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Mining-induced displacement and resettlement in China: A study covering 27 villages in 6 provinces

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ABSTRACT

Underground mining in China has incited severe land subsidence causing the forced eviction of millions of farmers. Here we report on one of the earliest Chinese studies on Mining-Induced Displacement and Resettlement (MIDR), based on a farm household survey (n = 230) and semi-structured interviews (n = 29) in Shaanxi, Shanxi, Shandong, Jiangsu, Chongqing and Hunan. It was found that displaced farmers were overall insufficiently compensated for mining-induced damage. Respondents expressed concerns over higher living costs in the relocation villages, and were ill-informed about resettlement schemes. We also found widespread conflict between farmers, mining companies and local government, this being the case in over two-thirds of the surveyed villages. Through additional institutional analysis it is ascertained that existing policies and laws predominantly focus on surface rather than underground mining. Compensation is rarely provided unless damage to land and housing has grown to unmanageable proportions. In result, displacement and resettlement is generally chosen as a sole, yet, final solution. The study includes cases on coal, lead, zinc and manganese. Based on the analysis, we call for a revision of mining policies and the establishment of state-supported compensation schemes in order to minimize conflict and farmers' socio-economic vulnerability.

1. Introduction

China boasts a substantive amount of mineral resources. It has, for instance, the world's second largest reserves in lead and zinc, the third largest in coal, and the sixth largest in manganese (Zhang et al., 2011; Lin and Liu, 2010). An important proportion of these minerals is excavated through underground mining rather than surface or open-pit mining (State Council, 2003a). In the case of coal, even 95% is produced from underground mines (as compared to 31% in the United States and 22% of in Australia; Bian et al., 2010, p.217). Underground mining is also prevalent for lead, zinc (Zhang et al., 2011), and manganese (Wang, 2007).

The alleged "blessing" of China's mineral resources has come with a downside, as underground mining has led to severe land subsidence (Bian et al., 2010). Reports about 'floating villages' (*xuankong cun* in Chinese) have made media headlines. The term describes villages located on land hollowed out due to underground mining. Problems are painfully visible: cracks appear in houses, wells dry up, while growing crops becomes challenging due to sinkholes and receding cropland. In Shanxi Province, one of China's foremost coal mining areas, there are reportedly over 1000 'floating villages', forcing farmers to be moved out (Xinhua, 2015, p.1).

It is estimated that the number of displaced people in Shanxi alone is more than 2.3 million, a figure that exceeds the amount of persons displaced by the Three Gorges Dam (Zhang, 2013; Xinhua, 2015; VanderKlippe, 2015). In addition to land subsidence induced by coal mining, subsidence induced by exploitation of metal ores, such as lead, zinc and manganese, have also been reported (Wu et al., 2009; Diao et al., 2006). In result, underground mining has led to tension and conflict between the mining industry, local authorities and farmers (Zhao and Li, 2013; Zhang, 2013; Wang and Yuan, 2013). The large-scale acquisition of land is a significant driver for displacement in mining areas (Ahmad and Lahiri-dutt, 2006; Abuya, 2013; Madebwe et al., 2013). However, in the Chinese context, displacement and resettlement by and large occurs *after* land subsidence has taken place. Markedly, the displacement and relocation of entire villages appears to be more frequent in China as compared to other countries (World Bank, 2008, p.94).

In this context, the paper focuses on three research questions: 1) What are the economic and social consequences of mining-induced resettlement for farmers in China? 2) What are the institutional factors that influence mining-induced land subsidence and displacement? 3) Why do relocation and resettlement in China generally occur after land subsidence?

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This study zooms in on what is scholarly known as "Mining-Induced Displacement and Resettlement" (hereafter: MIDR). In so doing, it is situated in the larger body of research on "Development-Induced Displacement and Resettlement" (or DIDR). DIDR is often regarded as an activity that can be planned because the "cause of the displacement is a predictable, intentional, scheduled and largely regulated event" (Owen and Kemp, 2016, p.1228). In this context, researchers have developed the Impoverishment Risks and Reconstruction (IRR) model (Cernea, 1997), and various guidelines (World Bank, 2001,2013; ADB, 1998; IFC, 2002). The premise of such guidelines is that the nature, timing, and intensity of the displacement can be forecasted and managed.

However, Nor-Hisham and Ho (2016) ascertained that many guidelines actually serve the legitimization of resettlement schemes that should never have occurred. In this regard, they identified three pre-conditions that constitute a 'no-go-area' for any project, particularly, when land-dependent and resource-poor communities are involved. Similarly, Owen and Kemp (2015,2016) challenged the belief that planning could serve as a protective mechanism for development-affected people, with particular reference to those affected by mining, as a large proportion of resettlement takes place during the operational phase. Moreover, the uncertainty of land use requirements and the volatility in commodity markets reduces the ability to plan for resettlement. In this context, ex ante social and environmental impact assessments provide little guidance on how to evaluate the dynamics in socio-economic and ecological effects that result from mining (Banks, 2013). Owen and Kemp (2016) therefore suggest that MIDR must also account for the *unplanned* elements of mining.

The studies cited here have made a significant contribution to the understanding of the social and economic impacts of development projects, and the potential measures to mitigate the effects of displacement and resettlement. Whereas a large portion of these studies focuses at the project-level, this paper would like to zoom in on the macro-level institutions that underlie MIDR, while examining how these affect land users at the micro-level. Institutions are here defined in a broad sense, as a set of rules that comprises land rights, policies and regulations (Ho, 2016, p.1129). Previous studies on DIDR in China have mostly focused on the impact of infrastructural and environmental projects, such as for ecological migration (or *shengtai yimin*, Nakawo et al., 2010) and the Three Gorges Dam (Wang et al., 2013; Heggelund, 2006; Jackson and Sleigh, 2000). Contrarily, the impact of Chinese mining-induced displacement and resettlement has to date received much less attention in the international literature.[1] It is why this study might make an important contribution to understanding the dynamics of MIDR in one of the world's largest emerging and resource-rich economies.

The paper is structured as follows. The following Section 2 presents the methodology, research sites, sample features, and a framework for the institutional analysis of MIDR in China. Section 3 describes the national institutional structure described along the various aspects of our MIDR framework. Section 4 presents the results of the survey and interviews in the relocation and non-relocation villages. The paper ends with a discussion and conclusion.

2. Methodology and sources

2.1. Research sites

From an official list of mineral resource-based counties issued by the Chinese State Council (2013), eight were selected for our research. The county was selected as a basic site due to its importance as an administrative node, where numerous tasks and duties of the Chinese state converge.[2] The counties were selected because they:

1) Represent different stages of mineral resource-exploitation: i) the developing stage (Shuozhou, Binxian); ii) maturing stage (Hancheng, Jining, Xiushan, Huayuan); iii) depletion stage (Tengzhou); and iv) mine reclamation or recovery stage (Peixian) (State Council, 2013).
2) Reflect China's geo-ecological diversity, and are situated in the east coast (Jiangsu and Shandong Province), northwest (Shanxi and Shaanxi Province) and southwest (Hunan Province and Chongqing Municipality), representing the plains, arid steppe, and mountainous areas. Note that different geological environments contribute to different problems: e.g. land collapse, sinkholes, ground fissure, and subsidence tend to occur more often in the plains, while landslides and collapse are more common in mountainous terrain.
3) Reflect significant economic variation. The eastern coastal provinces in which the counties are located are relatively wealthy (i.e. GDP per capita in 2014 in Jiangsu and Shandong is respectively 81874 and 60879 Yuan); while the inland provinces are relatively poor (GDP per capita in Shanxi, Hunan, Shaanxi, and Chongqing is 35064,40287, 46928, and 47859 Yuan), (National Bureau of Statistics of China, 2015).
4) They represent different under-ground mineral resources (see Table 1). Six counties are notable for coal mining, and two are predominantly involved in metal ore mining. The latter two are located in Chongqing Municipality and Hunan Province, ranked among the nation's largest producers of zinc, lead and manganese Zhang et al., 2011; Wang, 2007).

Within the counties, a total of 27 villages were selected. Of these, 11 relocation villages were chosen based on a literature review of government and media reports. The relocation village is not a 'traditional' rural village, where each household has a one or two-story house scattered in space, but consists of newly built and spatially-planned condominium complexes. The relocation villages are in general located on the outskirts of the township seat. Relocated farmers did not receive any new agricultural land in the relocation village, but were dependent on land in the original village. Most of the studied villages were relocated 1–2 years before the fieldwork was done, while in others the relocation occurred approximately 10 years ago (see Table 1). The time span of mining varied from 10 to 50 years, while the size of the mines ranged from small to large (as measured by annual production capacity).[3] In addition to the 11 relocation villages, the survey was conducted at 16 adjoining villages that had not been scheduled for relocation (yet, were still prone to mining-induced land subsidence).[4]

2.2. Survey and interviews

The fieldwork comprised a survey and semi-structured interviews. The survey was carried out, between June and September 2015, by a team of specially trained, local undergraduate students, supervised by one of the authors. To prevent bias in answering the questionnaires, a household-to-household, non-probabilistic approach was utilized while group meetings or group discussions were intentionally avoided. Individuals, not necessarily the head of the family, were selected and

[1] This is not to say that other effects of Chinese mining have not been studied, see for instance, the seminal study by (Lu and Lora-Wainwright, 2014). Yet, for reasons of space, we only report on the findings that relate to MIDR. Other findings in relation to employment, livelihood and environment are not included here.

[2] There are five levels of local government in China: the province (equivalent to the autonomous region, municipality under the State Council, and special administrative region), prefecture, county, township, and village.

[3] By scale, coal mines in China are divided into 3 types: large, medium-sized, and small, whose annual production capacity is larger than 0.9, 0.3–0.9, and below 0.3 million ton per year, respectively (Shen and Gunson, 2006, p.429). This classification mostly applies to other minerals as well.

[4] The 16 non-relocated villages are distributed as follows: Binxian 4, Hancheng 1, Shuozhou 3, Yanzhou 3, Tengzhou 1, Peixian 2, Xiushan 1, and Huayuan 1.