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The World Bank

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**Report No. 24363**

**CHINA**

**A REVIEW OF DEVELOPMENT CHALLENGES ACROSS SELECTED SECTORS**

**AND**

**PERFORMANCE ASSESSMENT REPORTS**

**HEBEI AGRICULTURAL DEVELOPMENT PROJECT (CREDIT 2159)**

**HENAN AGRICULTURAL DEVELOPMENT PROJECT (CREDIT 2242)**

**NATIONAL AFFORESTATION PROJECT (CREDIT 2145)**

**RURAL HEALTH WORKERS DEVELOPMENT PROJECT (CREDIT 2539)**

**BASIC EDUCATION IN POOR AND MINORITY AREAS PROJECT (CREDIT 2651)**

**THIRD BASIC EDUCATION PROJECT (CREDIT 2831)**

**HENAN PROVINCIAL TRANSPORT PROJECT (LOAN 3531)**

**HEBEI/HENAN HIGHWAY PROJECT (LOAN 3748)**

June 20, 2002

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*Sector and Thematic Studies Group  
Operations Evaluation Department*

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## Currency Equivalents

*Currency Unit = Renminbi (RMB)*

*Annual Average Exchange Rate (US\$ to RMB):*

1990	USD 1=RMB 4.720	1994	USD 1=RMB 8.776	1998	USD 1=RMB 8.300
1991	USD 1=RMB 5.329	1995	USD 1=RMB 8.288	1999	USD 1=RMB 8.279
1992	USD 1=RMB 5.548	1996	USD 1=RMB 8.307	2000	USD 1=RMB 8.277
1993	USD 1=RMB 5.681	1997	USD 1=RMB 8.287		

## Abbreviations and Acronyms

ADB	Asian Development Bank
BOT	Build-operate-transfer
EMIS	Education Management Information System
GDP	Gross domestic product
GNP	Gross national product
IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion Report
IDA	International Development Association
MTR	Mid-term Review
NAP	National Afforestation Project
NTHS	National Highway Trunk System
O&M	Operations and maintenance
OED	Operations Evaluation Department
PADO	Poor Area Development Office
PCD	Provincial Communications Department
PPMO	Provincial Project Management Office
QAG	Quality Assurance Group
SAR	Staff Appraisal Report
SEPA	State Environmental Protection Agency
SIDD	Self-financing Irrigation & Drainage Districts
TVE	Township and village enterprise
UBE	Universal Basic Education
WRM	World Rainforest Movement
ZLE	Zhengzhou-Luoyang Expressway

**Fiscal Year**                      January 1 to December 31

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June 20, 2002

**MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT**

**SUBJECT: Review of Development Challenges Across Selected Sectors and Performance Assessment Reports (PAR) on China:**  
**Hebei Agricultural Development Project (Credit 2159)**  
**Henan Agricultural Development Project (Credit 2242)**  
**National Afforestation Project (Credit 2145)**  
**Rural Health Workers Development Project (Credit 2539)**  
**Basic Education in Poor and Minority Areas Project (Credit 2651)**  
**Third Basic Education Project (Credit 2831)**  
**Henan Provincial Transport Project (Loan 3531)**  
**Hebei/Henan Highway Project (Loan 3748)**

The purpose of the attached report is to assess the performance of the above projects as well as to inform an OED Country Assistance Evaluation for China. Hence, the report goes beyond individual project assessments to examine relevant cross-sectoral issues. The eight assessed projects supported the Government of China's development strategies in five sectors: agriculture, forestry, education, health, and transport. All of them were approved between 1990 and 1996 and closed between December 1997 and 2001. Three of them closed behind schedule.

The government introduced the concept of provincial agricultural development in 1987 to help provincial governments develop an integrated approach to agriculture. The *Hebei and Henan Agriculture Development Projects* were to help the respective provincial governments accelerate and diversify agricultural development to alleviate poverty and increase farm incomes and rural employment. The major objective of the *National Afforestation Project*, implemented simultaneously in 16 provinces, was to help bridge the vast gap between the demand and supply of forest products in the country. The primary objective of the *Rural Health Workers Development Project* was to help improve the quality of the rural health workforce, contributing to better quality health services and improved health status of the rural poor in the project areas. *Basic Education in Poor and Minority Areas* was the second Bank-financed project that supported the government's universal primary education policy and was followed by the *Third Basic Education Project*. The *Henan and Hebei/Henan Highway projects* were part of the Bank program to support the government's National Trunk Highway System. The objective of both projects was to remove transport bottlenecks, relieve congestion on the main highways, and add high-quality road capacity to facilitate the provinces' economic growth.

**Hebei Agricultural Development Project.** Outcome is rated only moderately satisfactory because no long-lasting solutions were found to the persistent operation and maintenance problem of irrigation works; the financial viability of some main project enterprises remains questionable; the benefits of agriculture research were often not disseminated; performance of the project livestock component was disappointing; and revolving funds were unable to operate effectively. Sustainability is rated likely, and both Bank and Borrower performance are rated satisfactory.

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Institutional development impact is rated modest because the project made only a limited contribution to improving overall provincial water resource management capability.

**Henan Agricultural Development Project.** The outcome is rated satisfactory, sustainability, likely, institutional development impact, substantial, and Bank and Borrower performance, satisfactory.

**National Afforestation Project.** The outcome is rated satisfactory. Though the project significantly exceeded its afforestation targets and supported the successful development of a new organization and management structure within the central, provincial, and county forest administrations to manage plantations, it was unable to—and it is unreasonable to expect that it could—develop permanent capacity to plan, appraise, finance and implement improved plantation programs. Bank and Borrower performance are rated highly satisfactory and institutional development impact is rated substantial. Sustainability is rated non-evaluable as it is too early to judge the impact of the 1998 logging ban, which has affected 8 out of the 16 project provinces.

**Rural Health Workers Development Project.** The outcome is rated moderately satisfactory, sustainability, non-evaluable, and institutional development impact, modest. The project met most of its quantitative targets and highlighted the importance of health manpower planning and development, but the effectiveness of health worker training (a main project component) was not fully satisfactory. The design and implementation of the project gave insufficient attention to the development impact of project activities. Owing to the evolving policy environment in the health sector, overall project sustainability is non-evaluable. Bank and Borrower performance are rated satisfactory.

**Basic Education in Poor and Minority Areas Project and the Third Basic Education Project.** Both projects met or exceeded their quantitative output targets, resulting in improvements in the safety of buildings, supply of teaching materials, enrollment of children, and qualifications of teachers and principals. The outcome of the Basic Education in Poor and Minority Areas Project is rated moderately satisfactory, and institutional development impact is rated modest. This is because of the challenges the project faced with respect to teaching quality, utilization of textbooks and equipment, and coordination and linkage among service providers and between service providers and users. Sustainability is rated likely and Bank and Borrower performance are rated satisfactory. The Third Basic Education Project built on the experience of the preceding project. The outcome of the project is rated satisfactory, sustainability, likely, institutional development, substantial, and both Bank and Borrower performance, satisfactory.

**Henan Provincial Transport Project and Hebei/Henan National Highway Project.** The outcome of both projects is rated satisfactory, their institutional development impact, substantial, and sustainability, likely. Bank and Borrower performance are rated satisfactory. The projects achieved their objectives and have provided relevant institutional development to modernize highway operations and management in Henan and Hebei and have put in place the financing and institutional mechanisms to sustain project benefits.

The cross-sectoral review draws on evidence in the assessments as well as conversations with government officials and other stakeholders at the national, provincial, and county levels, and from a review of available literature to understand the implications of China's reforms for four issues that cut across multiple sectors of the economy: decentralization, poverty reduction, environment, and private sector development. In addition, the transaction cost to the borrower of the Bank support is explored. Both the Chinese government and the Bank have been grappling with these issues and their implications for the continued development of the economy for some time. The project assessments and the experience of Henan and Hebei provinces have provided an opportunity to assess how these issues play out in a Bank project and related provincial context.

The review finds that *decentralization*, recasts the institutional framework for carrying out development activities and requires investment in capacity building at lower levels of government. The altered governance dynamic also has some associated challenges. Though decentralization has provided the impetus for economic transformation of China it has also created a situation where undertaking development activities is constrained by inadequate financial resources at lower levels of government. An aspect of decentralization that has implications for China's borrowing from the World Bank is the devolution of responsibility for repaying a Bank loan to those who directly benefit. This "beneficiary-pays" principle poses little problem for revenue-producing projects, such as tolled-expressways and agro-processing units, but it works less well for social investments that do not directly earn revenue or generate income, such as rural roads, primary education, and health care. This has led to limited willingness at the local level to borrow for such investments, creating a tension between the Bank's desire to lend for social sectors and poverty reduction and the government's reluctance to borrow if repayment by beneficiaries cannot be guaranteed.

China has made significant progress in *poverty alleviation*, but addressing the remaining poverty is a challenge. Decentralization has pushed responsibility for achieving poverty alleviation goals to the provincial level, but there are notable regional disparities that require central government intervention. The central government currently faces the difficult task of ensuring that sufficient funds are available at the provincial and local levels for poverty alleviation particularly in the poorer western provinces. The State Council's Leading Group for Poverty Alleviation and Development coordinates the national poverty reduction effort and has identified 592 poor counties, but it has not played a role in coordinating the poverty alleviation aspects of Bank sectoral projects. Bank investments in various sectors in Henan and Hebei suggest the need to better focus on tapping inter-sectoral synergies for sustained poverty reduction. In addition, the project experience points to the need for more careful targeting to reach the poorest.

Rapid growth has aggravated China's existing *environmental* problems, but the calamitous flooding of the Yangtze River in 1998 focused attention on the man-made causes of such disasters. In this area, too, decentralization has had an effect: when central control is weakened, it makes managing environmental issues more difficult. Water resources management is an especially challenging issue in this respect, because of a serious imbalance in the distribution of water in the country. Even where supplies are reasonably good, however, heavy use is putting unsustainable pressure on groundwater reserves. This problem is especially acute in the country's primary grain producing areas. The quality of surface and groundwater in China has also deteriorated under the pressure of industrial development. Deforestation, one of the clear culprits in the Yangtze River disaster, is being addressed through widespread plantation programs like those supported by the Bank-financed project. These help meet the demand for wood products, but plantation of a limited number of species has implications for biodiversity.

The *private sector* has grown to play a major role in the economy of China. Rural industry, in particular, has contributed to economic growth and local entrepreneurship. However, there are several constraints to its future development. Even today the policy environment in China is unfriendly for small enterprises. Moreover, the technological backwardness of township and village enterprises (TVEs), which often use outdated equipment, has led to considerable wastage of resources. Other sectors, notably transport, have benefited from trends in private sector development. Private sector investment in China's roads is substantial and has spawned innovative approaches to financing. The social sectors have seen little in the way of private sector development, although in the health sector the private provision of health services is growing. The fee-for-service model that is now common, however, makes it difficult for the poorest to pay for medical care.

Chinese officials find the *transaction costs* of working with the Bank a challenge. Officials reported frustration that the extended preparation time for some projects has meant that market conditions have changed by the time the project is completed. They also complain that Bank requirements are overly complex and stringent and not relevant to China's development goals. The Bank may be losing its competitive advantage in China not only on the basis of its transaction costs but also because it is now lending to the country on IBRD terms, which ironically makes it more difficult for the government to borrow for poverty alleviation projects. Chinese officials made a number of suggestions for improvement of World Bank competitiveness that are detailed in the report.

The cross-sectoral review and the experience of the eight assessed projects offer two broad categories of lessons with implications for the Bank's future involvement in China:

**Enhancing the development impact of projects.** The experience of the assessed projects and the cross-sectoral review indicate that while Bank-supported projects in China may achieve their physical targets, the achievement of development outcomes can be mixed. Maximizing development impact requires more focus in Bank-supported projects on achieving development outcomes, especially on institutional issues.

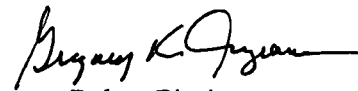
- *Attention to institutional issues is essential for improving impact.* These issues received less attention than warranted in the assessed education and agriculture development projects. In the agriculture projects, the physical targets were achieved while the major institutional issue of provincial capacity to manage water resources was not much improved. In the education sector project, perhaps because of political pressures and the need to ensure basic education for all, the emphasis was on increasing access while the quality of the education imparted received less attention. Intended outcomes and institutional issues need to be identified early and consensus reached with the borrower on how to resolve them.
- *Continued and deepening Bank engagement is needed to ensure robust benefits.* In response to government demand in the education sector, the Bank has focused with each succeeding project on spreading the benefits of its investments in new provinces and counties rather than engaging in a deeper relationship in the same areas over longer periods of time. There are obvious trade-offs, but in order to maximize development impact, the Bank's future efforts in the social sectors could be informed by the need for sustained and far-reaching improvements in quality and efficiency.

**Strengthening the focus on poverty reduction.** The Bank has been a valuable partner in helping the Chinese "catch up" with other countries through infrastructure development and the transfer of technology and knowledge about international procedures. It has also provided valuable support to significantly reduce poverty levels. However, tackling the remaining poverty is a major concern.

- *Sharpening the focus on poverty reduction will require adjustments to targeting.* Improving support for China's poverty reduction strategy rests not only on increasing attention to the nationally identified poor counties but also to improved targeting at the township level. On the borrower's side, there is need for greater government coordination of all Bank poverty-related efforts be it in the context of multi-sectoral poverty reduction projects or under sectoral projects (like the eight projects OED assessed). Strengthening such coordination would help to mainstream poverty reduction activities within sectoral operations.

- *Coordination of sectoral efforts needs to be improved.* In Henan and Hebei the Bank could have made more effort to coordinate and link the activities of the assessed projects to maximize the poverty impact. Coordination between different levels of government in China, across central bodies, and between various departments and agencies also is weak and needs improvement, but experience of the assessed projects shows that the Bank was unable to engage China on this issue.
- *Poorer provinces have special needs that require particular attention.* China's high level of decentralization has spurred the overall development process in the country. At the same time, it has created pressures against investment in sectors that do not yield quick financial returns but are crucial to reducing poverty. It has also put the poorer states in a position where they lack resources to deal adequately with poverty. Furthermore, since IDA resources are no longer available to China it has become difficult for the poorer provinces to borrow, especially for poverty alleviation efforts. China needs to consider a differentiated policy for giving special treatment to the poorer provinces. Government officials are keen on the Bank adjusting its lending terms and procedural requirements to make it easier for poor provinces to borrow for projects that can help the Bank and the country fulfill their poverty reduction objectives. Building on the recent agreement with DFID to provide grants for blending with IBRD loans, the Bank and China should continue to work together to ensure that lack of availability of IDA resources to China does not become a constraint on its ability to help the poorest provinces.

Attachment



Robert Picciotto  
by Gregory K. Ingram





**OED Mission: Enhancing development effectiveness through excellence and independence in evaluation.**
**About this Report**

The Operations Evaluation Department 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, OED annually assesses about 25 percent of the Bank's lending operations. 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. The projects, topics, and analytical approaches selected for assessment support larger evaluation studies.

A Project Performance Assessment Report (PPAR) is based on a review of the Implementation Completion Report (a self-evaluation by the responsible Bank department) and fieldwork conducted by OED. To prepare PPARs, OED staff examine project files and other documents, interview operational staff, and in most cases visit the borrowing country for onsite discussions with project staff and beneficiaries. The PPAR thereby seeks to validate and augment the information provided in the ICR, as well as examine issues of special interest to broader OED studies.

Each PPAR is subject to a peer review process and OED management approval. Once cleared internally, the PPAR is reviewed by the responsible Bank department and amended as necessary. 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 OED Rating System**

The time-tested evaluation methods used by OED are suited to the broad range of the World Bank's work. The methods offer both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. OED 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 (more information is available on the OED website: <http://worldbank.org/oed/eta-mainpage.html>).

**Relevance of Objectives:** 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). *Possible ratings:* High, Substantial, Modest, Negligible.

**Efficacy:** The extent to which the project's objectives were achieved, or expected to be achieved, taking into account their relative importance. *Possible ratings:* High, Substantial, Modest, Negligible.

**Efficiency:** 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. *Possible ratings:* High, Substantial, Modest, Negligible. This rating is not generally applied to adjustment operations.

**Sustainability:** The resilience to risk of net benefits flows over time. *Possible ratings:* Highly Likely, Likely, Unlikely, Highly Unlikely, Not Evaluable.

**Institutional Development Impact:** The extent to which a project improves the ability of a country or region to make more efficient, equitable and sustainable use of its human, financial, and natural resources through: (a) better definition, stability, transparency, enforceability, and predictability of institutional arrangements and/or (b) better alignment of the mission and capacity of an organization with its mandate, which derives from these institutional arrangements. Institutional Development Impact includes both intended and unintended effects of a project. *Possible ratings:* High, Substantial, Modest, Negligible.

**Outcome:** The extent to which the project's major relevant objectives were achieved, or are expected to be achieved, efficiently. *Possible ratings:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Bank Performance:** The extent to which services provided by the Bank ensured quality at entry and supported implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of the project). *Possible ratings:* Highly Satisfactory, Satisfactory, Unsatisfactory, Highly Unsatisfactory.

**Borrower Performance:** The extent to which the borrower assumed ownership and responsibility to ensure quality of preparation and implementation, and complied with covenants and agreements, towards the achievement of development objectives and sustainability. *Possible ratings:* Highly Satisfactory, Satisfactory, Unsatisfactory, Highly Unsatisfactory.



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This report was prepared by Nalini Kumar, Soniya Carvalho, and Binyam Reja, who assessed the projects in October-November 2001. William B. Hurlbut edited the report. Kavita Mathur and Anna Amato provided research support, and Romyne Pereira and Soon-Won Pak provided administrative support.

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## Principal Ratings

	ICR*	ES*	PAR
<b>Hebei Agricultural Development Project (Credit 2159)</b>			
Outcome	Satisfactory	Satisfactory	Moderately Satisfactory
Sustainability	Likely	Likely	Likely
Institutional Development	Substantial	Substantial	Modest
Borrower Performance	Satisfactory	Satisfactory	Satisfactory
Bank Performance	Highly Satisfactory	Highly Satisfactory	Satisfactory
<b>Henan Agricultural Development Project (Credit 2242)</b>			
Outcome	Satisfactory	Satisfactory	Satisfactory
Sustainability	Likely	Likely	Likely
Institutional Development	Substantial	Substantial	Substantial
Borrower Performance	Satisfactory	Satisfactory	Satisfactory
Bank Performance	Satisfactory	Satisfactory	Satisfactory
<b>National Afforestation Project (Credit 2145)</b>			
Outcome	Highly Satisfactory	Highly Satisfactory	Satisfactory
Sustainability	Likely	Likely	Non Evaluable
Institutional Development	Substantial	Substantial	Substantial
Borrower Performance	Highly Satisfactory	Highly Satisfactory	Highly Satisfactory
Bank Performance	Highly Satisfactory	Highly Satisfactory	Highly Satisfactory
<b>Rural Health Workers Development Project (Credit 2539)</b>			
Outcome	Satisfactory	Not yet available	Moderately Satisfactory
Sustainability	Likely	Not yet available	Non-evaluable
Institutional Development	Substantial	Not yet available	Modest
Borrower Performance	Satisfactory	Not yet available	Satisfactory
Bank Performance	Satisfactory	Not yet available	Satisfactory
<b>Basic Education in Poor and Minority Areas Project (Credit 2651)</b>			
Outcome	Satisfactory	Satisfactory	Moderately Satisfactory
Sustainability	Likely	Likely	Likely
Institutional Development	Substantial	Substantial	Modest
Borrower Performance	Satisfactory	Satisfactory	Satisfactory
Bank Performance	Satisfactory	Satisfactory	Satisfactory
<b>Third Basic Education Project (Credit 2831)</b>			
Outcome	Not yet available	Not yet available	Satisfactory
Sustainability	Not yet available	Not yet available	Likely
Institutional Development	Not yet available	Not yet available	Substantial
Borrower Performance	Not yet available	Not yet available	Satisfactory
Bank Performance	Not yet available	Not yet available	Satisfactory
<b>Henan Provincial Transport Project (Loan 3531)</b>			
Outcome	Satisfactory	Satisfactory	Satisfactory
Sustainability	Likely	Likely	Likely
Institutional Development	Substantial	Substantial	Substantial
Borrower Performance	Satisfactory	Satisfactory	Satisfactory
Bank Performance	Satisfactory	Satisfactory	Satisfactory
<b>Hebei/Henan Highway Project (Loan 3748)</b>			
Outcome	Satisfactory	Satisfactory	Satisfactory
Sustainability	Likely	Likely	Likely
Institutional Development	Substantial	Substantial	Substantial
Borrower Performance	Satisfactory	Satisfactory	Satisfactory
Bank Performance	Satisfactory	Satisfactory	Satisfactory

\* The Implementation Completion Report (ICR) is a self-evaluation by the responsible operational division of the Bank. The Evaluation Summary (ES) is an intermediate OED product that seeks to independently verify the findings of the ICR.

## Key Staff Responsible

	<i>Task Manager</i>	<i>Division Chief</i>	<i>Department Director</i>
<b>Hebei Agricultural Development Project (Credit 2159)</b>			
Appraisal	H. Eisa	Joseph Goldberg.	Shahid Javed Burki
Completion	R. Reidinger/Qun Li	Geoffrey Fox	Yukon Huang
<b>Henan Agricultural Development Project (Credit 2242)</b>			
Appraisal	R. Jaisaard	Joseph Goldberg	Shahid Javed Burki
Completion	Zhong Tong/R. Jaisaard	Geoffrey Fox	Yukon Huang
<b>National Afforestation Project (Credit 2145)</b>			
Appraisal	Victoria Elliott/Horst Wagner	Joseph Goldberg	Shahid Javed Burki
Completion	Victoria Elliott/Richard Scobey	Geoffrey Fox	Yukon Huang
<b>Rural Health Workers Development Project (Credit 2539)</b>			
Appraisal	Willy de Geyndt	Zafer Ecevit	Shahid Javed Burki
Completion	Janet Hohnen	Maureen Law	Yukon Huang
<b>Basic Education in Poor and Minority Areas Project (Credit 2651)</b>			
Appraisal	Halsey L. Beemer	Vinay K. Bhargava	Nicholas C. Hope
Completion	Halsey L. Beemer	Maureen Law	Yukon Huang
<b>Third Basic Education Project (Credit 2831)</b>			
Appraisal	Halsey L. Beemer	Vinay K. Bhargava	Nicholas C. Hope
Completion	Halsey L. Beemer	Maureen Law	Yukon Huang
<b>Henan Provincial Transport Project (Loan 3531)</b>			
Appraisal	Hernan Levy	Daud Ahmad	Shahid Javed Burki
Completion	Jacques M. Tollie	Jitendra N. Bajpai	Yukon Huang
<b>Hebei/Henan Highway Project (Loan 3748)</b>			
Appraisal	Jose Veniard	Richard Scurfield	Nicholas Hope
Completion	Jacques M. Tollie	Jitendra N. Bajpai	Yukon Huang



## Preface

The purpose of this report is to assess individual project performance as well as to inform a currently ongoing OED Country Assistance Evaluation for China. Hence, the report has gone beyond preparing individual project assessments to examine relevant cross-sectoral issues and the poverty impact of Bank projects in the provinces of Henan and Hebei. The report consists of eight Project Performance Assessments complemented by a review of development issues across sectors in China. The projects assessed are as follows:

- Hebei Agriculture Development Project (Cr. 2159), for which a credit in the amount of SDR 116.1 million (\$150 million) was approved in July 1990. The project closed in June 1998.
- Henan Agriculture Development Project (Cr. 2242), for which a credit in the amount of US\$110 million was approved in May 1991. The project closed in December 1998, one year behind schedule.
- National Afforestation Project (Cr. 2145), for which a credit in the amount of SDR 230 million (US\$300 million equivalent) was approved in May 1990. The project closed in December 1997, one year behind schedule.
- Rural Health Workers Development Project (Cr. 2539), for which a credit in the amount of SDR 79.3 million (US\$110.14 million equivalent) was approved in August 1993. The project closed in March 2001, one year and three months behind schedule.
- Two education projects: (i) Basic Education in Poor and Minority Areas (Cr. 2651), for which a credit in the amount of SDR 69.2 million (US\$97.5 million equivalent) was approved in September 1994. The project closed in December 2000 as planned. (ii) Third Basic Education Project (Cr. 2831), for which a credit in the amount SDR 67.3 million (US\$100 million equivalent) was approved in March 1996. The project closed in December 2001.
- Two transportation projects: (i) Henan Provincial Transport (Ln. 3531), for which a loan in the amount US\$120 million was approved in November 1992. The project closed in June 2000. (ii) Hebei/Henan National Highway Project (Ln. 3748), for which a loan in the amount US\$380 million was approved in June 1994. The project closed in June 2000.

While the assessment findings served as a springboard for the cross-sectoral review, the review goes beyond the evidence contained in those assessments. A combined mission of OED staff that work in different sectors traveled to China in October-November 2001. The mission discussed the projects as well other relevant issues with Bank staff, government officials, some nongovernmental organizations (NGOs), beneficiaries, donors, and consultants. At the national level, the mission met with officials in the Ministries of Finance, Agriculture, Communication, Water Resources, and Health; the State Development Planning Commission; the Chinese Academy of Forestry; and the State Council's Leading Group for Poverty Alleviation and Development. At the provincial level, in Henan and Hebei the mission met with officials from the Bureau of Finance; State Planning Commission; and Departments of Agriculture, Forestry, Aquaculture, Health, Education, and Communication. In addition, the mission met with county officials, doctors, teachers, and beneficiaries. The cooperation and assistance of all stakeholders and government officials is gratefully acknowledged, as is the support of the staff of the World Bank Country Office in Beijing.

The report was prepared by the Operations Evaluation Department (OED) based on the Implementation Completion Reports, Staff Appraisal Reports, Development Credit Agreements, as well as a review of Bank files, a survey of the literature, and discussions with Bank staff and other stakeholders.

Following standard OED procedures, the draft report was sent to the borrower for comment before being finalized. Borrower comments were received from the Ministry of Finance and the Ministry of Health and have been taken into account in finalizing the report. They are attached as Annex G.



## **PART I**

### **A REVIEW OF DEVELOPMENT CHALLENGES ACROSS SELECTED SECTORS**



# 1. Introduction

1.1 China is one of the fastest growing economies in the world. A series of economic reforms have aided decentralization and encouraged the creation of markets, which has stimulated growth and dramatically improved the well being of the majority of the Chinese people. Although the reform process started in 1978, it was not until 1993 that the Chinese Communist Party officially declared that the country was aiming to develop a socialist market economy (Young 1997). Since then, China has proclaimed its intention to become a middle-income country by 2020 and has continued to make steady progress toward a market-based system. The state has continued to play a major role in the economy throughout the reform period, though its importance has been substantially reduced and continues to decline: the proportion of gross industrial output produced by state-owned enterprises declined from 78 percent in 1978 to 34 percent in 1994 (NBER 1997). One sign of China's progress is that IDA resources are no longer available to China—a consequence of its rising GDP. As GDP per capita rose from \$349 in 1990 to \$825 in 2000, China also has become increasingly urban (Table 1.1).

**Table 1.1. China's Economy Has Grown Rapidly and Become More Urbanized**

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
GDP per capita (constant 1995 US\$)	349.2	376.1	424.5	476.5	531.5	581.2	630.2	678.9	724.7	768.8	824.9
Urban population (% of total)	27.40	27.90	28.30	28.80	29.20	29.70	30.20	30.70	31.10	31.60	32.10

Source: World Bank data

1.2 China's growth strategy has brought about a dramatic decline in poverty levels. In the two decades since economic reform started, the economy has grown fivefold, the average income per capita has quadrupled, and 270 million Chinese have been lifted out of absolute poverty.<sup>1</sup> Other development indicators also show substantial improvement: life expectancy increased from 68.9 to 70.1 as mortality and malnutrition declined, and illiteracy was reduced by about 30 percent. Even so, China still has about 100 million absolute poor, mainly concentrated in the mountainous and resource-deficient rural areas of its northern and northwestern provinces. Rapid development has also created severe environmental problems. And decentralization and the relaxation of controls on markets have not only opened opportunities but also created challenges for private sector development. Sustaining these growth rates, given China's large and growing population and difficult environmental problems, will be a continuing challenge.

1.3 China became a member of the World Bank in 1980 and by 1992 had become its largest borrower. In fiscal 2001, Bank net commitments to China amounted to about \$17.1 billion. Between fiscal 1991 and 2001 the Bank approved about \$26.4 billion in IDA and IBRD lending for China. This was about 42 percent of lending to the East Asia and Pacific Region during the same period. More than half of that amount, as shown in Figure 1.1, was for two sectors, transportation and agriculture. Sizable amounts were also approved for the power, environment, and urban sectors.

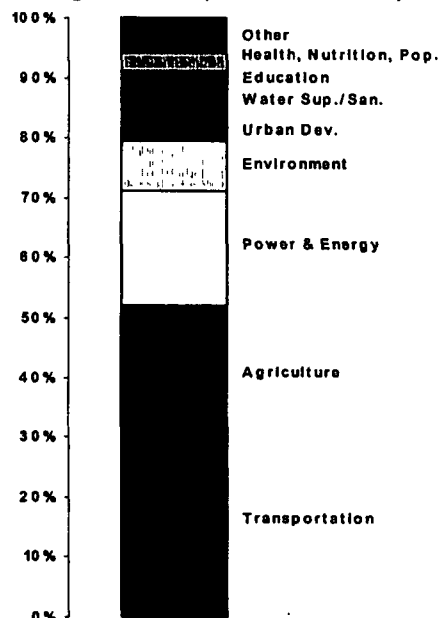
1.4 Yet, despite China's importance to the Bank as a client, the Bank has been a relatively insignificant player in China. Total IBRD and IDA lending at its peak in 1993 was only about 0.3 percent of China's GDP and it had declined to 0.05 percent of GDP in fiscal 1999. Although the fundamental relationship between the Bank and the Government of China has been financial, the

1. *The Economist*, March 2001, page 23.

Bank has also provided policy advice, often in a project context, and has made valuable contributions to China's development.

1.5 The cross-sectoral review that follows draws on performance assessments of eight Bank-supported projects in the agriculture, forestry, health, education, and transport sectors (covered in Part II) to gauge the effectiveness of the Bank's contribution to those sectors. Based on the simultaneous assessment of those eight projects and conversations with Chinese officials, the review identified a set of cross-sectoral issues—**decentralization, poverty alleviation, environment, private sector development**—that are important growth challenges facing the Chinese economy as a whole. In addition the review explored the **transaction costs** of the Bank support to the borrower. Both the Chinese Government and the Bank have been grappling with these issues and their implications for the continued development of the economy for some time.<sup>2</sup> The project assessments and the experience of Henan and Hebei provinces (see Map and Annex C for background) provided an opportunity to assess how these issues play out in a Bank project and related provincial context. However, some of the projects assessed were national projects that were implemented in other provinces besides Henan and Hebei. For example, the National Afforestation Project was active in 14 provinces other than Henan and Hebei.<sup>3</sup> The Rural Health Workers' Development Project operated in 4 provinces other than Henan and Hebei.<sup>4</sup> The Basic Education in Poor and Minority Areas project was active in 7 provinces and did not cover Henan and Hebei.<sup>5</sup> The Third Basic Education Project covered 5 provinces other than Henan and Hebei.<sup>6</sup> The experience of these multi-province projects has helped provide a national perspective for the provincial-level findings. The review does not claim that the issues discussed are the most critical ones facing China, only that they are important to the country's future development.

**Figure 1.1. Bank Lending to China Has Concentrated on Infrastructure and Agriculture (1991–2001 data)**



Source: World Bank data

2. The Region notes that recently major reports have been done on each of the four cross-sectoral issues. These reports are: China-National Development and Sub-National Finance (April 2002) on decentralization, China—Overcoming Rural Poverty (May 2000) on poverty, China—Air, Land and Water (August 2001) on environment, and Corporate Governance and Enterprise Reform in China (March 2002) on private sector development.

3. The provinces were Guangdong, Guangxi, Hunan, Hubei, Zhejiang, Anhui, Fujian, Jiangxi, Sichuan, Shandong, Hebei, Liaoning, Guizhou, Yunnan, Henan, and Hainan.

4. The provinces were Anhui, Fujian, Guizhou, Shanxi, Henan, and Hebei.

5. The provinces were Guangxi, Jiangxi, Inner Mongolia, Ningxia, Xinjiang, Sichuan, and Chongqing.

6. The provinces were Anhui, Fujian, Gansu, Jilin, and Qinghai, Henan and Hebei.

1.6 Hereafter, the review is presented in three sections. Section 2 provides a brief sectoral overview that sketches the sectoral background and draws on the findings of the assessments to identify where the Bank has added value. It also identifies the relationship of the projects to the cross-sectoral issues, which are discussed in Section 3. Section 4 draws lessons from the findings.

**Table 1.2. Henan and Hebei—A Statistical Portrait**

	<i>GDP (US\$100 million)</i>	<i>Area (km<sup>2</sup>)</i>	<i>Population (million)</i>	<i>Rural Poverty Incidence (%)</i>
Henan	621.24	167,000	92.6	4.3
Hebei	615.35	187,000	67.4	3.9
China	10810.59	9600,000	1265.83	6.3

Note: Data are for the year 2000, except rural poverty incidence, which is for 1996.

Source: China Statistical Yearbook 2001 and Bank data.

## 2. Sectoral Context

2.1 The fundamental relationship between the Bank and the Government of China over the past 20 years has been a financial one, but the Bank also has provided valuable support to China's transition to a market economy over the 10-year implementation period of the 8 assessed projects. Most of the incentives for change have come from within, however, and the Bank has found it difficult to "sell" policy and institutional reforms that it considers essential but that are not favored by the Chinese. The government has used its dialogue with the Bank to attract support for quickly "catching up" with other countries through technology transfer, knowledge of international procedures, and infrastructure development. The experience of the project assessments shows that, with the Chinese firmly in the driver's seat, borrower commitment for project implementation has been strong. Field visits and conversations during OED's mission confirmed that Chinese officials openly acknowledge the Bank's contribution to the economy and the usefulness of the relationship with the Bank.<sup>7</sup> The Bank's contribution was evident in all five sectors associated with the assessed projects—agriculture, forestry, health, education, and transport.

2.2 Bank projects like those assessed by OED have exposed Chinese officials to international procedures and business practices. Increasingly, government-funded projects are adopting competitive bidding (both national and international) for civil works. Almost all sectors have benefited from training and technical assistance provided under the assessed projects; this is recognized and appreciated by national and provincial officials alike. Project financed training and study tours promoted technology transfer in the case of the National Afforestation project. In the transport projects this training has occurred both as part of specific highway projects, through technical assistance efforts, and through Bank-sponsored studies and seminars. This training has focused mainly on project activities and functions, but in recent years has shifted toward providing training on road administration organization, management, and finance. The Basic Education in Poor and Minority Areas project introduced innovative activities that allowed for the development of research capacity at local levels where it had never existed. This included provision of resources to school principals and county officials to solve local problems using local solutions. In Ningxia province, for example, where enrollment rates among Moslem girls were low, the innovation program allowed experimentation with school-based vegetable growing, and funds from the sale of vegetables were used for girls' scholarships. The Chinese Experts Panel who provided ongoing

7. A 2001 Quality Assurance Group (QAG) review of East Asia Rural Poverty Reduction Projects similarly notes, "there is *substantial* appreciation of the value added by the Bank among the clients, and a clear interest in using the Bank's projects to bring about a leveraging effect on the quality of the governments' own expenditures in the area of poverty alleviation."

guidance and advice to the Ministry of Education and the provinces on project implementation and policy issues related to the project also played a valuable role in enhancing capacity.

## AGRICULTURE

2.3 The agriculture sector has played an important role in the Chinese economy and now accounts for about 20 percent of GDP; the rural economy as a whole contributes about 50 percent of GDP. In the pre-reform period, the sector provided food and raw material resources to sustain a growth strategy oriented toward heavy industry. Since 1978 it has provided essential resources for the growth and expansion of the urban non-state sector. With increasing growth and urbanization, however, the proportion of the labor force engaged in agriculture dropped, from 54 percent in 1990 to 47 percent in 1997. De-collectivization of agriculture was a major component of the reform process. In the late 1970s and early 1980s a system of household production responsibility replaced agricultural collectives.<sup>8</sup> The system, reinforced by pricing reforms, radically changed the incentive structure and helped trigger the rapid growth of China after 1978. The higher prices for state purchase of farm products and freedom for farmers to sell their surplus products after fulfilling procurement quota obligations provided them with incentives to work harder and make production efficient. Rising rural incomes in turn provided the resources (and the market) for the massive growth of rural industry that has been at the core of China's economic miracle.<sup>9</sup>

2.4 Although it has 22 percent of the world's population, China has only 7 percent of its arable land. Maintaining the strong, persistent growth of the country is a considerable, and growing, challenge. Analysts argue that China has already tapped the easy sources of growth in agriculture (particularly large efficiency gains from the elimination of gross resource misallocation) and productivity can be further improved only if several important constraints are addressed. China has to give special attention to agricultural infrastructure (particularly rural roads and the operation and maintenance of irrigation facilities), stress on its agricultural land (soil erosion, deforestation), and policies for production and growth (such as grain policy and policies that affect incentives like secure land rights for farmers). As already noted, however, the Bank has only limited leverage on policy in China.

2.5 Bank projects in the agriculture sector over the past decade have provided valuable support to increasing productivity and the marketability of agriculture, livestock, and aquatic products. Agriculture development projects have contributed significantly to integrated area development in several provinces, including Henan and Hebei. The projects have also attempted to help improve the management of water and land resources. Activities supported by agriculture projects have also had a demonstration effect on surrounding areas. The tunnel greenhouses supported by the Henan Agriculture Development Project, for example, have been emulated beyond the project area, providing farmers with an opportunity to expand production and income. Conversations with Bank staff and Chinese officials and a draft document on water policy in China produced by OED

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8. The household responsibility system for farmland gives individual families the right to cultivate parts of the village land without giving them legal title to the land. This village-based land tenure system improved the incentive structure for agriculture production in China as farmers had more autonomy in making production decisions and were able to allocate resources to activities they regarded as more profitable, such as fruit production and fisheries. The household responsibility system was extended to forest resources in late 1980s.

9. Output of rural enterprises grew more than 26 percent annually from 1978 to 1990 and rural industry had surpassed agriculture as the dominant source of income by 1987. In 1996, rural industry was reported to produce more than half of the national industrial output. "In 1978, only 9.5% of the rural labor force were engaged in industrial activities, and only 7.6% of the rural income was contributed by the non-farm sectors; by 1996, 29.8% of the rural labor were working in local industry and non farm income accounted for 34.2% of rural total income." (Lin and Yao 1999)



confirm that the cumulative impact of the Bank on policy and institutional reform in the irrigation sector has been significant, but it has come incrementally and through embedding advice in projects rather than through the use of conditionality (OED 2000). The concept of self-financing irrigation and drainage districts (SIDD), developed under the Bank-supported Yangtze Basin Water Resources Project, has helped promote important reforms like the “user pays” principle, and participation of water users. Bank involvement in the sector has introduced knowledge and helped create an impetus for reform that should result in improved operation and maintenance and effective farmer ownership and participation in the management of water delivery systems.

## FORESTRY

2.6 China’s relatively modest forest coverage—at 14 percent it is only about half the world’s average—supplies 40 percent of the energy needs of rural households, as well as providing raw material for construction and a large pulp and paper industry. China’s forests are also important for the environmental services they provide: prevention of soil erosion, desertification, and flooding; conservation of soil and water; and preservation of biodiversity.

2.7 Economic growth and population have put enormous pressure on China’s forest resources. In the pre-reform period, the low price of agricultural goods, the pressure to fulfill quotas, and collectivization lowered the price of natural goods like forests and encouraged their wasteful use. Rising population and increasing food demand led to over-exploitation. The steel smelting campaigns of the 1950s led to tremendous logging and deforestation with adverse consequences for soil erosion. The government has since taken steps—such as large-scale plantation programs—to expand supply and manage demand for forest products. The World Bank has supported the expansion of tree cover by nearly 3.3 million hectares (33,000 square kilometers) through tree planting on different scales and under a wide variety of tenurial arrangements (World Bank 2000).<sup>10</sup>

2.8 An OED country study on the forest sector in China confirms that the Bank’s forest sector lending has made a substantial contribution to afforestation in the country. The later projects have shown increasing concern about the livelihood of the poor in environments where resources are fragile (World Bank 2000). The experience of the National Afforestation Project shows that in the forest sector the Bank has provided valuable guidance and assistance for the adoption of advanced techniques of intensive plantation management.

## EDUCATION

2.9 Compared with other developing countries, China’s success in providing its population with a comprehensive schooling system has been remarkable. Literacy rates for those 15 and older are over 80 percent, close to 93 percent for the 15–25 age group. These statistics, however, conceal the disparity in educational attainment among China’s population. While the goal of nine years of compulsory education has been achieved in most large cities and coastal areas, many poor and remote areas have not even reached six years of universal primary education. China lags behind several other countries in the qualitative dimensions of educational progress: average grade attainment of the school-age population and cohort survival rate, although showing steady progress,

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10. The total forest area in the year 2000 is reported to be 158,94 0,000 hectares (China Statistical Yearbook 2001). The expansion supported by the World Bank is about 2 percent of the total forest area.

are modest when compared with those of Malaysia, Korea, and Sri Lanka. There is room for quality enhancement in schooling, which is likely to generate significant gains in grade attainment.<sup>11</sup>

2.10 In the poorer provinces, in addition to ensuring quantity and access, adequate attention is needed to service quality (as discussed in section 9). Also, while the Ministry of Education's national implementation plans call for only three to four years of universal basic education (UBE) in the poorer provinces, in order to strengthen the poverty-reducing impact of basic education programs, discussions conducted for this review pointed to the desirability of focusing on the provision of *basic educational skills* rather than making a certain number of years of education the primary criterion.

2.11 In education the Bank has contributed to the development of new financing mechanisms and to heightened attention to particular sectoral issues. For example, the Bank influenced the design of the government's poverty-focused education fund in which counties and provinces were required to prepare project proposals containing sectoral and financing targets, monitorable indicators, and annual review of action plans and budgets. By funding these proposals, central education budget funds could be transferred directly to targeted poor counties. This intergovernmental transfer system was also expanded by the government to an additional central intergovernmental transfer program, started in 2001, which deals with school repair and construction in poor areas.

## HEALTH

2.12 Starting from a relatively low stage of economic development, China has successfully improved the

### Box 2.1. Impact of the Economic Reforms and Health Transition on the Health Sector

As a result of the economic reforms and private sector participation in service delivery, fee-for-service became the dominant method of paying for health services, and in the absence of compensating measures, raised issues of affordability for the poor. Services previously provided through the commune and work unit system became chargeable. The coverage of the cooperative health system declined substantially in most areas and in some places completely collapsed. Alternative job opportunities raised the opportunity cost for barefoot doctors, many of whom left medical practice.<sup>a</sup>

The ongoing health or epidemiological transition (i.e., increase in the proportion of chronic diseases owing in part to an aging population and in part to control of infections and communicable diseases) required changes in clinical skills. But, existing health service providers, particularly at the township and village levels, lacked the clinical skills to cope with those changes. Upgrading personnel skills to improve the quality and efficacy of health services became necessary. This increased the need for better training for rural health workers, especially given long-standing deficiencies in training. Areas of weakness included clinical training of rural health workers that was too theoretical and not adequately oriented toward problem solving. Poor incentives meant that too many medically unnecessary intravenous infusions and excessive and inappropriate use of antibiotics were undertaken.

The disintegration of the rural cooperative health system and the implementation of cost-recovery schemes have destabilized the income of village doctors. Curative services are the main source of income for township hospitals and health centers and for village clinics. The current system of health financing pushes the rural health care providers to pursue curative care—even when unnecessary—rather than preventive care. The excessive and often medically inappropriate prescription of drugs is a common problem. Another problem is that rising incomes have increased the demand for better-quality curative services at higher-level facilities, such as county or provincial hospitals, resulting in underutilization of services at the township or village level.

a. Barefoot doctors (introduced in 1968 and discontinued in 1985) were part-time, village-level health workers. They could become village doctors by passing a basic examination.

Source: Various Bank Documents.

11. Evidence from several developing countries suggests that the rate of return to improving the quality of schooling is high compared to improving the quantity of schooling of a given quality. Empirical evidence is presented in Behrman and Birdsall 1983.

health status of its population during the past four decades, despite its low level of overall economic development. Infant mortality, which was over 200 deaths per thousand live births before 1949, now stands at 30 deaths per thousand live births. China's life expectancy of 70 years compares favorably with middle- and high-income developing countries and with many developed countries. Despite these achievements, the health and nutritional status of China's remaining absolute poor remain a concern and quality issues afflict the entire health system, especially in the rural areas. The health care system also faces major challenges in the aftermath of two largely concurrent events: rapid economic reforms and the shift in disease pattern from communicable and infectious diseases to chronic and non-communicable diseases. With communicable and infectious diseases still an important (albeit declining) concern, the health system faces a double burden. These changes have created new issues for the health sector while exacerbating some existing problems (Box 2.1). Today, the major challenges in the health sector for the effective and sustainable achievement of the government's "Health for All in 2000" program include improving access to, and quality of, rural health services, particularly at the lower levels.

2.13 In the health sector, Bank engagement was successful in bringing increased attention to the concept of health workforce planning and health services management. The aim was to improve the quality of health services, and thereby, the health status of the poor rural population. The Rural Health Workers Development project, assessed by OED in this report, responded to the low quality of health workers at village and township levels during the 1980s, the apparent decline in numbers of rural health workers in the same period, and the interruption of the established collective funding channel for health workers after the introduction of the household responsibility system. It took into account the decentralization of responsibility for health services down to the township level. This was the first Bank-supported project in China to focus on rural health workers development.

## TRANSPORT

2.14 China's road network in 1990, about 1.03 million kilometers, was among the lowest in the world relative to its geographic area and population size. Thirty percent of its villages had no access to roads suitable for motor vehicles (World Bank 1994). Moreover, the design quality of the roads was low: 67 percent of the road network was designated Class 3 or 4.<sup>12</sup> Nearly 28 percent of the road network was non-classified. There were only about 522 kilometers of expressway and about 2,600 Class 1 roads in the entire country in 1990. Seventy percent of the paved roads, according to the Bank's 1994 China Highway Strategy Paper, were inadequate to meet the needs of a modern transportation system. China had traditionally under-invested in its transport system, averaging about 1.3 percent of GNP in 1980–89 compared to 2 to 3 percent of GNP in other large developing countries, such as India and Brazil (World Bank 1994). Central planners often neglected development of the road network, focusing instead on railways to support the long-distance movement of large quantities of coal, grain, minerals, heavy machinery, and military equipment. The lack of adequate road infrastructure was becoming a serious bottleneck for the growing economy and threatened to choke off China's rapid economic growth.

2.15 From this predominantly low road network density and quality, China's highway system has improved significantly. In a decade, the network increased by nearly 400,000 kilometers, reaching 1.4 million kilometers in 2001. An even more remarkable achievement is the growth of high-grade roads: 16,300 kilometers of expressway and 20,000 kilometers of Class 1 roads were

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12. China has two systems of road classification: technical and administrative. The technical classification includes expressways, class 1, class 2, class 3, class 4, and non-classified. The administrative classification includes: national, provincial, country, village, and special-purpose.

in operation in 2001.<sup>13</sup> Road sector investment has increased substantially in recent years, reaching about 2.5 percent of GNP in 1998–2000, but is still not enough to make up for past under-investment and to keep up with the demands of the growing economy. Both the national and provincial governments are involved in major expansion and improvement of the highway system. The main thrust of the country's highway strategy is the development of the National Trunk Highway System (NTHS), involving the construction of five north-south and seven east-west corridors, totaling 35,000 kilometers of high-grade highways. To be completed by 2010 (10 years earlier than planned), the NTHS is expected to cost about US\$150 billion and to connect 100 major cities in China. The first four corridors and three important road sections totaling 17,000 kilometers will be completed by 2003.<sup>14</sup> In addition, a highway development program for central and western provinces was recently launched to extend the NTHS with eight more corridors, and the development of 180,000 kilometers of national roads in western areas, and 150 kilometers of rural roads. It is estimated that this new program would cost US\$200 billion over the next 20 years.<sup>15</sup>

2.16 An earlier OED evaluation of the transport sector in China (OED 1999) and the implementation experience of the two assessments shows that in the transport sector, Bank lending has filled a critical financial gap in the early development of the expressway system and has facilitated technological transfer, introduced best practices in expressway development, and supported modern managerial techniques for the development and management of the expressway system. The Bank's highway sector strategy has been to help the government to remove the transport bottlenecks caused by past under-investment in highway construction and by rapid economic growth. More important, the Bank's support has been critical for China's plans to develop high-grade roads: the Bank has financed the construction of 3,500 kilometers of expressways and contributed to improving and upgrading 20,000 kilometers of provincial and rural roads.

### 3. Analysis of Cross-Sectoral Issues

3.1 This section discusses four cross-sectoral issues: **decentralization, poverty alleviation, environment, and private sector development**. In addition, the **transaction costs** to the borrower of the Bank support is explored. In each case, the analysis draws on the experience of the assessed projects, supplemented by sources beyond those assessments to put the issues in a national context.

#### DECENTRALIZATION

3.2 Though none of the assessed projects directly addressed it, decentralization shaped the objectives and implementation of the projects through its effects on the availability of resources and capacity to implement projects at the national, provincial, and county levels.

3.3 **A decentralized governance structure recasts the institutional framework for carrying out development activities and requires investment in capacity building at lower levels of government.** China has five levels of government: central, provincial, municipality (urban) and prefecture (rural), county, and township/village. A major component of the reform process that began in 1978 was the devolution of responsibility to lower levels of governments,

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13. China: Highway Strategy Review (Final Draft, Undated).

14. Ibid.

15. World Bank estimate.

limiting the power of the central authorities, and giving provincial and local governments considerable control over resources and discretion in interpreting policy. This decentralized governance structure is often considered a key engine of economic growth in China (Qian and Weingast 1996). Over the years, as suggested by the experience of Henan and Hebei, the autonomy of the lower levels of government has increased. The central government is increasingly being limited to matters of national significance, such as monetary policy and defense. Today, provincial governments have significant autonomy in the planning and policy decisions affecting their provinces. For example, the decentralized management of roads in China parallels the overall economic and administrative decentralized governance system in the country. Provincial governments, through their Communications Departments, lead the development of the road network in their provinces, while the central government focuses on planning and developing standards for the National Trunk Highway System (World Bank 1994).

3.4 Decentralization has made the provinces largely responsible for managing provincial economic development. Building capacity at the provincial level, whether to manage water resources, develop forest plantations, or support agricultural research and extension, has been an important objective of the projects assessed. Both transport projects deepened the decentralized governance system in China by extending direct support to the provincial governments and providing technical assistance and training to Provincial Communications Departments. The Hebei and Henan Agriculture Development Projects were not only to contribute toward strengthening research and extension programs in the two provinces but also toward strengthening the capacity of the two provinces to manage their water resources. Though the central government continues to dominate policy formulation, sovereignty to develop, operate, and maintain water systems has been devolved to the provincial level (OED 2000). The National Afforestation Project supported the development of an organization and management structure for plantations within the provincial and county forestry bureaus. The health project focused on improving health workers' development at provincial, prefecture, and county levels. Both education projects aimed at building provincial and lower-level capacity for education services delivery.

3.5 As in the rest of China, decentralization has provided the impetus for economic transformation in Henan and Hebei and has led to greater participation and accountability, and increased efficiency of resource allocation and service delivery.<sup>16</sup> However, the provincial autonomy (and the scarcity of development resources) sometimes led to provincial and local government resistance to central directives that are not in the local interest. Provincial and county authorities in Hebei and Henan told the OED mission that provinces generally expect additional resources from the central government if it wants them to follow a particular national strategic direction. In some other provinces, the literature shows that preoccupation with local interest has been observed to the detriment of national interest. For example, although this has not been the case in Hebei or Henan, some provincial or local governments have dealt with environmental problems in their jurisdiction by shifting the problems to a neighboring area or province.<sup>17</sup> The lowering of the importance of central planning with decentralization also raises questions about the capacity of the center to manage major cross-provincial issues like river basin or watershed

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16. "China began with political reform in which the central authorities, while not completely binding their hand, made it harder for them to use those hands. The Central Government instituted a set of limits on themselves by giving away power to local authorities in a way that would be difficult—and which recently proved difficult—to retake. This, in turn, set the stage for economic transformations across much of China." (Weingast 1994)

17. "Often faced with pressure from local governments to ease environmental regulations for the sake of economic development, environmental agencies have in many instances approved environmentally harmful projects by requiring that they be sited downstream from drinking water intakes for the city under their jurisdiction. In essence, environmental organs have aimed to avoid a pollution problem within their regulatory domain by moving the problem to a neighboring domain." (Jahiel 1998)

management and the environment (see para. 3.25).<sup>18</sup> In the Hebei Agricultural Development Project, for example, inadequate water sharing arrangements among river users created a shortfall in water supply despite the major investments in surface irrigation.<sup>19</sup>

**3.6 In China, undertaking development activities is constrained by inadequate financial resources at lower levels of government and limited willingness to borrow for investments that do not yield quick returns.** Before 1978, China had a somewhat unitary fiscal system in which the central government had control over revenue collection (including profits of state-owned enterprises), and budget appropriation was made as needed by the provinces. This was changed by the 1980 intergovernmental reform, which assigned different expenditure responsibilities to different levels of government, making them responsible for collecting necessary revenues and managing their own budgets. Though the sharing arrangements vary, each level of government is responsible for collecting taxes (which are set nationally) and is allowed to retain a part of the collected fiscal revenue. A level of government that has successfully increased its tax revenue is allowed to keep the major portion of the increase. Over time, several changes have been made to the revenue sharing arrangements. Today, China's fiscal revenue system is considered one of the most decentralized in the world.

**3.7** The result of devolving more power to local governments is the increase in provincial and local responsibility for local expenditures. Over the years, as is obvious from the experience of Henan and Hebei provinces, more and more responsibility has shifted to the provincial and local levels, but local governments are finding that they do not have adequate resources to meet all their expenditure responsibilities. On the *positive side* decentralization has encouraged provincial authorities to experiment (for example, with entrepreneurial enterprises and joint ventures, and asset securitization in the transport sector) and create new incentives for local revenue and growth and to pursue projects with clear local benefits. Provincial governments have had greater interest in allocating a larger portion of their revenues to higher-productivity areas. This has led to promotion of rural industry and infrastructure investment. In Henan and Hebei, too, the provincial authorities have made substantial investments in township and village industries. Rapid production growth has enabled township and village enterprises (TVEs) to make significant contributions to state revenues.

**3.8** On the *negative side*, shortage of resources has created incentives to defer expenditures that do not guarantee quick financial returns. Thus, education, health, environment,<sup>20</sup> and even agriculture have suffered. As in the rest of China, poor counties in Henan and Hebei lack resources

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18. "Regulatory enforcement [of environmental regulation] has been the weak link in China's system. In recent years the National Environmental Protection Agency and national ministries have been closely monitoring the enforcement of environmental laws. But to be successful, monitoring and enforcement must take place at the local level. Local governments face a tradeoff between protecting the environment and safeguarding the financial and employment performance of local firms. As a result pollution generally exceeds China's own standards." (World Bank 1997)

19. OED's review of World Bank's Water Policy in China, carried out as a part of the global review of the impact of the World Bank's 1993 Water Resources Policy, notes, "While the decentralization of responsibilities has enabled economic growth, it has weakened the regulatory effectiveness of central government and made coordinated development, quality management, and real time water allocation more difficult. It has reduced central investment resources and hampered MWR [Ministry of Water Resources] efforts to guide and influence comprehensive water resources management.... In effect, each province resembles a riparian state and maintains its own water resources bureau responsible for the planning, survey, design, construction, operation and management of irrigation, drainage, and flood control works and rural hydropower." (OED 2000)

20. "The extreme decentralization of China's fiscal system and the inadequate fiscal resources that the reforms have provided for local governments, especially in poor, rural areas, are the most serious constraint to environmental and natural resource protection. The government allocates minimal financial resources to environmental protection and natural resource conservation, and only a small portion of that is directed to the rural environment, primarily for forest protection." (OED 2000)

to adequately address social sector issues. With fiscal decentralization, they must raise their own revenue to provide social services, but many have difficulty doing so because they already run fiscal deficits. As is clear from the experience of the Agriculture Development Projects, operation and maintenance of irrigation projects has suffered in Henan and Hebei. In addition, as the literature shows, the desire of the poorer provinces to increase revenues has often led to neglect of important environmental concerns, thus further complicating the task of poverty alleviation.<sup>21</sup> Continued fiscal reforms are needed to ensure that governments at all levels and in all provinces are able to meet their obligation to deliver basic public services, including health and education.

**3.9 Since IDA resources are no longer available it has become more difficult for China to apply its “beneficiary pays” policy for some kinds of projects.** An aspect of decentralization that has implications for China’s borrowing from the World Bank is the devolution of responsibility for repaying a Bank loan. The central government has developed an intricate system of on-lending to lower-level governments and ensuring repayments from those who directly benefit. This principle poses little problem for revenue-producing projects, such as tolled-expressways and agro-processing units, but it works less well for social investments that do not directly earn revenue or generate income, such as rural roads, rural education, and health care, where obtaining repayment from beneficiaries is difficult.<sup>22</sup> Provincial officials in Henan and Hebei told OED that since IDA resources are no longer available, a Bank loan has become more expensive, and has increased the difficulty of applying the “beneficiary pays” principle, making it less likely that China will borrow for poverty-reducing projects that do not generate sufficient revenues to pay for themselves.<sup>23</sup> This creates a tension between the Bank’s desire to lend for social projects—thereby targeting its lending to the poor—and the government’s reluctance to borrow if repayment from beneficiaries cannot be guaranteed.

## POVERTY ALLEVIATION

**3.10** With decentralization, poverty has to be addressed at lower levels of government, but regional disparities require central government intervention. The Chinese government has given substantial attention to reducing poverty. The State Council’s Leading Group for Poverty Alleviation and Development coordinates the national poverty reduction effort. In 1986, the same year the agency was established, a national and provincial list of 592 poor counties was created. Sixty-six of those counties (11 percent) are in Henan and Hebei provinces. The poor counties were targeted in 1994 by a far-reaching poverty reduction strategy called the 8-7 Plan.<sup>24</sup> In May 2001, China adopted a 10-year poverty strategy (2001–2010) that focuses on poor households and

21. “Nevertheless, there is evidence that over the past decade, polluting firms—particularly when banished from prosperous coastal cities—have relocated to less-developed inland locales. In many of these areas, local government officials have courted any kind of investment, regardless of environmental impact, so long as it appears profitable, and opposition by environmental officials has been thwarted.” (Jahiel 1998)

22. “Of particular concern is China’s road infrastructure, especially in rural areas and in interior provinces, where cost recovery is not a viable option.” (World Bank 1996)

23. The Bank has recently supported several rural development and watershed development projects in the western provinces that are likely to have a major poverty-reduction impact. The Loess Plateau II project, which has both IDA and IBRD funding, may prove otherwise, but generally the western provinces find it difficult to borrow for poverty alleviation and social sector projects on IBRD terms because of their lesser ability to pay back.

24. The plan recognizes that the significant reduction in poverty and its concentration in remote, resource-deficient areas makes it easier to target increased development and social service assistance to the absolute poor. It calls for four major steps: institution building and policy reform, greater investment in the development of human capital, promotion of labor mobility strategies and expansion of voluntary resettlement programs, continued investment in poor area agricultural and rural enterprise and road and other rural infrastructure.

village activities. As reforms have shifted more responsibility to lower levels of government, the poverty issues have also to be addressed at the local level. However provincial and lower government resources for poverty reduction interventions in poor areas are inadequate.

3.11 Poverty alleviation was a major objective of several of the assessed projects. The Henan and Hebei agriculture development projects were to help alleviate poverty and raise incomes in the project areas. The transport project in Henan attempted to improve rural roads in poor communities. Through its focus on rural areas and health services at lower levels, the health project was broadly targeted at poverty reduction. And some geographic targeting is also evident: the project targeted 50 percent of the nationally designated poor counties in Henan and 89 percent of them in Hebei. The project did not monitor the specific poverty reduction impact of its interventions, however. Both the education projects were well targeted to poor counties: 79 percent of the nationally designated poor counties in Henan and 68 percent of the poor counties in Hebei were targeted by the project. Furthermore, the Third Basic Education project made efforts to target poor townships within the provinces, a positive emphasis given that more than half of China's absolute poor live outside the 592 nationally designated poor counties.

3.12 **While China has made significant progress in reducing poverty, addressing the remaining poverty is a challenge.** Among the most important results of China's reforms have been a substantial reduction in poverty levels and a rise in the standard of living, especially in the central and coastal regions, and including Henan and Hebei. National GNP grew at an annual rate of 9.1 percent between 1975 and 1995 and GNP per capita grew at 7.7 percent. Official estimates show that rural poverty declined from about one-third to one-twentieth of the total rural population between 1978 and 1998.<sup>25</sup> Most of the reduction, however, occurred in the early part of the reform period, and poverty levels stagnated in the mid-1980s and early 1990s (World Bank 1997b).

3.13 Even with this dramatic decline, however, poverty continues to be a major problem. Today, it remains primarily a rural phenomenon. Despite the government's efforts, more than 100 million absolute poor remain concentrated in the upland and mountainous rural areas of the northern and northwestern provinces. Even though the poor have land use rights, the land in these areas is of extremely poor quality, making even subsistence crop production difficult. Lack of basic infrastructure, limited off-farm employment opportunities, low levels of educational attainment, poor health, and malnutrition make things worse for the poor in these areas. Poor households in the mountainous areas of central and western China, and in parts of Henan and Hebei province, are particularly dependent on forest resources because of their limited access to productive land and low opportunities for off-farm employment. While the Bank's early projects in the forest sector were criticized for ignoring poverty alleviation, recent projects have given it substantial attention. Forest sector development in China has helped the poor through wage employment, skills upgrade, and diversification of income.

3.14 China's agriculture and rural industry sectors have grown tremendously since 1978 when, in a strategic shift, China increased its focus on efficiency and gave priority to making the east coast a center of national development and a starting point for the diffusion of development to other regions (Shen 1998).<sup>26</sup> The subsequent rapid development of TVEs has made a tremendous

25. Though concern has often been voiced about the reliability of official estimates, some analysts argue that the reduction of poverty may have been far greater than suggested because the Chinese government may have understated the extent of poverty in 1978. (Yao 2000)

26. The designated development strategies for three regions in the seventh Five Year plan (1986–90) were as follows: "We must speed up development in the east coast region, concentrate on building up the energy and raw and semi-finished materials industries in the central region, and make active preparations for further development in the western region." (Guo 1988 quoted in Shen 1998)



contribution to increasing rural incomes and local entrepreneurship in China. However, their development has been uneven across the country.<sup>27</sup> At the same time, the nature of China's economic growth has created disparities in regional development. Consequently, interregional inequality has increased and income distribution within each region has worsened so that even the richest regions have areas of poverty. China's dramatic growth, while raising the standards of living for much of the population, created wide income disparities.<sup>28</sup> While some level of income and regional inequality is unavoidable and may even help spur growth, the level of inequality in income and access to opportunity can be a cause for concern. If not moderated, some aspects of China's inequality may imperil future growth and stability (World Bank 1997b). Further, since poor and remote areas lack basic transportation and communication facilities and have poor local human capital, companies from rich areas have little incentive to move there. The problem is compounded by the tendency for the poorer regions to have more environmental problems—some analysts note that poorer areas in China have become the repository of wastes from richer areas.<sup>29</sup>

**3.15** The central government currently faces the difficult task of ensuring that sufficient funds are available for poverty alleviation efforts. Tackling the remaining poverty in China is not easy. Although poverty levels have declined substantially in Henan and Hebei provinces, meeting the education, health, and income needs of the poorest continues to be a challenge, and not just in the poorer rural areas but also for the poor living in the relatively better off counties. The public provision of health and education services has been constrained by the limited financial resources of local governments, particularly in rural areas. In 1993, total per capita health expenditure in the officially designated poor counties was less than half the national average, and some 80 percent of that expenditure was out-of-pocket compared with 40 percent for the nation as a whole. Since townships can earn more from the provision of curative services than preventive services, they tend to emphasize curative care for which they may not be fully equipped and from which the poor may benefit less. Another problem with the rural healthcare system is that salaries of health workers in clinics are tied to the amount of medicines they prescribe, and poor households often end up paying for more medicines than they actually need (World Bank 2001a). The experience of the agriculture development projects shows that it is not easy to ensure that income and productivity growth in an area benefit the poorest. The experience of the education sector projects assessed in this review show that counterpart funding requirement targets imposed a disproportionately heavy burden on county finances, especially those of poor counties, and in some cases there was a substantial burden on village households as these funds were collected as part of the local education surcharge.

**3.16 The Bank investments in various sectors should focus on tapping inter-sectoral synergies.** The Bank has supported the government's poverty reduction program through projects in the health, education, agriculture, rural roads, and rural water supply sectors, including several of the projects assessed by OED. The Bank is currently supporting an integrated multi-sectoral approach to poverty reduction, as in the Qinba Mountains Poverty Reduction Project (approved in fiscal 1997) based on putting in place a package of complementary services in poor areas. While the merits of this approach are obvious, primarily the ability to address multiple development needs

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27. "In 1994, the eastern provinces (Beijing, Fujian, Guangdong, Guangxi, Hebei, Jiangsu, Liaoning, Tianjin, Shandong, Shanghai, Zhejiang) produced 69% of the TVE output value, while the central region (Anhui, Henan, Heilongjiang, Hubei, Hunan, Jilin, Jiangxi, Neimenggu, Shanxi) produced just 23% and the western region (Gansu, Guizhou, Ningxia, Qinghai, Shaanxi, Sichuan, Yunnan, Xizang, Xinjiang) only 6.4 percent of the TVE output value. (Mood 1997)

28. In 1981 China's Gini coefficient was 28.8. By 1995 it was 38.8—lower than most Latin American and East Asian countries but higher than in most transition economies. (World Bank 1997b)

29. "In addition, several areas in China, particularly poorer, rural ones, have now become the repository for wastes from wealthier urban areas where consumerism has taken hold. Though this transfer often involves China's richer coastal regions, it is not restricted to these areas." (Jahiel 1998)

simultaneously, expansion of the approach will need to be informed by considerations of local capacity to implement, coordinate, and sequence activities. Analysis done for OED's evaluation of Social Funds (World Bank 2002) also notes that while planning often needs to be multi-sectoral, technical or other requirements for specific investments may in some cases be better addressed through a sector-specific approach to service delivery.

3.17 The assessment mission was able to get government data on poverty indicators at the city and county levels for Hebei and Henan provinces for the 1990s. This was examined in conjunction with information on cities and counties in the two provinces where most of the Bank projects were being implemented. The reliability of the data may be questionable, but it probably provides an order of magnitude. The data do not permit a conclusive judgment about the impact of the projects on income levels in Henan and Hebei. Project and non-project counties alike grew at a significant rate over the 1990s. There are at least three possible explanations of the lack of growth rate differences based on the evidence from OED's assessments and a review of the literature. First, strong overall growth in China could have resulted in growth in both the provinces and the Bank projects had no significant impact. Second, the demonstration effect and the learning were so quick in the non-project counties that China was able to incorporate the achievements of the project counties in their own development effort. The experience of the assessed agriculture projects and the rapid spread of the greenhouses in non-project counties supports this logic. Third, the government was using its own resources for intensive development of the non-project counties while relying on Bank resources for development efforts in the project counties. In the highway sector, for example, government funds were used to build a major connecting road in Kaifeng in Henan province. Soon after Bank-financed construction of the northern section of the Zhengzhou-Luoyang Expressway began under the Henan Highway Project, the Henan Provincial Communication Department, using government funding, started construction on the southern section of the expressway.

3.18 Analysis of the data from the two provinces reveals two important issues that require further examination, perhaps in the OED Country Assistance Evaluation.

3.19 ***How are Bank projects targeted?*** Though 38 of the 592 poverty counties were in Hebei and 28 were in Henan, the Bank did not make a systematic effort with the seven projects it financed in those provinces to target poor counties. Only the Third Basic Education Project focused largely on poor counties: in Hebei 96 percent of the project counties were poor and in Henan 92 percent were poor. The Rural Health Project covered only 40 percent of the poor counties in Hebei and 28 percent in Henan. County-level information was not available for the agriculture projects, so it is unclear how many poor counties they covered. However the projects were active in some cities that were not in nationally designated poverty counties.

3.20 Even if they had systematically targeted poor counties, however, it is not certain that this would be particularly effective in reducing overall poverty. Analysts argue that since more than half of China's absolute poor live outside the 592 nationally designated poor counties, a more effective means of reducing poverty would be to target a lower level, the poor township, which would include larger percentages of the absolute poor. Bank sector work also suggests that adequate targeting at the township or administrative village level would help alleviate more poverty and would even cost less (World Bank 1997b). There is little evidence in any of the projects, including the Third Education Project, that the Bank has succeeded in targeting poor townships.

3.21 ***How much attention is given to harmonization of Bank investments in different sectors?*** The Bank could have made more effort to coordinate and link the activities of the various projects in Henan and Hebei to maximize their poverty impact. The Bank was intervening

in the two provinces in the agriculture, transport, education, and health sectors at roughly the same time and had the opportunity to ensure that each of the investments reinforced and complemented the others. Yet, this apparently did not happen: for example, the assessment mission found some hospitals and schools with poor or no access roads. Coordination within the Bank, between levels of government in the country, across central bodies such as the line ministries and the State Council's Leading Group for Poverty Alleviation and Development, and among provincial and country departments in the various sectors could have received more attention.

## ENVIRONMENT

3.22 Several of the assessed projects have dealt with environmental concerns. Quantity and quality of water resources was important in the Hebei and Henan Agriculture Development Projects, for example. Moreover, the operation of agro-processing industries supported by these projects had important environmental implications. The National Afforestation Project was to support development of forest plantations, which were to help fulfill a major demand gap for wood products in China. In the transport sector, none of the projects addressed environmental concerns, even though transport is a major contributor to air pollution. The education and health projects had no direct or significant implication for the environment.

3.23 **Growth has increased China's environmental problems.** The literature shows that though most of China's environmental problems originated in the past, they have been aggravated by the rapid growth of the post-reform period. Analysts note that growth and political stability have received more attention than environmental conservation over the past two decades. It is often argued that China has pushed its growth levels beyond sustainable limits. Environmental degradation has begun threatening production in sectors like aquaculture. The experience of the Hebei Agricultural Development Project, for example, shows that environmental pollution has threatened scallop production. Waterlogging, deforestation, and sodic and alkaline soils have constrained agricultural production<sup>30</sup> and the loss of forests has pushed desertification in northern and north-western China to a rate of 170,000 hectares a year.<sup>31</sup> Others predict that, like today's industrial economies, China will gradually be able to solve its environmental problems as it continues to grow. Whatever the expectations for the future, today China faces acute environmental problems that are having a major adverse impact on some of the basic necessities of life, like water and clean air.<sup>32</sup>

3.24 China's first Environmental Protection Law was promulgated in 1979, but environmental protection remained a relatively low priority until 1996 when, for the first time, the heads of both the Communist Party and the Chinese State attended an environmental conference. Soon after, the

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30. "Cumulative losses of arable land during the past forty years have been larger than all of Germany's farmland, and the annual loss rate of around half a million hectares is still unacceptably high. China's Environment and Security: Simple Myths and Complex Realities." (Smil 1997)

31. Wang Xi, Forest Policy, Law and Public Participation in China.

32. "China is now the world's largest producer and consumer of coal.... Most of China's coal is burned without any controls in tens of millions of small coal stoves and in small and mid-sized boilers providing heat, steam, and hot water for millions of small enterprises, offices and public facilities.... Not surprisingly, this brings recurrently heavy episodes of classical (London-type) smog to most Chinese cities, and it creates semi-permanent hardship in all northern urban areas during winter. In addition, the recent rapid multiplication of passenger cars and trucks has been responsible for no less objectionable and no less recurrent episodes of heavy photochemical (Los Angeles-type) smog. China's cities and the surrounding countryside are thus blanketed by very high levels of particulate matter, sulfur dioxide (SO<sub>2</sub>), nitrogen oxides, volatile organic compounds and ozone, with concentrations of some of these pollutants often an order of magnitude above the recommended levels." (Smil 1997)

concept of sustainable development was enshrined in China's Agenda 21. The calamitous flooding of the Yangtze river in 1998 served to further focus official attention on the man-made causes of natural disasters. The flooding also led to the imposition of the logging ban. There is now a complete ban on commercial logging along the Yangtze and Yellow rivers. A substantial area of plantations under the National Afforestation Project has been affected by the ban (see section 7). Today, the Chinese government clearly recognizes environmental degradation as a major problem, and investments in environmental projects have been increasing. In March 1998, the National Environmental Protection Agency (now called the State Environmental Protection Agency, or SEPA) was upgraded to ministerial rank and its coverage was expanded to include "green" issues. Coming at a time when strict administrative austerity was being practiced this was a clear signal that environmental problems were a serious central government concern (Jahiel 1998).

**3.25 Decentralization makes managing environmental issues more difficult.** With a legal framework and institutions in place to manage environmental problems, China is poised to address sustainable development, but much remains to be done. For example, reduction of the importance of central planning raises questions about the capacity of the center to manage cross-provincial issues like river basin or watershed management and the environment. (Annex D illustrates the problem China faces in managing cross-provincial issues under a decentralized regime.) In addition, market signals do not yet reflect the true environmental costs of doing business. Lack of resources for monitoring and poorly trained personnel have hindered progress. Progress on decentralization and reducing the central planning has made it difficult to enforce environmental discipline. In effect, field-level Environmental Protection Bureaus owe allegiance to two authorities—their local governments and the central SEPA. Since the local governments provide the environmental agencies with their annual budgets, the agencies have an incentive to take local government concerns for development much more seriously than those of SEPA.<sup>33</sup> In recent years attempts have been made to improve coordination between different functional departments at the local level, and provincial and local governments have become more conscious about environmental issues. The completion report for the Henan Agriculture Development Project notes, for example, that the Provincial Environmental Pollution Bureau approved the design of the environmental control system for agro-processing plants.

**3.26 Water resources management in the primary grain producing areas of China needs attention.** Hebei and Henan provinces together account for 39 percent of total groundwater area and 5 percent of total surface water area in China.<sup>34</sup> The North China plain, comprising portions of Hebei, Henan, Shandong, Jiangsu, and Anhui provinces, is China's grain basket and relies heavily on irrigation, the largest demand on China's water resources. In northern China, underground water resources have been heavily tapped and excessive exploitation has led to shrinking water tables. In much of the north, water extraction is at or above sustainable levels. The country as a whole faces an acute shortage of water: per capita water resources are only about one-third the world average. Furthermore, there is a serious imbalance in the availability of water: northern China has only one-fifth the per capita water resources of southern China (World Bank 1997). Though they comprise roughly one-third of the nation's territory and two-fifths of

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33. "It is the local EPBs [Environmental Protection Bureaus] that must ensure that factories install pollution prevention technology, operate waste treatment facilities, reduce harmful emissions, or pay fees if these emissions exceed standards—even if the factories view these extra costs as unreasonable. It is the local EPB too, that must ensure that city planning agencies reject proposals from heavily polluting foreign and domestic firms seeking to invest in the area or that counties wishing to turn wetlands into farmland conduct environmental impact assessments—even if these projects promise to be lucrative for the local economy. In an atmosphere in which economic growth is the primary state goal, these are not small tasks." (Jahiel 1998)

34. Data from Ministry of Water Resources et al. 2001 table 3.7.

the total population, and identical shares of agriculture and industrial output, the northern provinces receive just one-quarter of all precipitation (Smil 1997). There is also tremendous wastage of water in agriculture as about 60 percent of the water passes through an old-fashioned ditch irrigation system (World Bank 1997). The system needs extensive repair, but lack of resources has prevented rehabilitation. Furthermore, distorted pricing policies have promoted inefficient use of water. Solving the problem, therefore, will mean more than increasing the efficiency of the irrigation system. Water-efficient technologies will have to be adopted all around—in energy and in industry.<sup>35</sup>

3.27 It is not clear how much the Bank support for irrigation development has contributed to the problem or how much the Bank could have done to help avert the current shortage. Though water conservation was the largest component in the Hebei Agriculture Development project and irrigation and drainage was the largest component in the Henan Agriculture Development project, both projects made only a limited contribution to improving overall provincial water resource management capability. Later Bank projects have had more success with water management issues. The Bank's Irrigated Agriculture Intensification Project, for example, is helping to rehabilitate and upgrade existing irrigation works through support for technical improvements and construction of farmland irrigation water distribution facilities.

3.28 Since 1980, the quality of China's surface water and groundwater has deteriorated under the pressure of industrial development, population growth, and agricultural runoff.<sup>36</sup> In the agriculture sector, for example, recent studies have found that the intensive use of nitrogen fertilizer and pesticides is an important source of water pollution.<sup>37</sup> Studies have also found that township and village enterprises (TVEs) contribute to water pollution and can have adverse effects on the quality of life.<sup>38</sup> The Bank-supported agriculture projects in Henan and Hebei provided support for development of agro-industry and gave particular attention to the disposal of effluents from industrial plants.

3.29 **Plantation development solves some problems—it helps meet the demand for wood products—but it may create others. Monoculture has negative implications for biodiversity.** To compensate for China's shortage of forest resources, and to ease pressure on the country's natural forests, the central government has been attempting to meet a substantial part of the country's requirement for forest products from plantations. China now has 34.25 million hectares (342,500 square kilometers) of commercial plantations (Bhatia and Ya 1999), the consequence of an expansion that accounts for most of the change in rural China's forest area (Rozelle et al. 2001). The National Afforestation Project was to help the country establish 985,000 hectares of intensively managed plantations. By project closing, a total of 1,385,000

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35. The potential to save water in industry is high: "China uses from 23 to 56 tons of water to produce a ton of steel, whereas the United States, Japan and Germany use less than 6 tons." (Brown and Halweil 1988)

36. "Water pollution from urban areas and dispersed rural industries is growing rapidly and has proved difficult to control despite strong environmental legislation." (OED 2000) "Surface and groundwater pollution now represent a huge problem not only for the environment but also for public health." (Ministry of Water Resources and others 2001)

37. "Of particular concern is the widespread use of ammonia bicarbonate [ABC] fertilizer, which is cheap and easy to use but is also soluble and easily washed out to streams, lakes, and aquifers. Pesticides use, more widespread in recent years, has been implicated in species loss (birds) and has polluted some important water bodies. Animal waste from livestock farms is another major source of biological oxygen demand and coliform pollution. Meat production (chicken, pork, beef, lamb) has grown considerably over the past fifteen years, and much of the manure from livestock farms has found its way into nearby water systems." (World Bank 1997)

38. "In a number of studies, pollutants released by TVIEs [township-village industrial enterprises] have been linked to adverse health effects. In China overall, liver and stomach cancer deaths have doubled since the 1970s, and now are the leading causes of cancer mortality in rural China." (Wu et al. 1999)

hectares had been planted. The project made a significant contribution toward meeting the wood product needs of the country and, because many plantations were affected by the logging ban that was imposed in 1998, toward the future quality and quantity of natural forest cover in China. The lack of species diversity that is typical of such plantations, however, has important environmental implications (see assessment experience for details).

## PRIVATE SECTOR DEVELOPMENT

3.30 Private sector development was an important issue in some of the assessed projects. The Hebei and Henan agriculture development projects provided support for expanding agro-processing activities and agro-industries. The transport sector projects provided the basis for further involvement of the private sector in the financing and management of expressways in the provinces. The health project was initiated in a period of increasing private sector participation in health services delivery, which affected some of the project assumptions and estimates, for example, those relating to health manpower supply.

3.31 Over the years, the private sector in China has grown to play a major role in the economy. In 1998, its share of GDP was about 33 percent (IFC 2000). This was in sharp contrast to what was envisaged for the sector in the early years of reform, when it was expected to play only a peripheral role in the economy. State regulations at that time limited its growth. Private enterprises first developed in the rural sector as an outgrowth of rural reforms. The spread of the household responsibility system and the price reform in agriculture raised incomes and provided the financial basis for new private businesses and the market for the goods produced. As decentralization progressed, it stimulated the development of the private sector. In 1980, after a Central Committee sponsored a conference on employment where the employment potential of the private sector was recognized, new central government initiatives were provided to encourage private sector growth. In the 1990s, government policy increasingly emphasized building a market economy. Policy changes that encouraged ownership reform of small state-owned enterprises furthered the development of the private sector.

3.32 **Rural industry has made a major contribution to growth and local entrepreneurship, but may be reaching its limit.** The rapid growth of TVEs has contributed significantly to China's economic prosperity.<sup>39</sup> By capitalizing on the country's abundant supply of labor, they have helped create employment, increase competition, and fulfill market demand for consumer goods.<sup>40</sup> They have also been a major source of revenue for county and village administrative units, which (especially before 1985) "owned" a large percentage of these enterprises, albeit under unclearly defined property rights. Today, there is significant private sector participation in rural industry. After the Fifteenth Congress of the Chinese Communist Party in 1997, many small public firms were sold to private hands or transformed into joint shareholding arrangements (Wang and Yao 1999). Several industries owned by counties and villages continue to have a strong linkage with the local government, however. This has benefited both parties: the TVEs have gained access to land, information, markets, and resources, while the local governments have gained much-needed revenues.

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39. "In 1978, only 9.5% of the rural labor force were engaged in industrial activities, and only 7.6% of the rural income was contributed by the non-farm sectors; by 1996, 29.8% of the rural labor were working in local industry and non farm income accounted for 34.2% of rural total income." (Lin and Yao 1999)

40. "In the 1980s, small firms produced 80-90% of the outputs in textile, garment, leather, furniture, and plastic products industries whose growth led the country in that period." (Wang and Yao 1999)

3.33 Though rural industry has outstripped state-owned industry to become the largest industrial sector in China, it faces several constraints to its further development. TVEs often use outdated equipment transferred to them from urban industry. But their quasi-public nature and favored status has kept several uncompetitive and inefficient enterprises afloat.<sup>41</sup> Critics also argue that the technological incompetence of TVEs has led to considerable wastage of resources.<sup>42</sup> Others note that small firms lack the resources to adopt new technologies despite their flexibility in responding to market signals and they have the potential to become more efficient (Wang and Yao 1999).<sup>43</sup> TVE growth and efficiency improvement has been constrained by operating fund shortages, as access to formal credit is limited.<sup>44</sup> The policy environment in China is still unfriendly for small enterprises. Small enterprises are still largely excluded from getting formal bank loans. They also need technical support, better marketing information, management diagnosis, and employee training.

3.34 **Transport has benefited from innovative approaches to financing, but it is limited to expressways in coastal provinces.** Compared to other countries, China's private sector investment in roads is substantial, providing nearly US\$11 billion or 10 percent of total road sector expenditure for new construction since the early 1980s.<sup>45</sup> In the early 1990s, China recognized that basic highway capacity and maintenance needs could not be met by the traditional revenue sources then in use. As a result, foreign private investment sources were tapped to provide funding for the development of a high-grade highway network. New organizations—holding companies, operating companies, construction companies, and the like—were created to meet the legal, technical, and marketing requirements of creative new financing methods involving foreign and domestic private capital. China's successes in developing private financing of roads lie on developing innovative institutional and financing arrangements (see Box 3.2) to attract private finances, and on building some level of trust between private investors and the public sector. The extensive private sector participation in China's main highway development is reorienting the Bank's strategy to focus more on lower-level roads and on less-traveled national highways in the country's hinterland.

3.35 Despite its success in attracting private investments to the highway sector China still faces several challenges. The very institutions that foster private sector participation are also those that breed non-transparency and prevent the wider participation of international investors. The creation of private companies with assets securitized on the foreign and domestic equity markets, while providing essential financial resources to meet the increasing demand on highway development, complicates the maturation of the institutional framework for the country's highway sector and poses new challenges hitherto not experienced in other countries. Moreover, private investment inevitably flows mainly to the most developed coastal provinces (which currently receive about 80 percent of the commitments). This is in part because the traffic level in the inland provinces is considerably lower, and until traffic levels increase, private sector

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41. "Government involvement interferes with truly commercial management and can lead these firms to operate more like SOEs [state-owned enterprises]." (IFC 2000)

42. "Compared with large and medium enterprises, their [small enterprises] technology is backward, their consumption of materials and energy is high, and their product quality is low." From a report issued by the State Council in 1990 as quoted in Wang and Yao 1999.

43. "Several research projects showed that the lack of financial resources is the most important impediment to small firms' technological advancements." (Wang and Yao 1999)

44. "Throughout the reform period, capital from the formal banking sector—ABC [Agricultural Bank of China] and RCCs [Rural Credit Cooperatives]—has been insufficient to meet TVE needs. Consequently, enterprise expansion has been closely tied to the capacity of TVEs to generate internal funds or obtain informal credit." (World Bank 1999)

45. China: Highway Strategy Review, Final Draft (Undated, Circa October 2001)

investment will not likely be viable. Therefore, the financing of roads in inland provinces (including for national highways) will continue to rely on the public sector.

**Box 3.2. Private Investment in the Transport Sector: Sophisticated Institutional and Financing Schemes**

**Joint ventures** between Hong Kong-based developers and special-purpose provincial and municipal agencies provided US\$9 billion out of the total US\$11 billion in private financing. Since 1990, there have been 80 joint ventures in 14 provinces. The arrangement allows the private company to be responsible for raising the money and for managing and operating roads, and to take responsibility for loan liabilities. The provincial government counterparts contribute their share of capital in the form of an existing road or bridge that has some level of traffic, but requires rehabilitation and expansion. The private partner provides the money for the development of the highway, and in exchange is given preferential access to toll revenues, land use rights, monopoly-like future road development rights (including “first right of refusal”), and tax breaks and other privileges.

Most joint ventures have been for the rehabilitation and expansion of toll roads with a proven level of traffic. This has minimized the risk exposure of the private sector, and effectively transferred a substantial part of the traffic and construction risks to the public sector. But in addition to traffic and construction risks, environmental and project approval process risks have also been borne by the public sector. One lesson from the China experience is that the private sector is more willing to pursue projects that have already cleared the environmental, planning, and political approval stages. Hence, the Chinese model to develop joint ventures and asset securitization on existing roads and revenues reflects the need for the public sector to assume the environmental and project approval risks.

**Asset securitization**—a system unique to China—allows the sale of highway equity through initial public offerings and private offerings in mainland and Hong Kong stock exchanges. Since 1996, 13 expressway development companies have been listed in the exchanges, generating US\$2 billion in private financing for highway development. The arrangement allows assets and rights to toll revenues and debt services to be transferred from a company owned by a provincial government to a toll road company after the completion of the road. The original road would be financed and constructed by the Provincial Communications Department. Bank-financed toll roads have also been securitized in the stock exchange to raise money for highway development. The toll road company itself may manage and operate the toll road, or may do so through another stock-exchange-listed road operation company with the rights to a share of the toll revenues. The toll road company has monopoly-like rights over future road development in the area and often has “first right of refusal.”

The use of **Build-Operate-Transfer (BOT)** for highway development has been studied in China, and the Bank has supported several studies to test its feasibility in the country. A toll road from Guangzhou to Shenzhen is an early BOT-like project built by a Hong Kong developer. But the BOT model has been suspended and does not seem to be favored in China. The regulatory requirements—including transparent bidding process and evaluation, land acquisition and resettlement procedures, development rights, and toll setting—are beyond what the current institutional environment and the provincial officials are willing and capable of providing to support a BOT scheme.

Source: OED 1999

3.36 Private sector financing has also been limited to Hong Kong-based developers, and international investors beyond Hong Kong are discouraged from participating in China’s highway sectors by the complex regulatory and legal environment for highway financing. Experience in other countries suggests that international investors tend to prefer project financing with clearly defined contractual agreements between the public and private sector. But the simpler project finance schemes are currently not in use in China

3.37 One impact of creating private toll road companies was the creation of a new, parallel line of authority, with the potential to interfere with the original line of authority and make it



difficult to rationalize road sector policies. In addition, the proliferation of toll road companies managing relatively short road sections has resulted in dis-economies of scale in the operation and maintenance of toll roads and in road users having to stop at many toll stations. Consolidating toll road companies and reducing the number of toll stations would help correct this problem.

**3.38 Fee-for-service health care is available to many but unaffordable for the poorest.** The disintegration of the rural cooperative health system has increased the private provision of health services. Ministry of Public Health data, available only for 1988, indicate that 6 percent of villages and 9 percent of the rural population were covered under cooperative fund arrangements. Health care in over 80 percent of villages operates on a fee-for-service basis. The doctor in about 45 percent of the villages is a private practitioner, and 36 percent of the villages have a clinic, run by the village committee, where patients pay for services received. While things may have changed now, the fee-for-service approach, combined with no compensatory measures and low salaried health workers who overprescribe drugs (a major source of income for them) has made it difficult for poor villagers to pay their medical expenses. Results from a 1985 rural health services survey indicated that, under the fee-for-service system, about 20 percent of farmers could not obtain medical care when they were sick, and the same percentage of patients who needed in-patient care could not be admitted to a hospital for financial reasons. "With the continuous increase in medical care cost, illness has become one of the leading causes of poverty in rural areas."<sup>46</sup>

## TRANSACTION COSTS

**3.39** The experience of the assessed Bank projects and conversations with central and provincial officials reveal that though the uniformity in procedures that Bank projects bring with them is regarded as a major advantage, government at both levels is concerned about the complexity of those procedures and the increasing cost and preparation time required for Bank projects.<sup>47</sup> Delays in project preparation have frustrated Chinese officials, who feel compelled by internal pressures to implement projects quickly. The Chinese are happier with the procedures of other multilaterals, such as the Asian Development Bank (ADB), who have shorter project preparation times. In agriculture sector projects, for example, the extended preparation time required for World Bank projects has often meant that market conditions have changed before the project has been completed. Reducing the time and the number of stages required to execute a loan agreement and approve a design or changes to it during construction, while still meeting quality control objectives, is desirable and should reflect increasing domestic capability.

**3.40** In addition, as in several other countries, the Bank's safeguard policies have been viewed as a burden and transaction cost rather than an instrument to guide investments. Though resettlement and environment are important and problematic issues to both China and the Bank, Chinese officials consider the Bank's approach to implementation of its safeguard policies too restrictive. As one Chinese official put it, "*safeguards application should be the art of balancing incremental costs with incremental benefits.*" The Chinese claim that the Bank requirements are overly complex and stringent and not relevant to China's development goals. The Bank needs to work with the

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46. China Rural Health Workers Development Project SAR page 5.

47. A 2001 QAG review also brings out the value added from the uniform Bank procedures "Government officials emphasized that, *at its best*, the Bank processes have brought a holistic approach to project planning and implementation of a kind they did not practice before, bringing to bear technical, fiscal, environmental and social dimensions through feasibility studies, preparation, appraisal and supervision processes."

government in China to build stronger national safeguard policies, but it also needs to see how it can accommodate borrower concerns about transaction costs without sacrificing quality.

**Box 3.3. Client Viewpoint: Suggestions for Improving World Bank Competitiveness**

**Tailor lending strategy by sector.** Now that decentralization, without compensatory public policy, has created incentives against expenditures that do not guarantee quick economic returns, sectors like education, health and environment have been put at a disadvantage. One solution would be to identify those activities within each sector that guarantee quick returns (and are also cost-effective in terms of improving health and education outcomes) and those that are more public good in nature. These could then be combined in innovative ways. Typically, the Bank likes to include a rural roads component in its transport projects, for example, but provincial authorities are reluctant to borrow for rural roads. The Bank could get more leverage by insisting that a provincial government make rural roads an important part of its own program in a particular province in which the Bank provides support for highway development. This is being done for example in the Third Henan Provincial Highway Project.

**Differentiate lending terms by province.** Poverty is a major problem in China's western provinces, and the Bank is especially interested in lending for development of that area. However, the ability of those provinces to repay a loan is much lower than the coastal provinces. It may be worth exploring whether the Bank could have a differentiated policy for the poorer western provinces, particularly when they want to borrow for the social sectors.

**Soften loan terms.** The Bank is already experimenting in some projects with arrangements that soften loan terms. This can be done by combining the Bank loan with grant funds from bilateral or multilateral donors.

**Revise the method for calculating commitment charges.<sup>a</sup>** The Bank charges a commitment fee on its credits that is intended to impel the borrower to use the loan fund as quickly as possible—to complete the project and get benefits as early as possible. The fee, charged from the 60th day of the signing of the Loan Agreement, is based on the total amount of the loan that has become effective but has not been withdrawn. The first year of implementation is when the least amount of work is done, therefore, the base for the commitment fee is largest in that year, and the loan amounts withdrawn in the last years of implementation are inflated by the large amount of commitment charge that must be paid. Officials of Henan province suggested that this could be remedied. First, define the annual loan-usage amount plan at appraisal. As the project is implemented, the Bank can determine the charge according to the planned usage amount and the actual amount. Second, calculate according to the projection for each year during the implementation period.

a. Summarized from a note submitted by officials of Henan province to the OED assessment mission.

3.41 The Bank is losing its competitive advantage in China not only on the basis of its transaction costs but also because it is now lending to the country on IBRD terms. Paradoxically, the Chinese government is finding it more and more difficult to borrow Bank money for those projects that primarily contribute to poverty alleviation. In China, in contrast with other countries, since the responsibility for paying back a Bank loan has been devolved to lower levels, provincial and local governments also have a keen interest in the adequacy of Bank procedures. This highlights the importance of the Bank "listening" and understanding the viewpoint of the borrower—not only at the national government level but also at the provincial and county levels. Chinese officials interviewed by the OED mission had several suggestions for the Bank (Box 3.3). Some of the issues have been addressed in ongoing projects and others, such as the matter of commitment charges, are difficult to address at the country level. All, however, point out the need for greater flexibility and increased policy dialogue in reaching workable solutions.

## 4. Lessons

4.1 The preceding review combined with key findings from the experience of the eight assessed projects offers two broad categories of lessons with implications for the Bank's future involvement in China: enhancing the development impact of projects and strengthening the focus on poverty reduction.

4.2 **Enhancing the development impact of projects.** The experience of the assessed projects and the cross-sectoral review indicate that while Bank-supported projects in China may achieve their physical targets, the achievement of development outcomes can be mixed. Maximizing development impact requires more focus in Bank-supported projects on achieving development outcomes, especially on institutional issues.

- *Attention to institutional issues is essential for improving impact.* These issues received less attention than warranted in the assessed education and agriculture development projects. In the agriculture projects, the physical targets were achieved while the major institutional issue of provincial capacity to manage water resources was not much improved. In the education sector project, perhaps because of political pressures and the need to ensure basic education for all, the emphasis was on increasing access while the quality of the education imparted received less attention. Intended outcomes and institutional issues need to be identified early and consensus reached with the borrower on how to resolve them.
- *Continued and deepening Bank engagement is needed to ensure robust benefits.* In response to government demand in the education sector, the Bank has focused with each succeeding project on spreading the benefits of its investments in new provinces and counties rather than engaging in a deeper relationship in the same areas over longer periods of time. There are obvious trade-offs, but in order to maximize development impact, the Bank's future efforts in the social sectors could be informed by the need for sustained and far-reaching improvements in quality, and efficiency.

4.3 **Strengthening the focus on poverty reduction.** The Bank has been a valuable partner in helping the Chinese "catch up" with other countries through infrastructure development and the transfer of technology and knowledge about international procedures. It has also provided valuable support to significantly reduce poverty levels. However, tackling the remaining poverty remains a major concern.

- *Sharpening the focus on poverty reduction will require adjustments to targeting.* Improving support for China's poverty reduction strategy rests not only on increasing attention to the nationally identified poor counties but also to improved targeting at the township level. On the borrower's side, there is need for greater government coordination of all Bank poverty-related efforts be it in the context of multi-sectoral poverty reduction projects or under sectoral projects (like the eight projects OED assessed). Strengthening such coordination would help to mainstream poverty reduction activities within sectoral operations.
- *Coordination of sectoral efforts needs to be improved.* In Henan and Hebei the Bank could have made more effort to coordinate and link the activities of the assessed projects to maximize the poverty impact. Coordination between different levels of government in China, across central bodies, and between various departments and agencies also is weak

and needs improvement, but experience of the assessed projects shows that the Bank was unable to engage China on this issue.

- *Poorer provinces have special needs that require particular attention.* China's high level of decentralization has spurred the overall development process in the country. At the same time, it has created pressures against investment in sectors that do not yield quick financial returns but are crucial to reducing poverty. It has also put the poorer states in a position where they lack resources to deal adequately with poverty. Furthermore, since IDA resources are no longer available to China it has become difficult for the poorer provinces to borrow, especially for poverty alleviation efforts. China needs to consider a differentiated policy for giving special treatment to the poorer provinces. Government officials are keen on the Bank adjusting its lending terms and procedural requirements to make it easier for poor provinces to borrow for projects that can help the Bank and the country fulfill their poverty reduction objectives. Building on the recent agreement with DFID to provide grants for blending with IBRD loans, the Bank and China should continue to work together to ensure that lack of availability of IDA resources to China does not become a constraint on its ability to help the poorest provinces.

## **PART II**

### **PERFORMANCE ASSESSMENT REPORTS**



## 5. Hebei Agricultural Development Project

### OVERVIEW

5.1 The Government of China introduced the concept of provincial agricultural development in 1987. This strategy was to help the provincial governments in developing an integrated approach to their agriculture. Hebei was the fourth province proposed for Bank Group financing after Shaanxi, Shandong, and Jiangxi. The primary project objective was to alleviate poverty and raise farm incomes by increasing productivity and marketability of agriculture, livestock, and aquatic products in 53 counties in the northeast coastal and the inland Heilonggang areas of Hebei Province. The project was to (a) strengthen the ability of the province to effectively manage water resources; (b) increase productivity of existing low yielding crops and diversify the cropping pattern; (c) promote market analysis for major commodities; (d) expand agro-processing activities, rationalize fertilizer production, and make use of byproducts; (e) promote an effective use of crop residues in expanding livestock production; and (f) strengthen provincial applied research and extension for crops, livestock, aquaculture, and water conservancy. Total project costs at closing were US\$342.6 million, of which the IDA share was US\$164.8 million equivalent. Water conservation and agriculture development (that included financing of imported agrochemicals, improvement in seed production, orchard development, strengthening extension and research) were the largest components. Institutional development was supported through training and technical assistance.

5.2 Overall, physical targets are reported to have been met and farm incomes and outputs increased substantially during the project period (see Annex E Table 1). This assessment notes that a substantial part of the increase may have occurred because of the interaction of two factors: first, increased and expanded water availability because of investments in improved distribution of surface water and restoration and rehabilitation of old wells increased the efficiency of the old irrigation schemes whose maintenance had been deferred for want of resources; second, agrochemicals, improved seeds, etc., provided complementary technical impetus.

#### Hebei Agricultural Development Project

##### Objectives

- Strengthen the Province's ability to effectively manage its water resources
- Increase and intensify productivity of existing low-yield crops and diversify the cropping pattern
- Promote market analysis as a criterion for increasing production and improving processing of major commodities
- Expand agroprocessing activities to rationalize fertilizer production and make use of agriculture by-products
- Promote an effective use of residues in expanding livestock production
- Strengthen provincial applied research and extension programs for crops, livestock, aquaculture and water conservancy

##### Components

- Water conservancy (about 33%)
- Agriculture development (about 25%)
- Agro-industries (about 20%)
- Livestock development (about 10%)
- Aquaculture (about 10%)

### PROJECT DESIGN AND IMPLEMENTATION

5.3 The project was large, complex, and ambitious. As appraised there were 39 subcomponents, and 7 subcomponents were added at Mid-term Review (December 1993). The project design was not well thought through even though it drew on the experience of the IFAD-supported agricultural development project that was implemented over the period 1983–87. The

policy issues related to water resources, the largest component, should have been given attention up front. Inadequate water sharing arrangements among river users created a shortfall in water supply despite the major investments in surface irrigation.

5.4 Total project costs at closing were US\$342.6 million (about 11 percent higher than the appraisal estimate) of which the IDA contribution was 48 percent and the beneficiary contribution was about 30 percent. The cost of the agro-industry component was 154 percent higher than the appraisal estimate because of the increase in the cost of the high-specification imported equipment and increased local cost for design and construction. The cost of the aquaculture component was also substantially higher owing to the increased cost of high-quality imported cold stores and higher cost design of deeper shrimp ponds. The IDA credit was approved in fiscal 1990 and closed on June 30, 1998, 18 months behind schedule. Delay in construction and equipping of the Junliu pumping station and the Gao Cheng Market component and in completing and commissioning the agro-industry component were largely responsible. Implementation was negatively affected by several natural disasters (a typhoon in 1992, flooding during 1996, shrimp disease, cotton ball worm infestation), delays in procurement, and some instances of mis-procurement and failure to comply with Bank requirements.<sup>48,49</sup> Implementation was also negatively affected by the reorganization of the Project Management Office.<sup>50</sup> Lack of counterpart funding remained a major problem throughout project implementation and delayed the completion of the Junliu Pumping station. In the early years of

### Relevant Cross-Sectoral Themes

*Decentralization:* Decentralization is an underlying theme with implications for availability of provincial resources for O&M and for incentives for the promotion of agro-processing industries.

*Poverty:* The primary project objective was to alleviate poverty and raise farm incomes. The poverty alleviation impact was not as large as it could have been, however, because the project did not systematically target poor counties (see Part I). In addition, the poverty impact of area development projects such as this one can be increased by giving special attention to the needs of the poorest.

*Environment:* The quantity and quality of water resources are key environmental issues in this project. The ability of provincial authorities to manage water resources remains a major concern. Water pollution has threatened scallop production in project areas.

*Private Sector:* The project provided support for expanding agro-processing activities to rationalize fertilizer production and use of agricultural byproducts. At project closing the financial viability of the main project enterprises was a major concern.

48. "The six small slaughterhouses that were an original project component have also been dropped from the project in 1996 due to mis-procurement. These units would not have met new Chinese slaughterhouse classification standards after procuring locally made equipment that was below the required bid specifications, and the Livestock Bureau has refunded the costs to the project and the disbursed loan funds to IDA." (PSR 02/18/1998)

49. "The implementing agency of the Zhou Zhou wholesale market earlier failed to comply with Banks procurement requirements for construction of the main market hall and some auxiliary facilities." (Supervision Mission Aide Memoire Annex 2 November 5, 1996) "The subproject (Zhou Zhou Wholesale market) management has consistently failed to use the approved procurement procedures, and most of the work completed during the past six months by direct purchase should have been LCB. We will not disburse on items procured through direct purchase contracts in contravention to the Legal Agreements; i.e. for roads, water supply, pipes, land preparation, and transformers." (Supervision Mission Report March 1996. Appendix 1)

50. "The Provincial PMO is under reorganization. The new director was not appointed until lately. This has caused a lot of delay in project activities due to the project staff's uncertainty about their position in the project. The ripple effect of the change in management is large, especially since the provincial government believes that the project construction phase has been completed and would therefore like to downsize the project management office. Staff are still not sure of their future and they have little incentive to work." (Supervision Mission June 1995)



implementation, lack of vehicles with PPMO hindered supervision of project activities at the lower levels.

## RATINGS

### Relevance

5.5 Relevance is rated **substantial** despite the complex and ambitious design. As designed the project was to address some of the major constraints to agricultural productivity in the province and was in keeping with the government's long-term objectives for the development of the agriculture sector. Since China faces a shortage of arable land, increasing the productivity of existing arable land is a major development priority. The presence of an area development project in Hebei provided an unique opportunity to the provincial authorities to simultaneously act on several fronts—with seeds, pesticides, fertilizers, and in the livestock, fisheries, aquaculture, agro-processing, and irrigation sub-sectors—to increase productivity and incomes. The project was also in keeping with the Bank's lending to China's agricultural sector, which is designed to support the government's efforts to increase and diversify agricultural production through more efficient use of land, water, capital, and labor resources and through the improvement of support services such as credit, research, and agricultural education.

### Efficacy

5.6 On balance, efficacy—the extent to which the objectives were achieved—is rated as **modest**. As already noted, achievement of physical targets was impressive, but major institutional objectives were only partly achieved.

5.7 Though the project is reported to have contributed to rising incomes in the area, performance of the livestock component, one of the major means of targeting the poorest, was disappointing. Hence, it is possible that the poorest received only limited benefits from the project. Giving specific attention to the needs of the poorest can increase the poverty focus and impact of area development projects. Attention to the credit needs of the poorest will go a long way. Often the poorest are not able to take maximum advantage of the livestock development opportunities provided by Bank projects because of their lack of access to credit. This makes it extremely difficult for them to cope when, for example, they loose an animal to disease.

### Efficiency

5.8 Project efficiency is rated **substantial**. The re-estimated economic rate of return (ERR) exceeded the appraisal estimate. At appraisal the ERR was calculated as 32.4 percent. At completion it was 39.7 percent. The assessment was not able to undertake an independent economic analysis for of project. However, given the significant increase in yields (see Annex E, Table 1) and incomes the ICR estimates are credible.

### Outcome

5.9 Despite project achievements, the assessment rates the project outcome as **moderately satisfactory** versus the ICR rating of satisfactory. OED considers a project to be moderately satisfactory when the project achieves most of its major relevant objectives but with significant shortcomings. The shortcomings in this project are significant.

5.10 *First*, completion of physical works on or ahead of schedule does not necessarily mean that all project outcomes are satisfactorily achieved. No long-lasting solutions were found to the persistent O&M problem of irrigation works during the lifetime of the project. As a result, current gains in productivity and incomes because of increase in water availability may not be sustained. Though irrigated area increased by approximately 213,000 hectares, the province's ability to effectively manage its water resources—the primary objective of the water conservation component—was not significantly strengthened. The project was not able to establish a system for future O&M of irrigation facilities it helped to construct or rehabilitate. In addition, for a variety of reasons water charges do not cover much more than Water Conservation Bureau staff salaries and operational expenses and district-level O&M budgets do not correspond to requirements.<sup>51</sup> Though it is admitted that insufficient resources for O&M of irrigation projects is a much deeper problem related to the decentralization issue, questions about efficiency and sustainability are also raised by the fact that new wells in excess of the SAR target were created. More than 30,000 new wells were drilled using revolving funds to replace inoperable wells and more than 70,000 were rehabilitated. These additional interventions may have a negative impact on the groundwater balance.<sup>52</sup> Given the fact that groundwater availability is a serious issue in northern China this was a major shortcoming.<sup>53</sup> In fact, revolving funds intended for installation of distribution pipes on existing wells were also used to rehabilitate and expand the well network. On project closing there was no indication that any active monitoring of groundwater levels was being carried out, nor was a management plan in place to address falling groundwater levels.<sup>54</sup> Thus, it is questionable whether the project strengthened the province's ability to manage its water resources.

5.11 *Second*, at project closing the financial viability of the main project enterprises was questionable as the issue of working capital remained unresolved.<sup>55,56</sup> Provision of working capital

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51. "Despite the shortage of water, its use continues to be wasteful. Most of the irrigation and drainage schemes constructed in the 1950s and 1960s were hastily designed, poorly built, and often left unfinished. Today these systems are badly run and maintained because of fragmented responsibility among levels of government, no direct participation by farmers in decision making, inadequate budgets, and water charges that are too low to cover maintenance costs." (World Bank 1997)

52. "The physical on-farm development has changed dramatically over the last two decades in the Heilonggang region primarily due to access by large numbers of farmers to a dependable and locally managed water supply from groundwater. However, the long term sustainability of the groundwater supply is in jeopardy due to the strong tendency to over-pump wells." (ICR Background Papers Water Resource Component by William Price October 1998)

53. "Irrigation techniques in northern China have had the effect of lowering the water table to such an extent that it is often said the capital will have to be moved from Beijing. The situation is now widely accepted as being acute." (China Country Profile 2001, The Economist Intelligence Unit)

54. "Despite assurances from project staff, the mission is concerned at the effect of these additional interventions on the groundwater balance. Although many more observation wells are being monitored, there is no indication of an annual update of the contour groundwater map or the implementation of a management system to address falling groundwater levels. Over pumping of wells is a concern. Moreover, despite the emphasis at appraisal on the need to increase efficiency of irrigation rather than drilling new wells, some 80,000 km. Of water saving pipe remains to be installed on existing wells outside the project area." (Aide Memoire ICR Mission Annex B ICR)

55. "...due to substitution of debt for equity in the capitalization structure of the main project enterprises, their financial viability is questionable, and several large enterprises are facing difficulty in raising/borrowing working capital. Until the issue of working capital (e.g. from shares, joint ventures or contributions by the owners/local governments) is settled, the development objectives are in question for these investments." (Supervision Mission October–Nov. 1997)

56. "Inadequate equity and lack of working capital appear to be widespread, affecting a number of enterprises. The mission understood that for at least six subprojects, debt from the Agricultural Bank had been substituted for the equity contributions by local government "owners" which had been agreed at appraisal. Similarly, working capital has not been provided (arranged) by the owners for a number of enterprise. For enterprises overburdened with loans, the Finance Bureau should take steps immediately to ensure adequate working capital, and replace debt with equity as much as possible; this means that the owners of each enterprise should either contribute cash from their budgets to the enterprise, or sell shares to other entities." (Supervision Mission Report March 1996 Appendix 1)

is essential if the enterprises are to operate at a profit and produce the financial returns to repay the World Bank loan. In addition, supervision missions noted a serious lack of business management expertise because of government operation in a large number of enterprises. Though since then several enterprises have sought alternative commercial arrangements (joint ventures, responsibility contracting, etc.) for operation of the facilities, nevertheless government influence over enterprise management remains a concern.

5.12 *Third*, as noted by the ICR itself (para. 13 page 6) though agriculture research was conducted, their benefits often were not disseminated.

5.13 *Fourth*, again as acknowledged in the ICR (para. 10, page 5) though animal husbandry programs are thought to have a major poverty alleviation impact, the actual performance of the project livestock component was disappointing.

5.14 *Fifth*, project files and conversation with Bank staff and government officials revealed that though the revolving funds were set up, they were not able to achieve the purpose that they were meant to fulfill.

### **Institutional Development**

5.15 Institutional development impact is rated **modest**. As already noted above, a lot remains to be done on the institutional front.

### **Sustainability**

5.16 On balance sustainability is rated **likely**. Even though realistic arrangements for O&M of irrigation facilities were not made during the life of the project, government commitment to do so in the future is high. In addition, beneficiary commitment and the progress on the development of the self-financing irrigation and drainage district concept in recent years may ultimately help in overcoming the O&M problem.

### **Bank Performance**

5.17 On balance, Bank performance is rated **satisfactory**. The Bank provided considerable technical assistance and guidance during project implementation. However, more attention could have been given to the supervision of the livestock and aquaculture component as the ICR acknowledges. In addition, Bank supervision missions could have given more attention to the development of capacity in the province for management of water resources. This would have required greater attention at the design stage to policy issues in the water sector.

### **Borrower Performance**

5.18 Borrower performance is rated **satisfactory** because of the overall good project management. The project was able to meet its physical targets despite several natural disasters. Though issues like counterpart funding that negatively affected project implementation could have been better handled. In addition, the PMO office could not carry out close supervision of the lower levels because of a lack of vehicles. According to the project agreement passenger vehicles were the responsibility of the provincial government.

## 6. Henan Agricultural Development Project (ADP)

### OVERVIEW

6.1 The primary project objective was to assist the provincial government in accelerating and diversifying agricultural development to alleviate poverty, increase farm incomes and rural employment. In addition to equipment, technical assistance and training support for overall project management, research, extension, and environmental protection the project had five components: an irrigation and drainage component to provide additional irrigation water and alleviate soil salinity and waterlogging problems; an agriculture component to increase the productivity of existing low-yield farms by crop intensification and diversification and development of waste lands for crops and orchards; a livestock component to raise farm incomes by increasing and diversifying livestock production; an aquaculture component to develop low-lying areas for fish production, and an agro-processing and agro-industry component to be able to provide the forward and backward linkages—forward from farm production through processing to markets and backward to agricultural inputs. As planned, irrigation and drainage was to be the largest project component. The Mid-term Review made several adjustments so that on project close the agro-industry component was the largest (approximately 37 percent of total costs) and irrigation and drainage constituted approximately 33 percent of the total project costs.<sup>57</sup> The rest of the project components were significantly smaller.

6.2 Overall, the picture on achievement of physical targets appears impressive. Significant increase in yields of annual crops and outputs of livestock and fish are reported (see Annex E, Table 2). Total area that benefited from the irrigation and drainage component is reported to be 274,000 hectares. Construction of tunnel greenhouses, procurement of fertilizers, planting of windbreaks, development of orchards, development of pig, chicken, cattle and sheep households, construction of fish ponds are all reported to have achieved appraisal targets.

Eleven agro-industry or agro-processing plants and 16 seed processing centers were also completed. The picture on project outcomes is mixed, however. Net farm incomes, and returns per labor day are reported to have increased significantly in the project area, though it is not necessarily the poorest that have benefited. Project achievements in integrating production, processing, and marketing activities have been substantial. Processing plants are reported to be in profitable commercial operation. Research results are reported to have been effectively transferred to farmers' fields. However, some fundamental institutional issues were not adequately addressed. During the

#### Henan Agricultural Development Project

##### Objectives

- Provide additional irrigation water and alleviate soil salinity and waterlogging problems
- Increase the productivity of existing low-yield farms by crop intensification and diversification and development of waste land for crops and orchards
- Expand livestock production through the effective use of crop residues
- Develop low-lying areas for fish production
- Invest in agro-processing and agro-industry
- Improve the province's ability to manage water resources effectively
- Strengthen research, extension and environmental protection programs by providing equipment, technical assistance and training

##### Components

- Agroprocessing and Agroindustry (about 37%)
- Irrigation and Drainage (about 33%)
- Agriculture (about 8 %)
- Livestock (about 13%)
- Aquaculture (about 7 %)

57. As an example, the SAR target was to procure 16,378 sets of water pumps and 5,787 diesel engines. By the Mid-term Review, 9,215 pumps and 2,173 diesel engines had been procured. The Mid-term Review canceled procurement of the rest of the pumps and diesel engines. Several changes in the agro-industry component were proposed, including new facilities.

project's life, improvement in overall provincial water resource management capability has been limited.<sup>58</sup> For some of the completed irrigation and drainage facilities quality of construction was also a concern, thereby increasing the O&M burden.<sup>59</sup> In addition, revolving funds that were to meet a major short-term credit need did not achieve their purpose (see Box 6.1).

### Box 6.1 Revolving Funds: A Missed Opportunity to Help the Poor?

Project experience shows that there was limited appreciation of the role revolving funds can play in poverty alleviation. The project design provided for revolving funds, to be established and maintained by the county Bureau of Finance, for groundwater development, farm inputs, orchard development, and livestock development. The funds were to be of two kinds: those from which individual farmers could borrow to meet short-term needs—the groundwater development, livestock and orchard revolving funds—and the revolving fund for farm inputs was to ensure that regular supplies of fertilizers and pesticides could be maintained. As a first step the project would finance the procurement of fertilizers and pesticides to be distributed by the Supply and Marketing Corporation at provincial, prefecture, municipal, county, township, and village levels at prices that would cover the cost of procurement, transportation, and distribution. Proceeds from the sale of these inputs would maintain the revolving fund so that supplies for the following year could be maintained.

To ensure that these funds were actually established the Bank made them a covenant of the loan. Though they were established, the funds did not function effectively. **First**, a dramatic drop in prices for fruit and livestock products affected farmers' income so that money in the revolving fund for orchards and livestock could not be recovered in full and on time. **Second**, some financially pressed municipalities and counties used the revolving funds to repay the Bank loans.<sup>b</sup> **Third**, the authorities could not pressure farmers to refund the loan amount because the officials felt it violated the national policy to reduce the burdens on farmers. **Fourth**, the revolving fund for agricultural inputs was adjusted as working capital for the agro-processing component of the project. **Fifth**, the project plan to use the revolving fund to make repetitive loans to farmers for groundwater development schemes could not be realized because the on-lending conditions and payback requirements that were in place at the county and farmer levels were too restrictive. **Sixth**, not all revolving fund resources that were actually put to use went to the poorest.<sup>c</sup>

a. "Formal financial institutions often deny loans to poor rural households because these households lack collateral, face riskier environments, and need small loans that have high transaction costs." (World Bank 1999)

b. "The objective of livestock revolving funds is to assist new farm households in beginning livestock production. There is strong demand from such village households to obtain loans; however, county governments have apparently retained the funds. It is recommended that funds be relent without delay to new village households wishing to begin livestock production." (Supervision Mission Aide Memoire May June 1997)

c. "In a small number of cases, large amounts of project loan funds have been allocated to wealthy individuals, who already have access to large amounts of money through banks and friends. Giving these people project loans has deprived many small and needy village householders of access to project loans. It is recommended that project loans given through revolving funds should be allocated to poor village householders, rather than wealthy ones." (Supervision Mission Aide Memoire March 1998)

58. "Water charges corresponding to O&M of I&D works were raised during the period of the project as foreseen at appraisal. However, there were indications at completion that water charge rates still did not cover all O&M costs, in particular those for heavier non-routine repairs as opposed to routine maintenance activities. A further factor limiting comprehensive attention to system maintenance is that O&M budgets made available to the local responsible WCB offices do not necessarily correspond to requirements, and it is also noteworthy that they do not necessarily reflect water charge collection amounts. Taken together, these factors are at least partly responsible for the observed deterioration of a number of project works since completion of construction, and if not attended to they may mitigate against the long term sustainability of project facilities." (Water Resources Component for the ICR Prepared by FAO/CP)

59. A communication to the Chinese authorities from the Bank on the Mid-term Review Mission July 1994 noted, "The mission informed me about their concern of the construction quality of some of the completed works, especially in the well irrigation scheme where some poorly constructed works were damaged by recent floods. We would like to emphasize the need for a better quality control on the works to be constructed by the contractors and the counties, to insure that good construction quality in these works is adopted."

## PROJECT DESIGN AND IMPLEMENTATION

6.3 Actual project costs at closing were US\$245.6 million, of which the IDA share was US\$116.5 million versus project costs of US\$196.03 and an IDA share of US\$110 million at appraisal (1991).<sup>60</sup> Though the project became effective in August 1991, implementation of the irrigation and drainage, aquaculture, and livestock components began after appraisal with the use of retroactive financing. The Mid-term Review (MTR) took place in July 1994, by which time 41 percent of the total credit had been disbursed.

The project closed one year behind schedule on December 31, 1998. The extension was to allow for sufficient time for the installation and commissioning of essential equipment at two of the agro-processing plants. Several adjustments were made at MTR. The MTR found that changes in exchange rate between the US\$/SDR and the RMB/US\$ left the project with adequate funds to add several new processing plants to the project. Accordingly, six new processing plant proposals were appraised. But, ultimately shortage of funds resulted in several plants that had been proposed at Mid-term Review being dropped.

6.4 Only 20 of the 120 counties in the province were covered. However, the wide coverage of components resulted in a large and complex operation. The project was also ambitious as implementation required coordination between numerous institutes, government bureaus, and agencies at the provincial, municipal, and county levels. The Provincial Project Management Office (PPMO) had overall responsibility for project coordination and supervision, but project files reveal that it lacked the necessary influence over at least some of the participating agencies, bureaus, and banks to make them fill their designated roles.<sup>61</sup> Though it is often claimed that institutional capacity to implement in China is far greater than in most other countries, the assessment questions the advisability of incorporating investment proposals for a wide range of subprojects in a single operation. Supervision and implementation of such large projects taxes local capability.<sup>62</sup> The numerous project components and sub-sectors involved in this project put a

### Relevant Cross-Sectoral Themes

*Decentralization:* Decentralization is an underlying theme with implications for availability of provincial resources for O&M and for the promotion of agro-processing industries.

*Poverty:* The primary project objective was to assist the provincial government in accelerating and diversifying agricultural development to alleviate poverty by increasing farm incomes and rural employment. The poverty alleviation impact was not as large as it could have been, however.

*Environment:* The quantity and quality of water resources are key environmental issues in this project. At project close, improvement in provincial water resource management capacity was limited. In addition, planting of fast-growing poplar trees as windbreaks and pollution produced by agro-processing plants have environmental implications.

*Private Sector:* The project supported expansion of agro-processing and agro-industries. At project close, processing plants are reported to be in profitable commercial operation.

60. The credit amount was revised to US\$117.9 million at the Mid-term Review as a result of the depreciation of the SDR relative to the US dollar.

61. "As of now, several agro-processing facilities will start in operation soon, there is an urgent need for working capital. Some operations can not expand to its capacity due to this constraint. The mission recommended that the PPMO remind the banks for their commitments and work out additional requirements to discuss with them for possible additional working capital requirement. The PPMO should seek some support from high level provincial officials." (Supervision Mission Aide Memoire July 1994)

62. A similar message comes from a recent QAG Review of East Asia Rural Poverty Reduction Projects (October 2001), which notes, "The Panel's conclusion is consistent with the message which the Chinese officials wished to leave with the Panel, namely that even a relatively straight forward agricultural development project tends to be demanding of the indigenous institutional capacity, when all the nitty gritty details needed to implement it well are considered."

very large coordinating responsibility on the Provincial Project Management Office (PPMO). A less complex operation would have allowed for a smoother implementation experience.

6.5 Ex-post analysis also shows some contradictions in project design, which may be responsible for the weak outcome on the institutional aspects. Lack of provisions for non-routine O&M remains one of the major shortcomings (footnote 58). As designed, O&M of the irrigation and drainage component was to be organized and supervised by the Water Conservation Bureau in cooperation with representatives of farmers and users. The farmers and users were to contribute to maintenance, while the water charges were to be revised to cover all O&M costs.<sup>63</sup> It is not surprising that the government has not been able to increase water charges to the level that it covers all O&M costs, as all routine maintenance and some earthwork was carried out by farmers and users.<sup>64</sup>

6.6 The project implementation experience was mixed. Counterpart funds remained a problem throughout and negatively affected project implementation. It adversely affected construction and installation of agro-processing units, and the situation did not improve even after the PPMO agreed to take specific action to solve the problem.<sup>65</sup> The agro-processing units also suffered for lack of working capital. Shortage of working capital also affected pig farms, and broiler farms. Procurement problems are also reported over some years. Project implementation was delayed due to delayed material and equipment procurement. Supervision mission reports note that civil works were commenced under several components without the Bank's "no objection." In addition, there were some instances of equipment procurement and installation that did not meet the technical specifications for ICB and LCB contracts (supervision mission August 1996). There were also reported cases of substandard construction of some irrigation works.<sup>66</sup> Decline in prices of livestock products negatively affected profitability.<sup>67</sup> There was concern about the design of the greenhouses and the MTR mission recommended that they be redesigned to ensure their durability.<sup>68</sup>

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63. "In principle, the O&M of the infrastructure, head works, main and branch canals is to be financed from the water charges revenues. However, it is evident that farmers make substantial contributions to the operation and maintenance. The distribution systems (lateral and sub-lateral canals) are maintained by the beneficiaries, including the structures such as bridges, culverts and the like, with technical supervision from the county water resources bureau. In some projects responsibilities were bestowed on them." (Supervision Mission Aide Memoire May-June 1997)

64. "In the Quncun project the mission inspected recently constructed lined sub-laterals. The lining has been carried out in situ, with a small slip machine. The section is parabolic, with a capacity of about 20l/sec. The cost is reportedly Y 40/m for materials only. Farmers contribute by doing the earthwork." (Supervision Mission Aide Memoire May-June 1997)

65. At MTR, the PPMO agreed on two proposals to tackle the counterpart funding problem. "a) Future large scale processing components that are implemented under the mid term adjustments will be at Prefecture level, in joint venture with the County level units. The Prefecture will then be responsible for ensuring that adequate counter part funds are available. b) Counterpart funds will be deposited in full before any project work is undertaken. Any units that do not deposit the funds will be dropped from the project, and the funds re-allocated where appropriate." (Supervision Mission Aide Memoire July 1994)

66. "In a few places some below standard construction was observed. For example, the quality of the earthwork seen in Xianfuzhu YRDS is of poor quality, in particular where canals are built in fill. Back-fill was incomplete and did not appear to be compacted to the required standards. In addition some gates in the regulating structures built under the project were missing." (Aide Memoire Supervision Mission May-June 1997)

67. "The profitability of the intensive livestock sector (pig and broiler production) has been affected seriously by an increase in price of feed around 35% and by a decrease in price for broilers and pork of around 15%." (Supervision Mission Livestock component June 1995)

68. "The greenhouses constructed under the project were very much welcomed by farmers since the houses can increase on average net income of farmers by Y 6,000. However, the design of the greenhouses needs to be improved.

## RATINGS

### Relevance

6.7 Relevance is rated **substantial**. The project was consistent with the Bank's overall and country sector strategy. Lessons learned from closely related completed projects informed the design of the project. The project was also in keeping with Henan's regional economy development strategy, which regards the area along the Yellow River as important for agricultural development.

### Efficacy

6.8 On balance, efficacy—the extent to which the objectives were achieved—is rated **substantial** (see Annex E Table 2). As already noted, achievement of physical targets was impressive, but outcomes were mixed.

6.9 The Henan project contributed to overall rising incomes in the project area. However, it appears that benefits to the poorest were limited. Project files offer substantial evidence that large amounts of benefits from the livestock and aquaculture components went to the comparatively better-off farmers.<sup>69,70,71</sup> Moreover, once the profitability of some enterprises was established there was a tendency for township and county governments to corner the benefits, as in the case of the aquaculture component.<sup>72</sup> Shortage of availability of credit has been a major challenge for the poor in rural China, and more attention to the credit needs of small farmers would have a

The glass-reinforced plastic (GRP) frames, while durable are easily damaged during transportation and construction and unstable during windy season. The costs of construction is high due to a surge in prices of cement and other construction materials during the last two years....The PPMO agreed to test several new designs before placing the bulk orders." (Supervision Mission Aide Memoire July 1994)

69. "The original model in the SAR was for 500 broilers, but most farmers had a broiler farm with a capacity of 2000 broilers or more. Most project farmers were already broiler producers before they received support from the project. The investment for the increased capacity was mainly financed from earlier profits from broilers and less than 25% was financed from project funds. Most of the farmers could have paid for the investment without project help. Through implementation of smaller units more farmers of the poor farmer target group could have been reached." (Supervision mission June 1995)

70. "The mission visited several sheep farmers who recently started or expanded sheep production with assistance of the project. Some farmers purchased improved breeds (small tail from Shandong). The external inputs required for sheep production are low, mainly grazing on the banks of the Yellow River, the reproduction is good and there is a good demand for the product. There has been a tendency to expand existing sheep farms, rather than selecting farmers without sheep as project farmers and help them to increase their income." (Supervision Mission June 1996. Aide Memoire)

71. "Large amounts of project loan funds have in a small number of cases been allocated to wealthy individuals who already have access to large amounts of money through banks and friends. Giving these people project loans has deprived many small and needy village householders of access to project loans." (Supervision Mission Aide Memoire May June 1997)

72. Commenting on the farm organizations for the aquaculture component the Supervision Mission June-July 1995 noted, "The observation of the mission that the project was becoming a victim of its own success was discussed with the Aquaculture Bureau; this observation was directed at the organizational structures that have been formed by the counties to operate the new fish farms that have been constructed since the mid-term review. In the case of the Puyang and Xinxiang, the new organizations are being operated as township and county enterprises, or are being contracted to individuals households, at what could be called "sweetheart" deals, i.e., ten year contracts with no provision for annual increases at a low cost per mu. To individuals not from the rural area with no prior fishing farming experience....The mission feels that fish farming is now viewed as a profitable enterprise and that in many cases the county is reluctant to pass the profits on to individual households."



significant poverty alleviation impact. One of the objectives of the development of revolving funds was to provide loans to individual farmers to be able to borrow for meeting their short-term needs. However, the revolving funds were not successfully implemented (see Box 3.1).<sup>73</sup> The tunnel greenhouses provide an excellent opportunity for farmers to diversify their production and increase their income, but the cost of building an improved greenhouse is out of reach of the poor farmer. In the absence of credit facilities the poorest are not able to take advantage of the opportunity provided by the greenhouses. Though the benefits of development in a particular area in the long run ultimately “trickle down” to the poorest, the poverty impact can be increased by specifically targeting the poorest households to be beneficiaries, particularly of livestock development programs, which have a tremendous potential to increase the income of the poorest.

### **Efficiency**

6.10 The efficiency of the project is rated **high**. The re-estimated economic rate of return exceeded that at appraisal. At appraisal the ERR was calculated to be 35.8 percent. At completion it was 40.0 percent. The ERR calculations are credible. There was substantial increase in yields, output, and income. Net farm incomes, and per capita income are reported to have tripled compared to appraisal estimates. The profitability of agro-processing units is also reported to be higher than that estimated at appraisal.

### **Outcome**

6.11 On balance, based on the ratings for relevance, efficacy, and efficiency, the assessment rates project outcome **satisfactory**.

### **Institutional Development**

6.12 Institutional development is rated **substantial** even though achievements in improving the province’s ability to manage its water resources were limited. Insufficient resources for O&M of irrigation projects is not an issue that can be solved in the context of a small project. As can be seen from the cross-sectoral overview, it is a much deeper problem related to the decentralization issue itself. Project achievements in integrating production, processing, and marketing activities have been substantial. The project helped establish good facilities for production, processing, and marketing of agriculture, livestock, and aquaculture products in the province. Research and extension have played an effective role in improving productivity.

### **Sustainability**

6.13 On balance, project sustainability is rated **likely**, though only marginally so. This rating is considered appropriate even though a substantial amount remains to be done in improving the province’s ability to manage its water resources. Provincial government commitment is strong and there is also considerable beneficiary commitment for undertaking routine operation and maintenance of irrigation schemes as the farmers have seen the benefits that can result from the improved availability of water. Though working capital has been a major production constraint,

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73. “In a village visited by the mission, there are 150 households, but only eight are raising cattle under the assistance of the project. Other farmers have manifested interest, but there seems to be not enough money in the revolving fund to support more households. Since the initial cost of improved breeds may be outside the financial capability of poor farmers, an adequate credit scheme should be in place to support further expansion of livestock raising.” (Agriculture, Aquaculture, Livestock and Forestry Components for the ICR prepared by Alvaro Bueni, FAO/CP)

all of the processing factories are reported to have restructured into limited liability companies and should be in a better position to meet their capital needs in the future. Support services for orchard management are available to farmers. Fast-growing poplar trees were planted as windbreaks for protection of cropland and will have a long-term beneficial impact on soil and crop growing conditions. Environmental pollution control systems are reported to have been given substantial attention during plant trials. Research results especially with regard to improved varieties and hybrids cropping and fertilization practices and pest control have had a significant positive impact on production outputs. There is evidence to show that improved design of tunnel greenhouses introduced by the project has provided significant returns to farmers and has been widely replicated even in non-project areas.

### **Bank Performance**

6.14 On balance, Bank performance is rated **satisfactory**. Supervision was effective in detecting and providing solutions to most technical and administrative problems faced during project implementation. The Bank was strict and vigilant in handling irregularities and making quality checks. The Bank is also reported to have provided considerable commercial and operational guidance in getting the agro-processing units into profitable production.

### **Borrower Performance**

6.15 Borrower performance is rated **satisfactory**, but only marginally so even though commitment to meeting physical targets was high at all levels. Shortage of counterpart funding was a problem throughout and negatively affected project implementation.<sup>74</sup> Though the PPMO was able to provide the needed coordination with various implementing agencies and government departments, several major management errors at the PPMO level negatively affected project implementation.

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74. "Lack of progress with civil works is directly related to inadequate counterpart funds, despite promises from municipal leaders at the mid-term review in June 1994 that these funds were already available." (Supervision Mission June 1996)

## 7. National Afforestation Project (NAP)

### OVERVIEW

7.1 The National Afforestation Project (NAP) was the third Bank-supported forestry project in China. In 1986, the Chinese government launched a new initiative to increase wood production from intensively managed high-yielding plantations. The plan called for establishing 100 million MU (6,670,000 hectares) of intensively managed plantations by the year 2000. The NAP project, identified in 1988, was intended to expedite realization of this target. The major objective was to help bridge the vast gap between the demand and supply of forest products in the country. This was to be achieved through support mainly to state and collective (including township, village, and individual) forest farms for intensively managed plantations, supported by research and planting material development and through building permanent institutional capacity within the country to plan, appraise, finance, implement, and evaluate improved plantation programs.

#### National Afforestation Project

##### Objectives

Expand the forest resources and reduce the gap between timber production and consumption

Improve the quality of the forest plantations through the use of superior planting stock by better seed selection and expanding clonal production and to increase the productivity of timber forests by introducing and disseminating superior techniques of plantation establishment and intensive management

Introduce financial and economic analysis for forestry investment so as to make more efficient use of resources

Strengthen the research and extension programs that support plantation forestry and improve their focus on species performance

Initiate an accelerated tree breeding program that increases productivity of planting stock within 2 to 3 years

Create the organizational and managerial infrastructure to plan, appraise, finance, implement and evaluate plantation programs on a permanent basis

##### Components

Afforestation (97% of the total cost).

Research and Pilot Plantations (1.8 % of total cost)

Accelerated Planting Material Dev. (0.19% of the total cost):

Information System (.07% of total cost):

7.2 Overall, the achievement of project afforestation targets is impressive (see Annex E, Table 3). A total of 1,385,000 hectares were planted against an appraisal target of 985,000 hectares.<sup>75</sup> The project was cited at Country Implementation Reviews as one of the most effective investments in the China portfolio. However, it was unreasonable to expect a project that was implemented over fewer than seven years to develop permanent country capacity to plan, appraise, finance, and implement improved plantation programs, especially when the project components tightly focused on achieving project plantation targets and the project-supported research program was confined to improving the productivity of the project's major tree species.<sup>76</sup> Supporting the development of a new organization and management structure within the central, provincial, and county forest administrations certainly began the process of building capacity, but developing permanent capacity requires much more than setting up an organization and management structure. It requires attention to the availability of finance for forestry plantations, an incentive structure that encourages investments in forestry plantations, availability of funding for research, market problems, and issues affecting the wood processing industry. Many of these

75. This was made possible by the devaluation of the Chinese currency against the SDR and lower unit planting cost.

76. "The institutional linkages remain quite uneven, depending more on personal relationships or expedient financing arrangements than on in-built incentives or structures. More broadly, the forestry research agenda remains fragmented and somewhat isolated from commercial and environmental needs despite NAP's positive contribution." (ICR para 45)

remain unresolved. The ICR itself recognizes finance as a problem.<sup>77</sup> The Chinese had a much more modest expectation from the project for this objective, which they understood to be “to strengthen the institutional capacity building to meet the need of project implementation and management.”<sup>78</sup> This was achieved.

## PROJECT DESIGN AND IMPLEMENTATION

7.3 The NAP was the largest forestry project ever supported by the Bank and was implemented simultaneously in 16 provinces in five regions in China. The provinces were Guangdong, Guangxi, Hunan, Hubei, Zhejiang, Anhui, Fujian, Jiangxi, Sichuan, Shandong, Hebei, Liaoning, Guizhou, Yunnan, Henan, and Hainan. Total project cost amounted to US\$560.2 million (compared to an appraisal estimate of US\$500 million). The project was well designed to achieve its afforestation objectives but was ambitious in its institutional development goals. In addition, crucial supporting infrastructure such as roads and storage sheds received less than adequate attention.<sup>79</sup>

7.4 The project was originally planned as the first of two phases. However, when it became clear at appraisal that the Ministry of Forestry had done considerable preparation work on the plantations intended for the second phase, it was decided to include them in the scope of the first project. In hindsight a two-phase project might have done better on some aspects. For example, lessons learned from the first phase about the need for crucial supporting infrastructure could have been accommodated in a second phase. Implementation was effective and minor problems with availability of counterpart funding, quality of stand management, and slow communication of research findings to the field—particularly those related to improved stand management were handled well.<sup>80</sup> Some species substitution was reported.<sup>81</sup> Planting started in the second half of

### Relevant Cross-Sectoral Themes—National Afforestation Project

*Decentralization:* Decentralization has shifted the nature of the involvement of governments at the center, provincial, and county levels in project implementation and created a need for building a new organization and management structure within the forest administrations at all three levels. Decentralization also helps explain why, since the logging ban (see Box 7.2), local governments in areas where timber-related enterprises were important have lost important sources of revenue.

*Poverty:* The implementation of the logging ban has had tremendous implications for the livelihood of those employed in the timber industry.

*Environment:* The project was to contribute to the establishment of plantations.

*Private sector:* In recent years China has sought to encourage private sector participation and investment in the forest sector.

77. “Financial intermediation poses a challenge, as it does throughout the economy. To ensure that investment funds continue to flow to timber forestry in China, financing and taxation regimes need to be made more attractive to investors. Available government and ABC financing carries low interest rates, but maturities that are too short for most timber crops. Moreover, forest products are highly taxed: and fees typically take about 30 percent of gross revenues.” (ICR para 47)

78. National Afforestation Project Implementation Completion Report Prepared by World Bank Loan Project Management Center State Forest Administration May 1998.

79. “Many of the afforestation entities visited on this and previous field trips have noted that NAP made no provision for construction of key infrastructure related to plantation establishment, such as roads, storage sheds, fire tower, and project offices. The PMC (World Bank Loan Project Management Center in Beijing) believes that this type of investment is required for sustainable management of project plantations over the medium term and asked if surplus funds in the IDA credit could be used for infrastructure investment.” (Aide Memoire Supervision Mission December 1993)

80. “Linkages between research and field staff appear weak because in the field the seed production areas lacked isolation, experiment areas seen were generally poorly demarcated and only the research officer knew anything about them. Finally the field staff did not know the true source of their planting stock. The mission recommends that a much

1990 and was essentially complete by 1995. Project staff focused on stand management during the final two years of implementation. Over the life of the project flooding, drought, forest fires, disease, and pests negatively affected a small percentage of project plantations. But, on the whole, timber yields are expected to be significantly higher than projected at appraisal. Implementation of environmental protection guidelines is reported to be good, though there was considerable improvement and learning over time.<sup>82</sup>

## RATINGS

### Relevance

Relevance is rated **substantial** rather than high for several reasons. **First**, though a large area was brought under tree cover (1,385,000 hectares) it included a limited number of species. A substantial part of the land brought under NAP plantation was severely degraded forestland. While bringing such land under any form of tree cover is a positive step, it is debatable whether bringing plantations consisting of a few species was the best long-term strategy. One criticism of the Chinese forestry program has been its indirect contribution to loss of biodiversity. Plantations have been a major part of the strategy and a large number of these have been confined to a few species.<sup>83</sup> Even with the focus on a limited number of species over the lifetime of the project concerns about maintaining species diversity remained, as a trend had been observed in some provinces to substitute Chinese fir for exotic pines, creating economic and environmental risk for the afforestation entities.<sup>84</sup> Given the intensive supervision and management that was typical of NAP plantations, any incidence of disease could be quickly diagnosed and corrected. However, this could be a problem in a national plantation program where such intensive stand management typically would not be possible. **Second**, though the project made an enormous contribution to specific research, little was done to tackle the wider scientific and institutional issues facing forestry research and extension in China. **Third**, conversations with Chinese officials revealed that there has been a substantial change in the market, and demand for the species planted under

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better rapport between research and field staff is needed and the research staff must have the flexibility to tackle practical problems as they arise." (Supervision Mission Aide Memoire November 1990) "The project continues to be implemented extremely effectively in the sixth year, although there are some continuing minor problems with quality of stand management and speedy extension of new research findings." (Supervision Report August 1996)

81. "It was noted with concern that many counties in Zhejiang had substituted Chinese fir for exotic pines over the past four years and, as a result, the share of Chinese fir in the Zhejiang program had increased from the planned target of 71% to 91%. This loss of species diversification creates severe economic and environmental risks for the afforestation entities, which have now become extremely vulnerable to unexpected price changes, pest infestations and disease problems related to Chinese fir. The International Advisory Panel (IAP) during their recent visit voiced similar reservation about the extensive monoculture of Chinese fir in Fujian Province." (Supervision Mission Aide Memoire August 1994)

82. "Field investigations show that implementation of NAP environmental protection guidelines has improved over the past four years. Site preparation and planting are now done through "fisscale" pit holes, rather than partial or complete clearing, to minimize soil and water loss. Similarly bands of broadleaved trees and other vegetation are left on the top, middle, and bottom of hillsides. Finally contour planting, which has been inadequately implemented in the past, is now being carried out satisfactorily. The high rate of environmental compliance, estimated at over 90%, is due to a combination of training, education, and stricter enforcement of environmental standards during the inspection and acceptance visits by project staff after planting, which form the basis for reimbursement applications." (Supervision Report September 1994)

83. "A half century policy of forest exploitation and monoculture in China has led to disastrous consequences, including degradation of forests and landscapes, loss of biodiversity, unacceptable levels of soil erosion, and catastrophic flooding." (Zang and others 2000)

84. See fn. 88.

the project may not be as high as assessed at appraisal. **Fourth**, a large percentage of NAP plantations are on ecologically sensitive land that cannot be logged. While on the positive side the project provided a tree cover on that land, the limited number of species planted may not have been the best long-term strategy. **Fifth**, a major concern is that a developing country may not be able to widely replicate NAP-like plantations because of its inability to pursue the needed intensive plantation management strategy (see Box 7.1). This finding from the experience of the NAP project is supported by evidence from other OED reports.<sup>85</sup> Under such conditions, what usually happens is that only some of the advanced technologies from such plantations are adopted in a domestically funded plantation program. Hence, greater attention is needed at the project design stage to the underlying socioeconomic conditions and what can be realistically achieved under resource-constrained management conditions.

### Box 7.1. Why the NAP Plantation Strategy May Not be Easy to Replicate<sup>a</sup>

Intensively managed plantations like those established under the NAP project can have substantially higher wood yields per hectare compared to ordinary commercial plantations. The State Forestry Administration did a comparative analysis of NAP and other government plantations and found the NAP plantations to be substantially better. This is not surprising.<sup>b</sup> However, such plantations are also much more expensive to establish as is clear from Annex F. High yields and survival rates are not easy to bring about. They require intensive supervision and monitoring and timely corrective measures.<sup>c</sup> High technical standards, extension and strict quality control were crucial to success of NAP plantations.<sup>d,e</sup> The linkage of financial control with technical standards was also critical to the success of the project. Reimbursements for money spent was made only after "inspection and acceptance" visits by project staff after planting.<sup>f</sup> Such strict enforcement standards helped meet the NAP technical and environmental targets.<sup>g</sup>

In carrying out its own plantation programs and in encouraging a fledgling private sector to take to plantation forestry the government may not be able to ensure that such high technical and environmental standards are met because it lacks the resources needed for intensive supervision. More than anything else, it may not be realistic to carry out a plantation strategy based on reimbursements on the basis of "inspection and acceptance." Such a strategy can work for small experiments but it runs into trouble when it is the only plantation strategy. If investment costs are reimbursed only after it is found that plantations are of acceptable quality, who pays for the initial planting when credit markets are not well developed? Why should afforestation entities take the risk of getting their plantations rejected, especially when they know that quality inputs are not guaranteed?

Though in recent years China has sought to encourage private sector participation and investment in the forest sector, insecure property rights have diminished farmers' enthusiasm for making major investments in forestry.

a. The Region notes, "One of the important project objectives is technology transfer. The experience gained from NAP on planting material development and planting technique improvement has been spread to large-scale plantation activities, particularly the commercial plantation establishment outside of the Bank projects in China. Many of the project monitoring and quality control approaches have been broadly adapted by other government forestry projects. The forestry departments also believe that linking the financial controls with technical standards is a effective way to monitor program quality. Some government programs are considering to adapt the way of reimbursement for money spent made only after 'inspection and acceptance' visits by project staff after planting mentioned in the report to their program after making necessary adjustments. The conclusion is that much of the NAP experiences have been extended to forestry practices in general, not simply through project replication."

85. "One of the biggest criticisms officials and other observers in China have about the Bank's current work in China is that Bank projects cannot be replicated by domestic projects. They have been high quality and high return, but they have also been expensive in terms of capital costs and project management time.... The Bank's project management office also points out that Bank review procedures do not count many of the costs of creating, implementing, and monitoring the projects. Local government offices spend considerable time on these efforts, yet their time is not charged against the project. Officials in China agree that Bank projects management is effective, but that they could not use these methods if they had to borrow at market interest rate and pay all the costs associated with Bank type management schemes." (China From Afforestation to Poverty Alleviation and Natural Forest Management Evaluation Country Case Study Series, Operations Evaluation Department)

b. "In planting quality, growth and forest form, the project plantation is much better than ordinary plantation. The reasons include: (1) The project plantation is established by following the operational design formed on the basis of the project afforestation models; (2) In the project plantation, all seeds and seedlings are of high quality, and only Class I seedlings are planted, for which stands differentiation is obviously reduced. (3) The project plantation had sufficient financial support. The strict inspection and acceptance system as well as the reimbursement system were carried out in the project implementation, which helped integrate fund use and planting quality and ensure the high quality of the plantation. (4) Standard post-planting tending measures such as fertilizing, pruning are conducted by designated staff in the light of the scientific plantation development principle of 'the success of timber plantation depends largely on post planting management rather than on planting itself.'" (Comparative Analysis of NAP plantations vs. Ordinary Commercial Plantation Annex 2 NAP ICR World Bank Loan Project Management Center, State Forestry Administration April 1998)

c. "The final three years of the IDA credit will be just to finance tending and maintenance. These plantations are fully stocked, and established to a high standard of site selection, site preparation, provenance selection, planting stock quality, fertilizing and tending (soil working and weed control). Significant pests or diseases have been recorded in only 6.3% of the plantations." (Groome Poyry Consultant's report Report No. 191/1994. New Zealand August 1994)

d. "To ensure the fine seeds and seedlings used for NAP, the measures of 'Three fixation' are generally adopted in the project areas: namely, seed supply, seedling nursery and seedling supply by a fixed location. The fine seeds needed for the project are supplied exclusively by the seed and seedling management institutions and the seeds with the fine seed transfer certificate can only be used for breeding. The seeds of slash pine and loblolly pine are all imported from the seed orchard of USA. To ensure the fine seeds and sound seedlings, and grade I seedling being used for afforestation, firstly, it is requested that the 'Contract of Seedling Raising' and the 'Contract of Seedling Supply' must be signed between the project offices of counties and the breeders; secondly, the check and acceptance system for the seedling supply has been perfected and the seedlings used for afforestation must be the grade I with the 'Certificate of Quality'; thirdly, the proportion of container seedlings for pine has been enlarged in afforestation." (The Progress on the Second Half of 1991 For the China National Afforestation Project World Bank Loan Project Management Center Ministry of Forestry China March 1992)

e. "Aiming at fast and effective extension of the up-to-date technologies to the afforestation engineering of NAP, three principal measures were employed for carrying out extension program, such as compiling and distribution of leaflets on the specific new techniques or technical series for high yielding timber plantations development, holding three-level technical training courses as well as invited the international specialists or organizing experts of CSP and LTs for technical consultations in the project provinces, which has resulted in a lot of success." (Brief Introduction of Research and Extension Program and Its Implementation Achievement World Bank Loan Project Office Chinese Academy of Forestry June 1997)

f. "The county PO (Project Office) will authorize disbursements of project funds to the AE (afforestation entity) when different stages of work are completed, after certifying that the work meets the technical standards, including survival rates, specified in the AE's implementation agreement." (SAR para 4.1)

g. "The high rate of environmental compliance, estimated at over 90%, is due to a combination of training, education, and stricter enforcement of environmental standards during the inspection and acceptance visits by project staff after planting, which forms the basis for reimbursement applications." (Supervision Mission Aide Memoire August 1994)

## Efficacy

7.5 Efficacy—the extent to which the objectives were achieved—is rated **substantial**. The afforestation targets were exceeded. The research subcomponent was able to make a substantial contribution to improving the quality of forest plantations through the use of superior planting stock and extension of the advanced techniques and research achievements to NAP plantations was well carried out. Though the organizational and managerial infrastructure to manage NAP plantations was created, the contribution of the project to building permanent institutional capacity to plan, appraise, finance, implement and evaluate improved plantation programs was limited.

## Efficiency

7.6 The efficiency of the project is rated **high**. The re-estimated financial and economic rates of return exceeded those at appraisal. At appraisal the ERR was calculated to be 22.8 percent. At completion it was 23.5 percent. The justifications leading to the ERR calculations made at the ICR stage are credible. It was too early to take into account the impact of the logging ban. Even now, four years after project closing, it is difficult to estimate the impact of the logging ban. Insofar as it increases the price of plantation wood, it is likely to have a positive impact on the ERR. Insofar as trees cannot be harvested, the impact may be negative. However, the environmental benefits are likely to be substantial.

## Outcome

7.7 OED considers a project outcome satisfactory when it achieves most of its major relevant objectives efficiently with only minor shortcomings. Hence, on balance, the assessment rates project outcome **satisfactory** versus the ICR rating of highly satisfactory.

## Institutional Development

7.8 This assessment rates institutional development **substantial**. The project helped establish an administrative system within the provincial and county bureaus and exposed the Chinese officials to advanced techniques of plantation management. In addition, relevant research was successfully carried out.

7.9 When the project began, the Ministry of Forestry (now restructured as the State Forest Administration) had only a few years experience with high-yielding timber plantations. Several silvicultural and management techniques (for example, those related to lower planting densities and use of improved genetic materials) introduced by the project have been successfully adopted in other Bank projects (for example in the Forest Resource Development Project) and in national plantation programs. Use of improved seeds and superior clones have contributed greatly to increased productivity of national programs.

## Sustainability

7.10 On balance, sustainability—the resilience to risk of net benefits over time—is rated **non-evaluable** as it is too early to judge the impact of the logging ban. NAP plantations are certain to survive, and project offices at the county, provincial, and national levels remain in place, but 8 out of the 16 project provinces have been affected by the logging ban (Box 7.2). Although the ban is primarily for natural forests it also prevents harvest on about 400,000 hectares of plantations (about 30 percent of the NAP plantations). Forest department officials say that a decision has yet to be made on this issue, though it is likely that the government will compensate the affected farmers. The entities' share of financing was provided in the form of labor and land against a share of the final harvest. The logging ban has had a major negative impact on the livelihood of those engaged in the timber industry and has resulted in the closure of numerous timber mills along the Yangtze and Yellow rivers. The strongest point in support of a likely rating is that the logging ban could result in substantial benefits from reduced flooding. Thus, though environmental sustainability is virtually certain, it is much more difficult to assess economic and social sustainability.

## Bank Performance

7.11 On balance, Bank performance is rated **highly satisfactory**. Intensive supervision was critical to achieve project plantation objectives. Supervision was rigorous and technical weaknesses encountered during implementation were dealt with promptly. The Bank provided useful guidance and assistance for adoption of advanced techniques of intensive plantation management.

## Borrower Performance

7.12 Borrower Performance is rated **highly satisfactory**. Project covenants were complied with and implementation of physical targets is highly satisfactory. Implementation of environmental



protection guidelines is also reported to be good due to strict enforcement of environmental standards during field inspections and regular environmental training. In China, since the responsibility for repayment of a Bank loan or credit is devolved to lower levels of government, this assessment notes the need for greater flexibility in re-lending terms for projects with a longer gestation period like forestry, the benefits of which typically do not begin flowing for a long period of time. The Chinese government may need to give greater thought to this issue in the future.

### **Box 7.2. The Logging Ban and Its Effects**

Forest cover in China reportedly increased from 133.7 million hectares (13.9 percent of land area) in 1993 to 158.9 million hectares in 1998 (16.5 percent of land area).<sup>86</sup> However, China's forest area remains small by world standards: an average of 0.1 hectare per capita compared to a world average of 0.6 hectares per capita. Of the total reported forest area a little more than 25 percent is under plantations. Forestry accounts for less than 1 percent of GDP but provides 40 percent of rural household energy, as well as raw material for construction and a large domestic pulp and paper industry. China once relied heavily on natural forests for timber production, this had led to widespread over-harvesting. In addition, China's land reclamation policy had encouraged massive deforestation and logging. China's limited forest cover and severe shortage of forest products prompted the government to initiate a series of reforms in the 1980s to address the growing gap between supply and demand and shift production from natural forests to plantations.

The government had already begun taking serious steps to expand timber supply through plantation throughout the country when concern about environmental damage from logging in natural forests prompted the imposition of a logging ban. Scientists blamed logging in the headwaters of the Yangtze River for the 1998 floods that caused billions of dollars worth of damage. The logging ban was imposed in 12 provinces in 1998 and extended to 18 provinces in 2000 as part of a new Chinese government forest policy called the National Forest Conservation Program. Commercial logging is now completely banned along the Yangtze and Yellow rivers and much of the natural forests in the headwaters of the major river systems have also been closed to harvesting. Nearly 42 million hectares of forest is to be removed from timber production over a 10-year period.

Since the logging ban, China has intensified its effort to plant quick-growing, high-yielding trees to meet its domestic timber demand. The current strategy emphasizes increasing plantations for future harvesting while allocating much of the remaining natural forests for environmental protection. Hence, the ban has substantially reduced national timber production. The Chinese hope that, in the medium run, tree plantations will be able to meet timber demand, but it is too soon to say whether they will. Wood consumption has increased, and the predicted gap in commercial timber supply in 2003 is 75 million cubic meters.<sup>a</sup> Though it is too early to assess the overall impact of the logging ban, China's imports of logs has tripled: from less than 5 million cubic meters in 1998 to more than 10 million in 1999 and to some 15 million in 2000. It is now the world's second-largest importer of wood. The increase in imports is reported to have increased deforestation significantly in neighboring countries. The logging ban is also leading to a dramatic increase in monoculture tree plantations within the country (WRM bulletin 45).

On the domestic front, the logging ban has adversely affected a large number of people employed in timber production, though government compensation programs have assisted many workers who lost their jobs. Several local governments have also lost important sources of revenue when timber-related enterprises were closed or scaled back. Effective implementation of the logging ban not only requires a cessation of logging but also attention to several other factors: shortcomings of current forest practices, building greater awareness among the population about the reasons for the logging ban, better managing demand for wood products, exploring alternative sources of energy for the rural population, and attending to the fuelwood and fodder needs of the poor.

a. International Impact of Chinese Forest Policy presentation by Dr Zhu Chunquan WWF China. At An International Conference on Sustainable Forestry Development in China May 2001. Huangshan China.

## 8. Rural Health Workers Development

### OVERVIEW

8.1 The primary objective of the project was to improve the quality of the rural health workforce, thereby contributing to better-quality health services and improved health status of the poor rural population in the project areas.<sup>87</sup> The project was undertaken in the context of overall low quality of health workers at village and township levels during the 1980s, the apparent decline in numbers of rural health workers in the same period, the interruption of the established collective funding channel for health workers after the introduction of the household responsibility system, and the decentralization of responsibility for health services down to the township level. This was the first Bank-supported project in China to focus on the development of rural health workers and the first Bank-supported health project in most of the targeted provinces.

8.2 Five project components were to contribute toward achievement of the project objective. The largest component, *Health Workers Training*, was to (i) retrain large numbers of minimally trained rural health workers; (ii) train additional workers for under-served areas; and (iii) strengthen the training capability at the

#### Rural Health Workers Development Project

##### Objectives

Improve the quality of rural health manpower, thereby contributing to better quality health services and an improved health status of the rural poor in the six provinces.

##### Components

Health Workers Training (78% of total project cost, actual)

Rural Health Services Management (18% of total project cost, actual)

Health Workers Planning (2% of total project cost, actual)

Two small components (viz., Project Support Component and Technical Assistance Component with actual IDA amounts of about 2 percent and 1 percent of total project cost).

provincial/prefecture/county levels. The *Health Service Management component* was to (i) improve the working conditions of rural health workers by upgrading physical infrastructure; (ii) develop alternative means for mobilizing financial resources to support rural health care delivery, for organizing and managing rural health services, and for encouraging rural health workers to emphasize preventive care; and (iii) provide support systems for supervising these workers effectively. The *Health Workers Planning component* was to (i) develop health planning capacity at the provincial level in the six provinces and at the national level; (ii) train health planners at the provincial/prefecture/county levels; (iii) establish health planning databases; and (iv) produce health workforce plans and reports. In addition, the SAR mentions a small *central component* that was to augment the institutional capacity of the Ministry of Public Health for coordinating and supporting project implementation activities, while the ICR mentions two small components, viz., “project support component” and “technical assistance component.”

8.3 The project met most of its numerical targets (Annex E, Table 4 presents extent of achievement of targets from the ICR). The project highlighted the importance of improving the quality of health manpower. It was successful in bringing increased attention to the concept of health workforce planning and health services management in the project areas. It also piloted the establishment of health workforce databases and provided training to a significant proportion of rural health workers and managers in township hospitals.

87. The total project amount was IDA US\$110 million. The project covered 374 counties in 36 prefectures in six provinces: Anhui, Fujian, Guizhou, Henan, Hebei, and Shanxi.

8.4 On the negative side, project performance was affected by both project-related and extra-project factors. The project was designed in the period of rapid economic and social change when no clear policy or planning frameworks existed for the health sector. The ICR noted, "The lifting of government controls on health training institutions, without compensatory regulatory or monitoring mechanisms, led to an expansion of private health schools as well as increased intakes of fee-paying students in government schools—the result was that the supply of basic and mid-level health workers increased rapidly and reversed the situation from shortage to over-supply of these cadres."<sup>88</sup> Furthermore, the project's manpower approach was incomplete since it missed the medical and non-medical institutions that provided training privately or outside plan.<sup>89</sup> In addition, in the absence of appropriate incentives, planners in the project counties gave lower priority to manpower planning than required. They also lacked the ability to process the data and use it for effective manpower planning (Hebei Province Mid-term Review Report, April 30, 1997).<sup>90</sup>

8.5 A major policy change introduced by the government during the life of the project also affected its effectiveness—the Ministry of Health's new requirement that township health workers have three years of health training after completing secondary school, rather than being simply technical secondary school graduates, meant that early project graduates could not automatically become recognized township health workers. Discussions during the assessment mission indicated that this policy change also raised the prospect of underutilized capacity in project-supported county health schools. After the midterm review, the project reduced support for county-level health schools.

#### PROJECT DESIGN AND IMPLEMENTATION

8.6 The project was designed to address the shortage of trained health manpower. However, there was an unanticipated oversupply of manpower during project implementation, and the project responded by increasing emphasis on in-service training for existing health workers.<sup>91</sup> While this

#### Relevant Cross-Sectoral Themes—Rural Health Workers Development

*Decentralization:* The project was consistent with, and supported the decentralization of China's health sector, which transferred increasing responsibility for health services to lower levels. However, lingering centralized tendencies, for example, in the procurement of equipment and materials (caused in part, according to the client, by Bank procurement policies) sometimes affected the extent to which the project was responsive to local needs and demand.

*Poverty:* Through its focus on rural areas and health services at lower levels, the project was broadly targeted at poverty reduction. The project also targeted some poor counties. While the project monitored the availability of trained health workers, including female workers at the village level in the participating counties, it did not systematically monitor the overall poverty reduction impact of its interventions.

*Private sector:* The project was initiated at a time when private sector participation in health services delivery was increasing, this affected some project assumptions and estimates, such as those related to health manpower supply.

88. ICR page 8.

89. The Region points out that the database covered health workers in government health facilities in the country, it was not tracking the output of training institutions.

90. The Region points out that (a) the project introduced health workforce planning *de novo*, and (b) that before the mid-term, the focus was on establishing the database and training staff. Reporting on health workforce improved after the mid-term review, as shown in the table of indicators.

91. There appears to be some contradiction between the SAR and the ICR with respect to the project's emphasis on in-service and pre-service training: the SAR states that project emphasis was on in-service training (page 20), whereas the ICR states that after the Mid-term Review, "the project's emphasis shifted from pre-service to in-service training of health workers" (page 3).

demonstrated commendable flexibility, it needed to be complemented by further changes that were not forthcoming. The focus on in-service training required changes in course design and delivery of teaching programs and an increased emphasis on practical training. It also required the provision of incentives and compensation to health workers who had to leave their work and forego incomes during the period of in-service training in the absence of which there was insufficient uptake of in-service training. While some provinces made progress, the project as a whole was affected by low utilization rates of training funds (June 1997 Bank Supervision Mission). Overall, the project's health manpower planning activities would have benefited from a more complete databank of manpower resources (including manpower from public and private sources and non-project areas as well) and a greater focus on analyzing and using the collected data for decision-making among policymakers. Some efforts were made to expand and use the databases. For example, Hebei province expanded the database to the whole province including non-project areas and used the data to adjust intakes in a range of paramedical courses, such as nursing, lab technicians, and dental assistants. However, future improvements in this area would be beneficial: as it stood, in the absence of strong links of the project with policymakers, the impact of the project on ongoing rural health policy at the national level was limited (ICR page 7), and manpower planning was not linked adequately to training decisions.

8.7 Before the project, there was no health workforce monitoring or planning in the project provinces or in most of China. According to the Region, the contribution of the project was to demonstrate the importance of monitoring trends in the health workforce, and the experience of the project was one important factor stimulating change of the Ministry of Health policy on personnel to a broader human resources approach that is still evolving. In this respect, the project served to show the need for policy reform. Beyond this, the project itself was adversely affected by the lack of a clear and stable policy environment. Human resource planning can be of limited value if undertaken without a clear sectoral policy or planning framework or if it fails to take account of all sources of manpower demand and supply, including from the public and private sectors. For maximum impact, the policy context and project activities should be consistent with each other and push in the same direction. In a fluid policy context, the ability to make quick and complete (rather than piecemeal) adaptations as the environment changes is critical. Manpower planning cannot be effective without a comprehensive approach that takes into account all sources of demand and supply of manpower.

8.8 To its credit, the project provided a substantial degree of training. After the mid-term review, the project also worked hard to introduce the concept of field assessment of training effectiveness, which was completely unknown in health training in China, and a study of training effectiveness was completed by national staff. Curriculum development and testing of new training and teaching methods positively influenced the medical education and in-service training programs within the project provinces. Overall, however, the effectiveness of the training provided by the project left something to be desired (Independent Review Team 1997). Assessing the effectiveness of trainees in the field and adjusting the training accordingly remained a particularly weak area. Training for priority national disease control programs was also weak, and the use of conventional training methods and materials did not shift adequately. Teaching materials, textbooks, and assessment methods also needed improvement. The Mid-term Review pointed out that even though a lot of training efforts had been made, the effect was not as good as expected at county and even city levels (February 1998 Mid-term Review Findings, Recommendations, and Proposal for Reallocation of Credit Proceeds). It also observed that instead of simply providing more training, the project should have focused on changing more fundamentally the organizational structure and incentives to induce appropriate behavior and to enable efficient manpower planning. Some stakeholders interviewed during the assessment mission argued that the project's focus on training was driven at least in part by the inability of the project to influence the type of manpower that

would be hired or continued (the potentially more effective interventions), thereby leaving the provision of training as one of the few viable options, at least in the short term.

8.9 Significant progress was made in designing rural financial plans, but the doctor payment reforms to which the project contributed studies are still in an early stage of development and need to be further refined. The Bank's project preparation team decided that in the prevailing policy climate, the project's contribution to health financing could only be through conducting cooperative financing studies or pilots. Current payment methods encourage rural doctors to prescribe unnecessary and inappropriate drugs, which is their main source of income. Without changing the financial incentives for doctors and allowing them to charge not only for drugs but for other services as well, the root of the problem is likely to remain untreated. The government is still debating this issue, and according to the Region the project's studies have strengthened capacity of provincial institutions to take part in the debate.

8.10 A serious gap in the design and implementation of the project was the insufficient attention given to the development impact of the project activities. The project was overly focused on inputs and outputs. It was not until after the Mid-term Review that the development of a performance monitoring system received attention. Despite several performance indicators being laid out in the SAR for each of the six project provinces with both baseline values and projected end-of-project values, the ICR does not report back performance on each of these.<sup>92</sup> The reported "training completed" does not distinguish output targets by province, type of training (pre- or in-service) or by level (township health worker, village doctor, other village health worker) as specified in the baseline indicators of the SAR (p. 52, Annex 4). Using government terminology, the ICR presents indicators such as "Clinical training bases meeting *quality* criteria," "Village doctors completed *systematic* training," "Township hospitals *competent* in managing common emergencies," etc.—however, the definitions of "quality," "systematic," or "competent" are based on the levels of training rather than on some measure of the soundness of the training.

## RATINGS

### Relevance

8.11 The project correctly identified the importance of improving the quality of health manpower. Consistent with its goal of improving the quality of the rural health workforce, the project targeted important areas for improvement (manpower planning, training, and management, and facility improvements to enhance working conditions). The relevance of the overall project is judged as **substantial**. There were, however, particular project interventions whose relevance was "modest" or "negligible." For example, the appropriateness of the project's initial focus on *county*-level health schools was debatable (some 33 county health schools in which the project invested faced closure or change of function, potentially making the project's investment a sunk cost<sup>93</sup>). The project could have been informed by a better analysis; for example, a systematic needs assessment of the appropriate level of health institution (township versus county versus prefecture versus province) for the various project activities (training, equipment, etc.). In addition, the relevance of the particular project approach chosen also appears somewhat questionable: the activities of the

92. The Region points out that the indicators list in the Staff Appraisal Report was unfortunately included with insufficient ownership or involvement of implementing units. However, baseline data was collected and targets set. During the first phase of the project only one or two provinces used the indicators, but after the mid-term review, agreement was reached on a modified list and data on indicators in the modified list are included in the ICR.

93. Hebei Province Mid-term Review Report, April 30, 1997.

three components were not fully integrated in all project areas, so the potential synergies from intervening simultaneously on many fronts through the project's various components (manpower planning combined with manpower training, adequate equipment, and good working facilities for the trained manpower) were reduced. Some improvements took place after the mid-term review. For example, the link of team training for clinicians in hospitals undergoing improvement was strengthened in several provinces, including Henan. Overall, a more flexible and adaptive project design might have been warranted in light of the unclear and changing policy framework within which the project was introduced. While the project was adjusted somewhat in light of changing circumstances, in many cases the people who stood to lose from the change were not persuaded and the changes were not adequate.

### **Efficacy**

8.12 Project efficacy is rated **substantial**, but there are concerns. While the project completed virtually all planned activities and met most of its targets (see Table 8.1), there were issues about the effectiveness of the health worker training (the largest component) and the adequate use of the databases for planning purposes (also see "Project Design and Implementation" above).

8.13 *Poverty targeting.* The ICR (page 21) rates the poverty reduction performance of the project as negligible. Of the 592 nationally designated poor counties, 4.7 percent were located in Henan and 6.4 percent in Hebei. Fifty percent of the nationally designated poor counties in Henan and 89 percent of the nationally designated poor counties in Hebei were targeted by the project. Data are not available to determine the extent of poverty targeting at the township level, although it is known that more than half of China's absolute poor live in townships outside the 592 counties.

### **Efficiency**

8.14 The project's efficiency is rated **modest**. The ICR notes substantial project delays ("The project started more slowly than was anticipated at appraisal, and at various stages it was assessed to be at risk or a problem project, due to slow progress, delays in fund flows to the implementing units and the late establishment of a system to monitor and report on the agreed monitoring indicators," ICR page 4). The project closing date, scheduled for December 31, 1999, was extended to March 2001, to allow for completion of key activities. The extension was to some extent explained by the changing policy environment and the modifications in project design that this warranted. There is little evidence that cost-effectiveness and recurrent cost implications for the health budget were adequately considered. "Economic and financial rates of return were not established at appraisal nor at the conclusion of the project" (ICR page 6).

### **Outcome**

8.15 The project pioneered the introduction of clinical training bases at suitable local hospitals to improve practical training in the project provinces. The project also piloted and demonstrated, for the first time, problem-based and competency-based training in the prefecture-level schools. However, training provided by the project, the main project component, suffered from a number of limitations (for example, inadequate attention to practical training and use of conventional training methods), and its effectiveness was not fully satisfactory (Independent Review Team 1997). The project provided data and information, but without incentives for their use in health manpower planning, the data and information was put to limited use. Similarly, simply supplying training was insufficient for health workers to avail of it—without fully matching the type of training in demand and without compensation/financial incentives, in-service trainees were

unwilling to forgo income during the training. According the Region, this was a learning experience for the health authorities and they came to provide shorter in-service training at a higher level and with higher clinical content in response to the demand. Training the targeted number of workers can help increase the number of qualified workers, but without personnel reform to enable removal of unqualified staff and the introduction of competitive recruitment mechanisms, the quality and efficiency of staffing is unlikely to change significantly. According to the Region, the project provided one forum to have this dialogue with government and there is now stronger local pressure not to engage unqualified staff, and some counties have competitive recruitment for hospital directors.

8.16 On balance, project outcome is rated **moderately satisfactory**.

### **Institutional Development Impact**

8.17 The project's institutional development impact is rated **modest**. The project raised awareness about health manpower development and planning, but internalization of the effective use of such data for decision-making and policy-setting among the relevant country institutions is still not adequate or complete. The ICR noted unclear lines of authority and coordination between the center and provinces, the lack of integration of the PIU into the regular Bureau of Health organizational structure, and the lack of coordination between project implementation units and the line functions of Bureaus of Health—all of which adversely affected the effectiveness of project management and reduced the potential positive learning effects on wider health institutions at the central and provincial levels.

### **Sustainability**

8.18 The project's sustainability is rated **non-evaluable**. It is conditional upon adaptation to the evolving policy environment. A number of trained staff are working with better knowledge and the practices of tasks analysis and job description for health workers have provided a basis for personnel management. However, policy shifts have currently rendered some project investments and activities inappropriate and unsustainable. While the project adapted somewhat to policy shifts, these have not been fully adequate. In addition, some fundamental systemic changes will be necessary if project investments are to yield lasting benefits. The ICR notes, "With intensifying reforms in distribution and ownership of rural health facilities, and the rapid growth of the private sector, the configuration of services in the project counties will continue to evolve, and the functions of the government health facilities may change...local authorities will need to adopt a flexible approach to adapting facilities to changing needs, in order to make best use of the buildings provided. Another challenge has been to ensure appropriate maintenance of both the buildings and equipment, in order to obtain long-term benefits from the investment." According to the Region, the government is now dealing with a range of policy options on hospital ownership that will facilitate such flexibility. The ICR also noted, "With increasing expectations of high quality health care in rural areas, some county health schools have already become obsolete as pre-service institutions, and can only maintain an in-service training role if they work closely with high standard local clinical facilities and offer modern methods of teaching and learning. At prefecture level, the future of health training programs for secondary students is uncertain, as government policy adapts to demand for higher caliber workers."<sup>94</sup> The Region points out that it agrees that, in the long run, health schools at the prefecture level will need to upgrade their training courses to survive. The schools will have to significantly adapt the training courses provided.

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94. ICR page 10.

### **Bank Performance**

8.19 Bank performance is rated **satisfactory**. This was the first Bank-supported project in China to focus on the development of rural health workers. The project made a valuable contribution to raising awareness about health manpower development and planning. However, issues of relevance, discussed earlier, could have been better addressed up front by the project as well as during the course of implementation as the policy environment changed. The Bank could also have made greater effort to impress upon the borrower the prime significance of a focus on development impact, not just numerical targets. In line with its long-term developmental role, the Bank could also have used its leverage to effect systemic and fundamental reforms to improve health service quality, although this is not an easy task. If this was not feasible, a different project approach with far greater emphasis on piloting and starting small, and adaptation as the environment changed without locking in key elements of project design early on may have been more fruitful. While the project did adapt somewhat, the adaptations were not fully adequate. Strong and focused ESW with provincial-level analysis might have led to better project design and implementation, although with the rapidly changing environment, adaptation would probably still have been required.

### **Borrower Performance**

8.20 Borrower performance is rated **satisfactory**, although some issues could have received more attention. The Ministry of Health and participating provinces fielded strong teams for project preparation and counterpart funds were provided promptly for project civil works. Counterpart funds were less readily available for training and other support activities signaling lack of priority for the latter. However, after the mid-term review and especially in the extension period, the government counterpart gave more emphasis to human resource and systems development. Other areas requiring more attention included training, motivation, and supervision of project implementation staff, focusing on development impact and much less on project inputs and activities, and to ensuring that government decision-making involved local clients, especially in equipment and material choice and staffing decisions (October 1996 Bank Supervision Mission).



## 9. Basic Education in Poor and Minority Areas Project and the Third Basic Education Project

### OVERVIEW

9.1 The Basic Education in Poor and Minority Areas Project and the Third Basic Education Project<sup>95</sup> had identical objectives: (a) to support the attainment of universal primary education and the expansion of coverage of lower secondary education in poor and minority areas; and (b) to build stronger institutions responsible for education delivery. The Basic Education in Poor and Minority Areas Project was the second in a line of Bank projects aimed at supporting the government's universal primary education policy and was followed by the Third Basic Education Project.

9.2 Each project had three, roughly similar components. An *Institutional Component* supported facilities upgrading, improvement in instructional equipment in primary and junior secondary schools, and training of classroom teachers, school principals and local education administrators. The *Management Improvement Component* supported the development of management capabilities through training of local education management authorities and local project implementation staff. The *Quality Enhancement Component* in the Basic Education in Poor and Minority Areas Project supported innovations and other

improvements in primary and lower secondary schools through a program of self-generated improvement activities and the development of minority and bilingual book and textbook preparation, production, publication, and distribution. The analogous component in the Third Basic Education Project was called the *Central Component*, which supported dissemination of lessons of previous educational experiments and a research project to study student assessment and develop the Chinese Experts Panel (CEP).<sup>96</sup>

#### Basic Education in Poor and Minority Areas and Third Basic Education Projects

##### Objectives

(a) support the attainment of universal primary education and the expansion of coverage of lower secondary education in poor and minority areas and (b) build stronger institutions responsible for education delivery

The project will contribute to the Government's poverty reduction efforts by improving the income earning potential of nearly 8.3 million children in some of the poorer counties in China. The project will have a direct impact on approximately 46,000 schools and 448,000 teachers and staff, and will provide varying lengths of training for approximately 138,000 teachers and education managers.

##### Components

Institutional Component (97.5 percent of total project cost, actual for the Basic Education in Poor and Minority Areas Project, and 74 percent of total project cost, appraisal estimate, for the Third Basic Education Project).

Management Improvement Component (0.5 percent of total project cost, actual, for the Basic Education in Poor and Minority Areas Project, and 0.01 percent of total project cost, appraisal estimate, for the Third Basic Education Project).

Quality Enhancement Component (2 percent of total project cost, actual, for the in the Basic Education in Poor and Minority Areas Project; and the Central Component (2.4 percent of total project cost, appraisal estimate, for the Third Basic Education Project).

9.3 The main differences between the two projects were as follows. First, the Third Basic Education Project had an increased focus on education outcomes with an attempt to gather education achievement data by using pilot counties to list reading and math testing pass rates. Second, the Third project attempted to target the project into the poorer townships in the counties

95. The ICR for the Third Basic Education Project is currently under preparation. It is expected that a draft ICR will be available before this assessment is finalized.

96. The Third Basic Education Project had a price and physical contingency of 22.6 percent (appraisal estimate).

by keeping construction out of county cities and by strengthening the student assistance programs for poor children in the project. Third, the Third project placed greater emphasis on minority education in some parts of China (Qinghai in particular, SAR paras. 3.5 and 3.12). Fourth, the project areas were different under each project.<sup>97</sup>

9.4 The objective of supporting the attainment of universal primary education was generally achieved under both projects. Under the Basic Education in Poor and Minority Areas Project 105 of the 111 project counties (94 percent) reached universal primary education.<sup>98</sup> However, only 57 project counties (51 percent) achieved nine-year compulsory education, an initiative that was launched early in the project's implementation period.

9.5 Both projects met or exceeded their quantitative output targets, resulting in improvements in supply of teaching materials, enrollment of children, building safety, and teacher and principal qualifications. (Annex E, Table 5 presents the Key Performance Indicators/Log Frame Matrix from the ICR.) While the quality enhancement component of the project did relatively well (see section on "Project Design and Implementation" below), it was a small initiative (2 percent of total project cost), and discussions during the assessment mission revealed persistent challenges with respect to teaching quality in both projects (the Third Basic Education project to a slightly lesser degree given that it had the benefit of the previous project and could incorporate some of its lessons). The projects gave low priority and paid inadequate attention to educational outcomes and impacts such as learning achievement, focusing instead on inputs and the achievement of numerical targets.

9.6 Although the projects provided much needed equipment to the schools, the utilization rate of books and equipment was unsatisfactory. Science teachers and librarians were reluctant to use the equipment and books for fear that they may be damaged, broken, or lost and maintenance funds for repair or replacement would not be forthcoming (ICR page 4). Without assurance of adequate resources to replace damaged materials, this pattern of underutilization is

#### **Relevant Cross-Sectoral Themes—Basic Education in Poor and Minority Areas Project and the Third Basic Education Project**

*Decentralization:* The projects were undertaken in an overall context of decentralization. However, the continuing tendency of project activities and equipment to be determined by centralized decision-making with little local input was counter to the decentralization agenda. The assessment mission found resentment among local officials about key decisions pertaining to the staffing and equipping of their facilities being taken centrally, often conflicting with local need and demand.

*Poverty:* The projects were well targeted to poor counties. Furthermore, Third Basic Education made efforts to target poor townships within the provinces. The projects raised important cross-county equity issues: the counterpart funding requirement targets imposed a disproportionately heavy burden on county finances, especially those of poor counties, and in some cases there was a substantial burden on village households as these funds were collected as part of the local education surcharge system. The government's "beneficiary pays" policy is regressive one and makes it difficult for poor counties to borrow, especially for sectors that do not directly generate income or earn revenue, notably the social sectors, for which private sources of financing are non-existent. In practice, poor counties lack the resources and often do not repay the loans, but this policy distorts the targeting of resources.

97. Henan and Hebei provinces were covered only under the Third Basic Education Project. The other provinces covered were Anhui, Fujian, Gansu, Jilin, and Qinghai. The project provinces under the Basic Education in Poor and Minority Areas Project were Guangxi, Jiangxi, Inner Mongolia, Ningxia, Xinjiang, Sichuan, and Chongqing.

98. Baseline information is not available.

likely to continue.

9.7 While numerical targets for training were met, the quality of teacher training programs was a problem throughout the project. Training programs were set by formulae provided by the province, which often followed national standards and showed little understanding of the deeper sense of innovative teacher behavior or teaching theories (ICR page 5).

9.8 There were also issues of coordination and linkage: in the Basic Education in Poor and Minority Areas Project, school principals had little contact with the normal schools and colleges that provided the teacher training services. The training services were often ill designed or poorly delivered and did not fully reflect needs. In addition, despite improvements in teaching and learning brought about by the normal school pilot activities, "less attention has been shown on the qualitative dimensions of innovations in teaching, such as in the design of new teaching approaches or change in teacher behavior independent of technology" (ICR page 5).

## PROJECT DESIGN AND IMPLEMENTATION

9.9 The institutional component under the Basic Education in Poor and Minority Areas Project was successful in achieving its quantitative targets for facilities upgrading, staff training, provision of educational equipment, furniture, and books in primary and junior secondary schools, and piloting similar activities in normal (primary teacher training schools). However, as noted above, there was less success in bringing about a qualitative improvement in educational outcomes given issues of service quality, responsiveness to needs, inadequate focus on fixing systemic problems (e.g., incentive issues), and the resulting weaknesses in service utilization and effectiveness. Achieving qualitative improvements continued to be a challenge during the Third Basic Education Project.

### Box 9.1. Innovations Program

This program provided resources to principals and county officials to solve local problems using local solutions. In Ningxia province, school enrollment rates among Moslem girls were low. The innovation program allowed experimentation with school-based vegetable growing and resources collected from the sale of vegetables were used for girls' scholarships.

Source: Task Manager Interview

9.10 The education management component under the Basic Education in Poor and Minority Areas Project improved understanding of better ways to manage the sector among provincial education managers. The Education Management Information System (EMIS) introduced by the Basic Education in Poor and Minority Areas Project improved the statistical reporting on project implementation. However, efficient means of using the data derived from the systems in the development of overall provincial education planning was not obvious. Full utilization of education statistics depends on the effectiveness with which the data is applied and used by education administrators. Lacking incentives, there has been limited use of the EMIS equipment, software, and training so far. Only marginal improvement was noticed during the Third Basic Education Project—the main problem continued to be that decision-makers did not see the value of, or lacked the incentives for, using information from the EMIS.

9.11 With respect to the quality enhancement component under the Basic Education in Poor and Minority Areas Project, the innovation programs and the Chinese Experts Panel achieved significant results, but they were focused rather than widely dispersed, in part because of the small size of the component (2 percent of total project cost). Provincial education implementation units reported that the innovation program component of the project (see Box 9.1) allowed for the development of research capacity at local levels where it had not previously existed. The Chinese

Experts Panel, who provided ongoing guidance and advice to the Ministry of Education and the provinces on project implementation and policy issues related to the project, played a valuable role, including through the Training Quality Assessment System which was introduced in the last two years of project implementation and which better linked school needs with training delivery. The Third Basic Education Project disseminated the results of the innovation programs supported under the Basic Education in Poor and Minority Project.

## RATINGS

### Relevance

9.12 Providing access to basic education to parts of the population that lack this, as the two projects under review aimed to do, was consistent with China's goal of becoming a middle-income country by 2020 and to the Bank's strategy in the education sector. The overall relevance of both projects is rated **substantial**. Particular elements of the projects' design and implementation are, however, rated less favorably, specifically, the over-emphasis on inputs and numerical targets to the neglect of quality and development impact and the lack of responsiveness of project interventions to beneficiary need. There were also issues of over-design of school facilities observed by the assessment mission: some township schools visited appeared to be far larger, decorative, and ornately paved than necessary. The appropriateness of over-designed facilities in light of the overall context of poverty may be questioned.

9.13 Responding to strong demand from the government, the Bank has focused on spreading the benefits of its social sector interventions across provinces and counties rather than engaging in a deeper relationship in the same provinces and counties over longer periods of time. The Bank supported three basic education projects<sup>99</sup> following each other but in different provinces each time. There are obvious trade-offs, but the Bank's and the government's future efforts in the social sectors should be informed by the need for sustained and far-reaching improvements in access, quality, and efficiency rather than spreading too thinly.<sup>100</sup>

### Efficacy

9.14 The efficacy of the Basic Education in Poor and Minority Areas Project is rated **substantial**, but there are concerns owing to the objectives being achieved in letter but not in spirit. The Third Basic Education Project made efforts to improve upon some of the weaknesses of the previous projects and met with some success; it is rated **substantial**.

9.15 *Poverty targeting.* The Basic Education in Poor and Minority Areas Project was implemented in 111 counties in six of China's poorer provinces. The Third Basic Education project was implemented in 124 counties in another 7 provinces, including Henan and Hebei. Of the 592 nationally designated poor counties, 4.7 percent were located in Henan and 6.4 percent in Hebei. Seventy-nine percent of the nationally designated poor counties in Henan were targeted and 68

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99. Viz., Education Development in Poor Provinces Project, Basic Education in Poor and Minority Provinces Project, and Third Basic Education Project.

100. Donor financing in the education sector remains off-budget, contraining the Bank's ability to influence overall educational investment in specific directions.

percent of the poor counties in Hebei were targeted by the project. More than half of China's absolute poor live in townships outside the 592 counties. This project also made a greater effort to target poor townships within the provinces, a positive emphasis given that more than half of China's absolute poor live outside the 592 nationally designated poor counties. Targeting to the poorer sections of counties is reported to have improved as a result of eliminating county capitals as the location of intervention.

#### **Box 9.2. Mobile Tent Schools**

The tent schools were an idea initiated by the government and UNICEF and supported by the Bank. They targeted children of nomadic yak and shepherders. These were two tent schools – one tent for the children and the other for teachers. This initiative aimed at accommodating the life style of ethnic Tibetan minorities whose main occupation was herding. Social assessments had shown that boarding schools would be an inappropriate solution. Retention rates have reportedly increased as a result of the tent schools.

Source: Task Manager Interview.

9.16 The Basic Education in Poor and Minority Areas Project invested in the Minority Education Training Center, which constructed new buildings and organized seminars for county-level education directors and primary and secondary school principals on education administration. Anecdotal evidence from minority area beneficiaries show that county administrators and school principals were introduced to many new education management concepts and made professional contacts in Beijing. The Third Basic Education Project included specific interventions for minority groups in Qinghai province, specifically the procurement of tent schools to serve children of nomadic yak and shepherds (see Box 9.2).

### **Efficiency**

9.17 The efficiency of both projects is rated **modest**. Guidelines from Beijing—over-centralized designs—often drove up capital costs and limited local abilities to increase efficiencies. Much of the project design for the National Nine-Year Compulsory Education Programs (which is the joint work of the MOF and the MOE finance Department) appeared to be driven by prospective formulae from Beijing. Some of these were positive and useful (only poor counties were eligible to receive resources, provincial proposals had to be presented, reviewed, and approved, etc.) but some were regressive and difficult to deal with (i.e., set numbers of square meters of construction per student regardless of geographic location, overly generous number of laboratories in a school, which hindered efficiencies, etc.). As noted before, there were also issues of over-design of school facilities. Overall, there is little evidence that cost-effectiveness and recurrent cost implications for the education budget were adequately considered.

### **Outcome**

9.18 Overall, the outcome of the Basic Education in Poor and Minority Areas project is rated **moderately satisfactory**. As the follow-on project, the Third Basic Education Project attempted to improve performance in some of the above areas and met with some success. The outcome of the Third Basic Education project is rated **satisfactory**.

### **Institutional Development Impact**

9.19 The institutional development impact of the Basic Education in Poor and Minority Areas project is rated **modest**. The institutional development impact for the Third Basic Education Project is rated **substantial**.

9.20 There has been small and slow progress on increasing the responsiveness of services to local need. While this is also dependent on the overall decentralization framework in the country, the tendency of project activities and equipment to be determined by centralized decision-making with little local input was counter to the decentralization agenda in the country. The assessment mission found resentment among local officials about key decisions pertaining to the staffing and equipping of their facilities being taken centrally often conflicting with local need.

9.21 The projects also faced issues of coordination. The Bank typically prepares projects in cooperation with the finance bureau of the Ministry of Education because the Government of China views the Bank's relationship with it as mainly a financial one. Consequently, there is less dialogue on the sectoral content of projects, and more on financing. The influence of Bank projects on other parts of the Ministry of Education is limited and, as a result, the opportunity for positive learning effects across wider educational agencies is lost. Coordination among the various line ministries, between the central and local governments, between the project unit and the line agencies both at the central and local level, as well as between the government's sectoral projects and activities of the State Council's Leading Group for Poverty Alleviation and Development is weak. This means that there is the risk of uncoordinated investments and an important opportunity for cross-agency learning remains untapped.

9.22 The Third Basic Education Project made some progress on these fronts compared with the Basic Education in Poor and Minority Areas project, although sustained effort will be necessary if significant improvement is to be realized. Under the Third Basic Education program, the student assistance programs were to be strengthened by shifting the financing of the programs from interest earned on Bank accounts to province and county recurrent budgets and increase focus on girls as recipients. This would regularize financing of scholarships from recurrent budgets rather than having to depend on extra budgetary sources. There is no hard evidence, but the Region reports that this initiative has somewhat improved the financing of scholarships and contributed to the development of financial capacity.

### **Sustainability**

9.23 The sustainability of benefits of the two projects is rated **likely**, but there are concerns.

9.24 On the positive side for the Basic Education in Poor and Minority Areas Project, with the participation of the project provinces in the Ministry of Education National Nine Year Compulsory Education Project – Phase Two (2001-2006) and the National School Rehabilitation program, there is a likelihood that the project schools will be supported over the coming years. In general, due to the low population growth in China there will not be a rapid increase in the primary and lower secondary school enrollments, therefore, resources will be freed-up and could be available for school maintenance. There is no evidence yet, however, that the freed-up resources are being channeled into maintenance.

9.25 On the negative side for the Basic Education in Poor and Minority Areas Project, there have been concerns about inadequate recurrent funding—the poor utilization of equipment and books noted earlier was a direct consequence of the fear of damaging or destroying these materials and not having access to adequate recurrent funding to repair or replace them. Insufficient resources for operations and maintenance were a common complaint during the assessment mission. No adequate solutions appear to have been found for this problem in the Third Basic Education Project. The ability of provinces and counties to meet their future loan repayment responsibilities also remains an issue.

## **Bank Performance**

9.26 Bank performance in the Basic Education in Poor and Minority Areas Project is rated **satisfactory**. Bank Performance under the Third Basic Education Project is rated **satisfactory**.

9.27 On the positive side, the Bank influenced the design of the government's poverty-focused education fund in which counties and provinces were required to prepare project proposals containing the proposed sectoral and financing targets, monitorable indicators, and annual review of action plans and budgets. By funding these proposals, central education budget funds could be transferred directly to targeted poor counties. This intergovernmental transfer system was also expanded by the government to an additional central intergovernmental transfer program started in 2001 which deals with school repair and construction in poor areas (ICR page 10).

9.28 On the negative side, the lack of adequate attention to development impact under the two projects is striking, although efforts were made to remedy this in the Third Basic Education Project. The ICR for the Basic Education in Poor and Minority Areas Project notes, "The borrower's strong reluctance at including any education outcome indicators is demonstrated by their absence in the project design for this project" (ICR page 4). Some progress was made under the Third Basic Education Project, however, a serious shift in orientation toward educational quality, outcomes, and impacts remains to be achieved.

## **Borrower Performance**

9.29 Borrower performance in the Basic Education in Poor and Minority Areas Project is rated **satisfactory**. Borrower performance under the Third Basic Education Project is rated **satisfactory**.

9.30 On the positive side, the borrower must be commended for undertaking the planned project activities and meeting educational coverage targets. This is no small achievement, especially in poor areas. The meeting or exceeding of counterpart funding targets is also noteworthy and signals strong borrower commitment.

9.31 On the negative side, the counterpart funding requirement targets imposed a disproportionately heavy burden on county finances, especially those of poor counties as opposed to provincial or national finances, and in some cases there was a substantial burden on village households as these funds were collected as part of the local education surcharge system. The government's "beneficiary pays" policy is a regressive one and makes it difficult for poor counties to borrow especially for sectors that do not directly generate income or earn revenue, notably the social sectors, for which private sources of financing are non-existent. In practice, poor counties lack the resources and often do not end-up repaying the loans, but this policy distorts the targeting of resources. With regard to the Minority Education Training Center activity under the Basic Education in Poor and Minority Areas Project, the costs of participation for minority counties were high given that these counties were furthest from Beijing, where the training was provided. In addition, the minority counties were also the poorest and least able to shoulder the costs of the training. The national government failed to consider these programs as high priority and offer them cost-free to the minority counties putting a heavy burden on the latter and risking underutilization of these programs.

## 10. Henan Provincial Transport Project and the National (Henan/Hebei) Highway Project

### OVERVIEW

10.1 Part of the overall Bank program to support the government's National Trunk Highway System (NTHS), the Henan Provincial Transport project and the Hebei/Henan National Highway projects have two major objectives. The first consists of physical objectives designed to expand traffic capacity, improve road maintenance and rehabilitation, relieve congestion, and help reduce poverty (in Henan). The second set of objectives are aimed at policy and institutional development through the provision of technical assistance to implementing agencies, training in road planning and management, and guiding transport policy development through studies. Specific project objectives are provided in the box on the next page.

### PROJECT DESIGN

10.2 The main physical objectives of the projects were designed to expand road capacity and improve efficiency of the road system in order to meet transport demand in areas where economic growth was being constrained by the lack of road capacity. Capacity expansion consisted of expressways and access roads, development of transport corridors between cities and industrial centers, and roads to important archeological and tourist areas (Henan), and upgrading and constructing rural roads in poor areas (Henan), and improving access to the main highways by means of targeted rehabilitation and improving inter-connecting roads.

#### **Relevant Cross-Sectoral Themes—Henan Provincial Transport Project and the National (Henan/Hebei) Highway Project**

*Decentralization:* Both transport projects deepened the decentralized governance system in China by extending direct support to the provincial governments and providing technical assistance and training to PCDs.

*Poverty:* While the primary objectives were not targeted for poverty reduction, the Henan project was particularly important in providing access for the rural population in some of the poorest counties of the province.

*Private Sector:* While the private sector in Henan and Hebei is not as developed as in other coastal provinces, both projects are supporting a framework for private sector development in highway financing. In particular, Henan is in advanced stages of preparation to introduce private sector financing and management for some of its expressways.

10.3 Institutional development objectives were designed primarily to improve road planning and management but also to facilitate technology transfer, improve efficiency of road transport, and guide policy changes in the trucking industry and inter-provincial flow of traffic.

10.4 Road planning and management was to be accomplished by developing the planning and management capability of Provincial Communications Departments (PCDs) by means of improved data collection (road databanks) and road management systems (pavement management systems); highway capacity analyses; construction cost analysis; modernization of technical specifications contract documents; and, training in transport planning, road investment prioritization, maintenance management, construction supervision, and environment protection. Technology transfer was to include staff training and equipment procurement for computer-aided design and laboratories. Technical assistance for maintenance and construction quality assurance was to be provided and study tours abroad were to focus on transportation planning. The



efficiency of road transport services and flow of vehicles between provinces was to be improved by drawing up strategies for higher utilization of trucks; improving management skills and pricing in the trucking industry; improving service and efficiency of road freight transport services through competition and entry to market by collective and small private operators' and strengthening inter-provincial coordination of trunk road operations.

10.5 Both projects were sufficiently designed to meet their objectives, but given that these were the first Bank highway projects in Henan and Hebei, they were somewhat complex and demanding for the implementing agencies. The PCDs were not only new to expressway development, but also to ICB procedures and a host of Bank procedures in safeguard and procurement issues. Nevertheless, the PCDs were committed to achieving the projects' goals, and invested in capacity building to enable them to achieve the targets. Special project implementation units were set up in the PCDs, and high-level ownership both at the central and provincial governments was expressway development and implementing the projects.

### **Hebei/Henan National Highway Project**

#### *Objectives*

Relieve transport congestion and improve the integration of interregional commerce by assisting in the development of National Highway 107

Facilitate access within the area of influence, ensuring that the benefits of improving the trunk road extend to a wide area by rehabilitating and expanding major roads interconnecting with National Highway 107

Strengthen the inter-provincial coordination of trunk road operations and promote the free flow of goods and travelers between Hebei and Henan by implementing a coordination program and providing technical assistance for inter-provincial traffic facilitation

Improve road investment planning, partially by improving highway capacity guidelines, construction management, and maintenance in Hebei and Henan by strengthening the provincial highway agencies and providing technical assistance

#### *Components*

Construction of new 340 km, four-lane, access-controlled highway between Shijiazhuang and Xinxiang, including service facilities and the supply and installation of equipment for tolling, traffic monitoring, telecommunications and lighting (84% of actual project cost)

Interconnecting Roads Improvement Program (IRIP) for the upgrading and rehabilitation of about 160 km in 14 provincial highways interconnecting at interchanges in the expressway (10 % of actual project cost)

Institutional Strengthening for coordination of expressway operations; study to facilitation of inter-provincial traffic flows; study highway capacity to be jointly undertaken by Hebei and Henan Provinces; and staff training programs covering all aspects of highway planning, design, construction, operation, and maintenance (2% of project cost)

Purchase of equipment (4% of project cost)

### **Henan Provincial Transport Project**

#### *Objectives*

Relieve congestion in the heavily trafficked east-west corridor traversing Zhengzhou, capital of the 90 million populated Henan province, and linking Henan and western provinces to the new port of Lianyungang on the eastern shore.

Improve accessibility in the province through rehabilitation of the provincial and rural road network; (c) strengthen highway sector agencies, mainly in the areas of investment planning, construction and maintenance management, and environment management

Improve the efficiency of road freight transport services, with a particular emphasis on enhancing competition and facilitating entry by collective and small private operators

#### *Components*

Construction of the Zhengzhou-Luoyang Expressway, including service facilities and toll stations (55% of actual project cost)

Rehabilitation and improvement of five provincial roads and six rural roads in Northwest Henan where some of the poorest counties of the province were concentrated (15% of actual project cost)

A province-wide local roads improvement program (22.5% of project cost)

Institutional strengthening and training (2.5%)

Purchase of equipment (5%)

## RATINGS

### Relevance

10.6 The relevance of both projects is rated **substantial**. The Bank highway projects in China in general, and in the two provinces in particular, is consistent with the development objectives of the country and the Bank's assistance strategy. The projects' objectives and the components selected to achieve the objectives were coherent and responded in a timely fashion to the urgent government priority to develop a modern transportation system capable of supporting a growing economy. The rapid development, as well as the diversification and structural transformation of the economic system in the country altered economic and social values, with a profound impact on the nature of the transport demand. The rising incomes led to increases in the value of time, and thus the need for a more efficient, safe, and comfortable transport system. The realignment of the economy from heavy state-owned industries to a more diversified system focused on external and inter-provincial trade, demanded a more flexible and door-to-door transport system. These kind of economic activities naturally favor road transport and the trucking industry traveling on a reliable highway system.

10.7 The PPAR therefore concludes that the NTHS is the appropriate technology and economic response to the changing transport demand in China. Increasing the capacity and efficiency of the road system was critical for supporting the growing economy and for integrating the national economy through a national highway system and facilitating inter-provincial flow of traffic. The rural roads components in the Henan project and the inter-connecting roads component in the Hebei/Henan project were also relevant components that broadened the benefits of road development to wider segments of the population. The institutional development components were correctly chosen to respond to the needs of a modernizing road agency. The trucking study and the inter-provincial flow of traffic study were timely and helped in identifying the constraints in the road transport sector.

### Efficacy

10.8 The efficacy of both projects is rated **substantial**, with all the physical targets having been met with satisfactory economic returns (key performance indicators from the ICR are reproduced in Annex E, Tables 6 and 7). In Henan, the construction of the 120-kilometer Zhengzhou-Luoyang Expressway (ZLE) has significantly improved traffic flows in the corridor and is responding to the needs of the growing economy. The ZLE is part of the east-west corridor traversing Zhengzhou, capital of Henan province, and links the province and other western provinces to the port of Lianyung and the eastern shore. The construction of the expressway started in 1993, and the expressway was opened to traffic in 1995. The ZLE was the first expressway developed in Henan province. Of the 43,150 kilometers of road Henan had in 1990, only 78 kilometers were Class I roads, none of them expressways. Ninety-two percent of the roads were Class III or below.<sup>101</sup> The ZLE has been an important element of the province's plans to develop high-grade roads. Since its completion, Henan has been expanded its high-grade roads with support from the Bank. Two follow-on Bank projects are providing support for further development of the expressway system and introduce private sector participation in highway financing.

10.9 In addition, the project supported the development of lower-level and access roads including the rehabilitation and improvement of five provincial roads (180 kilometers) and six rural

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101. China: Henan Provincial Highway Project, Staff Appraisal Report, Report No. 10683-CHA.

roads (112 kilometers) in the northwest region of Henan province, and a total of 15 provincial roads (381.5 kilometers) and seven rural roads (110 kilometers) under the Road Improvement in Program (RIP). The RIP program, renamed as Road Improvements in Poor Areas (RIPA), has since been expanded throughout the province with the follow-on projects (Henan II and III).

10.10 Similarly, the Hebei/Henan project completed the successful construction of the 340-kilometer-long Shijiazhuang-Anyang-Xinxiang Expressway (SAXE), of which 216 kilometers are in Hebei, and 124 kilometers in Henan. Similarly, the interconnecting roads have been completed, with the physical targets exceeded from the SAR estimates.

10.11 Service stations, toll plazas, and electronic traffic monitoring systems were built as part of the construction of the ZLE and SAXE. The PPAR mission visited some of these facilities, and found them to be of good quality. But the services stations and the buildings adjacent to the toll plazas appear to be substantially over-designed for the level of traffic they currently serve. The timing of these facilities could have been delayed until enough traffic had developed on the expressway to make them viable. Currently, the facilities are cross-subsidies from toll revenue and do not appear to have enough people patronizing them.

### Efficiency

10.12 The efficiency of both projects is rated **substantial**. Table 10.1 shows the average daily traffic on the ZLE and SAXE. Traffic in the ZLE corridor 1999 was more than double the SAR estimate, while traffic in the SAXE corridor came below forecast. Economic analysis of both projects shows that both have acceptable economic returns, even with the lower-than-expected traffic in the SAXE corridor. The re-estimated ERR for the ZLE was 25.1 percent (versus 28.9 percent at appraisal), while it was 15.1 percent (versus the 24 percent estimated at appraisal). These re-estimations were done in the ICRs following the methodology in the SARs. The data on traffic, costs and benefits were updated to December 2000 for the ICR economic analysis, and the assumptions in the ICR were reasonable and followed standard assumptions for economic analysis of highway projects.

**Table 10.1. Average Daily Traffic on ZLE, SAXE**

Year	SAR Projections		Actual	
	1995	1999	1995	1999
ZLE	3993	5928	8434	12097
SAXE		13419		8968

### Outcome

10.13 The outcome for both the Henan and Hebei/Henan projects is **satisfactory**. Both projects achieved the overarching objective to remove transport bottlenecks, relieved some of the congestion on the main highways, and added much-needed high-quality road capacity to facilitate economic growth. The Bank-supported projects have also had good demonstration effects for expressway development in the provinces, transferring expressway technology, and setting quality standards. On the institutional side, the projects have provided training and technical assistance, and contributed to improved road management. Bank-supported studies on trucking and inter-provincial flow of traffic have been useful in clarifying policy choices, but no clear attribution from studies to adopted policies can be made.

10.14 *Access Road Improvement.* In addition to the main expressway construction, the Henan project supported improvement in the accessibility of remote areas in the provinces. The access road improvement component, particularly, the RIP sub-component, is providing important social

benefits. At the start of the project, about 12.5 percent of the villages in Henan did not have access to roads of any kind, and 7 percent of the countries did not have all-weather roads. The improvements in the provincial, county, and rural roads supported by this project, and follow-on projects, are making many of the villages in Henan accessible by road, although there are still villages in the mountains that are not accessible by all-weather roads.

10.15 Interviews conducted during the PPAR mission with villagers in the Matau village of Luoyang county in Henan province reveal the following benefits:

- All-weather rural roads have made traveling in the difficult terrain more manageable for villagers.
- Travel time to the next town has been significantly reduced for a majority of the villagers, from approximately 60 minutes to 20 minutes.
- The mode of travel has changed from mostly three-wheeled vehicles to buses and small trucks. Private motorcycle ownership has also increased.
- Crop production has been diversified. Villagers now produce highly valued vegetables and fruits for sale in major towns.
- A new market area for consumer goods has now emerged along the improved rural roads. Whereas before villagers had to travel to the nearest town to acquire consumer goods, now many entrepreneurs have opened shops and market stalls along the road for the villagers to purchase their needs.

### **Institutional Development Impact**

10.16 The institutional development impact is rated **substantial** for both projects on account of the following achievements.

#### *Technical Assistance and Training*

10.17 Technical assistance and training supported by the projects and the hands-on implementation experience provided the Henan and Hebei PCDs significant experience in all aspects of major highway development, including the design, engineering, construction, operations and maintenance, environmental mitigation and monitoring, and resettlement activities of major highway development.

#### *Technology Transfer*

10.18 Officials interviewed during the PPAR mission revealed that the technology transfer gained through the projects is what they value most from working with the Bank. The study tours abroad, joint construction supervision by foreign and local experts, procurement of modern equipment for laboratories, highway design, maintenance and construction, and modernization of technical specifications and road management practices all have significantly modernized the PCDs and their respective implementing agencies. The use of competitive bidding to procure the construction of government-funded highways is now widely used in both provinces.

#### *Studies*

10.19 Studies to modernize the trucking industry and to improve traffic facilitation were conducted under both projects. Most of the recommendations from these studies are being implemented in both provinces. These include the creation of cargo consolidation terminals, vehicle inspection terminals, weighbridges, and maintenance and repair facilities. All these have been important in improving the efficiency of the trucking industry and critical to its

modernization. The studies also recommended policy changes to boost the participation of the private sector in the trucking industry, develop a hub-and-spoke system to promote long-distance trade, improve inter-modal transport, and introduce containerization of cargo.

### *Inter-Provincial Coordination*

10.20 The Hebei/Henan project introduced one of the early practices in China to jointly manage toll booths and to coordinate in toll setting, greatly reducing the gap between the toll charged in the two provinces and facilitating the flow of traffic. In addition, better coordination has resulted in the handling of major traffic accidents and expressway policing.

### **Sustainability**

10.21 Sustainability—the resilience of future project benefits to major project risks—is rated **likely** in both projects. Both provinces have put in place adequate institutional and financial arrangements to operate and maintain the expressways and the rural and interconnecting roads. The expressways are built as access-controlled toll highways and operated by dedicated units within the PCDs. This has provided the needed institutional focus for maintenance and cost recovery. In addition, the both the PCDs allocate a certain portion of the Road Maintenance Fees for the maintenance of the rural roads and inter-connecting roads.

### **Bank Performance**

10.22 Bank performance in both projects is rated **satisfactory**. The Bank responded in a timely fashion to the needs of the client to develop a high-grade highway system in support of the growing economy. The Bank identified the main sector issues to be addressed by the project, and provided adequate measures to addresses them. It also engaged the borrower both during preparation and supervision on a productive policy dialogue to modernize the management of the road system, and to rationalize policies on the trucking industry and flow of traffic between provinces. The Bank's lending program was grounded on well thought out sector strategy paper, the China Highway Development and Management: Issues, Options, and Strategies.

### **Borrower Performance**

10.23 Borrower performance is rated **satisfactory**. The MOC prepared a coherent strategy for the development of the NTHS, and the provinces excelled in implementing it. Despite the fact that expressway development was new to the provinces, officials at PCDs quickly gained the expertise to carry major expressway developments not only with follow-on Bank-supported projects (as in Henan), but also with government funded projects and private sector financed projects.



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## Annex A. Basic Data Sheets

### HEBEI AGRICULTURAL DEVELOPMENT PROJECT (CR.2159-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	309.58	342.55	110
Loan amount	150.0	164.81	109
Cofinancing			
Cancellation			
Date physical components completed			
Economic rate of return	32.4	39.7	
Institutional performance			

#### Cumulative Estimated and Actual Disbursements

	<i>FY91</i>	<i>FY92</i>	<i>FY93</i>	<i>FY94</i>	<i>FY95</i>	<i>FY96</i>	<i>FY97</i>	<i>FY98</i>
Appraisal estimate (US\$M)	19,000	56,000	101,000	132,000	145,000	150,000		
Actual <sup>a</sup> (US\$M)	28,131	56,744	82,107	107,767	132,642	159,666	162,333	164,928
Actual as % of appraisal	148	101	81	82	91	106	108	110
Date of final disbursement: January 31, 1998								

#### Project Dates

	<i>Original</i>	<i>Actual</i>
Identification		November 1987
Preappraisal		Jan. 10-Feb. 2, 1990
Appraisal		Nov.-Dec. 1989, Jan. 190
Negotiations		May 1990
Board presentation		June 14, 1990
Signing		July 2, 1990
Effectiveness		Sept. 21, 1990
Mid-term review		Dec. 7-18, 1993
Project completion		January 31, 1998
Closing date		June 30, 1998

#### Staff Inputs (staff weeks)

	<i>Actual</i>
Preparation to Appraisal	n.a.
Appraisal	30
Negotiations through Board Approval	n.a.
Supervision	184.26
Completion	18
Total	232.26

# Mission Data

	<i>Date (month/year)</i>	<i>No. of persons</i>	<i>Staff days in field</i>	<i>Specializations represented /a</i>	<i>Performance rating /b</i>	<i>Rating trend</i>	<i>Types of problems /c</i>
Identification	Sept-Oct 1988	6	14	E(1), A(1), IEAS(1), as(1), PA(1)			Surface & groundwater water availability. Household responsibility vs. corporations/collectives. Undue emphasis on cotton marketing arrangements.
Preparation	Jan 10-Feb 2 1989	8	21	E(1), A(1), LS(1), IEAS(1), AS(1), PAH(1)			Information on surface irrigation schemes. Numbers of delinting plants needed. Intergovernment agreements for sourcing livestock. Interest rates Local banking arrangements ICB/NCB procurement TA for agroindustry
Through Appraisal	Nov-Dec 1989, Jan 1990	8	21	A(1) AE(1), IEAS(1), (LS)			Viability of pump stations. Management and technical standards of aquaculture. Technical design of agroindustry investments No major problems
Appraisal through Board approval							
Supervision	Oct 1990	5	9	A(1), AE(1), IEAS(1), ASC(1), E(1)	1	1	Engineering designs, water monitoring, linkages between PMO and counties, effluent treatment. Agroindustry design.
	July 1991	6	7	A(1), AE(1), IEAS(1), ASC(1), E(1)	1	1	Procurement delay leading to delay in O&M schedule of pump stations. Cold store design
	May 1992	4	13	A(1), AE(1), IELS(1)	1	1	Good progress except in agroindustry. Water sharing issues related to Junliu.
	Oct 1992	3	9	AE(1), AS(1), AgS(1)	1	1	Slow progress and poor quality control in agroindustry. Low yields and slow progress in cold stores of aquaculture
	Dec 1993	5	12	AE(1), IEAS(1), AS(1), LS(1)	5	12	Delay in vehicle procurement. Bollworm infestation. Shrimp disease. Loss of trained staff to private sector
							Devaluation, higher cost shrimp disease. Expanded

	<i>Date (month/year)</i>	<i>No. of persons</i>	<i>Staff days in field</i>	<i>Specializations represented /a</i>	<i>Performance rating /b</i>	<i>Rating trend</i>	<i>Types of problems /c</i>
							agroindustry diversification of aquaculture.
	July 1994	4	9	AE(1), AS(1), AS(1), LS(1)	S	HS	Instability of PPMO. Poor management in fertilizer plant. Unacceptable quality of slaughterhouses. Shrimp disease.
	June 1995	5	9	AE(1), IE(1), AS(1), AgS(1), LS(1), FPS(1)	HS	S	Decimation of shrimp production. Lack of funds for improved technology
				AS(1)			Financial viability of agroindustry owing to inadequate capital
	May 1996	1	8	IE(1), AS(1)	S	S	Delayed progress on Junliu pump station
	Sept 1996	2	6		S	S	Slow progress on Junliu pump station. Repairs to fertilizer factories. Lack of funds for pathogen free shrimp study
				IE (1)			
	Sept 1996	1	5	AS(1), IE(1)	S	S	
	Oct-Nov 1997	2	7		S	S	
Completion	Oct-Nov 1998	5	14	AE(1), IE(1), AS(1), AgS(1), A(1)			Sustainability of water resources. Lack of acceptance of household responsibility system. Nonviability of machinery stations.

E=Economist, A=Agronomist, IE=Irrigation Engineer, AgS=Agroindustry Specialist, AS=Aquaculture Specialist, PA=Project Analyst, PAH=Project Analyst Hydrogeologist, CE=Chemical Engineer, FPS= Fertilizer Plant Specialist, IE= Irrigation Economist/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>
Irrigated Agriculture Intensification	C2556/L3337		
Yangtze Basin Water Resources	C2710/L2874		
Irrigated Agriculture Intensification II	C4354		

**HENAN AGRICULTURAL DEVELOPMENT PROJECT (CR.2242-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	196.0	245.62	125
Loan amount	110	116.6	106
Cofinancing			
Cancellation			
Date physical components completed			
Economic rate of return	35.8	40.0	
Institutional performance			

**Cumulative Estimated and Actual Disbursements**

	<i>FY92</i>	<i>FY93</i>	<i>FY94</i>	<i>FY95</i>	<i>FY96</i>	<i>FY97</i>	<i>FY98</i>	<i>FY99</i>
Appraisal estimate (US\$M)	10,000	26,000	50,000	77,000	94,000	105,000	110,000	
Actual	15,829	28,327	46,013	69,948	99,948	110,227	115,968	116,547
Actual as % of appraisal	158	109	92	91	106	105	105	106
Date of final disbursement: March 18, 1999								

**Project Dates**

	<i>Original</i>	<i>Actual</i>
Identification	May 7, 1989	May 15, 1989
Preappraisal	May 19, 1990	May-June, 1990
Appraisal	October 12, 1990	Oct.-Nov. 1990
Negotiations	March 18, 1990	April 1-14, 1991
Board presentation	May 23, 1991	May 14, 1991
Signing	June 20, 1991	June 20, 1991
Effectiveness	August 23, 1991	August 23, 1991
Mid-term Review	October 31, 1993	July 1994
Project completion	December 31, 1996	December 31, 1998
Closing date	December 31, 1997	December 31, 1998

**Staff Inputs** (staff weeks)

	<i>Actual</i>
Preparation to Appraisal	184.2
Appraisal	49.6
Negotiations through Board Approval	9.1
Supervision	152.3
Completion	19.8
Total	415.0

	Date (month/year)	No. of persons	Staff days in field	Specializations represented /#	Performanc e rating /#	Rating trend	Types of problems /#
Identification	May 1989	3	6	IE(1), A(2)			
Preparation	November 1989	10	25	AE(1),E(1), IE(1), A(1), EPA(1), LAS(1), MPS(1), APS(1), NC(1), OAS(1)			
Preappraisal	May 1990	7	30	AE(1), IE(1) A(1), LS(1),AIS(1), EE(1), AS(1)			
Appraisal	October 1990	8	22	IE(1), A(1), LS(1), AIS(1), AS(1), AEP(1), BEC=(1),AE(1)DC (1)			
Supervision	July 1991	5	6	AE(1), IE(1), AIS(1), AS(1),MPS(1)  LS(1), SAE(1), IE(1)	S		
	May 1992	3	11		S		Irrigation and drainage component- water not reaching farmers' fields.
				AIE(1), AS(1)			Slow progress under aquaculture component
	October 1992	2	7		S	S	
							Delay in the implementation of agro- industries component
	July 6, 1993	6	8	AS(1), LS(1), AIS(1), PA(1) SAE(1), IE(1)	S	S	
							Delay In procurement of materials and equipment under agro-processing component
	July 1994	5	10	AIS(1), AS(1), SAE(1), LS(1), (IE(1)	S	S	
							Slow disbursement on agro-processing and irrigation components
	June 1995	5	10	AS(1), LS(1), AIS(1), IE(1), WRS(1)	S	HS	Lack of counterpart funds on additional components
				AS=(1), LS(1), AIS(1), WRS(1), IE(1)			Delay in the

<i>Date</i> <i>(month/year)</i>	<i>No. of</i> <i>persons</i>	<i>Staff days</i> <i>in field</i>	<i>Specializations</i> <i>represented /a</i>	<i>Performance</i> <i>rating /b</i>	<i>Rating</i> <i>trend</i>	<i>Types of</i> <i>problems /c</i>
June 1996	5	12	IE(1)	S	S	construction and equipment installation of two agro-processing plants
May 1997	7	12	IE=(1), AE(1), AIS(1), AS(1), AE(1), LS(1), PA(1)	S	S	None
March 1998	3	7	SAE(1), AIS(1), AE(1)	HS	HS	
Completion	April 1999	4	12	AE(1), IE(1), A(1), AIS(1)	S	S

IE=Irrigation Engineer, A=Agronomist, AE=Agric. Economist, E=Economist, IE=Irrigation Engineer, EPA=Economist/Project Analyst, LAS=Livestock & Aquaculture Specialist, MPS=Meat Processing Specialist, APS= Agro-processing Specialist, NC= National Water Resources Consultant, OAS=Operations Agriculture Specialist, LS=Livestock Specialist, AIS=Agro-Industries Spec., EE=Environmental Engineer, AS=Aquaculture Specialist, AEP=Agro-Environmental Protectionist, BEC=Biologist Environmental Consultant, DC=Division Chief, SAE=Sr. Agric. Economist, PA=Procurement Analyst, WRS=Water Resources Spec.

## Other Project Data

Borrower/Executing Agency:

### ***FOLLOW-ON OPERATIONS***

<i>Operation</i>	<i>Credit no.</i>	<i>Amount</i> <i>(US\$ million)</i>	<i>Board date</i>



## NATIONAL AFFORESTATION PROJECT (CR.2145-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	499.6	560.2	112
Loan amount	300.0	328.4	109
Cofinancing			
Cancellation			
Date physical components completed			
Economic rate of return	22.8%		23.5
Institutional performance			

**Cumulative Estimated and Actual Disbursements**

	<i>FY91</i>	<i>FY92</i>	<i>FY93</i>	<i>FY94</i>	<i>FY95</i>	<i>FY96</i>	<i>FY97</i>
Appraisal estimate (US\$M)	40.0	100.0	175.0	235.0	275.0	290.0	300.0
Actual <sup>a</sup> (US\$M)	43.4	91.7	136.1	208.3	261.4	311.1	328.4
Actual as % of appraisal	108.5	91.7	77.8	88.6	95.1	107.3	109.5

Date of final disbursement: December 6, 1977

<sup>a</sup> Higher actual disbursement in US dollar terms than appraisal estimate is due to depreciation of US dollar against SDR.**Project Dates**

	<i>Original</i>	<i>Actual</i>
Identification	Na	October 2, 1988
Preparation	March 1989	March 19, 1989
Preappraisal	October 1989	October 29, 1989
Appraisal	February 1990	February 15, 1990
Negotiations	April 23, 1990	May 4, 1990
Board presentation	June 5, 1990	May 29, 1990
Signing	June 1990	June 20, 1990
Effectiveness	August 1990	September 24, 1990
Project completion	December 31, 1996	December 6, 1997
Closing date	December 31, 1997	December 6, 1997

**Staff Inputs** (staff weeks)

	<i>Actual</i>
Preparation to Appraisal	187.6
Appraisal	15.6
Negotiations through Board Approval	6.2
Supervision	122.4
Completion	17.0
Total	348.8

## Mission Data

	Date (month/year)	No. of persons	Staff days in field	Specializations represented /a	Performance rating /b	Rating trend	Types of problems /c
Identification	October 1988	5	24	EC/FS(2)MS/IDS			
Preparation	March 1989	7	27	EC/FS(2)IDS/SC/ MIS/RS			
Preappraisal	October 1989	10	22	EC/FS(4)ECO/SN S/IDS/MS/SCS			
Appraisal	February 1990	4	14	EC/FS(2)/ECO			
Negotiation	May 1990	5		EC/FS/LW/DS			
Board approval	May 1990						
Signing	June 1990						
Effective	September 1990						
Supervision	November 1990	4	17	EC/FS(2)/ECO	1	1	EI
	April 1991	2	8	EC/ECO	1	1	
	July 1991	4	22	ECO/EC/FS(3)	1	1	
	April 1992	7	31	EC(2)/FS(4)/ECO	1	1	PM
	December 1992	4	20	EC/ECO/FS(2)	1	1	PM/EI
	December 1993	3	24	EC/FS(2)	1	1	PM/EI
	August 1994	3	10	EC/ECO/FS	HS	HS	PLP/ER
	August 1995	4		EC/ECO/FS/IDS	HS	HS	SM/ER
	June 1996	3		EC/ECO/FS	HS	HS	SM/ER
	May 1997	4	7	EC/ECO/FS	HS	HS	
Completion	May 1998	4	18	EC/FA/FS/RS	HS	HS	

/a DS=Disbursement Specialist; EC=Economist; ECO=Ecologist; FA=Financial Analyst; FS=Forest Specialist; DS=Institutional Development Specialist; LW=Lawyer; MIS=Information Specialist; MS=Marketing Specialist; RS=Research Specialist; SC=Silviculturist; SCS=Soil Conservation Specialist; SNS=Seed Nursery Specialist

/b HS=Highly satisfactory; 1=Satisfactory

/c Environmental Issues; ER=Extension of New Research Findings; PLP=Plantation Program; PM=Planting Material; SM=Stand Management

## Other Project Data

Borrower/Executing Agency:

### FOLLOW-ON OPERATIONS

Operation	Credit no.	Amount (US\$ million)	Board date
Forest Resource Development and Protection	Cr. 2623-CHA		
Nature Reserves Management (GEF)			FY95
Changing Institutional Roles in the Forestry Sector (IDF)			FY96
Forestry Development in Poor Areas			05/21/1998

**RURAL HEALTH WORKERS DEVELOPMENT PROJECT (CREDIT 2539)****Key Project Data (amounts in US\$ million)**

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>
Total project costs		
Loan amount	79.3	
Cofinancing		
Date physical components completed	03/30/2001	
Economic rate of return		

**Staff Inputs**

<i>Stage of project cycle</i>	<i>Revised Weeks US\$</i>	<i>Actual Weeks US\$</i>
Identification/Preparation	N/A	365,750
Appraisal/Negotiation	N/A	N/A
Supervision	N/A	408,541
ICR	N/A	N/A
<b>Total</b>	<b>N/A</b>	<b>774,291</b>

**Mission Data**

Stage of project cycle	Month/ year	No. of persons	Specialized staff skills represented a/	Performance rating		Types of problems
				Implementation Status	Development Objectives	
Identification/Preparation						
Ident.10/1989		2	HG			
Ident/Prepn. 06/1990		3	HG			
Prepn.11/1990		4	ED, HG, HP, HS			
Prepn. 06/1991		8	ED, EP, HG, 2 HR, HS, TR			
Pre-Appraisal 1		6	HE, HG, HP, HR, PI, TR			
Pre-Appraisal 2 6/1992		6	HE, HG, HP, HR, HS, TR			
Appraisal/Negotiation						
Appr. 10/1992		7	AR, HE, HG, HP, HR, PI, TR			
Neg. 03/1993		4	HG, HR, LC, DO			
Supervision						
Project Launch 06/1993		4	HG, HP, HR, PI			
Spn 1 04/1994		7	AR, HG, HP, OO, PC, PH	U	S	
Spn 2 11/1994		3	HG, HO, PH	S	S	
Spn 3 05/1995		3	HG, HO, PH	S	S	
Spn 4 11/1995		4	HG, HO, PH, TR	S	S	
Spn 5 10/1996		4	HG, HO, HS, PH	S	S	
Spn 6 (MTR) 07/1997		6	FM, HE, HG, HO, PH, TR	S	S	
Spn 7 08/1998		2	HO, PH	S	S	
Spn 8 05/1999		2	FM, HO, PH	S	S	
Spn 9 11/1999		2	HE, PH	S	S	
Spn 10 05/2000		3	FM, HS, PH	S	S	
Spn 11 10/2000		3	PH, HE, HS	S	S	
ICR						
05/2001		1	HE	S	S	

## BASIC EDUCATION IN POOR AND MINORITY AREAS (CREDIT 2651)

## Key Project Data (amounts in US\$ million)

	<i>Appraisal estimate</i>	<i>Actual or current estimate</i>
Total project costs		
Loan amount		
Cofinancing		
Date physical components completed		
Economic rate of return		

## Staff Inputs

<i>Stage of project cycle</i>	<i>Revised Weeks US\$</i>	<i>Actual Weeks US\$</i>
Identification/Preparation	50	280.0
Appraisal/Negotiation	34	140.0
Supervision	120	340
ICR	6	30
<b>Total</b>	<b>210</b>	<b>790.0</b>

## Mission Data

<i>Stage of project cycle</i>	<i>Month/ year</i>	<i>No. of persons</i>	<i>Specialized staff skills represented a/</i>	<i>Performance rating</i>		<i>Types of problems</i>
				<i>Implementation Status</i>	<i>Development Objectives</i>	
Identification/Preparation	9/93	4	2 Educators, 1 HR Economist, 1 Textbook Specialist	S	S	
	1/94	7	4 Educators, 1 HR Economist, 1 TA specialist, 1 Civil Engineer/Procurement	S	S	
Appraisal/Negotiation	3/94-Appraisal	5	2 Educators, 1 HR Economist, 1 TA Specialist, 1 Operations Officer	S	S	
	7/94-Negotiation	5	1 Task Manager, 1 Lawyer, 1 Disbursement Office, 1 TA Specialist, 1 Operations Officer	S	S	
Supervision						
10/99		6	3 Educators, 1 Operations Officer, 1 Procurement, 1 FMS	S	S	
5/99		3	2 Educators, 1 Procurement	S	S	
1/99		1	1 Operations	S	S	
8/98		2	1 Educator, 1 Procurement	S	S	
9/97 Mid-term		6	3 Educators, 1 Operations Officer, 1 Procurement	S	S	
3-4/97		2	1 Educator, 1 Operations Officer	S	S	
1/97		3	1 Educator, 1 Operations Officer, 1 Procurement	S	S	
3/96		3	2 Educator, 1 Teacher Training Specialist, 1 Operations Officer	S	S	
11/95		6	1 Educator, 1 Project Analyst, 1 Operations Specialists, 1 FMS, 2 Procurement	S	S	
9/94 Launch		7	2 Educators, 1 HR Economist, 2 Operations Officers, 1 Disbursement, 1 Procurement	S	S	
ICR						
6/01		3	1 Educator, 1 Operations Officer, 1 Teacher Trainer	S	S	

### Key Project Data (amounts in US\$ million)

	<i>Appraisal Estimate</i>	<i>Actual or current estimate</i>
Total project costs		
Loan amount	67.3	
Cofinancing		
Date physical components completed	12/21/2001	
Economic rate of return		

Stage of project cycle	Revised Weeks US\$	Actual Weeks US\$
Identification/Preparation		
Appraisal/Negotiation		
Supervision		
ICR		
<b>Total</b>		

<i>Stage of project cycle</i>	<i>Month/ year</i>	<i>No. of persons</i>	<i>Specialized staff skills represented a/</i>	<i>Performance rating</i>		<i>Types of problems</i>
				<i>Implementation Status</i>	<i>Development Objectives</i>	

## HENAN PROVINCIAL TRANSPORT PROJECT (LOAN 3531-CH)

## Key Project Data (amounts in US\$ million)

	<i>Appraisal Estimate</i>	<i>Actual or current estimate</i>
Total project costs	300.70	296.21
Loan amount		
Cofinancing		
Date physical components completed	06/30/1998	06/30/2000
Economic rate of return		

## Staff Inputs

<i>Stage of project cycle</i>	<i>Revised Weeks US\$</i>	<i>Actual Weeks US\$</i>
Identification/Preparation	100	319
Appraisal/Negotiation	80	247
Supervision	89	234
ICR	10	30
<b>Total</b>	<b>279</b>	<b>830</b>

## Mission Data

Stage of project cycle	Month/ year	No. of persons	Specialized staff skills represented a/	Performance rating		Types of problems
				Implementation Status	Development Objectives	
<b>Identification/Preparation</b>						
June, 1989	1		EC			
September, 1989	2		EC, TS			
February, 1991	1		EC			
April 1991	3		EC, TS, HE			
<b>Appraisal/Negotiation</b>						
November, 1991	5		ES, OA, RS, HE, TS			
March 1992	5		EC, ES, OA, 2 TS			
August 1992	2		TS, HE			
November 1992	2		EC, TS			
<b>Supervision</b>						
September, 1993	2		EC, HE	HS		HS
April 1994	6		TE/P, HE, 2RS, ES, D/Fs	S		HS
August 1994	2		TE/P, HE	S		HS
October 1994	3		TE/P, T/IS, HE	S		HS
June 1995	2		TE/P, HE	S		HS
November 1995	4		TE/P, HE, OA	S		S
June 1996	3		TE/P, HE, OA	S		S
July 1997	2		TE/P, OA	S		
July 1998	3		3 HE	S		S
April 1999	3		3HE	S		S
October 1999	1		HE	S		S
January 2000						
<b>ICR</b>						
June 2000	3		HE, RS, ES	S		S

EC=Economist; TS=Transport Specialist; HE=Highway Engineer; ES=Environmental Specialist; OA=Operational Analyst;  
 RS=Resettlement Specialist; TE/P=Transport Engineer/Procurement; T/IS=Training/Institutional Strengthening;  
 D/FS=Disbursement/Financial Specialist

## NATIONAL HIGHWAY PROJECT (LOAN 3748-CH)

## Key Project Data (amounts in US\$ million)

	Appraisal estimate	Actual or current estimate
Total project costs	570.90	581.7
Loan amount		
Cofinancing		
Date physical components completed	06/30/2000	06/30/2000
Economic rate of return		

## Staff Inputs

Stage of project cycle	Revised Weeks US\$	Actual Weeks US\$
Identification/Preparation	70.6	204.9
Appraisal/Negotiation	67.1	220.7
Supervision	100.3	280.4
ICR	10.0	35.0
<b>Total</b>	<b>248.0</b>	<b>741.0</b>

## Mission Data

Stage of project cycle	Month/ year	No. of persons	Specialized staff skills represented a/	Performance rating		Types of problems
				Implementation Status	Development Objectives	
<b>Identification/Preparation</b>						
March 1992		3	EC/ES, HE			
November 1992		3	2 HE, EC			
<b>Appraisal/Negotiation</b>						
April 1993		3	EC, HE, ES			
(Pre-appraisal)						
July 1993		6	EC, 2 HR, TS, ES, RS			
November 1993		5	3 HE, ES, RS			
<b>Post-appraisal</b>						
<b>Supervision</b>						
April 1994		6	2 HE, 2 RS, 2 FMS	HS	HS	
October 1994		2	2 HE	HS	HS	
November 1995		4	2 HE, ES, RS	S	HS	
June 1996		3	3 HE	S	S	
November 1996		2	2 HE	S	S	
April 1996		2	2 HE	S	S	
August 1997		5	2 HE, OA, RS, ES	S	S	
July 1998		6	3 HE, OA, RS, ES	S	S	
March 1999		2	HE, RS	S	S	
October 1999		5	HE, 2 FMS, ES, RS	S	S	
January 2000		3	HE, RS, FMS	S	S	
<b>ICR</b>						
June 2000		3	HE, RS, ES	S	S	

EC=Economist; TS=Transport Specialist; HE-Highway Engineer; ES-Environmental Specialist; OA=Operational Analyst;  
 RS=Resettlement Specialist; TE/P=Transport Engineer/Procurement; T/IS=Training/Institutional Strengthening;  
 D/FS=Disbursement/Financial Specialist; FMS=Financial Management Specialist.

## **Annex B. Project Appraisal and Completion Documents**

### **Hebei Agricultural Development Project (Credit 2159)**

Staff Appraisal Report, Report No. 8495, May 14, 1990

Implementation Completion Report, Report No. 18859, January 22, 1999

### **Henan Agricultural Development Project (Credit 2242)**

Staff Appraisal Report, Report No. 9041, April 16, 1991

Implementation Completion Report, Report No. 19504, June 30, 1999

### **National Afforestation Project (Credit 2145)**

Staff Appraisal Report, Report No. 8487, May 8, 1990

Implementation Completion Report, Report No. 18130, June 30, 1998

### **Rural Health Workers Development Project (Credit 2539)**

Staff Appraisal Report, Report No. 11404, July 12, 1993

Implementation Completion Report, Report No. 23298, December 27, 2001

### **Basic Education In Poor And Minority Areas Project (Credit 2651)**

Staff Appraisal Report, Report No. 13026, August 8, 1994

Implementation Completion Report, Report No. 22449, June 30, 2001

### **Third Basic Education Project (Credit 2831)**

Staff Appraisal Report, Report No. 15099, February 23, 1996

Implementation Completion Report (pending)

### **Henan Provincial Transport Project (Loan 3531)**

Staff Appraisal Report, Report No. 10683, October 10, 1992

Implementation Completion Report, Report No. 21500, December 19, 2000

### **Hebei/Henan National Highway Project (Loan 3748)**

Staff Appraisal Report, Report No. 13781, March 22, 1994

Implementation Completion Report, Report No. 21499, December 19, 2000



## Annex C. Provincial Background

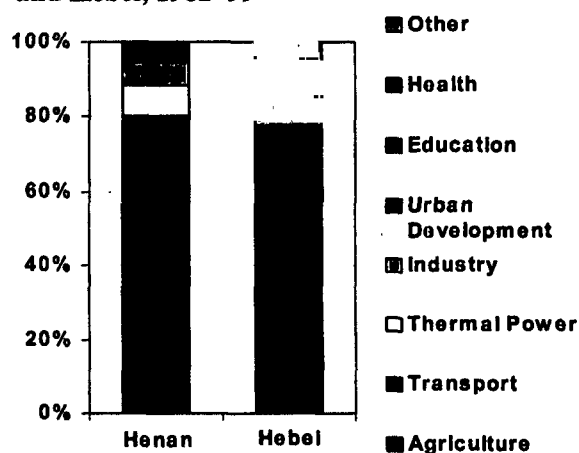
Henan and Hebei were both covered by credits or loans in most of the key sectors where the Bank was involved: OED assessed projects in the transportation, agriculture, environment, education, and health sectors. Bank lending activities in the two provinces have been of roughly similar proportions to overall Bank lending (Figure C.1, Figure 1.1), with the largest shares going to agriculture and transport and smaller amounts going to the social sectors. Both provinces are more rural than the China average and produce larger shares of agricultural products than average (Table C.1).

### Henan Province

Henan sits astride the Yellow River in east central China and has an area of 16.7 million hectares, about 1.7 percent of China's land area.<sup>102</sup> Forests cover about 1.7 million hectares (10 percent) of the province's land area. Henan is primarily agricultural and 77 percent of its population of 92.6 million (about 7 percent of China's population in 2000) lives in the rural areas. Of the total land area, only 6.9 million hectares (42 percent) is arable. The Yellow River is the major water resource, and a shortage of surface water has led to substantial reliance on groundwater for irrigation. Wheat is the most important crop, covering 49 percent of the cropped area, followed by corn, cotton, soybeans, and sweet potatoes. Henan is an important producer of cotton, and a national cotton market has been established in Zhengzhou, the capital. In 2000, rural incomes averaged RMB 1,986 per capita, up 277 percent since 1990. Urban income for the same year was more than double that of rural incomes, about RMB 4,766 per capita. Twenty-eight of the 592 government-designated poor counties in China are in Henan. In 1988, the incidence of poverty was 25 percent, but in 1996 it had declined to 4.3 percent.

Traffic growth in Henan is high, particularly around Zhengzhou, which has a population of about 5 million. In 1993, highways accounted for 18 percent of the passenger-kilometers, and 54 percent of the ton-kilometers carried in Henan. In 2000 total length of highways in Henan was 64,453 kilometers. The rural road network in the province remains inadequate, however. In 1995, poor counties of Henan had 21,800 kilometers of roads, only 40 percent of them all-weather roads. China's success in providing basic education to its population is reflected in education statistics for Henan where, in 1996, elementary school completion rates were 97 percent. Adult literacy in Henan in 1993 was only 72 percent, however, compared to a China average of about 81 percent in 1995.<sup>103</sup> Per capita government expenditure in the health sector in Henan was 18.6 RMB in the year 2000 compared with 38.1 RMB for China as a whole.

**Figure C.1. Bank Lending by Sector in Henan and Hebei, 1982–99**



**Table C.1. Henan and Hebei Depend More on Agriculture than China as a Whole**

	GDP (US\$100 million)	Agriculture (%)	Industry (%)	Other (%)
Henan	621.24	22.6	47.0	30.4
Hebei	615.35	16.2	50.3	33.5
China	10810.59	15.9	50.9	33.2

102. China's total surface area is 9,598,100 square kilometers. Xinjiang, the largest province in China, accounts for 17 percent (1.65 million square kilometers) of the total land surface.

103. World Development Indicators, April 2001.

Total Bank investment in Henan was US\$2,153 million (about 3% of GDP) as of June 1999, of which the projects assessed by OED constitute US\$428 million, or about 19 percent. IDA lending makes up about 17 percent of the total. To date, the Bank has approved 28 projects in Henan, a majority of them (43 percent) in the agriculture sector. Education is the next largest sector with 25 percent of the projects. Transport accounts for 11 percent and health for 7 percent of the projects. The agriculture sector accounts for 58 percent of the loan amount and transport for 22 percent. Education received 2 percent of the Bank commitments and health merely 1 percent. There were no IBRD loans for the education and health sectors.

### Hebei Province

Hebei is in northern China surrounding the independent municipalities of Beijing and Tianjin and has a total land area of 187,000 square kilometers, 2 percent of China's land area. It is bordered by Liaoning Province to the north, Shanxi to the west, Henan and Shandong to the south, and the Bohai Sea to the east. The Hai River and its tributaries run through the southern half of the province, and the Jingyunhe Canal system flows from north to south near the eastern coast. Thirty-nine of the 592 designated poor counties in China are in Hebei. The province supports 67.4 million people, about 5 percent of China's total population in 2000, and 74 percent live in the rural areas. Rural incomes averaged RMB 2,479 per capita in 2000, an increase of about 299 percent since 1990. Urban incomes for the same year were more than double rural incomes, about RMB 5,661 per capita. The level of basic education is reported to be quite high: the elementary school completion rate of 15 year olds was 91.7 percent in 1996. The adult literacy rate was only 75 percent, however, compared to the China average of about 81 percent in 1995.<sup>104</sup> Per capita government expenditure in the health sector in Hebei was 25.8 RMB in the year 2000 compared with 38.1 RMB for China as a whole.

Like Henan, Hebei is primarily agricultural, though it is also a major producer of iron and steel. In 2000, its agricultural output was the fourth highest in the country and animal husbandry output the second highest. About 7.6 million hectares of the land is arable and 3.6 million hectares is irrigated. The water resources of the province are as diverse as its topography. In the northeastern region high annual rainfall and the mountainous topography produce abundant surface water supplies. In the Heilonggang region, however, annual rainfall must be supplemented by irrigation to obtain high yields. Over the past 30 years some areas have been converted from marginal saline wasteland into highly productive irrigated agricultural land. Large drainage channels to the sea, combined with well irrigation, have effectively leached much of the saline land in the province. With a coastline nearly 500 kilometers long, shipping is very important to the province. Qinhuangdao is the fifth-largest port in China in terms of the tonnage of cargo handled. Qinhuangdao is also a hub for the transportation of coal from northern to southern China. The port provides shipping services to many countries, including Japan, the Philippines, Singapore, Hong Kong, and Korea.

Total Bank investment in Hebei as of June 30, 1999, amounted to \$698 million (about 1% of GDP), of which the projects OED assessed constitute \$446 million, or about 64 percent. IDA lending accounted for about 38 percent of the total. To date, the Bank has approved 26 projects in Hebei, a majority of them in the agriculture sector (35 percent). Education accounts for 15 percent of the projects and the health and transport sector represent 12 percent of the total projects. Agriculture accounts for 40 percent of the total lending and transport for 38 percent. Education received 5 percent of the Bank commitments and health 4 percent. There were no IBRD loans for the education and health sectors.

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104. World Development Indicators, April 2001.

## **Annex D. The Huai River Disaster: An Example of Weak Central Control**

“In 1994 the cauldron of environmental disaster brewing along the Huai River finally boiled over. Over 150 million Chinese live along this river, which, along with its tributaries, traverses four provinces (Shandong, Henan, Jiangsu and Anhui). For the past few decades the Huai River has been a site of industrial development and accompanying industrial pollution. Beginning in 1974 and continuing into the next decade, central leaders repeatedly urged local leaders to take action to control industrial pollution of the watershed, but with only minimal results.

With the growth of small-scale TVEs in the region during the late 1980s, the pollution problems became more severe. By 1990, water that flowed through the cities of Xuzhou, Yangzhou, and Huaiyin was seriously polluted, destroying fish and shrimp stock. Concern over the loss to the fisheries led to efforts to force immediate clean up or closure of factories, but again with little success. The number of inter-provincial disputes over polluted water continued to rise; meanwhile, the director of the Bureau of Water Resources Protection of the Huai River, responsible for coordinating efforts among the four provinces involved, conceded that his bureau had no real authority to force action. In 1993, senior officials and journalists surveyed the Huai valley during a fact-finding investigation of local environmental conditions and reported the extent of the polluting problem along the Huai River.... In response to the situation, in May 1994, the State Council's Environmental Protection Commission convened a meeting to discuss the problem of provincial co-operation on the Huai River. The meeting was a failure, with each of the provinces blaming the other three for polluting the river and demanding that the others pay for the clean up. Meanwhile factories continued to ignore central government directives that they stop disposing of wastes directly into the water, and local officials ignored earlier pleas to shut down paper, leather, and dyeing factories.

In mid-July, pollution of the Huai River reached crisis proportions. The river turned black. More than 11.7 million kilograms of fish were killed, dozens of fish farms were destroyed, and factories were forced to close over a week, with cumulative economic losses estimated at US \$75 million. By 16 July, the primary waterworks in the region was no longer functioning properly and contaminants in the treated water exceeded minimum safety standards by several dozen times. Several thousand people became seriously ill with dysentery, diarrhea and vomiting. Water could no longer be used for drinking, cooking or irrigation.

Social unrest was immediate and drew rapid central government response. High-level investigations were conducted, an interministerial sub-commission was established, and paper mills and untold number of other factories were closed. According to the Chinese government, not only did these immediate measures restore drinking water to the community, but long-term efforts have improved the quality of the Huai River. Still, even if these reports are accurate, and there is some reason to question this—the fundamental problem that led to the situation, and could easily affect other regions, does not appear to have changed: local governments continue to pursue economic self interest first; and co-ordination across regional jurisdictions and between various agencies responsible for water quality has not improved.”

Source: Jahiel 1998.

## Annex E. Output/Outcome Indicators for Assessed Projects

Table 1. Key Indicators for Hebei Agricultural Development (Reproduced from the ICR)

Item Description	SAR Estimated			Actual for Year 1998		
	Incr. Area ('000 ha)	Yield (ton/ha)	Incr. Production ( '000 ton)	Incr. Area ( '000 ha)	Yield (ton/ha)	Incr. Production ( '000 ton)
1. Crop						
(1) Heilonggang						
1. Wheat	56.0	4.0	151.2	152.3	5.4	620.0
2. Corn	34.0	4.0	95.9	117.1	5.3	522.0
3. Cotton	125.0	1.1	86.5	23.7	1.1	14.3
4. Beans	n.a.	2.0	n.a.	21.1	2.2	31.2
5. Peanut	5.0	2.0	4.0	1.3	2.4	0.8
6. Millet	n.a.	3.0	n.a.	8.8	4.0	9.6
7. Cabbage	2.0	35.0	50.0	1.8	70.0	122.5
(11) Northeast Region						
1. Rice	16.9	6.5	109.9	16.7	8.2	137.3
2. Wheat	4.8	4.2	17.6	9.5	5.65	23.6
3. Corn	4.4	5.0	10.6	8.6	5.4	3.1
11. Date Intecrop						
1. Date Intecrop	20.0	2.2	44.0	33.23	6.0	199.32
2. Low Production Dates Reha.	n.a.	n.a.	n.a.	3.33	6.3	1.05
III. Pear						
3. New Pears	1.7	35.0	70.0	1.7	60.0	102.00
4. Pears Reha.	4.0	10.0	40.0	4.0	5.0	20.0
IV. Aquaculture	Area (ha)	Yield (ton)	Production (ton)	Area (ha)	Yield (ton)	Production (ton)
(I) Shrimp						
1. New Shrimp Ponds	400.0	2.0	1,106.0	400.0	0.35	140.0
2. Reha. Shrimp Ponds	3,219.0	1.8	2,829	3,122.7	0.28	216.0
(11) Fishpond	716.0	5.25	3,760.0	716.3	12.19	8,838.2
V.	(chain)	(kg)	(ton)	(chain)	(kg)	(ton)
(111) Scallop	2,500.0	500.0	1,250.0	8,000.0	840.0	6,720.0
(IV) River-crab	n.a.	n.a.	n.a.	666.67	1.03	684.0
VI. Seed	Production (ton)			Production (ton)		
1. Heijan Acid Delinting Plant	n.a.			1,000		
2. Qiuxian Acid Delinting Plant	n.a.			420		
VII. Agriculture Processing						
1. Weixian Fertilizer Plant	53,000.0			55,000.0		
2. Shenzhou MAP Plant	30,000.0			106,000.0		
3. Quzhou Board Mill	30,000.0			30,000.0		
4. Qiuxian Paper Mill	10,000.0			29,400.0		
VIII. Farmers Income	Yuan (price in 1989/1998)			Yuan (price in 1998)		
1. Heilonggang Region Farmers Income	593/1,079.3			2,334.2		
2. Northeast Region Farmers Income	714/1,301			3,254.7		

**Table 2. Key Indicators for Henan Agricultural Development Project (Reproduced from the ICR)**

Item Description	SAR Estimated			Actual for Year 1998		
	Incr. Area ( <sup>'000</sup> ha)	Yield (ton/ha)	Incr. Production ( <sup>'000</sup> ton)	Incr. Area ( <sup>'000</sup> ha)	Yield (ton/ha)	Incr. Production ( <sup>'000</sup> ton)
A. Crop						
(1) Zhaokou West YRDS						
1. Wheat	50	4	65	55	5.69	114.4
2. Corn	15	4.5	30	15.3	7.2	41.5
3. Sweet Potato	2	4	1.6	4.3	6.8	10.32
4. Cotton	19	1	5.7	21.1	1.05	6.33
5. Peanuts	18	2.5	18	19.4	3.44	30.1
6. Soybean	4.5	1.6	1.35	3.4	3	4.76
7. Rapeseed	3.3	1.7	1.65	0.47	1.88	0.53
8. Watermelon	2.5	30	12.5	2.1	31.6	44.6
9. Vegetables	1.9	30	11.4	1.9	44.3	65.2
(2) Xiangfuzhu YRRD						
1. Wheat	17	4	22.1	20.9	6.17	47.4
2. Corn	5.6	4.5	11.2	6.95	6.69	13.1
3. Paddy	6	4.5	9	6.17	7.51	12.3
4. Sweet Potato	0.2	4	0.16	1.02	6.54	2
5. Cotton	4.2	1	1.26	4.07	0.93	0.32
6. Peanuts	3	2.5	3	2.6	4.35	6.5
7. Soybean	1.6	1.6	0.48	1.21	1.9	1
8. Rapeseed	2	1.7	1	0.43	1.5	1.4
9. Water melon	0.21	29.1	1.8			
10. Vegetables	0.9	30	5.4	1.46	39.26	22.86
(3) Shitouzhuang YRDS						
1. Wheat	12	4	15.6	15.4	5.86	36.3
2. Corn	4	4.5	6.8	7.18	5.43	5.96
3. Sweet Potato	0.2	4	0.16	0.73	6.8	0.37
4. Cotton	3	1	0.9	2.13	0.8	3.62
5. Peanuts	1.7	2.2	1.19	1.45	3.74	0.83
6. Soybean	0.7	1.6	0.21	0.92	1.8	0.37
7. Rapeseed	1.4	1.7	0.7	0.34	1.6	0.14
8. Water melon	0.13	30.8	1.08			
9. Vegetables	0.8	30	4.8	1.24	36.4	20.3
(4) Shangqiu D& Well						
1. Wheat	18.0	4	23.4	37.8	4.92	55.94
2. Corn	10	4.5	17	24.9	5.65	39.34
3. Sweet Potato	0.9	4	7.2	2.7	4.2	2.6
4. Cotton	6.8	0.9	1.36	4	0.82	0.8
5. Peanuts	1	2.5	1	1.35	2.9	0.61
6. Soybean	1.2	1.6	0.48	2.21	1.95	1.1
7. Rapeseed	1.4	1.7	0.7			
8. Water melon	1.15	21	4.6			

9. Vegetables	1	30	7	4.9	31.6	38.22
B. Forestry						
(1) Apple Orchard	6,687	22.5	150.5	6,687	22	147
(2) Apricot Orchard	800	15	12	800	9.75/a	7.8
(3) Plum Orchard	400	15	6	2,000	12.8/a	5.1
(4) Grape Orchard	200	22.5	4.5	200	45	9
(5) Pomegranate	466	15	7	466	6.4	3
(6) Date Rehab.	2,000	1.9	3.8	2,000	1.65	3.3
C. Aquaculture						
(1) Fish Pond	1,049	10	10.5	1,493	15	22.4
(2) Fish Feedmill	4	2,500	8.5	4	2,500	8
<b>Item Description</b>	<b>SAR Estimated</b>			<b>Actual for Year 1998</b>		
	<b>No. of House-holds</b>	<b>Animal/House-hold</b>	<b>Total Production</b>	<b>No. of House-holds</b>	<b>Animal/House-hold</b>	<b>Total Production</b>
D. Livestock						
(1) Sheep	1,500	10	15,000	3,540	12	42,480
(2) Goat	4,000	10	40,000	5,700	12	68,400
(3) Cattle	3,000	10	30,000	3,300	10	33,000
(4) Broiler	2,100	2,500	5,250,000	2,400	2,438	5,850,000
(5) Pig	300	60	18,000	3,400	36	122,400
(6) Pig Breeding Farm	2	2,000	4,000	2	2,000	4,000
(7) Chicken Breeding Farm	1	40,000 parent chicken,				
	4 million checks					

/a Yields at various stages of fruit trees which are not in full production.

**Table 3. Key Indicators for the National Afforestation Project (Summarized from ICR)**

<b>Key Implementation Indicators in SAR</b>	<b>Estimated at Appraisal</b>	<b>Estimated at ICR</b>
Plantation Area (ha)	985.0	1,385.0
Total Output (volume in 000 m3)	136,869	233,915
Fuelwood (000 ton)	25,032	19,052
Total Output (value in 1990 constant prices, 000 yuan)	50,612,824	71,633,456
Incremental Employment		
During Implementation Period (person year)	680,000	1,100,000
During Plantation Lifetime (person year)	Over 7,000,000	7,252,000

**Table 4. Key Indicators for Rural Health Workers Development (Reproduced from the ICR)**

<i>Indicator Definitions</i>	<i>Target</i> %	<i>1997</i>		<i>2000</i>	
		<i>No.</i>	%	<i>No.</i>	%
1. Counties providing workforce planning reports	100	254	66	412	109
2. Prefectures providing workforce planning reports.	100	25	66	37	99
3. Clinical training bases meeting quality criteria.	80	487	52	821	88
4. Training completed at clinical training bases (person months)	100	218,072	59	384,870	104
5. Pilot schools with teaching reform	100	31	86	38	106
6. Non-pilot schools with teaching reform	95	87	40	191	87
7. Training of township and village health workers conducted in last 12 month (person months)	100	100	1,400,320	53	2,713,471 103
8. Village doctors completed systematic training.	80	80	103,193	52	150,338 75
9. Village clinics with at least one systematically trained health worker.	90	90	89,031	66	120,351 90
10. Village clinics with a systematically trained female health worker	50	50	45,394	34	73,766 55
11. Counties assessing performance of health graduates in the field.	65	65	95	25	276 73
12. Township hospitals with a trained manager	90	90	4,486	47	9,049 95
13. Townships with CMS or service integration.	40	40	2,694	28	3,788 40
14. Township hospitals which have a supervision agreement with higher level.	50	50	2,797	29	5,335 56
15. Village clinics which have a supervision agreement with higher level.	35	35	28,714	21	56,919 42
16. Township hospitals competent in managing common emergencies.	80	80	4,661	59	6,531 82

*Note:* This set of indicators was defined and annual collection commenced in 1997. Values over 100% indicate implementation beyond project areas, or training above plan target.

**Table 5. Key Indicators for Basic Education in Poor and Minority Provinces (Reproduced from the ICR)**

<i>Indicator/Matrix</i>	<i>Projected in last PSR</i>	<i>Actual/Latest Estimate</i>
1. Number and percentage of dangerous teaching and dormitory areas in square meters.	80,000/2.0%	70,000/1.75%
2. Number and percentage of schools achieving appropriate SedC equipment standards.	15,924 – 95%	16,476 – 98.29%
3. Net enrollment rate of girls at first grade.	94.5%	96%
4. Percentage repetition of first grade.	12.0	9.0
5. Net completion ratio of students from grades one and two of project primary schools.	94.0	96.0
6. Net completion ratio of girls from grades one and two of project primary schools.	92.0	94.0
7. Net completion rate of primary school of 15 year olds.	85.0	85.0
8. Transition rate into lower middle schools.	65.0	75.0
9. Transition rate of girls/minorities into lower middle schools.	60.0	70.0
10. Student teacher ratio.	23.0	23.0
11. Number and percentage of qualified teachers.	27,445 – 105%	30,921 – 118.3%
12. Number and percentage of teachers who received continuing education.	49,725 – 100%	51,706 – 104.0%
13. Number and percentage of teachers who received bilingual training.	5,128 – 100%	5,695 – 111.1 %
14. Number and percentage of principals who received training.	11,237 – 120%	15,301 – 163.4%
15. Number of students receiving free textbooks	13,710	20,000

This project was developed prior to the new log frame indicator format therefore, the indicators are output indicators rather than outcome or impact in nature. No overall project indicators were developed at the beginning of implementation, just indicators to measure individual provincial education progress.

**Table 6. Key Indicators for Henan Provincial Transport (Reproduced from ICR)**

Outcome/Impact Indicators:

<i>Indicator</i>	<i>Projected in SAR I/</i>			<i>Actual/Latest Estimate</i>		
	<i>1992</i>	<i>1995</i>	<i>1999</i>	<i>1992</i>	<i>1995</i>	<i>1999</i>
A. Gross Output Value of Agriculture and Industry (GOVAI) (in RMB million)						
1. GOVAI along ZLE corridor	45.8	114.1	155.1	45.9	114.3	155.5
2. GOVAI in counties affected by Local Roads Programs	11.9	17.8	54.0	12.0	17.9	54.4
B. Average Daily Traffic (vehicles/day)						
1. On ZLE	3,993	5,928	8,434	12,097		
2. On existing Road 310	3,329	3,976	7,008	4,883	5,599	7,452
C. Traffic closure on Local Roads (days)	23	19	9	20	15	3

Output Indicators:

<i>Indicator</i>	<i>Projected in SAR 1/</i>	<i>Actual/Latest Estimate</i>
Expressway Construction	120.0 km	120.0 km
Local Roads in Northwest Henan	292.0 km	292.0 km
Road Improvement Program	740.0 km	491.5 km
Number of Staff Trained (staff-months)	360.0 (366.6 km)	357.0 (367.0 km)

1/ Indicators were not explicitly specified at appraisal and were retrofitted at a later stage of project implementation.



**Table 7. Key Indicators for Hebei/Henan Highway Project (Reproduced from ICR)**

## Outcome Indicators:

<i>Indicator</i>	<i>SAR (or as retrofitted)</i>	<i>Actual/Latest Estimate</i>
1. Average daily traffic on existing Highway/new Expressway:	(In Medium Truck Equivalent/Day)	(Year 1999)
- In Hebei	8094/12856	7886/8370
- In Henan	5384/14982	6906/9567
- In SAXE Corridor	6739/13419	7396/8968
2. Average speed on existing Highway/new Expressway:	(In km/h)	
- In Hebei	43/80	45/85
- In Henan	51/89	54/74
- In SAXE Corridor	46/83	49/79
3. Gross Output Value of Agriculture and Industry in affected counties:	(In RMB Billion)	
- In Hebei	18.6	23.1
- In Henan	21.7	23.6
- In SAXE Corridor	40.3	46.7

## Output Indicators:

<i>Indicator</i>	<i>SAR (or as retrofitted)</i>	<i>Actual/Latest Estimate</i>
1. Construction of Expressway:		
- SAE	216 km	216 km
- AXE	124 km	124 km (+ 43 km upgrading works on XZH)
2. Interconnecting Roads Improvement Program:		
- In Hebei	11 roads/100 km	17 roads/180 km
- In Henan	3 roads/60 km	2 roads/47 km
3. Coordination Meetings times/year	Planned 2 times/year	Actually met 3.5
4. Completion of Traffic Facilitation Study/Highway Capacity Study	1996/1998	1996/1999
5. Training (person-months):		
- In Hebei	265.0	248.7
- In Henan	192.4	187.9

## Annex F. Comparative Afforestation Costs, NAP Versus Ordinary Commercial Plantations, Yuan/hectare

Type	Species	Planting Cost				Fertilizer	Tending	Thinning	Harvesting	Annual Mgmt Cost	Total
		Site Prep.	Planting	Seedling	Other						
GUANGXI AUTONOMOUS REGION											
Project	Chinese Fir	965	190	180	160	150	815	1050	18900	60	22470
	Eucalyptus	790	105	216	120	590	480		10080	75	12456
Ordinary	Chinese Fir	1100	210	144	60		490	770	11600	45	14419
	Eucalyptus	600	105	180	60	200	480		5760	45	7430
JIANGXI PROVINCE											
Project	Chinese Fir	930	180	165	160	150	875	890	17100	60	20510
	Masson pine	958	215	162	140	150	450	810	13600	60	16545
	Slash pine	1020	120	98	160	100	450	860	13200	60	16068
Ordinary	Chinese Fir	1050	215	160	90		583	790	11900	45	14833
	Masson pine	825	230	135	90		330	690	10700	45	13045
	Slash pine	945	135	90	90		330	710	10200	45	12545

Source: Comparative Analysis of NAP Plantations Versus Ordinary Commercial Plantation Annex 2 of NAP ICR World Bank Loan Project Management Center State Forestry Administration April 1998.

## Annex G. Comments From Government

### Comments From the Ministry of Finance

An email communication was received from the Director, Division III International Department of the Ministry of Finance on June 5. The major content of the email was as follows:

After a quick look at the report, I can see this is an objective and comprehensive report reflecting the true face of the projects. I am very agreeable with your conclusions of the final ratings and the lessons drawn from them.

The email also requested more information on OED Evaluation Guidelines for the better understanding of OED evaluation approach and criteria.

### Comments From the Ministry of Health

#### Comments on PPAR 5-23-02 Drafted by OED of the World Bank

##### Page 49, In the Box:

*Decentralization:* ..... However, lingering centralized tendencies, for example, in the procurement of equipment and materials, sometimes affected the extent to which the project was responsive to local needs and demand.

Actually most items of equipment were procured by provinces in a decentralized way. But due to the Bank's policy requiring packaged procurement, fixed ceilings for shopping and inadequate capacity of provincial level for ICB and NCB at early stage, the central level organized procurement of some large packages with cooperation and agreement of lower levels. In reality we felt that the Bank's rigid policy on procurement was not consistent with its decentralization policy.

##### Page 50, Paragraph 8.8

This section seems too negative about the project training. There are positive achievements of the project. (1) Great efforts were made in teaching reform, ranging from curricula development to testing new training and teaching methods, such as problem-focused and student-centered training. Even though these had not impacted the overall national health education and training to the extent as expected, they had significant influence on the medical education and in-service training programs within the project provinces. (2) The project adopted a process of task analysis and job description for health workers. This practice fundamentally improved the planning for health workers' training programs and their effectiveness, and also set up a sound basis for personnel management reform which is ongoing over the whole country in health sector. This should be considered as the contribution of the project to health reform and is related to the project sustainability.

##### Page 53, Paragraph 8.19: Sustainability

The project's sustainability is rated **unlikely**.

After the completion of the project, some of its important impacts and effectiveness are still contributing to the health improvement and reforms. (1) A large amount of village health workers and teams at township level trained in the project are working with their improved knowledge and skills; (2) Even though county health schools are not functioning as originally planned due to the environment changes, the strengthened prefecture and provincial health education institutions are still working well. There is no evidence to close prefecture health schools, and on the contrary

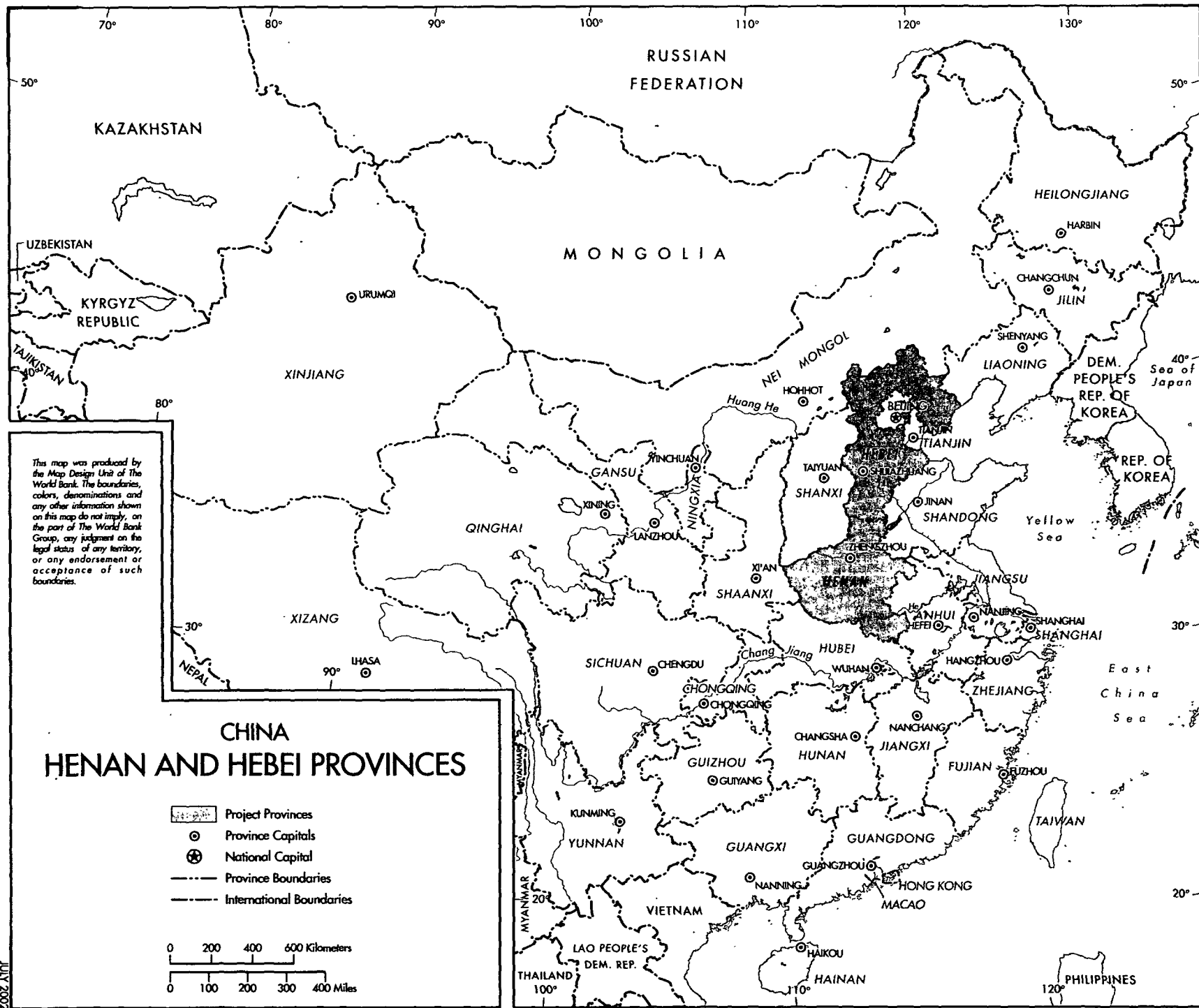
most of the health workers at county and township levels are graduates from prefecture schools. These graduates mean more than those from higher levels to rural population, especially to poverty groups. (3) The manpower planning initiated by the project is gradually incorporated into the regional health planning, which is now being promoted by the central and provincial governments. And the data bases established in the project are being used for the purpose. For a balanced rating the sustainability should be at least **likely**.

All these comments are for your information and reference.

Liu Yunguo  
Deputy Director General  
Foreign Loan Office  
Ministry of Health  
P. R. China  
June 9, 2002













**CATALOGUERS/FILE**

Report No.: 24363  
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