicial decisions before 2013.

To build our dataset, we first searched the published adjudication decisions using keywords including 'mining' (*kuangye*), 'land lease' (*tudi chengbao*)', 'land rent' (*tudi zulin*), 'land expropriation' (*tudi zhengyong*), 'subsidence' (*taxian*), and 'relocation' (*banqian*). This article mainly focuses on the conflicts involving local communities, primarily farmers. Therefore, after scrutinizing the text, we excluded non-relevant

[1] As a transitional economy, China has witnessed the ebb and flow of farmers protesting against excessive burdens and birth control, laid-off workers demonstrating for pensions, and evictees fighting against land expropriation and housing demolition (Chen, 2003; He, 2014; Li and O'Brien, 1996; O'Brien and Li, 1995). Therefore, timing will help to gain knowledge on the distribution of conflicts through time.

[2] The four level of courts, namely, lower people's court, intermediate people's courts, higher people's courts, and the Supreme People's Court exercise increasing judicial power. Two instances of a trial mean: first, litigants of a case who challenge the judgments made by a local court in the trial of first instance have the right to appeal the case to the next higher-level court only once. Second, judgement of the first instance becomes legally effective if, within the prescribed period for appeal, no party makes an appeal. Third, the judgement of the court of the second instance shall be seen as final decision of the case and cannot be appealed.

[3] The level and location of the court is sometimes crucial to win a case. For example, when pollution crosses borders, pollution lawyers tend to find a court insulated from the polluter's political influence but that also has jurisdiction (Stern, 2011).

[4] However, as the cases are ongoing, the appeal rate will be higher than the figure in this article and should be read as a reference.

[5] *Zhongguo Caipan Wenshu Wang*, wenshu.court.gov.cn.

[6] *Beida Fabao*, www.pkulaw.cn. PKU Law database provides a unique code number for each decision, which makes it easily identified and accessible. Therefore, this code number is used in a footnote when cases are cited.

Table 1
Original and adapted Conflict Analysis Model compared.
Source: based on (Ho, 2016a, 2014).

Indicators	Original conflict analysis model (Ho, 2016a, 2014)	Adapted conflict analysis model (this study)
Actors	Not included	Actors appearing in court (plaintiff, defendant, third party)
Source	Type of conflict	Divided into land acquisition and subsidence, latter of which subdivided into: 1) liability; 2) cause of damage; 3) relocation/resettlement; 4) compensation)
Timing	Historical period or project stages	Stage of mining operation
Intensity	Level of litigation and appeal rate; economic costs	Level of litigation and appeal rate
Outcome	Status of conflict (resolved or unresolved)	Decision of court
Frequency	Incidence of conflict	Not included
Duration	Length of conflict (ranging from days to multiple years, or ongoing)	Not included
Nature	Violent or non-violent	Not included

conflicts such as those within mining companies and between mining companies or these between affected non-mining industrial enterprises and mining enterprises.

For the convenience of analysis, we counted a bundle of decisions on an identical issue as one case. An identical issue means the exact same parties, facts, and legal questions. A single case can produce a bundle of decisions in one of two ways. First, a collective lawsuit (*quntixing anjian*)[7] for one issue may be divided into individual cases in order to maximize per case court fees, inflate statistics on the number of cases that are handled, or defuse a collective action (Stern, 2011). This is especially notable in the case of mining-induced land subsidence and resettlement for which substantial numbers of farmers bring suit against government authorities. Second, one issue may go through several trials at different levels of court and thereby generate multiple verdicts. After identifying an issue, repeated searches using a particular keyword of the issue at different times were conducted in order to track any recent progress. By consolidating cases from these two sources, we aggregated a dataset with 123 instances of conflicts[8].

In general, most disputes at the grassroots are solved through social and political means; while only few enter the legal system (Michelson, 2007). There are two reasons for the reluctance to initiate legal proceedings. On the one hand, the inadequacy of legal knowledge, the costs involved, and the potential of receiving no compensation hinder one's willingness to resort to legal approaches (Michelson, 2007). On the other hand, there is a shared understanding of the judicial bias favouring government officials, weak enforcement of judgements, and potential agency retaliation (Gallagher, 2006; Li, 2014; O'Brien and Li, 2004). However, with the central government's repeated emphasis on the rule of law and gradual consolidation of the legal system, attempts to resolve disputes via legal channels have steadily increased (Yip et al., 2014). As scholars have duly observed, Chinese citizens tend to use different methods, e.g., litigation, protests, and demonstrations, at the same time to resolve disputes. The goal of such protest-supported litigation is an effort to legitimate their actions but also to exert pressure on the decision making of the courts and government agencies (He, 2014). Previous empirical research shows that published adjudications are able to reveal the inner logic of court decisions and provide a neutral lens to observe how societal and political forces penetrate the courts (He and Su, 2013; Jin, 2015; Stern, 2010).

Relying on the officially documented court cases entails that an uncertain number of unnoticed conflicts or conflicts outside of the legal system are not included. However, one of the aims of this paper is the demonstration of the Conflict Analysis Model, which could be replicated when more data become available. Despite the signalled limitations, we believe our dataset still has a certain degree of representativeness in terms of geographical diversity and the type of mined minerals (Table 2).[9]

Table 2
Description of the sample (N = 123).
Source: compiled by the authors.

Category	Frequency	%
Type of mineral		
Coal	74	60.2
Metals[a]	27	22.0
Non-metallic minerals (Construction minerals, sulphur, etc.)	22	17.9
Region		
East	35	28.5
Central	48	39.0
West	40	32.5
Year of Judgements		
Before 2013	8	6.5
2014	22	17.9
2015	24	19.5
2016	35	28.5
2017	29	23.6
2018	5	4.1
Total	123	100

[a] Metals such as iron, zinc, manganese, gold and silver.

4. Applying the model to mining conflict in China

4.1. Land acquisition conflicts

China has imposed strict regulations on the acquisition of land for construction purposes; this includes mining. Rural collective land[10] needs to be formally expropriated by the state prior to mining and commercial construction, and it is forbidden to directly lease or transfer land use rights to collective land for non-collective, *non-agricultural, construction* purposes (Article 63, Land Administration Law, 2004). However, other studies and reports (Dang, 2010; Kang, 2009; Ma and

[7] All-China Lawyers Association published a guideline placing restrictions on lawyers' involvement in 'collective cases'; it defines 'collective cases' as cases with more than ten plaintiffs (All-China Lawyers Association, 2006).

[8] All cases are available in the SPC and PKU Law dataset and on file with the authors.

[9] *A Guide to Investment in China's Mineral Industry* by the Ministry of Land and Resources and Chinese Academy of Land and Resources Economics (MLR and CALRE, 2012) provides a comprehensive description of the mineral resource distribution. Our sample distribution slightly overlaps with the actual distribution, e.g., cases on coal conflicts concentrated in Shandong, Jiangsu, Shaanxi, and so on while western areas such as Chongqing, Hunan, has a high proportion of manganese, zinc related cases.

[10] The rural collective in China consists of three levels: the township (xiang), the administrative village (xingzhengcun) and the natural village or villagers' group (zirancun or cunmin xiaozu). The latter is the actual, physical village, whereas the administrative village may be comprised of several natural villages, and the township, in turn, several administrative villages.

Zhang, 2001; State Council, 2006; Wu and Hu, 2007) have found that the common practice is to directly lease land for mining from farmers.

We found that that virtually all of the conflicts pertaining to land acquisition for mining are about rent (45 out of 48 cases) rather than about compensation for the expropriation. Although this result in some ways could have been expected as expropriation seldom occurs, it is still surprising that these conflicts made it to court at all, since leasing is prohibited under the Land Administration Law. This shows that the regulations on land acquisition and land lease for non-agricultural purposes are merely an empty institution, a symbolic rule that exists on government paper only.

Litigations were generally lodged when agreements could not be reached over the renewal of the lease (12 cases); when the mining companies failed to pay the rent in time (23 cases), or when there was disagreement on how to deal with land reclamation after the ceasing of mining (seven cases). Government intervention was only evident in three cases when the mining activities were terminated due to missing mining or land use permits. After the operation ceased, the mining companies filed a lawsuit to demand the village collective to reimburse the rent that had already been paid (three cases). Note that from a legal point of view, it is highly unusual that a mining company would seek compensation for what, in fact, is illegal (i.e. the lease of collective land for non-agricultural purposes).

By looking at the actors involved, conflicts are concentrated between farmers and mining companies. Table 3 shows that in the majority of cases (31 out of 48) litigants were farmers. Village committees as the legal representatives of the rural collective acted as litigants against mining companies in 17 out of 48 cases.

The conflicts over land acquisition between farmers, village collectives, and mining companies are characterized by late timing and low intensity. First, conflicts mainly arise at the mining production stage (35 cases) instead of during the construction stage. At the start of the mining activities, the lease contract and rent are mutually negotiated and agreed on by farmers and mining companies. The conflicts are initiated when one party no longer complies or agrees with the contract, such as in case of delay of the payment of rent or refusal to renew the contract. Second, without exception, the cases are all first brought to the local lower people's court while only 14 of the cases were subsequently appealed for a second trial at an intermediate court.

The Land Administration Law explicitly forbids the direct lease or transfer of collective land use rights to entities outside the village collective for *non-agricultural*, *construction* purposes, such as mining (Article 63, Land Administration Law, 2004).[11] Therefore, land sub-lease contracts (as farmers initially sign a primary or master lease with the village collective) that are signed between farmers and mining companies violate the law and should be invalidated (Article 52, Contracting Law). However, as we have seen above, the inconsistency of the application of law at the local level often prevents such invalidation, and consequently, leaves this prohibition as nothing but an empty institution.

Table 3
Conflict analysis of land acquisition for mining (N = 48).
Source: compiled by the authors.

Indicator	Content		Number
Source	Disagreement over rent during contract renewal		12
	Delay of rent payment		23
	Land return after mining ceases		7
	Rent disagreement due to government intervention		3
	Not clear		3
Actor	Farmer vs mining company		31
	Village vs mining company		17
Timing	Planning and construction stage		4
	Production stage		35
	Closure		9
Intensity	First-instance	Lower court	48
	Appeal to	Intermediate court	14
Outcome	First-instance	Not accept	3
		Valid Contract	35
		Invalid contract	10
	Appeal	Upheld	13
		Partial change	1

There are two additional issues that, in theory, should also lead to the invalidation of lease contracts. The first is when the term of the sub-lease exceeds the legal term of the (original) master-lease. China issued the '*30 Years No-Change-Policy for Rural Land Lease*' in 1998 under which farmers can contract or lease (*chengbao*) the land for a 30-year term, generally until 2028 (depending on the starting date of the lease). If a farmer transfers or sub-leases (*liuzhuan*) his land to other parties, the term shall not exceed the remaining period of the original term (Article 33, Law on Land Contract in Rural Areas, 2002). Secondly, when leasing land to parties outside the village collective, this must be subject to a two-thirds majority vote by the villagers' representatives meeting, i.e., all villagers (Article 18, Law on Land Contract in Rural Areas, 2002).

When cases pertaining to direct leases to mining companies are brought forward, the court should annul these contracts as discussed above. However, the largely symbolic nature of the rules on direct land lease for mining can be ascertained through the inconsistent verdicts of the lower courts: in most instances they deemed the case valid (35 cases), at times, the contract was ruled to be invalid (ten cases), or the case was dismissed (three cases). The aforementioned prohibition for non-agricultural, construction use, Article 63 of Land Administration Law, is mostly cited as the reason to annul direct mining lease contracts. Paradoxically, however, under exactly similar conditions, direct mining lease contracts have also been considered as valid *and* legal as the courts ruled that the contract was 'based on mutual parties' true will and not in violation of any law and regulations' (*sic*!).[12]

The conflicting verdicts illustrate that local courts reach different interpretations on the legality of direct land leases for mining which, in fact, are in flagrant violation of the law. When direct lease contracts were deemed valid, the act of land acquisition was confirmed requiring the delinquent party (i.e., the mining company) to perform its duty, namely, to pay the land rent. On the other hand, when these contracts were deemed invalid, the adjudications did not change the status of land use. In these cases, it was still the responsibility of the involved parties to resolve the disputes regarding the land rent.

From the analysis above, it can be contended that the regulatory institutions (and their workings) on mining land acquisitions are an

[11] Under the newly revised Land Administration Law, effective since 1 January 2020, land lease for non-agricultural use is no longer explicitly prohibited. This, however, is not likely to make a great difference on the ground. The revised law namely rules in detail the preconditions for the land lease for non-agricultural use: 1) it must be designated as industrial/commercial land under the overall land use plan; 2) it must have been legally titled as collective construction land; 3) a contract between the concerned parties must have been signed defining the plot boundaries, area, construction period, use period, land use, planning conditions, and mutual rights/duties; 4) the concerned project needs to have approval from at least two-thirds of all villagers or of two-thirds of the villagers' representatives; 5) the conditions for the land lease (e.g. maximum period, mortgage, sub-lease, etc.) are stipulated according to the use of state-owned land following concrete regulations by the State Council. As in most cases *agricultural* land is directly leased to mining companies (and *not* collective construction land that has been formally titled and designated as such in the overall land use plan), it is uncertain whether the de facto situation will significantly change, if the monitoring, supervision and penalizing are not improved concurrently.

[12] Further background information on the governance system in China is provided in (Shue, 2018).

outcome of the conflicting interests between the central government and local actors. On the one hand, the strict regulations on land acquisition by the central government seek to protect farmland in light of national food security (Lichtenberg and Ding, 2008). On the other hand, such strict regulations are contrary to the interests of local authorities and mining companies in obtaining and exploiting the land while also being unfavourable for the interests of farmers who hope to reap benefits from the added value of their land.

Therefore, in numerous instances, mining companies directly lease (agricultural) land from the village collective and farmers which allows them to circumvent national regulations on land acquisition. This is usually achieved with the tacit approval of local governments. This "rule-in-use" is conducive to mineral exploitation, incites low intensity conflicts, and rallies credibility from all actors: the local government, mining companies, village collectives, and farmers. However, a significantly different situation was found with regard to the disputes around mining-induced land subsidence.

4.2. Land subsidence conflicts

In this section, we will examine the second type of mining conflicts: those related to land subsidence and, in its wake, disputes over the displacement and resettlement as villages have become uninhabitable due to sinkholes, fissures, receding cropland, and damaged buildings. Mining-induced land subsidence is one of the most dominant causes of displacement and forced resettlement in China's mining areas. A recent study (Yang et al., 2017) has suggested that loopholes, inconsistencies, and lacunas in the current regulatory and institutional framework are major reasons for this.

First, the absence of the principles of 'Free, Prior, and Informed Consent' or FPIC in laws and regulations not only incited the magnitude of the problem but also created a pervasive culture of 'mine first, clean up later'. Due to land subsidence, which can occur years after mining has commenced, forced displacement and resettlement are often the non-desired and heavily contested outcome of mining. In fact, in our analysed court cases, conflicts often arise during the mining's operational stage.

Second, although the Polluter Pays Principle (PPP) has been included in certain mining laws and regulations, the liability shared between the central state, local state, and mining companies still needs further clarification and readjustment. The current ambiguous responsibilities are reflected in court cases for which plaintiffs must decide against whom to bring legal proceedings: the government or mining companies.

Third, government authorities have multiple roles: as an arbitrator (mostly reserved for the land and resource administration bureaux) they identify the polluter; as an implementer (i.e., the township government) they are charged with relocation and resettlement; and as a regulator (i.e., county government and above) they are responsible for specifying compensation standards for mining-induced damages (which in itself also frequently incites conflict). Despite the difficulty of suing government authorities in their multiple roles, a number of administrative cases were successfully brought to courts.

In the sections below, we will further examine these cases as subdivided over four specific sources of conflict: 1) who is liable and can be sued; 2) challenges to the government as arbitrator (in establishing the evidence of the cause of damage); 3) challenges to the government as implementer (of relocation and resettlement); and 4) challenges to the government as regulator (in setting the compensation standards).

4.2.1. Who to sue, the government or the mining company?

As mining activities are regularly associated with economic and socio-psychological damage to local villagers, affected villagers should be able to file a lawsuit against the responsible mining company or government agency. However, the indistinct liabilities between mining companies and the local government have left significant manoeuvring space for the court to accept or reject cases.[13]

Here, we have collected 20 cases (see Table 4). The affected farmers first filed lawsuits against the mining company (15 cases). The courts immediately dismissed these by claiming that they did not fall within the scope of the civil litigation accepted by the People's Courts. The courts hold that mining companies are not entitled to legally act as a defendant in cases of relocation as this role belongs to the government as stipulated in the regulations.[14] Instead, cases should be dealt with as administrative cases against a transgression by the government.

Subsequently, in a limited number of cases the farmers brought a new (administrative) case against the government following the earlier dismissal. However, as it is even more difficult to persuade the court to accept an administrative case this only occurred in 5 cases. An example may illustrate this difficulty. In 2015 a group of 32 villagers in Yuncheng County, Shandong, filed a collective litigation against the village relocation office under the Shandong Provincial Government.[15] They pleaded to annul the relocation office's decision on designating their village for relocation, which was an administrative act rather than policy. However, the lower people's court did not accept the case and claimed that the official address of the defendant did not fall under its jurisdiction. Subsequently, the villagers appealed to an intermediate court, requesting that the trial court transfer the case to the court with jurisdiction over the case. Yet, the intermediate court again rejected the case on the grounds that the trial court had no responsibility to transfer the case as it did *not* accept it.[16]

In contrast to the decisions on land acquisition (see Section 4.1), fairly *consistent* decisions are made. None of the cases were accepted at the first and appellate courts. At the same time, the findings from these dismissed cases actually raise more questions than answers. In China, a precedent (*panli*) does not have a legally binding force, and courts generally do not cite previous court decisions in their judgments (Ahl, 2014). One might also wonder why the courts continue to refer disputes back to the government. This could be driven by the same logic as when courts refuse to regard disputes over urban housing demolition as civil litigation (He, 2007). On the one hand, higher government agencies do not wish the courts to be involved in dispute resolution (He, 2007). On the other hand, as a measure of self-protection, courts filter out and turn away 'troublesome' disputes (He, 2009). It is the ambiguous liability between government authorities and mining companies that provides the courts with this legal manoeuvring space.

4.2.2. Challenging the arbitrator: the cause of damage

While it may seem obvious that land subsidence and house damages are caused by underground mining, it is extremely difficult–not in the least for lower-educated farmers– to provide sufficiently robust evidence of what precisely caused the damage. This issue is further complicated when more mining companies operate in the same area. To deal with this issue, the Land and Resources Bureaux at the county level

[13] In the court system, there is also disagreement on whether to consider disputes on housing demolition compensation as civil litigation (He, 2007). However, this is not to say that civil litigations against mining companies are not possible. This paper examines the administrative litigations against government authorities to demonstrate the deep involvement in the mining-induced displacement and resettlement cases.

[14] For example, In Shandong, the provincial government promulgated an *interim regulation on relocating buildings above coal reserve* in 1989. Article 5 of this local regulation states that " bureaux at county level organize and coordinate the relocation of buildings above coal reserve, …, and deal with the relations between the mining industry and farmers".

[15] In the PKU Law dataset, the codes are CLI.C.21646065 and CLI.C.16602674.

[16] The ruling (CLI.C.16602674) was accompanied by a citation of Article 21 of the Administrative Procedure Law: 'Where a people's court finds that a case *it has accepted* (emphasis added) is not under its jurisdiction, it shall transfer the case to the people's court that has jurisdiction over the case'.

Table 4
Conflict analysis over liability of land subsidence (N = 20).
Source: compiled by the authors.

Indicator	Content		Number
Source	Whose liability to mining-induced land subsidence and relocation		20
Actors	Farmer vs mining company		15
	Farmer vs government agency		5
Timing	Operation stage		20
Intensity	First-instance	Lower court	18
		Intermediate court	2
	Appeal to	Intermediate court	17
		Provincial higher court	2
Outcome	First-instance	Dismissed	20
	Appeal	Dismissed	19

Table 5
Conflict analysis of disagreement over cause of damage by land subsidence (N = 20).
Source: compiled by the authors.

Indicator	Content		Number
Source	Government as arbitrator to identify the responsible party		20
Actors	Farmers vs Land and Resources Bureau		9
	Mining company vs Land and Resources Bureau		11
Timing	Operation stage		14
	Operation & Closure stage [in case of several mines around]		6
Intensity	First-instance	Lower court	20
	Appeal to	Intermediate court	18
Outcome	First-instance	Withdrawal	1
		Land and Resources Bureau: Win	17
		Land and Resources Bureau: Lose	2
	Appeal	Land and Resources Bureau: Win	9
		Land and Resources Bureau: Lose	9

have been charged with the task of identifying the polluter (Article 35, State Council, 2003).

When farmers or mining companies are unsatisfied with the administrative rulings by the local Land and Resources Bureau, they may apply for an administrative review or file an administrative lawsuit. In our dataset, we collected 20 administrative cases against the local Land and Resources Bureau. Of these, farmers lodged nine while mining companies lodged 11 cases (Table 5).

As previous studies on administrative litigation in China (Li, 2014; Pei, 1997) have ascertained, local courts often find themselves in a difficult position. On the one hand, local protectionism persists as a result of which the courts tend to protect the interests of state agencies. On the other hand, they must also be careful to maintain their own credibility and not persistently rule in favor of the (local) government. Having said that, it is difficult for the courts to examine government agencies' administrative acts. Stated differently, as the courts cannot assist in determining the liable parties, they can only decide on the legality of administrative procedures. Institutional credibility appears to be low here, as out of 20 cases 18 were appealed to a higher court. Out of these 20 cases, the Land and Resource Bureau lost two during the first instance, and nine out of 18 appealed cases because of procedural errors (for example, not issuing a written notification of the results of the appraisal, or selecting a non-qualified appraisal company to identify the cause of subsidence). In these cases, the administrative rulings were revoked, and the cases were referred back to the Land and Resources Bureau. At this point, it is evident that the legal system does not deliver a credible remedy for farmers with regard to establishing the cause of mining-induced damages.

4.2.3. Challenging the implementer: relocation and resettlement

Local governments, in most instances the township, are assigned the responsibility for relocation and resettlement.[17] They are, therefore, as an implementer, challenged in court when villagers are unsatisfied with the relocation. 21 court cases were collected in which local governments are challenged, of which two sources of conflict are distinguished: the eligibility for compensation (13 cases) and disagreement with the amount of compensation (eight cases) (Table 6).

Beginning with the eligibility for compensation, groups that are often excluded from compensation schemes include married-out women[18], senior farmers, and those without formal household registration (*hukou*) or agricultural land. For example, many married-out women still have their *hukou* registered at their home village and, therefore, are not regarded as members of the collective nor entitled to compensation. Aforementioned groups have sought various courses of action, and sometimes opt for filing a lawsuit against the implementing agency. From the analysis, it is ascertained that farmers have a more favourable position in court provided that they can substantiate their eligibility for compensation. The losing parties, regardless of whether that relates to farmers or the government, are likely to appeal to a higher court. The decisions made at an intermediate court are also generally in favor of the farmers (8/10 cases). However, to win in court is often just a pyrrhic victory as it remains unknown whether such rulings can also be enforced (Zhang and Ortolano, 2010). The township government can resist and refuse to implement the court's ruling. In such a case, farmers can apply to the court again to have the ruling enforced.[19]

The second set of cases relates to the insufficient compensation of mining-induced damages to property (such as for housing or land). These cases often arise due to disagreements over the measurement and assessment of the extent and nature of mining-induced damages. The primary task of the courts is to review the evidence that is presented by the litigation parties. However, it is difficult for farmers to provide solid evidence due to the legal costs and lack of legal knowledge, as a result of which their cases often fail (of the reviewed cases, eight out of eight failed).

4.2.4. Challenging the regulator: litigation against compensation standards

Unlike resettlement due to urban construction and hydropower development, the national law provides no compensation standards for resettlement induced by mining (Liu et al., 2006; Lu, 2002; Yang et al., 2017). As a result, the compensation to property damaged by mining is estimated according to local standards which are usually low. In Jiangsu, for example, compensation for land affected by mining-induced subsidence is at a maximum of 14,400 Yuan per mu, or 12 times the annual land productivity (ALP) (1200 Yuan/mu; 1 Yuan ≈ 0.143 US$, and 1 mu = 1/15 ha), a number significantly lower than land expropriated for urban construction (30 times of ALP) and hydropower development (16 times of ALP) (Jiangsu Provincial Government, 2004).

Such value differences have triggered social and economic inequity amongst the various compensation schemes for peasants. However, according to administrative litigation procedures, only *specific misdeeds* of the government can be considered for legal proceedings. As the standard for compensation is regarded as an *abstract* administrative decision instead of an individuated administrative act (O'Brien and Li, 2004), administrative litigations against the compensation standard cannot be filed.

[17] This was regulated beginning in the early 1980s, for example, the State Council administrative *measure on Coal Extraction under Buildings and Villages* in 1980 and 1983, and some local regulations, such as the *interim regulation on relocating buildings above coal reserve* promulgated by Shandong provincial government in 1989.

[18] Married-out women are peasant women who are married outside their home villages but do not or cannot transfer their *hukou* (household registration) to the destination village from their home villages.

[19] This is demonstrated in two cases (out of ten cases that were won) that are available by repeated search in the SPC database.

Table 6
Conflict analysis of relocation and resettlement for land subsidence (N = 21).
Source: compiled by the authors.

Indicator	Content			Number
Source	Eligibility for compensation			13
	Disagreement with the amount of compensation			8
Actor	Farmers against township government			21
Timing	Production stage			21
Intensity	First-instance		Lower court	21
	Appeal to		Intermediate court	14
Outcome	Eligibility case	First-instance	Township government: Win	5
			Township government: Lose	8
		Appeal	Township government: Win	2
			Township government: Lose	8
	Disagreement on compensation	First-instance	Township government: Win	8
		Appeal	Township government: Win	4

Table 7
Conflict analysis of disagreement over compensation for land subsidence (N = 14).
Source: compiled by the authors.

Indicator	Content		Number
Source	Disagree with the compensation standard		14
Actor	Farmers against township government		11
	Farmers against county and prefecture government		3
Timing	Production stage		14
Intensity	First-instance	Lower court	10
		Intermediate court	4
	Appeal to	Intermediate court	6
		Provincial higher court	4
Outcome	First-instance	Not accepted	14
	Appeal	Not accepted	10

In our dataset, 14 cases (Table 7) were collected in which farmers challenged the local standards on mining-induced land subsidence and resettlement. The farmers believe that they should be compensated in accordance with the standard for construction land. Unlike the above cases on the eligibility for compensation that involved single households, the cases in this context often involve a group of farmers. However, in most instances, the cases were not accepted by the court.

For example, in Huaibei, Anhui Province, a group of affected farmers initially filed litigation against the township government at the county lower court to request that the township make up the deficiency between the amount they received and the standard on construction land.[20] The lower court did not accept the case on the grounds that 'the township government was delegated by the county government to implement the relocation, as a result of which the delegated authority (the township) was not the proper defendant' (but the county government).

Subsequently, a group of over 100 farmers filed collective litigation against the county and prefectural governments to the intermediate court at the prefectural level. The plaintiffs alleged that the compensation standard for mining-induced land subsidence and resettlement had not been updated for a long time. The intermediate court rejected the case on the grounds that the county and prefectural governments were not the responsible entities and had not undertaken any administrative actions towards the plaintiffs. This case was then appealed to the provincial higher court where it was also rejected. Yet, the issue did not end there, and a dozen cases (by the same group of farmers as well as other farmers from the same county) were lodged collectively and individually against different levels of government (township, county, and prefectural level) at different court levels. To date, the outcome of the issue is unknown.

[20] The court document numbers cited here are: CLI.C.8241509 and CLI.C.15509664 from the PKU Law dataset.

5. Discussion and conclusions

This paper employed the Conflict Analysis Model of credibility theory to systematically analyze mining conflicts in terms of the source, actor, timing, intensity, and outcome (see Table 8). In this context, we are now in a position to answer the first research question of this paper: how mining conflicts in China can be better qualified and quantified. These can be seen along four dimensions.

Firstly, the model has been beneficial for identifying the underlying source of conflict. For the conflicts related to land acquisition, it was determined that these were not induced by expropriation but by disagreement between farmers and mining companies over the land rent. To elucidate this apparent contradiction, we need to understand that rural land for mining is, in practice, not expropriated (as required by law) but directly leased to mining companies by the farmers and village collective. This practice, although in flagrant violation of state regulations, is evidently conducive to mineral exploitation and not only receives significant social support from local governments and mining companies but from farmers and village collectives as well. For the conflicts related to land subsidence, it was demonstrated that these generally have a dual origin: 1) who is liable for the damage and 2) the standard of compensation (often believed to be too low).

Secondly, the model has also contributed to a more comprehensive understanding of the involved actors. In contrast to previous studies on environmental litigation in China (Stern, 2011; van Rooij, 2010) for which most cases were found to be directed against polluting firms, this is only the case for mining land acquisition (and, as established above, through direct lease rather than expropriation). In the case of land subsidence, we see that cases are actually directed against government agencies rather than mining companies. Government agencies were frequently challenged in court by farmers in various capacities: 1) as an arbitrator to assess the legal liability for land subsidence; 2) as an implementer for resettlement and relocation; and 3) as a regulator for setting the standards for financial and material compensation.

Examining the actors will help us to better understand the government's role in facilitating or frustrating the settlement of mining conflicts. In the case of mining land acquisition, the local government may opt for a hands-off approach to facilitate mineral production even when that directly contradicts the interests and regulations of the central government. In the case of land subsidence, it is the mining companies that should be responsible for the damages but, in practice, the risks and responsibilities of mining have been shifted to the local and provincial governments. Stated differently, the conflicts signify convoluted and complex relations between rural communities, mining companies, and the state. Mining companies will pursue means to minimize the impact only when they are required to meet the full costs of mining-induced damage and resettlement. It is thus imperative to formulate legislation that is more coherent and stringent that will force actors to assume liability.

Thirdly, examining the *timing* has helped to gain additional knowledge of which stage of mine development is most prone to inciting conflicts. When comparing the *timing* of conflicts, an interesting finding, consistent for both land acquisition and land subsidence, was that while conflicts over land acquisition and relocation are generally expected to occur during the construction stage prior to the beginning the mining, we found that in reality conflicts tend to be concentrated during the operation stage. While at the initiation of the mining activities mining companies make mutually agreed upon rental contracts with farmers in order to rapidly start the mining process, perhaps these are no longer complied with later or, in some cases, farmers might ask for additional compensation after mining starts. The time-lapse in relocation conflicts

Table 8
Overview of conflict analysis of mining disputes.
Source: by authors.

Indicator	Mining land acquisition	Mining land subsidence
Source	Disagreement over land rent	Mostly disagreement over liability, followed by inadequate compensation
Actor	Two-third of cases – farmers vs. mining companies; one-third of cases: village collective vs. mining companies	• Concerning liability, relocation/resettlement, and compensation: all cases – farmers (not village collectives) vs. local government • Concerning cause of damage: Half of cases – mining companies vs. local government; other half – farmers vs. local government
Timing	Mostly operation stage	Mostly operation stage
Intensity	Mostly lower court, appeal rate medium	Collective litigation, intermediate court, appeal rate high
Outcome	Court judgment inconsistent	Most cases rejected; farmers at disadvantaged position

is caused by the fact that land subsidence as one of farmers' prime concerns over mining only becomes visible years after the commencing of mining, that is, after damages to land and housing begin to occur.

Fourthly, in terms of outcome, we ascertained that courts, by and large, made inconsistent adjudications in cases of mining land acquisition. With regards to land subsidence, a majority of cases were rejected, leaving farmers at a disadvantaged position. This indicates that legal procedures often fail to provide a satisfactory solution, channel grievances, and resolve mining disputes. However, the root cause for the persistence of conflicts in courts is likely a consequence from lawmakers designing rules in a way that either create loopholes or limit enforcement. Moreover, rules are also lacking in the area of legal responsibility and assigned liability. At the same time, the judiciary, and ultimately, the Supreme People's Court, may be held accountable for the inconsistent rulings.

Based on the findings of the conflict analysis, we may also continue to the second research question: how to characterize the credibility of Chinese mining institutions that regulate the land acquisition, lease and mining-induced subsidence. For starters, credibility is not a monolithic concept, and may critically vary in geo-spatial terms. More specifically, in our case the credibility of Chinese mining institutions needs to be distinguished per issue: i.e. mining land acquisition and lease vis-à-vis mining-induced land subsidence (and related displacement and resettlement). The former may be characterized as an 'empty institution'. This is exhibited in two ways: 1) although legally required, rural collective land is not formally expropriated prior to mining; 2) Instead, mining companies directly (and illegally) lease land from village collectives and farmers. Local communities significantly benefit from this illicit conversion of rural (agricultural) land to mining land as the costs for expropriation, resettlement, and mining land conveyance are avoided. As a result, state regulations on expropriation prior to mining are, by and large, empty and symbolic, yet, simultaneously gain credibility from the local government, mining companies, village collectives and farmers.[21] This is reflected in the relatively low-intensity of conflicts with cases primarily going before the lower court and having a medium appeal rate. It may also be evidenced in the fact that the overall majority of analysed conflicts (45 out of 48) do not relate to disagreements over expropriation, but to the land rent (which legally should never have made it to court at all).

In contrast, conflicts over mining-induced land subsidence (and related displacement and resettlement) are high-intensity with more collective rather than individual litigation, a majority of cases being referred to intermediate courts, and a high appeal rate. In effect, the current regulatory framework for mining-induced land subsidence can be deemed non-credible. To date, there are no national regulations and standards for compensation for mining-induced damage and resettlement, while local standards are scant and set too low (Yang et al., 2017). Under such conditions, institutional intervention might be advisable in at least two areas: 1) to clarify the liability for mining-induced damages between the central state, the local state, and mining companies; 2) to improve the litigation system by clarifying the different roles of the government and streamlining the procedural requirements under which each of these can be brought before the court.

This study has tested the application of the Conflict Analysis Model to the study of mining conflicts in China, one of the world's largest mineral producers. In so doing, we demonstrated how it can be used to better qualify and quantify the disputes and contention that are generated over mineral resources. In addition, the model may have added value for the study of resource conflicts at large, and could be employed for disputes over forest, grassland, water, wetlands, energy, and other resources. In this context, there might be a triple consideration for future research.

One, this study made use of an adapted version of the Conflict Analysis Model, under which certain indicators were added and some of the original indicators – as described in (Ho, 2014) – were left out of the model. More in particular, the frequency (incidence), the duration (length), and the nature of conflict (violent/non-violent) have not been included. For a more comprehensive assessment of institutional credibility, further research should include all eight of the indicators, while we remain open for potential, newly identified variables.

Two, the model has been operationalized on the basis of a set of court decisions. This approach offers opportunities while posing certain constraints. Although it provides clear insights into resource conflicts as they have appeared at lower level courts, it may be difficult to reach conclusions about the scale of resource conflict at higher aggregate levels (e.g. provincial or national). Moreover, this approach also does not warrant any conclusions about the conflicts that do not make it to court. For this reason, future research could test the applicability of the model on the basis of other sources, such as interviews and survey data.

Three, conflict is not the only indicator for assessing the credibility of institutions. More specifically, credibility has also been operationalized as: 1) actors' aggregate perceptions, more specifically, along Formal, Actual and Targeted dimensions, known as the FAT Institutional Framework (Arvantidis & Papagiannitsis, 2020; Nor-Hisham and Ho, 2016);[22] 2) a function of the relative speed of institutional change (Ho, 2018); and 3) endogenous transaction costs (Fan et al., 2019). Against the backdrop of the above, it needs emphasis that the understanding of institutional credibility in the management of resources, in its very essence, needs to be driven by multi-dimensional, multi-layered, and spatio-temporally sensitive approaches.

[21] The double-sided nature of mining for farmers in China – bringing socio-economic benefits while causing severe environmental impacts in terms of land subsidence and pollution – is also pointed out by Lu and Lora-Wainwright (2014).

[22] This indicator is based upon early research on the perception of credibility in natural resource management (Pero and Smith, 2008) and more recent studies on the perceptions of property rights (Van Gelder, 2013, 2010).

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