Recent Experience With Involuntary Resettlement
China — Shuikou (and Yantan)

June 2, 1998

Operations Evaluation Department

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### Acronyms

<table>
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<th>Acronym</th>
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<tr>
<td>ECIDI</td>
<td>East China Investigation and Design Institute</td>
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<td>FPEPB</td>
<td>Fujian Provincial Electric Power Bureau</td>
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<tr>
<td>GREPB</td>
<td>Guangxi Regional Electric Power Bureau</td>
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<td>GRRDO</td>
<td>Guangxi Regional Resettlement Development Office</td>
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<tr>
<td>ICR</td>
<td>Implementation Completion Report</td>
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<tr>
<td>M&amp;E</td>
<td>monitoring and evaluation</td>
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<td>MW</td>
<td>megawatt (one million watts)</td>
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<td>MWREP</td>
<td>Ministry of Water Resources and Electric Power</td>
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<td>OED</td>
<td>Operations Evaluation Department</td>
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<td>O&amp;M</td>
<td>operation and maintenance</td>
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<td>PCR</td>
<td>Project Completion Report</td>
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<td>PRC</td>
<td>People’s Republic of China</td>
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<td>SAR</td>
<td>Staff Appraisal Report</td>
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<td>SRRO</td>
<td>Shuikou Reservoir Resettlement Office</td>
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<tr>
<td>TVE</td>
<td>township and village enterprises</td>
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<td>yuan</td>
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This report was prepared by Edward B. Rice. Annex A was prepared by Youxuan Zhu. William B. Hurlbut was the editor. Megan Kimball and Benjamin S. Crow provided administrative support.
Preface

This report is one of six impact evaluations to assess the resettlement process of Bank-supported projects and to determine the impact on involuntarily displaced people. A separate Overview report describes the purpose and objectives of the study, the methodology and selection of case studies, the history of resettlement in each project, and the principal findings, lessons, recommendations, and policy implications. This report covers each of the topics of the Overview for the two China projects. The primary focus is on the Shuikou Hydroelectric Project.

The report is based upon a review of the project files, other relevant documents, and the results of a five-year socio-economic monitoring program, with annual surveys of resettler households and communities, plus a follow-up survey for the Operations Evaluation Department. Two OED missions visited the project area, one to design the 1997 survey and one after the survey to validate its results and for further investigation.

The draft report was sent to the Government of China on November 8, 1997. The Ministry of Finance responded with comments, which were taken into consideration in the final report.

The East China Investigation and Design Institute (ECIDI) conducted the OED survey under the leadership of Mr. Gong Heping. ECIDI was assisted by Dr. Zhu Youxuan, an international development consultant with extensive experience on involuntary resettlement in China. Dr. Zhu and Mr. Heping accompanied both OED missions. Their central involvement in the five-year resettlement monitoring program of the Shuikou Hydroelectric Project enriched OED's understanding of the resettlement process at Shuikou and is gratefully acknowledged. OED is also grateful for the assistance extended to both missions by the provincial power and resettlement authorities, in particular the Fujian Provincial Electric Power Bureau, Shuikou Reservoir Resettlement Office, Guangxi Regional Electric Power Bureau and the Guangxi Regional Resettlement Development Office. Ms. Youlan Zou, resettlement expert in the Bank's Beijing Field Office, made the arrangements for the missions, accompanied the first, and participated in all subsequent discussions. Her help was invaluable. Finally, OED would like to thank the dozens of resettlers who shared their time and provided us their perspectives.
1. Introduction

1.1 This is part of OED's six-country study of involuntary resettlement behind large dams, a follow up to a three-country study completed in 1992. OED added China to the current study because it has the largest Bank-supported portfolio of projects involving involuntary resettlement and warranted attention in the update. OED selected the two largest of the three Bank-supported dams in China that have already been completed and where physical relocation of the displaced families was carried out at least five years ago. The first, at Shuikou near the coast in Fujian Province, is treated in the study as the dominant case. It has the advantage of a four-year database (1992–95) derived from sample surveys of resettler activity. Additional fieldwork was commissioned to bring the database up to 1997. The second dam, at Yantan in the interior of Guangxi Autonomous Region, is treated as a comparator to see if the findings at Shuikou have relevance elsewhere in China. Both are single-purpose hydroelectric dams.

1.2 The Shuikou project was partly financed by two Bank loans, the first approved in 1987 for US$140 million and the second in 1993 for US$100 million. Shuikou I was completed and the loan closed in June 1993; Shuikou II is due to be closed in December 1997. An Implementation Completion Report (ICR) was issued on the first project, and a comprehensive study of the resettlement component covering the entire period has already been drafted for inclusion in the ICR on the second project. The Chinese and the Bank consider this a successful project: it provided energy on schedule to support the rapid industrialization of the Fujian coastal economy. The ICR rates the project “highly satisfactory.” The resettlement component is also considered successful. The Bank identified it in the early 1990s as a best-practice example of properly planned and executed involuntary resettlement.

1.3 The Yantan project was partly financed by one Bank loan, approved in 1986 for US$52 million and closed in June 1994. An ICR issued in June 1995 rates the overall outcome of this project “satisfactory.” Though the database is weaker, reports on the resettlement component suggest that the operation was less impressive than at Shuikou and recovery to income and employment targets was delayed. OED hoped the difference between the two projects would reveal factors explaining Shuikou’s success and whether these may be unique to Shuikou or China or relevant and replicable in other parts of the world.

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1. Respectively, the Shuikou Hydroelectric Project, Loan 2775-CHA, and Shuikou Hydroelectric II Project, Loan 3515-CHA.


4. The Yantan Hydroelectric Project, Loan 2707-CHA.

2. Description of the Project: Shuikou

Physical Features, Populations, and Government

2.1 The dam and powerhouse\(^6\) are on the Min Jiang River 84 kilometers (km) above Fuzhou, the provincial capital near the coast. The reservoir extends another 96 km up to and curving around the city of Nanping (map 1, IBRD No. 29025). The whole valley has traditionally been one of the richest parts of the province, supplying rice, fruit, and fish to the cities. Altogether, 15,600 rural families with 67,200 people had to be moved to make way for the reservoir (and dam construction site). Another approximately 20,000 urban-based people were also relocated, including 3,900 households with 17,200 people in Nanping City.\(^7\) Four counties have jurisdiction over the reservoir area. Living and cropping conditions vary: two of the counties with only 10 percent of the resettlers had 30 percent of the unused land considered suitable for plowing. None of this was prime cultivable land: “three decades of aggressive development of agricultural resources have left few areas with untouched yet readily exploitable agricultural potential.”\(^8\)

Since the intent of the program was to resettle people as close as possible to their original homes, as well as to restore their land-based occupations, the slopes and soils of the uplands around the lake played a decisive role—in shaping plans for the resettlement program.

2.2 Map 1 shows the scatter of villages and towns along the lake. In most cases the new sites are close to the flooded sites, though one of the features of this program was to consolidate smaller villages in new towns wherever possible—provided the residents agreed. Thus, for example, the 35 pre-dam villages selected for the field surveys had been consolidated into 25 post-dam villages and towns. The impact of this urbanization program can be seen in the expansion of commercial enterprise: the profusion of open-ended, ground-floor shops stretching all along the central streets of the new towns, operated by or rented from the owners who live on the floors above. Most villages near the dam lost all lands and houses; in these cases new villages, towns, and occupations had to be constructed. Nearer the upstream end of the reservoir, for those villages that did not lose all their homes and lands, the physical shift was less traumatic. The displaced families would fit in between or leapfrog to new house sites above the safe ones. Among 89 affected villages, 73 required relocation of households; of these, 46 had to be completely rebuilt (or relocated to towns). The prevailing pattern of resettlement activity, however, was to rebuild, mostly on flattened hilltops and terraces. From the new highway on the right bank and the realigned railroad on the left bank, and from the boats that work the lake, travelers see the series of new red-brick villages and towns that line both sides.

2.3 The administrative structure in the affected areas played a role in resettlement. The administrative terminology has changed since the reforms in the late 1970s, which ended the period of collectivization. The four counties are divided into “townships.” Today’s township is the old “commune,” and the word refers to both the urban center (town) and a large group of villages within the township’s jurisdiction. Village has two meanings, the “administered” village

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6. The dam is a 101 m high concrete gravity dam, 786 m long, and its reservoir at a full operating level of 65 m has a surface area of 300 km\(^2\). The powerhouse has a generating capacity of 1,400 MW, with seven units of 200 MW.

7. The other “urban-based people” include government employees. The Shuikou resettler data that were reported to the Bank typically did not include the nonrural component (apart from the Nanping City relocatees).

(the old "brigade"), which usually extends over a cluster of neighboring smaller villages, or those smaller "natural" villages themselves (one or two of the old "production groups"). The process of consolidation prompted by resettlement has increased the number of towns and people living in towns. It also increased the number of people classified as urban (or nonagricultural), though many still identify with the old villages and use their names when referring to parts of the town. The town and township authorities are appointed, while the county and (administered and natural) villages elect their leaders.9

2.4 Lee Travers, in his comprehensive 1993 review China—Involuntary Resettlement,10 describes the historical factors that conditioned these local governments to play the exceptional roles they were to perform in the planning and implementation of the Shuikou (and Yantan) resettlement program. He describes a planning culture ("the pervasive involvement of local government in the social and economic life of the community"), an information culture ("their attention to record keeping"), and a sociopolitical culture ("the ability to foster local economic well-being has become the primary criterion for evaluating local leaders, wedding their interests to those of local residents"11), and concludes:

The foregoing highlights of China’s institutional structures offer a very important clue as to why, once China decided that improving household welfare should be a major criterion for the success of socialist development, resettlement has been handled well in comparison to most other developing countries. Successful resettlement requires management of major social change. Local governments in China have a long history of using planning tools to manage discontinuous change. Through participation in political and economic campaigns, county and township governments have experience reallocating land, moving people, making new social and production investments, helping the labor market to absorb new entrants, and other key elements of a major resettlement effort. When those actions took place with scant regard for individual welfare, as they did at times during the Great Leap Forward and Cultural Revolution, they inflicted great harm, but the record in the last decade shows how well the tools can work when applied to the goal of maintaining well being.12

9. Elected from slates that may be more or less dictated by higher authorities, depending on the area.


11. Travers points out that the Chinese administrative system rarely transfers county or township officials to new jurisdictions: "therefore, local leaders can expect to directly enjoy or suffer from the consequences of their decisions" (op. cit., p.17).

12. Ibid., p. 18. Travers’ historical sections illuminate present practice. He points to the magnitude of forced resettlement in China in recent decades: 32 million people moved in the past 40 years, 10 million of them from reservoirs and the rest to make way for investments in transportation, industry, and urban redevelopment. He also describes the difficult period in the 1960s and 1970s, when, notwithstanding regulations favoring resettlers issued in the early 1950s, the government’s attitude changed and the onus of recovery and even survival was passed to the resettlers. The mottoes were self-reliance and sacrifice, in the interests of the state. He estimates that two thirds of the people resettled in that period failed to recover their former standards of living, half of them ending up at subsistence levels and the other half in abject poverty. The policy reforms of the early 1980s were in fact a return to policies adopted 30 years before.
Implementation of the Resettlement Program

Relocation

2.5 At the time the Bank preappraised the project in 1985, the design of the dam, powerhouse, and transmission lines was already well developed. The East China Investigation and Design Institute (ECIDI) of the central Ministry of Water Resources and Electric Power (MWREP) had undertaken preliminary studies during the late 1970s as part of the planning of hydropower resources of the Min Jiang River valley. The outline of the plan for resettlement had also been established by 1985, based on national policies and regulations on involuntary resettlement issued in the early 1980s. The Fujian Provincial Electric Power Bureau (FPEPB) would be the executing agency for the hydroelectric scheme. FPEPB staff joined members of other provincial agencies in 1982 to compose a Fujian Shuikou Resettlement Planning Team, which worked with the four county subteams to review the reservoir inundation data collected by ECIDI and draw up a detailed resettlement plan. The Shuikou resettlement planning process involved extensive consultation with township and village leaders, particularly with the objective of selecting resettlement sites and identifying the major economic rehabilitation options. The four counties were asked to draft the plans for their jurisdictions. The overall plan was approved by the provincial government in 1983 and by the State Planning Commission and MWREP the next year.

2.6 In 1986 the provincial government established the Shuikou Reservoir Resettlement Office (SRRO) to manage the resettlement component. The Bank’s resettlement experts noted approvingly that the government preferred to place responsibility for resettlement in an independent agency, one of the practices they wished to encourage both in the Bank and in borrowing countries. The resettlement completion report gives a good account of the planning process and the context of national and provincial regulations that guided it.\(^\text{13}\)

2.7 Implementation of relocation and recovery was to be synchronized: in principle physical relocation should be preceded by investments establishing new production systems for groups or individuals in anticipation of their move. Thus, for example, the terraces should be leveled, and fruit trees planted, long before the houses were constructed, to minimize the period between the move and production. This scheduling strategy broke down in practice. Facing annual shortfalls in funding, and before the central government in 1989 approved a major increase in the overall budget, SRRO and the local governments concentrated on completing the infrastructure of relocation—roads, site leveling, water supplies, etc.—at the expense of the development budget.\(^\text{14}\) Thus, less than half the fruit trees were planted before 1990—only three years before the reservoir was filled.\(^\text{15}\) Bank supervision reported that SRRO investments in new production systems were “practically nil” in 1988 and 1989. In many situations the local government tried to at least partly fill those gaps.

\(^\text{13}\) Youxuan, op. cit.
\(^\text{14}\) SRRO refers to this budget as the “compensation” budget, since the objectives of compensation and development are fused (see para. 4.1).
\(^\text{15}\) Since most of the farmers had access to their old fields until 1993, the critical income gap, for the new fruit farmers for example, was between 1993 and the first fruit harvests five to eight years after planting.
2.8 Travers argued in his 1993 report that revised resettlement regulations issued in 1991 had inappropriately relaxed the conditions on reservoir resettlement—compared to urban and other resettlement programs. They insist only on the gradual resumption (or surpassing) of pre-dam living standards. Others argue that the 1991 regulation simply recognized the impracticality of immediate restoration of income standards. Nevertheless, in giving priority in the work schedule to the infrastructure of relocation rather than of development, SRRO remained within the new standards set for reservoirs.

2.9 The original timetable for relocation was linked to the major milestones of construction, first of the upstream cofferdam and later the main dam and filling of the reservoir. Construction started in 1987, following Bank appraisal and approval of the loan. Relocation took place over a six-year period, beginning in 1988, with almost 70 percent of the population moved in the period 1990–92. That was later and more bunched than expected, because of the delays in leveling and equipping the sites and providing access to the new towns and villages. The Bank accepted a proposal to relax the requirement for the number of households that had to be moved before the cofferdam was completed. Originally FPEPB had intended to relocate the 32,000 people living within an area within reach of a one-in-twenty-year flood once the cofferdam was in place. FPEPB retreated to a target of 16,100 people, within reach of a one-in-ten-year flood, backed up by strengthened emergency plans to evacuate the rest if a greater flood struck. Bank supervision missions remained concerned throughout 1989 and early 1990 that the resettlement schedule was falling too far behind the dam construction schedule. But once SRRO had completed preparation of the resettlement site, house and office construction accelerated rapidly. SRRO actually reached the December 1990 targets ahead of schedule.

2.10 In addition to the relocation of 67,200 rural people from the valley floor, another 17,200 people resident in Nanping had to be moved to make way for the construction of embankments and a renewal of waterfront property. Most of those people were placed in 10 large apartment buildings financed through the resettlement budget. The buildings were sited at varying distances from the city center on the waterfront. Families paid one-third the capital costs of the new apartments, a contribution that substantially understated the improvement in conditions (including provision of utilities) the majority of these urban displacees enjoyed. The charge depended on the distance from the city center. Most of these displacees maintained their old jobs, so that job “arrangement” was not a factor in the Nanping urban component of Shuikou.

Income Recovery

2.11 Incomes and Jobs. Four other case studies discuss the process of restoring incomes as an effect of the project. In each case, the projects depended largely on individual actions by displacees subsequent to relocation, rather than successful implementation of an integral component of the resettlement plan. In China (and Brazil) the situation was different. The official resettlement program included incomes as well as compensation and relocation in this study.

2.12 This is the principal distinguishing feature of the Shuikou (and Yantan) experience; it sets China apart from the other countries (including Brazil) in terms of a continuing commitment to income targets as a component of resettlement objectives. “Continuing” sets China apart even

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16 SRRO also chose to complete the infrastructure throughout the project area, even where the water would not arrive until 1993, before focusing on house construction at any sites (except for families dislodged at the dam site).
from Brazil, because at Shuikou when the original plans for creating new income bases were frustrated, the authorities shifted to other strategies. That flexibility is unique in the study domain.

2.13 Actually the driving force has been less a concern for income targets than for employment targets. A focus on employing all employable individuals is rooted in the history of economic policy under the People’s Republic of China (PRC) and helps explain the restatement of this standard in post-reform resettlement experience. Viewed as units of account, one can distinguish the employable individual, the employment potential of a family, and the income of a family. At Shuikou (and Yantan), SRRO and all of its associates in the lower-level administrative offices involved with the post-relocation stages of resettlement have aimed first at a target called “arranged jobs.” Based on the number of employable individuals in the towns and villages, a statistic routinely updated by local authorities, SRRO sought to arrange a “job” for each individual. In fact local governments throughout China are preoccupied with this task, not just in resettlement areas. The concept of arranging jobs for families rather than individuals appears not to have preoccupied the planners, although it also appears that in practice town and village authorities ensured wherever possible that each family had at least one reliable “job” before other families got two of them. Isolated households could of course miss out on that equitable solution.

2.14 The practice of citing “family incomes” as the ultimate expression of resettlement objectives is more a Bank contribution than a Chinese one (though that should not be interpreted as a lack of family values). Restoration of “incomes” and “living standards” has been as much a part as “arranged jobs” of the inventory of national and provincial resettlement policy since it was overhauled in the early 1980s. However, the Chinese position is that by managing employment they can deliver on incomes as well. Local officials were readily able to quote statistics on both jobs and incomes to the visiting Bank mission—but when given the opportunity they started with jobs. The emphases of the field surveys carried out at Shuikou starting in 1992, largely at the urging of the Bank, have more of the flavor of the Bank’s priorities and highlight the statistics on family incomes.

2.15 There are other unique features of Chinese resettlement practices. What the Chinese define as an “arranged job” has its own special connotation. It means a productive and reliable source of wage or other cash income from an organized occupation. The most desirable are permanent positions in, for example, an official township office or a factory. In agriculture, arranged jobs are measured by units of land dedicated to a cash crop. Hence, 0.5 “mu” (15 mu equals one hectare) of prime paddyland, 1 mu of plowable land, 10 mu of citrus, 15 mu of fir forest, or 1 mu of fish pond, each provide one arranged job. If the village authority assigns a displaced family to paddy, citrus, or timber holdings of those sizes, or a combination of smaller holdings, it can assert that it has arranged a job. The spontaneous cultivation of subsistence crops on “wasteland” does not count. For example, if a family goes beyond the boundary of a new village and clears a cultivable hillside to plant cassava and maize, even several hectares of each, this unorganized activity—despite producing a surplus available for sale—is not considered an arranged job. In all villages visited by the evaluation mission, the authorities would report the number of persons who needed but did not have arranged jobs. Yet most of these persons were busy doing these unorganized jobs and may have even been receiving substantial incomes from them. The authorities know who each of these individuals is. If the authorities are able to attract a new industry to the village, the jobs created are (in principle) offered to these individuals first.

2.16 Notice that what the Chinese do not count as employment and income can be the sorts of activity authorities in other countries would be eager to list as results. In northeast Brazil, for
example, a displaced family’s ability to cultivate two hectares of rainfed cassava and maize with a reasonable steady annual cash income would be an objective of a rural development program, not an unacceptable outcome.

2.17 **Income Strategies.** At Shuikou, the process of arranging jobs can be described in two phases. The first phase, conforming to the original plans, was aimed primarily at “land-based” employment. Of all jobs to be created, 74 percent were to be in recognized agricultural occupations: paddy and other grain crops, fruit trees, other “economic” trees (such as tea, tung-oil, and bamboo), and commercial forestry. One key target was the development of approximately 2,000 hectares (ha) of new “plowable” lands for grains and vegetables—much of which would have to be irrigated—to replace the same amount of flooded paddyland. The percentage of jobs dedicated to grains or any land-based activity varied greatly by township and village, depending on the natural resources of the hinterland. The authorities pushed this category as high as they felt the natural resource conditions permitted. The slope of the land was one of the determining variables, for example, as slopes increased the limits passed from plowed land, to fruit terrace, to other economic trees planted on the slope, to commercial forest.

2.18 The other job categories available to the planners and SRRO have been grouped as (i) “sideline” intensive farm activities, such as backyard mushrooms, duck and pig farms, and fish and pearl ponds; (ii) “service” activities, such as shops, restaurants, and transport; (iii) industrial activities, large- and small-scale; and (iv) “migration,” either by persons with special skills or by unskilled laborers. These four groups of jobs were included in the first phase, though they were not emphasized.

2.19 The assignment of individuals to jobs appears to have been a thoroughly participative process, where families and individuals were asked to choose among already identified or projected opportunities. The system did not permit infinite divisibility of projected available cultivable land to provide a field to each family (except for the house/garden plot). There were rules on a minimum-size economic holding that had to be respected. The process by which the cultivable land was allocated when there were more families asking for it than could be arranged varied from village to village. But it appears that through a lottery or another transparent and acceptable formula, competition and favoritism were avoided. Note that families were being asked to consider and select among completely new life-styles, for example, the paddy family that opts for fish cages or tangerines.

2.20 An attachment to this report, written by a Chinese consultant on resettlement, describes the shift at Shuikou from the first phase to a second phase. The land-based strategy succeeded for the tree and forestry sectors, but failed to provide the cultivable land for field crops. By project completion only 700 ha of plowable land had been developed (compared with 2,100

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17. The development of fish cage farming at Shuikou is worth a report of its own. China produces about half the world’s catch from aquaculture and is the leader also in the use of cages. The Shuikou valley farmers had little prior experience, but the practice caught on quickly in several locations. Xongjiang township officials reported growth in the number of cages from eight in 1992 to 1,026 in 1996, with plans for expansion to 1,500 in 1997. The fishery sector at the Shuikou reservoir was written up in a consultant’s report to the Bank (F. Lin, 1992, “Experiences in Chinese Reservoir Fisheries and Aspects of Planning for Reservoir Fisheries in the Shuikou Hydroelectric Project,” Iowa Institute of Hydraulic Research, University of Iowa.

The amount of available, cultivable farm land per capita for resettlers in ECIDI’s 35 villages had fallen from 0.9 mu to 0.3 mu (0.06 to 0.02 ha.). Most of that land was inferior to the bottomland that had been lost. The authorities therefore had to help arrange many more jobs than expected within the other lines of activities. This is where the real success at Shuikou emerges: the adjustment away from traditional agriculture. The leading edge was provided by the town and village industrial enterprises (TVE) that sprung up everywhere. The creation of most of the TVE infrastructure was not financed through SRRO’s resettlement budget. The majority of the funds came from town and village resources, individual savings, and outside (including foreign) sources. Ownership took many forms—local government, individuals, joint ventures—although public owners usually contracted private individuals to manage the business. The other opening was through migration. Certain communities in the Shuikou area had long been noted for particular skills: asbestos insulation and amusement- and theme-park construction were two examples described to the study mission. The rapid growth of the Chinese economy spurred the demand for these and other services, prompting increasing numbers of members of those communities to leave for temporary assignments. Migration by unskilled labor has been less important at Shuikou than Yantan because of the opening of jobs within the valley itself.

The acceleration of economic activity along the lakeside corridor to Nanping was not confined to the resettlement operation. It was part of a regional phenomenon, in Fujian Province and elsewhere along the Chinese coast, fueled by funds from Taiwan and Hong Kong. Thus, the Shuikou “success” was helped along by major structural changes that provided jobs and markets for the displacees. But the role of local authorities in pushing along this process was substantial, and for many towns and villages decisive.

That explains another one of the distinctive features at Shuikou: the variability in economic performance of the local administrations. Some were more adept at attracting investments, facilitating migration, and arranging for technical assistance for persons embarking in new occupations. The first “lesson” discussed in the ICR is the need to maintain the strong leadership of a central resettlement agency, precisely to ensure reasonable progress from lagging local authorities. As a rule, however, all governments were committed to making resettlement work, and in any jurisdiction significantly affected by the dam government took recovery as the most important single objective of its administration.

**Costs**

Total costs of Shuikou resettlement are not available. The official budget, originally approved in 1985 and supplemented in 1989 and 1993, totaled Y1,057 million. Expenditures through 1996 were Y1,092 million, or about US$200 million at applicable exchange rates. SRRO reckons contributions by county, township, and local governments would have equaled those components of the official resettlement budget channeled through SRRO for investments in infrastructure. However, the governments told the evaluation mission they reckoned their contributions were greater than the official budget. Aggregate official figures do not exist to

19. Starting in 1995, some townships have been expanding this perimeter.

20. One example: the 46 TVE established in Xibin Township were divided into 10 village-owned, four townships, 18 private ventures, and 14 joint ventures.

21. However, SRRO has recently started organizing the transfer of unskilled labor to the coast, sending 80 in 1996 and planning for 400 in 1997.
corroborate either position. Besides these official investments in site infrastructure and land preparation, there are the additional costs to resettlers of house building and, of much greater importance, the substantial second-phase investments in TVE mentioned above from public and private sources. The last category probably should not be considered part of resettlement costs per se, but as supplementary development expenditures, catalyzed by the resettlement program, which contributed to the overall regional economy. For a very rough estimate of the specific costs of Shuikou resettlement per family, one can double the US$200 million figure given above and divide by the approximately 17,000 families that were physically relocated from rural and urban areas. That results in a figure of about US$24,000 per family. Actual costs including all job creation would be higher.

3. Database and Survey Design: Shuikou

3.1 In 1991, FPEPB contracted ECIDI's resettlement planning unit to carry out socioeconomic surveys at Shuikou. These started in 1992 with baseline data and were carried out annually for four more years. The latest was in early 1996 to collect data on calendar 1995. ECIDI surveyed at two levels. It interviewed government officials from a sample of 35 village authorities, some of them within the same new town. The questions—on jobs, per capita incomes, land use, livestock, housing conditions, schooling, etc.—were structured to take maximum advantage of data routinely collected by these authorities for their annual statistical yearbook. Some questions were repeated to cover exclusively the role of women in the village economy. ECIDI also interviewed a fixed sample of 524 households, drawn from 17 of the 35 villages (map 1 identifies the sample sites). Similar questions were asked in the household interviews, along with additional questions about farm and household assets.

3.2 OED contracted ECIDI to return to the field in April 1997 to repeat the questionnaires at the town and village level. Time did not permit interviews at the household level. The primary objective of these 1997 interviews was to update the village data series through 1996, adding information from 1997 where that made sense. ECIDI, with consultant support, also asked the authorities about (i) how they handled persons whose arranged jobs had failed (what this study calls the third phase, see para. 5.6), and (ii) present conditions of a group of 15 low-income families that had been identified in 1996 as the poorest in the sample, to see whether they had recovered (see para. 4.7).

3.3 OED also commissioned ECIDI to accelerate its processing of data collected in the 1996 survey about incomes and conditions in calendar 1995. The report, the last under the ECIDI contract with FPEPB, was due in mid-1996 but had been delayed (it was submitted in October 1997).

22. One example from Yantan may be instructive. At Bama, one of the county seats, the resettlement budget financed a new medical clinic with 13 emergency beds for Y450,000, while the city financed the adjoining hospital with 60 beds for Y800,000.

23. Travers faults the Chinese practice of "disguising true resettlement costs by expecting local government or enterprises partially to absorb them" (op. cit., p. xii).

24. The consultant who authored the appendix on phased development—see footnote 3.
4. Principal Findings: Shuikou

Compensation and Eligibility

4.1 The key objectives were to provide adequate compensation for all lost production and household assets, to restore the productive base and income levels, and to accomplish these objectives giving priority to land-based employment arrangements, to moving minimum distances, and to retaining the existing village social and administrative structures. The state encouraged “developmental” resettlement, meaning that it should focus more on the productive base than on “passive” compensation. China’s land tenure system, wherein all productive land assets are collectively owned, was well suited to this approach. SRRO compensated individual families for flooded homes, fruit trees, and other assets on each household’s home plot. Compensation for the houses reflected actual values, less salvageable materials, plus transport, and would be made in cash and/or access to new materials at subsidized prices. All households benefited from superior materials for rebuilding; many farmers contributed their own funds to enlarge the structures. Compensation to the families for other assets on their home plots could be in cash, but more often was packaged with the villages’ developmental assistance for the same families. SRRO compensated the villages and townships for productive land as well as community infrastructure and other assets lost to the reservoir. This was the principal source for financing both the villages’ collective economic recovery programs (such as leveling terraces for group orchards, establishing local industry) and the incentive packages aimed at individual families. Families that lost farmland would be helped to develop new lands or get established in other farm or nonfarm occupations. The system resulted in very little direct and unrestricted cash payoff.

4.2 Again following national and provincial regulations, relocated households received a standard-size house plot with infrastructure. Plots in new towns and villages were assigned through a lottery. Households were responsible for constructing their new dwellings. Exceptions were made for “vulnerable” families—elderly, disabled, or others without able-bodied workers—for which government contracted to build the homes.

4.3 Eligibility issues related to the family’s claims on land did not arise because there was no private ownership and only residency counted. Adult sons and daughters living with their parents did not draw additional compensation for house construction, for example.

Income Restoration

4.4 In its 1995 report on annual incomes for 1994 (the latest released report available to this study), ECIDI asserts that 1994 was the “turning year” when average household incomes caught up with and passed pre-dam levels. The fact that recovery had been accomplished within four years of the move of the majority of displacees was grounds for satisfaction. The composition of average income had changed more rapidly than anticipated, and it was the nonland-based sources that had propelled the accelerated recovery. Nevertheless, ECIDI’s tables of real values—removing the inflation that had accelerated in the same period—showed that the margin over pre-

dam incomes was on the average only 4 percent. ECIDI also designed a “control” group of unaffected households, based on the official census of the rural population of the whole of Fujian Province. This test indicated that even though the displacee incomes had returned to the pre-dam level, they were lagging behind other households in the vicinity whose incomes had grown even faster. The inflation-corrected figures took some Bank staff by surprise; they had expected evidence of more rapid growth from a “best practice” project.

4.5 ECIDI’s 1997 updated data on incomes show that the earlier concerns over lagging growth were premature. Resettler incomes have continued to increase. The town-level data that ECIDI has recently extended from 1994 to 1996 show that average real incomes have jumped 44 percent above the 1994 “turnaround” level (17 percent in 1995 and another 23 percent in 1996). The restructuring of the income base has continued unabated, with land-based sources again receding. In one accounting, the traditional agricultural subsectors—projected in the original plans to provide 74 percent of the jobs—have shrunk in importance to a 26 percent share. In another accounting, the TVE and other nonfarm occupations contributed 75 percent of the increase in overall incomes between 1995 and 1996. The nonfarm categories of services, industry and migration, now provide 65 percent of all arranged jobs and, because incomes are higher in these categories, a larger share of total arranged income.

4.6 The new data still show that the control group incomes exceed the resettler incomes, but that the latter are slowly closing the gap. Since 1993, when all the resettlers had to have moved, their average incomes have increased at a rate 17 percent faster than the controls. They are likely to close the gap more rapidly in the future, since the resettlers’ occupational structure was forced to shift more rapidly to the fastest-growing components of the economy. ECIDI expects the resettlers to forge ahead of provincial-wide standards by the year 2000. The breakaway from traditional agriculture is now applauded as a healthy development. A concluding passage in a recent SRRO report shows how far that agency has left behind the original planning strategy in

26. ECIDI’s bases for measuring the trend in resettlers’ income appears flawed. ECIDI’s initial analysis disproportionately weighted the earliest groups of resettlers, those that were reported officially to have shifted to new homes in 1988 and 1989 (not all did, in fact). Subsequently, ECIDI restructured the analysis according to the proportional numbers of resettlers who actually moved each year. But the earliest movers still influence the trends disproportionately, since they are shown in the inflation-adjusted tables to have suffered substantial real losses in income before they were inundated. That is counterintuitive and unlikely. The threatened farmers had been permitted to cultivate their paddyfields until the water arrived in 1993. It is inconceivable that any substantial number of them would have volunteered to abandon their paddies and shift to a lower income source before they were forced to do so. They would have been increasingly busy with building their new homes, but not to the extent of resting their small but highly productive paddyfields. It is more likely that ECIDI’s inflation adjustments are inappropriate, at least in the early years.

27. Based on ECIDI’s 1997 village survey.

28. Based on ECIDI’s analysis of 1997 data from a subset of five villages.

29. This discussion bypasses the subject of official classification of people into agricultural and nonagricultural status. The shift in the actual employment pattern was reflected in the shift in status. ECIDI’s 1995 survey of 1994 data showed that the percentage of nonagricultural positions had increased from 20 percent before the dam to 60 percent.

30. This discussion avoids the question whether the all-province rural census is an appropriate control—whether it properly represents the Shuikou households in the absence of the dam. Since this valley has always been relatively prosperous, the presumption is that provincial rural income estimates understate the averages of unaffected families in the valley.
favor of an aggressive, opportunistic action plan (the meaning is discernible behind the unusual English):

To meet the demand of economic growth, it is better to lead ahead more than 10 years, laying a good foundation for the future, but not just stare at the present, thus avoiding the vicious circle of dismantling just after building, and rebuilding after dismantling.\textsuperscript{31}

4.7 ECIDI’s 1997 report on 1995 household data shows another welcome trend, a shift to a more equitable income distribution among the resettlers. That is supported by additional information on the recovery of households in the lowest income group. ECIDI measured the change in income per capita, from 1995 to 1996, of 15 families identified in the 1995 survey as among the poorest in the sample of 524 households. A substantial improvement of 55 percent was noted overall, with 13 of the families progressing and 2 dropping back. ECIDI’s descriptive comments on each family reveal that the causes of poor performance in 1995 were usually temporary shocks rather than structural. These cases are not comparable to the so-called “vulnerable” households. The Shuikou area, like the rest of China, has well-established, locally administered systems for caring for these, usually disabled, families. Whenever the evaluation missions asked whether there were families who needed remunerative employment, but for whom local authorities had been unable to arrange at least one job, the answers were invariably cast in low numbers—typically 5 percent of the total population—and always pointed at examples of “vulnerable” families.

Social Infrastructure and Services

4.8 Responsibility for rebuilding social infrastructure rested with the functional departments of local government, such as education, public health, and social welfare. In addition to the compensation received for the demolished structures, these departments provided their own resources to rebuild. Newly constructed community centers were almost always of better quality. SRRO data show that after the move the share of mixed concrete/brick buildings measured by floor space comprised 99 percent of the total. Before the move it accounted for only 8 percent, the rest being composed of earth (43 percent), wood (14 percent), and mixed wood/brick (27 percent). The draft ICR on resettlement cites figures for selected community infrastructure from one township in the county of Nanping City. It shows a decline in the number of elementary schools from 34 to 28, reflecting the process of consolidation, but a 43 percent increase in floor space. The numbers of middle schools and clinics remained the same. Water supply and electricity indicators increased, while the length of the road system was extended from 6 km to 13 km. It does not have a figure for telephones, but interviews for this study show that that growth rate has been explosive. These trends would be representative of all the reconstructed sites: radical improvement in construction materials coupled with growth in the number of some categories of facilities and an expansion of utilities. The valley had been relatively well supplied with the basic social services before the move.

Resettler Satisfaction

4.9 The ECIDI surveys did not include questions prompting qualitative responses about levels of resettler satisfaction. The evaluation missions did put this question to many of the families and individuals interviewed; the answers were invariably positive. That this was not always the case during the visit to Yantan suggests that the Shuikou responses were genuine and reflected real satisfaction with the outcome of resettlement. The respondents could distinguish the valued components of their previous condition that were lost forever, and the advantages of the new lifestyles, and weigh the two. What was impossible to determine is how much of the present high level of satisfaction is attributable to intelligent management of relocation and recovery and how much to the fortuitous expansion of the Fujian economy.

4.10 The ECIDI surveys do show the trend in the number of families owning larger homes and popular household assets, and these support the informal responses. Floor space per person has increased by 30 percent, to 41 m². That is a big number and evidence of the comfortable conditions people in this valley enjoy. From the sample of 524 households, the increase in the numbers reporting ownership of different assets “before” the move, and “in 1995,” are: bicycles 347 to 460, motorcycles 9 to 40, sewing machines 461 to 503, telephones 2 to 45, and “family electric equipment” 1,817 to 2,942. There is no comparable control to determine whether these improvements outstrip increases in ownership of unaffected families. Judging from roadside appearances along the corridor from Fuzhou to Nanping, and from the dazzling growth in both of those cities, it would be imprudent to assume the resettlers have achieved a superior lifestyle. But that was not the objective. The objective was to bring them back on the curve as quickly as possible, and that appears to have been done.

5. Principal Findings: Performance at Shuikou

Bank Performance: Policies, Applications, and Follow-through

5.1 The Bank’s principal resettlement expert was involved in the Shuikou project at appraisal, contributing an unusually comprehensive appraisal annex. There was a two-year hiatus in specialized attention following loan approval, but starting in 1989, the level of Bank resettlement staff input to project supervision has been continuous and substantial. The Bank carried out a mid-term report on the resettlement component in 1991 as an input to the appraisal of Shuikou II. The popularity of the project is partly because the Bank’s resettlement group had early-on identified Shuikou resettlement planning and execution as exceptional. In 1992 the group proposed to prepare a “best practice” paper on Shuikou, which the task manager discouraged because it seemed premature:

Since, while the relocation process is almost finished, the “resettlement” process (that is, restoration of livelihood) is just beginning.

32. The one-child-per-family policy for the Han Chinese contributes to this spacious outcome. The difference from the resettlers’ crowded new homes in India is astonishing.
33. See footnote 14.
Nevertheless, Chinese performance in planning, organizing, and executing the Shuikou program mirrored the new Bank policies on involuntary resettlement. Supervision reports starting in 1994 recognized this with what became standard language on the Form 590: “the resettlement program and its implementation are regarded as best practice within the Bank.” Bank resettlement staff inputs were enhanced by the task manager himself—an irrigation engineer working on the project from 1989 to the present—who dedicated himself to successful conclusion of the resettlement component.

5.2 The match between current Bank and Chinese policies on resettlement, both emerging in the early 1980s, raises the question of whether one stimulated the other. In fact, policy developments in China proceeded independently of the Bank. The Bank’s Economic Development Institute subsequently set up an involuntary resettlement training program with the Chinese government, but this was in 1993, well after the Shuikou relocation activities had been concluded.

5.3 Nevertheless, Bank staff inputs were extraordinarily important to ensuring timely and successful implementation. The Bank’s close attention to the resettlement component resulted in several significant improvements:

- From 1987 through 1989, the Bank supported FPEPB in arguing repeatedly and ultimately successfully for a substantial increase in central government funding. In 1989 the resettlement budget was more than doubled, from Y410 million to Y880 million. Renewed Bank pressure in 1993 helps explain the second budget supplement to Y1,057 million. Travers compared the Bank-supported reservoir resettlement projects with those funded exclusively by the government and found the latter suffering from much longer periods of serious underfunding and postponement of essential developmental activity: “at great hardship to the resettlers.”

- From 1988 through 1991, the Bank maintained pressure on SRRO to bring better balance to budget allocations. In the interests of completing the infrastructure for relocation, the developmental component of resettlement (planting of trees, soil conservation, etc.) was being starved of funds. This threatened to delay the resettlers’ return to their productive potential.

- From 1990 through 1991, concluding with the mid-term review of the resettlement program and appraisal of Shuikou II, the Bank vigorously promoted the earlier plan to create an independent evaluation capacity to assess the socio-economic impacts. The contract with ECIDI was prepared in late 1991.

- In 1994, after the dam was completed, the reservoir filled, and all affected persons relocated, the Bank pushed hard (and is still pushing) to ensure that SRRO and the provincial government continued to pursue the developmental objectives of the program. SRRO’s momentum had slackened, its attention had begun to drift to other assignments, questions were being raised about SRRO’s future, at a time when the

35. Form 590, page 2, dated December 21, 1994 (and subsequent Form 590s).
37. See footnote 14.
shift from phase one to phase two priorities in development strategy had become all
the more important. The provincial government later declared that SRRO would
remain involved at Shuikou until 2004 and the completion of all resettlement activity.

Borrower Performance: Commitment and Compliance

5.4 Much has been said in the preceding sections in praise of the Chinese role in the
successful outcome at Shuikou. In fact Bank project personnel—engineers as well as resettlement
experts—have had difficulty convincing some of their colleagues in the Bank that performance at
Shuikou was as good as alleged. Others were sceptical that glowing reports by Chinese
authorities could have created an illusion of progress covering up serious deficiencies—a
common critique of the Bank’s Chinese portfolio. The evaluation team is satisfied the Bank
reporting from Shuikou was accurate. The experience at Yantan, though less successful in
reaching income targets, demonstrates the same degree of Chinese commitment and competent
management.

5.5 A Bank resettlement expert has offered an explanation for this distinctive behavior:

Resettlement is implicitly approached as a development challenge, as resettlement funds
are used to improve existing lands, make marginal lands fit for agriculture, expand the
area of irrigation, establish new enterprises, or expand the scope of existing enterprises.
The Chinese approach, therefore, could open up some interesting avenues for countries
that have been looking at resettlement as a burden.\textsuperscript{38}

5.6 Another aspect of Chinese performance is the flexibility noted above concerning the shift
to the second phase of development activities. More recently, one can even detect the emergence
of a third phase. The latter involves those remedial actions taken by local officials to rescue,
reorient, or replace failing activities initiated earlier. The evaluation missions tried to document
this rehabilitation activity, because it clearly pushes China well beyond the resettlement
objectives in the other countries. This special study proved premature. When trying to determine
the number of new town and village enterprises that had failed, for example, creating a group of
unemployed who had to be “rearranged,” the evaluators were told that almost no TVE had
actually disappeared.\textsuperscript{39} Local authorities have been instrumental in helping them restructure or
even realign to a mix including completely new products, such that the work force remains with
the company (although sometimes on a reduced schedule). That attitude is changing. SRRO told
the evaluation team that it now intends to abandon the weaker TVEs, especially the collectively
owned ones, and press for industrial activities fully structured to meet the tests of the free market.
Up to now, however, the authorities have been more involved in rescuing failing agricultural
enterprises: citrus orchards, for example, where the original selection of species proved
inappropriate for the area and it was necessary to shift to other citrus species, longan, olive, or

\textsuperscript{38} E-mail from A. Ghani, ASTEN, to M. Cernea, ENV, December 21, 1992, p. 1 (emphasis added).

\textsuperscript{39} The reports that no TVEs had actually disappeared are inconsistent with information in the Aide Memoire from the
most recent (and final) Bank supervision mission. There, SRRO is quoted as reporting that as of mid-1997, some 259
enterprises were in operation out of a total of 347 relocated or started since the beginning of resettlement. Examples of
closures include brick-making plants, no longer required now that the housing has been constructed, and paper plants,
closed for environmental reasons, mergers, and bankruptcies. The mission leader concluded, however, that these were
mostly public enterprises and the local governments were generally successful in finding other jobs for the workers
released. In that sense the mission’s observations and OED’s reports were consistent.
some other tree crop. Local governments, starting at the county level with backup from SRRO, would bring in additional technical expertise from the provincial and county governments and other sources to help remodel the activity. However, although there is an evident willingness to maintain the momentum of development at Shuikou, this third phase of government interventions is still in its infancy. One cannot claim yet it has firm and sustainable institutional support.

5.7 The record is not uniformly favorable. Chinese performance at Shuikou clearly could have been improved: witness the important Bank interventions described in para. 5.3. Though the Bank could applaud the policies, implementation did not keep up. Budget shortfalls at the center, aggravated by budget practices that do not anticipate inflation, and SRRO's preference to complete the relocation program, delayed the development activities in particular. Of the two budget supplements, in 1989 and 1993, the first and largest was too late to protect the development schedule from a long period of underfunding. The second supplement was a "just in time," correction.

6. Other Issues at Shuikou

Participation by Resettlers

6.1 The Chinese plans for Shuikou not only matched the Bank's resettlement objectives, the involvement of local officials and individual families also met the Bank's rising standards on participation. A distinction is necessary here, because Travers and other observers have called attention to what appears to be a belated bridging to the resettlers themselves. During the early planning period, when large-scale maps were drawn indicating preferred sites of the new towns and villages and the availability of unused land for development, ECIDI, FPEPB, and the resettlement planning team dealt intensively but exclusively with the town and village leaders. By involving the leaders of the natural villages the authorities were of course drawing the individual households into the planning framework, but indirectly. Nevertheless, Bank standards do not preclude this arrangement.

6.2 In the next stage, however, the households were brought into the middle of the process. This fully participatory approach is unavoidable, given the land tenure system and the provision of funds for land compensation to the local authorities. These propitious factors compelled local governments to engage in detailed discussion with each family, so as to determine a plan specific to each and an appropriate allocation of village developmental funds. Since families could not claim compensation for the land they farmed, or expect equal allocations of farmland to everyone in the new deal, they were powerless to reconstruct their lives without local government support. But these families could choose their own post-dam occupations, within limits set by fund availability and the natural resource base. It was the job of the local authorities to guide each family to a promising plan. Once approved, these individual family plans determined overall allocations, integration with families of similar preferences, and types of technical assistance required if any.

6.3 Resettler participation extended to some macro-level decisions about relocation as well. Families and their local officials met to discuss proposed sites for the new villages and the merits of combining with other villages and towns. The evaluation team visited one small lakeside village (Xiaoju) whose families had been dislodged by the highway (not the lake) and had voted
against integrating with a new town (Xiadao) three miles away. An area in the town had been set aside for them, but they preferred to remain apart, and the authorities respected that preference. That town itself became famous later when, as an afterthought, the townspeople voted to overrule the original plan to move the whole town back and requested that a kilometer-long embankment be built to protect the old center. This request was also honored, providing one of the nicer lakeside promenades at Shuikou. As mentioned above, families drew numbers in a lottery to determine who had first choice of house lots demarcated in the new urban centers. There apparently was no discrimination favoring leading villagers in this process, although poorer families had the right to sell or trade choice locations later. The lake offers an endless procession of pleasant views, and the hilly character of the new shoreline provides many high vantage points from upper-floor terraces near the water within the urban centers.

**Participation by NGOs**

6.4 There was no NGO activity at Shuikou.

**Gender**

6.5 Unlike some of the other countries in this study, women play a substantial role in family decisionmaking and were very involved in resettlement planning. A national network of women’s unions is present in the Shuikou towns and represented at the administered village level. The unions generally attend to the needs of elder members of the community, but they were represented also in discussions about resiting villages, towns, and community facilities; investments of development funds in village-level projects (as opposed to individual family plans); and establishment of new enterprises.

6.6 The majority of the workforce in most of the new factories is composed of women. The evaluation mission visited factories producing bamboo paintbrush handles, wooden clothes hangers, textiles, and, remarkably, polished stainless-steel golf club heads. In each case the production lines, sometimes scattered over several low buildings, were operated by young women. In general they receive the same pay as men for the same jobs, which varies from Y400–500 per month (US$50–60).

6.7 One gender-related problem that emerges in all the towns and villages that are host to TVEs is that these prefer younger members of the workforce in the age groups 18–35 years. This leaves a large number of older women with nothing much to do in the new economic environment, a problem that affects them more than men. Some of them run the family’s street-front shop, below the residence.

**Indigenous Groups**

6.8 These were all Han Chinese.

**Host Communities**

6.9 Because of the hilly terrain back from the lake, there was no significant “host” problem. The Bank’s resettlement expert made that point in a back-to-office-report following his first mission to Shuikou:
In the Shuikou project, the ecology of the Min river valley is particularly favorable, since the villages are located in a string-pattern along the river banks, largely with few other villages higher up the hills. This facilitates moving up the affected villages, without entering in competition for natural resources with other villages.\textsuperscript{40}

**Monitoring and Evaluation**

6.10 There were two systems for monitoring project implementation and impacts. SRRO was responsible for reporting on progress of physical implementation, including construction at the new sites, relocation of the population, job creation, and establishment of orchards, fish farms, TVEs, and other new economic activity. SRRO performed poorly in this job (despite its good record in project execution). Successive Bank supervision missions repeated the complaint that reporting was inadequate, and SRRO must do better.

6.11 In March 1994, more than a year later than promised, SRRO issued a “Comprehensive Report on the Resettlement of Shuikou Reservoir Area (1987–1993).” The report was partly updated in 1995. The 1994 document is a good, serious discussion of problems and successes from SRRO’s perspective and provides some details unavailable in Bank reports. However, SRRO’s regular monitoring program has not significantly improved, even though SRRO’s resettlement representatives at the county level and all local authorities have been keeping up to date their records on jobs, incomes, and other post-relocation targets.

6.12 The other system is the series of reports produced by ECIDI from 1992 to the present,\textsuperscript{41} providing the evidence of project impact from its field surveys of 524 households and 35 villages. The Bank had a large role in establishing this independent M&E activity, the first of its kind in China. It kept a hands-on position, offering detailed comments on each report and suggesting changes in ECIDI’s annual workplan, survey design, and analysis. Bank intervention here is partly explained by its disappointment with SRRO’s reporting performance, though the need for an independent source of impact information had been foreseen at appraisal. By 1989, Bank supervision missions were claiming that attention had to shift from SRRO to a new M&E channel if a reliable database was to be established. The ECIDI contract ran from 1992–96. The last report, on calendar 1995 data, was received in October 1997, although ECIDI provided the evaluation team with summary results and tables after a rapid rural reappraisal earlier in 1997.

6.13 One of the impressive aspects of the ECIDI involvement is the easy relationship between its staff and SRRO and local officials. SRRO has provided full logistical support for the surveys without any (apparent) interference with its investigations and findings.\textsuperscript{42} Evidence of ECIDI’s independence is the fact that ECIDI’s income estimates based on its own sample of 524 households have run consistently below (by about 10 percent) the income estimates derived from

\textsuperscript{40} Back-to-office-report from M. Cernea, AGRPT, to G.E. Schuh, AGR, April 18, 1986, p. 4.

\textsuperscript{41} The Bank calls the contract and the reports the Independent Evaluation of Resettlement (IER); SRRO calls them Resettlement Independent Evaluation (RIE).

\textsuperscript{42} The study team can also report that even though SRRO was obliged to prepare a four-day schedule for its first mission to Shuikou—in anticipation of the team’s arrival—SRRO responded without hesitation to the team’s suggestions to alter or add to the schedule. SRRO and local resettlement officers accompanied the team (or not) to interviews with families and other officials without any apparent attempt to influence the discussion. The evaluation team is grateful to SRRO for that relaxed and helpful posture.
official statistics collected in ECIDI’s survey of 35 ex-towns and villages. On the other hand, the closeness of the two reporting series is testimony at least to the consistency with which households respond to common questions. ECIDI has been critical of the resettlement program when it detected weaknesses. In fact, ECIDI was obliged to discuss these weaknesses in its reports to government and the Bank. As mentioned above, some persons in the Bank were alarmed about ECIDI’s reports of minimal improvements in real (inflation-corrected) incomes, lower than the image that had been projected of this best-practice activity. Although ECIDI’s analytical presentations have not been as robust as the study team had expected, the body of information met all the Bank’s nominal requirements and provides a major source for ex-post assessment.

Changes in National Policy on Involuntary Resettlement

6.14 The basic pieces of central government policy and regulatory provisions on involuntary resettlement had been established by the time Shuikou was appraised, in a cascade of circulars from 1982 to 1985. Since then, the Chinese have continued to improve the resettlement package (though this cannot be directly attributed to lessons from Shuikou). For example, the compensation package for the Ertan resettlement program is better than at Shuikou, and the average budget allocations per household have almost tripled. (The Bank-supported Ertan Hydroelectric Projects I and II were approved in 1992 and 1996.) As mentioned, Travers called attention to what he saw was a retrograde step in resettlement policy specifically for the larger hydroelectric dams, with the explicit introduction of *gradualness* in the process of income recovery (in a 1991 restatement of resettlement regulations and design principles, see para. 2.8 of this report).

6.15 One improvement in national policy on resettlement that will positively affect Shuikou and all other schemes is advanced in a State Planning Commission circular issued in 1996, creating a “Later Stage Support Fund.” The circular provides for a substantial increase in the fraction of annual revenues from power generation that has to be turned over to provincial governments for operation, maintenance, and further development of resettlement schemes behind large- and medium-size hydroelectric dams. The rate of Y0.001 per kilowatt hour that had prevailed since 1981 was increased to Y0.005. Provincial authorities are expected to decide how to divide that windfall addition between maintenance of resettlement infrastructure and further developmental works. The Bank reckons that about US$2.5 million will be available annually from this source, replacing the official Shuikou resettlement budget, which is now exhausted.

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43. When responding to officials and ECIDI about incomes, farm families include imputed values of farm products consumed on the farm. This has been a standard practice, and the farmers know how to evaluate this component.

44. The Fujian provincial government had anticipated this action with its own “temporary” measure the year before, raising the rate at Shuikou to Y0.004 per kWh.
7. Comparisons with Yantan

Description of the Project

7.1 The Yantan Hydroelectric Project was supported by Loan 2707-CHA, approved in May 1986 for US$52 million and closed in June 1994. An ICR was issued in June 1995. The project included construction of a 110-meter-high concrete gravity dam on the Hongshui River in the Guangxi autonomous region (map 2, IBRD 29026), four generating units totaling 1,210 MW, and transmission lines to connect the station to the South China grid and the cities of the coast. The Chinese desired Bank participation without a significant financial input: the Bank played a minor role in project preparation, it processed the project rapidly through appraisal and Board presentation, and the loan amounted to only 5 percent of total costs as appraised (and 7 percent at completion). Unlike at Shuikou, the Bank’s appraisal team did not include a resettlement expert, and the treatment of the reservoir population was not identified as a project component in the appraisal report. Nevertheless, the government’s detailed resettlement plan again provided for relocation and re-establishment of living standards for all project-affected persons. The State Planning Commission had approved the resettlement plan in 1983, two years ahead of Shuikou, but based on the same intensive village-level analysis of resources and labor supply characteristic of Shuikou.

7.2 The guiding principles of resettlement were the same. The objective was wherever possible to move people short distances, within the jurisdiction of their original administered village, and into occupations comparable to those abandoned. Again, it was a land-based strategy. Three counties were significantly involved. As at Shuikou the topography varied along the reservoir and some counties and townships were better situated to reestablish agricultural activity. Yantan faced the same disadvantage as Shuikou: to stay close to the reservoir the people were forced up the hills and ridges onto land poorly suited to production of grain crops. But the topography is harsher—a karst morphology with limestone hills and steeper slopes. The options outside agriculture are more limited. Yantan is far from the major urban centers of Guangxi and farther still from the booming coastal economy. The tidal surge of town and village enterprises has not yet reached the valley. The average income level in Guangxi was about three-quarters that in Fujian Province in the mid-1980s and the gap has widened.

Implementation

7.3 The Guangxi Regional Electric Power Bureau (GREPB) executed the project. One of its units, the Guangxi Regional Resettlement Development Office (GRRDO) was responsible for the resettlement component. GREPB completed the dam nine months ahead of schedule, and GRRDO kept up. Nevertheless, as described in the ICR, GRRDO had its full measure of problems common to resettlement projects in China:

The key lesson is that, in common with most resettlement projects, the resettlement was more extensive, more costly, more complex and more time-consuming than originally contemplated.46

45. Previously the Hongshui River Population Resettlement and Arrangement Office.
46. ICR, op. cit., p. 11.
7.4 Ninety-six percent of the households that had to move—all of those threatened—were relocated by the time the gates were closed to fill the reservoir in March 1992. The dam and reservoir ultimately affected 62,400 people, of whom 43,200 people in 7,000 households had to be moved (compared with 67,200 people in 15,600 households moved at Shuikou). The emphasis was on arranging jobs for the available labor force, estimated at 25,000, including those who lost cultivable land but not their homes. The amount of accessible cultivable wasteland was again overestimated, and the principal agriculture activities of the settlers are fruit, forestry, and other tree crops. New industrial enterprises absorbed a much smaller fraction of the labor force than at Shuikou. Bama County, for example, reports arranging TVE jobs for only 141 persons, out of 5,378 jobs arranged in total (and 6,174 needing an arrangement). County, township, and village officials again played a critical role in identifying possibilities and persuading and assisting families to take them up. In fact, the evaluation mission found the level of involvement of officials at all levels from the county down to be even more impressive than at Shuikou, perhaps reflecting the greater difficulty of successfully placing the work force.

7.5 Visits to individual farms revealed the enormous variety of new activities the households were struggling to dominate. One ex-paddy farm family, for example, was grouped with five others in managing a fish pen in a small cove, while growing sugar cane and cassava on 1/15 ha each (one mu) and caring for 1/2 ha (seven mu) of a fir plantation that was halfway through its 10-year growth to maturity and harvesting. Other visits included a farmer learning to manage his 3 hectares of cinnamon, along with anise and a few other spices and two-thirds of a hectare of cassava, and a family with a herd of 190 goats (the family had just bought binoculars, to keep an eye on the goats on the hillsides). They also owned a boat, to provide transport on the lake. The officials could cite the conditions and progress of each household.

7.6 Nevertheless, performance in arranging jobs is below target. Of the 25,000 persons available in the labor force, 17,000 had been arranged at the time of the evaluation mission in March 1997—five years after the reservoir was filled. Many of the remainder were engaged in the sorts of subsistence activities described in para. 2.15—cultivating cassava and maize on the hillsides—that are not counted in official statistics. But the provincial government has recognized from the beginning that a large number cannot be brought onto the official roles through placement in local farm and nonfarm jobs. As an alternative, it has engaged in organized transfer of excess peoples from the most vulnerable villages and townships to other parts of Guangxi. This feature distinguishes Yantan from Shuikou. In 1992, 3,600 people (1,000 arranged jobs) were transported to two sugar estates near Guangxi’s own booming coastal center at Bei Hai. In 1997, it intends to move 11,500 people (3,000 arranged jobs) to the site of another government-owned farm in Binyang County in the interior of Guangxi (map 2 locates Bei Hai and Binyang). Local officials know how many positions have been allocated to their villages for this next move, and who the families are likely to be. Including both Bei Hai and Binyang, the province will have moved 15,000 people out of the valley—almost 25 percent of those affected.

Database

7.7 Local officials and county resettlement officers maintain the same statistical yearbooks as at Shuikou and can readily advise on numbers and categories of arranged jobs and populations and average incomes of settlers and non-affected populations. However, GRRDO has not kept aggregate statistics up to date, a problem for both the ICR mission in 1995 and the evaluation mission in 1997. There has been no sample survey by either the implementation agencies or an independent unit such as ECIDI, and OED did not commission any further studies.
Compensation, Incomes, and Satisfaction

7.8 Compensation practices resembled those at Shuikou, following national guidelines. GRRDO compensated households for homes and houseplot assets and town and village governments for land and other productive assets. The local governments used their compensation payments mostly for developmental works, either collective activities or packages for individual families. On this scheme, most of the packages offered to the families were converted into loans, which they were to pay off on easy terms. Families that had lost more land were entitled to bigger loans, though the limiting factors were more often the size of the family and its interest in higher-cost enterprises. Yantan resettlement suffered the cost overruns experienced at Shuikou. GRRDO told supervision missions it had the funds it needed to maintain the accelerated schedule for relocation, but it also fell behind on developmental investments. However, local governments again made large contributions of its own funds (see the example in footnote 22).

7.9 Performance ratings on incomes depend on the standards applied. First, all available evidence suggests that present average income levels of resettlers in the three counties substantially exceed their pre-dam incomes: more than double in two of the counties. Thus, the project has succeeded in restoring the standard of living, albeit with radically different lifestyles for most resettlers. However, second, the resettler incomes are below the incomes of unaffected people in the same jurisdictions, and that gap has also been widening. Local officials say that this is attributable to the lag time in establishing the new enterprises and bringing them to maturity (especially the orchards and other trees), and that eventually the resettlers will catch up. Since many of the unaffected people continue to cultivate relatively large areas of grain, on better land than that available to the resettlers, the comparison will depend on the long-term advantages of the mix of new farm enterprises versus the mix of traditional enterprises. And third, the averages for the resettlers (and unaffected people) are still way below averages in the rapidly growing regions of China, including Shuikou, and below even the poverty thresholds established for Guangxi. Resettler incomes in the three counties, as recorded in the official reports and/or cited to the evaluation mission, ranged from Y509 to Y724 per capita per year, or from US$62 to US$88 at the current exchange rate. The poverty threshold for Guangxi is Y800. This is the reason supervision reports and the ICR claim that incomes of two-thirds of the resettlers are below the target set by the resettlement office. They do not refer to regaining pre-dam incomes. Against this performance at the lakeside, the incomes of the migrants to the two sugar farms at Bei Hai have been far superior: Y1,750 at the poorly administered farm and Y4,500 at the well-administered farm, not counting part-time urban incomes earned by the sugar workers in the off-months. Remember that the average resettler income at Shuikou is Y1,800 (US$220 per capita per year).

7.10 Yantan differs from Shuikou also in that a monthly food grain ration has been allocated to all persons significantly affected by the dam, except the Bei Hai migrants. The grain is delivered to the villages to pass out to eligible families. It amounts to 150 kg per capita per year, or 800 kg for the average family of just over five persons. It is insufficient to sustain the adult farm worker (250 kg per capita is considered the threshold) but provides a reliable basis for the family economy. So far the resettlement authorities have continued to pay the ration to all

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47. 24.5 jinn per capita per month. One jinn is one-half a kilogram. The resettlement grain ration was not used at Shuikou. Instead, before the lands were flooded, farmers were allowed to retain all their crops and forgo the otherwise universal grain tax. Also, whoever was converted to nonagricultural status was entitled to a monthly grain ration under that provision.
resettlers, regardless of improvements in their conditions. The plan, however, is to reduce or remove the ration from all families that have reached the Y800 per capita income level starting in 1998.

7.11 In visits with individuals and groups near the lake the evaluation team found no evidence of widespread dissatisfaction with conditions after the move. The houses are invariably better, at least in structure and material (brick, as in Shuikou, but gray) and usually in size as well. Almost all houses—except for the most isolated—are hooked up to electricity. Almost all have running water. The typical response was to lament the loss of the easily farmed valley paddyland, but, for the farmers, to accept that the new farm enterprises promised good returns in the future, and, for those families that had shifted out of agriculture and acquired urban status, to welcome the security of the fixed off-farm income. However, it was clear that the monthly grain ration figured importantly in this appraisal. The discussions of incomes turned sour as soon as the possibility of the loss of the ration was brought up. On several occasions we were told by resettlers that they would admit to us to being better off now, but not to the resettlement officers, for fear of losing the ration.48

7.12 Attitudes near the lake have improved since the reservoir was first filled. The author of the Bank case study mentioned in para. 7.13 visited the reservoir in late 1992 after the reservoir had filled. She noted the peoples' sense of insecurity over the loss of fertile land and apprehension about the questionable productivity of the slopes they had inherited. Some families also complained about the abrupt and at times harsh treatment during relocation, a criticism that had dissipated by the time the evaluation team visited in 1997. Nevertheless, she reckoned that 95 percent of the people would say they were “happy” and saw the benefits of the project.49

Performance

7.13 The Bank was minimally involved with the resettlement component at Yantan, in contrast to its attention to Shuikou resettlement in the same period. Resettlement experts did not participate at appraisal or on any supervision missions except a special one in 1991 and again with the completion mission.50 Another specialist visited in 1992, providing a case study as part of the Region’s review of involuntary resettlement in China.51

7.14 The government however appears to have done a creditable job in difficult circumstances (and despite the lapse in Bank supervision). Relocation was managed efficiently, on an accelerated schedule. The job and incomes targets proved to be out of easy reach, but the grain ration and transfer of families to other regions helped fill the gap. As mentioned above, the evaluators were even more impressed at Yantan than Shuikou at the seriousness with which county and other local officials take their obligation to help establish viable income bases for

48. A good-humored observation, since a resettlement officer was often present at the interviews.
50. Unlike Shuikou, the engineer task manager at Yantan concentrated on the construction program. The ICR commented: “the supervision of resettlement did not fully reflect the increased emphasis given to this aspect in China over the implementation period” (op. cit., p. 9).
51. See footnote 8.
families in their jurisdictions and the range of alternatives they have been promoting. As at Shuikou, performance varied greatly between jurisdictions, depending on the skills of (and natural resources available to) the leaders.

Other Issues

7.15 There are no significant differences from Shuikou on the list of other issues, except:

- Guangxi is populated mostly by Zhuang and other minority tribes: 80 percent of the Yantan resettlers are non-Han stock. There is no evidence that government for that reason gave less attention to the resettlement program.

- There was no effective M&E program covering the resettlement component. At completion the Bank suggested that a sample of 50 families be selected to establish a basis for observing income trends. This was not done.

8. Conclusions

8.1 China's performance on involuntary resettlement in these two projects is impressive. When funding shortfalls and delays in execution upset the implementation schedule for relocating households, the executing agencies were serious about catching up and invariably did so. The implementation record on developmental activities aimed at recovery of incomes is less satisfactory, although the level of commitment to reaching successful outcomes in employment and welfare is unmistakable. The emphasis on jobs and incomes, and the thoroughly participative process whereby households and local government authorities are brought into planning and implementation, matches all the Bank's policy directives.

8.2 China's policies, commitments, and overall strategy for involuntary resettlement were articulated well before the Bank's first resettlement experts arrived. Nevertheless, Bank staff have made important contributions to improving performance, especially at Shuikou (para. 5.3).

8.3 The most impressive aspect of this story for the current study is that China takes income restoration and development as seriously as physical relocation. Whereas in other countries compensation for lost assets is treated as an objective different than economic recovery, in China compensation is manipulated to serve recovery. The quote in para. 5.5 about the difference between a development challenge and a burden captures well the difference between China and the other five countries in this study. China, and the provincial governments, grasp forced resettlement as an opportunity for promoting regional development.

8.4 The impression is enhanced by China's unusually demanding minimum conditions on the types of jobs it is trying to create. It is aiming at secure bases for family income and welfare.

52. In 1992, however, Croll (op. cit., p. 5) had not been impressed by the range of options the authorities offered the farmers:

For the phases of resettlement there did not seem to be shortfalls in funding so much as a shortage of ideas. There is a general lack of information, ideas and advice in the region as to the potential development of the natural resources of the region.
China does not consider some traditional occupations—such as rainfed farming for subsistence—as acceptable outcomes. Other governments would be delighted if the displacees got that far.

8.5 China's evident concern for jobs, incomes, full participation, family welfare, and equitable growth—at least as demonstrated on these two schemes—illuminates the ongoing debate over Chinese respect for human rights. It lends support to government's assertions that whatever its attitude toward freedom of political expression, its recent record on furthering the ideals of family welfare must be respected.\footnote{Again, Travers speaks to this point: "the current Chinese system far outperforms those in most of the developing countries in protecting the interests of resettlement communities" (op. cit., p. 12).}

8.6 The Shuikou incomes policy was pushed along handsomely by the rapid industrialization of the southeastern Chinese coast, the Fuzhou free enterprise zone, the development of the Min Jiang River corridor, and even the spectacular surgery on downtown Nanping. But the contributions went both ways. SRRO's programs provided the infrastructure and excess labor, and the dam provided the cheap electricity, to keep that dynamic process moving.

8.7 Yantan is relatively isolated from the coastal economy, and its progress in job recreation and income restoration has been slower. But the Yantan authorities did something the Shuikou authorities did not have to do: organize the migration of excess workers to areas with excess cultivable land. At both schemes, spontaneous migration by individual workers has also helped broaden the income base. The idea of using—promoting—organized and spontaneous migration to strengthen an incomes policy for a resettlement scheme should be applauded, to the extent opportunities for remunerative employment within the reach of the migrants exist. Travers made the same point:

But the major determinant of long run resettlement success—the creation of employment for displaced labor—depends as much on the external economic environment as on project investments. The Chinese emphasis on local resettlement means that most reservoir resettlers will struggle in marginal economic environments. Yantan resettlement managers now respond to this challenge by supporting out-migration from the reservoir zone. For all its risks and difficulties, that would appear to be an important and underused component of almost all sizable reservoir resettlement efforts.\footnote{Ibid., p. 37.}

8.8 Bank performance on the resettlement component of the Shuikou project, as on the hydroelectric works themselves, was highly satisfactory. The Bank's resettlement staff was heavily involved and can claim an impact even on top of China's already impressive activity. A fortunate (and atypical) part of the project history was the aggressive involvement in the resettlement component of the Bank's irrigation engineer who managed the project for most of its life.

8.9 Perhaps the most important lessons will be those that are transferable to other countries and other societies. In many ways China is unique:
The persistence of planning elements in the Chinese economy, coupled with collective ownership of rural land and other resources and the importance of local government in shaping investment. . .

are advantages impossible to export. Nevertheless, at least four ingredients in the China recipe can be used elsewhere:

- The idea of approaching involuntary resettlement as a developmental opportunity and marshaling a range of instruments to carry it out.

- An imaginative exploration of micro-opportunities, propelled by the conviction that any but the most hostile environments offer a multitude of options. The ability to force aggressively the expansion of fish farming from cages and pens, of pearl culture from these and similar pens, of stone cutting, of exotic fruits when the traditional ones succumb, and, even, of polished golf club heads, is an acquired skill, not unique to the Chinese.

- The flexibility to adjust strategies when early ones break down, shifting to other sets of employment opportunities if necessary or stepping back in to rehabilitate/restructure failing enterprises.

- The crucial involvement of local governments, especially the elected leaders. The objective is not only to secure their ownership but also to “wed their interests to those of local residents.” At best, one can hope to establish economic growth (read poverty alleviation) “as the primary criterion for evaluating local leaders” (both quotes from para. 2.4). Whether that prescription will sit well in villages in Togo and India has to be tested.

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55. Ibid., p. xii.
Economic Rehabilitation in Shuikou Reservoir Area

Approaches and Achievements

Background

1. This paper is part of a study conducted by OED to review reservoir resettlement experience in six counties since the mid-1980s. They include China, India, Brazil, Indonesia, Thailand, and Togo. Two projects selected for China are Shuikou and Yantan hydropower projects. The main focus of this paper is to review the process of economic rehabilitation in Shuikou and to identify best practices and remaining issues in Shuikou reservoir resettlement in order to provide background information for the above mentioned study.

2. In preparing this paper, an extensive field survey was carried out between April 1 and 16, 1997, by a study team consisting of one World Bank resettlement specialist, one senior staff member from East China Investigation and Design Institute (ECIDI), and one staff member of the Shuikou Reservoir Resettlement Office (SRRO). The field survey covered four counties, seven town administrations, and 17 villages. The main purpose of the field survey was to understand how economic rehabilitation was carried out, what measures were adopted, and what the outcomes are in terms of creating jobs and improving income for the resettlers. A great deal of first-hand information was collected during the field survey. These findings, together with the Shuikou Resettlement Completion Report (draft by the World Bank) and various independent evaluation reports (ECIDI), provided the basis for the review of economic rehabilitation process in the Shuikou reservoir resettlement process.

Status of Shuikou Resettlement

3. The Shuikou reservoir has inundated about 44,000 mu (or 2,900 ha 15 mu = 1 ha) of farmland, some 25,000 mu (1,700 ha) of forest and about 2 million square meters of buildings. Some 67,000 people have been displaced, involving four counties, 16 towns or townships, 89 administrative villages, and 147 village groups. The Shuikou resettlement program consists of rebuilding eight new town centers and 73 new village settlements and providing housing and livelihood for 67,000 persons. The Shuikou resettlement program started in 1987 when construction of the Shuikou Hydroelectric Power Plant started. After six years of continuous efforts, the relocation and rehousing activities were basically completed in 1993, when the reservoir began filling and the first unit was put into operation.

4. Along with the smooth implementation of physical relocation, the economic rehabilitation for 67,000 resettlers has also progressed satisfactorily. By the end of 1995, as many as 34,063 resettlers had been provided various jobs, ranging from traditional agriculture (49.4 percent), and husbandry (5.9 percent) sectors, to newly developed nonfarm sectors, such as enterprises (19.3 percent) and services (13.5 percent). Because of rather favorable economic conditions in the Shuikou reservoir region during implementation, more resettlers than planned were involved with nonfarm activities; this became a unique feature in Shuikou resettlement. The increase of employment resulted in an increase of per capita income among resettlers. By the end of 1995, the average per capita income among resettlers (from a sample survey of 524
households by ECIDI) had reached Y1,641. After considering the inflation factor, the average per capita income in 1995 was 11.3 percent higher than before the move. Even though the economic rehabilitation activities in Shuikou Reservoir have not yet been fully completed, from both employment statistics and income analysis, Shuikou reservoir resettlement can already be considered successful, particularly in the area of economic rehabilitation and income restoration.

Phases of Economic Rehabilitation in Shuikou

5. The economic rehabilitation for Shuikou Reservoir has occurred in two distinctive phases. The first phase was dominated by land-based economic rehabilitation. Carried out during the first couple of years after relocation, the adopted measures included (i) redistributing the remaining cultivated land among the village members, (ii) allocating village-owned slopeland among resettlers for fruit tree planting and other cash crop planting, and (iii) organizing and providing technical and financial assistance for the resettlers in developing fruit tree and other economic crops. However, given the limited land resources in the Shuikou reservoir region, these land-based economic rehabilitation measures could only provide an initial production basis or minimum food supply for most resettlers. As the study will show, these land-based economic rehabilitation measures, although attracting most of the economic rehabilitation fund, were far from sufficient to restore the income and livelihood of the resettlers.

6. Much of the income restoration for Shuikou resettlers had to rely on the second phase of economic rehabilitation. The second-phase economic rehabilitation focused on a range of nontraditional and nonfarm income-generating activities. Most of these activities, ranging from duck and pig farming to small shops, often started with individual initiatives, while the resettlement office and local governments provided necessary technical guidance and financial support. In some cases, local governments provided leadership to attract outside investors to open up factories and business, which in turn provided quality jobs for the resettlers. As much as 50 percent of employment and a much higher proportion of income come from these nontraditional and nonfarm activities. In order to draw lessons and best practices from Shuikou resettlement, it is very important to document this two-phased economic rehabilitation, review the approaches and practices, and discuss some key questions concerning economic rehabilitation and income restoration at Shuikou.

First Phase—Land-Based Economic Rehabilitation

Land Redistribution

7. The first step toward economic rehabilitation in Shuikou Reservoir resettlement was to redistribute the remaining land resources within the affected villages or village groups. Unlike some other reservoir resettlement in China, such as at Ertan and Daguangba, most resettlers in the Shuikou reservoir were relocated within their own villages or village groups, following the strategy of moving affected households and individuals to a site nearby, on higher ground but in the same or an adjacent jurisdiction. The process consists of two main steps: identifying all remaining land resources within the village, and redistributing them to all qualified village members. Since land redistribution has for many decades been carried out in Chinese villages in order to address both the demographic change and land holding changes (due to land requisition), it was quite natural for all the affected villages in Shuikou to use a similar approach to share the remaining land resources with the resettlers.
8. The main objective was to ensure each village member has an equal share of land holding within the village. This collective land ownership tradition has been established since 1949 and was legalized in the 1980s. According to state Land Administration Law (1986), all rural land in China is collectively owned; the collectively owned rural land belongs to collective villagers; and it will be managed and used by the village cooperatives or village committees (articles 6 and 7). For resettlement operations, the ability to redistribute equally the remaining land resources within one affected village provides an effective mechanism to deal with land loss and resettlement.

**Limited Land Holdings among Resettlement Villages**

9. Owing to different inundation impacts among the affected villages, considerable variation exists in terms of average land holdings after inundation. Based on the 17-village survey, the per capita land holding appears to vary significantly, from 1.04 mu per person in Xilan and 0.88 mu per person in Meixiong and Yongkou villages, on the one hand, to only 0.07 mu in Xiexi and 0.02 mu per person in Youdun village, on the other. Excluding Shuikou village (most residents there are urbanites with a per capita land area of only 0.01 mu), among the 16 remaining villages, four have a per capita farmland larger than 0.7 mu (0.05 ha), four have a per capita land area between 0.3 to 0.7 mu (or 0.02–0.05 ha), and eight have a per capita land area below 0.3 mu or 0.02 ha (Table 1).

<table>
<thead>
<tr>
<th>Villages</th>
<th>Population</th>
<th>Cultivated land area (mu)</th>
<th>Per capita land area (mu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xilan</td>
<td>925</td>
<td>960</td>
<td>1.04</td>
</tr>
<tr>
<td>Meixiong</td>
<td>1,070</td>
<td>940</td>
<td>0.88</td>
</tr>
<tr>
<td>Yongkou</td>
<td>1,853</td>
<td>1,624</td>
<td>0.88</td>
</tr>
<tr>
<td>Xiaoju</td>
<td>1,203</td>
<td>679</td>
<td>0.73</td>
</tr>
<tr>
<td>Yangwei</td>
<td>1,063</td>
<td>593</td>
<td>0.56</td>
</tr>
<tr>
<td>Wankou</td>
<td>2,336</td>
<td>1,123</td>
<td>0.48</td>
</tr>
<tr>
<td>Jixi</td>
<td>1,370</td>
<td>514</td>
<td>0.38</td>
</tr>
<tr>
<td>Xuyang</td>
<td>3,000</td>
<td>1,000</td>
<td>0.33</td>
</tr>
<tr>
<td>Sanlian</td>
<td>775</td>
<td>219</td>
<td>0.28</td>
</tr>
<tr>
<td>Xiqing</td>
<td>3,800</td>
<td>600</td>
<td>0.16</td>
</tr>
<tr>
<td>Xiaban</td>
<td>1,756</td>
<td>270</td>
<td>0.15</td>
</tr>
<tr>
<td>Liujia</td>
<td>1,618</td>
<td>234</td>
<td>0.14</td>
</tr>
<tr>
<td>Wakou</td>
<td>160</td>
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<td>0.13</td>
</tr>
<tr>
<td>Xiyang</td>
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<td>Xiexi</td>
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<tr>
<td>Youdun</td>
<td>936</td>
<td>20</td>
<td>0.02</td>
</tr>
<tr>
<td>Shuikou</td>
<td>3,774</td>
<td>56</td>
<td>0.01</td>
</tr>
<tr>
<td>Total</td>
<td>29,775</td>
<td>9,443</td>
<td>0.32</td>
</tr>
</tbody>
</table>


10. These variations do not hide the main fact that overall the land holding per person is extremely low among Shuikou resettlement villages. For example, the average per capita farmland in the 17 villages was 0.32 mu (0.021 ha). This finding seems to be consistent with other survey results produced by ECIDI. Among 35 sample villages, farmland was reduced from 54,874 mu before the move to only 19,693 mu after move, a reduction of 64 percent. On a per capita basis, farmland was reduced from 0.98 mu before the move to 0.32 mu after the move. A similar reduction was also found among 524 sample households where per capita farmland was reduced from 0.75 mu before the move to 0.26 mu after the move.
11. For most villages, the limited paddyland could not bring enough grain for their own consumption. They have had to rely on buying rice to cover the shortfall, which ranges from two months equivalent in Xilan to over 10 months in Liujia and Xiaban. The grain shortfall was also revealed in the survey of 524 households. While grain production was reduced from 803,009 kg before inundation to only 237,675 kg in 1994, grain purchases increased from 191,201 kg before inundation to 441,407 kg in 1994, an increase of 145 percent. This shift reflects the loss of the paddyland and the shift to a money economy.

Variation of Land Holdings within Each Village

12. While the land redistribution ensured an equal share of land resources among all villagers, depending on the proportion of the village being affected, the remaining land distribution could be carried out within the whole village or only within the affected village group. In China, an administrative village often consists of several village groups (also called natural villages), ranging from two or three to seven or eight. In Shuikou reservoir, within each administrative village, typically only one or two village groups were affected by inundation (averaging 1.65 village groups per village). In cases where a substantial amount of land had been inundated with the majority of the village groups affected, the remaining farmland is usually redistributed among the whole village, which was the case for Liujia Village (Taiping Town), Sanlian Village (Xibing Town), Wankou Village (Shuikou Town), and Xiexi Village (Luxia Town).

13. In some villages, where only one or two rather separated village groups were affected (separated by the reservoir or other natural boundary), the land redistribution was often carried out within the village group instead of the whole village, such as the case in Xilan of Shuikou Town and Xiaoju Village of Xiadao Town. This means that even within one village, there could be significant differences in per capita land area between different village groups, particularly between those with inundation impacts and those without. Taking Xilan Village as an example, among its three village groups, one was completely inundated with all 86 villagers becoming nonagricultural residents. The main village group, with 524 people, was partly inundated and left with a per capita land area of 0.6 mu. The last group (230 people), separated by the reservoir from the main village, had the least impact, and their per capita land area is about 2 mu after inundation, more than three times that of the main village members.

Nonagricultural Status—Another Factor for Land Redistribution

14. One reason for not readjusting the land area within the whole village is that by readjusting land within one village group, the villagers of that group could get a quota of positions of “nonagricultural status.” In China, according to state Land Administration Law and provincial implementing regulations, if the per capita farmland, after land requisition, drops below a certain level, such as 0.5 mu per person, a certain number of farmers will be given nonagricultural status to maintain the per capita land area among remaining villagers (within village group) equal to or above that minimum level. Those farmers who receive nonagricultural status will no longer qualify to share the village land or some other village-owned assets. This is the case in Xilan Village (Gutian County), Yongkou Village (Youxi County), Xiaoju and Wakou villages in Nanping City. Taking Yongkou Village as an example, the reservoir only inundated 300 mu of cultivated land and relocated 173 households. The per capita land area after inundation
was 0.88 mu, relatively high in the reservoir area. By having land readjusted among only one or two affected village groups, the village qualified for 305 nonagricultural positions.

15. The reason for seeking this nonagricultural status was that in the 1980s, the nonagricultural resident status was still quite attractive for many farmers. Once they obtained nonagricultural status, they could not only still live with their families in the rural area, they could also enjoy a range of benefits only available for most urban residents. For example, they could purchase a certain quota of subsidized grain, they could qualify for job recruitment and vocation school enrollment in cities and towns, and their new born child could also have nonagricultural status. However, following the liberation of grain prices, and the opening of the urban labor market, such advantages have gradually disappeared. The significant reduction of per capita farmland in Shuikou reservoir area was accompanied by a dramatic increase of the nonagricultural population among resettlers. In the 35 sample villages, the percentage of the nonagricultural population increased from only 20 percent (9,461) before inundation to about 60 percent (30,582) in 1994. The change of status, although further confirming the limited land holding reality, gave resettlers more opportunities to find nonfarm employment, particularly service-oriented activities.

*Fruit Tree Planting—The Only Organized Rehabilitation Effort*

16. Facing the extremely low ratio of land area per person, one major economic rehabilitation strategy for Shuikou resettlement was to plant fruit trees and other economic crops replace the loss of paddy fields. The Shuikou Reservoir Resettlement Office even summarized this rehabilitation strategy in a slogan, which was “to plant one mu fruit tree for every mu lost paddy.”

17. As early as possible in the resettlement planning stage, a large amount of slopeland was identified in all counties as suitable for fruit tree and economic tree development. Four different types of land were identified: hilly but plowable farmland, 35,074 mu; hilly lands suitable for fruit growing, 7,562; forestry lands suitable for planting economic trees, 15,862 mu; hilly lands suitable for forestry, 596,848 mu. Given that only 937 mu of new cultivated land were created during the Shuikou resettlement implementation, most of this plowable and other hill land was used for fruit tree and other economic tree development. According to the statistics from SRRO, by the end of June 1995, a total of 52,354 mu of fruit trees, 10,250 mu of tea trees, 26,075 mu of bamboo trees, and 205,566 mu of forest were planted by the resettlers during resettlement implementation (Table 2).

<table>
<thead>
<tr>
<th>Year</th>
<th>Fruit tree</th>
<th>Tea tree</th>
<th>Bamboo tree</th>
<th>Forest</th>
<th>Vegetable land</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>8,284</td>
<td>122</td>
<td>178</td>
<td>13,881</td>
<td>896</td>
</tr>
<tr>
<td>1988</td>
<td>9,867</td>
<td>588</td>
<td>605</td>
<td>9,768</td>
<td>338</td>
</tr>
<tr>
<td>1989</td>
<td>6,606</td>
<td>599</td>
<td>389</td>
<td>22,319</td>
<td>389</td>
</tr>
<tr>
<td>1990</td>
<td>5,180</td>
<td>522</td>
<td>4,856</td>
<td>40,735</td>
<td>620</td>
</tr>
<tr>
<td>1991</td>
<td>6,926</td>
<td>1,345</td>
<td>2,984</td>
<td>63,901</td>
<td>1,322</td>
</tr>
<tr>
<td>1992</td>
<td>8,881</td>
<td>2,912</td>
<td>2,419</td>
<td>25,564</td>
<td>571</td>
</tr>
<tr>
<td>1993</td>
<td>4,812</td>
<td>2,870</td>
<td>302</td>
<td>15,730</td>
<td>1,041</td>
</tr>
<tr>
<td>1994</td>
<td>1,625</td>
<td>948</td>
<td>6,683</td>
<td>9,158</td>
<td>1,185</td>
</tr>
<tr>
<td>1995</td>
<td>719</td>
<td>345</td>
<td>5,640</td>
<td>4,510</td>
<td>1,471</td>
</tr>
<tr>
<td>Total</td>
<td>52,354</td>
<td>10,250</td>
<td>26,075</td>
<td>205,566</td>
<td>8,224</td>
</tr>
</tbody>
</table>

18. As Table 2 shows, fruit tree planting as the major economic rehabilitation measure was carried out mostly in the early years of Shuikou resettlement. In some counties, such as Nanping and Youxi, beginning in 1987, even before relocation started, local township governments and villages organized many efforts to develop vacant slopeland and plant fruit trees. In other counties and towns, fruit tree planting was implemented only after completion of housing construction and relocation. Although there were some differences among villages in terms of the ways of implementing the fruit tree program, in general, they all shared some common steps. The first step was for the local village or village group to conduct participatory planning for how to use the village-owned slopeland, which would identify the area to be reserved for village-owned orchard, and area to be reserved for individual village members. The second step was to allocate individual land parcels to those households that were willing to develop fruit trees. Since there was more vacant slopeland available, no restriction was placed on the size of land each household could have, which was therefore often determined by the ability of individual households. The third step was for individual households to prepare the land and plant fruit trees on their own.\(^{56}\) During the process, the village or township governments would provide some technical support and financial support, often in the form of matching fund, low-interest loan, or tree seedlings. In most cases, that financial assistance, ranging from Y200 to Y300 per mu, would not be released until the fruit trees had been planted by the resettlers.

19. The outcome of these organized efforts was mixed. In some villages, particularly in Mingqing and Youxi counties, fruit tree planting was relatively successful, averaging 1.3 mu per resettler for Youxi county and 1.68 mu per resettler for Mingqing county. In contrast, per capita fruit tree planting was only 0.86 mu for Nanping and 0.38 mu for Gutian. Perhaps the more important difference was the quality of the fruit trees selected by these counties and villages. Because of poor seedlings and lack of maintenance, many fruit trees in Nanping have not grown very well.

20. One observation that can be made about fruit tree development is that it is not at all like paddy, which can be planted successfully by every household. Fruit tree development requires sufficient labor, adequate capital, and special skills, which many resettled households do not have. That is why the relatively successful villagers often come from villages where fruit tree planting was mainly based on individual initiatives instead of village-organized mass movement. The individual initiatives, which would give those farmers full control and benefits of their fruit tree plots, with some technical guidance from government research institutes, often resulted in better selection of fruit trees based on market considerations, more careful screening for qualified seedling, and more efforts on maintenance during the immature years. At the same time, these individual initiatives often led to less equal distribution of fruit trees within the same village, since only a certain number of resettlers had the resources and skill to succeed. In Sanlian Village, where per capita fruit tree holdings reach 1.4 mu, the highest among the 17 surveyed villages, only 40 households (or 22 percent of the 183 households in the village) grow fruit trees, averaging 20 mu per household. In Youdun Village, besides 1,175 mu of fruit trees belonging to

\(^{56}\) For village-owned fruit trees, the land development and plantings were carried out by the village collectives by hiring individual resettlers.
the village collective, only 25 households (13.3 percent) grow 153 mu fruit trees averaging 6.12 mu per household.  

Land-based Economic Rehabilitation: Lessons Learned

21. From the Shuikou experience, it seems that a minimal level of plowable farmland is still quite important for resettlers to restore their livelihoods, particularly for those senior resettlers who did not have education and skills to participate in various nonfarm activities, including certain land-based activities, such as growing fruit trees. In the case of Shuikou, no minimal farmland was created for all the resettlers. As a result, many resettlers were converted into nonagricultural status and many remaining farmers were left with little paddyland to farm. This is quite a contrast to the early Shuikou resettlement plan. In the plan, a total of 35,074 mu of hilly land was identified as potential farmland; and as many as 37,425 resettlers, or about 52 percent of the total, were expected to be resettled through general farming. In reality, only 10,395 mu of new farmland (including 9,114 mu of vegetable land) had been developed by the end of June 1997, about 30 percent of the total area identified for farming (these figures may overstate the total farmland developed, since some new vegetable land replaced existing paddy fields).

22. The recently constructed No. 316 highway, while improving access for many resettlement villages, further reduced the limited land holdings in some villages. In Yangwei Village, the land requisition for the highway was 107 mu, about 15 percent of the village's land holding; in Liujia Village, as many as 96 mu, or about 30 percent of its farmland, was acquired for highway construction. The per capita land area in Liujia was reduced from 0.2 mu to 0.14 mu.

23. A number of factors contributed to the reduction of developed new farmland in comparison with the original resettlement plan. The main reason is that starting early in the implementation period, much of the hilly land suitable for cultivation was converted to fruit and other economic trees, since their economic returns appeared at the time to be much higher than from grain crops. For example, in the initial resettlement plan only 7,562 mu of slopeland was identified as being suitable for fruit trees, whereas about 56,000 mu was actually planted to fruit trees in the Shuikou resettlement area. Quite a large percentage of that was converted from hilly land suitable for cultivation. Another reason is that during implementation it was discovered that some of the hilly land was too difficult and costly to convert into new farmland. A third reason is that the conversion of some of the hilly land for paddy cultivation would have required detailed planning and full budgeting for irrigation facilities. But the resettlement budget for Shuikou was too low to achieve this objective, unlike some new hydroelectric projects, such as Ertan, where the costs of all new land development, including irrigation, were factored into the resettlement budget. The average per capita resettlement budget is Y44,380 for Ertan compared with Y15,000 per person for Shuikou.

24. Realizing the importance of regaining a certain minimal farmland, since 1995 many townships and villages, particularly those with very low land holdings, have begun a new round of land development efforts. This is particularly the case in Nanping City, where the per capita land area was among the lowest in the reservoir. In Xiaban Village, 25 mu of paddy were created in 1996, which accounts for 10 percent of total land holdings in the village. In 1997, another 35 mu were created along with individual ones. The one mentioned here is considered as a relatively big one, which provided full-time jobs for 36 resettlers to manage the orchard.

57. In some villages, in order to increase village collective income earning power, village-owned orchards were created along with individual ones. The one mentioned here is considered as a relatively big one, which provided full-time jobs for 36 resettlers to manage the orchard.
mu of paddy or vegetable land will be added. According to Mr. Zheng Zhibing, the director of the Nanping City Resettlement Office, in 1996 alone a total of 640 mu of new paddyland was developed in Nanping; and another 500 to 600 mu of farmland will be developed in 1997, most of which will be concentrated in Zhanghu Town. These new land developments will significantly reduce the land shortage in these villages and provide employment and income opportunities for some senior resettlers.

Second Phase—Nonfarm-based Economic Rehabilitation

Background

25. The second phase of economic rehabilitation has been dominated by a wide range of nonfarm- and nonland-based income generation activities, which have been carried out by many resettlers in Shuikou reservoir. Due to the limited per capita land holdings and uneven fruit tree developments from the first phase, which failed to bring sufficient income and grain production for most resettlers, they have had to rely on various nonland-based and nonfarm-based rehabilitation activities to restore their incomes and livelihood.

26. Broadly speaking, the second-phase rehabilitation activities being carried out in Shuikou can be divided into four categories. The first type is traditional industrial activities, which rely on existing and newly created factories to provide stable jobs for the resettlers. These include state-owned, collectively owned, and privately owned factories as well as joint ventures. The second type involves various rural-based sideline activities, such as raising pigs or ducks, cage fishing, and growing mushrooms. Generally, based on different local conditions and village traditions, one or two types of sideline activities were selected by local township and village governments as their main income generation activities. Although for most resettlers these activities were not new adventures, to specialize in them and to develop some of them into large-scale operations required a great deal of integrated efforts, including financial and technical support, and marketing information as well as individual initiatives. The third type of nonfarm-based economic rehabilitation includes various service-oriented activities, ranging from setting up small shops in the town or village to providing road and water transport services in the reservoir region. The fourth type of second-phase activities consists of two kinds of migrant workers. One provides services outside the reservoir area using special skills, such as building theme parks (Zhanghu), and installing insulation (Xiadao); the other is to work as unskilled labor in the industrial and service sectors in the coastal area.

27. These various nonfarm activities not only offer employment opportunities for landless resettlers, they also contribute a large portion of their net income. Among the total of 38,473 employment positions created from Shuikou resettlement (1996), over 50 percent came from these nonfarm activities. According to the available 1996 gross output data from four villages: Meixiong, Yangwei, Xiaban, and Xiexi, these second-phase activities accounted for 77.5 percent of gross output in these villages. The annual survey data from 35 sample villages also

58. The same percentages were 56.9 percent for Meixiong, 77 percent for Yangwei, 83.5 percent for Xiaban, and 92.7 percent for Xiexi.
confirmed this trend: the income contributed by these activities increased from only 50 percent before the move to 71.3 percent in 1994.59

28. To understand the development process of these nonfarm-based economic rehabilitation measures, a more extensive discussion is necessary to review each of the four categories, including motivations, roles played by the local government and individual resettlers, and other factors contributing to the success or failure of each.

*Industrial Development*

29. Since the 1970s, rural industrial development, often in the form of township and village enterprises (TVEs), has always been considered by the local governments as the most effective way to develop the local economy. Even before the Shuikou reservoir inundation, a certain level of industrial development had been achieved in the reservoir area. According to the ECIDI survey of 35 sample villages, before the move there were 96 enterprises, which provided employment for 2,186 villagers or 11.2 percent of the local labor force. As much as 10.8 percent of village income was contributed by these enterprises. During relocation and reconstruction, most affected enterprises were relocated along with their towns and villages. In the process, some of them took this opportunity to either expand their operation or to restructure their existing production to respond to changing market conditions. A small number of them, owing to the dramatic change of their operational environment, were either closed down or merged into other enterprises. Most timber-shipping-related businesses belonged in this category. By the end of 1993, when relocation activities were completed and the reservoir was inundated, the number of TVEs in the 35 villages was reduced to 85, a drop of 11.5 percent. At the same time, the number of resettlers working in these TVEs had increased to 2,932, an increase of 34.1 percent. And the percent of labor working in TVEs increased from 11.2 percent before the move, to 14.8 percent in 1995 (Table 3). In other words, during resettlement, the local TVEs experienced a period of readjustment and expansion, which to a large extent was prompted by a series of Shuikou resettlement policies and investments.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of TVEs</th>
<th>TVE employment</th>
<th>Total employment</th>
<th>Percent of employment in TVEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before move</td>
<td>96</td>
<td>2,186</td>
<td>19,518</td>
<td>11.2</td>
</tr>
<tr>
<td>1992</td>
<td>96</td>
<td>2,561</td>
<td>20,488</td>
<td>12.5</td>
</tr>
<tr>
<td>1993</td>
<td>85</td>
<td>2,932</td>
<td>18,557</td>
<td>15.8</td>
</tr>
<tr>
<td>1994</td>
<td>89</td>
<td>2,906</td>
<td>19,118</td>
<td>15.2</td>
</tr>
<tr>
<td>1995</td>
<td>88</td>
<td>2,821</td>
<td>19,061</td>
<td>14.8</td>
</tr>
</tbody>
</table>


30. The increase of employment in TVEs is also reflected in Shuikou's reservoir-wide statistics. According to the data provided by SRRO, the percent of TVE employment in total employment experienced a big jump during the early 1990s, from about 8 percent before 1992 to around 20 percent after 1993 (Table 4). Even though there may be some overestimation for TVE employment figures after 1993 due to inclusion of some other types of nonfarm employment, such as migrant workers, this would not change the fact that during resettlement implementation,

the reservoir area experienced a rapid growth of TVE employment. The increase in employment was directly related to the increase of investment in TVEs. According to the statistics from SRRO, by the end of 1993 a total of 184 enterprises had been developed and were in operation under the resettlement program, which attracted a total of 145.53 million yuan of investment.

Table 4: Enterprise development in Shuikou area (1987–96)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of TVEs</th>
<th>TVE employment</th>
<th>Total employment</th>
<th>Percent of employment in TVEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>27</td>
<td>246</td>
<td>3,083</td>
<td>7.98</td>
</tr>
<tr>
<td>1988</td>
<td>41</td>
<td>502</td>
<td>6,185</td>
<td>8.10</td>
</tr>
<tr>
<td>1989</td>
<td>58</td>
<td>772</td>
<td>9,590</td>
<td>8.10</td>
</tr>
<tr>
<td>1990</td>
<td>75</td>
<td>1,058</td>
<td>13,367</td>
<td>7.91</td>
</tr>
<tr>
<td>1991</td>
<td>124</td>
<td>1,631</td>
<td>19,081</td>
<td>8.55</td>
</tr>
<tr>
<td>1992</td>
<td>155</td>
<td>6,326</td>
<td>25,457</td>
<td>24.85</td>
</tr>
<tr>
<td>1993</td>
<td>184</td>
<td>6,438</td>
<td>29,741</td>
<td>21.65</td>
</tr>
<tr>
<td>1994</td>
<td>190</td>
<td>6,429</td>
<td>33,517</td>
<td>19.18</td>
</tr>
<tr>
<td>1995</td>
<td>205</td>
<td>6,971</td>
<td>34,063</td>
<td>20.47</td>
</tr>
<tr>
<td>1996</td>
<td>263</td>
<td>6,700</td>
<td>38,473</td>
<td>17.41</td>
</tr>
</tbody>
</table>


31. However, most of the investment did not come from the resettlement budget. Within the 1.05 billion yuan resettlement budget for Shuikou, only 8.04 million was allocated to enterprise development, accounting for only 3.42 percent of the total economic rehabilitation budget (234.99 million yuan).60 Most of the investment in TVEs came from a number of other sources, which included (i) the resettlers themselves, (ii) local village and township support, (iii) outside investors, (iv) bank loans, and (v) interest-free loans from the reservoir resettlement revolving fund. The diverse nature of these funding sources, and limited contribution from the local governments, explains why the development of TVEs mostly depended on private initiatives. The local governments—township and village—facilitated the development of TVEs.

32. In the early stage of resettlement implementation, Gutian County did try to create a large drug factory in Huangtian by using its local resettlement budget. Most villages within that town contributed their shares to the creation of the factory, totaling 43 million yuan. However, the factory did not bring the windfall profits expected. More important, the factory did not bring local resettlers a great deal of employment opportunities. Given such a large investment, only 260 resettlers were employed in the factory, averaging Y165,000 per resettler.61 This is in contrast with the average cost of most other TVE jobs in Shuikou reservoir, ranging from Y2,300 per job in Xiadao Town to Y29,500 per job in Luxia Town (Table 5).


61. The actual amount of the resettlement budget spent was much less than 43 million yuan. Still, the per capita cost was much higher than other enterprises and other economic rehabilitation measures.
Table 5: Cost of TVE development in selected towns in Shuikou, 1983

<table>
<thead>
<tr>
<th>Town</th>
<th>Number of TVEs</th>
<th>Number of TVE jobs</th>
<th>Total investment (¥1,000)</th>
<th>Per job investment (¥)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shuikou</td>
<td>16</td>
<td>488</td>
<td>5,934</td>
<td>12,200</td>
</tr>
<tr>
<td>Xibing</td>
<td>14</td>
<td>468</td>
<td>9,100</td>
<td>19,000</td>
</tr>
<tr>
<td>Youxikou</td>
<td>3</td>
<td>32</td>
<td>784</td>
<td>24,500</td>
</tr>
<tr>
<td>Taiping</td>
<td>17</td>
<td>1,004</td>
<td>13,420</td>
<td>13,400</td>
</tr>
<tr>
<td>Xiadao</td>
<td>36</td>
<td>4,762</td>
<td>10,970</td>
<td>2,300</td>
</tr>
<tr>
<td>Luxia</td>
<td>10</td>
<td>270</td>
<td>7,960</td>
<td>29,500</td>
</tr>
<tr>
<td>Huangtian a</td>
<td>20</td>
<td>983</td>
<td>50,333</td>
<td>51,200</td>
</tr>
</tbody>
</table>

a. The TVEs under Huangtian Town included the above-mentioned drug factory. Without that factory, the cost per job for Huangtian was ¥10,100.


33. Since then, the Gutian County resettlement office became very careful about the proper use of the resettlement budget. It even allocated the remaining resettlement budget (mainly for economic rehabilitation) to each affected village and each individual household. However, in order to get the money, each household has to submit an economic rehabilitation proposal—such as growing mushrooms or doing cage fishing—to the local resettlement office. By adopting this approach, the county resettlement office hopes to avoid repeating the earlier mistakes.

34. In most cases, the initiatives for setting up TVEs came from private investors, either outside investors (foreign or domestic) or entrepreneurs among the resettlers. The local governments and village leaders facilitated the development. That does not mean the roles of local government were less important. To the contrary, their support roles were and are critical for the success of the TVEs. These roles include identifying the potential investors and brought them to their local communities, negotiating deals with the investors by providing a range of incentives on taxes and land, and forming joint partners by part of investment to maximize employment opportunities for their communities. In fact, behind each success story of TVEs, one could always identify a number of pro-business officials who were instrumental in solving problems for the enterprises.

35. For most enterprises doing well in the region, a number of factors have been cited as the main reasons for setting up their operation at Shuikou. They include various tax incentives, cheap electricity, cheap labor, and availability of certain natural resources. According to the Fujian Provincial 17 Preferential Policies for Shuikou resettlement, for all existing affected enterprises and newly established enterprises, income taxes would be waived for four years; for enterprises set up by outside investors, income taxes would be waived for three years. To support reservoir area development, each affected township and village would be given certain amount of electricity at the subsidized state price, which is based on 500 kwh of electricity for each resettler. Under these policies, quite a few energy-intensive factories have been relocated to the region in recent years. With the increase of trade and outside investors, the traditional timber and bamboo processing factories have continued to do well, with various new products being developed. These labor-intensive factories provide valuable employment for many women resettlers. One additional advantage from these enterprises is that they help generate additional employment and income opportunities for those resettlers who help collect the raw materials. The Zhanghu Bamboo Brush Factory, which produces bamboo brush sticks, is such an example. The preparation of these sticks involves collecting bamboo sticks, cleaning and sorting them, and cutting them to various sizes. All these additional tasks are carried out by individual resettlers from the town, which requires more resettlers than those that work in the factory.
Sideline Activities

36. Along with the development of TVEs, the traditional sideline activities, ranging from growing mushroom to raising ducks and pigs, were also identified and promoted by the local governments as an effective way to generate income. Based on local conditions, such as natural resources, proximity to markets, and village traditions, different sideline activities were selected by different villages. For example, in many villages of Gutian County, such as Chaotainqiao, Xilan, and Wankou, mushroom growing became one of the most important income generation activities; while in Youxi County, duck farming and related fishing production were quite popular in some villages. In Mingqing County, Meixiong Village, cage fishing alone contributed over 15 percent of the total village income (1996). In Nanping City, pig farming, particularly sow husbandry, accounted for more than one-third of the village income in Yangwei. Table 6 illustrates the percentage of animal husbandry income (including fishing) for selected villages in 1996. As the table shows, sideline activities have been very important in restoring income and the livelihood of these three villages, accounting for one-third to one-half of total village income.

Table 6: Percent of animal husbandry income in selected villages, 1996

<table>
<thead>
<tr>
<th>Village</th>
<th>Husbandry income (yuan)</th>
<th>Husbandry income per person (yuan)</th>
<th>Percent of total village income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yangwei</td>
<td>1,319,000</td>
<td>1,253</td>
<td>54.1</td>
</tr>
<tr>
<td>Sanlian</td>
<td>830,000</td>
<td>1,071</td>
<td>40.4</td>
</tr>
<tr>
<td>Meixiong</td>
<td>1,520,000</td>
<td>1,421</td>
<td>29.9</td>
</tr>
</tbody>
</table>


37. Compared with employment in enterprises, one major advantage of sideline activities is that they can easily be operated by individual households and involve different members of each household. The scale of each operation varies depending on the resources and capacity of each household. Because of these characteristics, the sideline activities are easier and less costly to implement. They can either become the main economic activities for some resettlement villagers or provide supplement income for many resettlers.

38. The success of sideline activities in these selected villages depends on a number of factors. The first factor is effective support from local governments, which includes provincial and county resettlement organizations, and local township and village leadership. Taking Sanlian as an example, with the per capita land area being only 0.28 mu, the village leaders tried to develop some sideline activities, such as duck farming and fishing, by taking advantage of being close to Xibing Town market and having a couple of hundred mu of fishing ponds. Special incentives were given by the village to those resettlers who were willing to take the lead in experimenting with integrated duck and fish farming. The village provided them not only a fish pond without charge but also free construction materials for building the duck sheds. In addition, certain financial support was also given these resettlers in the form of an interest-free loan to start the process. As a result, duck farming flourished in Shanlian. As of 1996, 86 households, or 47 percent of all households in Sanlian, were involved in duck farming, keeping a total duck population of 75,000 and 176 mu of fishing ponds. Per capita sideline income averaged Y1,000, accounting for 40 percent of total income.

62. Among the total number of ducks, 25,000 are egg laying ducks; 50,000 are for meat.
39. The second important factor is the provision of necessary technical assistance to the resettlers. Compared with other economic sectors, it is in the category of sideline activities that most technical training was provided by the local governments. In some cases, such as cage fishing in Mingqing and mushroom growing in Gutian, the local governments brought in special technical experts from Fuzhou, the provincial capital, or from local county seats and asked them to stay in the relevant villages for a few days every month to provide needed guidance to the resettlers.

40. Another very important condition for the success of sideline activities, which is often overlooked by the resettlement officials, is whether the newly constructed village layout could accommodate these sideline activities. The relative success of Yangwei and Sanlian in implementing certain sideline activities to a large extent depended on the available land and water area within their villages, as well as their less-crowded village layout. In contrast, in villages like Xiaban (Zhanghu) and Liujia (Taiping), the houses were built in an urban neighborhood with practical no space available for even small-scale husbandry activities. This significantly reduced the income potential of these villages. Taking Xiaban Village as an example, in 1996 the total sideline (husbandry) income was only Y300,000, averaging only Y170 per person, which accounted for 5.2 percent of total village income. The crowded housing layout was also cited as the main reason for the poor mushroom output in Xilan and Wankou villages in Gutian County. Since there were no separate structures for growing mushrooms, it was more likely to have mushroom infection, which resulted in a significant reduction of mushroom yield. In other words, the resettlement housing arrangement should not be simply considered from an engineering point of view; instead, the potential for a range of sideline activities has to be considered in order to restore income to the resettlers.

**Service-Oriented Activities**

41. Like the sideline activities, the development of service-oriented activities also is related to the location and layout of the resettlement towns and villages. The idea of using service-oriented activities to provide employment for some nonagricultural resettlers was included in the original resettlement and rehabilitation plan. In fact, the decision to concentrate some of the resettlement villages into a large town or a larger village was based on the consideration that larger towns or villages could generate more service-oriented employment. As a result, a series of large towns and villages emerged from Shuikou resettlement. In the reservoir area these days, it is quite common to encounter towns of over 10,000 population and villages of over 1,000 persons. The large towns and concentrated villages did generate additional service-oriented activities, ranging from retailers and restaurants to repair shops. For those resettlers whose houses were located along the main streets, they could easily turn part of their houses into small shops.

42. Depending on their size and their accessibility to the major highway, some villages enjoyed more rapid commercial growth than others. Taking Xiyang Village as an example, in 1996 among 570 households, as many as 123 of them (21.6 percent) had shops. A total of 216 resettlers were employed in these shops, accounting for 20.6 percent of the labor force. Table 7 provides some figures for a number of surveyed villages.
Table 7: Share of service employment in selected villages, 1996

<table>
<thead>
<tr>
<th>Village</th>
<th>Population</th>
<th>Connect with town?</th>
<th>Name of town</th>
<th>Percent of service employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meixiong</td>
<td>1,070</td>
<td>Yes</td>
<td>Xiongjiang</td>
<td>13.5</td>
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<tr>
<td>Wankou</td>
<td>2,336</td>
<td>No</td>
<td></td>
<td>11.4</td>
</tr>
<tr>
<td>Shuikou</td>
<td>3,774</td>
<td>Yes</td>
<td>Shuikou</td>
<td>26.5</td>
</tr>
<tr>
<td>Youdun</td>
<td>936</td>
<td>Yes</td>
<td>Youxikou</td>
<td>18.8</td>
</tr>
<tr>
<td>Xiyang</td>
<td>2,148</td>
<td>Yes</td>
<td>Xibing</td>
<td>21.6</td>
</tr>
</tbody>
</table>

Source: Field survey notes.

43. As one can see, most villages with a relatively high percentage of employment in services tend to be located in the town center. Being the economic and administrative center of the town, the town center often attracts more people from surrounding villages, which provide more trade opportunities for those shops in the town. In some towns, such as Xibing and Youxikou, with more and more people coming to the town to do business, many resettlers found that they could easily lease their street-front houses for Y3,000 to Y5,000 per year, which becomes another way of generating income for the resettlers.

44. Another popular type of service-oriented activity in the Shuikou area is to provide transport services in the region. With newly constructed highways connecting most villages to Nanping and Fuzhou, quite a few resettlers bought minibuses and started running bus service in the area. Given the cost of such vehicles, several households often formed a joint venture. Some resettlers used small trucks or tractors to provide transport services for the villagers. On the reservoir, similar efforts were made by investing in passenger boats.

Migrant Contractors and Migrant Workers

45. The last type of nonfarm-based economic rehabilitation consists of migrant workers. In the Shuikou reservoir area, there are two different kinds of migrant workers. One provides skills and services in different parts of the country and can be called migrant contractors; the other works as unskilled labor in some coastal area and can be called migrant workers. Of the two, the migrant contractors attract the most attention from local governments because they generate considerable employment opportunities and cash income for local resettlers. The Shuikou reservoir area has two types of migrant contractors. One specializes in building and managing theme parks all over China and is based in Zhanghu Town, Nanping City. The other installs insulation for infrastructure projects and is based in Xiadao Town, Nanping City.

46. Although there are no exact figures on how many employment opportunities were created by these two kinds of migrant contractors, according to officials from Xiadao the employment and income-generation capacity from insulation activities are quite impressive; a total of 5,000 people in Xiadao are involved with insulation activities; 3,000 were resettlers (1993). The gross revenue from these migrant contractors amounted to 120 million yuan, at least one-third of which was returned to Xiadao Town. (No similar data are available for theme park activities.) In Xuyang Village, 17 percent of the labor force was involved in the insulation business.

47. Compared with the migrant contractors, the migrant workers attract little attention. Before 1996, most migrant workers went to the coastal area on their own, with little help from local governments. Most of them were high school graduates. Since 1996, the Shuikou Reservoir...
Resettlement Office has helped organize young high school graduates to work in the coastal area. In 1996, a total 80 resettlers were sent to Xiamen City, the coastal city in Fujian Province. In 1997, SRRO planned to send 400 to 500 resettlers as migrant labors. A number of advantages were cited for organizing resettlers to work in the coastal area. One was to provide employment for these resettlers; the other was to reduce the burden for their families in terms of grain consumption and cash income; finally, the experience of working in the coastal area would help them change their attitudes and become more business-oriented when they returned to Shuikou.

**Conclusion**

48. The Shuikou resettlement has generally been successful in generating sufficient employment and restoring the incomes and livelihoods of resettlers.

49. The Shuikou economic rehabilitation experienced two distinct phases: land-based rehabilitation and nonfarm-based rehabilitation. Although the original objective of Shuikou resettlement was based on general agriculture with minimal changes of existing production methods, the limited land holding after inundation, averaging 0.3 mu, could not provide sufficient grain and income for the resettlers. The uneven development of fruit trees in the reservoir area provided sufficient income for only a small number of resettlers. As a result, the first-phase rehabilitation activities produced limited results with insufficient income and grain output.

50. Most of the income-restoration objectives had to rely on the second-phase activities. This is where the Shuikou experience becomes relevant and useful. Benefiting from a rapidly growing local economy, Shuikou resettlers got involved with a wide range of nonfarm rehabilitation activities. They include traditional industrial enterprises, sideline activities, service-oriented activities, and migrant work.

51. Many resettlement villages in Shuikou have been able to identify one or two economic rehabilitation activities and organize the resettlers to implement them. Among the villages that are doing well in economic rehabilitation, they share a number of common features: (i) strong township and village leadership; (ii) commitment and continuous efforts from individual resettlers; (iii) adequate financial support from a combination of the resettlement budget, local finance, the resettlement revolving fund, and tax incentives; and (iv) sufficient technical and marketing guidance.
MAP SECTION
CHINA
SHUIKOU HYDROELECTRIC PROJECT RESETTLEMENT PROGRAM

- DAMS
- COUNTY HEADQUARTERS
- TOWNSHIPS
- AFFECTED TOWNSHIPS
- AFFECTED ADMINISTRATIVE VILLAGES
- ECIDI SURVEY VILLAGES
- ECIDI SURVEY VILLAGES, WITH HOUSEHOLD SAMPLES
- ECIDI SURVEY VILLAGES
- OED VISITS

RIVERS AND STREAMS
--- COUNTY (XIAN) BOUNDARIES

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