

**Document of
The World Bank**

Report No.: 43061

PROJECT PERFORMANCE ASSESSMENT REPORT

PEOPLE'S REPUBLIC OF CHINA

XIAOLANGDI RESETTLEMENT PROJECT (CREDIT 2605-CHA)

February 20, 2007

*Sector, Thematic and Global Evaluation Division
Independent Evaluation Group*

Currency Equivalents (annual averages)

Currency Unit = Yuan (Y)

1994 (Nov)	US\$1.00	=Y 8.70	(Xiaolangdi Resettlement Approved)
2003 (DEC)	US\$1.00	=Y 8.29	(Xiaolangdi Resettlement Completed)

Abbreviations and Acronyms

CAS	-	Country Assistance Strategy
CRO	-	County Resettlement Office
EIA	-	Environmental Impact Assessment
EMO	-	Environment Management Office
EMP	-	Environmental Management Plan
EPB	-	Environment Protection Bureau
ERR	-	Economic Rate of Return
ESE	-	Environmental Supervising Engineer
HCWCF		Henan China Water Consulting Firm (Associated with NCWCHI)
HPRO	-	Henan Provincial Resettlement Office
ICR	-	Implementation Completion Report
IDA	-	International Development Association
MOF	-	Ministry of Finance
MTR	-	Mid-term Review
MWR	-	Ministry of Water Resources
NCWCHI		North China Water Conservancy and Hydropower Institute
NRCR	-	National Research Centre For Resettlement
POE	-	Panel of Experts
RPDI	-	Reconnaissance Planning And Design Institute
SAR	-	Staff Appraisal Report
VEO	-	Village Environmental Officer
SAR	-	Staff Appraisal Report
SPRO	-	Shanxi Provincial Resettlement Office
YRCC	-	Yellow River Conservancy Commission
YRCH	-	Yellow River Central Hospital
YRCCRO		Yellow River Conservancy Commission Resettlement Office
YRWHDC		Yellow River Water Hydropower Development Corporation
YRWHDCRO		YRWHDC Resettlement Office

LAND MEASUREMENT: 1 ha. = 15 mu

Fiscal Year

Government: January 1 — December 31

Director-General, Independent Evaluation	:	Mr. Vinod Thomas
Director, Independent Evaluation Group (World Bank)	:	Mr. Ajay Chhibber
Manager, Sector, Thematic and Global Evaluation Division	:	Mr. Alain Barbu
Task Manager	:	Mr. George T. Keith Pitman

IEGWB Mission: Enhancing development effectiveness through excellence and independence in evaluation.

About this Report

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEGWB annually assesses about 25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEGWB staff examine project files and other documents, interview operational staff, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEGWB peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. IEGWB incorporates the comments as relevant. The completed PPAR is then sent to the borrower for review; the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the IEGWB Rating System

IEGWB's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEGWB evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEGWB website: <http://worldbank.org/ieg>).

Outcome: The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Risk to Development Outcome: The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High Significant, Moderate, Negligible to Low, Not Evaluable.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Contents

PRINCIPAL RATINGS	V
KEY STAFF RESPONSIBLE	V
PREFACE	VII
SUMMARY	IX
1. BACKGROUND	1
The Yellow River	1
The Xiaolangdi Multipurpose Project	1
The Xiaolangdi Resettlement Project Area	1
2. OBJECTIVES AND COMPONENTS	2
3. IMPLEMENTATION	5
Updated Resettlement Plan 1997	6
4. EVALUATION	7
Monitoring and Evaluation	7
Relevance	10
Efficacy	13
Efficiency	24
Outcome	25
Risks to Development Outcome	26
Bank Performance	30
Borrower Performance	31
5. DISCUSSION AND LESSONS LEARNED	34
ANNEX A. BASIC DATA SHEET	39
ANNEX B. RESETTLEMENT CRITERIA FOR THE XIAOLANGDI PROJECT	43
ANNEX C. MAPS	45
ANNEX D. PROJECT-AFFECTED TOWNS, VILLAGES AND PEOPLE	49
ANNEX E. SOCIAL PRINCIPLES APPLIED THAT MITIGATED SOCIAL RISKS	51
ANNEX F. RESETTLERS INCOMES 1994-2003	53

Principal Ratings

	<i>ICR*</i>	<i>ICR Review*</i>	<i>PPAR</i>
Outcome	Satisfactory	Satisfactory	Moderately Satisfactory
Institutional Development Impact**	High	Substantial	————
Risk to Development Outcome	————	————	Substantial
Sustainability***	Highly likely	Highly likely	————
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Satisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEGWB product that seeks to independently verify the findings of the ICR.

**As of July 1, 2006, Institutional Development Impact is assessed as part of the Outcome rating.

***As of July 1, 2006, Sustainability has been replaced by Risk to Development Outcome. As the scales are different, the ratings are not directly comparable.

Key Staff Responsible

<i>Project</i>	<i>Task Manager/Leader</i>	<i>Division Chief/ Sector Director</i>	<i>Country Director</i>
Appraisal	Daniel Gunaratnam	Joseph Goldberg	Nicholas Hope
Completion	Chaohua Zhang	Mark D. Wilson	Yukon Huang

Preface

This is the Project Performance Assessment Report (PPAR) on the Xiaolangdi Resettlement Project in China.

The Xiaolangdi Resettlement Project, estimated at appraisal to cost US\$ 571.2 million, was approved in April 1994 for an IDA credit of \$110 million. Total project costs at completion were US\$ 840.9 million. The project closed at the end of December 2003, having fully disbursed a year earlier.

This report is based on the review of the respective Memoranda and Recommendations of the President, Staff Appraisal Reports and Project Appraisal Documents, credit and legal documents, project files at the World Bank's Headquarters, Implementation Completion Reports, discussions with Bank staff in Washington and Beijing and a field visit to the project in China. In addition the Yellow River Hydropower Development Corporation summarized the status of the project to October 2006 in a report entitled "Submission to IEG."

An Independent Evaluation Group (IEG) mission visited China in October and November 2006 to discuss the effectiveness of the Bank's assistance with the Government, implementing agencies and beneficiaries that included resettlers, resettlement officials and other officials in the project area. In addition IEG discussed resettlement policies in China and elsewhere with Chinese officials and bank staff. The cooperation and assistance of central government officials, management and staff of implementing agencies, provincial, county and township officials, project beneficiaries and other stakeholders are gratefully acknowledged.

This project was selected for assessment for two reasons. Firstly, to support a country case study report on the World Bank Group's environmental effectiveness in China as part of an ongoing IEG Review of Environmental Performance of the World Bank Group. This project is one of five projects assessed under the theme of "Water Resources Management and Social/Resettlement Aspects." Secondly, it will inform a future IEG evaluation of the Bank's Safeguard Policies.

Following standard IEG procedures, copies of the draft PPAR were sent to the relevant government officials and agencies for their review and comments, but none was received.

Summary

The 1994 Xiaolangdi Resettlement Project was one of three Bank-supported projects relating to the US\$ 4.5 billion Xiaolangdi Multipurpose Project on the Yellow River in Henan Province. Two IBRD loans, which totaled US\$ 890 million, were devoted to the construction and operation of the multipurpose (flood, sediment, ice and drought management and hydropower) Xiaolangdi Dam, as well as institutional support, training and environmental management. The IDA credit of US\$110 million was the Bank's first stand-alone resettlement project associated with a major infrastructure investment. The specific objectives of the project were to (a) resettle and improve the livelihoods of approximately 154,000 people in the reservoir area in the 182 administrative villages and 11 towns to be displaced by the dam and reservoir and (b) minimize the effects of social adjustment of the resettlers and of their host communities following resettlement. In addition to project funds, the Xiaolangdi hydropower utility agreed to establish a 10-year post-resettlement program funded from hydropower revenues.

Project implementation was highly satisfactory. The Resettlement Office of the Yellow River Water Hydropower Development Corporation successfully coordinated the overall project while the Resettlement Offices of Henan and Shanxi Provinces successfully implemented the project at county, municipality and township levels through resettlement offices established in the inundation and host areas. Following the concept of "putting people first," site selection, design and construction were carried out through a participatory process engaging both resettlers and host communities. Resettlers were to be moved in four phases linked to the progress of dam construction: the people located at the dam site and those within three horizontal bands corresponding to inundation stages as the reservoir was filled. Initially the IDA project officially covered the first two of the three resettlement groups who lost their land and property through inundation in the period 1998-2001. Shortly after effectiveness, however, the project undertook a re-survey of the reservoir area and revised the population and cost estimates to include resettlers in all three phases of inundation and people previously overlooked when initial village boundaries were drawn. This enlarged the number of resettlers by more than 18,000 and project costs increased because of updated unit costs and greater than anticipated compensation requirements. Ultimately, the project affected 184,080 resettlers in 227 administrative villages and 11 towns, and 545,000 people in 397 host communities spread over 13 counties in Henan and Shanxi Provinces. As a result, the project closed at the end of 2003 with a total cost of US\$ 841 million, 47 percent higher than the appraisal estimate of US\$ 571 million.

The project fully achieved its first objective to resettle the project-affected people. The project was very successful in moving a huge number of people to new village sites created on land relinquished by host communities through agreements between the resettlers and host communities. The project was also noteworthy in the priority it gave to restoring and improving the incomes of resettlers and host communities. The original plan to finance new industrial development to create non-farm jobs was cancelled because of adverse experience of such government-planned efforts elsewhere in China and changed macro-economic conditions. Instead a land and agriculture-based strategy

was successfully employed. In addition an independent monitoring and evaluation (M&E) program tracked village-level progress and household income and expenditures and articulated the attitudes and problems of resettlers and host community members during the implementation of the project.

The second objective, to minimize the effects of social adjustment of the resettlers and host communities, was substantially achieved with some shortcomings. New and improved housing, infrastructure and access to public services were substantially improved but it is unclear how far they benefited also from China's own regional and municipal development programs unconnected with the project. By the time of credit closure at end-2003, it was estimated that 70 percent of the resettlers had restored or increased their incomes and most of the remainder were within 80 percent of previous income levels; at that time, host communities had exceeded prior incomes by at least 10 percent. Based on the findings from the M&E program during project implementation it typically takes households four years after relocation to reestablish pre-project incomes. At the end of the project IEG estimate that about 43,726 people resettled after 2000 were still undergoing adjustment to their new economic and social order and had reduced their incomes compared with pre-project levels. This includes 3,376 people who were relocated after 2003.

The fate of these latter resettlers is unclear because the M&E program designed by the project was terminated at project closure in 2003, and comparable income data since then are unavailable. In addition, the Hydropower utility's 10-year post-resettlement fund to invest in new livelihood activities and resolve adjustment problems failed to live up to expectations because initial hydropower revenues were less than expected. Although this fund was replaced in 2006 by a national post-resettlement program aimed at providing post-resettlement support for a longer period, and at a higher level than the Xiaolangdi fund, it is too early to evaluate its effectiveness for Xiaolangdi. Chinese local authorities continue routine socio-economic surveys as part of national M&E but it was not possible to isolate Xiaolangdi resettlers within their survey results.

Project outcome is rated as moderately satisfactory. Project design and consistent adherence to Chinese and Bank resettlement policies during implementation successfully mitigated the principal risks associated with resettlement programs. Moreover, a number of innovative features of the Xiaolangdi project that contributed significantly to its success were incorporated in new national resettlement regulations that went into effect in 2006. The development element, however, is yet to be fully realized. The lack of ongoing monitoring makes it hard to identify locations where additional development investment is needed to fully restore livelihoods and incomes. Thus risk to development outcomes is rated substantial.

Bank performance is rated satisfactory. The Bank maintained the same highly qualified core team throughout the project period, providing continuity and a clear focus on the quality of physical works, the participatory approach and income impacts. Supervision gave priority to reducing the human cost of resettlement on resettlers and host communities and to quickly restoring and increasing livelihoods. Government performance is rated satisfactory with some shortcomings. While implementation was exemplary in many ways, people were moved to two major resettlement sites before the

irrigation network and land improvements were completed, and the government failed to maintain the independent socio-economic monitoring program after credit closure.

Eight main lessons emerge from the evaluation:

- ***Finance resettlement independently.*** Successful resettlement must be adequately funded and funding must be reliable, as both can be jeopardized if the resettlement budget competes with the construction budget in a project, especially if cost of either is higher than anticipated.
- ***Do not move people prematurely.*** Resettlement programs must ensure that people can regain control of their lives immediately, thus no one should be moved until resettlement sites are fully constructed and outfitted and the means for livelihood are in place.
- ***Inform fully and get feedback.*** Information and transparency were critical for gaining trust and obtaining ownership, in both the overall program and the resettler-host community agreements, which set the foundation for positive long-term relationships.
- ***Prepare for both resettlement and development.*** Achieving successful resettlement with real development requires at least two different sets of skills and competencies, which an implementing agency should have available from the beginning.
- ***Update, Update, Update.*** The scope and budget of a resettlement and development program needs to be updated periodically to encompass the dynamism of communities and ensure that adequate funding is available to meet the legitimate, changing needs of affected people
- ***Follow up, as relocation is only the start.*** Under the best of circumstances full readjustment can take years and some income restoration and improvement strategies will fail. Mechanisms should be in place after resettlement to address readjustment problems and plan development initiatives. It is especially important to continue independent monitoring to follow progress, spot problems and highlight priority areas for development support, for several years following resettlement.
- ***Arrange financing for post-project M&E and supervision before closing.*** The Bank needs to find ways to allocate funds to allow continued supervision of projects that have critical and unresolved safeguard issues.
- ***Great care needs to be given to establish a project counterfactual to establish socially equitable levels of income restoration.*** The before and after approach used by the project did not make allowances for the general improvements in welfare and incomes in areas unaffected by the project.

Vinod Thomas
Director-General
Evaluations

1. Background

The Yellow River

1.1 The Yellow River is the second longest watercourse in China and traverses nine provinces. The catchment area accounts for 7 percent of China's total land area and supports the agriculture of 130 million people on a cultivated area of 13 million hectares. Some of the most fertile and densely populated lands (2 million ha) in China are in the lower reaches of the Yellow River. Historically, floods in the lower reaches have brought severe destruction to farmlands and cities, killing thousands of people and causing billions of dollars of damage. At appraisal, about 103 million people were at risk of severe flood damage and the lives of as many as one to three percent of the population would be in jeopardy if there were a major flood.¹ The flooding is exacerbated by soil erosion in the mid-reaches of the river. This has resulted in enormous quantities of sediment (1.6 billion m³ per year) being washed into the river and transported downstream. About one quarter of the sediment has been deposited in the lower reaches, causing the riverbed to rise between three and ten meters higher than the surrounding ground. Over several centuries, huge investments were made in levees to protect the lower reaches. At the time of appraisal about US\$ 70 million was needed annually to maintain the levees, and US\$ 2 billion was needed every decade to raise their crests to ensure adequate freeboard above the floodplain.

The Xiaolangdi Multipurpose Project

1.2 Despite the earlier huge investment in levees, they were inadequate to protect fully the 103 million people, eight large cities and industries, including major oilfields. Moreover, the lack of river regulation in the lower reaches led to frequent droughts, erratic irrigation and drinking water supplies, and constrained industrial production. The Xiaolangdi Multipurpose Project was the centerpiece of a major program to provide flood and ice-jam protection, prevent silting of the lower reaches of the river and maintain annual minimum river flows. Construction of the dam and the 130 km long reservoir was expected to force the relocation of about 180,000 people from the dam site and the reservoir area.

The Xiaolangdi Resettlement Project Area

1.3 The Xiaolangdi dam site is located on the Yellow River in Henan Province 40 km north of Luoyang City. The reservoir area at the 275 m level extends upstream for 130 km. The total area inundated is 272 km², including the original water surface of the Yellow River. The broader reservoir region includes three counties in Shaanxi Province and five counties in Henan Province.

1. This chapter was drawn from the World Bank SAR (Rpt. 12527, March 1994) and the ICR (Rpt. 29174, June 2004) for the Xiaolangdi Resettlement Project.

1.4 The reservoir region of eight affected counties had a 1992 population of 2.8 million and an annual population growth rate of 1 percent for the period 1982-1992. Population density was 264 persons/km². In 1992, about one third of the population was 14 years of age and younger; 63 percent was in the 15-65 age range; and 4 percent 65 years and older. The male/female ratio was 52/48. Most of the population was rural – 75 percent in Yuanqu county and 96 percent in Xiaxian county. Average household size was 4.4 persons with a labor force ratio of 44 percent. Eighty percent of the regional population was literate. The reservoir was to inundate 173 villages, 11 government towns, 252 industrial and mining enterprises, 250 commercial enterprises, 12 power stations, 267 irrigation pumps, 658 km of irrigation canals, 688 km of roads and 548 km of communications lines. Per capita net incomes of the rural population of the inundation zone in 1993 averaged Y 650, with a range between Y 423/capita in Mianchi to Y 900/capita in Yuanqu.

1.5 About 10 percent of the households derived their total income from agriculture; 80 percent from mixed agricultural and nonfarm activities. The households with the highest incomes relied on both agriculture and full-time wage employment in an enterprise. The prevailing poverty in much of the project area was due to a poor agricultural resource base, remoteness, the lack of off-farm employment opportunities and limited infrastructure, such as roads, communications, electricity and water supply systems.

2. Objectives and Components

2.1 The Xiaolangdi Resettlement Project was responsible for relocating people living within the reservoir area and enabling them, and people in their host communities, to restore their incomes. Resettlement is normally a component within the overall dam investment project, and is generally given secondary importance. Xiaolangdi was IDA's first stand-alone resettlement project associated with a major dam, as well as the Bank's largest resettlement undertaking in China. The resettlement was planned to take place in four phases, the dam site and three phases defined by the height of the surface water in the reservoir. The IDA project targeted Phase 1 and Phase 2 of the reservoir area, about 154,000 resettlers and roughly 300,000 people in affected host communities (Table 1.)

Table 1: Estimated Relocation Period and Population

<i>Group</i>	<i>Reservoir Level</i>	<i>Timetable</i>	<i>Population</i>	
			<i>Directly Affected</i>	<i>Total to Move*</i>
Dam Site		1992-1994	9,556	9,556
Phase 1	To 180 m.	1995-1998	20,506	21,690
Phase 2	180-265 m.	1998-2001	115,733	130,612
Phase 3	265-275 m.	2010-2011	13,053	17,924
State Workers			880	880
Total**			159,728	180,662

* The total moved is larger than those directly affected in order to maintain communities.

** The total assisted by IDA was estimated to be 152,302. At appraisal this was rounded up to 154,000 (SAR, paras 2.4 and 3.38).

2.2 The overall goal of the project was to achieve the complete social and economic reestablishment of the dislocated population, on a sustainable productive basis, through the creation of new industrial, agricultural and service sector employment and activities. The specific objectives of the project were to assist the Borrower: (a) to resettle and improve the livelihoods of approximately 154,000 people in the reservoir area who need to be resettled as a result of the construction and inundation up to the 265 meter level of the Xiaolangdi Multipurpose Dam; and (b) to minimize the effects of social adjustment of the resettlers and of their host communities following resettlement.

2.3 There were four main components and five additional activities embedded in the project, only one of which (environmental management) was a separate line item in the budget (Table 2). The Components were as follows:

- Planning, Design and Institutional Support. Potential resettlement sites were identified prior to appraisal, but final plans and designs were prepared on a rolling basis once resettlers and host communities agreed on specific sites.
- Residential and Infrastructure Reconstruction for Villages and Towns. New towns and villages were to be constructed, complete with infrastructure, communications and public facilities; resettlers constructed their own homes individually or collectively. This was estimated to include 154,000 people in 35,000 households, 12 towns (township centers), 182 villages, over 1,000 km of roads, 2,400 km of power lines, 777 km of communication lines, 229 schools and 252 clinics.
- Transfer of Resettlers. Families were to be transported to new locations with all of their belongings and salvageable materials from their abandoned residences and given allowances for lost wages and medical costs.
- Livelihood Development. This was to consist of reconstructing 824 enterprises; reclassifying people who sought and obtained non-farm employment; providing farmers with improved land (estimated 13,700 ha in total, at an average of 0.08 ha or 1.2 mu per person), and training; and funding village employment-generation initiatives.

2.4 The following “Activities” were also basic to the project design:

- Social Adjustment. This comprised a number of efforts to ease the transition for resettlers and host communities, ranging from farming support and non-farm employment assistance to arranging essential services in the resettlement areas and facilitating positive interactions between resettlers and host community residents. A post-resettlement support fund was to be established from a portion of the income from Xiaolangdi hydropower to provide follow-up support to poor villages and provide capital for village-level livelihood activities. The State Council approved a level of 300 yuan (about US\$ 34) per capita per year for 10 years for Xiaolangdi resettlers.
- Consultation, Participation and Grievance Redress. The planning and design process was designed to be participatory, engaging both resettlers and their host communities and culminating in an agreement between a resettler village and the host community. Resettlers were to be engaged in conducting inventories, designing sites and developing livelihood programs. Explicit grievance

procedures were to record complaints and keep track of their status. Field personnel were to be responsible for resolving issues or raising them up the hierarchy.

- **Gender and Vulnerable Groups.** Women were to participate in all phases of the project, including receiving training. All resettlement villages were to have easy access to schools and health services. Special funding would enable the vulnerable people—elderly, widowed, disabled, households without someone in the active labor force and the extremely poor—to be relieved of the burden of managing house construction.
- **Environmental Management.** Environmental elements ranged from monitoring drinking water quality in resettlement and host areas, to incorporating adequate provisions in site designs to manage wastewater and solid waste, as well as drainage. In addition, public health monitoring was built into the project, as well as monitoring industrial pollution and the environmental impact on host communities. Clearing of the reservoir area also fell under this activity.
- **Preservation of Cultural Property.** Early in project development, teams of provincial and national specialists made an inventory of culturally and historically significant sites. In coordination with the resettlement program, the sites were to be mapped and documented, and either excavated, relocated, modeled or otherwise treated, depending on their significance.

Table 2: Project Objectives, Components and Costs

Objectives	Components	Costs (US\$ millions)		Planned (percent)
		<i>Planned</i>	<i>Actual</i>	
1. Resettle and improve livelihoods of approximately 154,000 people	<u>Resettlement</u>			
	Planning and Design	11.7	44.1	376
	Residential and Infrastructure Construction	292.9	483.2	165
	Transfer of Relocateses	7.3	9.5	130
	<u>Livelihood Development</u>	257.1	295.7	115
2. Minimize effects of social adjustment on resettlers and host communities	a) Wenmengtan*	47.1	67.7	150
	b) Houhe Dam and Irrigation**	15.4	24.7	160
	c) Agricultural & Production Development	9.2	198.2	215
	d) Industrial development***	172.2	0	0
	e) Monitoring and Social Development	10.4	5.1	49
	<u>Environmental Management</u>	3.5	5.1	240
	Total	571.2	840.9	147

* River training works to protect flood-prone farmland to resettle 42,000 people.

** Dam (74.5 m high) and irrigation works to make 1,000 ha of irrigated land available for Xiaolangdi resettlers and others.

*** The industrial component was cancelled because it was not viable. The development cost coming mainly from land compensation went into the land-and-agriculture-based resettlement programs. As a result, the cost in d) is included in c).

2.5 The project introduced four new elements to Chinese resettlement programs:

- Independent design and construction supervision, for quality control in design, construction and land development;
- Independent socio-economic monitoring,² to assess progress from the perspective of resettlers and host communities; to measure impacts in incomes, household expenditures; to give voice to resettlers; and to give all institutions associated with the project a measurement of the impact on different economic groups and a systematic way to assess effectiveness;
- Environmental monitoring and the appointment of village environment officers to establish and maintain health and safety standards in affected areas; and
- Public health monitoring, to monitor the impacts of resettlement on individuals and communities.

2.7 Resettlement criteria for the Xiaolangdi Project spelled out the principles to apply in the design and implementation of resettlement plans. The criteria cover topics from the objectives of resettlement to the characteristics of resettlement sites and housing, institutional arrangements, host community participation and benefits and income restoration parameters, among other things. The criteria essentially embody the basic principles of OP/BP 4.12, offering clear guidance to resettlement planners and implementers. (See Annex B).

3. Implementation

3.1 The project was implemented through a management model described as “leadership of the Ministry of Water Resources, management by the project owner, provinces contracted for implementation, and county as the basic unit for implementation.” As owner, the Yellow River Water and Hydropower Development Corporation (YHWHDC) was responsible for managing the resettlement through its resettlement office. Henan and Shanxi provinces, and all affected counties, cities and townships also established resettlement offices responsible for implementation in their respective administrations. During the peak period, the implementing agencies had a total of 1,505 resettlement staff working on the project.

3.2 Three technical entities also had significant roles. The Yellow River Reconnaissance, Planning and Design Institute (RPDI) was responsible for resettlement design and worked throughout the implementation process to develop site specific plans in consultation with resettlers and their local government officials. The Yellow River Engineering Consulting and Supervision Company was hired to supervise implementation and established six supervision offices in the project area. Finally, The North China Water Conservancy and Hydropower Institute was given responsibility for an independent socio-economic monitoring program, producing comprehensive biannual reports based on surveys, group interviews and field observation. The environment department of the RPDI supervised environmental aspects of the project, including public

² In discussions with MWR and resettlement officials at different levels, IEG was told that independent M&E was unique to Xiaolangdi, but it was actually introduced in the Shuikou Project, Recent Experience with Involuntary Resettlement, China—Shuikou (and Yantan), OED Report No. 17539, 1998.

health monitoring, which was carried out by the Yellow River Central Hospital. An international panel of experts, whose composition changed over time, met 12 times between 1994 and late 2003.

Updated Resettlement Plan 1997

3.3 The preliminary resettlement plan for Xiaolangdi was prepared between 1986 and 1991, so one of the first major tasks of the project was to carry out a new inventory and census. This was completed in 1996, after which the plan was revised to increase the number of villages and population affected, as well as prices. The revised plan moved forward the schedule for Phase 3 resettlement from 2010-2011 to 2002-2004. The total estimated population of Phases 1-3 rose to 184,080, in addition to the 11,652 people at the dam site who had already moved by 1994. This included 779 people and 190 families classified as vulnerable in Phases I and II. The revised plan raised the number of affected resettler villages to 227 and raised the estimates of host population to 545,000 in 397 communities. Accordingly, the budget increased by 47 percent to US\$ 840.9 million. The new budget was approved only in 1998, which slowed down the overall resettlement process.³

3.4 In the revised scope of the resettlement activities cause a revision of the project objective to include all those people below reservoir water level elevation 275 m instead of the 265 m originally specified. This revision was implicitly read into the project objectives without formal approval of the Board.

3.5 At project closing, virtually all of the construction was completed. Twelve towns and 227 villages and houses had been constructed for 47,012 resettler families, as well as 2,665 km of roads, 2,154 km of power lines, 1,886 km of communications lines and 317 schools, 667 clinics and 80 bridges. Approximately 1,500 people remained to move, however.

3.6 The 1995-1996 census and inventory and the decision to drop the industrial development component⁴ raised the land requirement significantly, as reflected in the increase of the affected host population from 300,000 to 545,000 and the number of affected host villages grew to 397. At project completion in 2004, seventy-five percent of the villages had met the target of providing 1.2 mu per capita or had established alternative income generating activities to offset the land shortage.

3.7 The post-resettlement fund, expected to provide 60 million yuan per year, had received less than 30 million from Xiaolangdi hydropower by the end of 2002 due to lower than expected generation of electricity.

3 To illustrate the slow-down, a total of 8,100 people were resettled in 1997, compared to 22,776 in 1996 and 16,347 in 1008 (See table C2).

4 The first meeting of the International Environment and Resettlement Panel of Experts, July, 1994, assessed the industrial component to be too risky for affected persons and recommended that it be dropped.

3.8 At project closing, the government agreed to complete the resettlement program, meet land allocation requirements and continue monitoring the incomes and status of resettlers and host communities. The government also agreed to maintain the provincial and county resettlement offices to provide support to the villages and manage the post-resettlement fund. IEG found that the resettlement offices remain open but with reduced staffing commensurate with ongoing responsibilities.

3.9 The independent monitoring program filed its last report at the end of 2003 and the program was terminated. Consequently, except on the village level, there is no up-to-date repository of data relating to land allocation and income restoration relating to the project. While some of the socio-economic indicators introduced by the project are routinely monitored by China's own socio-economic evaluation system, many do not follow the same sampling protocols, and identification of Xiaolangdi households and their systematic follow-up is thus very difficult.

4. Evaluation

Monitoring and Evaluation

4.1 **Design.** The monitoring and evaluation program was developed with the assistance of Bank staff, in close collaboration with the implementing institution. The North China Water Conservancy and Hydropower Institute, through its Henan China Water Consulting Firm (HCWCF), implemented the program, following a regular six-month schedule of visits to a broad sample of households, both affected persons and host community members. A panel consisting of 1,538 households from 133 resettler villages and 206 households from 22 host villages kept income and expenditure data to compare with baseline data gathered prior to resettlement in 2004. The panel was expanded as subsequent villages were moved.⁵ The baseline data for the dam site population was the 1992 census and inventory, while the baseline for the reservoir population was the 1995-96 survey. Household data were monitored periodically and collected, analyzed and reported every six months.

4.2 **The monitoring program was not designed to support an analysis of the counterfactual.** This would have been possible if the household samples had included a group of people remaining near the reservoir (for resettlers) or in randomly selected communities with similar characteristics (propensity sampling) and of people in unaffected villages near the host communities (for hosts). However, this was not done. Instead the M&E design includes two major samples—resettlers and host community residents—which were assessed separately before and after the project. The data show that one group (resettlers) is improving income status, albeit with great annual

⁵ Combined with dam site and Phase 3 villages, full-scale monitoring included a total sample of 2292 families in 206 resettler and host villages. The sample contained sub-samples of high, medium and low income households, respectively, in each village. Final M&E Report, p. 10. Unfortunately, the households were surveyed before moving and three years thereafter, before the final 2003 survey, leaving data gaps that limit the analysis of adjustment patterns.

fluctuations, and one group (host residents) essentially restored or increased incomes by the end of the project. What the data do not show, however, is how the resettlers' final incomes compare with those who remained behind near the reservoir area or how the incomes of host residents compare with those of people in neighboring villages who did not relinquish land to resettlers.

4.3 The M&E thus measured the “with project” situation along two major dimensions—*resettlement* itself, which is socially and economically disruptive, and *income restoration* (development) initiatives—which would be hard to differentiate analytically. The basic questions to answer in resettlement are as follows.

- Do people regain or increase their incomes?
- If not, what factors constrain them?
- How long does restoration take in most villages?
- What are standard patterns of adjustment and how can problem sites be identified to target remedial interventions?

4.4 The relative influence of non-project factors, such as the overall economy, is important for year-to-year analysis, but measuring the absolute status of the affected people is critical. The Xiaolangdi independent monitoring program focused on project implementation (infrastructure, housing, utilities, media access) school attendance, income and expenditure impact, and highlighting problems identified by affected people. Although there was sufficient field presence and capability to undertake the more in-depth analysis of adjustment that would be needed to make the best use of the post-resettlement fund, the Institute was not given the mandate. M&E did not go the extra step that would have been required to understand resettlement dynamics or to establish the impact of resettlement within a broader context. This constitutes the loss of a major opportunity to understand resettlement processes from the point of view of resettlers and to showcase the formidable achievements of the project more substantively. **Given the lack of realistic counterfactual M&E Design is rated modest.**

Implementation.

4.5 The Bank insisted on including an independent M&E program in the project despite the reluctance of counterparts.⁶ Supervision missions regularly coached institute staff and the quality of reports constantly improved. Over time, project management recognized the practical, constructive approach of the Institute and utilized the recommendations to strengthen implementation and mitigate shortcomings. Similarly, the regular reports established a quantitative and qualitative background for joint

6 Apparently, the first independent resettlement monitoring program in China was for the Shuikou Dam, which was considered to be one of the factors of success for the project. Independent monitoring consistently estimated post-resettlement incomes as 10 percent lower than official statistics. Recent Experience with Involuntary Resettlement China—Shuikou (and Yantan), 1998, OED, Report No. 17539 pp 18-19; and summarized in Fuggle and Smith, “Experience with Dams in Water and Energy Resource Development in the People’s Republic of China,” contributing paper for the World Commission on Dams, 2000, pp. 24-26.

supervision missions. In short, the M&E program not only was carried out as planned, but also was actually used as a management tool to a degree seldom attained in Bank projects.

4.6 Trained enumerators, including staff of the institute and local collaborators, worked with the sample households and also gathered data from project and village databases, surveys, focus groups and informal discussions with resettlers, host residents and officials throughout the project area. Regular monitoring reports covered a range of issues from the allocation and disbursement of resettlement funds and compensation to livelihood activities, relocation, living standard restoration (resettler and host populations), social adjustment and the status of vulnerable groups and women.

4.7 The Institute reported regularly on the status of each resettlement village and reported income and expenditure data of a sample of households in 133 resettlement villages and 22 host villages. The reports also covered a range of other issues from satisfaction with consultation and decision-making arrangements to the size and quality of allocated lands, infrastructure, educational enrollment and the status of women.

4.8 The Institute had household level data for each affected family and community that enabled it to analyze the status of households as well as villages, and generalize beyond the sample population. The village level data—infrastructure, facilities, amenities—captured outputs; household income data measured outcomes; and household expenditure data served as a proxy measure for impacts and standard of living. Project inputs in host villages consisted of funds to compensate for the land relinquished for resettlers, which were used for income restoration investments. Outcome (household income) and standard of living (household expenditure) data were gathered in a sample of host communities to measure changes there. On its own initiative and its own budget, the Institute conducted additional studies on specific topics, such as traditional herb production, to help turn promising income generation ideas into viable project initiatives. This helped to address issues that were not planned or budgeted. The M&E system thus succeeded at giving project managers useful annual snapshots of income status and specific implementation deficiencies.

4.9 Household income data was collected in each sample village a maximum of 5 times: the year before relocation, three successive years after the year of relocation, and in 2003. The annual data show that resettler households in many villages experienced large variations in their annual incomes. **The lack of continuity in the data set is a significant weakness in the M&E program.** The sampling plan appears to have been based on the assumption that the transition to full income restoration would occur within three years, which proved to be an unrealistic assumption. The limitation also means that the M&E approach would have had little value for tracking the impact of the post-resettlement fund, without modification. **Implementation of M&E is rated substantial but with some shortcomings.**

4.10 **M&E Utilization.** All parties—Bank staff, MWR, YRCCRO and Provincial Resettlement Officers—informed IEG that the monitoring program was very effective as a practical, sympathetic voice of the people, which improved in quality and utility over time. **However, it was output rather than outcome focused.** The independent

monitoring reports contained much useful data, but the bottom line consistently focused on the achievement of project objectives, issues that needed to be addressed, based on direct inputs and informed observation, and practical recommendations to help management address the issues that were highlighted. Each report also reviewed the status of actions recommended in previous reports. IEG reviewed monitoring reports and confirmed the general assessment that specific recommendations were useful and practical, although some of the optimistic conclusions regarding income restoration seemed to gloss over very mixed results.

4.11 One other element of the M&E program deserves special mention—public health monitoring. The RPDI Environment Department regularly gathered and analyzed public health statistics on the village level to compare pre-and post resettlement health indicators. The data demonstrated that, contrary to the experience in earlier resettlement programs, community-level health improved after resettlement—how much that can be attributed to the project (as against China’s own development efforts) is uncertain.

4.12 IEG was unable to determine why M&E program was terminated after project closure, despite the client’s assurance that it would continue. Four factors may account for the termination. First, village administrations are responsible for livelihoods and keep their own records for tax and other purposes. Consequently, the owner and other authorities may have lost interest in ongoing documentation, although the Henan Provincial Resettlement Office says the monitoring will resume when the new post-resettlement program goes into effect. Second, despite assurances that M&E would continue, it is not clear if any office was given the responsibility or the budget to manage the contract, thus the program may have ended by default. Third, M&E reports systematically identified problems and shortcomings and officials may have decided such information was not needed once the physical resettlement investments were completed. To illustrate this point, IEG found resettlement officials at all levels to be much more conversant about inputs—infrastructure, livelihood programs, and the like—than about outcomes. Finally, in discussions, M&E is described as a “project activity” and, like Bank supervision, an activity that is expected to conclude at the end of the project. The frequency with which this occurs in most Bank projects suggests that it is a Bank problem, even more than a client problem. **Despite institutional recognition that supervision and M&E are needed after resettlement, the Bank has yet to develop mechanisms to do so by committing resources for ongoing supervision or funding ongoing M&E directly or through the client. Consequently, the shortcomings in Xiaolangdi mirror constantly-repeated Bank experience.**

4.13 While M&E utilization to improve management of resettlement was high during the life of the project, failure to agree M&E post-project and the negligible rating for this phase lowers the overall rating for utilization to modest. **Given the rating for design as modest, and the qualified rating for implementation as substantial and the rating of modest for utilization to improve outputs rather than outcomes, overall rating of M&E is modest.**

RELEVANCE

4.14 **Relevance is rated as High.** The Xiaolangdi Project set new resettlement standards in China to demonstrate that conscientious application of existing laws and

regulations could produce a satisfactory outcome. In the mid-1980s GOC reported that at least one-third of the 10 million people previously subject to involuntary relocation due to reservoir development still lived in poverty awaiting successful settlement.⁷ That estimate applied only to those who had been moved and did not take into account the fate of host populations who were forced to share their existing land and other resources with the relocatees. These figures clearly indicated that people forced to relocate were at great risk of poverty. Financial allocations were insufficient in a large number of cases. Compensation payments set in the early 1980s often had no provisions for inflation. Most problems resulted from inadequate resettlement planning and the failure to provide relocatees with an adequate income-earning potential. One fundamental problem with involuntary resettlement, particularly before the mid-1980s, had been the notion that those displaced were making an obligatory contribution to national welfare and therefore no extraordinary measures were needed to restore their livelihoods. Another fundamental problem was that resettlement was implemented without transparency or consistency and thus easily subject to mismanagement.

4.15 This attitude changed after 1985. Problems in large projects were recognized by the GOC, which coped with periodic resettlement demonstrations and an exodus from the original host areas back to the reservoir zones. In 1986, the resettlement office in the Ministry of Water Resources (MWR) was given responsibility to undertake rehabilitation programs for all resettlement sites where people have been disadvantaged, and to develop new standards, laws and regulations for new resettlement sites. By the time the Xiaolangdi Project was appraised, a series of laws and regulations was in effect to provide guidance for all types of resettlement projects. Taken together, they called for full protection of the resettled and much stronger support to reservoir relocatees than previously had been the case.

4.16 The Xiaolangdi Resettlement Project was appraised shortly after the Bank completed an assessment of resettlement experience in China and a Bank-wide review of resettlement in Bank Group projects was nearing completion.⁸ Both studies reached similar conclusions: (a) Chinese national and provincial law and regulations now substantially meet the requirements of both the Bank's resettlement policy (Operational Directive 4.30) and OECD resettlement guidelines; (b) the experience in recent projects indicates that the Chinese authorities treated resettlement as a long-term process requiring sustained attention long after physical resettlement activities are completed; and (c) resettlement plans clearly articulated a key objective of improving or maintaining the standard of living of affected people.

4.17 By the end of 1993, the basis for “*resettlement with development*” was in place. It was generally agreed that the GOC demonstrated a high degree of commitment to

7 See Lee Travers, *Involuntary Resettlement*, 1993, WB Report No. 11641-CHA; and Jun Jing, “Displacement, Resettlement, Rehabilitation, Reparation and Development—China Report, contributing paper to the World Commission on Dams, 2000. Sophia Woodman, among others, questions the universal characterization of Chinese resettlement as a model, “Wishful Thinking: China, Resettlement Models and the International Review of Big Dams, China Rights Forum, Spring, 200, reprinted by International Rivers Network.

8. China: *Involuntary Resettlement* World Bank, (Rpt. 11641, June 1993).

successful resettlement. Resettlement policies had clear developmental objectives. Responsibilities were well delineated. Resource allocations were increased. And programs for long term-training on resettlement were initiated. Having addressed obvious shortcomings, there was optimism that that the new orientation could achieve results. For example, in the Shuikou Hydroelectric Projects I and II (Loans 2775-CHA and 3515-CHA), the incomes of resettlers exceeded their original incomes in real terms within the first year of resettlement.

4.18 Of the laws and regulations dealing with resettlement planning and implementation, one is particularly relevant to the Xiaolangdi Project: The Regulation for Land Requisition Compensation and Resettlement of Large and Medium Water Conservancy and Hydroelectric Projects, issued by the State Council in Decree No. 74 in May 1991. The regulation has four features of particular importance:

- (a) Resettlement shall make relocatees recover or surpass the existing living levels through construction, resource exploitation, soil conservancy and economic development of the reservoir region;
- (b) The state encourages and supports resettlement with development by means of compensation and subsidy in the initial stage, and production support in later stages;
- (c) Families who lose their land completely can transfer their registration from rural to urban registration (and hence become eligible for urban industrial employment, residency, and perquisites) as reviewed and approved by provincial and county governments; and
- (d) If the compensation for land and resettlement calculated on the basis of the regulation makes it difficult to meet needs, the resettlement subsidy may be increased to do so.⁹

4.19 The new principles were solid, but some practical implementation issues remained that the project sought to address. Five issues stood out. First, to obtain realistic costs and overcome the cost overruns and budget shortfalls that plague even successful projects, planning needed to be improved. Second, to increase accountability and efficiency, planning and implementation procedures needed to be more fully developed and transparent. Third, to gain credibility and public support, compensation calculations and eligibility requirements needed to become transparent and established through negotiation and mutual agreement. Fourth, to achieve development and income restoration objectives, resettlement officials, local political leaders and resettlers all need to work together to identify their skills, their needs and new opportunities to diversify family income sources and the local economy. Finally, to gain the ownership and cooperation of affected persons, decision-making needed to become more participatory and redress mechanisms needed to be transparent and responsive. All of these issues were addressed in the project design.

4.20 From the perspective of the World Bank's resettlement policy (Operational Directive 4.30, Involuntary Resettlement), Xiaolangdi Resettlement was a cutting edge

9. Cited in the SAR.

project. OD 4.30 was still in effect, but project design was strongly influenced by emerging recommendations of the Bank-wide on-going resettlement review. The project incorporated many recommendations that ultimately shaped the new Operational Policy, OP 4.12, which went into effect in January 2002 and was revised in April 2004. Compared to OD 4.30, OP 4.12 gives greater attention to income restoration as the objective of resettlement operations; emphasizes the need to have affected persons participate in the design and implementation of a resettlement program and benefit directly from the investment that requires resettlement; and requires a strong monitoring component, among other changes. Xiaolangdi thus constitutes an early pilot of the major provisions of OP 4.12, as well as a conscientious application of Chinese resettlement policies and procedures, of finally moving from the rhetoric of “resettlement with development” to a real application.¹⁰

EFFICACY

4.21 The two specific objectives of the project (a) to resettle and improve the livelihoods of approximately 190,000 people in the reservoir area who need to be resettled as a result of the construction and inundation up to the 265 meter level of the Xiaolangdi Multipurpose Dam, and (b) to minimize the effects of social adjustment of the resettlers and of their host communities following resettlement, have been subdivided into four objectives for the following discussion. Objective (a) has a first sub-objective to resettle and a second sub-objective to improve the livelihoods of resettlers. Objective (b) similarly has a first sub-objective to minimize the effects of social adjustment on resettlers, and second sub-objective to do the same for host communities. Project achievements are evaluated in terms of these sub-objectives below.

Physical relocation of resettlers was fully accomplished

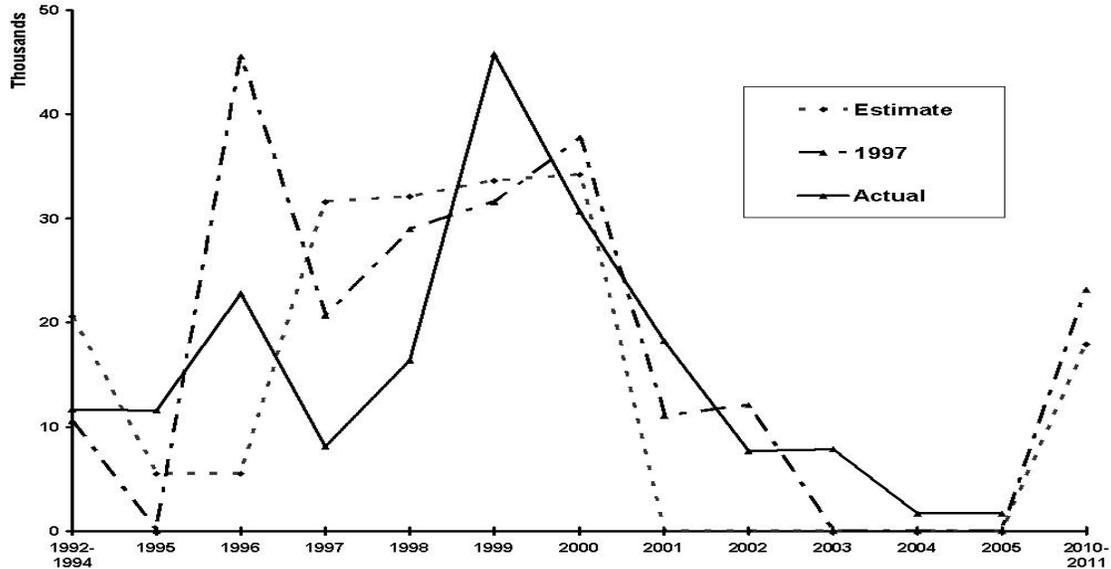
4.22 **Resettlement.** The YHWHDC resettlement office informed the mission that 189,600 people were resettled from the Xiaolangdi dam and reservoir sites, including government workers. Actual annual resettlement compared with appraisal estimates and the 1997 Revised Resettlement Plan is shown in Figure 1. It shows that actual resettlement was more than estimated in the early project period, then declined while waiting for approval of the revised budget (1997) and peaked later and higher than anticipated. In contrast the 1997 Plan caused a high volume of relocation for the first four years of the project and then none until 2010.

4.23 The last 1,600 resettlers were moved by the end of 2005, a year before the IEG evaluation and two years after the project closing date. They were essentially Phase 2 hold-outs who did not want to leave their old homesteads and refused to join fellow

10. Duan Yuefang and Brooke McDonald say that “RwD (Resettlement with Development) is only an ideal at this stage and is yet to be seen in practice. Despite the inclusion of RwD in policies intended for hydropower resettlement...there is only one project where RwD has been applied—the Three Gorges Dam Project” (p. 9). In a footnote, they say “Although the Xiaolangdi resettlement on the Yellow River also applies the concept, this project was developed after the Three Gorges Project and is based on World Bank Policy (pers. Comm. January 12, 2004) (p. 9), “Involuntary Resettlement as an Opportunity for Development: The Application of ‘Resettlement with Development’ in the People’s Republic of China,” Melbourne University Private Working Papers Series, No. 14, March 2004.

villagers in new sites, for various reasons. Ultimately, with the help of the Design Institute, the county was able to negotiate a satisfactory arrangement to locate everyone near the reservoir, most in small group sites.

Figure 1: Xiaolangdi Resettlement History 1991-2006



Source: Xiaolangdi M&E database

4.24 The project aimed to move people into fully-functioning villages complete with utilities, services, sources of income and administration. People settled into much better housing than they abandoned and all reports—informal and those of the independent monitor—indicate that people are happy with the quality of their homes and villages. The old villages had unpaved streets (Picture 1) and many residents lived in caves (Picture 2).¹¹ Their new, compact rural (Picture 3) and peri-urban (Picture 4) villages have paved streets inside and outside the village; drains; electricity; running water; telephone access; schools; clinics; administrative offices; most have cable television; and some have natural gas connections. New homes have courtyards that serve many purposes, from storing materials transported from former residences to housing animals and storing wood and grain (Pictures 5 and 6).

11. Picture 1 is a photo of a picture on display in the Xiaolangdi Visitor Center. All other photos were taken by the author.



Picture 1. Old Reservoir Village
Original: Xiaolangdi Visitor Center.



Picture 2. Cave Similar to Old Dwellings
Near Yuanqu, Shanxi



Picture 3. New Rural Village
Mayu, Wenxian County, Henan



Picture 4. New Peri-urban Village
Xincheng, Yuanqu County, Shanxi

4.25 Resettlers were compensated for their homes and other fixed assets, primarily in kind with building materials and some cash for labor. Families generally added their own resources, as well, if they could afford it. Resettlers moved into homes that are smaller than the ones they left, but of much better quality (Picture 7). In some villages, homes are equipped to generate biogas for cooking (Picture 8).



Picture 5. Courtyard
Zhouli, Menjin County, Henan



Picture 6. Multiple-use Courtyard
Mayu, Wenxian County, Henan



Picture 7. Living Room
Mayu, Wenxian County, Henan



Picture 8. Biogas Kitchen
Jiaozuo, Menjin County, Henan

4.26 Compensation for land went to the resettler village administration and to host communities to compensate them for the land they lost. The compensation funds were to be used for livelihood development, such as workshops, common processing areas (Picture 9), modest greenhouses (Picture 10) or fancy ones (Picture 11) or common barns (Picture 12).



Picture 9. Threshing, Processing Ground
Gulcxhang, Yuanqu County, Shanxi



Picture 10. Modest Greenhouses
Mayu, Wenxian County, Henan



Picture 11. Fancy Greenhouses
Jiaozuo, Menjin County, Henan



Picture 12. Common Barns
Jiaozuo, Menjin County, Henan

4.27 Most villages have at least one clinic (Picture 13) and school (Pictures 14-16). IEG was informed that some villages used much of the compensation funds to enhance

the quality of the schools.¹² Residents in resettlement villages proudly show off their new schools to visitors.¹³



Picture 13. Village Clinic
Mayu, Wenxian County, Henan



Picture 14. Middle School
Changtuo, Wenxian County, Henan

4.28 Township centers have many public facilities (Picture 17) and wide, landscaped streets (Picture 18). In addition to being well-equipped as administrative centers (Picture 19), the townships are already well-established as commercial (Picture 20) and service centers.



Picture 15. Elementary School Classroom
Mayu, Wenxian County, Henan



Picture 16. New Middle School
Jiaozuo, Menjin County, Henan

¹² Notes from discussion with the former task manager, who was involved in the project from the very beginning as the resettlement expert. No data were made available to IEG to support these statements.

¹³ The ICR suggests that some villages used development funds to upgrade the quality of their schools. Although one could argue that this investment would decrease the prospects of achieving development objectives, village officials expected to receive additional development funds, thus they undoubtedly felt that it was a good trade-off, consistent with the high value they place on education.



Picture 17. Township, Main Square
Changtou, Wenxian County, Henan



Picture 18. Main Street, Township
Changtou, Wenxian County, Henan



Picture 19. Township Administration
Changtou, Wenxian County, Henan



Picture 20. Store for All Needs
Changtou, Wenxian County, Henan

Improving the livelihood of resettlers proved challenging and remains partial

4.29 The land and agriculture base adopted to reestablish livelihoods after restructuring placed a premium on land acquisition and development. At closure, 75 percent of the resettlement villages had met target land allocations of 1.2 *mu*/capita (1.0 *mu* of irrigated land or 1.7 *mu* of dryland). Table 3 shows average land holdings by county, which range from 0.84 to 2.22 *mu*/capita. Members of host communities were left with similar land allocations but on average each host village had to give up 0.3 *mu*/capita to the resettlers. Provincial resettlement officers informed IEG that the villages with below-target land allocations were given special funding to develop livelihood activities that would offset the deficit, but provided no data regarding the content or success of the initiatives.

Table 3: Area of Farm Land per Capita for Resettlement Villages and Host Communities (*mu*)

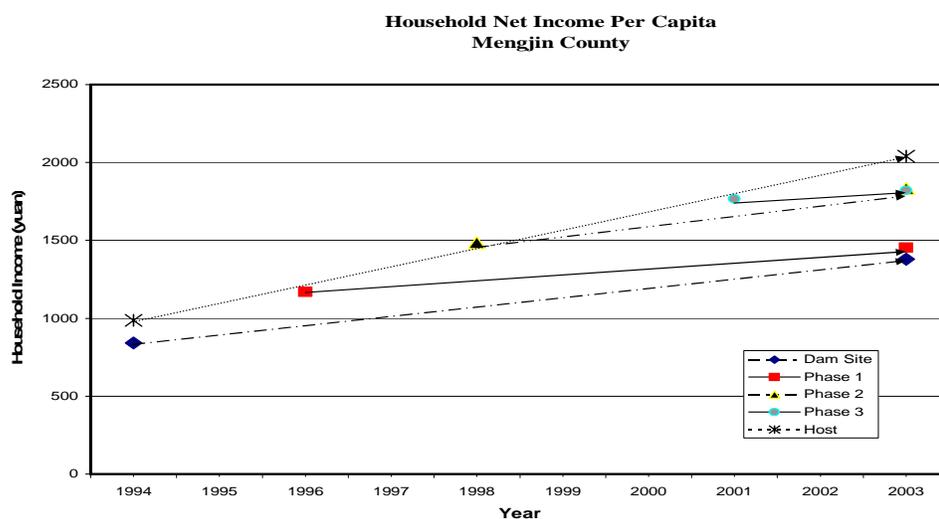
Farmland per capita						County				
	Yuanqu	Mengjin	Xin'an	Mianchi	Jiyuan	Mengzhou	Wenxian	Yuanyahg	Zhongmou	Kaifeng
Resettlers	1.07	0.87	1.10	1.63	0.84	0.94	1.00	0.99	0.90	2.22
Hosts	1.08	1.05	1.07	1.54	1.03	0.65	0.73	2.00	2.03	2.80

Source: Xiaolangdi M&E Final Report, p. 20

4.30 The Houhe Dam and irrigation project were completed in June 2003 six years later than planned and four years after resettlers arrived. Land leveling was completed at Wenmengtan at the end of 2000, two years late, and soil improvements were completed in 2001. Resettlers in the two areas that received irrigation late—Houhe and Wenmengtan—were still getting used to the irrigation system by project closure. Provincial resettlement officials assured IEG that these farmers should have adjusted to the new water regime and would have been able to increase their crop yields and incomes between 2004 and 2006. Without careful documentation, however, this conclusion appears to be unduly optimistic.

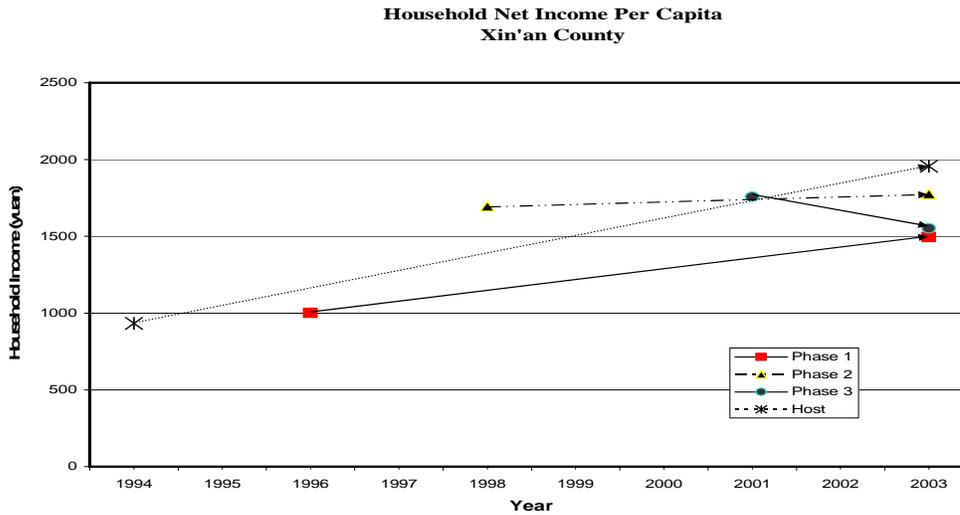
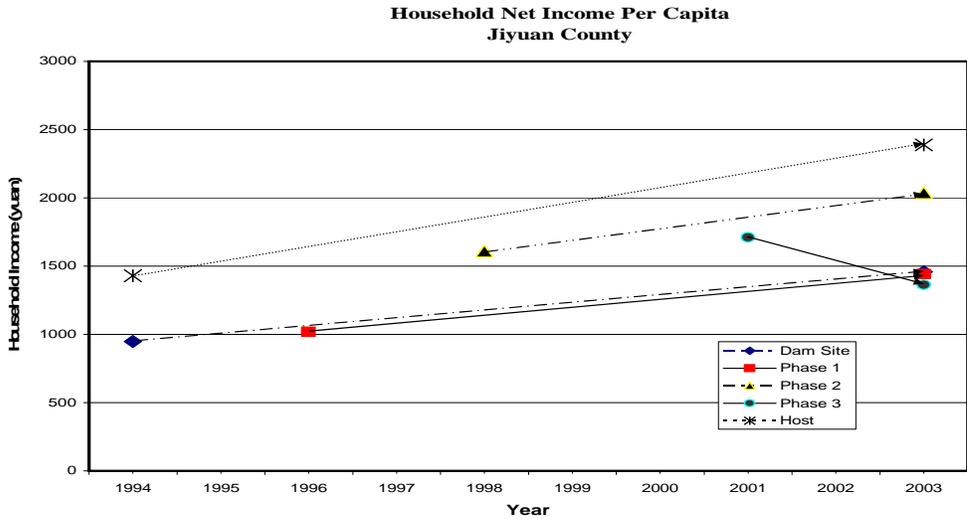
4.31 The last M&E report (2003) showed two complementary trends underway: first, in aggregate, household incomes recover in about four years, although the patterns are varied and uncertain; and second, non-agricultural income increases over time and seems to be the principal determinant of household income increases.¹⁴

4.32 The three charts shown below illustrate average per capita income trends in sample villages in three counties before and after resettlement.¹⁵ The “after” year is from mid-2002 to mid-2003; “before” dates vary from one group to another. As these are county averages, the median year of the sample is shown as the “before” date. Mengjin County shows that each group has increased its income, although none of the resettler groups reached the level of the host villagers, and the dam site and Phase 1 resettlers were considerably below others’ incomes.



¹⁴ The mission had neither the time nor the resources to commission a survey to generate more current data.

¹⁵ Taken from the before/after tables in the M&E Final Report, pp. 53-55. The “before” date for the host community sample is unclear from the report, so the charts show 1994 as the baseline year for those communities.



4.33 In Jiyuan County, the overall pattern is similar, with the exception that Phase 2 incomes started from a lower level and the income of Phase 3 resettlers has decreased since moving. Phase 3 resettlers in Xin'an County also experienced a drop in income after resettling. The decrease in incomes of Phase 3 resettlers indicates two factors: first, many of the resettlers were able to raise their incomes through individual coal mining when the ban on private mining was lifted as resettlement started; second, many of these resettlers moved shortly before the final survey, and were still working on housing and settling in. The relatively higher starting income of Phase 2 resettlers in Xin'an is also likely to be due to coal mining income.

Table 4: Percent of Sample Villages that Reached or Exceeded Pre-Resettlement Income Level in 2003

Location	Income level (%)
Damsite	90
Phase 1	100
Phase 2	85
Phase 3	88
Host communities	100

Source: Source: Derived from M&E Final Report, p.53-55.

4.34 Phase 2 and Phase 3 resettlers have been unable to restore their incomes to previous levels because their incomes (measured at the time the baseline was established) were high due to coal mining, which they could not continue after the move and because they were still settling in at the time of the last survey (Table 4).¹⁶

4.35 The percentages of household income from non-farm sources in the four resettlement groups and host communities, however, increased the longer the resettlers were established (Table 5).¹⁷ The trend appears to be for one or more members of the family to seek outside employment, rather than for the family to abandon agriculture. Increasingly, women are taking full responsibility for agriculture after resettlement.¹⁸ Most of the non-farm income comes from temporary work that is easier for resettlers to find, as their new locations are closer to larger towns and larger bazaars. Many dam site resettlers successfully sought employment related to the dam construction, but jobs were ending and people were looking for alternatives by 2003.¹⁹

4.36 The overall pattern is that resettlers are generally increasing their incomes but at a slower rate than their host communities. It is not clear, however, how the growth of the host communities' income relates to non-project affected communities in the same area. It may be that the higher growth is due to exogenous factors – such as China's own municipal development programs, or spill-over effects from dam-related commerce and employment – but the M&E system did not have indicators to capture these effects.

Table 5: Agriculture becomes less important once resettlers become established

<i>Resettlement Group</i>	<i>Non-Agricultural Income (percent)</i>	<i>Years Resettled</i>
Dam Site	86.5	>12
Phase 1	78.2	>10
Phase 2	70.0	>5
Phase 3	65.0	3 or less
Host Communities	65.5	not applicable

Source: Final M&E Report, 2003.p. 85.

4.37 Data on income restoration results are not current. There are no project-wide data available to confirm whether or not the percentage of resettlers who have restored their incomes has increased since the end of 2003. The YHWHDC still cites the 2003 data and expects the situation to have improved since then. In discussions with IEG, Henan Provincial Resettlement officials confidently claimed that incomes have been restored in resettler villages. In subsequent discussions with them and the head of the independent

16. Contrary to an earlier practice, local governments encouraged local people in the reservoir area to embark on coal mining which accounted for about 70 percent of the 789 enterprises in the area (the others were coal washing, brick making, grain processing and cement production.) When the reservoir filled these job opportunities and the associated incomes were lost.

17 The Xiaolangdi Multipurpose Dam Project Resettlement Project Completion Monitoring and Evaluation Report (Final Xiaolangdi M&E Report), Henan Hashui Consulting Service Company, December 2003, p 85

16. Final Xiaolangdi M&E Report, p. 118.

17. The Final Xiaolangdi M&E Report cited this as a new problem to be addressed, p. 149. The same point is made in Michael Webber and Brooke McDonald, "Involuntary Resettlement, Production and Income: Evidence from Xiaolangdi, PRC, *World Development*, Vol. 32. No. 4 April 2004, p. 688,

Chinese M&E team, both observed that the resettlers who failed to restore their incomes by 2003 are concentrated on the Houhe and Wenmengtan sites or resettled in 2002 or later. The official expectation is that farmers will increase production and incomes, despite declining prices, after two years or more of irrigation service.

4.38 At the end of the project IEG estimate that about 43,726 people resettled since 1998 were still undergoing adjustment to their new economic and social situation. This includes 3,376 people who were relocated after 2003 and for whom there was no project M&E to monitor livelihoods and social impacts. Given that it took the Phase I resettlers at least four years to adjust fully to their new economic and social environment (para 4.42 and graphs on page 20) this means that the fate of about 24 percent of the resettlers remains uncertain.²⁰

Social adjustment of resettlers remains incomplete

4.39 The bulk of institutional support focused on the resettlement process—selecting sites, preparing for the move and adjusting to new physical and economic environments. **Resettlement staff were concerned about livelihoods, but income restoration was beyond the competence of most staff, and the ICR says that the project waited too long to address income generation issues.** Village administrations assumed responsibility for livelihoods, with limited substantive support, as they had limited access to land compensation funds for this purpose, and expected to get additional funds through the post-resettlement support fund, but this proved to be a small and unreliable resource. Nonetheless, although officials were enthusiastic about helping resettlers and prepared proposals to develop new income streams, the results were less than expected because of the inadequacy and then lapse of transfers from hydropower revenues.

4.40 Experience with irrigation-based land reform in Southern Italy demonstrates that people who settle before an irrigation system starts to operate may suffer irreversible impacts, including substantial debt, and never achieve the economic status of those who settle later.²¹ Waiting for irrigation water inevitably prolonged the transition to everyday life of families resettled in Houhe and Wenmengtan. Without irrigation, those farmers certainly would not have been able to reach former production levels on their new small plots and their cost of living inevitably increased in the meantime.²² Recognizing this problem, local officials distributed food to those who needed it, but such a gesture is more likely to create a dependency relationship than to encourage self-reliance.

4.41 The IEG mission was unable to visit Houhe and Wenmengtan. Visits to other sites

20. IEG analysis of the official M&E data (Annex F) indicates that 27 percent of the early Phase 2 resettlers had reduced incomes over the period 1998-2003. Similarly 17 percent of the latter Phase 2 resettlers saw their incomes reduce by 17 percent over the period 2000-2003. And all of the Phase 3 resettlers did not regain pre-project income levels. The total number of Phase 2 resettlers adversely affected was 26,526 and the number in Phase 3 was 17,000. Overall total is thus 43,726 or 23.8 percent of the total resettled population of 184,080.

21. Previous research Peabody, S.

22 Resettlers enjoyed better living conditions, as well as improved access to utilities, the costs of which inevitably increased everyday costs of living.

(Phase-2) gave the clear impression that the normal adjustment period is over for most of the Phase 1 resettlers, at least, and people appear to be well settled-in. In virtually all interviews, both brief and more protracted, villagers reported that they had not wanted to move and the resettlement process was difficult, but they feel they are much better off now than they were before the move.

4.42 Visually, villages and towns appear dynamic, considering the amount and variety of products grown for the market and amount of residential decoration and differentiation to the range of consumer goods in stores. The last social monitoring report showed increasing diversification of household income sources, and this trend appears likely to have continued both within villages and between villages and the outside. In sum, early monitoring results suggested that the project's income restoration objective for resettlers has been partially achieved although the achievement cannot be expected to be uniform throughout the resettlement zone.²³

4.43 Experience has shown that it can take several years for resettlers to adjust to their new environments, even if the resettlement program itself is well-designed. Resettlers inevitably face unanticipated challenges of many types, some of the most important of which relate to income restoration. The Xiaolangdi independent monitor claimed that the process took four years for Phase 1 resettlers to be fully adjusted.²⁴ In the interim, crops can fail; learning to manage new crops, irrigation and marketing takes time; transport and labor can be major constraints; new businesses can fail; business relationships can fall apart; products can fail the market test; and other unforeseen events can occur. Poor and vulnerable people are the most likely to face economic problems and the least likely to be resilient in the face of adversity, thus resettlement is particularly difficult for them. The purpose for continuing independent monitoring is to be able to highlight both successful and problematical villages.

4.44 The purpose of the post-resettlement support fund is to make development resources available to provide seed money for individual or village entrepreneurship—to provide the development dimension of the “resettlement with development” strategy—and to help the poor and vulnerable cope with their new environment. At completion, the Xiaolangdi support fund was small, its impact had been undocumented and its future was uncertain. Subsequently, the Supreme Council issued Decree No. 417, which became effective in July, 2006. The decree covers everyone who was resettled since 1949 and provides all resettlers 600 yuan per capita per year for 20 years—about one-fifth of the

23. Brooke McDonald's field work carried out in two Xiaolangdi villages in 1999 and 2000, reported in Webber and McDonald, “Involuntary Resettlement, Production and Income: Evidence from Xiaolangdi, PRC, *World Development*, Vol. 32. No. 4 April 2004, , pp. 673-690, showed how two similar villages responded very differently to resettlement, reflecting differences in their pre-resettlement economies that would not be apparent to planners. Presumably such differences would be manifest all over the resettlement zone, suggesting that post-resettlement interventions need to be highly customized for each village.

27. Final Monitoring and Evaluation Report p. 60.

per capita annual income in the project area.²⁵ A census was under way at the time of the IEG evaluation to determine eligibility and funds were expected to be released in 2007.

4.45 The new decree and regulations were not available in English at the time of the IEG mission. Despite being briefed by people who participated in drafting the documents, as well as officials who will implement the new program, IEG did not fully understand how the program will actually operate. In particular, it was not clear if funds will be distributed at the county, township or administrative village level. There is doubt also about identifying which villages or townships need special support and how this can be targeted effectively.

Social adjustment of host communities appears was more successful

4.46 The independent monitor confirmed that household incomes in 22 sample host communities exceeded pre-project income levels by the time of project closure.²⁶ This finding is credible and incomes are likely to have continued to increase subsequently, as host community residents lost little less than an average of 0.3 mu/capita of land to resettlers and the compensation funds were used for capital improvements, especially schools, and to invest in livelihood improvement projects.

4.47 The participatory planning process, involving both resettlers and host communities, engaged resettlers and helped convince them to agree to move. It also enabled host communities to manage expectations and mitigate the impact of the loss of village land to resettlers. Resettlers and host communities jointly agreed on the location of resettlement sites and the amount of land that would be made available to resettlers. Following negotiations, both parties signed an agreement. The process helped establish good relations between resettler and host communities, greatly easing adjustment in the new environment. Early M&E reports cited instances of poor relations between resettler and host communities, primarily triggered by resettler dissatisfaction with the quality of the land that the host community ceded, but these problems decreased over time. Indeed, the final M&E report remarks that the incidence of marriages between members of host and resettler communities was increasing.

EFFICIENCY

4.48 **Efficiency is rated substantial.** Although efficiency is normally measured as a return on capital, a more salient measure of the efficiency of resettlement is the success at creating a new environment for resettlers in which they can adjust quickly and permanently.

4.49 Total project costs were almost 50 percent above appraisal estimates. Actual costs were \$4,434 per capita. The increase was due not to overruns, however, but to the results

25. In 2004, the per capita net income was estimated to be 2,838 yuan in rural Henan Province and 2,891 in rural Shanxi Province, "An Introduction to China's Provinces, Municipalities and Autonomous Regions," <http://www.china.org.cn/english/features/ProvinceView>.

26 Annual data from 2000-2003 show considerable fluctuation, however. Three villages had average incomes in 2003 lower than 2000, and half had lower incomes in intervening years.

of a census and inventory of the whole project area that was undertaken between 1995 and 1996 (para 3.3). The budget appears to have stayed within the revised allocation approved by the State Planning Commission in 1998. This re-assessment and re-calculation occurred in the initial project period, which made it possible to revise the detailed design and implementation schedule and obtain commitments for additional funding early enough to ensure the availability of adequate resources without subsequent interruption.

4.50 The project period was extended by two years, primarily because much time was spent in early years to prepare operational documents and detailed plans and to recruit, organize and train staff. The time was well spent, however, and everything was in place during the peak years of 1998-2001 and, unlike other resettlement programs in China, implementation was quite uniform throughout the project area. Virtually all of the IDA funds were disbursed almost two years before the closing date, but supervision continued through the first year of Phase 3 resettlement, which completed in 2004.

4.51 Project **efficiency** is rated high except for Houhe and Wenmengtan, which lowers the overall rating to **substantial**.

Outcome

4.52 Outcome is rated **moderately satisfactory** based on the relative importance of the project's objectives and their relevance, efficacy and efficiency, Table 6. While the mechanical process of resettlement is fairly routine, the most important value-added of the Bank's participation was to highlight the importance of livelihood restoration of resettlers and the minimization of effects of social adjustment. In consequence the greatest weight is given to sub-objective A(2) and B(1). Rating the efficacy of these sub-objectives was most adversely affected by the shortcomings of the M&E system – better and current M&E may have led to a more sanguine outcome.

Table 6: Factors Determining Project Outcome rating

<i>Objective</i>	<i>Weight</i>	<i>Relevance</i>	<i>Efficacy</i>	<i>Efficiency</i>	<i>Outcome</i>
A(1): Resettle 189,600 people from the reservoir area	3	High	Substantial		
A(2): Improve the livelihoods of the 189,600 people that were resettled	1	High	Modest		
B(1): Minimize the effect of social adjustment of the resettlers	2	High	Modest		
B(2): Minimize the effect of social adjustment of the host communities	4	High	Substantial		
		High	Modest	Substantial	Moderately Satisfactory

Risks to Development Outcome

4.53 **The overall assessment of risk to development outcome is moderate.** The risk to development outcome must be considered along two separate dimensions: resettlement and sustainable development. The threat to development in resettlement is rated low, but the risk to achieving and sustaining the “resettlement with development” outcome is moderate. The reasons for ratings are discussed below.

4.54 Resettlement is inherently a risky process, as failures can be devastating for resettlers and host communities alike.²⁷ If the resettlement process is designed and implemented appropriately, and resettlers and host communities are able to restore or increase their incomes, the risk of subsequently losing their status is similar to that of other citizens. That is, most of the critical risks in resettlement can be mitigated by good design and implementation. In the best of circumstances, some people inevitably need additional support after the move, but such support should be planned and budgeted in advance.

4.55 In the discussion that follows, some of the threats identified may affect individuals, while others may affect specific groups or the whole population of affected people. In addition, some threats relate to aspects resettling and re-establishing functioning households; some relate to restoring and maintaining income levels or increasing them, and others concern post-resettlement troubleshooting.

4.56 **Technical.** Members of resettler villages and host communities all ended up with smaller land plots than they had previously. To compensate, the project sought to allocate land by family size and to distribute irrigated, improved land, as much as possible. In most cases, to restore or increase incomes, farmers had to produce higher value crops, for which many had to learn how to irrigate and/or manage greenhouse production. These technological changes were not very sophisticated, but they were critical for success. Extension and specific technical assistance was available to help villages and farmers make the transition. Almost 85,000 people were trained in 1,165 agriculturally-related training sessions, of which almost 37,000 were women.²⁸ Technical issues were thus critical for outcomes, but moderate risk.

27. Michael Cernea identifies eight impoverishment processes usually associated with “forced replacement and reestablishment—(a) landlessness; (b) joblessness; (c) homelessness; (d) marginalization; (e) food insecurity; (f) loss of access to common property resources; (g) increased morbidity; and (h) community disarticulation in “The Risks and Reconstruction Model for Resettling Displaced Populations,” World Bank Environment Department, August 1997. Webber and McDonald (*World Development*, April 2004) cite Cernea and essentially say that of all these, Xiaolangdi resettlement does not adequately address joblessness and loss of access to common property resources. They conclude that “the Chinese state does have the capacity to avoid many of the worst effects of resettlement, at least for villages that are resettled as a whole to a new rural location. Even so, the state may not be able to (a) avoid loss of land; (b) insure against joblessness; (c) avoid the loss of space for low-intensity sources of income; and (d) plan in sufficient detail to respond to different village economies (p.689).

28 The training included growing and managing paddy, fruit trees and herbal medicines; livestock raising (cattle, pigs, sheep and rabbits); aquaculture; greenhouses and marketing, and others. ICR pp. 12 and 48. In

4.57 **Financial.** Inadequate or untimely funding can jeopardize a resettlement program, and often accounts for unsatisfactory outcomes. Unlike most resettlement programs, the Xiaolangdi project had a development objective in addition to income restoration. Resettler and host communities received land compensation funds that were intended to be used for livelihood investments. This funding was to be complemented by a post-resettlement support fund that had two purposes: to promote new livelihood activities in the community and to help the vulnerable adjust to their new environment. Unexpectedly low revenues from the Xiaolangdi hydropower in the early years of operation (but since recovered) threatened or at least delayed achieving the development outcomes of the project. The national post-resettlement program's objective is to double both the level and duration of post-resettlement support that was promised and mitigate the impact of previous shortfalls in Xiaolangdi hydropower revenue. It remains to be seen whether or not the program will be implemented in a way that meets the needs of Xiaolangdi resettlers and host communities.²⁹ This uncertainty poses a moderate risk and but the potential impact on restoring livelihoods is rated significant.

4.58 **Economic.** Ultimately, a downturn in the local or national economy could reduce income levels attained by all project people. The direct impact is likely to be most severe for employees of the relocated enterprises, but other resettlers and host community members who have begun to produce high-value crops would also be affected by changes in demand for their products. To protect resettlers against catastrophic failure, the project set a minimum allocation to farmers of 1.2 mu (0.08 ha) per person (which is smaller than their previous average holdings) and helped them make good use of the new plots, 57 percent of which were irrigated, through training, extension, and targeted technical assistance.³⁰ Relocation sites were selected that could make land available for resettlers with the carrying capacity to provide the minimum allocation. This is in contrast with the Three Gorges Project, for example, where land requirements far exceeded the supply, even at long distances, which resulted in many farmers being resettled in high-rise apartments in new cities that offered no prospects for employment, agricultural or otherwise. It is unlikely that the Xiaolangdi project would have attained minimum per person land allocations without the new land made available through the Houhe and Wenmengtan schemes.

4.59 **Social.** Resettlement potentially imposes hardships on resettlers and host communities alike and can easily lead to conflict between these two groups of affected people.³¹ Poorly designed and managed resettlement can lead to impoverishment, unemployment, permanent dislocation, isolation, intransigence, conflict or rebellion,

addition, some villages used their development funds to hire technical experts for training and extension in specific subject areas.

29. The primary risk is ensuring that the funds are correctly targeted and this can only be done if there is good monitoring and evaluation of resettlers' livelihoods. An independently managed trust fund or foundation could support necessary M&E and identify appropriate mitigation measures for shortcomings. Such approaches aimed at providing support for bridging activities have been tried in Bank projects, as for example in the UGANDA—Bwindi Impenetrable National Park and Mgahinga Gorilla National Park Conservation Project (GET Grant No. 28670 UG).

30. The project acquired 187,468 mu of farm land, of which 112,995 mu was provided with irrigation.

31. See also Cernea (1997).

among other responses. Although income restoration data are relevant, for an assessment of social risk, it is more useful to assess the physical and institutional environment to ascertain if the conditions are favorable for people to actually resettle and carry on their lives, with adjustments to take advantage of new opportunities. In this case, the conclusion is overwhelmingly positive. See Annex E for a more detailed analysis. Another unobtrusive indicator of low social risk is the fact that provincial resettlement people obtain one or two complaint letters a year from Xiaolangdi-affected people, compared to hundreds from people affected by other resettlement activities. The social risk for resettlement is rated as low in Xiaolangdi because virtually all foreseeable social risks were mitigated in project design and implementation.³² The potential impact could be significant, however. For the development aspect, the social risk is moderate, as much of the post resettlement support was to come from the fund that has never been realized as intended.

4.60 **Political.** At the time of the evaluation there were no political issues under consideration that would affect either resettlement or development initiatives. Consequently, political risks are negligible and impacts also negligible.

4.61 **Environmental.** Environmental threats are negligible, as are their likely impact, because environmental elements were built into the project design. The project successfully implemented provisions to clear the reservoir to reduce pollution in the reservoir, to mitigate industrial pollution and to establish village environmental officers to monitor water quality and public health. Site designs incorporated latrines, drainage and solid waste facilities to maintain environmental quality, as well. Public health was also monitored successfully, based on the experience of other resettlement projects, in which resettlement was accompanied by an increase in the incidence of environmentally related health problems.

4.62 **Government Ownership.** The project enjoyed a high level of government ownership during implementation, which contributed greatly to its basic achievements. The level of ownership appeared to decline after the Bank withdrew, as is commonly the case in China and other countries, as illustrated by the termination of the independent monitoring program and the delay in setting up an acceptable post-resettlement fund. On the other hand, however, development responsibilities were transferred to village administrations that keep their own records, and the post-resettlement issue has been addressed on a national level instead of the project level.³³

4.63 The creation of the new national post-resettlement support program indicates that the central government is committed to redress shortcomings in previous resettlement programs. In Xiaolangdi, the new fund is planned finance development investments that were promised. Continued government commitment is needed to ensure that the program is implemented transparently, with the active participation of resettlers. The independent monitoring program should be resumed as the need for tracking incomes and adjustments

32. See Webber and McDonald, *World Development*, 2004.

33 Dependence on village-level data has its own problems, as Mc Donald and Weber indicate in "Involuntary Resettlement in China: A Model of Good Practice?". FMR 14, July 2002, p. 38-39.

is still as important as it was during the project period. Although there is a moderate risk that post-resettlement allocations will be used by village administrations as general purpose grants, thereby potentially undermining the objective of the program, this risk is partially mitigated by the fact that villagers are aware of the new fund and have gained some experience in keeping officials accountable for the use of development funds. The risk to development outcome is thus moderate, but the long-term impact could be significant.

4.64 ***Institutional Support.*** During the IEG mission, officials at all levels were confident that the post-resettlement fund would go into effect as planned with the full support of different levels of government. The current risk thus relates to implementation responsibility and procedures, rather than policies or legislation, and is low, although the potential impact on achieving real development outcomes is significant.

4.65 ***Governance.*** There is a significant risk that poor governance could significantly limit the impact of the post-resettlement support program and ultimately the long term fate of resettlers. Provincial corruption is a recognized problem and is receiving higher coverage in the national and international press. More recently senior officials have been successfully prosecuted to highlight the need for good governance. The threat can be mitigated by implementing the program in a transparent manner with full accountability to resettlers, building on the positive experience in Xiaolangdi.

4.66 ***Natural Disasters Exposure.*** The new resettlement sites are not in disaster-prone areas, thus the likelihood of this risk is negligible.

4.67 Table 7 summarizes the IEG’s assessments of the specific threats discussed above.

Table 7: Risks to Development Outcome at Time of IEG Evaluation

Risk	Resettlement/Development			
	Likelihood	Impact	Likelihood	Impact
Technical	Low	Low	Low	Moderate
Financial	Negligible	Negligible	Moderate	Significant
Economic	Low	Moderate	Significant	Significant
Social	Low	Significant	Moderate	Significant
Political	Negligible	Negligible	Moderate	Moderate
Environmental	Negligible	Negligible	Negligible	Negligible
Government Ownership	Low	Low	Moderate	Significant
Other Stakeholder Ownership	Negligible	Negligible	Negligible	Negligible
Institutional Support	Modest	Low	Moderate	Significant
Governance	Substantial	High	significant	High
Natural Disaster Exposure	Negligible	Negligible	Negligible	Significant

4.68 Overall Risk to Development Outcome. The threat to the development outcome in **resettlement is low**. Because of uncertainty regarding the post-resettlement program and lack of ongoing monitoring, the threat to achieving the “**resettlement with development**” outcome and increased incomes is **substantial**. The overall risk to development outcome is therefore rated **substantial**.

Bank Performance

4.69 **Quality at Entry.** The Bank was engaged in preparation of the project from early stages, working closely with counterparts and consultants on all aspects of the design. The decision to fund the resettlement project separately, rather than treat resettlement as a component of the dam project, had important strategic and practical implications. It increased the visibility of resettlement issues; changed the orientation of the project from relocation and mitigation to livelihood restoration and development, introducing new concepts, priorities and institutional mechanisms; and ensured dedicated funding. The project design drew lessons from other resettlement experience in China and applied international best practices, as well as prevailing Chinese laws and regulations, resulting in a strong initial design that set the framework for the participation of affected persons in detailed site designs.

Table 8: Quality at Entry Assessment Criteria

Strategic Relevance and Approach	Highly Satisfactory
Technical, Financial and Economic Aspects	Highly Satisfactory
Poverty, Gender and Social Development Aspects	Highly Satisfactory
Environmental Aspects	Highly Satisfactory
Fiduciary Aspects	Highly Satisfactory
(Policy and) Institutional Aspects	Highly Satisfactory
Implementation Arrangements	Highly Satisfactory
Monitoring and Evaluation Arrangements	Satisfactory
Risk Assessment	Highly Satisfactory
Bank Inputs and Processes	Highly Satisfactory

4.70 This PPAR assesses quality at entry as highly satisfactory.

4.71 **Quality of Supervision.** The Bank carried out 24 supervisions during the life of the project, including 16 site visits. Most site visits were at 6-month intervals, but there were also longer intervals during critical periods—10 months (2), 11 months and 15 months—that were inconsistent with the demands of such a project. Members of the core project team (engineer and social scientist) stayed with the project from project design through the ICR, providing consistency and stability. With the combination of appropriate skills and continuity, the team developed a strong rapport with counterparts, which was reinforced by the high level of professionalism and attention to detail that characterized their field visits. Counterparts at all levels expressed their admiration for the energy, dedication, technical competence of the Bank team, as well as the utility of their constructive, practical advice. Members of the Bank team served as valuable role models for implementation staff and are given high marks for keeping the focus on people, setting and maintaining high standards, and giving strong and collegial advice and feedback.

4.72 Bank supervision focused on the quality of works as well as the development impact of the project, particularly from the perspective of affected persons. Their field discussions and supervision reports maintained a focus on project objectives and identified key implementation issues. They worked with various stakeholders to identify and resolve problems, repeatedly highlighting outstanding issues that remained to be addressed. Supervision staff made good use of the independent monitoring reports, which

proved to be especially valuable as their quality improved over time. The supervision missions added great value to implementing agencies, which was recognized and appreciated. They traveled throughout the project area, meeting with a wide spectrum of officials and affected people. Transition arrangements were part of the original design, and adequate, but the client failed to meet follow-on agreements. It is not clear what more the team could have done to avoid this occurrence, as it is common in such projects. Quality of supervision is rated as satisfactory.

Table 9: Quality of Supervision Assessment Criteria

Focus on Development Impact	Highly satisfactory
Supervision of Fiduciary and Safeguard Aspects	Highly satisfactory
Adequacy of Supervision Inputs and Processes	Satisfactory
Candor and Quality of Performance Reporting	Highly satisfactory
Role in Ensuring Adequate Transition Arrangements*	Satisfactory

* The government agreed with the Bank to continue independent M&E. It failed to do so, however, and the Bank exerted no leverage at that point. As indicated below, this is a common occurrence that the Bank needs to find a way to overcome.

4.73 *Overall Bank Performance is rated as satisfactory.*

Borrower Performance

4.74 *Government Performance.* The MWR and YRWHDC effectively engaged provincial and local governments in developing the resettlement strategy and initial resettlement plan, establishing a sound basis for the multi-level management and implementation structure that was adopted and functioned effectively. Preparation started with an initial inventory and census at the dam site and the inundation area in 1986, which was updated at least three times before the final revised resettlement plan was approved and funded by the State Council in 1998. Despite the fact that all aspects of the project went through a lengthy review and approval process in the province and MWR, the centralized implementation approached provided flexibility in detailed site design and planning that could accommodate the obvious needs of resettlers. Implementation guidelines and manuals helped maintain uniform standards and procedures.

4.75 The government adopted a complex project management and implementation structure, and established and staffed implementation offices adequately. It prepared useful guidelines to clarify the roles, responsibilities and accountability of different players and successfully monitored operations and results. The project worked with a huge number of people and sites over a large area, without compromising the complex participation and consultation process that proved effective. The ICR identified a few weaknesses and bottlenecks that occurred, such as the delay in getting approval of the revised budget and delayed adoption of resettler privileges, particularly exemption from taxes during the transition period, but these weaknesses do not appear to have reduced impact significantly or detracted from the magnitude of the overall management task and impressive performance of the YRWHCDRCO and provincial resettlement offices.

4.76 The project was implemented through well-equipped resettlement offices at the provincial, municipality, country and township levels and changed attitudes to

resettlement at all levels. Although initial staff was primarily engineers, the expanded offices included a broad range of specialists.³⁴ In addition to thorough indoctrination in Xiaolangdi resettlement concepts and principles, all resettlement officers received training through mechanisms that range from university education to on-site field training. Trained officers continue to work in resettlement offices of different levels of government, where they will have a major role in administering the new national post-resettlement program. Many others moved on to take the lead in implementing other resettlement programs.³⁵ Meanwhile, as a product of its successful participation in the project, the independent monitoring and evaluation contractor, HCWCF, is in great demand to advise and implement monitoring and evaluation programs in other parts of China.³⁶

4.77 At the time of the IEG assessment, two noteworthy deficiencies remained unaddressed since project closure: the failure to establish a functioning post-resettlement support fund acceptable to the Bank, and the failure to maintain the independent monitoring program. The latter is particularly hard to understand, given its obvious value during implementation and the equally obvious need to continue tracking outcomes to assess the impact of development investments. In addition, the income from the Xiaolangdi dam has steadily increased from Y150 million in 2000 to Y1,436 billion (US\$ 205 million) in 2006.³⁷ A portion of this income could easily have supported continued M&E. The last two deficiencies significantly call into question the government’s commitment to achieving “resettlement with development.”

Table 10: Government Performance Assessment Criteria

Government ownership and commitment to developing objectives	Highly Satisfactory
Post-resettlement follow-up	Unsatisfactory
Enabling environment—policies, etc	
Adequacy of beneficiary/stakeholder consultations, involvement	Highly Satisfactory
Readiness for implementation, institutional and staffing	Highly Satisfactory
Timely resolution of implementation issues	Satisfactory
Fiduciary	Satisfactory
Adequacy of M&E, using M&E data in decision-making*	Moderately Unsatisfactory
Relationships and coordination with donors, others	Highly Satisfactory
Adequacy of transition arrangements	Moderately Unsatisfactory

* This assessment gives primary weight to the implementation phase.

4.78 **Government implementation performance is rated as satisfactory** but with some reservations relating to post-project M&E and support.

34 Interview with the former task team leader. IEG did not obtain data on the specialization of resettlement officers,

35 Provincial resettlement officers and staff of the YRCCRO described with pride the varied career paths of different resettlement specialists who had been trained and worked on the project.

36 Stated by a high-level Henan Province resettlement officer and confirmed in an interview with the leader of the M&E team.

37. PPAR of Xiaolangdi I and II, January 2007, para 37.

4.79 **Implementing Agency.** In this section, the implementing agency is considered to be both YRWHDC and the Provincial Resettlement Offices that had major responsibility for implementation. The project was adequately funded by the YRWHDC, based on adequate data obtained during the 1995-1996 inventory, census and revision of unit prices. To strengthen implementation, the YRWHDC kept the design institute actively involved in the ongoing task of negotiating sites and preparing detailed designs, it contracted HRCCRO to supervise construction and it appointed the HCWCF to carry out the independent monitoring and evaluation program. The resettlement offices at HHRWHDC and at the province and county levels, which actually implemented the project, all made good use of the three contracted agents to identify problems and weaknesses and to overcome them. Field staff at all levels were trained and re-trained as needed, developing their participatory and financial management skills. The project maintained good records of the status, entitlements and compensation of all participants, all of whom had their own signed copies of their records. Eventually, implementing offices recorded all grievances and either addressed them or moved them up the hierarchy. Successful initiatives were shared and promulgated; unsuccessful ones were dropped.

4.80 It was undoubtedly a great challenge to apply the principles of consultation, participation, transparency and accountability during initial stages of the project, as it often meant changing the behavior and attitudes of management, implementation staff, local administrations and affected people. Nonetheless, as various participants gained experience and started seeing positive results, they accepted the principles and refined their applications. Their success ultimately led to the recent revision of national resettlement regulations that mirror the Xiaolangdi experience.

4.81 Despite an extraordinary high level of success at resettlement, especially compared to other resettlement programs, the project had development objectives that failed to be met. The delayed completion of the Houhe and Wenmengtan schemes was a failure to manage inter-agency differences. This would not necessarily be a major issue, but it led to the premature relocation of resettlers to the Houhe and Wenmengtan areas before the infrastructure was in place. This was a significant deviation from project principles and undermined an otherwise impressive demonstration of “putting people first” in resettlement. As mentioned above, the failure to establish an acceptable post-resettlement support fund and the decision to terminate the independent monitoring program have significantly compromised achieving the “development” objectives of the project.

Table 11: Implementing Agency Performance Assessment Criteria

Agency Commitment to Achieving development objectives	Satisfactory
Adequacy of beneficiary consultations and involvement	Highly Satisfactory
Readiness for implementation, arrangements, staffing	Highly Satisfactory
Timely resolution of implementation issues	Satisfactory
Fiduciary	Satisfactory
Adequacy of M&E arrangements, use of M&E data	Satisfactory
Continuity, follow-up	Moderately Satisfactory
Relationships and coordination with partners	Satisfactory
Adequacy of transition arrangements	Unsatisfactory

4.82 At project completion, 1,500 people from the Phase 2 group remained to be resettled. They were eventually moved by the end of 2005 after the project was able to negotiate micro-level arrangements that satisfied many small groups with different interests. This effort took time, patience, imagination and flexibility and the successful outcome is a tribute to the implementing agencies' continued commitment to consultation and participation. **The overall performance of the implementing agency is assessed as satisfactory.**

4.83 **Overall performance of the borrower is rated satisfactory.**

5. Discussion and Lessons Learned

5.1 Involuntary resettlement is a hotly debated issue and rightly so, as few life experiences have the profound, disruptive impact of involuntary resettlement on individuals, families and communities. Moreover, there is virtually no example of resettlement unanimously judged to be satisfactory by critics, advocates and practitioners. Resettlement due to dam construction is surely the most anxiety-provoking and threatening as it means that affected people watch familiar surroundings gradually disappear and move to potentially totally unfamiliar environments, replete with great uncertainty about housing, work, infrastructure, social networks and even spiritual attachment. The Bank has struggled with the issue for many years, stimulated by both internal and external pressures. Surely no Bank policy, with the possible exception of the Indigenous Peoples Policy, has received as much scrutiny, debate and hand-wringing as involuntary resettlement. The Bank's resettlement approach has gradually moved from an objective of "do no harm" to "resettlement with development," which requires resettlers to benefit directly from the investment that triggers the resettlement. Ultimately, however, the borrower carries out the program, not the Bank.

5.2 The Bank's resettlement policy (now OP/BP 4.12), generally considered to be the most comprehensive and effective policy of any bilateral or multilateral development institution, is constantly under scrutiny in principle and practice. Following the report of the World Commission on Dams,³⁸ Bank policy has been criticized for not insisting that dam construction should have "demonstrable public acceptance and negotiated agreements." OP/BP 4.12 requires a resettlement program to ensure that resettler and host community incomes be restored or increased following resettlement, and that affected people share in the benefits of the investment. In its 2001 study of resettlement³⁹ IEG criticized projects for not restoring incomes, except in China, and said that resettlement should be an element of a regional development plan and used as a "development opportunity" to increase incomes and essentially to bring resettlers into the economic mainstream. The IEG study also advocated stand-alone resettlement projects. One of the

38. Dams and Development: A New Framework for Decision-Making, 2000,

39. Involuntary Resettlement: Comparative Perspectives, by Robert Picciotto, Edward B. Rice and Warren Van Wicklin.

acknowledged gurus of resettlement, Thayer Scudder, recently argued that Bank policy and practice make at least five major mistakes:⁴⁰

- incorrectly assuming that compensation can restore incomes;
- using income restoration as a standard ignores the fact that living standards drop during the planning process;
- pre-project surveys underestimate income and living standards, thus lowering the income restoration threshold;
- the focus on economic and social impacts ignores other socio-cultural effects, which can also be significant; and
- cash expenditures of resettlers inevitably increase and simple income restoration does not fully cover the new cash demands.

5.3 The Xiaolangdi project was designed to address the issues presented above. It aimed to restore and increase incomes; it was to use a share of hydropower revenues to establish a post-resettlement support fund for income remediation and development; it updated baseline data to set realistic benchmarks for monitoring changes in income;⁴¹ it moved whole villages in an attempt to maintain social networks and cultural bonds; and it engaged an independent socio-economic monitor to keep abreast of both physical progress and income impacts. Resettlers were given a modest transition allowance in addition to compensation for residences and other assets. Although the adequacy of the allowance has never been assessed to determine if it enabled resettlers to meet the new cash expenditures of resettlers that Scudder describes, no grievances were reported regarding the allowance, and thus it appears not to have been a problem.⁴²

5.4 Brooke McDonald attempted to carry out an independent field assessment of production and income in two Xiaolangdi villages.⁴³ Working in one Phase-1 and one Phase-2 resettlement villages she documented differences in production, employment and incomes in the two villages before and after resettlement. Incomes were considerably higher in one of the two villages before resettlement. After resettlement, incomes in the poorer village increased (four years after resettlement), while incomes in the previously richer village decreased (one year after resettlement). The findings and analysis highlight an important point: villages that appear to be similar may have very different economies

40. Letter to Janet West, OECD, June 14, 2005.

41. The updated survey discovered that incomes and standard of living had increased during the planning period, instead of decreasing as Scudder predicted, as restrictions on coal mining in the reservoir were lifted in 1998 and many families took advantage of the changed policy to increase their incomes significantly before their departure. The ICR and the final social monitoring report explain that this new temporary income source therefore unrealistically raised the threshold for income restoration.

42 One of the early M&E reports expressed the concern that resettlers were using virtually all of their resources to upgrade their residences and leaving no funds for productive investments (fertilizer, seeds, and the like) or emergencies. This concern was echoed in the findings of the Expert Panel. In addition, when asked what lessons were learned from the project, the last task team leader replied that a mechanism was needed to limit investments in housing.

43. Webber and McDonald (*World Development*, April 2004). The paper modestly, and correctly, discusses the limits of their claim to “independence,” but the study is nonetheless valuable and the data seem especially rich, given their caveat. See also their article “Involuntary Resettlement in China: A Model of Good Practice?” *FMR* 14, July 2002.

which lead to divergent outcomes after resettlement under similar circumstances. Detailed village-level resettlement planning and site design are not likely to highlight such differences, or respond to them, even if they are undertaken in a highly participatory manner.

5.5 This insight strongly underscores the need to have a post-resettlement mechanism available to respond individually to the unique and unforeseen needs of communities and groups within them. The Xiaolangdi Resettlement Project was unusual in its provision for such a post-resettlement fund, and it had in place an effective monitoring system to help identify communities needing further assistance, as well as those with ideas for investments to grow the local economy and raise resettler incomes. The independent social monitoring team was expected to document changes and highlight problems, although the monitoring reports barely touched the surface. This was not an isolated issue in China as the experience elsewhere shows.⁴⁴

5.6 Although the final issues of post-resettlement monitoring and support remain to be realized, the new post-resettlement support policy of the government should provide an opportunity for Xiaolangdi resettler communities to be able to prepare and undertake development initiatives that can have long-term benefit to affected people. This is in marked contrast with other, unsuccessful resettlement programs for which the new support policy was undoubtedly intended. In such cases, the post-resettlement fund is needed just to relieve the suffering of affected peoples who were abandoned with incomplete, inadequate facilities and opportunities. In Xiaolangdi, the need for remediation is not obvious. Thus, instead of using the fund to overcome long-standing deficiencies; it can be used to enable resettlers to create new development opportunities.

5.7 The government's failure to continue M&E after project closure is not unique to Xiaolangdi in China or elsewhere. Likewise, this is not the only project for which adequate post-project supervision might have reduced risks to development outcomes. Rather than continue to repeat the unfortunate experience, the Bank needs to find ways to allocate funds to allow continued supervision of projects with critical and unresolved safeguard issues. Staff need to work with government to develop mechanisms to ensure funding to meet their post-project obligations in these cases. Clearly, inadequately-funded final agreements are doomed to failure. The Uganda Bwindi Forest and Mgahinga National Park Project offers one example of an offshore trust fund to support post-project activities; perhaps other examples are available, as well. It took years for the Bank to recognize that resettlements projects must be kept open until the physical works are completed. How long will it take for the Bank to realize that it must also stay involved until the social outcomes are also achieved?

44. A post-resettlement fund for the Daguangba Multipurpose Project (1992-1998), was established in 2000, effective from 1997 to 2006, primarily to resolve the many remaining resettlement problems. Contrary to normal practice, the Bank supervised the project a couple of years after project closure. A supervision report in 2001 recommended that supervision continue for a few years to monitor income restoration and ensure that the resettlement fund was allocated as agreed. Contrary to agreements with the Bank, independent monitoring at Daguangba was terminated after project closure (similar to Xiaolangdi), and the 2001 supervision recommended that the program be resumed.

5.8 The project influenced resettlement in China by helping to formulate clear concepts and priorities, introduce new institutional mechanisms, develop operational guidelines, and train staff. Some innovations were accepted easily, while others, such as independent M&E were initially challenged by various officials and technical people. Nevertheless, as the result of successful implementation, the new concepts and mechanisms were incorporated into national policy; the guidelines were adopted and applied systematically; and competent, trained staff have moved on to apply their skills, experience, guidelines and concepts in new resettlement programs.⁴⁵

5.9 The term used most commonly used to differentiate the Xiaolangdi Resettlement Project from others is “people centered.”⁴⁶ Unlike previous programs, it gave priority to the needs and ultimate status of both resettlers and host community members. Officials up and down the hierarchy now use the term and a number of concrete manifestations of the concept: consultation; participation of affected persons in design; fairness; respect for individual rights; transparency in all areas, especially financial; special attention to the vulnerable; and attention to the needs of host communities. These terms are now part of the standard vocabulary of people dealing with resettlement issues, as is the priority given to income restoration as the objective and ultimate measure of the success of a resettlement program.

5.10 Ten lessons emerge from this project.

- ***Finance resettlement independently.*** Successful resettlement must be adequately funded and funding must be reliable, as both can be jeopardized if the resettlement budget competes with the construction budget in a project, especially if cost of either is higher than anticipated.
- ***Do not move people prematurely.*** Resettlement programs must ensure that people can regain control of their lives immediately, thus no one should be moved until resettlement sites are fully constructed and outfitted and the means for livelihood are in place.
- ***Inform fully and get feedback.*** Information and transparency were critical for gaining trust and obtaining ownership, in both the overall program and the resettler-host community agreements, which set the foundation for positive long-term relationships.
- ***Resettlers and host communities need mutual understanding.*** Resettler-host agreements set the stage for mutually beneficial relations and reduce both the anxiety and uncertainty of resettlers.
- ***Prepare for both resettlement and development.*** Achieving successful

45 Several officials cited the new structure downstream of Xiaolangdi and the South-North Water Transfer Project as examples of resettlement using Xiaolangdi concepts and materials.

46. This term is an adaptation of the term initially used during project preparation—“putting people first”. The term was coined by Michael Cernea and gained international recognition as the title of his landmark book that recounted various development experiences and argued for a participatory approach to all development activities. *Putting People First: Sociological Variables in Rural Development*. (Oxford: Oxford University Press, 1985). The World Bank’s first sociologist and an internationally recognized resettlement expert, Cernea served as peer reviewer for the Xiaolangdi Resettlement Project.

resettlement with real development requires at least two different sets of skills and competencies, which an implementing agency should have available from the beginning.

- ***Set standards and be flexible.*** High-level oversight and local-level implementation of this massive resettlement program set uniform standards and permitted the flexibility needed to respond to the needs of resettlers and host communities.
- ***Update, Update, Update.*** The scope and budget of a resettlement and development program needs to be updated periodically to encompass the dynamism of communities and ensure that adequate funding is available to meet the legitimate, changing needs of affected people
- ***Follow up, as relocation is only the start.*** Under the best of circumstances full readjustment can take years and some income restoration and improvement strategies will fail. Mechanisms should be in place after resettlement to address readjustment problems and plan development initiatives. It is especially important to continue independent monitoring to follow progress, spot problems and highlight priority areas for development support, for several years following resettlement.
- ***Arrange financing for post-project M&E and supervision before closing.*** The Bank needs to find ways to allocate funds to allow continued supervision of projects that have critical and unresolved safeguard issues. Staff need to work with government to develop mechanisms to ensure funding to meet their post-project obligations.
- ***Great care needs to be given to establish a project counterfactual to establish socially equitable levels of income restoration.*** A before and after approach was flawed as it did not make allowances for the general improvements in welfare and incomes. Thus while project resettlers did improve their incomes over baseline levels in most instances their subsequent income growth was slower than that in host communities. And is not known how host communities' income growth related to other communities in the same region that were unaffected by the project

Annex A. Basic Data Sheet

Xiaolangdi Resettlement Project 2605-CHA

Key Project Data (amounts in US\$ million)

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>	<i>Actual as % of appraisal estimate</i>
Total project costs	571.2	840.9	147
Loan amount	111.9	111.9	100
Cofinancing	0.0	0.0	n.a.
Cancellation	0.0	0.0	n.a.

Cumulative Estimated and Actual Disbursements

	<i>FY95</i>	<i>FY96</i>	<i>FY97</i>	<i>FY98</i>	<i>FY99</i>	<i>FY00</i>	<i>FY01</i>	<i>FY02</i>	<i>FY03</i>	<i>FY04</i>
Appraisal estimate (US\$M)	15.00	15.00	25.00	30.00	15.00	7.00	3.00	0.00	0.00	0.00
Actual (US\$M)	16.52	28.14	14.66	15.55	14.89	5.28	0.01	14.77	2.00	0.04
Actual as % of appraisal	110	188	59	18	52	75	0	--	--	--
Date of final disbursement: 12/07/2003										

Project Dates

	<i>Original</i>	<i>Actual</i>
Concept Review	06/23/1993	06/23/1993
Appraisal	10/01/1993	10/01/1993
Board approval	04/14/1994	04/14/1994
Effectiveness	08/31/1994	09/22/1994
Closing date	12/31/2001	12/31/2003

Staff Inputs (staff weeks)

<i>Stage of Project Cycle</i>	<i>Actual/Latest Estimate</i>	
	<i>No. of Staff Weeks</i>	<i>US\$ ('000)</i>
Identification/Preparation		146.0
Appraisal/Negotiation		-
Supervision		669.0
ICR		-
Total		845.0

Mission Data

<i>Date (month/year)</i>	<i>No. of persons</i>	<i>Specializations represented</i>	<i>Implementation Progress</i>	<i>Development Objective</i>
Identification/ Preparation 06/1993		Task Manager ; Anthropologist ; Assistant Anthropologist ; Institutional Specialist ; Resettlement Specialist		
Appraisal/ Negotiations 10/1993	8	Task Manager; Engineers (2); Resettlement Specialists (2) Anthropologist		
04/1994	6	Task Manager; Lawyer; Resettlement Specialist; Anthropologist; Irrigation Engineer; Economist		
Supervision				
10/1994	3	Task Team Leader; Financial/Training Specialist; Irrigation Engineer	S	HS
05/1995	3	Task Team Leader; Irrigation Engineer; Anthropologist	HS	HS
11/1995	3	Task Team Leader; Irrigation Engineer, Economist	HS	HS
05/1996	2	Task Team Leader; Irrigation Engineer	HS	HS
11/1996	3	Task Team Leader; Resettlement Specialist; Irrigation Engineer	S	S
12/1997	3	Task Team Leader; Resettlement Specialist; Financial Specialist	S	S
06/1998	4	Task Team Leader; Resettlement Specialist; Irrigation Engineer; Anthropologist	S	S
11/1998	5	Task Team Leader; Resettlement Specialist; Social Development Specialist; Environment Specialist; Irrigation Engineer	S	S

<i>Date (month/year)</i>	<i>No. of persons</i>	<i>Specializations represented</i>	<i>Implementation Progress</i>	<i>Development Objective</i>
01/1999	9	Task Team Leader; Resettlement Specialists (2); Procurement Specialist; Financial Specialist; Auditor; Irrigation Engineer; Social Development Specialist; Economist	S	S
09/1999	8	Task Team Leader; Resettlement Specialists (3); Compensation Specialist; Financial Specialist; Irrigation Engineer; Auditor	S	S
12/200	8	Task Team Leader; Resettlement Specialists (3); Social Development Specialist; Environment Specialist; Irrigation Specialist; Financial Management Specialist	S	S
10/2001	9	Task Team Leader; Resettlement Specialist; Engineer; Social Development Specialists (2); Financial Management Specialist; Environment Specialist; Agronomist; Cultural Property Specialist	S	S
05/2002	9	Task Team Leader; Engineer; Resettlement Specialist; Environment Specialist; Social Development Specialists (2); Cultural Property Specialist; Economist; Rural Development Specialist	S	S
11/2002	6	Task Team Leader; Engineer; Environment Specialist; Social Development Specialist; Economists (2)	S	S
10/2003	5	Task Team Leader; Social Development Specialists (2); Resettlement Specialist; Economist	S	S
ICR	9	Task Team Leader; Social Development Specialists (2); Resettlement Specialists (2); Economists (2); Environment Specialist; Irrigation Engineer		

Other Project Data

Borrower/Executing Agency:

FOLLOW-ON OPERATIONS

<i>Operation</i>	<i>Credit no.</i>	<i>Amount (US\$ million)</i>	<i>Board date</i>
None			

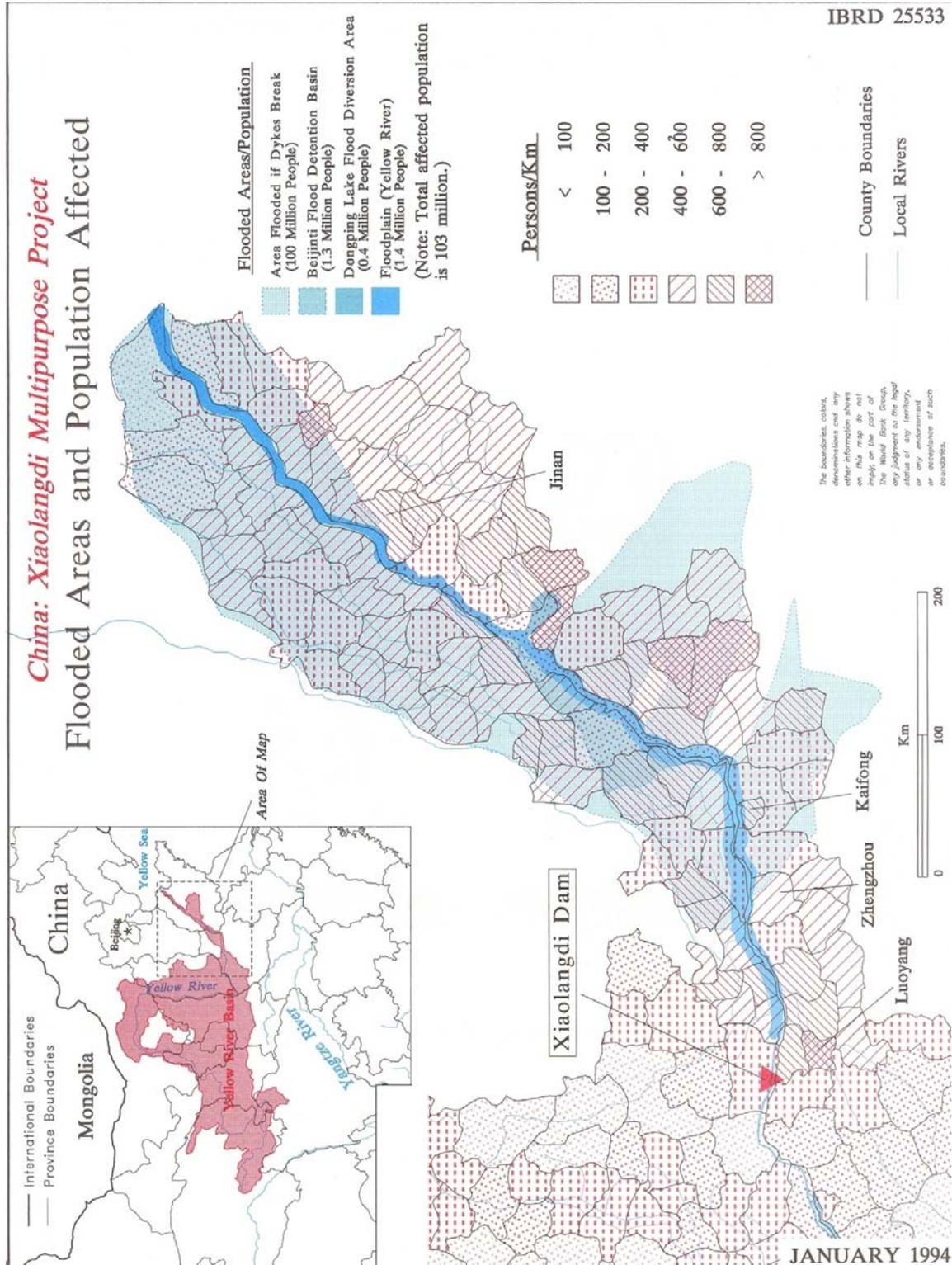
Annex B. Resettlement Criteria for the Xiaolangdi Project

1. The population subject to resettlement should not only maintain its current standard of living but it should also directly share in project benefits.
2. The resettling transition period should be minimized and adequate support for both social and economic development should be provided during the transition period.
3. Resettlement should achieve the complete social and economic reestablishment of those dislocated, on a viable productive basis through the creation of project-faded new industrial, service sector and agricultural employment activities.
4. Insofar as changes of occupation are necessary, the replacement opportunities should properly recognize the social, communal, cultural, educational, and vocational profile of those affected, and any changes in economic activities should be introduced on a voluntary basis.
5. Resettlement of the agricultural population should be land-based wherever possible.
6. Land sharing with host villages should be based on the principle of must be acceptance and should be planned so as to provide higher incomes (from all sources) for relocatees and hosts.
7. The resettlement plans should have popular acceptance and the affected population should be consulted.
8. Resettlement distances should be minimized and opportunities for resettling entire communities and natural groups should be provided.
9. House and dwelling size allocation at new town and village sites should show improved standards and conditions.
10. The resettlement plans for towns, villages and enterprises should minimize the loss of existing agricultural lands.
11. The resettlement plans should have adequate institutional arrangements to ensure effective and timely implementation and adequate monitoring and evaluation arrangements.
12. The financial resources to carry out the relocation and development proposals should be available when and where required Development plans should be prepared in concert with relocation plans.
13. The impact of resettlement on the natural and socioeconomic host environment should be considered acceptable.

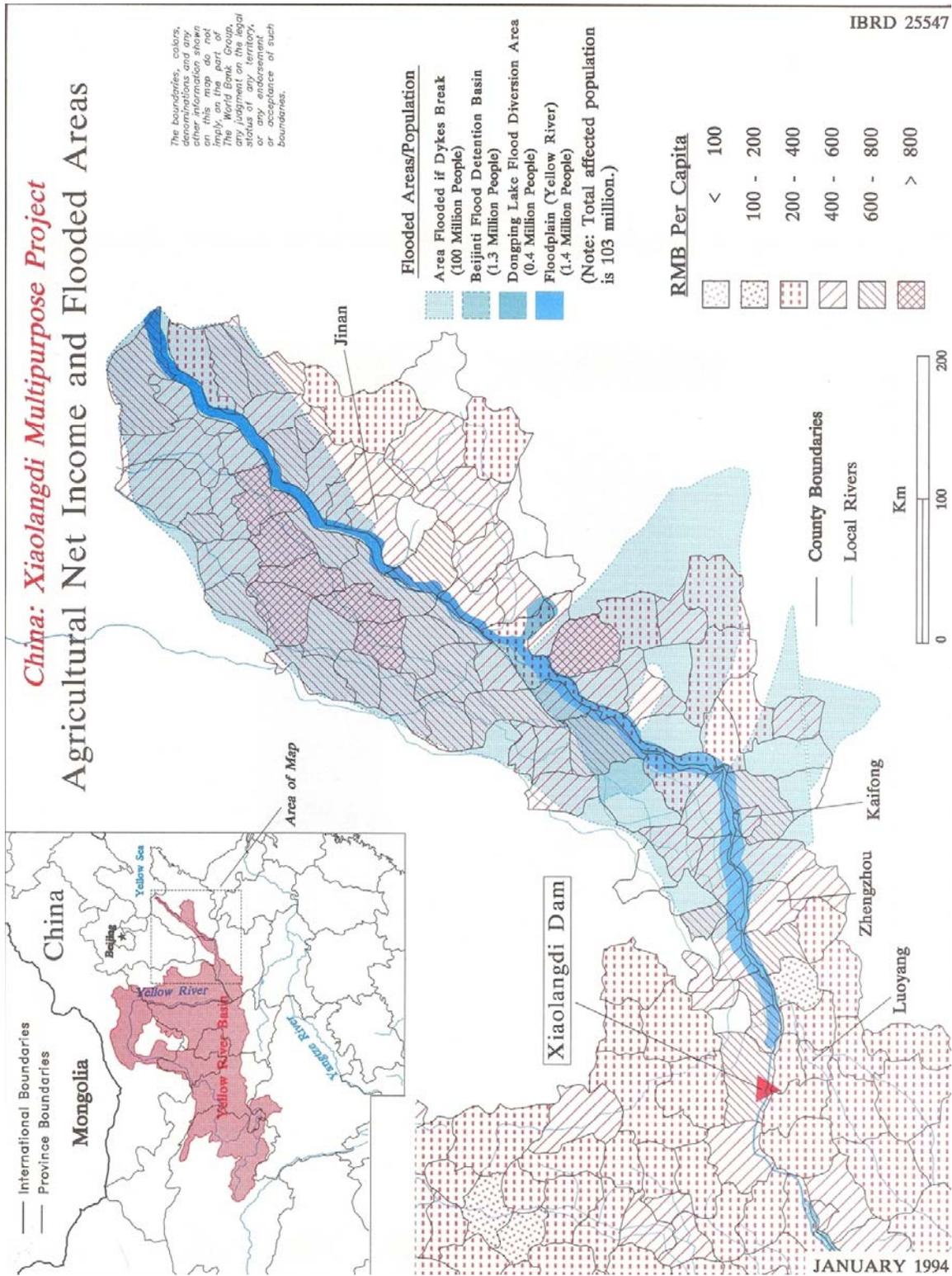
14. Only those enterprises that will be economically viable should be considered for relocation and the compensation for the assets of the nonviable enterprises should be used to create new employment opportunities.
15. Inundated items of infrastructure such as roads, bridges, etc., should be replaced so that the previous level of service is maintained or improved.
16. If sharing farmlands does not result in achieving target incomes, some of the labor force should be offered non-agricultural employment opportunities.
17. Family members of the employees of affected state enterprises and institutions can go into non-agricultural sectors on a voluntary basis. The units of local governments, once compensated, shall be responsible for such employment arrangements.

Annex C. Maps

Map C 1 Flooded Areas and Population Affected



Map C 2: Agricultural Net Income and Flooded Areas



Annex D. Project-Affected Towns, Villages and People

Table D1. Inundated Villages and Towns

Item	Unit	SAR			Actual		
		Henan	Shanxi	Total	Henan	Shanxi	Total
Affected towns	No.	8	4	12	8	4	12
Affected villages	No.	173	54	227	217	66	283
Affected population	No.	133,616	39,255	172,871	130,440	42,047	172,487

Table D2. Movement of Rural Resettlers

		1992-1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2010-2011	Total
Dam Site	SAR	9944													9944
	Actual	11652													11652
Phase 1	SAR		7230	7230	7230										21690
	Actual		11549	22776	8100										42425
Phase 2	SAR					26122	26122	26122	26122	26122					130612
	Actual					16347	45771	30658	18262	0	0		1676	17924	112714
Phase 3	SAR														17924
	Actual									7650	7850	1700			17200
Total	SAR	9944	7230	7230	7230	26122	26122	26122	26122	26124				17924	180170
	Actual	11652	11549	22776	8100	16347	45771	30658	18262	7650	7939	1700	1676		184080

Annex E. Social Principles Applied That Mitigated Social Risks

The following are the most significant social principles embedded in the project and the mechanisms to achieve them that effectively mitigated social risks:

- Choice and Voice—resettlers were consulted on site locations and participated in preparing the site designs once they were satisfied with the selection
- Equity—entitlements were clear and uniformly applied
- Fairness—resettlers participated in preparing the asset inventory and were aware of compensation levels, which were updated by 1997, from earlier inventories in 1986 and 1992
- Informed Consent—relocation and land allocations were based on a signed agreement between the resettler village and host community
- Specific Agreement—relocation followed a signed agreement between the local resettlement office and each family, there were no forced relocations
- Responsiveness—grievances, primarily regarding the quality of allocated land, were recorded and resolved quickly (fully in place during the last four years)
- Transparency—compensation for households and allocations of compensation funds to villages were posted on public bulletin boards (the practice was implemented midway through implementation)
- Asset Replacement—resettlers were compensated for the value of their homes with the expectation that they would end up with one of comparable value (within the new context); new land was allocated on a per capita basis, understood to be smaller than their original household plots, but more productive. Land location and quality was the most prevalent issue raised in grievance procedures
- Preparedness—resettlers were expected to restore or improve incomes on smaller plots by growing new, higher-value crops, which required new information and skills; there were programs to prepare the farmers, but it is not clear how widespread or adequate they were or when their full impact was expected to be realized. Presumably post-resettlement support funds would be used to overcome problems caused by over-optimistic assessments of the crop choices, farmers' skills and the training and advice provided
- Completeness—all village facilities and infrastructure were to be completed, and land improvements made, before people were relocated. This was mostly adhered to, except in the case of Houhe and Wenmengtan and a number of Phase 2 and Phase 3 villages, and was assiduously tracked by independent social monitoring

- Customization—resettlers managed residential construction individually or in groups, which assured ownership and permitted them to use their own resources to add extra features
- Administrative Continuity—resettlement was by administrative units, with existing administration having a major role in preparing for the move and settling into the new environment
- Community—resettlers moved as whole communities, maintaining social networks, although people were free to opt out, if desired
- Kinship—residential sites were usually allocated by lots, but kinship units were kept together, if desired, especially inter-generational households
- Inclusion of the Vulnerable—vulnerable people were identified and given special assistance as needed to ensure that they were settled satisfactorily
- Financial Independence—the project explicitly aimed to enable people to restore their livelihoods and, through village initiatives, identify viable alternatives
- Safety-net—funds were available to address problems of adjustment⁴⁷
- Benefit-sharing—the post-resettlement fund, expected to come from hydropower revenues, was intended to be used to overcome deficiencies in planning and implementation and to create new development opportunities. Instead honoring the commitment to share benefits, the owner is relying on the Government to fund post-resettlement support.
- Readjustment—inevitably, some resettlement sites and livelihood arrangements are unable to meet the needs of resettlers. Although the M&E program was supposed to maintain up-to-date project-wide data to spot problems and propose remedial measures, officials will have to rely on village administration data to serve that purpose.

⁴⁷ The final M&E report provided data on the amount of funds spent for assistance to the vulnerable, but it did not assess their efficacy or adequacy, but it did not mention funding for general hardships, such as caused by delays in completing irrigation and land improvement in Wenmengtan. Provincial resettlement officials indicated that they had funding provide food and other support to resettlers facing crises.

Annex F. Resettlers Incomes 1994-2003

Monitoring Results of Resettlers' Income – Results from the Xiaolangdi Monitoring Evaluation Final Report (Table 4.1)

No.	County	Village	Sample amounts	Population	Style	Relocation year	Relocation session	Resettlers' net income per capita (yuan)									
								1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1	Yuanqu	Anwo	10	49	Inside	1999	2.1					1367		2376	1110	1381	1580
2	Yuanqu	Dongtan	9	50	Inside	1999	2.1					1771		1313	1382	1045	1384
3	Yuanqu	Gucheng	15	85	Inside	1999	2.1					1658		1648	1274	1607	1783
4	Yuanqu	Guanjia	10	42	Inside	1999	2.1					1631		1198	1051	2556	2890
5	Yuanqu	Huchun	10	47	Inside	1999	2.1					1567		1749	1071	1915	1899
6	Yuanqu	Mawan	10	51	Inside	1999	2.1					1229		1554	972	819	1158
7	Yuanqu	Ruichun	9	44	Inside	1999	2.1					1928		1074	511	707	1029
8	Yuanqu	Xiabo	10	48	Inside	1999	2.1					1600		1965	1492	1626	2056
9	Yuanqu	Xincheng2	10	46	Inside	1999	2.1					1967		1472	2704	1467	3086
10	Yuanqu	Xincheng1	8	31	Inside	1999	2.1					2332		2427	2410	2334	3306
11	Yuanqu	Yaotou	10	48	Inside	1999	2.1					1872		1526	922	943	1892
12	Yuanqu	Yunling	8	36	Inside	1999	2.1					1853		1617	1137	1457	1566
13	Yuanqu	Caojiapo	11	49	Inside	2000	2.2						1865		1829	1306	1285
14	Yuanqu	Motou	9	41	Inside	2000	2.2						1733		1558	1101	1801
15	Yuanqu	Xinzhuang	10	53	Inside	2000	2.2						1831		2599	2310	1976
16	Yuanqu	Zaili	10	42	Inside	2001	2.3							1978		1676	1596
17	Yuanqu	Xiaozhao	10	49	Inside	2001	2.3							1332		1138	1428
18	Yuanqu	Yuli	10	39	Inside	2001	2.3							2063		2407	1598
19	Yuanqu	Xiama	10	49	Inside	2001	2.3							1265		1563	1531
20	Yuanqu	Xiechun	16	70	Inside	2002	3								1652		1343
21	Yuanqu	Yuzi	10	40	Inside	2002	3								1324		1069
22	Yuanqu	Shangbo	15	63	Inside	2002	3								1367		1112

No.	County	Village	Sample amounts	Population	Style	Relocation year	Relocation session	Resettlers' net income per capita (yuan)										
								1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
23	Yuanqu	Yanjahe	12	53	Inside	2002	3								1470		1288	
24	Mianchi	Shaohua	10	40	Inside	1999	2.1					1755		1649	3324	2877	2689	
25	Mianchi	Banchun	12	52	Inside	1999	2.1					1981		1121	1199	1879	1726	
26	Mianchi	Guanjia	10	45	Inside	1999	2.1					1354		1389	1360	2244	1988	
27	Mianchi	Shaoyang	10	47	Inside	1999	2.1					1792		1143	801	1804	2064	
28	Mianchi	Yangjia	9	38	Inside	1999	2.1					1357		1354	664	975	1125	
29	Mianchi	Yingxin	9	36	Inside	1999	2.1					1309		1357	1342	1936	1459	
30	Mianchi	Renchun2	11	54	Inside	2000	2.2						1730		1241	1058	1875	
31	Mianchi	Renchun1	11	53	Inside	2000	2.2						1730		776	1058	1530	
32	Mianchi	Beiping	10	46	Inside	2001	2.3							1589		1239	1645	
33	Mianchi	Nanping	10	48	Inside	2001	2.3							1589		1632	2123	
34	Mianchi	Huaipa	15	64	Inside	2002	3								1761		1417	
35	Mianchi	Bailang	15	57	Inside	2002	3								2068		1959	
36	Xin'an	Hexi	10	42	Inside	1997	1				1110		745	1219	1266		1176	
37	Xin'an	Dazhang	10	41	Inside	1997	1				1098		798	1013	1184		1707	
38	Xin'an	Magou	9	32	Inside	1997	1				1083		1186	1330	1474		1991	
39	Xin'an	Tadi	10	41	Inside	1997	1				1109		1467	1649	1752		1850	
40	Xin'an	Lingqu	10	34	Inside	1997	1				799		877	975	1041		1376	
41	Xin'an	Huangpo	10	44	Inside	1997	1				995		940	924	1683		1243	
42	Xin'an	Huailin	10	41	Inside	1997	1				1013		994	1129	1265		1248	
43	Xin'an	Yancang	10	41	Inside	1997	1				902		971	1121	1273		1371	
44	Xin'an	Caozhuang	15	65	Inside	1999	2.1						1810		1081	1539	1811	1308
45	Xin'an	Shiqu	6	30	Inside	1999	2.1						2015		1635	1909	2331	2512
46	Xin'an	Wangfen	5	26	Inside	1999	2.1						1590		735	1513	1396	1224
47	Xin'an	Yunshui	10	44	Inside	2001	2.3							1475		2105	1987	
48	Xin'an	Tanzigou	11	56	Inside	2001	2.3							1389		2022	2149	

No.	County	Village	Sample amounts	Population	Style	Relocation year	Relocation session	Resettlers' net income per capita (yuan)									
								1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
49	Xin'an	Mewu	9	34	Inside	2002	3								1915		1811
50	Xin'an	Taishang	10	53	Inside	2002	3								1600		1293
51	Mengjin	Dongdi	10	40	Inside	1999	2.1					2322		1547	1539	1372	2380
52	Mengjin	Meiyao	22	103	Inside	1999	2.1					1118		683	1089	1109	1566
53	Mengjin	Guanghua	10	52	Inside	2001	2.3							1218		880	1898
54	Mengjin	Zhouli	10	49	Inside	1997	1			1161		1037	1147	1183			1204
55	Mengjin	Qinghe	10	42	Inside	1997	1			1179		1649	1858	1909			1702
56	Mengjin	Xiagou	16	71	Inside	2002	3								1766		1726
57	Mengjin	Xiaolangdi	9	28	Inside	1994	The dam area	788	3340	3100	2350						1286
58	Mengjin	Liuzhuang	9	35	Inside	1994	The dam area	747	2805	3150	2500						1225
59	Mengjin	Shiyuanpo	9	37	Inside	1994	The dam area	926	2670	2935	2300						1519
60	Mengjin	Shimen	9	33	Inside	1994	The dam area	862	2930	2755	1500						1414
61	Mengjin	Heqing	10	45	Inside	1994	The dam area	884	2745	3140	3050						1450
62	Wenxian	Yandong	10	44	Outside	1997	1			902		888	1188	1113			2109
63	Wenxian	Hexi	10	45	Outside	1997	1			1110		639	938	759			2781
64	Wenxian	Longqu	10	40	Outside	1997	1			799		769	1004	842			2051
65	Wenxian	Cangtou	14	67	Outside	1999	2.1					1993		1065	1848	1780	2328
66	Wenxian	Mayu	9	37	Outside	1999	2.1					1142		1358	1381	1648	2218
67	Wenxian	Shiqu	11	45	Outside	1999	2.1					1650		903	1461	1736	2315
68	Wenxian	Taijian	15	68	Outside	2000	2.2						1616		1974	2016	2308
69	Wenxian	Xigou	16	74	Outside	2000	2.2						1448		1126	1176	1740
70	Wenxian	Xiashijing	14	66	Outside	2000	2.2						1615		1641	1748	1822
71	Wenxian	Beiye	15	75	Outside	2001	2.3							1187		1301	1262
72	Wenxian	Peiling	10	42	Outside	2001	2.3								1627		1842
73	Mengzhou	Beichun	9	34	Outside	1997	1			1172		744	951	1019			1556

No.	County	Village	Sample amounts	Population	Style	Relocation year	Relocation session	Resettlers' net income per capita (yuan)									
								1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
74	Mengzhou	Tadi	10	36	Outside	1997	1			1109		591	656	685			1508
75	Mengzhou	Yanxi	10	47	Outside	1997	1			902		1119	1406	1668			2326
76	Mengzhou	Xiwo	10	36	Outside	1997	1			1027		1013	1131	1361			1566
77	Mengzhou	Caozhuang	13	51	Outside	1999	2.1					1838		1272	1957	1614	1868
78	Mengzhou	Chenwan	16	65	Outside	1999	2.1					1901		1412	1262	1433	2151
79	Mengzhou	Hengshan	23	116	Outside	1999	2.1					1773		1418	1564	1947	1722
80	Mengzhou	Gaoya	12	49	Outside	1999	2.1					1367		1228	1237	1502	1274
81	Mengzhou	Shishang	13	54	Outside	1999	2.1					1764		1350	1647	1224	1741
82	Mengzhou	Zhuyuan	15	80	Outside	1999	2.1					1768		1425	1799	1460	1899
83	Mengzhou	Yunshui	13	59	Outside	2000	2.2						1475		1414	1504	1441
84	Mengzhou	Shichun	15	61	Outside	2000	2.2						1306		1500	1671	1527
85	Mengzhou	Xuzhuang	10	40	Outside	2001	2.3							1750		1561	1816
86	Yima	Kuangkou	20	87	Outside	1997	1			1885		1050	1714	2509			2610
87	Yuanyang	Xinyang	10	38	Outside	1997	1			900		961	1665	1239			1601
88	Yuanyang	Cangxi	13	59	Outside	1999	2.1					1733		1037	1284	1515	2091
89	Yuanyang	Heyao	10	49	Outside	1999	2.1					1402		1050	1062	1222	1979
90	Zhongmou	Xuchun	14	63	Outside	1999	2.1					1296		763	1245	1918	1964
91	Kaifeng	Heshui	15	70	Outside	2000	2.2						1680		1589	1393	1768
92	Kaifeng	Shaofeng	15	67	Outside	2000	2.2						1755		1160	1202	1954
93	Kaifeng	Yangshao	15	57	Outside	2000	2.2						1357		1213	1495	1521
94	Jiyuan	Tongshuling	8	47	Inside	1994	The dam area	990	2727	4296	3880						1187
95	Jiyuan	Liaowu	10	45	Inside	1994	The dam area	1016	1756	2452	3100						1060
96	Jiyuan	Qiaogou	10	39	Inside	1994	The dam area	953	1725	2399	2589						1612
97	Jiyuan	Shuangtang	8	35	Inside	1994	The dam area	981	1069	1241	2010						1566
98	Jiyuan	Liandi	10	39	Inside	1994	The dam area	756	1120	2199	2523						1867
99	Jiyuan	Luoyu	9	45	Inside	1997	1			1068		2442	2153	2430			1317

No.	County	Village	Sample amounts	Population	Style	Relocation year	Relocation session	Resettlers' net income per capita (yuan)									
								1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
100	Jiyuan	Liang'an	8	35	Inside	1997	1			1155		1721	1698	2023			1819
101	Jiyuan	Baigou	9	39	Inside	1997	1			1072		2209	1965	2643			1620
102	Jiyuan	Niuwan	8	36	Inside	1997	1			1198		2358	2242	2149			1296
103	Jiyuan	Changquan	9	38	Inside	1997	1			1054		1444	1239	1680			1235
104	Jiyuan	Zhuyu	10	50	Inside	1997	1			1058		2248	1687	1894			1091
105	Jiyuan	Guanyang	9	49	Inside	1997	1			968		1612	1663	1096			1238
106	Jiyuan	Dajiao	10	50	Inside	1997	1			1034		1996	1435	1543			1449
107	Jiyuan	Jiaodui	8	33	Inside	1997	1			956		1915	1793	2046			1023
108	Jiyuan	Zhangling	10	51	Inside	1997	1			1003		2181	2209	1128			1764
109	Jiyuan	Lujialing	10	40	Inside	1997	1			939		780	909	1354			1634
110	Jiyuan	Liuzhuang	11	59	Inside	1997	1			973		664	1020	1415			1209
111	Jiyuan	Shiniu	8	38	Inside	1997	1			898		1058	1129	1507			2046
112	Jiyuan	Dahengling	11	54	Inside	1999	2.1					1103		2142	1649	1846	1769
113	Jiyuan	Dayu	14	67	Inside	1999	2.1					1753		1926	1660	1682	1930
114	Jiyuan	Dongpo	16	74	Inside	1999	2.1					1679		1769	1624	2233	1800
115	Jiyuan	Jianbei	10	44	Inside	1999	2.1					1252		1839	1431	1825	1793
116	Jiyuan	Jinggou	11	57	Inside	1999	2.1					1666		1483	1351	1825	1902
117	Jiyuan	Maotian	10	34	Inside	1999	2.1					1621		1690	1534	1856	1943
118	Jiyuan	Xiling	10	45	Inside	1999	2.1					1721		1946	1615	2434	2041
119	Jiyuan	Xiaogou	10	44	Inside	1999	2.1					1596		2296	2168	2251	1899
120	Jiyuan	Baigeda	15	71	Inside	2000	2.2						1682		1411	1565	2382
121	Jiyuan	Huangzhuang	10	54	Inside	2000	2.2						1774		2270	1710	1713
122	Jiyuan	Wuligou	10	52	Inside	2000	2.2						1727		1615	1347	1752
123	Jiyuan	Xipo	10	42	Inside	2000	2.2						1242		2337	2278	2401
124	Jiyuan	Shanbeitou	15	69	Inside	2000	2.2						1740		2425	1446	2926
125	Jiyuan	Xuezhuang	17	82	Inside	2000	2.2						1877		984	1626	2620

No.	County	Village	Sample amounts	Population	Style	Relocation year	Relocation session	Resettlers' net income per capita (yuan)									
								1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
126	Jiyuan	Gaogou	10	47	Inside	2001	2.3							1755		1672	2335
127	Jiyuan	Fengnan	10	47	Inside	2001	2.3							1869		2037	2485
128	Jiyuan	Huweihe	10	46	Inside	2001	2.3							1991		2282	1999
129	Jiyuan	Wangguai	10	47	Inside	2001	2.3							1146		1317	1504
130	Jiyuan	Dakuiling	10	49	Inside	2002	3								2110		1892
131	Jiyuan	Shanghe	12	57	Inside	2002	3								1792		1402
132	Jiyuan	Xishuitun	9	36	Inside	2002	3								1707		1182
133	Jiyuan	Luohe	11	50	Inside	2002	3								1233		981