Qian Zhengying’s speech left a deep impression: Dam collapses such as the Banqiao and Shimantan disasters must never recur.

What she failed to say, however, was that [as Chen Xing had pointed out twenty years earlier], the dominant policy of “primacy to accumulation and irrigation” was bound to result in the kinds of disasters that had occurred. She also failed to explain why Chen’s ideas were rejected at the time and why he later became the victim of a political purge, only to be brought back after the disasters had struck. On all this, as on the decision-making systems that caused the disasters, she remained silent.

By saying only that she personally shouldered the responsibility, Qian diffused any possible move to pursue more specific responsibility—up to and including criminal legal responsibility—for each and every one of the mistakes that precipitated the disasters. As a result, over the next decade and beyond, the old policy of damming rivers was pursued as blithely as before. And then, in 1993, Lu Youmei [former vice minister of energy and chairman of the Three Gorges Development Corporation] jumped up and proudly claimed that if anything went wrong with the Three Gorges project on the Yangtze, he would be accountable. Lu made the promise while announcing that the date for blocking the Yangtze River [for the Three Gorges dam] would be moved forward a year so as to coincide with the return of Hong Kong in July 1997. This is similar to the situation in 1972 when the completion date of the Gezhouba dam was advanced in order to celebrate the birthday of Chinese Communist Party Chairman Mao Zedong. Such are the effects of personal boasting and bombast.

In ancient times, the harnessing of water by the ancient sage Yu* followed natural laws and respected humankind’s desire to survive, raise harvests, and live a good life. He also had great respect for the inherent nature of water. Water and land coexisted peacefully.

The year after the disaster, in early summer 1976, the fertile land where the 85,000 victims were buried produced a bumper crop. Surveying the land carefully, one could see crops everywhere, but what made people’s hearts quiver were the small areas where the crops were especially rich and dense.

Looking at the silvery wheat waving in the breeze, one survivor commented: “The wheat is really growing!”

*Yu is China’s celebrated mythical hero who succeeded the legendary emperors Yao and Shun and who established the tradition of emperors building dams and controlling floods as central to their roles.

Chapter Four

Discussing Population Resettlement with Li Boning

Qi Ren

Author’s Note

In early 1992, I was unexpectedly invited to visit the Three Gorges area. Since then I have met with numerous experts and officials familiar with the Three Gorges dam project and have spent a year conducting my own research.

The most troublesome thing about the project is that dam supporters and dam opponents talk past one another, neither side giving serious consideration to the proposals of the other. Worse yet, each side denigrates the views of its opponents, making it difficult for outsiders to gain a good understanding of the project. As a result, problems which might otherwise be solved by a common sense approach have been caught up in the debate and have become increasingly complex. Resettlement is one such issue.

In order to encourage open debate, I have decided to reprint an article by Li Boning in the first part of this chapter. I will follow his remarks with my own.

Li Boning is one of the dam’s most vocal proponents. In the mid-1980s, he was the leading candidate for the position of governor of the would-be Three Gorges Province.* He is presently deputy director of the Three Gorges Construction Committee of the State Council, standing deputy director of the Leading Group of the State Council Overseeing Trial Re-

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*The proposal to create a Three Gorges Province (Sanxia sheng) was made in the 1980s but later scuttled. The central government has, however, designated Chongqing as a national municipality which effectively separates the administration of the city from Sichuan Province.
settlement Projects (Guowuyuan sanxia gongcheng yimin shidian gongzuo lingdao xiaozu), and director of the Economic Development Office of the Three Gorges Area of the State Council.

Li is generally regarded as the government's most noted expert on resettlement and is the man in charge of the resettlement components of the Three Gorges project. The article that follows systematically lays out Li's views on resettlement, and is taken from his book Developmental Resettlement Is Good.*

Li has reiterated the arguments put forth in this article in speech after speech, and the approach to resettlement he describes has become official government policy for the resettlement of people affected by construction of the Three Gorges dam.

Out of respect for Li Boning I have broken with convention and put his article before mine rather than in an appendix.

General Plan for Population Resettlement

Li Boning, September 1991

The success or failure of resettlement will ultimately determine the success or failure of the Three Gorges project. Both the Central Committee of the Chinese Communist Party and the State Council consider resettlement to be a very important issue and have adopted the policy of "Developmental Resettlement." This new approach to resettlement includes lump-sum reimbursement for lands lost to inundation, rural resettlement, township and factory relocation, personnel training, and other issues pertinent to relocation.

Trial projects have shown that although it is very difficult, resettlement

*Li Boning, "Implementation of the New Policy of Developmental Resettlement in the Three Gorges Region," in Kaifaxing yimin hao (Developmental Resettlement is Good) (Beijing: Water Conservancy and Electric Power Publishing House, 1991). A portion of this article, including Li's acknowledgments and the dedication of the book is found in Appendix A.

in the Three Gorges area is environmentally feasible. If the Central Committee's resettlement policy is carried out fully and in a timely fashion, it will be possible to move most local populations back from the river and settle them in nearby areas. They need not be moved far away. What follows is an introduction to the issues germane to resettlement and a discussion of trial projects carried out over the past five years.

Problems with Resettlement

When the Three Gorges dam is complete, 19 counties and municipalities will be partially or completely submerged, including two county-level municipalities, 11 county seats, 140 towns, 326 townships, and 1,351 villages. As of 1985, inundation is expected to affect the following:

- Population of areas to be inundated: 725,500
  From townships: 392,900
  From rural areas: 332,600
- Amount of arable land to be inundated: 356,900 mu [23,800 hectares]
  Of rice paddies: 110,700 mu
  Of dry land: 240,200 mu
  Of orange groves: 74,400 mu
- Number of factories to be inundated: 675
  Value of fixed assets of the factories: ¥819 million
- Number of power stations to be inundated: 139
  Total installed capacity: 77,000 KW
- Length of highways and roads to be submerged: 956.1 km
- Length of high-tension wires to be flooded: 1106.4 post [wires] km
- Length of telephone lines lost: 2,729.5 post [wires] km
- Broadcast (nonwireless) communications lines: 5276.2 post [wires] km
- Number of primary cultural antiquity sites flooded: 6

As these figures indicate, the Three Gorges project is unprecedented in Chinese dam-building history. The difficulties faced in construction, especially those related to resettlement, are therefore equally unprecedented.

Population density is very high in the reservoir area, with an average of 1.1 mu of land per capita. There is a lack of irrigation facilities and very little planning for flood prevention. Education levels are quite low. Moreover, during the many decades of uncertainty over the project, there was
little economic investment in the region, creating considerable poverty among the locals. Of the 18 million people in the region, more than three million live in poverty, and many counties in the region rely on government subsidies just to get by.

Previous resettlement operations are likely to provide little comfort for potential Three Gorges relocatees. In the past, resettlement was not handled properly; many people were left stranded without employment or adequate shelter and in a state of destitution, creating considerable social and political instability in reservoir areas. These experiences have left people feeling wary of resettlement. Whenever the issue is brought up, people react with fear, and they refuse to discuss why previous efforts failed and how the Three Gorges is different. Once bitten, twice shy.

Certainly, successful resettlement will be difficult and must be taken seriously, but critics’ assumptions that resettlement in the Three Gorges area will be a disaster are not credible.

Why the Three Gorges Area Is Well Suited for Resettlement

The Three Gorges area is particularly well suited to accommodate a large resettled population for a number of reasons. The area has abundant natural resources (especially land); most of the resettlees are from townships and are therefore easier to move than are rural people; the project is a long one and will allow sufficient time for proper resettlement; the new Developmental Resettlement policy will ensure that resettlees are well taken care of; and, finally, the central government is firmly committed to the resettlement program and to the project overall.

The Three Gorges area’s abundant land resources and burgeoning agriculture, fishing, mining, tourism, and processing and service industries make it particularly well suited to receive settlers. In fact, many of these industries have emerged as a result of the dam’s construction. The dam will submerge more than 350,000 mu of land, including 70,000 mu of orange groves, but studies have shown that there is upward of 20 million mu of undeveloped land in the 19 counties and municipalities where people must be resettled, 3.89 million mu of which is found in the 361 townships where resettlement will take place. About 4.2 million mu of the undeveloped land in the area is arable, and 40 percent of it is low-grade sloping land. For each rural relocatee, one-half mu of highly productive land for grain, and one mu of land for orange groves or other cash crops (fruit, tea, mulberry leaves, or herbs) is needed. This means that 500,000 mu of land will be required to accommodate the 300,000 rural resettlers. An additional 30 to 50 percent of this amount must be developed and given to the locals as compensation for lands allocated to resettlers. In total then, 800,000 to one million mu of land will have to be developed to resettle people successfully and assure them adequate grain production, a stable life, and higher incomes than they enjoyed before.

Although it is both possible and feasible to develop the needed land in the 361 townships, if necessary, the areas slated to receive relocatees can be expanded to include other territories within these same counties. It will also be possible to develop some areas that lie below the submersion line. By building dikes to protect arable land in Kaixian, Zigui, Badong, and Wanzhong counties, an additional 25,000 mu of farmland can be saved. Moreover, if the dam’s normal pool level is reduced to 160 from 175 meters, another 160,000 mu of land can be saved from inundation and used by local farmers to supplement their incomes. Finally, there are also vast grasslands in the Three Gorges area that can be used by relocatees to graze animals and to begin an animal husbandry industry for local markets.

The Three Gorges area also contains abundant stores of natural resources—salt, natural gas, coal, phosphorous, limestone, and marble—the exploitation of which will create thousands of jobs for resettlers. As a start, the government has approved construction of a 60,000-ton-capacity alkaline facility near Wanzhong Municipality, which will create 39,000 jobs. Projects like this one not only contribute to job creation and economic growth, they also reduce the cost of resettlement; in effect, killing two birds with one stone. If national and local governments can provide similar opportunities for rural relocatees during the dam’s construction, then the cost of resettlement can be reduced substantially. This is in line with the general policy laid out by Comrade Deng Xiaoping, who has said on many occasions that “we should strive to provide more projects in this area,” and also with Article 19 of the State Council announcement titled “Land Reimbursement and Resettlement Procedures for Large and Medium-Sized Hydroelectric Projects,” which declares that the construction of new production facilities must be combined with resettlement work.

Rural relocatees will be able to continue working in the agricultural sector after they have been resettled. Trial resettlement projects have proven the viability of this approach, and rural relocatees and relevant local governments have guaranteed that the projects will be successful. Finally, where continued work in the agricultural sector is no longer possi-
ble, other occupations can be considered, though a large-scale conversion from agricultural to nonagricultural employment will not be necessary.

A second reason why the Three Gorges area is so well suited to receive relocatees is the relative proportion of people being moved from townships as compared with those being moved from rural areas. Just over half of those to be moved (54 percent) are from townships—a much higher percentage than in most resettlement efforts. This is important because resettling people from townships is a simple affair; generally, after moving people work at similar jobs as they did before (and, therefore, do not require retraining), and officials need only expand urban services and functions to the new areas in order to accommodate them. Resettling rural people is more difficult. It often means converting them to an entirely new way of life in fundamentally different occupations.

The rural dwellers who will be moved are scattered throughout 19 counties and municipalities, from Sandouping in Yichang Municipality, to Mudong Township in Ba County. They constitute only 2.6 percent of the total rural population of the Three Gorges area, while the arable land to be flooded constitutes only 2.5 percent of the total. And, significantly, only 2 percent of the rice paddies in the Three Gorges area will be lost to the dam. (Because the region is hilly, much of the arable land is on hillsides above the projected submersion line.)

None of the 326 towns that will be affected by the reservoir will be completely submerged, and only a very small number of villages will be totally inundated. Studies indicate that in 291 of the townships, resettlers will simply have to move to other parts of the town, and in only 35 of them will people have to move to other towns altogether. This is why local conditions are so favorable for carrying out the policy of moving back from the river and settling in nearby areas rather than having to move relocatees over great distances, something which is unique to the Three Gorges project. These studies show that the Three Gorges project will not repeat the problems of previous large-scale hydroelectric projects which required the resettlement of large numbers of people to remote and distant areas.

The fact that the dam will take many years to build is a third factor that will help facilitate successful resettlement. Unlike previous projects in which rivers were diverted quickly, driving people from the area without adequate preparation or planning, the Three Gorges project will give people enough time to adapt to their new environments and employment possibilities.

A fourth factor is the Developmental Resettlement policy, which is designed to provide economic benefits to rural resettlers through the government-financed reclamation of higher-elevation land, the cultivation of cash crops, and the creation of industrial jobs along with lump-sum reimbursements for relocatees’ losses. Trial projects over the last five years have proven the success of this approach, and the policy ensures that migrants will be protected by the central government from the start of the project to its finish.

A final factor contributing to the feasibility of resettlement in the Three Gorges area is the central government’s firm commitment to the project and resettlement program. Government leaders not only formulated the Developmental Resettlement policy, but also allocated ¥100 million for trial projects over the past five years and formed the Leading Group of the State Council Overseeing Trial Resettlement Projects. None of these steps was taken for previous hydroelectric projects. Moreover, the Economic Development Office of the Three Gorges Project has worked with relevant local governments to coordinate the various aspects of Developmental Resettlement. Together they have made great progress. Over the course of the five-year trial projects, cadres, masses, and migrants have come to appreciate the benefits of the dam and support its speedy construction. Together, the cooperation of the masses, the support of the central government, and the five-year experience with trial projects guarantee that resettlement will be done well.

Still, despite all this evidence that resettlement will be successful, some comrades are concerned that developing more land in the Three Gorges region will contribute to soil erosion and destroy the local environment. This is an issue that deserves attention, but it can be resolved. Strict planning procedures and adherence to stringent quality control standards will be followed in opening lands to grain and citrus fruit tree production. This is not a case of unplanned and haphazard development of barren lands. Indeed, the orange groves which were developed as part of the trial projects required the construction of stone wall terraces [on the mountains] that actually improved soil retention. The same is true where grasses and trees were planted to help in soil conservation.

**Trial Projects in Township Resettlement**

In planning for new towns over the past five years, we have focused our efforts on building road, water, and electricity projects. These projects, called “three dimensional infrastructure construction projects” (san tong...
gongcheng), have created favorable conditions for township resettlement and development.

Through various studies and the experience of the trial projects, we have learned that the long delay in launching the Three Gorges project has had an especially adverse effect on the development of some township economies. Now these towns are so saturated by recent population growth and urban sprawl that there is little room for further development. If the resettlement programs are not implemented soon, given population growth and peoples' desire to escape poverty, the locals may start building projects below the submersion line. In fact, we know that millions of yuan have already been spent on these types of projects in counties all along the river. According to resettlement experts, by 1986, ¥11 billion had been invested in projects below the submersion line. By 1990, the figure was up to ¥18.5 billion and was increasing by an average of ¥1.8 billion per year. If this situation persists, the cost and complexity of successfully resettling people will increase dramatically. Therefore, it is extremely important to carry out the “three dimensional projects” in order to create an environment favorable to investment, to reduce future investments below the submersion line, and to lay a solid foundation for future large-scale resettlement and development.

Over the past few years, we have invested more than ¥9 million in 13 “three dimensional projects,” and most are already showing considerable benefits. For instance, Fuling Municipality took advantage of reconstruction work on the Wu River bridge and built a three-level overpass. In three years, 300,000 square meters of new housing and 7.5 kilometers of new roads have been built in the area. Fuling relied primarily on its own resources and funds for the trial projects and received only ¥1.6 million from the government. The projects will greatly reduce the costs incurred by inundation.

Another county received ¥2.1 million for its program to build roads, relocate ten factories, and build an alkaline plant with an annual production capacity of 60,000 tons. Badong County used resettlement funds from the Gezhouba dam and ¥800,000 from the government to help with its project—building 7.7 kilometers of roads and 600 cubic meters of water storage tanks for newly developed areas.

From 1985 to 1990, over ¥62.5 million was invested in “three dimensional infrastructure construction projects” in newly opened areas, as compared to only ¥6.37 million in the older areas of the towns. In other words, over 90 percent of new investment has been devoted to newly developed areas. The investments will reduce the future costs of resettlement and help keep local residents from building below the submersion line.

Factory Relocation Trial Projects

In addition to the “three dimensional projects,” we have invested ¥3.8 million of trial project funds to allow factories near or below the submersion line to build new facilities in other locations. For instance, the Badong state-owned cement factory was offered ¥1.3 million (to be repaid after ten years) to build a new factory while the old one was being moved. Because the factory had already been promised ¥2 million in reimbursement funds, this resulted in a ¥700,000 savings. In another case, a county-run nail factory which had originally been promised ¥1.03 million in reimbursement money was instead offered ¥1.5 million in trial project funds to help construct a new facility that is already in production. Finally, a county-run factory received ¥1.5 million in trial project funds to build a new plant. This plan will preempt the necessity of allocating ¥4.5 million to the factory in reimbursement funds.

By relocating factories in this way, we can keep these facilities from expanding below the submersion line, save reimbursement funds, and simplify the relocation process.

Education and Training

Development requires well-trained and well-educated people. Unfortunately, the education level among the people of the Three Gorges region is very low. In the past few years this has become a priority and we have spent ¥1.35 million, primarily for on-the-job training. We have, for instance, offered training for local farmers in the cultivation of oranges; technicians have been trained in various village-level study sessions; and an experimental grove was created where farmers come to learn farming techniques. The farmers who attend these sessions, along with local agronomists are, in turn, passing their knowledge on to other farmers.

The Three Priorities

This chapter has identified Three Priorities which are fundamental for successful resettlement—implementing Developmental Resettlement and opening up new lands to cultivation, building “three dimensional infrastructure construction projects,” and educating and training relocatees. To properly implement these priorities, the Three Gorges project must be
launched as soon as possible. Otherwise we will repeat previous experiences where migrants were chased from their homes by a reservoir’s rising waters. The Three Priorities are reviewed below.

The first priority is in the area of rural resettlement, and specifically land development for orange groves and other cash crops. This is important for the following reasons:

The resettlement of rural people is the most difficult task facing the project

Our studies show that the relocatees are capable of developing primary agriculture including orange groves and other cash crops as well as animal husbandry, and that adequate space exists for this development. There will be no need to employ migrants in other areas.

To facilitate increased agriculture, land must be developed as quickly as possible. However, the amount of land available is limited, and a variety of interests compete for control over it, including government departments and ministries (forestry, agriculture, water and soil conservation, foreign trade), and orange farmers. The masses have “orange fever,” and many of them hope to get rich by growing oranges. But if all of the land in the Three Gorges area is developed by locals looking to cash in on the “fever,” nothing will be left for the relocatees and the policy of moving people back from the river and resettling them in nearby areas will not be possible. This would have a devastating impact on the entire Three Gorges project. For these reasons, control over and planning for land use should be put under the authority of the resettlement offices.

The development of between 800,000 and one million mu of land will provide sufficient land for resettlers and adequate compensation for original owners

Because orange trees take eight to ten years to mature, work must begin quickly so that resettlers will be able to earn a living once they are moved. If we fail at this task, there will be dire consequences.

Over the past five years, the trial projects have provided valuable experience in primary agriculture, orange groves and other cash crops, introducing a modern style of management, overseeing and controlling income distribution, and carrying out the legal procedures for terminating and altering household registration (hukou).* Given this experience, we need to concentrate on ways to plan entire village or township resettlement, and especially on ways to terminate or alter household registrations for entire villages or townships. This is an important step in moving from planning simple trial projects to planning more complex, large-scale resettlement. But it will take some time to learn how to do it properly.

The second priority is to build “three dimensional infrastructure construction projects” [road, water, and electricity projects] in towns that are being relocated to new areas. The projects are necessary to make sure that relocatees enjoy economic development, to promote reform and expanded production of local factories, to strengthen management of the economy in the reservoir area, to control construction below the submersion line effectively, to save money from resettlement budgets, to prevent unnecessary squandering of money, and to make our resettlement work easier. Resettlement planning must be done in conjunction with long-term plans for urban development even though they are funded from separate budgets. The earlier this work is done, the greater the benefits will be.

The third priority is education and training, both of which are critical to the success of resettlement and of economic development in general. In addition to helping set overall education policy, specific training programs should be implemented by both the central and local governments, universities should train people in management techniques, and there should be on-the-job and field-based training to help relocatees learn the practical skills they will need. To assist in this training, video tapes and television programs on relevant social and technical topics should be widely distributed. Finally, money from the resettlement budgets should be invested in education.

Developmental Resettlement is a new innovation and an important reform in our approach to resettlement. The trial projects, implemented over five years, have encountered many problems but have generally proved

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*The household registration system in China was adopted in the 1950s and provides a means of control over population movement by restricting the rural population to villages in the countryside where they are dependent on their own labor for their livelihood. Nonagricultural or urban registration is the most prized since it carries various amenities, such as access to education, free medical coverage, grain rations, and housing. Changing the registration of migrants who are resettled into different townships and/ or urban areas has become a burdensome and often impossible bureaucratic procedure. See, Heil Mallec, "Reform of the Hukou System," Chinese Sociology and Anthropology (Armonk, N.Y.: M.E. Sharpe, fall 1996.)
successful. Doubts about and criticisms of the policy have basically been addressed. The trial projects have also provided valuable evidence for the debate over the Three Gorges project and have laid the foundation for future large-scale resettlement operations. If we follow and improve on this approach, resettlement work will be done well.

Is Developmental Resettlement Possible?

Qi Ren

Why is it that after more than thirty years of study and planning, disagreement and confusion about the social and environmental impacts of the Three Gorges dam persist?

The facts are clear and straightforward.

The most important area of disagreement between dam supporters and opponents is over how many people will have to be resettled to make way for the dam and reservoir. Other controversies concern the availability and environmental capacity of nearby lands that are slated to receive relocatees, and the ultimate cost of the project. I would like to look at each of these issues in turn.

Resettlement

It is not difficult to ascertain how many people will have to be moved to make way for the dam. The waters will rise to a height of 175 meters [the normal pool level] and, therefore, anyone living below the 175-meter-line will have to move. By adding the population of those now living in the submersion area to the expected population growth in the area between now and the dam’s completion, one can determine the total number of people who will have to be moved. The calculation is quite simple.

The people of the Three Gorges area themselves know exactly who will have to be moved, even if the experts and officials claim not to. Throughout the area there are huge red and white markers on cliffs, walls, roads, and bridges to indicate the height and boundary lines of the areas to be submerged. The markers make it easy for local residents to determine whether they will have to move. But still, experts and officials cannot agree on the number of people.*

According to Li Boning’s article, written in September 1991, 725,500 people will have to be resettled to make way for the dam. This was the official figure used later, in April 1992, when the State Council sought approval of the project from the National People’s Congress (NPC). However, the 725,500 figure was based on statistics that were compiled in

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*While the markers do indicate to those living below them that they will have to move, they may also provide for a false sense of security for those living just above them. The resettlement plan includes the resettlement of people living on land below the 177-meter-level, two meters above the normal pool level. It does not include the resettlement of hundreds of thousands of people living between the normal pool level and the crest of the dam (177 to 185 meters). This area is likely to be used as flood control space during serious floods, which are likely to occur about once every 50 years. This fact makes Li Boning’s proposal to develop farmland below the submersion line (mentioned earlier in the chapter) even more outlandish. See Philip B. Williams, “Flood Control Analysis,” in Margaret Barber and Grinnell Ryder, eds. Damning the Three Gorges: What Dam-Builders Don’t Want You to Know, 2nd ed. (London and Toronto: Earthscan Publications Ltd., 1993).
1985, seven years earlier. The figure also fails to take into account expected population growth of 1.2 percent per year—something Li did not mention in his article.

In a statement to the New China News Agency three months after his article was written, Li changed his tune and stated that, based on 1990 figures, the dam would require the relocation of 800,000 people. At approximately the same time [late 1991/early 1992], the State Council approved the Assessment Report on Population Resettlement which declared that 1,133,800 people would have to be resettled. [The State Council thereby approved a figure that was substantially higher than the one that it had just submitted to the NPC.] However, even this higher figure was grossly off the mark, and an examination of the assumptions behind it reveals why.

The 1.1 million estimate was based on the assumption that construction of the dam would begin in 1989 and be finished by 2008. However, the vote was taking place in 1992 and the project had yet to be approved, let alone started. Moreover, the delegates were being asked to include the project in the next ten-year plan, which meant that the dam would be launched some time between 1993 and 1999. Given the estimated construction time of twenty years, the dam would not be finished until between 2012 and 2018, and certainly not by 2008. In short, the estimate excluded many years of population growth in the region.

Skeptics of the Three Gorges dam believe that the actual number of people who will be resettled will be much higher than the State Council figure; probably somewhere between 1.3 million and 1.6 million. Zhou Peiyuan, former vice-chairman of the Chinese People’s Political Consultative Conference, said the figure would “probably reach 1.6 million,” while Li Rui, a long-standing critic of the dam and former vice minister of the Ministry of Water Resources and Electric Power, was more categorical in reaching the same conclusion. “The total will reach 1.6 million,” he said.

Dam supporters strongly disagree, and Li Boning has sharply criticized these higher estimates. “There are certain people who have not taken part in any of the dam studies who refuse to accept the figures provided by the various resettlement organizations. They claim that the estimate of 1.1 million directly and indirectly affected people is a serious underestimate. Who knows how they came up with their figure of 1.6 million?” Li added that his figures “have been carefully examined and accepted by villages, townships, counties, and districts.”

Despite the discrepancy in the figures cited by both sides, I do not believe that Li Boning and the resettlement organizations have ever truly believed the lower “official” figures despite claiming that they were the result of careful examination. In early 1992, Wang Hanzhang, deputy director of the Hubei Provincial People’s Congress and a supporter of the dam, commented to a dozen reporters that “the real number of people to be resettled will reach 1.2 million,” and in an informal talk in August 1992, Li Boning also admitted that “the total will surpass 1.2 million.”

I was present when Li made this statement. Everyone there was surprised, since it had only been four months since the NPC had been given the 725,500 figure, and less than a year since Li had written the article reprinted above.

I later discovered, however, that even the 1.2 million estimate was not Li Boning’s actual working figure. At a restricted meeting on November 6, 1991, Li admitted that the project would require the resettlement of 1,314,400 people. He said: “Statistics from the 19 counties and municipalities [which will be affected by the project] show that population growth between 1985 and 1990 was 2.2 percent. Therefore, by 2008 the number of people to be resettled will not be 1,133,800 but will instead come to 1,303,600. If the project is completed in 2012, the total number of people

Table 4.1

<table>
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<tr>
<th>Year plan</th>
<th>Number of relocatees</th>
<th>Time-frame</th>
<th>Source</th>
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<tr>
<td>1985</td>
<td>725,500</td>
<td>Initial calculation</td>
<td>Report submitted for NPC approval</td>
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<tr>
<td>1991</td>
<td>800,000</td>
<td>Recalculation</td>
<td>Official report</td>
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<tr>
<td>1991</td>
<td>1,133,800</td>
<td>Population increase incorporated</td>
<td>Assessment report</td>
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<tr>
<td>1991</td>
<td>1,303,600</td>
<td>Assumes inundation by 2008</td>
<td>Comments by Li Boning at internal meeting</td>
</tr>
<tr>
<td>1991</td>
<td>1,314,400</td>
<td>Assumes inundation by 2012</td>
<td>Comments by Li Boning at internal meeting</td>
</tr>
<tr>
<td>1992</td>
<td>1,500,000</td>
<td>Assumes inundation by 2000</td>
<td>State Council meeting</td>
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<td>1,980,000</td>
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<td>Extrapolation from State Council</td>
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</table>
resettled (according to the Feasibility Report on the Three Gorges Project approved by the Examination Committee of the State Council) will be 1,314,400."*" Li’s estimates had now surpassed the lower estimates of the dam opponents like Zhou Peiyuan and Li Rui.

So what is the actual figure? I do not have Li’s staff or resources, so I cannot provide a definitive answer. But in the summer of 1992, I had the opportunity to participate in a meeting on resettlement convened by the State Council which shed even more light on this difficult question. Also present at the meeting were cadres from the 19 counties and municipalities in Hubei and Sichuan which will be inundated. They had all participated in the dam studies, and I am confident that these were not the people Li had criticized for refusing to accept the official figures. Nevertheless, when they were asked to report on the number of people who would have to be moved from their jurisdictions, their answers were surprising.

The vice governor of Hubei said that by the year 2000, the number of people who will need to be moved from Hubei will have reached 190,000. The vice governor of Sichuan said that by the same year, the total number of people who will need to be moved from his province will be 1.3 million. Together, these two statements suggest that by the year 2000, 1,490,000 people will have been moved. The mayor of Yichang, for his part, commented that by the year 2000, 200,000 people will have to be moved from his jurisdiction. Since Yichang is in Hubei, the vice governor’s estimate of 190,000 would appear to be low.** Finally, we must keep in mind that these estimates are for the year 2000, but resettlement is not expected to be finished before 2012. If the estimates are projected to 2012, more than 1.8 million people from Hubei and Sichuan are likely to be moved.

Not only is this estimate more than double Li’s first “official” figure, it also surpasses the upper limit of the estimates made by dam opponents. Of course, we should not ignore the tendency in our country of local officials to exaggerate figures in order to receive larger allocations from the central government. But even if the figures are somewhat exaggerated, we can still draw certain conclusions from them.

First, Li Boning and officials in the counties and municipalities in-volved in resettlement work have never truly “acknowledged” the resettlement figure of 1,133,800 from the 1991 Assessment Report. Second, of the various estimates put forth by dam opponents, the lower figure [1.3 million] is probably closer to the truth. Either way, the number of people who will have to be moved is much larger than the original figure of 725,500 which became the operational figure for the NPC’s examination of the Three Gorges issue.

Li Boning and his colleagues have visited the Three Gorges region on numerous occasions, and Li may be more familiar than anyone with the true facts and figures. So, why has he insisted on promoting a lower, untruthful resettlement figure? Zhou Peiyuan believed that this reflected Li’s inadequate consideration of various complex factors. At one time I would have agreed, but Li has proven otherwise. After admitting at his informal talk in August 1992 that the total number of people to be moved would be “more than 1.2 million,” Li cautioned that “this figure should not be revealed. For now let’s just say the total is one million.” Perhaps, rather than inadequately considering all the factors involved, as Zhou Peiyuan suggested, Li had instead been very meticulous in examining all of the factors.

In my opinion, Li Boning’s reluctance to reveal the real estimates to the public was a tactical decision. Let me cite his book. During the time of his visits to the Three Gorges, Li was the would-be governor of the proposed Three Gorges Province. The tone he used when talking with cadres from the area had a heavy authoritarian flavor. For instance, on December 2, 1986, he commented: “Everyone considers resettlement to be the key issue which will determine whether the Three Gorges project is launched. Therefore, our estimates of the total number of people to be resettled will determine the fate of the project... If, in following the old method, we come up with a large sum for reimbursement, people will be scared away from the project. Therefore, we must be very careful about the figures we cite since they could become a bullet used by opponents.”

In the government’s view, launching the project was clearly the prime consideration. With that premise in mind, all of the studies and assessments avoided generating resettlement numbers that would undermine this goal. All other issues were made subordinate to launching the project.

Environmental Capacity

The question of whether relocatees can be resettled in nearby areas without destroying the local environment and its capacity to support people is,
I believe, key to the whole issue of resettlement and to the overall success of the Three Gorges project. Optimists, including Li Boning, argue that adequate space exists within the Three Gorges area for resettlement. This was also the final conclusion of the Assessment Report that was approved by the State Council. But pessimists, including Zhou Peiyuan, Li Rui, Fang Zongdai, Wang Shouzhong, Tian Fang, Chen Guojie, and others, all think that the population density of the reservoir area is already too high and that resettling people in nearby areas will lead to overplowing and will destroy the local environment and economy.

Since the establishment of the People’s Republic of China over forty years ago, 80,000 reservoirs have been built in China, necessitating the resettlement of over ten million people.*

Most of these people were moved great distances and many were unable to make a decent living after the move. The 1.3 to 1.8 million people who will have to be moved to make way for the Three Gorges dam may suffer the same fate. It is quite possible that there is not enough adequate land for these people in the whole country, let alone in the Three Gorges area. Once we understand this, the so-called “debate” over whether to settle people locally or move them great distances is revealed to be no debate at all. The important issue is how to create an environment that will sustain these people in the reservoir area and not whether this capacity now exists. We know that it does not, but there is no alternative.

The issue is never framed this way. The true purpose of so-called public discussions about resettlement by the scientific community is to take a firm stand that local resettlement is possible. Why else would Li Boning have said that “we must be very careful with the figures we cite since they could become a bullet used by opponents.”

In taking this position, however, the optimists have painted themselves into a corner. Of all resources, land is undoubtedly the most important. All industries—farming, forestry, animal husbandry, and fishing—rely on the land. But neither people nor industries can be resettled to castles in the air.

Li Boning claims that infrared aerial photography shows that 3,890,000 mu of barren land is available in the 361 townships that will receive relocatees. He goes on to argue that providing each of the 330,000 rural relocatees with one-half mu of highly productive land for grain production and one mu of orchard land would require a total of 500,000 mu. This, plus the 300,000 to 500,000 mu of new land which will have to be given to local residents as compensation for lost land, will require the development of a total of 800,000 to one million mu of land. This, says Li, is possible and will guarantee both family income and an adequate food supply. When he informed his subordinates of the plan, he spoke casually, indicating that the figure was “only a small part” of the total amount of barren land actually available.

If this were true, then resettlement would be no problem.

However, after a visit to the Three Gorges area, I came away with a very different impression of the land situation from Li’s. The area is very mountainous, land is scarce, and population density is high. There is considerable deforestation in the mountains, and most of the arable land is fragmented and spread out over the mountains. While in the area, I examined documents which indicated that mountainous and hilly land makes up about 95.8 percent of the total, and that population density is about 1,000 per square kilometer. There are, in fact, few areas in China with so little available land and such a high population density. For years the locals have been cutting down forests to open new land for settlement, and now 41.5 percent of the land in the area is under cultivation. Vice Premier Zou Jiahua once commented that the struggle between people and land in the Three Gorges area is a tense one. The locals compensate for the lack of adequate land resources by constantly replowing the land in the hopes of eking out two or three crops per year. As a result, most of the relatively barren soil has been overplowed and cannot be further developed. In the past forty years, local forests have been reduced by 50 percent, which in turn caused serious and significant soil erosion. The 40 million tons of rock and earth which flow into the Yangtze annually attest to how quickly the situation is deteriorating.*

Chen Guojie of the Chengdu Geological Research Institute of the Chinese Academy of Sciences believes that even without the dam project and its submersion of vast swaths of arable land the local population already exceeds the environmental capacity of the Three Gorges area by 15 percent. Isn’t it strange that Li Boning has apparently never come across these and other figures? Either ignorance is bliss, or he is purposely avoiding the facts.

*Other estimates are that as much as 640 million tons of sediment enter the Yangtze annually. See, Vaclav Smil, The Bad Earth: Environmental Degradation in China (Armonk, N.Y.: M.E. Sharpe, 1984), p. 87.
New laws, enacted since 1988, further reduce the amount of land available for development. For instance, the Water and Soil Protection Act restricts development to lands with a gradient slope of less than 25. Before the new law’s passage, the limit had been a gradient slope of 30. The law also stipulates that only land with a certain amount of soil can be used for farming. Finally, it bans further development in areas that have already lost more than 30 percent of their vegetative cover. When these factors are taken into account, Yao concludes that only 600,000 to 800,000 mu of the 1.2 million mu can actually be used. These findings are sharply at odds with Li’s claim that infrared aerial photography indicates that there are 3,890,000 mu of land available for cultivation. Yao’s conclusions were drawn from the same aerial photographs. Clearly, the two men approached the issue from different points of view. Perhaps this example proves that once so-called scientific proof is tainted by the scientist’s emotions and subjectivity, it loses all its original scientific value.

But even Yao’s significantly lower figures do not account for all of the limits on the development of land in the reservoir area. All of the arable land above the future submersion line is on mountain slopes and is scattered throughout the region. As a result, some of it is unavailable for farming. One experienced local farmer told me that carving 1 mu of arable land out of the steep hills and hanging slopes to create a terraced field actually requires 1.3 to 1.5 mu of barren land. This ratio was later confirmed by the local government. Therefore, the conversion of 800,000 mu of barren land (the upper range of Yao’s estimate) would only yield between 530,000 and 610,000 mu of cultivatable land.

Because the majority of the barren land already belongs to the local farmers and not to the government, Li Boning planned on returning a good portion of it to these original owners as compensation for their other losses. Assuming that Li keeps his word, this will further reduce the amount of land available for the relocatees to between 370,000 and 420,000 mu.

In addition to overestimating the amount of land available, Li Boning also underestimates the number of rural resettlers who will require land. According to Li, rural resettlers will make up 45.8 percent of all relocatees, or 332,000 people [of the 725,500 figure]. However, Li has admitted that more than 1.3 million people will have to be moved, 46 percent of whom are rural relocatees, meaning that there will be 602,000 rural relocatees—270,000 more than Li states. Moreover, as we determined above, the actual number of relocatees will be over 1.3 million, and
probably between 1.6 million and 1.8 million. Assuming zero population growth over the next twenty years, the number of rural relocatees may actually be between 732,000 and 800,000.

Given the underestimation of the number of relocatees and the overestimation of the amount of land available, Li Boning’s guarantee that each relocatee will receive 1 mu of highly productive cash-crop land and one-half mu of highly productive farmland for grain production is an empty promise. Relocatees will, in fact, receive only about 0.6 mu of land per capita, and at the most 1 mu per capita.

One means of dealing with the lack of land would be to convert some rural resettlers to other occupations such as animal husbandry, industry, or commerce. Sources suggest that more than 200,000 people could change occupations; however, the development of industry and commerce in the Three Gorges area is fraught with problems and will not, on its own, solve the main problem of a lack of land.

Another way to increase the amount of land available would be to allow development on land with a gradient slope over 25. Local officials have the power to violate the law and regularly do so in the name of resettlement. When I visited trial resettlement sites with local officials and pointed out to them that many of the sites were built on mountainsides with gradient slopes over 25 (and some over 30), many officials claimed to be ignorant of the new act. Others acknowledged the law, but said that if they obeyed it there would not be enough land for resettlement. Large-scale resettlement operations have not even begun yet. To develop the 800,000 to 1 million mu of land that Li Boning has promised, entire swaths of mountainsides will have to be filled with illegal development, and major conflicts between environment and resettlement officials will inevitably occur.

Even more astounding is the claim that sufficient land exists for all resettlers is his belief that the reservoir area can become self-sufficient in grain production, even though it is not currently self-sufficient and the dam has yet to inundate any land. In making this claim, Li makes three questionable assumptions:

First, Li categorically rejects the fact that the reservoir will flood the best local arable land. Instead, he argues that the dam will flood only 2.56 percent of all of the arable land in the 19 counties and municipalities, and only 2 percent of the rice paddies. I have not studied this question thoroughly, but Li’s statistics are not borne out by my observations during my visit to the reservoir area. The slope of the land increases as one moves up the mountains, while nearer the river the land is flatter and more amenable to irrigation. Therefore, it is readily apparent that the most highly productive land is closer to the river and below the mountains. Since everything below the 175-meter-line will be submerged, the reservoir will clearly reduce the amount of highly productive land in the area.

Before I had the opportunity to ask anyone for confirmation of my observations, I took a good look at exactly what Li Boning said when proposing that the area would become self-sufficient in grain, and everything became crystal clear. He said: “The annual grain output of the 19 counties and municipalities is about 4.8 billion kilograms, or 345 kilograms per mu. The reservoir will submerge 404,000 mu of arable land, which will reduce the annual yield by 161 million kilograms.” By simple division, it is clear that the 404,000 mu of land to be submerged are highly productive. According to Li’s own figures, the submerged land produces 398.5 kilograms per mu annually—53.5 kilograms per mu more than the average throughout the 19 counties and municipalities. This disproves Li’s statement that only a small portion of good land will be submerged.

Li’s second assumption is that reforms in hydrological, fertilization, top soil, and plowing methods can increase the productivity of low-yielding sloped land (about 40 percent of land in the area). But Li seems to have forgotten that the majority of the low-yielding land is on gradient slopes over 25. According to the new Water and Soil Protection Act, these lands should be taken out of production.

Li’s third assumption is that barren and grassy slopes which cover parts of the mountains can be developed. But even before inundation, the barren and grassy slopes in the area have shown that they are incapable of sustaining cash crops. To convert them to productive land, were it even possible, would be a massive undertaking. A cadre by the name of Lu Chun from the Economic Development Office of the Three Gorges Area under the State Council has concluded that converting each mu of land in the mountains would require 140 explosive charges. Therefore, to convert 800,000 mu of mountainside to cultivatable land would require 1.12 billion such charges, or 15,000 per day for twenty years!

Li has made one final comment which sheds light on his view of the land and resettlement issue in the Three Gorges area. He has said: “We cannot, in the Three Gorges area, adopt the soil and water conservation measures which have been adopted in other areas.” From this statement, it would appear that Li is prepared to push aside any and all obstacles to his grandiose plan for the development of barren lands. But the biggest obsta-