

## CASE STUDY SERIES DAM DISPLACEMENT

This series addresses a gap in awareness and knowledge about people internally displaced by dam construction.



# CHINA

Lessons Learned from the Manwan Dam

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## Summary

By the time it was completed in 1996, the construction of China's Manwan dam on the Upper Mekong river had displaced 7,260 people, double the number estimated at the beginning of the project. Experts and government officials acknowledge that the displacement and resettlement process was highly disorganised and plagued by numerous problems. These included a shortage of financial and technical resources to plan and implement resettlement, and a lack of oversight and accountability among government agencies.

The government has since tried to address some of the inadequacies, but the latest evidence available does not make it clear to what extent it has done so, or whether those affected have been able to achieve durable solutions to their displacement.

The people the Manwan project displaced have borne the brunt of the cost of the dam, but have not shared in its benefits. They did not receive enough compensation to build adequate housing in their resettlement areas, and some families were displaced again by landslides after poor quality structures were built on unsuitable land. There was initially less access to electricity in resettlement villages and many also suffered shortages of water for both drinking and irrigation. Some farmers ended up with less land and had to supplement their income by other means because they were unable to grow enough food for their families.

Families' outcomes have varied from one resettlement site to another, with differences in compensation levels and access to transport and services. People resettled further away from the dam have tended to be better off than those relocated nearby. Some households have fallen into debt, possibly the result of social networks that previously provided financial and labour support being weakened. Some minority groups have suffered cultural losses, and overall women, girls and elderly people have been disproportionately affected.

The localised impacts of the Manwan dam are part of a much larger pattern that has unfolded at the regional, national and transnational levels. China's involvement in the financing or construction of at least three dams on the main Mekong waterway in downstream countries - Pak Beng and Paklay in Laos, and Sambor in Cambodia - raises questions about the long-term sustainability of dam development on the river and food security in south-east Asia.

The Manwan dam's adverse effects might have been avoided or at least minimised via the consultation and participation of those affected, a social impact assessment before resettlement, increased technical and financial resources, sufficient compensation and better oversight and accountability of the government agencies involved in implementing the project.

## Introduction

China has a history of ambitious water engineering projects that stretches back thousands of years. There are references that suggest dam building for irrigation and flood control dates back as far as 651 BC.<sup>1</sup> Following the 1949 Communist

revolution, dams became a key element of Mao Zedong's plan for the country's development. China's first large reservoir project was approved in 1954, and during the Great Leap Forward between 1958 and 1960, every county was required to build a dam for water conservation.<sup>2</sup> After 1960, the size and complexity of projects increased, and more began to be built for hydropower and flood control in addition to irrigation.<sup>3</sup> The country has built 87,000 dams since 1949.<sup>4</sup>

Today, China is home to about half of the world's 50,000 large dams, which the International Commission on Large Dams defines as dams greater than 15 meters in height or having a storage capacity greater than 3 million cubic meters.<sup>5</sup> This includes Three Gorges, the largest hydropower station in the world in terms of installed capacity at 22,500 MW.<sup>6</sup> Hydroelectric power is now one of China's main energy sectors, accounting for more than 16 per cent of its electricity production and growing at an annual rate of 12.9 per cent as dozens of new dams come on line.<sup>7</sup>

Behind the politics of hydropower development in China lies a vast bureaucracy, a "complex array of state agencies and corporate entities".<sup>8</sup> Ultimate authority over large projects rests with the State Council, the country's highest executive body.<sup>9</sup> The National Development and Reform Commission (NDRC) determines the direction of regional infrastructure projects by issuing the five-year plans, and plays a coordinating role in hydropower development by researching and planning large dams on major rivers.<sup>10</sup> National entities such as the Ministry of Water Resources (MWR) and the Ministry of Environmental Protection (MEP) have complementary functions.

Seven regional river basin commissions are responsible for the "comprehensive development" of China's major waterways.<sup>11</sup> The Yangtze River Commission, which is also responsible for coordinating development on the Mekong - known in China as the Lancang - is itself a huge organisation with around 30,000 employees.<sup>12</sup> Provincial and local governments also play important roles, as do academic institutes, NGOs and local community leaders.<sup>13</sup> Decisions on hydropower development tend to be technocratic, a trend reflected in the fact that since 2000 more than half of the country's top political posts have been held by officials with engineering or technical degrees.<sup>14</sup>

MWR acknowledges that at least 15 million people have been internally displaced and resettled to make way for dams in recent decades, but other estimates point to 22.8 million as the result of 22,000 dams built before 2006, and 10.2 million in the late 1980s alone.<sup>15</sup> Resettlement outcomes have tended to mirror global trends, with those affected suffering impoverishment, marginalisation and other adverse impacts.<sup>16</sup> Beijing admitted in 1989 that as many as seven million people displaced by development projects were living in extreme poverty, many as a result of dam construction.<sup>17</sup>

In the early 1990s, market-oriented reforms designed to increase compensation and improve resettlement outcomes began to appear at the national policy level, and the rise of civil society and the internet in recent years has intensified the pressure for the government to be more transparent and accountable.<sup>18</sup> The Manwan project on the Lancang river in Yunnan province predates many of the recent policy changes, and as such may be seen as a major turning point in Chinese

dam development and resettlement policy.

The Mekong is the world's eighth largest river in terms of mean annual discharge.<sup>19</sup> From its source on the Qinghai-Tibet plateau it stretches 4,800 kilometres, winding through or along the border of China, Myanmar, Thailand, Laos, Cambodia and Vietnam.<sup>20</sup> On its way through China it traverses Yunnan, where its drop in elevation of 1,780 metres yields a potential 25,000 MW in hydroelectric energy, more than the Three Gorges dam.<sup>21</sup> The province's annual theoretical hydropower potential is estimated at 900 billion kWh, of which around 400 billion kWh is thought to be potentially exploitable, accounting for more than 20 per cent of China's total.<sup>22</sup>

Yunnan is also known for its biological and cultural diversity. Parts of the province around the Lancang have been designated a UNESCO World Heritage Site and identified as one of the world's top 25 biodiversity hotspots, providing a home to more than 50 per cent of China's animal species and 6,000 known plant species.<sup>23</sup> Yunnan is also home to 25 of China's 55 officially recognised ethnic minorities, including 14 who live exclusively in the province.<sup>24</sup> It is among the poorest regions in China. The UN Development Programme's human development index recently ranked it 28th out of the country's 31 provinces and administrative regions.<sup>25</sup>

Manwan was the first large dam built in Yunnan. Construction began in 1985 and was completed in 1996.<sup>26</sup> The project was initially conceived as a joint effort between the provincial government, MWR and MEP.<sup>27</sup> Its estimated cost was 3.4 billion yuan (\$493 million).<sup>28</sup> The dam is 132 metres high and 418 metres long, making it one of China's more modest in size.<sup>29</sup> Its reservoir covers 23.6 square kilometres, and its backwater stretches 70 kilometres upstream.<sup>30</sup> It has an installed capacity of 1,500 MW.

Hailed largely as a success in industrial and political circles, the so-called "Manwan model" became the standard for the financing and construction of future dams in Yunnan.<sup>31</sup> After the Chinese power sector was reorganised in 2002, the dam's operation was transferred to Hydrolancang, a subsidiary of China Huaneng Group, one of the country's "big five" state energy firms.<sup>32</sup>

## Displacement drivers

### Economic liberalisation and high electricity demand

China's growing need for energy was a major driving force behind the construction of Manwan and subsequent dams. Population growth, rising living standards and industries increasingly focussed on exports have all contributed to spiralling electricity demand in the country's eastern manufacturing hubs.<sup>34</sup> China's annual energy consumption increased fivefold between 1980 and 2010, stretching its electricity infrastructure to its limits and contributing to frequent power cuts.<sup>35</sup>

Eager to resolve the issue, officials in eastern China have tended to focus on increasing capacity rather than improving efficiency, and the vast hydropower potential of western

FIGURE 1: MAP OF YUNNAN PROVINCE SHOWING YUN COUNTY, WHERE THE MANWAN DAM IS LOCATED<sup>33</sup>



China's rivers has made development on the Lancang an attractive option. The first calls to "send western electricity east" by tapping Yunnan's potential were issued in the 1980s, and the policy would go on to be enshrined in China's tenth five-year plan for 2000 to 2005.<sup>36</sup>

### Social development

Yunnan has been one of China's most economically marginalised regions for decades. Its many ethnic minority communities have also tended to be politically and culturally marginalised, and their living standard lags behind much of the rest of the country.<sup>37</sup> People from eastern China traditionally consider their counterparts in western regions "backwards, undeveloped, and to a certain extent, undevelopable due to perceived deficiencies in the 'quality' ... of the people there".<sup>38</sup>

Hydropower projects on the Lancang and Yunnan's other major rivers, the Salween - called the Nu in China - and the Upper Yangtze - called the Jinsha in China - have been promoted as poverty alleviation measures that promise to reduce the economic disparity between western and eastern China and solve the so-called "nationalities problem" by providing minority communities with electricity and employment.<sup>39</sup>

In reality, however, this has rarely been the case. Yunnan's villagers tend not to have the technical skills needed to compete with migrant labour for jobs in dam construction or operation, and most of the electricity generated by projects such as Manwan is sent east to industrial centres in Guangdong province.<sup>40</sup>

## Displacement patterns and process

Prior to its construction, government officials estimated that the Manwan dam would displace 3,042 people, most of them from farming households living near the reservoir area.<sup>41</sup> In fact it caused the displacement of 7,260 people from 114 villages in the counties of Jingdong, Yun, Fengqing and Nanjian, more than double the official estimate.<sup>42</sup>

Some of those displaced were resettled elsewhere in their home villages or just a short distance away. They are referred to as “near-relocated” in academic studies, while those who had to resettle further away because the project rendered their villages uninhabitable are referred to as “far-relocated”.<sup>43</sup> People from some villages, such as those in the immediate vicinity of the construction site and its access roads were resettled as early as 1987.

Data on the exact number of people resettled each year disaggregated by sex, age and resettlement location is unavailable. It is assumed that no households relocated under their own initiative, because all resettlement was part of the government-sponsored process and people depended on local coop-

eratives for access to land. The cooperatives issue farming families with certificates that grant usufruct rights over plots that they are allowed to sublet but not sell.<sup>44</sup>

The main statute relevant to resettlement at the time of the Manwan process was the 1986 Land Administration Law of the People’s Republic of China, a very general piece of legislation that includes only cursory guidelines on land requisition and compensation. A more detailed and comprehensive piece of legislation, the Regulations on Land Acquisition Compensation and Resettlement of Migrants for Construction of Large and Medium-Scale Water Conservancy and Hydropower Projects, was introduced in 1991.

In this sense, Manwan is illustrative of the situation throughout China in the 1980s and 90s, with the central government setting basic plans for hydropower development and local authorities tasked with implementing the plans, often without adequate resources. The general picture that emerges is of a resettlement process that unfolded in piecemeal fashion, often in response to villagers’ complaints, rather than a systematic and proactive approach driven by policy (see table 1).

TABLE 1: TIMELINE OF THE MANWAN DAM RESETTLEMENT PROCESS <sup>45</sup>

1978	After visits from provincial government officials, the Manwan township authorities announce plans to build a dam involving the probable resettlement of several villages.
1985	The Yun county government establishes the Manwan Hydropower Station Office, which informs villagers in the reservoir area that they will be resettled. Residents appoint representatives to explore resettlement options, and land acquisition begins.
1986 - 1987	Access roads are built to the dam site, and construction and the resettlement process begin. Some households in the immediate vicinity of the construction site are moved with only 15 days’ notice and provided with 500 yuan (\$70) to cover their costs. Land compensation is set at around 1,000 yuan per mu, a Chinese measurement of area equivalent to 667 square metres, for irrigated paddy and 400 yuan per mu for non-irrigated land. The Manwan Resettler Economic Development Corporation is founded to oversee the distribution of compensation payments.
1988	The Yun county government changes the household registration status of all resettled villagers from agricultural to non-agricultural, which entitles them to government grain subsidies. It also provides a one-off compensation payment of 1,050 yuan per person.
1990	With national grain policy reforms and rising prices, resettled villagers begin to have difficulty purchasing food. Landslides occur in the reservoir area, damaging some of their homes and displacing them a second time.
1993	The Manwan hydropower station begins limited operation, but resettled households are not connected to the electricity grid. Villagers appoint four representatives to petition the county government for electrification. In response it allocates 20,000 yuan to begin building electricity lines, but cancels the grain subsidy for resettled villagers.
1994 - 1995	The Manwan Resettler Economic Development Corporation is sold to the Manwan Hydropower Station Office. The dam becomes fully operational, and electrification is completed for resettled households.
1997 - 1998	Facing economic hardship, resettled villagers demand additional compensation from the funds that remained when the Manwan Resettler Economic Development Corporation was sold. They write a petition to the Yun county government. The government agrees to provide another one-off payment of 2,800 yuan per person, plus 400 yuan per person a year for ten years.
2000	Another landslide in the reservoir area forces the relocation of several households.
2001	Citing a new national policy to alleviate poverty, the Yun county government agrees to increase annual compensation payments for resettled villagers by several hundred yuan per household.
2006	China’s State Council releases its Opinion on Improving Later-Stage Support for Large and Medium Dam Project Resettlement, which makes resettled villagers eligible for additional annual compensation of up to 600 yuan per person for 20 years.



A village downstream of Manwan Dam. Photo: Bryan Tilt, 2008

The most comprehensive account of the Manwan resettlement process comes from a social and environmental impact study sponsored by Oxfam Hong Kong in 2000. Entitled *Reasonable and Equitable Utilization of Water Resources and Water Environment Conservation in International Rivers in Southwest China*, it revealed systematic issues in the form of a general lack of oversight and accountability among the various national agencies and local governments tasked with planning and implementing resettlement schemes.<sup>46</sup>

This is a problem that plagues Chinese hydropower development in general.<sup>47</sup> A lack of communication between the various levels of bureaucracy involved encourages local governments to “do whatever is necessary” to make the plans designed by national agencies work. In the case of Manwan, it may well have contributed to the inconsistent and often inadequate implementation of resettlement and compensation plans.<sup>48</sup>

Experts and government officials have acknowledged that the Manwan resettlement process was highly disorganised and faced numerous challenges.<sup>49</sup> The actual number of internally displaced people (IDPs) was more than double the planners’ estimate, perhaps a result of the fact that no social impact assessment was carried out until after the dam’s completion.<sup>50</sup>

This is a common trend throughout the Lancang basin. Independent geospatial analyses based on location, design characteristics and topography for several dams on the Lancang show that developers’ estimates of reservoir size and the corresponding scale of displacement have been far too low.<sup>51</sup> Financial and technical resources for planning and implementing resettlement have also tended to be inadequate.<sup>52</sup>

In the Manwan case, planning and implementation were carried out in a top-down fashion in keeping with China’s technocratic form of governance, with little opportunity for affected communities to participate.<sup>53</sup> This has been shown to limit the success of resettlement programmes elsewhere.<sup>54</sup>

Recent political developments in the hydropower sector indicate that “Chinese officials thus far seem to have interpreted the mandate for public participation largely as a call for ‘expert participation’”.<sup>55</sup>

The level of compensation offered to Manwan’s IDPs was technically legal, but neither the 1986 nor the 1991 statutes provided for large enough sums for beneficiaries to re-establish their livelihoods. Because the farmers Manwan displaced did not have full ownership of their land under Chinese tenure arrangements, they were only compensated for lost income, not the land itself or its future productivity.<sup>56</sup> Neither does Chinese tenure policy recognise communal property or access to the extralegal but essential livelihood activity of collecting resources such as plants or firewood, so Manwan’s compensation plan did not compensate for such losses. Housing compensation was not sufficient to secure adequate conditions that fulfilled resettled households’ basic needs.

Such shortfalls led China’s State Council to adopt more robust compensation standards in 2006.<sup>57</sup> Compensation policies are designed by central and provincial governments, but “implementation ... is largely conducted by local officials, and in some cases a large portion of the compensation funding is retained by them.” Future reforms should focus on improving the “legitimacy and accountability of governance”.<sup>58</sup>

## Displacement and resettlement impacts

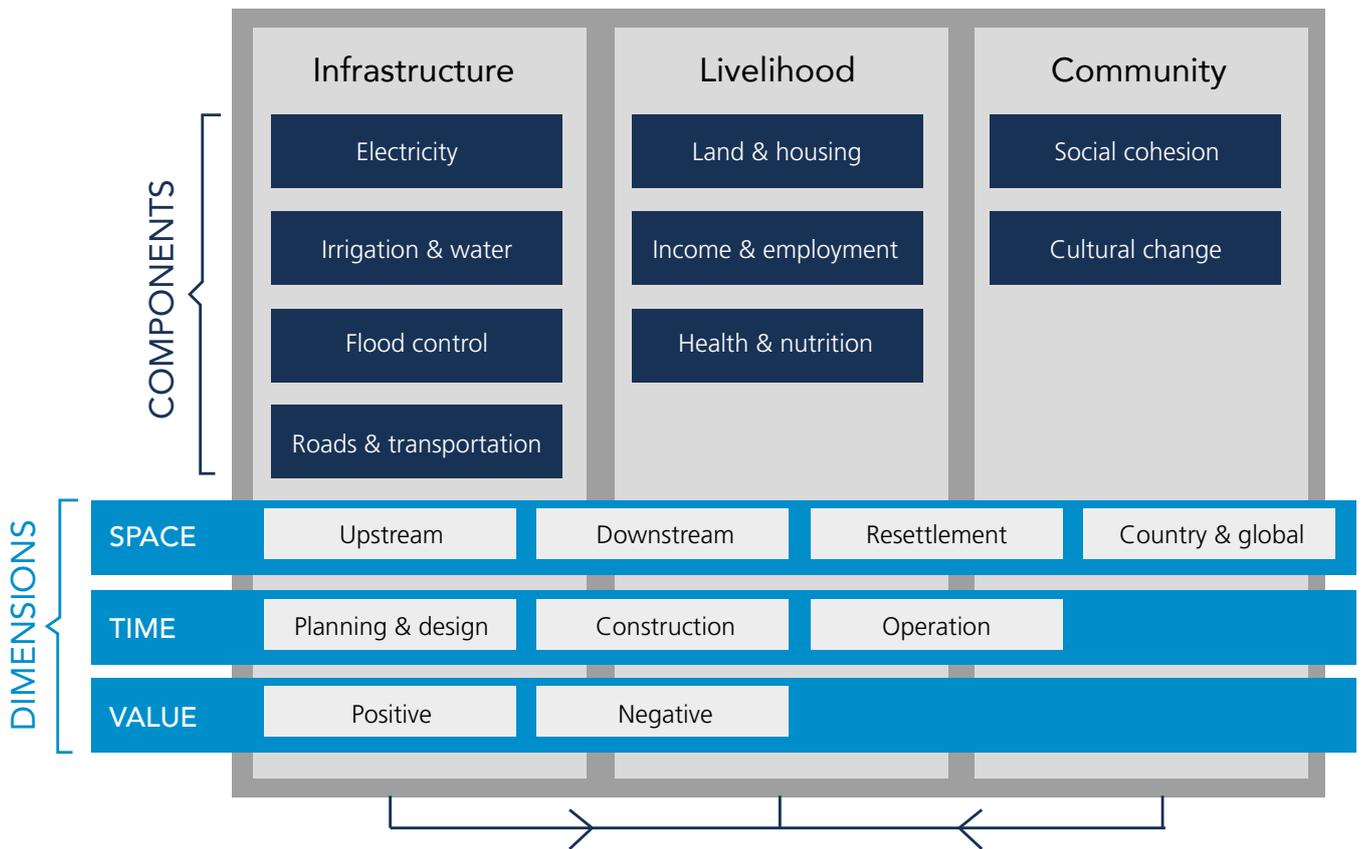
Academics have produced the matrix framework, a conceptual tool for identifying, organising and improving the understanding of dams’ impacts and how they play out across a range of spatial and temporal scales. The previous lack of a common tool has meant that researchers working on case studies did not have a systematic basis for interpreting and comparing their findings.

The framework is centred around the major “dimensions” and “components” of impacts identified in academic literature.<sup>59</sup> Components are organised into three major categories - infrastructure, livelihood and community – which are the basic minimum required for any analysis.<sup>60</sup> Given that impacts may vary widely from case to case and depend on the researcher’s focus, the components that fall under these three categories must always be locally defined.<sup>61</sup>

Dimensions are defined as the contexts in which the components operate.<sup>62</sup> The three primary dimensions of the matrix framework are space, time and value. The space dimension accounts for the fact that dams’ impacts can stretch beyond the immediate resettlement area, both upstream and downstream and at the national and global levels.<sup>63</sup> The time dimension accounts for the fact that impacts, including displacement, can occur during any phase of a dam’s lifetime. The value dimension acknowledges that impacts may be positive or negative.

The matrix framework (see figure 2) integrates the most useful aspects of earlier tools and pulls together accumulated knowledge on the impacts of dam construction. It guides the following analysis of the Manwan dam’s impacts.

FIGURE 2: THE MATRIX FRAMEWORK <sup>64</sup>



## Infrastructure

### I. Limited access to electricity

Electricity became less available and more expensive for residents of areas around the Manwan dam following its construction. Affordable energy was touted as one of the main benefits of the project, but the prohibitive cost of connecting low-voltage local grids to the dam’s high-voltage lines left the promise unfulfilled in many areas.<sup>65</sup> The price of electricity in the areas that have been connected is several times more expensive than that previously supplied by a small hydropower station which was inundated when the Manwan reservoir was filled.<sup>66</sup> Many areas affected by the dam continued to suffer chronic electricity shortages long after the dam was built.<sup>67</sup>

### II. Poor quality and limited access to water

One recent study found persistent problems with water quality in the Manwan reservoir and downstream, and predicted that it would continue to decline in the future.<sup>68</sup> Another found quantities of heavy metals including arsenic, cadmium, chromium, copper, zinc and lead in and around the Manwan reservoir that exceeded the amount deemed safe by the US National Oceanic and Atmospheric Administration (NOAA). The study concluded that the levels were high enough to cause adverse health effects, though they were “not yet serious” at the time of its publication.<sup>69</sup>

Distribution has also suffered, with people in many villages - particularly those near-relocated - reporting shortages of both drinking and irrigation water.<sup>70</sup>

The creation of the Manwan reservoir has significantly influ-

enced the temperature, flow regime and chemical composition of the water that fills it, allowing invasive fish and plants to thrive. That said, the changing conditions also contributed to increased populations of birds and mammals, which could be seen as beneficial.<sup>71</sup>

### III. Variable access to services

Transport infrastructure and access to healthcare, education and markets improved in most of the affected villages with the help of funds from the resettlement plan, but some people’s ability to make use of these services diminished, contributing to a widening gap in socioeconomic status.<sup>72</sup> Roads in some areas were submerged when the reservoir was filled, and although temporary bridges, tractor roads and ferry stations were built to service the dam’s construction site, permanent bridges and tunnels have not been built.<sup>73</sup>

One of the area’s major thoroughfares, national highway 214, was rerouted around the reservoir, and as of 2008 no roads had been built in several resettled villages, including Jianbian and Abadi in Jingdong county.<sup>74</sup> Inconsistent investment in transport infrastructure has also made it difficult for farmers in some areas to get their crops to market. In Bixi township, Nanjian county, participation in weekly markets fell by 90 per cent in the years after the dam was completed.<sup>75</sup>

## Livelihoods

### I. Reduced access to land and forest resources

The people of rural Yunnan have traditionally practiced subsistence agriculture, relying heavily on irrigated rice cultiva-

tion supplemented by dryland crops including corn, walnuts, tea, tobacco, sugar cane, mangos, melons, chestnuts and rubber, and timber and other forest products gathered from the province's wooded hillsides.<sup>76</sup>

The Manwan reservoir inundated around 562 hectares of woodlands and 415 hectares of farmland - 242 hectares of irrigated paddy and 173 of dry fields.<sup>77</sup> The loss of productive land, relocation and the failure to provide alternative plots with the same potential led to a 34 per cent decline in average land-holding among farmers, a drastic scaling-back in the rearing of livestock, less access to forest resources and less diversity in crop production.<sup>78</sup>

### *II. Increased food insecurity*

A 2010 survey found that resettled households held more rice-producing land than those who remained in situ, but the dam's reservoir inundated some of the most productive paddies, reducing yields by as much as two-thirds.<sup>79</sup> This has had a detrimental effect on resettled households' food security. A recent report citing data from the Jingdong Resettlement Office showed that 48 per cent of farmers resettled to make way for Manwan and other Lancang dams had to buy food to meet their household's needs. Before their resettlement, 67 per cent had surplus rice to sell.<sup>80</sup> Oxfam's 2000 study found that many resettled villagers had to scavenge food from rubbish bins to avoid going hungry.<sup>81</sup>

### *III. Lack of employment opportunities associated with dams*

Job opportunities associated with the construction and operation of the Manwan dam were one of the main benefits the project promised. It was often difficult, however, for Yunnan's local residents, who were relatively unskilled compared with migrant labourers, to get such work. In Yun county, fewer than four per cent of households that reported income from wage labour had a member who held a job connected with one of the Lancang dams.<sup>82</sup>

### *IV. Livelihood adaptation*

Partly as a result of changes in the allocation of productive agricultural land, resettled households' incomes from farming fell. Most had to supplement them by other means, such as fishing and transport services or wage labour in Yunnan's urban areas.<sup>83</sup> Resettled households were found to be twice as likely to have wage labourers among their members, and remittances became an important source of income after resettlement.<sup>84</sup>

The 2010 household survey found that resettled households' total income, including cash and in-kind sources, was much higher than that of those who remained in situ, a finding that contradicts much what social scientists have learned about the consequences of displacement associated with development projects.<sup>85</sup> This was down to resettled households diversifying their income sources and engaging more in non-agricultural wage labour.<sup>86</sup> Far-relocated people tended to have a higher living standard than their near-relocated counterparts, because the latter had to clear new pieces of land to work while the former received more compensation and were closer to transport and services.<sup>87</sup>

## Housing

### *I. Deterioration in housing conditions*

A deterioration in their housing conditions was perhaps the worst impact resettled IDPs had to face. Many lost their homes, but replacement housing was not provided. They were compensated instead based on the assessed value of their homes, and were then responsible for building new accommodation themselves.

The initial feasibility studies for the Manwan project conducted in the 1980s predicted that 17.6 million yuan would be needed to compensate villagers for their housing losses, but the figure proved to be an underestimate and the funds were allocated arbitrarily.<sup>88</sup> Near-relocated people either received compensation calculated by area or a lump sum of 6,000 yuan, while payments for far-relocated people depended on location. Those resettled to Hewan village received 6,800 yuan, and Tianxin village 7,000. For those from Dula village, compensation was set at a flat rate of 42,000 per household.<sup>89</sup>

### *II. Secondary displacement*

The compensation amounts were calculated in accordance with the 1986 land administration law, but they failed to take the effect of national market reforms on the prices of building materials such as steel, wood and concrete into account. Prices increased considerably during the 1990s, which meant that many resettled households had difficulty in building homes of the same quality as the ones they had lost.<sup>90</sup>

Shifting architectural styles and construction techniques at the provincial level also meant that many households' traditional-style homes were devalued, while the compensation they received was not enough to cover the cost of building new homes in brick, which had become the regional standard.<sup>91</sup> As a result, many built poor quality homes in unsafe areas, such as on sloping land. Heavy monsoon rains in 1990 and 2000 triggered landslides that damaged many of the properties, resulting in at least 17 households in the villages of Guojie and Wangjiang having to be resettled a second time after their homes were declared unfit for habitation.<sup>92</sup>

## Community

### *I. Multidimensional stress*

IDPs often experience physiological, psychological and socio-cultural stress, and studies have shown that displacement caused by the Three Gorges dam led to mental health problems such as anxiety and depression.<sup>93</sup> Such issues have not received as much attention in the case of Manwan, but the hardship and uncertainty caused by its negative impacts on infrastructure, livelihoods and community cohesion are likely to have been sources of multidimensional stress, particularly given the rollback of state social services after liberal economic reforms began in the early 1980s.<sup>94</sup>

### *II. Reduced social cohesion*

The Manwan dam affected resettled households' sense of community. A recent analysis of data collected for the 2010 household survey found that displacement altered resettled villagers' social networks and reduced their social capital. Social

networks are an essential part of life in rural China, where they are colloquially known as *guanxi*, and provide a means to “distribute resources, disseminate information and provide economic support in good times and bad”.<sup>95</sup>

A 2016 assessment tracked resettled households’ participation in social networks using two key indicators of social capital – the exchange between households of agricultural labour and financial resources such as loans. These results were compared to those for households who remained in situ as well as households displaced by three different Lancang dams. Across the whole sample, the assessment found that resettled households had borrowed more money, but shared less labour than those who remained in situ.<sup>96</sup> This may indicate a pattern of greater indebtedness.<sup>97</sup> Compared with the other Lancang dams, the social networks of households resettled to make way for Manwan were worst affected, with the exchange of both labour and financial resources showing marked declines, even nearly 20 years after resettlement.<sup>98</sup>

### III. Loss of cultural identity

The construction of the Manwan dam also affected resettled communities in deeper ways. Many members of ethnic minority groups lost their sense of cultural identity and commonly-held values because they were assimilated into majority Han Chinese communities.<sup>99</sup> Traditional knowledge about the environment and important customs were also lost.<sup>100</sup> In Hongyan village, traditional Yi customs were lost and today many young people do not speak the Yi language.<sup>101</sup>

Many villagers in Hongyan have also had to shift from rice to corn as their staple grain. Doing so has changed the farming calendar upon which traditional holidays were based, meaning that many are no longer observed.<sup>102</sup> Other communities have experienced similar changes. As one villager is quoted as saying: “We’re not starving yet, but the food we eat leaves a void in our hearts”.<sup>103</sup>

### IV. Disproportionate effects among vulnerable groups

Age and gender have been shown to determine the extent to which the negative impacts associated with Manwan and other Lancang dams are felt. “Older people usually suffered more than the young” in terms of cultural changes.<sup>104</sup> Women also experienced particular hardship. World Bank data shows that compensation was awarded on a household basis, with funds usually given to men. As a result, family property “became liquidated and concentrated in the hands of elder males in the household, marginalizing the role of women”.<sup>105</sup>

Livelihood impacts also varied according to gender. Many men had to seek paid employment away from home, leaving increasing amounts of agricultural work to women.<sup>106</sup> Households whose income declined after resettlement have also increasingly opted to educate their sons while keeping their daughters at home because of the prohibitive cost of education, and gender ratios in secondary schools remain male-dominated.<sup>107</sup>

## Efforts to address adverse resettlement impacts

The China Huaneng Group and the Yunnan provincial government committed to invest 50 million yuan in 2006 in an attempt to address some of the lasting inadequacies of the Manwan resettlement programme. The goals were to build or renovate 100 schools; build 100 sanitation clinics; establish 100 village cultural centres; train 1,000 rural teachers; subsidise courses at technical college for 1,000 school leavers; pay for the tuition of 1,000 elementary and middle school pupils from poor households; subsidise a drinking water development project to serve around 10,000 people; subsidise vocational retraining for 10,000 IDPs; and subsidise the enrolment of as many as 100,000 people in China’s new rural cooperative medical care system.<sup>108</sup>

In conjunction with the Yun county government, the Manwan Resettler Economic Development Corporation was responsible for monitoring the resettlement process. It is difficult, however, to determine the extent to which these promises were fulfilled. Site visits in 2010 suggest that significant improvements in local infrastructure have been made, with the central government providing additional investment via a rural development initiative.<sup>109</sup>

Several encouraging developments in China may signal a positive shift in policy on dam construction, resettlement planning and compensation standards. One of the most noteworthy changes is the replacement of earlier legal statutes with the 2006 Regulations on Land Acquisition Compensation and Resettlement of Migrants for Construction of Large and Medium Scale Water Conservancy and Hydropower Projects.

The new law affirms potential IDPs’ right to play a role in the decision-making processes that will affect them through active public engagement, but enforcement has been inconsistent.<sup>110</sup> It also dramatically increases compensation levels to 16 times the average annual agricultural income from three to four times under the 1991 law, and allocates additional compensation for housing, though it still fails to fully account for losses of common property and other more intangible losses.<sup>111</sup>

In recognition of some of the failings of previous resettlement compensation schemes, China’s State Council published its Opinion on Improving Later-Stage Support for Large and Medium Dam Project Resettlement in 2006. The policy provides retrospective annual compensation of 600 yuan per person for 20 years for all those resettled to make way for dams constructed between 1949 and 2006. As such, it applies to those displaced by Manwan, but it is unclear how and to what extent it has been implemented, or whether it has addressed their vulnerabilities related to their displacement and resettlement.<sup>112</sup>

## Looking ahead: risk of further Manwan dam impacts

The displacement caused by the Manwan dam is a small part of a much larger, regional pattern that has been unfolding for decades. Efforts to understand the full magnitude of Manwan's displacement patterns and impacts and the extent to which they have been addressed are hampered by a shortage of longitudinal studies and a paucity of information about the planning and immediate resettlement phase.<sup>113</sup>

The data and information that are available tend to focus on people who were displaced and resettled by the dam's construction. As a result, comparatively little is known about how other people may be affected because of the dam's impacts on the local environment. A few studies do consider the dam's implications for downstream communities and ecosystems, including its effects on the watershed and surrounding environment, but almost none consider the upstream impacts of the reservoir's impoundment zone.<sup>114</sup>

The Mekong is one of the world's most important transboundary rivers. After passing through the Manwan dam and leaving China, it flows through or along the border of Myanmar, Thailand, Laos, Cambodia and Vietnam, where it is a critical source of food security for millions of people. Freshwater fish are the primary source of protein for as many as 70 million people in the lower Mekong basin.<sup>115</sup>

Given that 20 per cent of the river's annual flow originates in China, a figure that rises to as much as 70 per cent during the dry season, Chinese dam building on the Mekong has potentially significant downstream impacts that may threaten food security and drive further displacement.<sup>116</sup>

Models project that Chinese dams will trap at least 50 per cent of the Mekong basin's annual sediment load.<sup>117</sup> This accumulation poses a significant risk to food security downstream because important nutrients that would ordinarily fertilise the soil and provide food for fish are trapped.<sup>118</sup> The dams also alter the river's flow regime and reduce the amount of water available for drinking and irrigation in downstream countries.<sup>119</sup>

Some significant transboundary impacts have already been observed. Fishermen in the lower Mekong basin have noticed changes in the river's seasonal flow and a decline in fish stocks since the completion of the Manwan dam.<sup>120</sup> As Chinese dam construction on the upper reaches of the river continues unabated, downstream countries have begun to express their concerns publicly via the transboundary Mekong River Commission (MRC).

The MRC serves as a useful forum for basin-wide planning and it is a promising model for transboundary cooperation on water resource issues, but it has tended to be marginalised from major decision-making because of its member states' willingness to opt for bilateral agreements that may contradict its overall goals.<sup>121</sup> The fact that China only maintains

observer status adds to the challenge MRC faces in fulfilling its mandate.<sup>122</sup>

China's involvement in the financing or construction of at least three dams on the main Mekong waterway in downstream countries – Pak Beng and Paklay in Laos, and Sambor in Cambodia – also raises questions about the long-term sustainability of dam development on the river and food security in south-east Asia, which may affect future mobility and migration patterns.<sup>123</sup>

## Conclusion

Despite its negative impacts, the Manwan dam was generally considered to have been a successful project and helped to establish a favourable policy environment for further dam development on the Lancang.<sup>124</sup> Its localised impacts are part of a much larger pattern playing out at the regional, national and transnational levels. Since its completion in 1996, five more large dams have been constructed on the Lancang, including the Nuozhadu and Xiaowan dams, which are taller than the monumental Three Gorges dam.<sup>125</sup> Four others are currently under construction, and another ten are either planned or in the pre-feasibility siting phase. More than 300,000 people are expected to be displaced in Yunnan to make way for dams by 2020.<sup>126</sup>

Much of the electricity generated will continue to be sent east to Guangdong province, but China has also expressed increasing interest in connecting its dams to regional grids. Thailand was identified as a promising market as early as the 1980s, and the slogan "send western electricity east" is now often accompanied by "send Yunnan electricity outward".<sup>127</sup> Selling energy to neighbouring states means the benefits for people in China are even more diffuse.

In addressing future displacement caused by dam projects, four important policy lessons from the Manwan experience are likely to have worldwide relevance. They are the need for:

- The meaningful participation and input of those to be displaced during all phases of development, displacement and resettlement processes. Their voices should not be outweighed by those with powerful development interests
- The strengthening of technical and financial capacity to ensure that a project's costs and benefits are more equitably distributed and IDPs' right to development is assured
- Significant oversight and accountability in the management of development projects, including an enforceable legal and policy framework for land requisition
- The regular monitoring of IDPs' situation following their resettlement to track their progress towards achieving durable solutions and design assistance to address any outstanding adverse impacts they continue to suffer

Twenty years after their resettlement, most of the people moved to make way for the Manwan dam still appear to struggle with vulnerabilities related to their displacement. The longer their plight continues, the higher the true cost of the dam becomes. Their impoverishment and marginalisation, the cost of their displacement, undermines China's achievement of its development goals. People displaced by a development project should be its beneficiaries, not the ones who suffer longest because of it.

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Cover photo: A view of the Manwan Dam on the Upper Mekong River, China. Photo by Bryan Tilt

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