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Evaluating Chinese policy on post-resettlement support for dam-induced displacement and resettlement

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ABSTRACT

Being resettled is a complex and traumatic process. International experience reveals that people are made worse off by project induced displacement and resettlement. In China, a country with much dam induced resettlement, since 2006 there has been considerable government attention to ensure that post-resettlement outcomes are improved and that people are made better off as a result of being resettled. We describe the context of dam-induced resettlement in China, and analyse the post-resettlement support mechanisms used. We identify the key success factors that have led to effective outcomes. They included: a trigger that prompted the government to take action; a change in development philosophy to a more people-oriented approach and acceptance that resettled people and host communities had to be made better off; a market-oriented approach in the way post-resettlement support was delivered and in terms of cross-subsidizing resettlement from hydroelectricity production; long term support to resettled people and host communities; and considerable public participation so that the post-resettlement support schemes were of value to the resettled people and host communities.

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Introduction

Dams are generally constructed for socially positive reasons such as providing safe drinking water, clean energy, water for agricultural irrigation, and flood control (WCD 2000). However, dam projects also cause much social harm, especially because of the land acquisition needed for the reservoir area and the often extensive resettlement of people (Scudder 2005). Arguably, dam-induced displacement and resettlement can provide affected people with a chance for development, local economic growth, and improvement in their living environment and quality of life; but if badly implemented, it can cause impoverishment through landlessness, joblessness, homelessness, marginalization, food insecurity, loss of access to common property resources, increased morbidity and mortality, and community disarticulation (Cernea 1997; Tortajada et al., 2012; Vanclay 2017).

China – with a population of over one billion people – is a country where many dams have been constructed to provide water for domestic and agricultural use, flood control and hydropower, especially after the establishment of People's Republic of China in 1949 (Xiaozhu Li et al., 2018). By 2018, over 98,800 dams had been constructed, with the total storage capacity of nearly 900 billion cubic metres. Of these, 736 were classified as large reservoirs in Chinese terms (80% of total capacity) and 3954 dams were medium-sized (13% of total capacity) (Ministry of Water Sources,

2019). Between 1949 and 2008, the total number of people directly affected by the construction of large and medium reservoirs (LMR) and having to be relocated was approximately 26 million, including some 16.7 million farmers who experienced rural-to-rural resettlement (National Natural Science Foundation, Chinese Academy of Sciences, 2016).

The International Commission on Large Dams (ICOLD 2011) defines a large dam as being: (a) a dam with a wall height of 15 metres or more from lowest foundation to crest, or (b) a dam wall of between 5 to 15 metres in height and impounding more than 3 million m³. In China, however, the definitions are different. A large reservoir is defined as having a storage capacity of more than 100 million m³, while a medium reservoir is defined as having a storage capacity between 10 million to 100 million m³ (Ministry of Water Resources 2017). Thus even a medium-sized reservoir in China is a large dam according to the international understanding. There are additional terminological differences. While internationally, the word, dam, tends to refer both to the dam wall and the impoundment, in China dam (*shuiba*) refers only to the wall, and the word reservoir (*shuiku*) is used to refer to the impounded water. Thus, Chinese scholars and official texts tend to say reservoir when international scholars would say dam. The acronym LMR (for large and medium sized reservoirs) is commonly used in Chinese literature about dams.

Because of where dams are located, they predominantly affect rural people. However, large dams also affect people in small to medium villages. In China, with the household registration system (*hukou*), the word rural (*nongcun*) is used to refer strictly to people engaged in farming activities, whereas urban (*chengshi*) includes anyone not engaged in farming (Chan 2010). In being resettled for a reservoir, farmers (i.e. rural people) can choose whether to be reclassified as urban, or to remain farming, with most remaining rural because of the complexities around becoming urban (Cheng Dianlong 2009). Urban to rural resettlement is not possible. In this paper, we consider the situation of the rural-to-rural resettles. We are specifically interested in those people who were resettled prior to 2006 and are now being supported by remediation policies.

The extent of compensation and post-resettlement support that resettles have received has varied over time. During some phases of China's history of dam development, the extent of support to resettled farmers was inadequate and negative outcomes were observed (Webber and McDonald 2004; Wilmsen 2011; Yan Dengcai et al., 2018). Therefore, in 2006, two national policies addressing rural-to-rural resettlement were introduced: '*Opinions of the State Council on improving the Post-resettlement Support Policies for Large and Medium-sized Reservoir Resettles*' (State Council. 2006a, hereinafter 'Opinions') and '*Regulations on Compensation for Land Acquisition and Resettlement in Large and Medium Hydraulic Engineering and Hydropower Projects*' (State Council. 2006b, hereinafter 'Regulations'). The policies were intended to improve future practice, and also to remediate problems caused by past reservoir-induced resettlement.

The current (i.e. from 2006) Chinese policy framework of dam-induced rural-to-rural resettlement is in two parts, one related to compensation during the pre-resettlement phase, the other related to ongoing support during the post-resettlement phase, especially for people who were previously resettled. This paper analyzes China's Post-Resettlement Support (PRS) policy, which is aimed at poverty alleviation and sustainable development (McDonald et al., 2008).

This paper is based on research done by the primary author, a Chinese national, while he was based at the National Research Centre for Resettlement at Hohai University (2006 to 2010). It has subsequently been updated with the corresponding author, and strengthened in collaboration with the second author, an international resettlement academic. The current paper is primarily based on a document analysis of Chinese policies and other papers relating to dams and resettlement in China. It is also based on interviews and discussions with many of the leading authorities on the topic of dams and resettlement in China over many years.

Extent of dam-induced resettlement in China

By the end of 2008, over 26 million people had been resettled because of LMRs, of which over 23 million were rural resettles (National Natural Science Foundation and Chinese Academy Sciences 2016). They were distributed across all 31 provincial level administrative divisions of mainland China (see Figure 1), accounting for between 0.08% to 5.18% of the rural population in each province. Ten provinces had over 1 million resettles each. Dividing the total number of people displaced by the total storage capacity indicates that, on average, LMRs require 42 persons to be resettled per million cubic metres reservoir capacity, however, this varies by province. Apart from Shanghai, which has no LMRs, the province with least impact is Tibet, with only 1.5 persons displaced per million m³, while the greatest impact is in Chongqing with 122 persons per million m³.

Historical phases in Chinese dam resettlement

As discussed elsewhere (e.g. Guoqing Shi et al., 2001; Heming Li et al., 2001; Xiaonan Chen et al., 2009; Pu Wang et al., 2013), analysis of dam development in China reveals distinct phases that correspond to events in the Chinese political context. In our categorisation below, we have focussed on the historical phases in terms of their implications for the construction of dams and the resettlement of people. We note that the dates are approximate (and slightly controversial), and that the Chinese political context is much more complicated than presented here.

(1) The Germination Period (1949–1957). In this period, the beginning of the People's Republic of China, only about 20 large dams (including Foziling, Meishan, Xianghongdian and Guanting) were built with only about 300,000 people having to be relocated (Zhang Shaoshan 2005). For various reasons, such as the poor living status of the affected people, the commitment of local officials, and sufficient land being available, during this period most affected people were resettled properly and recovered their standard of living in a reasonable time.

(2) The Leap Period (1958–1977). This period, with Mao's Great Leap Forward and the Cultural Revolution, was an extraordinary time in the history of China (Kissinger 2011). With the emphasis on production during this period, water projects were implemented in all large river basins. Some 280 large dams were built, including Sanmenxia, Xin'anjiang, Miyun and Danjiangkou. These projects affected over 10 million people (Gu Maohua and Xun Houping, 2000). For various reasons – such as absent or inadequate resettlement action plans, a shortage of funds, neglect of any notion of environmental carrying capacity, the low compensation payments, and inadequate consideration of livelihood restoration – the resettlement process during this period was very poor, and

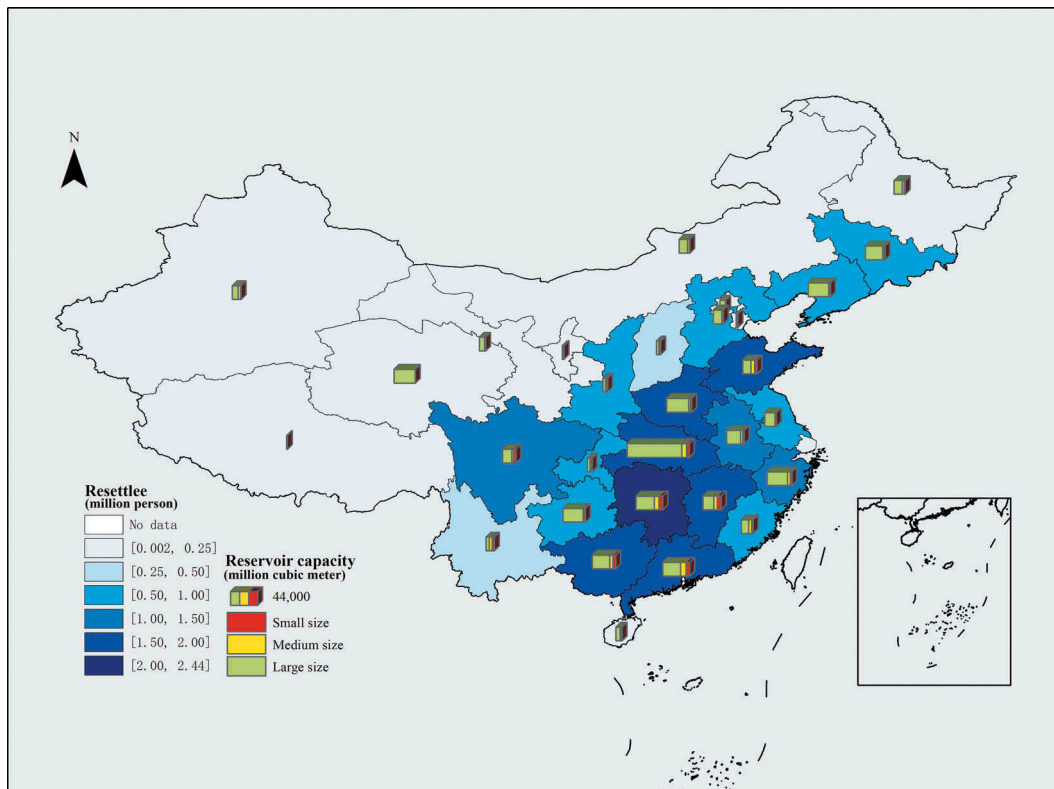


Figure 1. Distribution of resettles and reservoirs in China since 1949.

The number of resettles for each province is collected from official websites. The reservoir capacity information is extracted from the China Water Statistical Yearbook 2012.

together with other actions during this period, many legacy issues were created (Fu Xiutang and Li Shirong, 2007; Cheng Dianlong 2009).

(3) The Turning Period (1978–1990). With the death of Mao Zedong (in 1976) and the rise of Deng Xiaoping as China's leader, a period of reform occurred. About 70 large dams were built, such as Gezhouba, Panjiakou, Wujiangdu and Longyangxia. They led to about 720,000 resettles (Fang Quanyao 2004). In the National Notice, 'Urgently Dealing with Problems of Reservoir Resettles' (State Council 1986), it was announced that the key principle for involuntary resettlement should change away from one of (minimal) compensation for loss, to one of positive development. It was also declared that the legacy problems caused by earlier dam projects would be addressed. In the mid 1980s, the World Bank began to provide loans for dam projects, such as Ertan and Shuikou. This led to China's involuntary resettlement policies and practices to become aligned with international standards.

(4) The Period of Regulation (1991–2006). During this period, there was a strong focus on economic stability and growth. It was a period of opening up and interacting with the international sphere (Zhai Guide 2005). It was also a period of regularisation in general and for dam construction and resettlement. Some specific policies were developed. The first specialized statute, 'Regulations on Compensation for Land Acquisition

and Resettlement in Large and Medium Water Resources and Hydropower Projects', was promulgated by the State Council in 1991. The principle of 'compensation and allowance first, followed by productive support' was put forward in this statute. It was also a requirement that a resettlement action plan be developed, to be reviewed and approved by the State Council. The publication of this statute started a new period of involuntary resettlement that was governed by regulation. In this period, several new large reservoir projects were launched, including Xiaolangdi (200,000 resettles) (Webber and McDonald 2004) and the Three Gorges Dam (1.13 million resettles) (Wilmsen 2016). In 1992, the Ministry of Water Resources and Hohai University established the National Research Centre for Resettlement, which specialized in resettlement research and capacity building. With the 1991 regulation, improved understanding of resettlement, appropriate resettlement plans, and effective government organization and administration, during this period involuntary resettlement was well implemented. However, because of population pressure and certain new policies (e.g. the new Land Contract Law) that increased the rights of landholders, it became increasingly difficult to resettle affected people.

(5) The Period of Social Sustainability (from 2007 on). After the publication of the Opinions and Regulations policies in 2006, new attention was given

to resettlement. The resettlement action plans were not only based on scientific assessment and expert-based knowledge, but also on the basis of consultation with affected people. More funding was made available and there was a commitment to improving the wellbeing of those who had been previously resettled.

Policy for post-resettlement support after 2006

Chinese dam-induced resettlement policy changed significantly in 2006 with publication of the Opinions and the Regulations. These have been followed with a raft of other policies (see Table 1). The current policy framework consists of national policies and matching local policies. The Opinions and Regulations gave increased attention to the post-resettlement phase, partly because of the poor resettlement practices of previous periods. Local

governments were required to establish detailed policies and regulations appropriate for their local conditions. They also detailed how resettlement implementation would be undertaken, especially regarding post-resettlement support. Furthermore, because the Opinions and Regulations only pertained to LMRs, the local regulations also specified what was needed for small dams. The goals of PRS were identified in the Opinions policy, and continue to apply to all resettlement in China:

The short term goal is to solve the problem of adequate food and clothing for reservoir resettles and the weak infrastructure in the reservoir and resettlement areas. The medium and long term goals are to strengthen the infrastructure and improve the physical environment of the reservoir and resettlement areas, improve the productive potential and living conditions of the resettles, promote economic development, and increase the income of resettles so that the living standard of resettles improves and gradually reaches the average level in

Table 1. Summary of post-resettlement support policies in China.

Year and Name of Policy	Brief description
1993 Regulations on Resettlement for the Construction of the Three Gorges Project on the Yangtze River (updated 2001, revised 2011)	A specific regulation for resettles from the Three Gorges Project that addresses the institutional arrangements, resettlement with development, management of inundation and relocated area, management and supervision of a resettlement fund, and resettlement support measures.
2006 Regulations on Compensation for Land Acquisition and Resettlement with regard to Large and Medium-sized Hydraulic Engineering and Hydropower Projects (revised 2017)	Detailed rules regarding land acquisition and resettlement, including the administrative systems, requirements for resettlement planning, compensation for land acquisition, resettlement implementation, post-resettlement support measures, supervision and other aspects.
2006 (May) Opinions of the State Council on improving Post-Resettlement Support Policies for Large and Medium-sized Reservoir Resettles	A policy document to improve post-resettlement support through improving the standards, increasing funding for the resettled and host areas, and strengthening leadership and organizational capacity.
2006 (June) Opinions on Confirming and Registering the rural resettlee population affected by the large and medium-sized reservoirs	The National Development and Reform Commission clarified the rules, requirements, and responsibilities for rural resettlee identification and registration.
2006 (July) Collection and use of Post-resettlement Support Fund for Large and Medium-sized Reservoirs Management Approach (Trial)	The Ministry of Finance established a Post-Resettlement Support Fund as a national government-managed fund, integrated the existing related funds, and refined the collection sources, especially the levy amounts across 30 provinces.
2006 (September) Letter on the issuance of the Outline of making the Post-resettlement Support Plan for the Large and Medium-sized Reservoirs	The Ministry of Water Resources assisted local governments to compile a Post-Resettlement Support Plan, which should contain an evaluation of the resettlee livelihood status, support mechanisms, the cash disbursement plan, the project investment plan, and targets for performance.
2007 (February) Letter on the issuance of the Outline of developing an Infrastructure Construction & Economic Development Plan for the Resettled and Host Areas of Large and Medium-sized Reservoirs	The Ministry of Water Resources provided a recommended outline for the Infrastructure Construction & Economic Development Plan of the resettled and host areas, including an analysis of constraints on existing livelihood status, an opinion survey amongst local people, proposed projects on cultivated land improvement, infrastructure construction, ecological protection, vocational training, industrial development intended to benefit resettles and the host communities.
2007 (April) Collection and Use of Reservoir Fund for Large and Medium-sized Reservoirs Management Approach (Trial)	The Ministry of Finance established the Reservoir Fund, with a levy on hydro-electricity producers with an installed capacity greater than 2.5 MW. 75% of monies collected must be used to support the Infrastructure Construction & Economic Development Plan within the province where the funds are collected.
2011 Notice on carrying out Monitoring and Evaluation on the Implementation of Post-Resettlement Support Policies for Large and Medium-sized Reservoirs	The National Development and Reform Commission, the Ministry of Finance, and the Ministry of Water Resources jointly issued this policy to establish a monitoring and evaluation mechanism for the Post-Resettlement Support Plan and the Infrastructure Construction & Economic Development Plan, including setting monitoring indicators and methods, evaluation methods, and a report outline.
2012 Use of the residual Post-Resettlement Support Fund for Large and Medium-sized Reservoirs Management Approach (Trial)	The Ministry of Finance issued a scoping statement for the residual Post-Resettlement Support Fund, mainly for investment in Infrastructure Construction & Economic Development Plan, allowance for emergency events, and to cover the operation cost for the related implementation agencies.
2017 Notice on reducing the collection standards for the Major National Water Conservancy Projects Construction Fund and Post-Resettlement Support Fund for Large and Medium-sized Reservoirs	Given the increased electricity production, the Ministry of Finance reduced the post-resettlement support fund by 25%.

the rural areas surrounding the host community (Opinions, 2006, p.1, author translation, modified slightly to ensure comprehensibility)

Remediation of resettlements undertaken prior to 2006

A critical element of the Opinions Policy was recognition that people resettled in earlier phases of China's development (pre 2006) had been treated unfairly and that they should be entitled to support and restitution. A national Post-Resettlement Support Fund was established, with disbursements being made at the provincial level. An initial contribution to the fund was made by the Ministry of Finance, but the primary funding source was a levy on electricity. The calculation of the levy was complicated, however as an indicative figure, it amounted to about CNY 0.0062/kWH (about 1.2% of the average electricity price). Hydro-electricity producers (with an installed capacity of greater than 2.5 MW) had to pay at most CNY 0.008/kWH sold. Electricity consumers (other than agricultural consumers) also paid a levy which went into the support fund. In order to mitigate the financial burden of this levy on people living in the under-developed remote central and western provinces, the levy varied from province to province, with 12 provinces paying between CNY 0.0019/kWH to 0.0063/kWH, while the other 19 provinces paid a fixed rate at CNY 0.0083/kWH (Ministry of Finance 2006). For the period 2007 to 2017, the total income into the fund was over 36 billion USD. In addition, separate funds were created for people resettled as a result of the Three Gorges Dam (0.7 billion USD),

and a fund was created to address people affected by small reservoirs (totalling 2.8 billion USD).

A process of identifying people who had been previously resettled was established, and was publicly advertised. A national census on 30 June 2006 was used to establish who had been resettled, being augmented by other information. Eventually a register of resettled people was compiled. The State Council decided that rural to urban resettles did not need assistance, that being re-designated as urban was already a major advantage, and that in any case, urban people were protected by the urban welfare systems. However, it was resoundingly accepted that rural people needed assistance.

The PRS Fund was implemented in varying ways to support past and future resettles (see Figure 2). For each LMR, a PRS Plan and an Infrastructure Construction & Economic Development Plan (ICEDP) had to be developed. Given that development is not just process but also outcome (Wilmsen and Webber 2015), the PRS Plan was intended to resolve the difficulties affected people face regarding agricultural production and their living situation. The PRS Plans involved both direct support and social investment. Cash payments of 600 Yuan per year (about 90 USD) were made to each resettled person for 20 years. The ICEDP was intended to focus on the long-term development of resettled and host communities. It aimed at: (1) improving irrigation for farmland production; (2) constructing infrastructure including communications, electricity, transport, and social welfare; (3) improving the ecological environment and increasing environment protection; (4) providing skills and career training; and (5) undertaking projects to enhance the

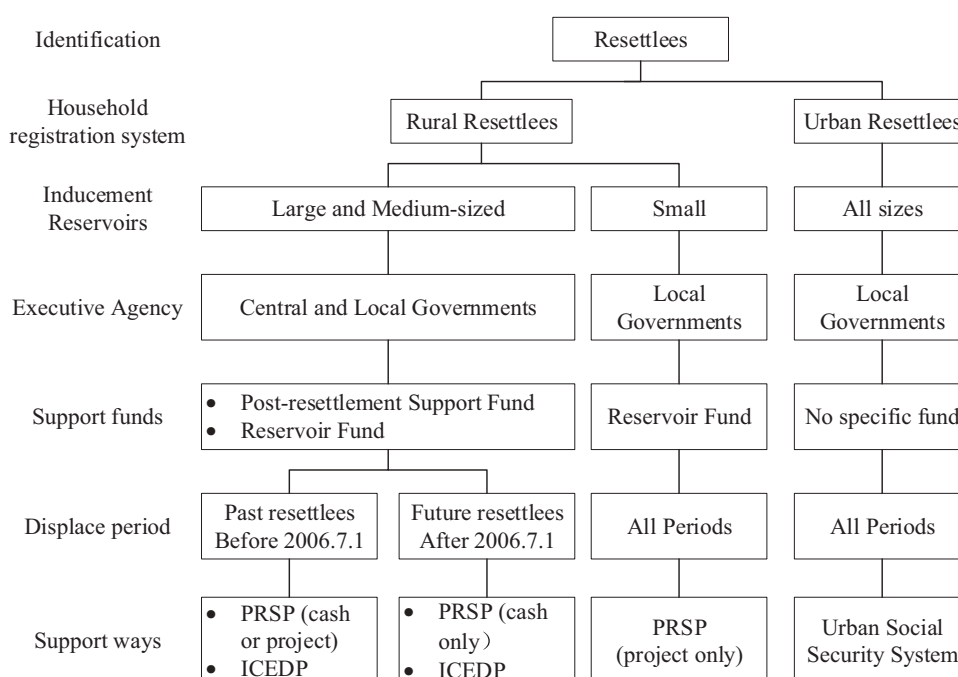


Figure 2. Flow diagram of the implementation on post-resettlement support policies.

profitable productive activities of all people in the resettled and host communities. The PRS Fund was supervised by the National Treasury, and its operations were monitored by a national committee. To ensure equity across provinces, given the unequal distribution of resettlement and electricity consumption, contributions into the fund were completely independent of payments from the fund.

The important characteristics of the PRS Fund in creating benefits for resettles were its effectiveness and that it was over the long term, with the PRS implementation period being 20 years. Furthermore, the PRS Fund is intended to build the livelihood capitals of resettles' households. Because household capital and assets can be transferred to subsequent generations, this leads to improvement over time. The key critical success factors in this benefit-sharing mechanism are its effectiveness and its long-term nature. The PRS Fund is usually disbursed to resettles in quarterly amounts to avoid splurge consumption and to enhance productive activities, such as the purchase of materials for agriculture production, or to pay for the cost of transportation to seek work elsewhere (e.g. other provinces). With regard to the PRS Fund's investment in infrastructure construction and improvement of public services, a significant achievement was that the property assets are now registered by the rural collective economy organizations or village groups (*shengchandu*), which consist of the resettles themselves. With the reform of rural asset shareholding since 2015, the villagers can convert their collective operating assets into shares and gain revenue through dividends or by selling them.

Considering household revenue sources averaged across all Chinese rural households, in 2018 income from property accounted for only for 2.3% of household income, much less than income from wages and salaries (41.0%), net business income (including sale of agricultural products) (36.7%), or transfer payments (20.0%) (National Bureau of Statistics of China 2019). Property income is seen as a potential growth area to increase villagers' incomes, which is one of the objectives of PRS Fund. The government is cautiously optimistic about the policy framework for rural revitalization in China.

Evaluating the post-resettlement support policy

Major formal evaluation studies of the implementation of the PRS policy have been conducted in three provinces, Tianjin, Jiangxi, and Fujian (Zhou Zhihua, 2014; Zheng Ruiqiang 2013; Fujian Resettlement Bureau 2014). These three provinces vary greatly in character, but collectively give a fair assessment of the operation of the scheme. The results of these studies are summarised in Table 2.

Table 2 reveals that resettles in the three provinces became better off after implementation of the PRS. Their average per capita income increased, and the income gap between resettlee and comparison group (local farmers in the host community) gradually decreased. The increase in the proportion of people living in concrete or brick houses indicates improvement in living conditions. The low frequency of formal complaints (less than 0.1% of resettles in each province) and the high satisfaction scores indicate the PRS is popular with the resettles. It was reported that there was very high resolution of the formal complaints.

Conclusion

In the past, involuntary resettlement, especially for dam projects, has reflected an inherent contradiction of development – i.e. that projects intended to enable development inevitably lead to distributional inequity and poverty. The Chinese Post-Resettlement Support Policy and the PRS Fund have proven to be effective in leading to better development outcomes from hydropower projects. The income and living conditions of pre-2006 resettles in China were improved after implementation of the PRS Plan and the Infrastructure Construction & Economic Development Plan. This raises the question, what led to the policy and fund being effective? Reflecting on our research and experience, we consider there were several key success factors.

First, there was a trigger that led to leaders at the national level becoming strongly committed to improving the situation of resettles. Major protests against the Pubugou Dam in Sichuan Province in 2004 put dam resettlement on the national agenda (National Natural Science Foundation and Chinese Academy Sciences 2016). This led to a major rethinking of how resettlement should take place, and to a re-examination of what had happened in past projects. A National Development and Reform Commission was established and many discussions took place, which led to a rethinking of the philosophy and policies relating to resettlement. Fundamental changes included: a commitment that resettlement had to be in advance of the project and integrated into project planning; it was no longer acceptable for people to be sacrificed to make way for development – they had to be treated fairly; resettlement changed from expropriation to a process of negotiation; the host community were also included as project-affected peoples and had to be beneficiaries; the process of resettlement became more people oriented and more social, with all aspects of social being considered in resettlement planning and implementation.

Consistent with the opening up of the Chinese economy generally, a more market-oriented approach to resettlement and compensation was implemented. The direct connection between electricity consumers and

Table 2. Summary of Evaluations in Tianjin, Jiangxi and Fujian Provinces.

Indicators	Tianjin	Jiangxi	Fujian
Description of Province	A small, wealthy province near Beijing	A medium sized, poor province in the South East	A medium sized, middle income province in the South East
Period of evaluation	2006–2011	2006–2011	2010–2013
Number of large and medium-sized reservoirs in the Province	14	284	210
Total rural resettlee population (persons)	117,302	1,204,400	969,410
Sample size (HHs) in the evaluation	270	6730	7000
Annual per capita net income of local farmers at baseline (USD) (i.e. comparison group, host community)	1261	569	1179
Annual per capita income for resettlees at baseline (USD)	911	364	1082
Ratio of resettlee income to comparison group at baseline	72.3%	64.0%	91.8%
Annual per capita net income of local farmers in report year (USD) (i.e. comparison group, host community)	1956	919	1775
Annual per capita income of resettlees in report year (USD)	1488	756	1663
ratio of resettlee income to comparison group in report year	76.1%	82.2%	93.7%
annual net income growth rate of local farmers	9.2%	10.3%	12.6%
annual net income growth rate of resettlees	10.50%	17.9%	16.70%
Increase in the ratio of people living in concrete or brick houses	19.20%	26.59%	20.70%
Number of formal complaints in the period	74	Unknown	796
Satisfaction about the implementation of the PRS Plan (% saying yes)	95.50%	90.98%	99.10%

Source: compiled from: Zhou Zhihua (2014), Zheng Ruiqiang (2013), Fujian Resettlement Bureau (2014)

people resettled for electricity production facilitated an empathy that enabled the implementation of a levy scheme to fund the PRS Fund. This generated a very large fund (over 36 USD billion), without being a burden on the national budget or affecting other budget items. A market approach for the provision of services and competitive tendering for the provision of programs under the PRS scheme, together with an independent monitoring and evaluation process, meant that the programs were more effective and more efficient. There was also public tendering for the monitoring and evaluation of the scheme. The monitoring process further ensured commitment to effectiveness by the contractors. There also monitoring for corruption with the naming and shaming of corrupt officials.

A particularly effective aspect of the Chinese policy was that there was a diversity of sources to the PRS Fund. All persons and entities who would benefit from the dams for flood control, water supply or irrigation had to contribute to the Fund. This not only meant that there was significant income, but also that the burden of contribution was shared across all stakeholders, so no stakeholder group could feel unfairly taxed.

The success of the support schemes was due to the extent of public participation, which ensured that the programs met resettlees' needs. The success was also due to the fact that the PRS scheme took a long term approach. Compensation payments for being resettled were paid for 20 years. Furthermore, the various support programs all were intended to deliver benefits into the future. A specific training budget was allocated to build

the capacity of rural organizations and of resettled individuals.

Despite the strong praise for the PRS policy, there have been some criticisms. Perhaps the biggest criticism is that the amounts paid have not been adjusted for inflation, they have remained at 600 yuan since 2006. This is now rather an insignificant amount and is perhaps more a symbolic gesture than genuine support. There has been a concern by some that there is inequality in that the electricity production function of dams is paying, and not the other functions of a dam (flood control, irrigation etc). Another concern is that the special attention given to resettlees potentially might give them an attitude of privilege, that they are always entitled to special attention and support. To avoid creating dependency, it is important that they remain as normal people. While these criticisms are perhaps valid, we believe that they do not discredit the significant advantages of Chinese resettlement policy.

We consider that it is necessary to change away from the traditional view – which prioritised project completion (dam construction) rather than thinking about resettlement issues – to a new resettlement paradigm which seeks to modify inappropriate resettlement policies, build institutional capacity, cultivate qualified resettlement professionals, make effective and practical resettlement plans, strengthen resettlement administration, and promote public participation. In resettlement implementation, governments at all levels in all countries should ensure benefits to affected peoples and improvement in their living conditions following resettlement.

Highlights

- Long term support of resettled people is needed to ensure successful outcomes
- Support must be provided to communities as a whole as well as to individuals
- Host communities are also impacted and need to be supported
- More attention needs to be given to re-establishing people's livelihoods

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References

- Cernea M. 1997. The risks and reconstruction model for resettling displaced populations. *World Dev.* 25(10):1569–1587.
- Chan KW. 2010. The household registration system and migrant labor in China: notes on a debate. *Popul Dev Rev.* 36(2):357–364.
- Dengcai Y, Miao W, Haibao W, Guoqing S. 2018. Policy and implementation of land-based resettlement in China (1949–2014). *Int J Water Resour Dev.* 34(3):453–471.
- Dianlong C. 2009. Reservoir resettles have come out of a road of Chinese characteristics. *China Water Res.* 18: 89–91. (in Chinese).
- Fujian Resettlement Bureau. 2014. The monitoring and evaluation report on the post-resettlement policy implementation in Fujian Province in 2013. <http://www.fjym.gov.cn/fjym/201402/show.html>
- Guide Z. 2005. Reservoir resettlement. Zhengzhou: Yellow River Water Press. (in Chinese).
- Guoqing S, Shaojun C. 2001. China resettlement policies and practices. Yinchuan: Ningxia People Press. (in Chinese).
- Heming L, Waley P, Rees P. 2001. Reservoir resettlement in China: past experience and the three gorges dam. *Geogr J.* 167(3):195–212.
- ICOLD 2011 Constitution. Paris: International Commission on Large Dams. https://www.icold-cigb.org/userfiles/files/CIGB/INSTITUTIONAL_FILES/Constitution2011.pdf[accessed 2020 Apr 27]
- Kissinger H. 2011. On China. New York: Penguin.
- Maohua G, Houping X. 2000. Management on the legacy problem for reservoir resettlement. Nanjing: Hohai University Press. (in Chinese).
- McDonald B, Webber M, Yuefang D. 2008. Involuntary resettlement as an opportunity for development: the case of urban resettlers of the Three Gorges Project, China. *J Refug Stud.* 21(1):82–102.
- Ministry of Finance. (2006). Collection and use of post-resettlement support fund for large and medium-sized reservoirs management approach (trial).
- Ministry of Water Resources. 2017. Definition of reservoir, [accessed 2020 Apr 27]. http://www.mwr.gov.cn/szs/mcjs/201707/t20170713_955608.html (in Chinese)
- Ministry of Water Resources. 2019. 2018 statistic bulletin on China water activities. Beijing: China Water & Power Press. (in Chinese)
- National Bureau of Statistics of China. 2019. China statistical yearbook 2019, [accessed 2020 Apr 27]. <http://www.stats.gov.cn/tjsj/ndsj/2019/indexeh.htm>
- National Natural Science Foundation and Chinese Academy Sciences. 2016. Hydraulic sciences and engineering. Beijing: Science Press. (in Chinese)
- Quanyao F. 2004. Theory of engineering resettlement conformity. Beijing: People Press. (in Chinese).
- Ruiqiang Z. 2013. Satisfaction evaluation and influencing factors analysis of the implementation of large and medium-sized reservoir resettlement later stage support policy. *Water Power.* 10: 1–4. (in Chinese).
- Scudder T. 2005. The future of large dams: dealing with social, environmental, institutional and political costs. London: Earthscan.
- Saoshan Z. 2005. Development and reform of compensation institutions for resettlement of water conservancy and hydro-power projects. *Water Resour Dev Res.* 8: 17–23. (in Chinese).
- State Council. 1986 Notice on urgently dealing with problems of reservoir resettles, 1986.7.29 [accessed 2020 Apr 27]. http://www.gov.cn/zhengce/content/2012-08/20/content_3166.htm
- State Council. 2006a. Opinions of the state council on improving the support policies for large and medium-sized reservoir resettles, 2006 May 19.
- State Council. 2006b Regulations on compensation for land acquisition and resettlement in large and medium water resources and hydropower projects, 2006.7.7
- Tortajada C, Altinbilek D, Biswas AK, editors. 2012. Impacts of large dams: a global assessment. Berlin: Springer.
- Vanclay F. 2017. Project induced displacement and resettlement: from impoverishment risks to an opportunity for development? *Impact Assess Project Appraisal.* 35(1):3–21.
- Wang P, Wolf S, Lassoie J, Dong S. 2013. Compensation policy for displacement caused by dam construction in China: an institutional analysis. *Geoforum.* 48:1–9.
- WCD (2000) Dams and development: a new framework for decision making. *The Report of the World Commission on Dams.* London: Earthscan.
- Webber M, McDonald B. 2004. Involuntary resettlement, production and income: evidence from the Xiaolangdi, PRC. *World Dev.* 32(4):673–690.
- Wilmsen B. 2011. Progress, problems and prospects of dam induced displacement and resettlement in China. *China Inf.* 25(2):139–164.
- Wilmsen B. 2016. After the deluge: A longitudinal study of resettlement at the Three Gorges Dam, China. *World Dev.* 84:41–54.
- Wilmsen B, Webber M. 2015. What can we learn from the practice of development-forced displacement and resettlement for organised resettlements in response to climate change? *Geoforum.* 58:76–85.

Xiaonan C, Guoqing S, Qingnian Y. 2009. The historical transition of reservoir resettlement and the implementation of post-resettlement support policy. *Yellow River*. 4: 9–10 +13. (in Chinese).

Xiaozhu L, Zhijun C, Xiaochao F, Zhijiang C. 2018. Hydropower development situation and prospects in China. *Renewable Sustainable Energy Rev*. 82:232–239.

Xiutang F, Shirong L. 2007. Reviewing and consideration on reservoir resettlement policy in China. *Yangtze River*. 38 (12):5–9. (in Chinese).

Zihua Z, Hongyan L, Yantao L. 2014. Performance evaluation on the implementation of the post-resettlement support to resettles induced by large and medium-sized reservoirs in Tianjin. *Haihe Water Res*. 1: 30–33. (in Chinese).