

# Population Displacement in the Three Gorges Reservoir Area of the Yangtze River, Central China: Relocation Policies and Migrant Views

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## ABSTRACT

Employing empirical data derived from a questionnaire survey and in-depth interviews (1997–1998) in the Three Gorges reservoir area, and using secondary sources in both Chinese and English, the paper describes the number, categories and spatial distribution of migrant flows, evaluates the major methods of settling relocatees, and explores the state of relocatees' feelings about their relocation. We found that the number of people to be relocated is still uncertain and environmental, social and behavioural factors influence the number. The relocation programmes are involved in settling people in nearby areas, in moving them far away, or in settling rural migrants in urban industrial enterprises. These resettlement processes are challenged respectively by a tight people/land relationship on higher ground above the reservoir, by the difficulties in rebuilding production systems and adapting to a new social setting outside the reservoir area, and by increasing unemployment in urban China. A series of problems with the relocation operation have resulted because of the lack of a generalised framework for population relocation and the inadequate

involvement of those affected in policy-making and relocation affairs. Despite expressing their support for the project, the majority of rural migrants have mixed feelings about their relocation. The results of our survey and interviews have revealed the fact that a number of relocatees are facing the risk of impoverishment because of a shortage of financial and economic resources, the environmental constraints on relocation capacity, and mismanagement of the operation. Under such circumstances, it is very difficult for those affected to view their displacement as a good opportunity to improve their standard of living. Copyright © 2000 John Wiley & Sons, Ltd.

*Received 11 July 2000; revised 19 September 2000; accepted 25 September 2000*

**Keywords:** population; displacement; resettlement; Three Gorges dam project; Yangtze River; China

## INTRODUCTION

The Yangtze River is the third largest river in the world after the Nile and the Amazon, and is the 'golden waterway' in China, linking southwest and central China with coastal regions. Proposed in the early 1900s and reintroduced in the 1950s, the Three Gorges Project (TGP) was launched in 1992 and is currently under construction in the Three Gorges area of the Yangtze valley,

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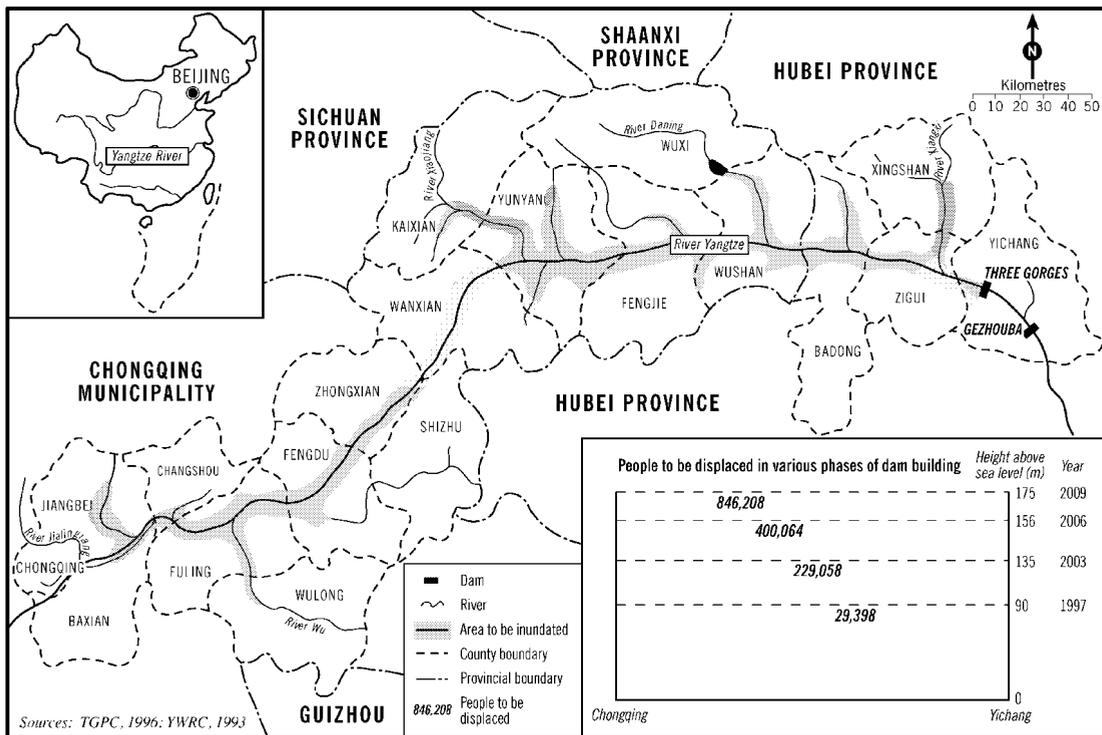


Figure 1. The area to be inundated by the reservoir.

central China. The area, one of the most spectacular landscapes in China, is well-known for its picturesque mountains and cliffs, deep gorges and tributaries, as well as for its long history and unique culture. After damming the Yangtze at the end of 1997, the project has entered its second phase. The project is also one of the most controversial water conservancy projects in China. Rapid economic growth has allowed decision-makers, planners and technocrats to envisage carrying out the huge project, and a relative degree of freedom of speech has made it possible for scholars and intellectuals to engage in heated debates over the project. In international society, many environmental organisations such as the International River Network (IRN) and Probe International call for the project to be stopped, as do the world's foremost dam financiers and builders, including the World Bank, the US Export-Import Bank, Canadian BC Hydro and Ontario Hydro, who are refusing to participate.

The Three Gorges Project is regarded as the largest water project in the world for two

major reasons: it will generate the most electricity of all hydropower stations globally and it will displace the most people in a single project in human history. Over one million people will have to make way for its construction, and many more people will be affected, including those whose communities will receive relocatees from the reservoir area and those who will be threatened by the reservoir water rising during the flooding season. The second section of the paper puts migrants displaced by reservoir construction in a more general context of forced migration, drawing on a growing literature. The paper provides in the third section a general picture of the displaced population, its categories, characteristics and spatial distribution, with a focus on how they will be moved and resettled. We draw on TGP planning documents, commentary by experts, newspaper reports on relocation schemes, an extensive set of interviews with TGP and government officials at various times during 1998 and a large household survey of both potential and actual migrants carried out by the first author and teams of

student interviewers from the Central China Normal University and the Sichuan Three Gorges College (Li, 2000, Chapter 4). Based on the 1997–1998 survey in which 570 migrant households and hosts were interviewed in Yichang, Zigui, Xingshan and Badong counties in Hubei Province, and in Yunyang and Kaixian counties in Chongqing Municipality (Fig. 1), we discovered how these people felt about their displacement, what expectations they had, and to what extent they supported the project. The survey findings are discussed in detail in the fourth section of the paper. In the fifth section, we explore whether the project might yield a good opportunity for the migrants to escape from poverty.

#### FORCED MIGRATION AND RESERVOIR DISPLACEMENTS

The migration literature is full of many valuable classifications of what is a wide-ranging phenomenon (White and Woods, 1980; Standing, 1984; Parnwell, 1993). In most cases these frameworks assume that the migrant has a choice about whether to migrate or not, and that migration is chosen or not depending on the balance of push/pull factors at origin and destination. However, there is an increasing recognition that many migrants have no realistic choice but to move: these migrants are labelled 'involuntary' or 'forced' migrants (Boyle *et al.*, 1998). Three major categories of forced migrants can be identified: political refugees, environmental refugees, and people displaced by dam and other major construction projects. All these groups have to move, but the time over which their move can be planned, and the resources of the state and household available to aid the process, increase as we move through the categories.

Refugee migration 'represents an extreme form of marginalisation of individuals and groups' (Black, 1991: 287). The UN 1951 Convention on Refugees employs a relatively narrow political definition, limiting refugee status to those living 'outside their own country owing to a well founded fear of persecution, for reasons of race, religion, nationality, membership of a particular social group or political opinion'. Under such a

definition, there were 13 million officially recognised refugees in the world in 1996 (UNHCR, 1997). Parnwell (1993: 42) estimated that some 140 million people seeking refuge from political (and ecological) crises have been displaced during this century. The traditional definition emphasises that refugees must cross international boundaries to be classified as such, but increasing violence within countries is displacing migrants within countries as well (Connor, 1986; Schmeidl, 1997).

A second category of forced migrant is produced by environmental change in origin areas. Myers and Kent (1995: 18) defined environmental refugees as 'persons who no longer gain a secure livelihood in their traditional homelands because of ... environmental factors of unusual scope'. These environmental factors include a wide range of events: the slow build-up of environmental degradation through drought, desertification, deforestation and sea-level rise, sudden and devastating natural disasters such as earthquakes, volcanic eruptions and floods, and industrial accidents such as chemical plant explosions (Bhopal, India), the leakage of poison gas (Seveso, Italy) and nuclear meltdown (Chernobyl, Ukraine). One of the most severe natural disasters occurred in the summer of 1998 in the Yangtze valley, when 335,000 people were forced to evacuate the Jinjiang Flood Diversion area (*Chutian dushibao*, 1998). The first author was recruited for levee protection duty in Wuhan during this flood. Timberlake (1988) estimated that tens of millions of people have been permanently uprooted by environmental crises and warned that 15% of the population of Bangladesh is likely to be forced to abandon their homes because of rising sea-levels. Normally, international rescue and assistance spring into action when severe natural disasters occur, regardless of national boundaries, as long as the nation states experiencing the disaster are willing to accept help.

The term 'environmental refugees', however, has been criticised by several researchers. McGregor (1993) considered that the use of the term has no foundation in law and confuses different types of service and institutional responsibility. Kibreab (1994) observed that the term has been widely misused by academics and argued that empirical research is

needed on the importance of environmental change in the process of population displacement. He argued that the term has been seductive because it enables receiving countries to derogate their obligation to provide asylum. Identifying a considerable proportion of refugees as 'environmental refugees' can achieve the goal of limiting the number of international refugees, since states are not required to provide protection and assistance to those displaced by environmental crises (Kibreab, 1997: 21). Scudder and Colson (1982) argued that both life-threatening human action and life-threatening natural disasters should be considered in identifying refugees.

One problem in defining environmental refugees is to distinguish them from environmental migrants. Black (1998: 27) identified the former as migrants for whom 'environmental decline should represent the main (if not only) reason for their flight'. However, a better definition recognises that it is the sudden nature and overwhelming threat posed by environmental change that creates environmental refugees (Suhrke, 1993). A distinction has been made by El-Hinnawi (1985) and Jacobson (1988) between temporary and permanent environmental stress leading to displacement, while others (Trolldalen *et al.*, 1992; Suhrke, 1993) classify environmental migrants according to the precipitating factor: natural disasters, land degradation, deforestation, water and air degradation, sea-level rise, climate change and industrial accidents. In the Chinese context, Ma (1997) argued that natural disasters are one of the main driving forces producing refugees throughout Chinese history, and this explains the importance that successive Chinese dynasties have assigned to water control works.

However, 'not all forced migrants are refugees' (Boyle *et al.*, 1998: 199). People displaced by dams and reservoirs are development-induced displacees (Scudder and Colson, 1982; Cernea, 1990). This category of migration also includes those displaced by industrial, urban or transportation infrastructure projects. Cernea (1997) puts the figure for development-induced displacees at around 10 million each year, or at least 80–90 millions over the past decade worldwide. Compared with refugees and, in particular, environmen-

tal refugees, people displaced by dams share some similar characteristics but also display differences.

Firstly, like political and environmental refugees, people displaced by dams are forced to move against their will despite the difference in causes of displacement; they are neither evading persecution nor escaping from natural disasters, but make way for dam construction. Given the choice, most people affected by dam projects would have preferred to remain in their place of origin (Parnwell, 1993). Among displacees there is variation in the degree of willingness to migrate. Olive-Smith and Hansen (1982) examined the role of the state in influencing the decision to leave an old place and to determine a destination. They argue that refugees would result if the state determined departure but only influenced destination. In most circumstances, resettlement schemes resulting from dam-building are planned by governments. Affected inhabitants take it for granted that the state will take responsibility for re-establishing their livelihood after displacement. It is understood that there is a social contract between the many who benefit from the dam and the few who suffer. By contrast, political refugees have difficulty in gaining assistance within their own country and have to seek external protection. Unlike dam displacees who are at least partially compensated by governments, environmental refugees and migrants have no rights to compensation for losses, especially property damage caused by natural disasters.

Secondly, unlike political refugees, people displaced by dams do not normally leave their country of origin and are settled internally. By contrast with both political refugees and refugees from environmental disasters, dam displacees have time to make the necessary arrangements for their relocation, although their choice of destination depends to a great extent on resettlement schemes and government planning. Unfortunately, because of the huge cost involved in population resettlement and shortfalls in government spending, 'seldom have relocatees become materially and socially better off than before their move' (Parnwell, 1993: 48). Under some circumstances, quite large numbers of displaced people suffer from a 'refugee-like' situation,

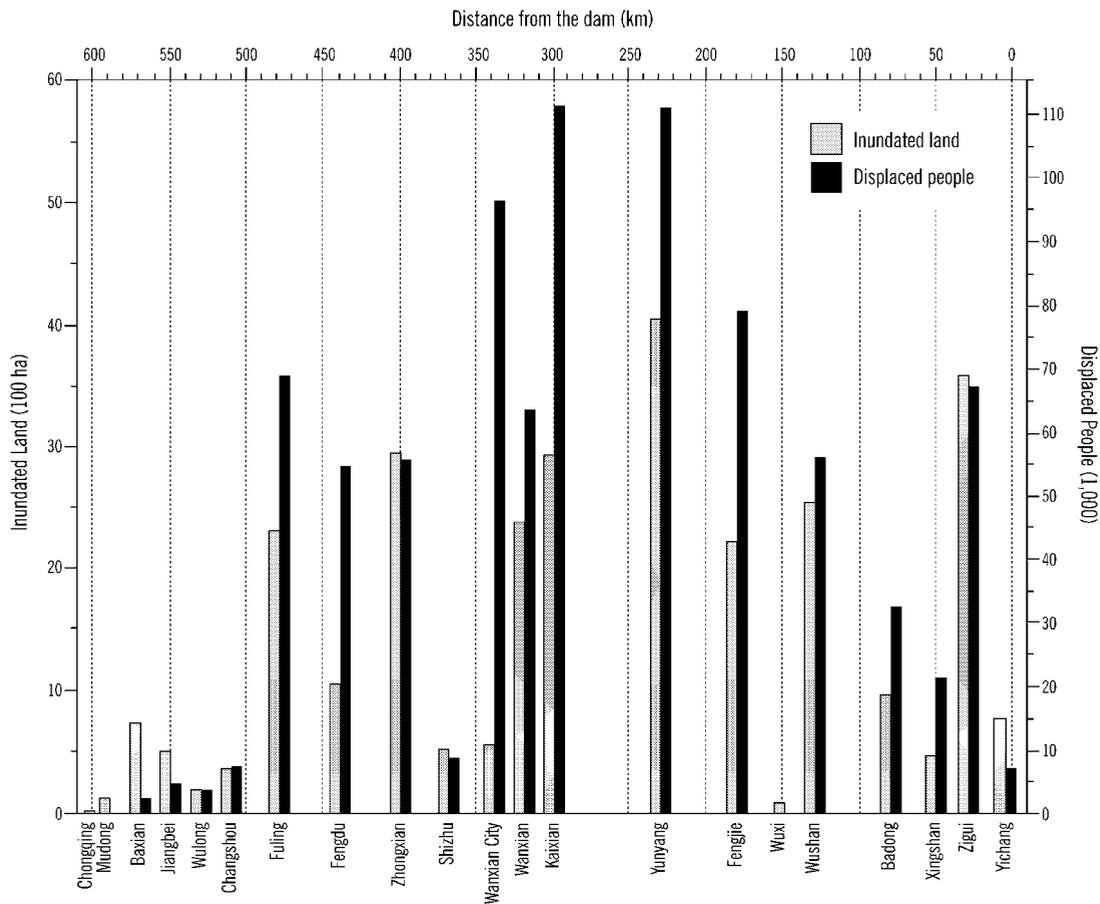


Figure 2. The inundated land and displaced population in the reservoir area. Sources: REG (1988); Zhu (1996).

and many are likely to leave the resettlement sites planned by the government.

Thirdly, migrants displaced by dam projects have little possibility of returning to their place of origin, because it is under water. They are permanently displaced as a result of irreversible environmental change. Political refugees, on the other hand, have a range of future options: to stay in the host country, to transfer to a third country, or to return to their home country, either to their original residences or to alternative homes. Cunny and Stein (1989) estimated that hundreds of thousands of refugees repatriate without official assistance annually. China's historical records show that, once the natural disaster, war or tyranny has ended, refugees generally would return home and continue farming (Ma, 1997).

### ONE PROJECT, MORE THAN ONE MILLION MIGRANTS

The dam site is situated at Sandouping, Yichang County, Hubei Province. At the normal pool level (the highest water level of the reservoir) of 175 metres above sea-level, the back water of the reservoir of the TGP will reach Mudong Township, Chongqing. The total length of the reservoir will be about 660 km. With a total surface area of 1084 km<sup>2</sup>, the reservoir will be narrow, canyoned and river-like (TGPDC, 1996). Therefore, the displacement will take place from densely populated river valleys along the main channel and its tributaries. According to the 1985 survey, some 725,500 people would need to be resettled (REG, 1988). Figure 1 shows the results of the second survey conducted by the Yangtze

Water Resources Commission (YWRC, 1997) during 1991–1992. Some two cities and 17 counties in Hubei Province and Chongqing Municipality would be affected, and 846,208 people would be displaced to make way for the TGP. Figure 2 gives a general graph that allows us to see how land inundation and people displacement will occur from the dam site to the tail of the reservoir along the horizontal axis in the figure. We can see that the more land is lost to the reservoir, the more people have to be uprooted, with an exception in Wanxian City where the displaced people and inundated land ratio is 5340 per km<sup>2</sup> due to its particularly concentrated population in the urban district. Moreover, most relocatees are generated in the middle region of the reservoir.

Surprisingly, the number of would-be relocatees is only defined as the 'directly affected population' (*zhijie yanmo renkou*) whose housing would be submerged by the reservoir. It does not cover the 'indirectly affected population' (*jianjie yanmo renkou*) which comprises a wide range of migrants affected by the project: (1) people whose farmland will be lost to the reservoir completely or partially; (2) people whose working arena such as factories and shops or whose housing above the future reservoir are greatly affected as a result of urban relocation; (3) people displaced due to the reconstruction of new towns and new infrastructure such as roads, bridges and other public facilities; (4) the population in-migrating during the period of relocation; and (5) unregistered urban residents. It seems inappropriate to define those who will lose their farmland to the reservoir as 'indirectly affected population'. These people should be treated in the category of 'directly affected population' as they will lose at least part of the resources on which their livelihoods depend. This treatment reflects a traditional approach that priority is given to house-building based on the progress of projects. Less emphasis has been placed on the restoration of migrants' livelihoods.

If we include these indirectly affected groups and make allowance for population growth of 1.2% per annum between 1989 and 2009, then the total population to be settled would be 1,131,800 (REG, 1988: 14). This figure has been accepted and cited by government

officials and project authorities. In fact, the project did not start formally until 1994, creating an underestimate in the calculations of numbers of migrants. According to the 1991–1992 survey in the Three Gorges reservoir area, the 'directly affected population' had reached 846,208, and the latest figure for the total population to be resettled by the end of 2009 has increased to 1,200,000 (YWRC, 1997: 23; Zhai, 1997: 16). In a formal report in English, the Three Gorges Project Development Corporation (TGPDC, 1996: 15) made it clear that the TGP reservoir would inundate 27,280 ha of farm land, with 844,100<sup>1</sup> residents living in the flooded area, but estimated the final number of relocatees rather vaguely by stating that 'taking into consideration population growth and relocation during the construction period, the total population to be settled would be over 1 million'.

Some opponents of the project believe that the actual number of people to be relocated will greatly exceed these official figures, and will probably be between 1,300,000 and 1,600,000. Zhou Peiyuan and Li Rui have concluded that the total number of the displaced of the TGP will reach 1,600,000 (Qi, 1998: 52). Dai Qing has suggested that the dam will cause the forcible resettlement of upwards of 1,900,000 people (Dai, 1998: 4). It is hard to provide an accurate estimate because both proponents and opponents of the project appear to reduce or exaggerate the figure deliberately for their own purposes. According to the proponents, the fewer the migrants the project has, the easier it would be for the proposal of building the dam to be approved by the central government and the National People's Congress. There is evidence that Li Boning and other proponents of the dam cited different figures on various occasions (Qi, 1998). It seems that they were guided by a desire to promote the dam, rather than by a desire to reach an objective estimate. In the opponents' view, the project produces major diseconomies and should not go ahead because too many people would be displaced in a single project. Some of them warned the central government that moving so many people would bring about political conflict and social instability (Dai, 1998). Because of its complexity and unavailability of relevant data,

we do not intend to seek a more precise figure, but we will point out some problems associated with trying to estimate the number of relocatees resulting from the project.

Firstly, some additional displacements may occur as a result of geological hazards and environmental changes after the formation of the reservoir, which has happened in the past. In the Sanmenxia reservoir area on the Yellow River, an additional 90,000 people had to be resettled when large stretches of fields slumped along the shore of the reservoir. The same happened at the Xin'anjiang and Yongjing reservoir areas (Jing, 1997). By contrast, the Yangtze River is characterised by more severe geological hazards, with a variety of slumps, landslides and mud-rock flows. Based on field investigations conducted by the Chinese Academy of Sciences (CAS) during the late 1980s and the early 1990s (CAS, 1988; Du *et al.*, 1994), there were at least 214 landslides and slumps with a total displacement of 1.35 billion m<sup>3</sup> of material along the Yangtze from the dam site to Chongqing. Large-scale landslides produced great damage at Jipazi in Yunyang in 1982, Xintan in Zigui in 1985, and in Wuxi County in 1987 and 1988 (Qian and Gen, 1999). The total population threatened directly by the landslides and slumps exceeds more than 100,000 people from Fuling and Wanxian to Wushan and Zigui (see Fig. 1). The field survey confirmed that there were 271 debris-flow gullies in the reservoir area, with 99 of them occurring along the main channel, the rest being scattered in several tributaries (Du *et al.*, 1994). Undoubtedly, impounding such a large body of water behind the dam may give rise to environmental changes, in particular some changes in hydraulic patterns and performance. It can be anticipated that a variety of geological hazards resulting from these changes will force the settled people to move for a second time, or the native residents to abandon their homeland and become new relocatees.

Secondly, unregistered urban residents have never received enough attention in the resettlement plan. Of urban migrants (having an urban household registration or having lived in urban areas for more than one year), 10% to 30% (27,000 to 80,600) are illegal migrants to the cities of the Three Gorges

reservoir area (Fearnside, 1990: 52). The number of the 'temporarily residential population' was estimated at 87,900 people based on the 1990 National Census in the Three Gorges reservoir area (COS, 1993). Even in the 1988 official resettlement plan, these unregistered urban migrants were up to 53,612 in 1985. Although they were incorporated into the initial population estimate at 5–10% of 'directly affected population', no housing compensation and no industrial jobs would be arranged for them in the resettlement plan (REG, 1988). According to Wan Chengjun,<sup>2</sup> an official at the Relocation Bureau of Wanxian, a large portion of urban migrants living in urban and suburban areas of Wanxian City have been excluded from the resettlement plan, and this may bring about a series of social problems in the near future.

Thirdly, 'false migration' may result in an unchecked increase of the number of relocatees. To obtain resettlement compensation and other benefits from the relocation scheme, people who are not qualified as migrants are trying various means to transfer their household registration to the reservoir zone (Shi, 1992). Some people bribed officials to let them transfer their household registration to the region under the submersion line. Others spent a sum of money on purchasing the household registration in the reservoir area. Some 19 kinds of 'false migrants' and 807 people were identified in Zhoujiaba Street, Tiancheng District, Wanxian. The total number of 'false migrants' resulting from this inspection reached 2,000 people in Wanxian alone (Sanxia gongcheng bao, 1997a). 'False divorce' (*jia lihun*), 'early marriage' (*zaohun*) and 'registered unborn baby' (*gei wei chusheng xiaohai shang hukou*) were techniques employed to increase the number of displaced people and to get additional compensation. Based on our interviews with village cadres in Gaoyang village, Yunyang County, just in Group 15<sup>3</sup> there were 20 cases of 'false migrants' to be investigated, accounting for 10% of the total population of the village.

These problems tend to increase the total number of relocatees and require more funding for resettlement. In particular, geological hazards and environmental changes after the completion of the dam may produce more

potential relocatees and force the resettled migrants to move again.

#### WHERE WILL THE MIGRANTS MOVE TO?

According to the conservative official estimate, the Three Gorges dam will cause at least 1.2 million people to leave homes which have been inhabited for centuries along the stretch of river between Yichang and Chongqing. One key issue arises: where are they going to be relocated to, and how can so many people be settled within the period of the construction of the dam? People from various walks of life, planners of the project, local cadres responsible for relocation, resettlement experts and scholars in the academic community, have all put forward proposals for population resettlement in the Three Gorges area. Three major approaches to the resettlement of relocatees can be identified: (1) all the displaced can be settled in a nearby area at high elevation without moving them far away; (2) relocatees must be moved out of the reservoir region because of poor local physical setting and environmental capacity; and (3) a large number of migrants can be settled in urban areas and industrial enterprises.

#### Settling in Nearby Areas

Planners of the project and resettlement schemes prefer to settle relocatees in nearby areas. In the light of past experience, the relocation authority is particularly concerned that migrants always try to return to the reservoir area if they are treated badly in the receiving areas, which has occurred repeatedly in past reservoir resettlements in China. Another concern noted by local governments is that moving relocatees far away may result in dual losses: resettlement funding and human capital, especially young labour, flowing out of the local area. More importantly, perhaps, settling migrants in nearby areas can help the promotion of the project, since moving far away is considered a potential issue affecting social stability. For a long time, therefore, the proponents of the project have argued that:

'In terms of the willingness of local governments and migrants, all relocatees

can be resettled locally. It is unnecessary to move them out of the county and the majority of them can be resettled within the township.' (REG, 1988: 14)

Li (1991, 1994), one of the planners of the project, claims that infra-red aerial photography shows that in the reservoir area more than 20 million *mu* (1 *mu* = 0.067 ha) of barren land is available, of which 4 million *mu* of slope land is in the resettlement villages that are to receive relocatees. Within the barren land, Li believes, it is possible to develop 1 million *mu* of farmland to settle rural relocatees and provide new land for the affected hosts as compensation. However, the argument has been challenged by researchers both inside and outside China because of a long history of development, the unavailability of spare barren land, and the limited environmental capacity in the Three Gorges reservoir area.

Historical research has shown that in the Three Gorges area, people from east and south China migrated westward along the Yangtze and economic activities took place in riverside plains and nearby hills before the Qing Dynasty (1644 AD). More and more people from either direction poured into remote mountain areas to begin farming during the period 1723–1796, leading to a 'village on every hill and little land left in the river valley' (*dishan jin cunzhuang, gouhe wu yutu*). The original development pattern based on farming, commerce and fishery in the Tang dynasty (618–907 AD) was replaced by concentration in agricultural development, especially farming on non-irrigated land in the Qing dynasty (Lan, 1992). Owing to greater and greater demand for grain and firewood, more mountains and hills have been tilled and more forests have been cut for farming and settlement since 1949. As a result, most arable slopes on hills and mountains have been developed.

It can clearly be seen that Li's estimate is problematic because it fails to take into account the physical setting in the Three Gorges area, including elevation, gradient, soil conditions, provision of water, and so forth. Of the total cultivated land in the area, 60% cent is slope-land, 25–50% of which has a gradient exceeding 25°. In Wanxian County, the slope of 25% of the total cultivated land is greater than 25°.

The figure is 40% in Kaixian County, 48% in Yunyang, and 53% in Wushan (Wang, 1993). The soils in these uphill areas are very thin and infertile and the agricultural output is far lower than that of the river valleys and floodplains to be submerged. In rural China, the land in this critical condition is called 'hanging land' (*guapo di*) or 'paper land' (*dazibao di*), like a tiny plot attached to the mountain or a piece of paper hanging in the air. Owing to the lack of water and fertiliser and the difficulty in cultivation and management, 'harvesting in this land depends on the mercy of God' (*kao tian shou*). According to the new Water and Soil Protection Act enacted in 1988, the exploitation of land with a gradient of more than 25° is banned. The law also stipulates that only land with a certain amount of soil can be used for farming, and prohibits further development on slopes where the vegetative cover has already diminished by 30% (Qi, 1998). The reality is that the vegetative cover is 13% in the Three Gorges region, and only 11.7% in Wushan County (CAS, 1988). Taking these factors into account, the arable slope land should be 300,000 *mu* rather than 4 million *mu*, based on research reported by Chen Guojie and his colleagues (Chen *et al.*, 1995). Chen (1998) argued that the Three Gorges reservoir area is 'maldeveloped' rather than 'underdeveloped', with about 40% under cultivation. Owing to the region's growing population, the average resident has 0.07 ha of land and produces only 170 kg of grain, far below the national average. Even without the dam project and its immense inundation of farm land, the local population exceeds its environmental capacity by 15%. Chen concluded that it is impossible to resettle large numbers of relocatees in the area.

More importantly, the practice of resettlement schemes since 1994 has proved that settling all relocatees in the reservoir area is unrealistic. Based on our survey, especially the in-depth interviews in the reservoir area during 1997–98, we found that relocatees are facing severe difficulties in maintaining livelihoods after they moved uphill due to the inadequacy of arable land. At Jiuxiancheng village, Badong County, Hubei Province, some 241 people out of 270 villagers are required to move uphill. More than 200 *mu* of land will be

submerged and there will be only 15 *mu* of farmland left after the reservoir is formed. As a result, migrants had little land to farm and found themselves badly placed after they moved uphill. In the case of Gaoyang village, Yunyang County, Chongqing Municipality, relocatees refused to move uphill where the physical setting is too severe. The reason is that the slopes planned as resettlement sites are too steep to build new housing and too thin to farm. The slopes of the mountains and hills are covered by weathered materials which are likely to erode, bringing about slumps and slides. 'How can we earn a living on the slopes?' was the constant complaint of the migrants interviewed in July 1998 along the River Xiaojiang, a Yangtze tributary.

### Moving Far Away

Moving migrants far away will be inevitable, as the short-distance resettlement plan has failed to work well. A wide range of options has been proposed. These proposals can be grouped into three categories according to the distance of displacement: (1) letting relocatees emigrate abroad; (2) moving migrants into border regions or remote provinces; (3) settling migrant groups in areas that benefit from the project, particularly on several state-run farms. Each proposal is considered in turn.

Wu (1992) ambitiously suggests encouraging relocatees to emigrate to foreign countries, especially Russia and southeast Asia. There are plentiful virgin lands, mineral resources and forest resources undeveloped in Siberia, where labour is needed and settlement may be permitted officially through negotiation between the two nations. However, these relocatees would have difficulty adapting to a cold climate and a completely different social environment. Many Chinese emigrants live a relatively wealthy life through successful businesses in Singapore, Indonesia, Malaysia and other countries in southeast Asia. Their success is rooted in worldwide business networks, existing credit relationships and advanced marketing and management techniques. However, relocatees from the TGP lack all these basic conditions necessary for establishing their own businesses in remote, strange nations. Moreover, arranging the

emigration of relocatees to foreign nations would be difficult to negotiate and might lead to diplomatic and ethnic conflicts. More importantly, perhaps, this suggestion takes no account of relocatees' wishes. The proposal to relocate migrants displaced by the TGP to foreign countries is completely unrealistic.

A second option is to move people to border areas and remote provinces. Wu (1992) suggests moving relocatees to Hainan Island where there are fewer people and more arable farmland than in the reservoir area. In 1995, more than 80 relocatees went to Hainan and worked on a rubber plantation, where it was planned they would settle permanently. But they were very dissatisfied with working conditions and the living environment, in particular the low pay and the hot, damp weather in Hainan. Within two months, all of them had returned to their homes. Despite this failure, relocation authorities have been trying to move relocatees to remote provinces. One of the greatest problems faced by the relocation authorities was that these receiving regions demanded an exorbitant price, over 45,000 yuan Renmimbi RMB (the people's yuan) per relocatee, greatly exceeding the government's compensation allowance for migrants. Although migrants recognised there was sufficient arable land and greater survival space there, they were worried about big differences in climatic conditions, production mode and living customs between origin and destination. In Xinjiang, for example, they had a strong sense of being abandoned in an inhospitable environment. In addition, migrants were afraid that they would become involved in ethnic conflict between Han Chinese and the Uighur nationality. Another attempt to move relocatees from Fengjie County to Inner Mongolia proved to be unsuccessful. The government of Fengjie County had to take back all these 200 relocatees after they stayed in Inner Mongolia less than one month.<sup>4</sup>

A third option is to settle displaced migrants in regions that benefit from the TGP in the middle and lower Yangtze valley. The TGP will help control flooding downstream from the dam and provide hydroelectric power for the region. One policy is to settle migrants in the state-run farms in downstream areas, to bring spare land in these farms into cultiva-

tion. National relocation policy encourages migrants to be settled in the regions that benefit from the dam. Several large-scale state-run farms in Hubei, Hunan and Jiangxi provinces have expressed a willingness to receive migrants from the reservoir area. For example, the Caopuhu Farm in Hubei Province has begun preparatory work to receive migrants. In the first phase, the farm plans to receive 1500 migrants from Zigui, Wushan and Yunyang counties. But many migrants who enquired about resettlement policy and practical procedures hesitated to make a contract with the farm. There was some fear that they would no longer have other alternatives if they agreed a legal contract. They were anxious that they would be unable to spend the resettlement funds themselves if they agreed to all the requirements in the contract. Therefore, it has been hard for migrants to make up their mind and many are delaying their relocation decisions.<sup>5</sup>

### Moving to Urban Enterprises

Moving rural relocatees into urban areas and having them engage in industrial jobs has been seen as another major channel for migrant flows. The 1988 resettlement plan of the TGP aimed to settle up to 40% of rural migrants in the industrial and service sectors by carrying out 416 development projects (REG, 1988). Local governments are eager to take advantage of the construction of the project to boost their local economy, placing great emphasis on industrial development. Young migrants, in particular, are hoping to move into urban areas, become factory workers, or be employed by the government, earning more money and promoting their social status.

So far, however, there have been few successful instances of resettling migrants in industrial enterprises and the service sector in the reservoir area. In 1984, more than 9.7 million yuan RMB were used to set up 57 industrial enterprises as compensation for land requisition in the dam area. Two years later, most of them had closed or were performing poorly due to a heated debate about the TGP, errors in investment decision-making and mismanagement (Mao, 1993: 231). The Eastern Sichuan Chemical Engineering

Corporation based in Wanxian City provides a better example. To develop local industry and settle more relocatees of the TGP, a project was planned with an investment of 2 billion yuan RMB to produce caustic soda for export by exploiting local rock-salt resources. If completed on schedule, the project would have been able to settle 20,000 rural migrants. Unfortunately, the price of caustic soda rapidly declined in the early 1990s. As a result, the huge enterprise had to close its gates after spending 1.2 billion yuan RMB and employing 3000 local peasants as workers, 500 of whom were rural migrants.<sup>6</sup> In Wanxian City, over 1000 migrant workers have been laid off and some others suffer from low salaries; in Yichang County, more than half the migrant workers lost their jobs and needed to be resettled. With a very weak industrial base and without a favourable investment environment, the Three Gorges area has great difficulty in developing strong industries. Moreover, the reservoir area has a population with lower educational levels and it is hard for rural migrants to become skilled workers and adapt to new working conditions in modern industrial enterprises in a short period. Local governments in Hongshi and Bayang townships, Yunyang County, have had difficulties in identifying what kind of industry can use rural migrants (Lu *et al.*, 1997).

Despite having little industry, the reservoir area has been heavily contaminated. Wanxian City, in the middle of the reservoir region, has air pollution twice as high as the national average and the frequency of acid rain was about 96%, ranking it as highest in Sichuan Province in 1984 (Lu *et al.*, 1997). Unchecked industrial development, especially small rural enterprises such as paper-making, production of chemical fertiliser, mining and building materials plants, with old equipment and obsolete technology, may lead to environmental disasters. Guo and Lan (1995) have argued that, except for fruit-growing, farming needs to be limited, and that polluting industrial enterprises should be excluded from the Three Gorges area. They suggest that, to preserve harmony between economic development and environmental conservation, forestry, tourism, water transport and fisheries should be developed as a new 'industrial' complex. Tourism

and fisheries, in particular, have a higher requirement for environmental protection. In the Yangtze basin, there are more than 40,000 industrial pollution sources and over 10 million tonnes of industrial waste water and domestic sewage are discharged into the river and its tributaries each day (*Guangming ribao*, 2000a). In fact, annual fishing output has declined from 300,000 tonnes in the 1950s to 100,000 tonnes in the 1980s, and some rare species have become extinct because of serious water pollution in the Yangtze River (Yang, 1995). The number of tourists on the river has also declined dramatically since the damming of the Yangtze at the end of 1997. The Asian financial crisis and unemployment at home were responsible for the sudden decrease in tourist numbers. It seems hard to be too optimistic about the future of tourism on the Yangtze because of the unfavourable changes in the landscape of the Three Gorges after the reservoir has filled.

The government and relocation authorities have become more cautious in making arrangements for settling rural migrants in industrial enterprises in the light of the experience of the Eastern Sichuan Chemical Engineering Corporation. Through government directives and some incentives, several famous companies have established branches in the reservoir area. For instance, the 'Wahaha' Corporation of Hangzhou City, Zhejiang Province, invested in two soft-drinks factories in Fuling and Yichang respectively, but both of them received few rural relocatees because of their limited production capacity and their need for more highly qualified employees.

In summary, settling migrants in nearby areas can maintain the suitability of the physical setting, continuity of economic activities and availability of social capital, so that migrants incur smaller socio-economic costs and the government can save resettlement investment and achieve the goal of social stability. However, in the case of the Three Gorges dam, experience over a six-year period (1994–1999) suggests it will be impossible to settle all relocatees in nearby areas at higher elevation due to the huge number of displaced people, the inadequacy of farmland and limited environmental capacity. Alarmed by growing erosion and environmental pollution,

more recently the government has issued a new directive for moving 125,000 people living in the reservoir area to 11 provinces of the country (*China Daily*, 2000a). Moving migrants far away is a feasible alternative and can help to reduce population pressure on the reservoir area. But emigrating abroad or moving to border areas and remote provinces are not viable options. Settling migrants in the regions that benefit from the project is consistent not only with the requirement of resettlement policy, but with the interests of migrants and hosts who receive migrants. The big question is how migrants can rebuild their livelihoods and adapt to a new social setting in more remote parts of the country. Settling migrants in industrial enterprises can help to transform local industrial structures, push industrialisation forward and accelerate the progress of urbanisation. However, old equipment, outmoded technology, limited relocation funding and low educational levels among rural migrants have contributed to a less competitive industry in a market-oriented economy. The need for environmental protection to encourage the development of tourism and fisheries imposes further restrictions on the expansion of industry.

#### WHAT DO MIGRANTS FEEL ABOUT THEIR RELOCATION?

##### **No Choice but to Move**

Do the relocatees in the reservoir area support the project? The result of a survey by Li *et al.* (1995) in 1994 shows that some 86% of the relocatees surveyed expressed their support for the project. Another study on the social psychology of migrants in the reservoir area carried out in 1995 by Zuo (1997) revealed that 93% of respondents viewed the dam-building as a good thing that benefits the state and younger generations, and 78% of them were proud of making a contribution to the project construction. At the same time, however, 35% of respondents felt they were at a loss as the day of their displacement approached, and 43% of them felt upset at leaving their home. As a whole, therefore, the majority of those displaced by the project have a positive attitude towards the dam-building, partly

because of their understanding of the community benefits of the project, and also their aspirations to profit from the project. But it is hard to be clear which aspect is more important in their minds. The results of Zuo's survey (1997) demonstrate that respondents would rather hide their opinions than give the impression to the interviewers that they are standing on different ground from the government. Thus, over 87% of the respondents agree that 'I will obey and follow the instructions of the government regardless of how I feel about my relocation.' Zuo concluded that the displaced know how important the TGP is, but do not know how their migration experience will work out.

During the period of 1997–98, we conducted our own survey in the area. The target population were those who either had been or were to be displaced by the Three Gorges dam. According to official statistics, by the end of May 2000 some 220,000 relocatees had been moved, and about half a million more are required to be displaced before 2003 (*China Daily*, 2000a). Thus two major groups can be identified: those who had yet to be relocated and those who had already been relocated. In our survey, we paid attention to these two groups: migrants before relocation and migrants after relocation. To carry out the survey, we invited 20 undergraduates from the Central China Normal University in Wuhan and from the Sichuan Three Gorges College in Chongqing to join our survey team (Li, 2000).

The initial survey plan proposed a randomly selected sample. The purpose of employing sampling methods is to collect data from a representative sample of respondents, from which the attitude of the surveyed population towards the project and relocation schemes can be inferred with a known degree of certainty. However, we faced various difficulties. Firstly, we had great problems in obtaining migrant household lists from the government departments, especially from the relocation bureaus at county and township levels. Few local cadres responsible for relocation affairs took a cooperative approach to our request for this basic information. Many complained that too many institutions and scholars wanted data on migrants, while the upper governments had issued regulations

preventing data relating to the relocation schemes of the TGP from being published. Occasionally, we were lucky enough to obtain some valuable data through particular relationships such as close friends and relatives, but we found that these data were not complete enough to set up the sampling base. It proved especially difficult to gain a full list of migrants at county and township levels, which was a precondition for employing a sampling method. Furthermore, we also found it difficult to proceed with our survey even when we obtained such lists. The reason was that most migrants, especially rural migrants, live in scattered locations, and some were too remote or isolated in high mountains to be accessible by bus, boat or motorcycle. Another problem was that we would have difficulty in finding specific respondents selected by our sampling method. They may be away seeking jobs as floating labour, or working in the fields. We did not have enough time and funding to find specific respondents.

To make our survey more representative, a 'location selection-centred' strategy was adopted and some measures were employed to ensure the survey locations were representative of particular migrant situations. Firstly, we took into account regions as varied as possible in the selection of the surveyed counties. The counties were arranged into geographical strata according to the following classification: urban district; rural plain; near hills; and remote mountains. The survey of 'migrants after relocation' was undertaken in Hubei Province because the major displacements so far have taken place in that province, while the survey of 'migrants before relocation' was mainly carried out in Chongqing. In the former group we planned our interviewing with migrant households in the county seats of Yichang and Zigui; in the peri-urban districts of Yichang City; in Zhijiang County, a rural flat region; and in Xingshan and Badong, both mountainous areas, representing different areas geographically and economically. Zhijiang County and peri-urban Yichang are located below the dam and have received migrants from the reservoir. The majority of respondents in Yichang, Zigui, Xingshan and Badong counties have been settled in a nearby area. In this way, we attempted to reflect the

two major categories: near-removal and distant-removal. In the other group, namely 'migrants before relocation', respondents in Kaixian County live around the county seat, engaging mainly in the cultivation of vegetables, self-employed businesses and other non-farming economic activities. The migrants in Zigui County live along the Xiling Gorge and grow orange trees, while the majority of respondents in Yunyang County live in mountainous areas and engage in agriculture, and so can also represent varied regional and economic categories (see Fig. 1).

Secondly, the villages, as basic location units, were then arranged on the basis of displacement categories for 'migrants after relocation', and economic development levels for 'migrants before relocation', within strata obtained from a general understanding or through looking at the annual economic statistics of the target county or township. According to this procedure, therefore, the surveyed villages were selected based on displacement categories and different standards of living in each county. For 'migrants after relocation', for example, these displacement categories included: near-removal and distant-removal; rural migrants and urban migrants; rural migrant households that have been settled in urban industrial enterprises. Migrant households interviewed were chosen from these selected villages. The procedure is associated with an important aspect of our survey method: interviewer training, in which we attempted to teach student interviewers how to choose their respondents in actual surveys. Apart from general guidelines and some basic rules for interviewing, the interviewers were asked to select their respondents properly. The major principle was to assess respondents before interviewing them, balancing the number of respondents between male and female, young and old. The implementation of this quota procedure aimed at strengthening representativeness and reducing bias.

Finally interviewers were required to select their respondents from as wide a range as possible so as to cover different socio-economic classes, which could be done by local enquiry and interviewers' observations. For example, housing could be a benchmark to judge income level, particularly for those

Table 1. A comparison of willingness to move by income group.

Income group (yuan RMB per year)	Yes (%)	No (%)	No choice but to move (%)	All migrants ( <i>n</i> )
<400	45	10	45	42
400–1000	26	37	37	123
>1000	15	45	40	100

Source: Authors' survey of 'migrants before relocation', 1997–1998.

about to move.

In our 1997–98 survey, we asked an additional question: 'Are you willing to move?' We expected one of two answers: either 'yes' or 'no'. When we undertook our pilot survey in Yichang and Zigui counties in November 1997, to our surprise, we found most respondents hesitated but replied 'no choice but to move'. Hence we had to add the new answer 'no choice but to move' into our modified questionnaire. The survey results show that 39% of respondents answered 'no choice but to move' and 34% answered 'no', indicating that the majority of migrants felt unhappy about relocation. Many people think that the government has made the decision to build the dam and nobody can change the reality. Because they can be given a sum of money and have a chance to gain better housing, move into cities, get a good job and so on, they are willing to move. However, because they will lose their home to the reservoir, be separated from their relatives, and face an uncertain future, they are reluctant to move.

Our survey suggests a strong relationship between income and willingness to move (Table 1). The richer the rural migrants, the less motivated they are to move. Conversely, the poorer the migrants are, the more willing they are to move. The richer rural migrants are worried more about losing their established economic and social capital. They are anxious that their standard of living may decline as a result of their displacement. By contrast, the poorer rural migrants hope to alter their living situation and are less worried about their losses. In a sense, they are influenced by government propaganda that the construction of the TGP will give them a chance to raise their standard of living. However, both the rich and the poor share a general sense of

unease at leaving their homes and having to face an unknown future. They hold the belief that the government will never leave them alone once it has taken the decision to build the dam. The dam will become higher and higher and the water of the reservoir will flood their homeland regardless of what they do. Hence, for the migrants, the best way is to accept the arrangements made by the government. Under these circumstances, as a whole, the majority of respondents focused on the answer 'no choice but to move', thereby reflecting their complex feelings.

#### 'We are Very Unwilling to be Moved Far Away'

The question 'Are you willing to move far away?' was employed to measure migrants' views about the distance of removal. The survey results show that 64% of respondents are not willing to be moved far away, while 32% are willing. The result has confirmed a general hypothesis for involuntary resettlement: most migrants affected by dams and reservoirs prefer to be settled in a nearby area rather than move far away. In the relocation of the Liujiaxia Dam on the Yellow River, 34,174 relocatees rejected the first two resettlement plans to move them far away, and instead accepted the third one to settle them in a nearby area despite better production conditions in distant resettlement sites. For the Sanmenxia Reservoir on the same river, 67% of relocatees were settled in the regions around the reservoir (Yang, 1992).

Despite few successful examples in the past, resettling locally can reduce economic and social costs. A short-distance movement from the place of origin to the new destination can reduce the expenditure on transportation and

the loss of property. Living in the same physical environment, the migrant's cultivation techniques, management experience and even production tools can still be used, which can help relieve settlers' stress during the period of transition. With regard to production systems, there are few changes in the original networks of trading establishments, credit relationships and business foundations, which helps to maintain migrants' livelihoods.

Lessons derived from the World Bank-assisted projects involving resettlement have shown that those people involved in displacement are frequently unwilling to move. Love of birthplace or grieving for a lost home is quite possibly a universal human characteristic and is particularly hard for the old with their limited contact with outside areas (Scudder, 1973a; Pardy *et al.*, 1978). At the Kariba Dam in Rhodesia/Zimbabwe, women bemoaned the fact that they would have to leave the gardens, and especially the garden shelters, that had passed through the female line over generations (Scudder, 1973a). One of the most bitter complaints voiced by the 57,000 Tonga people at the same project was that they were being forced to leave the land where their ancestors were buried (Goldsmith and Hildyard, 1984). These complaints and dissatisfaction may become stronger when the relocatees find that they face many difficulties in the new settled sites. As Scudder (1973b) has summarised, in the major African dam projects, water supplies in the new homes were initially unsatisfactory, a particularly difficult situation for those resettled at Kariba and Aswan since their former villages were usually within a few hundred metres of the Zambezi and the Nile. Even worse, new land-use systems were not ready at the time of relocation, so that government-supported food relief was essential to support the relocatees.

In North America, the James Bay project in Quebec, Canada, failed to provide as many jobs as planned. More importantly, the job offers did not help the people displaced, since very few speak French, a necessary qualification for the jobs with Hydro-Quebec (McCutcheon, 1991). Actually, fear of relocation and the hardship of resettlement begins before displacement. The Cree Indians in Canada, who were against the James Bay

project, argued that it would destroy the land, the animals and their survival; that money and jobs do not last, but land does; and most importantly, that they know only one way to live (McCutcheon, 1991). Many native people are therefore unwilling to change their way of life and the traditional hunting culture in the area affected by the James Bay project.

The British government's plan to find \$200 million for building the Ilisu Dam on the River Tigris in Turkey has been bitterly condemned, since the proposal failed to take account of social and environmental impacts. Many people are concerned about the fate of the minority Kurdish community which has suffered from human rights abuses, and about the prospect of potential conflict between Turkey, Iraq and Syria over the cross-border flow of water from the River Tigris (*The Guardian*, 2000).

It is particularly unfortunate that the stress of resettlement is often exacerbated by bad planning and inappropriate policy. Loss of assets, unfamiliar environments, unprepared resettlement sites, poor living conditions and hopeless economic prospects are all elements in the human and economic costs of resettlement (Scudder and Colson, 1982). In 1985, while most evacuees at the Kariba Dam were settled nearby, 6000 Gwenbe Tonga people were removed by force. In clashes, nine people were killed and more than 30 injured. When the Bakolori Dam in Nigeria was built, the property of the 12,000 people displaced by the reservoir was still being surveyed as the water rose (Adams, 1988). In the case of the Chico Dam, the Philippines government brought in units of both police and army to quash opposition to the dam. At times, the methods used by those troops were brutal in the extreme, and arbitrary arrests were commonplace. It is even alleged that the army was responsible for the assassination of one of the main opponents of the dam, Apo Panget Macli-ing Dulag, and the attempted murder of one of his chief lieutenants, Pedro Dungoc (Goldsmith and Hildyard, 1984).

At the international level, the World Bank was the first international development agency to respond to the complexity and difficulty of development-induced displacement by adopting an explicit policy and institutional procedures to address displacement processes and

Table 2. A comparison of willingness to move far away, for two counties.

County	Willing (%)	Unwilling (%)	Do not know (%)	<i>n</i>
Yunyang	52	46	2	124
Kaixian	18	77	5	119

Source: Authors' survey of 'migrants before relocation', 1997–1998.

resettlers' needs (Cernea, 1988). For this reason, the World Bank stresses that the authorities should 'move people in groups' in its resettlement policy:

'Minimising the distance between departure and relocation sites can facilitate the resettlers' adaptation to the new socio-cultural and natural environments. The trade-offs between distance and economic opportunities must be balanced carefully.' (World Bank, 1994: 10)

However, the Three Gorges area poses particular difficulties for resettlement because of the lack of farmland in nearby areas. Local resettlement sites tend to have steep slopes at a higher elevation. Table 2 shows that more respondents in Yunyang County were willing to move far away because most of them live in remote mountainous areas where there is little room for them to live at present, let alone find new locations for the restoration of their income. By contrast, migrants in Kaixian County preferred to settle in a nearby area since the majority of them live around the county seat where there are more economic opportunities.

In the Three Gorges reservoir area, the majority of relocatees prefer to move to small towns. Table 3 shows that 65% of respondents prefer to move to small towns or 'around the county seat' (usually a small city). For rural

migrants, big and medium cities are attractive, but entry to these cities is not easy and employment prospects have declined recently. So the more realistic choice is a small city or town, especially the county seat, which is a regional centre of economy, culture and business. It is interesting to note that fewer women than men are willing to stay in rural areas. The results of a survey on migrant women by the Women's Federation of Wanxian in four counties of the reservoir area showed that migrant women have higher expectations for the improvement of economic conditions, living space and lifestyle (Liao, 1998). It is also significant that about half of female respondents have been living in small towns or the area around the county seat before their displacement. Thus it is no wonder that they prefer small towns and the county seat to rural areas.

### What are Migrants Expecting and Worrying About Most?

In our questionnaire, we asked migrants to rank 12 areas of potential concern connected with their future migration as having 'pre-eminent importance', 'great importance', 'some importance' or 'no importance' in their relocation. Table 4 provides the results of respondents (*n* = 275) assigning 'pre-eminent importance' to selected concerns.

Why did migrants place compensation at the

Table 3. Preferred relocation areas, by gender.

Gender	Big and medium cities (%)	Around the county seat (%)	Small town (%)	Rural area (%)	<i>n</i>
Male	13	34	23	29	188
Female	12	43	37	8	86
Total	13	37	28	22	274

Source: Authors' survey of 'migrants before relocation', 1997–1998.

Table 4. Respondents assigning 'pre-eminent importance' to selected concerns ( $n = 275$ ).

Area of potential concern	Frequency	%
Compensation	233	86
Housing	179	66
Education	169	63
Land	138	52
Employment	128	48
Benefits for the old	93	35
Living surroundings	81	31
Social security	79	30
Healthcare	60	22
Food	52	19
Social relationships	42	16
Social status	24	9

Source: Authors' survey of 'migrants before relocation', 1997-1998.

top of the list? This is because resettlement compensation is paid to every migrant household and affects the profit/loss balance sheet associated with displacement. Compensation offsets losses including physical capital (farmland and housing), human capital (business networks and specific professional skills) and social capital (personal ties and social networks). Migrants are concerned about how much money they can obtain and what methods will be used to disburse the relocation compensation. Migrants in the Three Gorges reservoir area have high expectations for compensation, with which they are hoping to build bigger and better housing, to reconstruct their terraced fields and fruit orchards, and to establish their own businesses such as shops, restaurants and transport agents, and so forth. As the propaganda of governments and relocation authorities emphasises, migrants have been eager to take up the opportunity presented by the dam-building to lift themselves out of poverty. To achieve this goal,

migrants have been expecting to be given generous resettlement compensation.

In the Three Gorges area, house-building and the betterment of housing has become one of the greatest aspirations of migrants. There is some fear among migrants that they will be displaced hastily and have to live in a temporary shelter, waiting for the house-building. Therefore, when we asked those who were about to move 'When is the best time to move?', over half of the respondents selected the answer 'after the housing has been completed', while 41% replied 'after the compensation has been given'. In our survey on those who have been moved, 93% of respondents spent almost all resettlement funding on house-building. In another survey on migrant women by the Women's Federation of Wanxian, as Table 5 shows, the majority of migrant women wished to build better housing and intended adding more money from their own savings or borrowing money from relatives and friends.

Traditionally, education for children has been given a high priority by Chinese peasants who have no other means to climb the social ladder. Some migrant parents are concerned more about their children's future than about themselves. It was interesting, in our survey, that the migrant parents appeared not to care about their own rural household registration but they thought it necessary for their young children to have an urban residential status. Hence almost half the respondents we interviewed expressed their wish to change their rural household registration. The case of one rural migrant interviewed in Dongxi village, Yunyang County, indicates the strength of feeling shared by many. He said that he did not care about his wife and himself in the displacement, but he was particularly concerned about his three children, their education, their jobs and their future.

Table 5. Responses to 'How are you going to build your new house?' (%).

Will depend on relocation funding	Will add money to build better house	Will borrow money to build better house	Will follow others
13	29	58	10

Source: Liao (1998).

Note: More than one answer was possible, so percentages do not sum to 100.

Rural migrants are concerned about farmland and employment, which are closely associated with the restoration of their livelihoods. However, why are 'farmland' and 'employment' ranked only fourth and fifth among selected concerns in Table 4, since they are extremely important to the rebuilding of earning capacity after relocation? This is because, for the majority of rural migrants, the provision of 'farmland' means engaging in agricultural activities, while 'employment' is usually regarded as urban or industrial job arrangements. There are obvious variations among different age groups of rural migrants. The results of our survey suggest that 60% of respondents under 35 years of age do not view 'land' as a 'pre-eminent' concern in their relocation. By contrast, the percentage is smaller in the age group of 35–45 years (45%) and in the age group over 45 years old (39%). Younger migrants expect to escape from farming, to work instead in industrial enterprises, government departments or commercial businesses. In our survey, 24% of young rural migrants under 35 expect to enter factories; 13% would prefer to be employed by governmental departments; and 44% intend to enter commercial businesses. It is understandable that young people should be less attached to ancestral land, and look forward more to the opportunities ahead.

More migrants have begun to pay attention to benefits for the old. Social security has played and will play an important role in population resettlement, especially for the elderly. By contrast, the rural migrants we interviewed seemed not to place great emphasis on social relationships and social status. This is because most migrants will be settled in nearby areas, allowing migrants to retain their original community and social networks.

Concurrent with their great aspirations for the project, migrants also have worries. We asked them what they worried about most. Over 80% of respondents before relocation worry about worse production conditions (mainly farmland) and the decline in their income after relocation. Rural migrants are facing an uncertain future as a result of relocation. Urban migrants will move to new towns and cities and may still engage in their original occupations, but rural migrants have

no idea about their production conditions in the new resettlement sites. Migrants in Hubei Province do not know whether there will be sufficient farmland for them to continue orange cultivation. The young migrants do not know whether they can change their rural household registration and engage in non-farming jobs. Furthermore, a number of migrants do not know where they are to go and when they are to move. In our survey, 47% of respondents do not know when they will move, while only 38% know they are to be moved before 2003 in Zigui, Yunyang and Kaixian counties. Thus migrants have every reason to worry about their production conditions and economic situation, particularly the restoration of their income.

Another worry, directly associated with the above, is that rural migrants are extremely concerned about the resettlement compensation. We asked migrants before relocation the question: 'What is the greatest difficulty in the coming resettlement?' The question involves several important aspects related to displacement and resettlement, such as compensation, loss resulting from relocation, feelings about leaving home, and fears for the future. Some 40% of the interviewed respondents regard 'too little compensation' as the greatest difficulty in resettlement, followed by 'great losses in displacement' (32%). In fact, both variables are closely connected: like two sides of a coin, one side is the loss of property caused by the displacement while the other side is the compensation for relocation. The loss is undoubtedly great and unavoidable, but can be compensated to some extent. The actual compensation, however, according to these migrants, is too small to compensate the loss. More importantly, migrants are anxious that their relocation funding may go missing during the disbursement procedure. Some migrants regard the resettlement policy made by the central government as being a good and considerate one, but the policy has been misused, even spoiled, by local cadres. Among rural migrants there is a common feeling that it is inevitable that local cadres will take money from the relocation funds under the current social circumstances in China. The official newspapers have reported a series of cases of corruption connected to the project. Huang

Faxiang, an official in charge of new town construction in Fengdu County, was executed for embezzling 12 million yuan RMB (US\$ 1.45 million) of relocation funds, and Wang Sumei was sentenced to life imprisonment for diverting 1.85 million RMB for gambling purposes (*Nanfang zhoumo*, 1999; *Guangming ribao*, 2000b; *China Daily*, 2000b). When we interviewed migrant households by the River Xiaojiang in July 1998, some migrants in Gaoyang Township, Yunyang County, stated angrily that 'the compensation is too low to move', 'I will not move unless the government gives me more money and a good location to move to', and 'I do not want to move unless the police force me to move.'

#### WILL RELOCATION PROVIDE OPPORTUNITIES FOR MIGRANTS?

In any major project, especially a dam/reservoir project, there are always potential sufferers and beneficiaries. Naturally, as a multipurpose water conservancy project, the Three Gorges dam not only brings about great benefits and inevitable losses, but also involves complex interest relationships. On the one hand, for millions of residents downstream from the dam, the dam-building means a good chance of escaping from the threat of floods along the Yangtze. This is because the project is designed to be the centrepiece of efforts to control floods along the middle and lower Yangtze. Provinces downstream of the dam, especially Hubei, Hunan and Jiangxi, will receive significant benefits in the form of flood-control and hydroelectric power without paying a real cost (Lieberthal and Oksenberg, 1988). The severe flooding that occurred along the middle and lower Yangtze in the summer of 1998 helps to strengthen the view that the construction of the TGP will play a great role in flood-control. The project also means that flood-control, supplies of cheap electricity and navigation improvement will allow those medium and large cities below the dam to attract more external investment and develop a market-oriented economy.

On the other hand, people in the area upstream from the dam will have to leave their homes and rebuild their lives. Their losses have a long-term impact on re-establish-

ment of a normal life. Despite 61% of respondents in our survey expecting to benefit from the dam-building, migrants seem not to be optimistic about their future. Even urban resettlers who have been guaranteed a move to new towns and their original jobs, tend to adopt a circumspect attitude toward the government's promises. The results of a survey of 700 urban migrants, by the Sichuan Three Gorges College in 1994, reveal that almost half the urban migrants feel it is difficult for them to improve their standard of living as a result of relocation (Li, 1996).

Compared with urban migrants, some rural migrants may find opportunities to improve their lives. They may benefit from a special location created by the construction of the project and other relevant infrastructure. Zhujawan village in Yichang County, around the dam site, for instance, has rapidly developed by taking advantage of its unique location. There, migrants make a profit from house-letting, varied services for workers at the dam site, and other business activities (*Sanxia gongcheng bao*, 1997b). They may also receive more care from the government so as to set a good example to the other rural migrants. In our survey, some rural migrants expressed satisfaction with their new housing and some families were pleased to obtain replacement farmland equivalent to their original. However, the majority of migrants seemed not to expect that the displacement would create a good chance of escaping from poverty, let alone becoming rich. In our survey, some 47% of rural migrants who have been moved do not view their relocation as a good chance of escaping from poverty, while only 8% express confidence in an improvement in their standard of living after relocation. Interestingly, 45% of respondents were reluctant to disclose their views, indicating further doubt that the displacement can provide opportunities for advancement.

There are several reasons for such doubt. Firstly, rural migrants anticipate insufficient compensation to rebuild their earning capacity. Secondly, they have a clear understanding of their farming environment: most good land along the river valleys will be lost to the reservoir, and it is hard to find adequate replacement land to farm in nearby areas. If

moved far away, they will face a greater challenge: how to establish a new production system and adapt to a strange social environment. Their future livelihood depends not only on physical settings and production conditions, but also on their ability to initiate and run a new business. Thirdly, the prospects of moving into urban areas and engaging in non-farm jobs are gauged to be poor because of overstaffing and current unemployment in urban industrial sectors. In the light of past relocation schemes involving the Gezhouba Dam, Xiaojiang Hydrostation and other smaller reservoirs on the Yangtze and its tributaries experienced by some migrants in Zigui and Yunyang counties, it is not surprising that in the Three Gorges reservoir area, rural migrants are sceptical about the government's promises.

Their experience in resettlement and the realities they face after displacement make them less confident about improving their standard of living. Contrary to the government's argument that the construction of the TGP is a good chance for migrants to escape from poverty, migrants after relocation seemed to have a different opinion. Based on the results of our survey among 195 migrants who have been moved, 25% feel it is hard to restore their former standard of living, 19% have little confidence in the restoration of their livelihoods, while less than a third feel it is possible to recover their original standard of living. Furthermore, rural migrants who were settled in urban areas seemed to have less confidence than those who were settled in the villages. As our survey shows, some 67% of respondents in urban Yichang viewed the restoration of their livelihoods as 'difficult', even saying they have 'no confidence', while among rural migrants in Zhijiang County, 36% of respondents think that they will be able to recover their livelihoods, and 31% have more confidence in a 'better life than before relocation'. This is because the migrant jobless have greater difficulties in finding new jobs than the urban jobless because of lower standards of education, less working experience, and a lack of social relationships in the city. With extreme difficulty in finding new jobs, their income is declining rapidly since their farmland has been lost to the reservoir and their production resettlement funds misused by the local

enterprises that received them. Thus both the jobless urban migrants and rural migrants share the opinion that the government and relocation authorities might no longer care for them after uprooting them from the reservoir area.

## CONCLUSIONS

In most developing nations, controlling the natural environment and promoting economic growth have been regarded as the cornerstone of development. Dam-building in developing nations provides an indication that the construction of large-scale projects has been seen as a major way of achieving this goal. Priority is often given to the construction of dams since many people believe they create manifold benefits: producing clean and cheap hydroelectric power, providing water resources for industry and domestic use, reducing the risk of floods and providing safer navigation. Thus it is no wonder that most industrialised nations such as the US, Russia, Canada and Switzerland built numerous big dams and established excellent power supply systems during the early part of the twentieth century. By the time most developing countries obtained their independence from western countries and started large-scale construction projects, the golden era of building high dams had gone and a series of problems concerning dam-building had been revealed. Many developing nations face the following dilemma: on the one hand, as one means to bridge the gap of economic development between them and developed countries, they are trying to build more large-scale dams, to provide cheap energy to fuel national industrialisation and to produce sufficient food to feed more people; on the other hand, they are troubled by a series of environmental and resettlement problems associated with the dams.

From both a global and Chinese perspective, we found that the building of dams not only provided benefits but also produced socio-economic, cultural and ecological problems. Population relocation involving dam construction is characterised by compulsory, non-selective, mass removal. The lack of a legal framework, inadequate planning for relocation schemes and insufficient compensation for

relocatees are common features in resettlement. Most relocatees have to experience a transition period in which they suffer not only from a drop in household income, but also from sociocultural stress. They have rarely been consulted or invited to participate in relocation policy-making. As a consequence, relocatees face a variety of difficulties in restoring their livelihoods, incorporating themselves into local communities, and rebuilding their new lives in new environments.

Our study has shown that the final number of people displaced by the Three Gorges dam is still unclear due to official sensitivities and to the complexity of the calculation. The latest official figure, 1.2 million people by 2009, is believed to be conservative. Environmental changes associated with the formation of the huge reservoir, especially geological hazards, unregistered urban residents and unchecked 'false migrants', tend to increase the total number of relocatees. The most farmland that will be submerged and the greatest displaced population will take place in the middle region of the reservoir. Urban relocatees accounted for a greater percentage of the displaced population, but rural migrants will have greater difficulty with resettlement owing to the inadequacy of available farmland and limited opportunities in industrial enterprises.

One of the greatest challenges in the TGP relocation is how to settle so many migrants in a limited period. We examined three major methods that have been proposed: settling relocatees in a nearby area, moving them far away, and settling them in industrial enterprises and urban areas. We found that it is not possible to settle all relocatees in nearby areas at higher elevation because of the enormous number of displaced people, the lack of sufficient arable land, and the fragile ecological environment. Project planners have overestimated the amount of arable slopeland and its production potential in order to be able to launch the dam programme. The achievements of the trial resettlement projects are not good enough to indicate that it is feasible to settle all relocatees in nearby areas. So long as it does not involve sending migrants abroad or moving them to border areas and remote provinces, moving far away is a feasible alternative, but the willingness of migrants

should be adequately considered. Settling migrants in the regions that benefit from the project provides a new approach, but great emphasis should be placed on selecting appropriate destinations. Settling migrants in industrial enterprises can help boost the local economy and accelerate urbanisation in the reservoir area. The key to success lies in developing appropriate industrial programmes based on market demand, using resettlement funding properly, and strengthening the technical training of migrant workers.

The fourth section of the paper focused on migrants' feelings about their relocation. Despite having considerable anxieties about their relocation, the majority of migrants take a positive attitude and express their support for the project. Migrants have high personal expectations for better housing, non-farm jobs and improvements in their standard of living. At the same time, they are sad at losing their land and other assets and leaving their homes and neighbours. Most rural migrants are unwilling to be moved far away; they wish to continue in production conditions they are familiar with and to retain links with their original community. To seek more economic opportunities and better social services, the majority of migrants are willing to move into towns, in particular the county seat. Sufficient compensation for their losses, the betterment of housing, a good education for the young and the restoration of livelihoods related to farmland and job opportunities are what migrants are expecting, but also worrying about most.

For millions of residents living below the dam, the dam-building will reduce the threat of flooding along the middle and lower Yangtze. The TGP has created good career opportunities for policy-makers, planners and builders, through which they can gain political advancement, prestige and job security. More directly, some local cadres have seen the dam-building as a chance to enjoy 'double benefits': gaining advancement in their careers and diverting funds for dam-building and its relocation schemes to their own pockets. Although the majority of rural migrants want to benefit from the displacement, they do not see the project as a good way of escaping from

poverty. For migrants who have already been moved, our survey revealed a big gap between their aspirations before relocation and the reality after resettlement.

## NOTES

- (1) This figure (844,100) is different from the former one of 846,208 claimed by the Yangtze Water Resources Commission (YWRC), which carried out the survey of resettlement in the reservoir area.
- (2) Information provided by Wan Chengjun, official from the Relocation Bureau of Wanxian City. We interviewed Wan in Wanxian on 28 May 1998.
- (3) In rural China, a village includes several groups of villagers (*cunmin xiaozu*). Groups are usually natural settlement sites within a village.
- (4) The cases of Hainan and Mongolia were provided by Wan Chengjun, head of the Relocation Bureau of Wanxian City. We interviewed Wan in Wanxian, Chongqing Municipality on 28 May 1998.
- (5) We happened to meet several officials who were persuading and mobilising migrants to make contracts with the farm when we were doing our survey at Gaoyang, Yunyang County, Chongqing Municipality in July 1998. They told us that migrants had too many worries to be convinced to move to Caopuhu Farm in Yichang City, Hubei Province.
- (6) We were told the same story on several occasions by Xu Guangping, a staff member of the Agriculture Bureau of Wanxian, several teachers at the Sichuan Three Gorges College, and local migrants, during our survey in May and July 1998.

## REFERENCES

- Adams WM. 1988. Rural protest, land policy and the planning process on the Bakolori Project, Nigeria. *Africa* **58**: 315–336.
- Black R. 1991. Refugees and displaced persons: geographical perspective and research directions. *Progress in Human Geography* **15**: 281–298.
- Black R. 1998. *Refugees, Environment and Development*. Addison Wesley Longman: Essex & New York.
- Boyle P, Halfacree K, Robinson V. 1998. *Exploring Contemporary Migration*. Longman: London.
- CAS (Chinese Academy of Sciences) 1988. *Changjiang sanxia gongcheng dui shengtai yu huanjing de yingxiang ji duice yanjiu* (Impacts of the Three Gorges Project on Ecological Environment and Solutions). Science Press: Beijing, China.
- Cernea M. 1988. *Involuntary Resettlement in Development Projects: Policy Guidelines in World Bank Financed Projects*. World Bank Technical Paper No. 80. World Bank: Washington, DC.
- Cernea M. 1990. Internal refugee flows and development-induced population displacement. *Journal of Refugee Studies* **3**: 320–339.
- Cernea M. 1997. *Hydropower Dams and Social Impacts: A Sociological Perspective*. World Bank Paper No. 44. World Bank: Washington, DC.
- Chen GJ. 1998. The environmental impacts of resettlement in the Three Gorges Project. In *The River Dragon Has Come!* Dai Q (ed.). M. E. Sharpe: London and New York; 63–69.
- Chen GJ, Xu Q, Du RY. 1995. *Sanxia gongcheng dui shengtai yu huanjing de yingxiang ji duice yanjiu* (Impact of the TGP on Environment and Solution). Science Press: Beijing, China.
- China Daily 2000a. 17 February.
- China Daily 2000b. 15 March.
- Chutian dushibao (Chutian Urban Daily) 1998. 17 August.
- Connor KM. 1986. Rationales for the movements of Afghan refugees to Pakistan. In *Afghan Resistance: the Politics of Survival*, Farr GM, Merriam JG (eds.) Westview Press: Boulder, CO; 151–190.
- COS (Census Office of Sichuan Province) 1993. *Sichuan 1990 renkou pucha ziliao* (Census of Sichuan Province 1990). China National Statistics Press: Beijing, China.
- Cuny F, Stein B. 1989. Prospects for and promotion of spontaneous repatriation. In *Refugees and International Relations*, Leoscher G, Monaham L (eds.) Oxford University Press: Oxford; 293–312.
- Dai Q (ed.) 1998. *The River Dragon Has Come!* M. E. Sharpe: London and New York.
- Du YY, Shi DM, Yuan JM. 1994. *Changjiang sanxia kugu shuitu liushi jiqi yingxiang* (The Impacts of Water and Soil Erosion on the Three Gorges Reservoir Area in the Yangtze River). Science Press: Beijing, China.
- El-Hinnawi E. 1985. *Environmental Refugees*. United Nations Environment Programme, Nairobi.
- Fearnside P. 1990. Resettlement plans for China's Three Gorges Dam. In *Damming the Three Gorges: What Dam Builders Don't Want You to Know*, Barber M, Ryder G (eds). Earthscan Publications Ltd: London; 34–58.
- Goldsmith E, Hildyard N. 1984. *The Social and Environmental Effects of Large Dams*. Sierra Club Books: San Francisco.
- Guangming ribao (Guangming Daily) 2000a. 26 January.

- Guangming ribao (Guangming Daily) 2000b. 14 April.
- Guo SB, Lan Y. 1995. Sanxia yimin yu chuanxinan kaifa de xinsilu (New ideas about the resettlement of the TGP and development of Southwest Sichuan). *Changjiang luntan (Yangtze Tribune)* 1: 9–11.
- Jacobson J. 1988. *Environmental Refugees: a Yardstick of Habitability*. World Watch Paper no. 86. World Watch Institute: Washington, DC.
- Jing J. 1997. Rural resettlement: past lessons for the Three Gorges Project. *The China Journal* 38: 65–92.
- Kibreab G. 1994. Migration, environment and refugeehood. In *Environment and Population Change*, Zaba B, Clarke J (eds). International Union for the Scientific Study of Population, Derouaux Ordina Editions: Leige, Belgium; 115–129.
- Kibreab G. 1997. Environmental causes and impact of refugee movements: a critique of the current debate. *Disasters* 21: 20–38.
- Lan Y. 1992. Sanxia diqu lishi shiqi de yimin yu jingji kaifa (Migration and economic development of the Three Gorges area in History) *Jingji dili (Economic Geography)* 12: 92–96.
- Li BN. 1991. *Kaifaxing yimin hao (Developmental Resettlement Is Good)*. Water Conservancy and Electric Power Publishing House: Beijing, China.
- Li BN. 1994. Opinions and recommendations on the Three Gorges Project. In *Yangtze! Yangtze!*, Dai Q (ed.). M. E. Sharpe: London; 89–106.
- Li HM. 2000. *Population Displacement and Resettlement in the Three Gorges Reservoir Area of the Yangtze River, Central China*. PhD Dissertation, School of Geography, University of Leeds, UK.
- Li JG. 1996. Sanxia kuqu nongcun yimin xintai diaocha yu duice yanjiu (Survey on psychology of rural migrants and solutions in the Three Gorges reservoir area). *Changjiang luntan (Yangtze Tribune)* 1: 15–18.
- Li JG, Cui GP, Xu SH. 1995. *Sanxia gongcheng dui Wanxianshi yingxiang yanjiu (Social Impact of the TGP on Wanxian City)*, Working Paper. Sichuan Three Gorges College, Chongqing, China.
- Liao H. 1998. *Sanxia kuqu nongcun nuxing yimin xintai diaocha baogao (Survey on Rural Migrant Women in the Three Gorges Reservoir Area)*, unpublished Research Report. Women Association of Wanxian, Chongqing, China.
- Lieberthal K, Oksenberg M. 1988. *Policy Making in China: Leaders, Structures, and Processes*. Princeton University Press: New Jersey.
- Lu JD, Liao YH, Li SQ. 1997. Sanxia yimin anzhi wenti yanjiu (Population resettlement issues of the TGP). In *Zhongguo nanfang jingji yanjiu (Economic Research in South China)*. Economic Management Press: Beijing, China; 115–133.
- Ma X. 1997. New trends in population migration in China. In *Floating Population and Migration in China: the Impact of Economic Reforms*, Scharping T (ed.). Institut für Asienkunde: Hamburg; 56–71.
- Mao YF. 1993. *Fuwu da sanxia jianshe xin yichang (Serving for the Three Gorges project and constructing new Yichang)*. Hubei People's Publishing House: Wuhan, China.
- McCutcheon S. 1991. *Electric Rivers: the Story of the James Bay Project*. Black Rose Books: Montreal.
- McGregor J. 1993. Refugees and the environment. In *Geography and Refugees: Patterns and Processes of Change*, Black R, Robinson V (eds). Belhaven: London; 157–170.
- Myers N, Kent J. 1995. *Environmental Exodus: an Emergent Crisis in the Global Arena*. Climate Institute: Washington, DC.
- Nanfang zhoumo (South Weekend) 1999, 19 November.
- Olive-Smith A, Hansen A. 1982. Involuntary migration and resettlement: causes and contexts. In *Involuntary Migration and Resettlement: the Problems and Responses of Dislocated Persons*, Olive-Smith A, Hansen A (eds). Westview Press: Boulder, CO; 1–9.
- Pardy R et al. 1978. Quoted from *Purari: Overpowering PNG?* International Development Action for Purari Action Group: Victoria, Australia; 103.
- Parnwell M. 1993. *Population Movements and the Third World*. Routledge: London and New York.
- Qi R. 1998. Is developmental resettlement possible? In *The River Dragon Has Come!*, Dai Q (ed.). M. E. Sharpe: London and New York; 50–62.
- Qian G, Gen DG. 1999. *Ershi shiji zhongguo zhongzai bailu (One Hundred Devastating Disasters in China In the 20th Century)*. Shanghai People's Press: Shanghai, China.
- REG (Resettlement Expert Group of the TGP) 1988. *Sanxia gongcheng yimin xiangmu kexingxing yanjiu baogao (Feasibility Report on Resettlement Scheme of the TGP)*. Water Conservancy Press: Beijing, China.
- Sanxia gongcheng bao (Three Gorges Project Daily) 1997a. 18 June.
- Sanxia gongcheng bao (Three Gorges Project Daily) 1997b. 10 July.
- Schmeidl S. 1997. Exploring the causes of forced migration: a pooled time-series analysis, 1971–1990. *Social Science Quarterly* 78: 284–308.
- Scudder T. 1973a. The human ecology of big projects: river basin development and resettlement. In *Annual Review of Anthropology*, Siegel BJ,

- Beals AR, Tyler SA (eds). Annual Reviews Inc.: Palo Alto, California; 43–62.
- Scudder T. 1973b. Summary: resettlement. In *Man-made Lakes: Their Problems and Environmental Effects*, Ackermann EC et al. (eds). William Byrd Press: Virginia; 707–719.
- Scudder T, Colson E. 1982. From welfare to development: a conceptual framework for the analysis of displaced people in *Involuntary Migration and Resettlement*, Oliver-Smith A, Hansen A (eds). Westview Press: Boulder, Colorado; 267–287.
- Shi WY. 1992. *Sanxia: yige kuashiji de meng* (The Three Gorges: A Dream Across the Century). Huacheng Press: Guangzhou, China.
- Standing G. 1984. *Labour Circulation and the Labour Process*. Croom Helm: London.
- Suhrke A. 1993. *Pressure Points: Environmental Degradation, Migration and Conflict. Occasional Paper of Project on Environmental Change and Acute Conflict*. American Academy of Arts and Sciences. Washington, DC.
- TGPDC (Three Gorges Project Development Corporation) 1996. *Three Gorges Project*. Yichang, China.
- The Guardian* 2000. 13 July.
- Timberlake L. 1988. *African Crises: the Causes, the Cures of Environmental Bankruptcy*. Earthscan: London.
- Trollaldalen JM, Birkeland N, Borgen J, Scott PT. 1992. *Environmental Refugees: a Discussion Paper*. World Foundation for Environment and Development and Norwegian Refugee Council: Oslo.
- UNHCR 1997. *Refugees and Others of Concern to UNHCR, 1996 Statistical Overview* Office of the United Nations High Commissioner for Refugees, Geneva.
- Wang CJ. 1993. Ecological and environmental impact of the TGP. In *Megaproject: A Case Study of China's Three Gorges Project*, Luk SH, Whitney J (eds). M. E. Sharpe: London; 71–109.
- White P, Woods R. 1980. *The Geographical Impact of Migration*. Longman: London and New York.
- World Bank 1994. *Resettlement and Development: The Bankwide Review of Projects Involving Involuntary Resettlement 1986–1993*. Environment Department, World Bank: Washington DC; April.
- Wu XM. 1992. Sanxia kuqu yimin shehui sheji (Design on social development of the Three Gorges reservoir region). *Zhongguo renkou ziyuan yu huanjing (China Population, Resources and Environment)* 2: 59–61.
- Yang FZ. 1992. Shilun shuiku gongcheng nongcun yimin anzhi wenti (Study on resettlement of rural migrants displaced by reservoirs). *Renmin huanghe (People's Yellow River)* 9: 35–37.
- Yang ML. 1995. Changjiang jingzhong: shujhuanjing wuran (Alarm from the Yangtze: water pollution). *Changjiang luntan (Yangtze Tribune)* 2: 14–16.
- YWRC (Yangtze Water Resources Commission) 1997. *Sanxia gongcheng yimin yanjiu* (Study on the TGP's Resettlement). Hubei Press of Sciences and Technology: Wuhan, China.
- Zhai XG. 1997. Sanxia: dangjing shijie shu (The Three Gorges Project: surprises the whole world). *Shenghuo Zhoukan (Life Weekly)* 21: 12–21.
- Zhu N. 1996. *Sanxia gongcheng yimin yu kuqu fazhan yanjiu* (Research on the TGP: resettlement and development of the reservoir area). Wuhan University Press: Wuhan, China.
- Zuo B. (ed.) 1997. *Sanxia kugu yimin shehui xinli yanjiu baogao* (Study on Social Psychology of Migrants in the Three Gorges Reservoir Area). Unpublished Research Report, Department of Psychology, Central China Normal University, Wuhan, China.