IMPLEMENTATION COMPLETION REPORT
(IDA-25390)

ON A

CREDIT

IN THE AMOUNT OF SDR 79.3 MILLION

TO THE PEOPLES REPUBLIC OF

CHINA

FOR A

RURAL HEALTH WORKERS DEVELOPMENT PROJECT
(HEALTH IV)

December 27, 2001

Human Development Sector Unit
East Asia and Pacific Region

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CURRENCY EQUIVALENTS
(Exchange Rate Effective May 2001)
Currency Unit = Renminbi (RMB)
RMB 1.00 = US$ 0.12
US$ 1.00 = Y8.3

FISCAL YEAR
January 1    December 31

ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CMS</td>
<td>Cooperative Medical System, a community based health financing system in China</td>
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<td>FLO</td>
<td>Foreign Loan Office of Ministry of Health</td>
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<td>GOC</td>
<td>Government of China</td>
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<td>ICB</td>
<td>International Competitive Bidding</td>
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<td>ICR</td>
<td>Implementation Completion Report</td>
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<td>IDA</td>
<td>International Development Association</td>
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<td>MOF</td>
<td>Ministry of Finance</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>MTR</td>
<td>Mid term review</td>
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<td>NCB</td>
<td>National Competitive Bidding</td>
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<td>QAG</td>
<td>Quality Assurance Group of the World Bank</td>
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Vice President: Jemal-ud-din Kassum
Country Manager/Director: Yukon Huang
Sector Manager/Director: Maureen Law
Task Team Leader/Task Manager: Janet Hohnen
CHINA
CN-RURAL HEALTH MANPOWER (HLTH4)

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Project ID: P003502

Project Name: CN-RURAL HEALTH MANPOWER (HLTH4)

Team Leader: Janet I. Hohnen

TL Unit: EASHD

ICR Type: Core ICR

Report Date: December 27, 2001

1. Project Data

   Name: CN-RURAL HEALTH MANPOWER (HLTH4)
   L/C/TF Number: IDA-25390
   Country/Department: CHINA
   Region: East Asia and Pacific Region
   Sector/subsector: HC - Primary Health, Including Reproductive Health, Chi

   KEY DATES

   Original       Revised/Actual
   PCD: 02/12/90   Effective: 09/30/93  11/23/93
   Appraisal: 09/14/92  MTR: 11/30/96  07/15/97
   Approval: 08/03/93  Closing: 12/31/99  03/31/2001

   Borrower/Implementing Agency: Government of China / Ministry of Health
   Other Partners:

   STAFF

   Current          At Appraisal
   Vice President:  Jemal-ud-din Kassum
   Country Manager: Yukon Huang
   Sector Manager:  Maureen Law
   Team Leader at ICR: Janet Hohnen
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2. Principal Performance Ratings

   (HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HL=Highly Likely, L=Likely, UN=Unlikely, HUN=Highly Unlikely, HU=Highly Unsatisfactory, H=High, SU=Substantial, M=Modest, N=Negligible)

   Outcome: S
   Sustainability: L
   Institutional Development Impact: SU
   Bank Performance: S
   Borrower Performance: S

   QAG (if available)  ICR
   Quality at Entry:  S  
   Project at Risk at Any Time: Yes
3. Assessment of Development Objective and Design, and of Quality at Entry

3.1 Original Objective:
The objective and design of the project should be assessed in the context of the stagnation of training and performance 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 introduction of the household responsibility system and the decentralization of responsibility for health services down to the township level. The rural health workforce was ill-equipped to respond to the rapid economic, social, demographic and epidemiologic changes taking place in China. The Government had recognized these challenges and requested the project as an initiative to address them.

The overall goal 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. To achieve this goal the project would strengthen manpower planning capability; improve health worker training through reform of curriculum and teaching/learning methods and networking of training institutions, improve management and clinical supervision of rural health facilities; and upgrade the physical facilities of prefecture and county training schools and health services at township and village levels.

These objectives embodied a comprehensive and systematic approach to rural health workforce development, covering planning, training, management and working conditions. In this respect the project was consistent with the priority of both the Government and the Bank to improve basic services in poor rural areas, and with the issues and strategies defined in the Chapter 8 (Health Manpower) in the 1990 World Bank Sector Report “China: Long Term Issues and Options in the Health Transition.”

3.2 Revised Objective:
There was no revision of the project objective.

3.3 Original Components:
The project covered 374 poorer counties in 36 prefectures of six provinces - Anhui, Fujian, Guizhou, Henan, Hebei and Shanxi, with an estimated beneficiary population of 187 million. It was the first World Bank-supported health project in most of these provinces, the first project in China to focus on rural health workers development. The project had three substantive components:

Component A, Health Workforce planning (base cost $3.8 million) aimed to strengthen the capability and use of information for planning of human resources in health;
Component B, Health Worker Training (base cost $123.8 million) focused on retraining large numbers of poorly trained rural workers, training of additional workers, especially females, for underserved areas, and strengthening training capacity at province level and below, through curriculum development, reform of teaching and learning methods, and other innovations;
Component C, Rural Health Services Management (base cost $24.0 million) aimed to improve the management, supervision, and working conditions of rural health workers and develop alternative means of mobilizing financial resources and paying staff.
The two additional components, Project Management (base cost US$ 3.3m) and Central Support (base cost $0.9m), funded activities of the Ministry of Health and related institutions in project management and monitoring, technical support to the provinces and policy formulation.

The components are closely interrelated and address different aspects of human resource development in rural China in line with the project objectives.

3.4 Revised Components:
The basic design and content of the project components remained valid despite ongoing health sector reform and socioeconomic changes during implementation. There was some adjustment of activities and resource allocation after the mid-term review in response to changing policies, workforce characteristics and needs of the local communities. Two examples were: (a) a reduction of support for county level health schools, in response to increased standards for training of village health workers; and (b) a change in emphasis from pre-service to in-service training of health workers, which resulted from an increase in the numbers of new health workers entering the market.

3.5 Quality at Entry:
The overall rating for quality at entry is Satisfactory. This rating is based on: (a) consistency with the Bank’s country strategy focus on rural development and improving essential social services, and with the Government’s priority for upgrading the rural health workforce; (b) introduction of new concepts on human resource planning to the health sector in China; (c) analysis conducted of the status and problems in health service provision in poor areas, especially disincentives and constraints in training, assignment, payment and working standards of health workers; and (d) attention to the potential role of the prefecture level of government in rural health development.

Compared with earlier Bank-supported health projects in China, this project placed greater emphasis on human resource development and system improvement, and a smaller proportion of credit was allocated to buildings and equipment. However, the project was designed at the beginning of a period of rapid social and economic change, to which health schools and health facilities reacted without a clear policy or planning framework. One unintended consequence of this situation was a rapid rise in intakes of trainees which was unrelated to demand for these categories of health workers.

Project management teams were established in the provinces and the center, and detailed implementation plans were prepared before negotiations. During preparation, exploration of specific topics was conducted by national and international experts and clear guidelines developed on each component. Strong government teams were fielded by the Ministry of Health and participating provinces, and multi-sectoral project leading groups were established in the provinces. However, compared with later projects, there was little social assessment, or participation of beneficiary groups in the design and implementation. These activities have since been adopted by the Bank and Government as ways of improving design and readiness of projects.

Activities for first procurement of equipment and the first designs for upgraded training facilities
were well advanced before project effectiveness.

4. Achievement of Objective and Outputs

4.1 Outcome/achievement of objective:
Achievement of both the project objectives and outputs are rated as Satisfactory.

The project became effective in 1993 and closed on March 31, 2001. All project components were implemented as planned, although the pace and success of implementation varied among the project areas. 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. After the mid-term review in 1997, some activities were adjusted and funds reallocated among components and expenditure categories. The project closing date, scheduled for December 31, 1999, was extended to March 2001, to allow for completion of key activities and further assessment and dissemination of the project experience. All credit funds were utilized.

The project met most of its performance targets (see Annex 1) and completed virtually all planned activities. Major achievements include: (a) piloting the establishment of health workforce databases and planning systems and the training of staff in health workforce planning techniques at province, prefecture and county level, (b) establishment of integrated health worker training networks, (c) improvement of the physical conditions of prefecture and county health training schools, township hospitals and village health centers, (d) introduction of new teaching and learning methods to the health training institutions, (e) systematic training provided to over 70% of rural health workers and to the managers in over 90% of township hospitals, (f) increased coverage of trained female health workers at village level, and (g) establishment of capability in emergency services in 80% of township hospitals in the project areas.

4.2 Outputs by components:
Component A: Health Planning (US$ 4.2 million at appraisal, US$ 4.0 actual). The objectives of this component were to develop capacity of health planning, train health planners at provincial, prefecture and county levels, establish health planning databases and produce health workforce plans and reports. The achievements of the component are Highly Satisfactory. All six project provinces established health workforce data bases and a health workforce planning system, coordinated between province, prefecture and county levels. Job descriptions for various categories of rural health workers were prepared and used for planning and training purposes. The project trained 24 health planners at province level, 133 at prefecture level and 1,019 at county level and provided equipment for them to establish planning units. Using information from the databases, more than 90% of counties and 80% of prefectures in the project areas produced health workforce planning reports and provided them to the health agencies and also to non-health sectors. The “China Health Workforce Planning Guidelines” were produced as a major output of this component, and each province also produced handbooks and research papers.
on rural health workforce planning.

The health workforce planning system and databases, and the regular reporting of trends and projections to agencies beyond the health sector, are expected to have a long term impact on health planning in China, especially if expanded to cover health workers employed in state owned enterprises and in the private sector. The methods developed for job descriptions and performance assessment are now being introduced in other health projects and in non-project areas. They are expected to be applied more widely as health personnel management reform continues in the coming years.

**Component B: Training.** (US$149.6 million at appraisal, US$144.0 million actual) The objectives of this component were to establish health training networks, improve rural health worker training capacity, enhance the quality of teaching/learning; and improve the qualifications and skills of rural health workers and managers at township hospitals. This component is rated satisfactory. The major achievements are:

- Establishment of integrated health worker training networks in the project provinces, headed by provincial training centers, linked to prefecture and county schools and clinical practice training bases in designated health facilities.

- Successful pilots of teaching reform in selected training institutions and the adoption of new, competency-based teaching methods and materials. The curriculum and teaching materials addressed the skills required for the rural health worker job descriptions. A task-based training model was developed and evaluated, and students were shown to perform significantly better under the new training model than under the traditional model. The pilots made a positive contribution to China’s medical education reform. The training methods, teaching materials and curricula have now been adopted beyond the project areas.

- Improved training capacity through new or renovated training facilities at provincial, prefecture and county levels, upgraded teaching equipment and enhanced knowledge and teaching skills of teachers. All construction targets were met or exceeded. The availability of teaching facilities at prefecture and county levels doubled and availability of modern teaching equipment greatly increased. Based on needs, the project trained teachers at different levels. For example, Anhui and Fujian trained 100% of teachers at their provincial training centers while in Guizhou the project trained almost 70% of teachers from county health schools.

- Introduction of clinical team teaching, particularly in Fujian province, which brought coordinated improvement in clinical services such as emergency and obstetrics, leading to better standards and greater willingness of clinical specialists to work at the township level

- Increased supply and improved qualifications and skills of health workers for poor rural areas. Based on the health workforce plans, the project provided both pre-service and in-service training for very large numbers of rural health workers at townships and village level. Following a rapid increase in supply of new health workers in the first part of the project, emphasis was changed after the mid-term to in-service training of existing health workers, with stress on practical training. As a result of the project, both the quantity and quality of rural health workers have greatly improved.

- The proportion of township health workers with mid-level qualifications increased from 36% in 1993 to 63% in 1999. The percentage of village health workers with systematic training
increased from 52% to 74%. The percentage of villages with at least one female health worker increased from 34% to 55% during the project (see Annex 1).

**Component C: Health Service Management.** (US$27.5 million at appraisal, US$32.6 million actual). The objective of this component was to improve access to and quality of services in poor areas by upgrading the physical conditions and equipment of township and village service facilities, and improving the management of health services. The following are the major results from this component:

- Strengthened the county-township-village, three-tier rural health-care system and increased access to care. Through the construction and renovation of township and village health facilities, upgraded equipment and trained health workers, access to care in the project area has improved. From 1993 to 1999, health personnel per 1,000 population increased about 57% and villages without health workers declined by 67%. Under the project, 503 township hospitals and 8,210 village health centers were renovated and constructed.
- Improved managerial skills of township hospital directors. In 1997, 47% of township hospitals directors in the project counties had management training; the proportion increased to over 95% by 2000. Clinical supervision guidelines and management procedures were developed and introduced into most township hospitals, and more systematic supervision provided to village health workers.
- Improved capacity to manage medical emergencies at township hospitals. The project provided township hospitals with emergency kits and trained health workers on how to handle emergencies. The number of township hospitals able to manage common medical emergencies in project areas has increased to 77%.

Under this component, the project supported a “Rural Doctors Financing and Payment Study” in four provinces, with a focus on seeking sustainable ways to implement the cooperative medical insurance system (CMS) in rural areas. The results of the study have contributed to understanding of the constraints and success factors for rural health financing and have been disseminated and discussed in national conferences on this issue.

A sample survey, conducted as part of the Government’s project completion assessment, showed increased utilization of both outpatient and inpatient services of township hospitals, and increased coverage of immunization, prenatal and postnatal care, and institutional delivery. These factors have been shown elsewhere to be linked to reduced mortality of mothers and children, and declines in these indicators were recorded for the project areas during the period of project implementation. It can be assumed, that to the extent that the data reflect actual trends, the project made a contribution to these improvements. However, there was no comparison with non-project areas.

4.3 Net Present Value/Economic rate of return:
Economic and financial rates of return were not established at appraisal nor at the conclusion of the project

4.4 Financial rate of return:
NA
4.5 Institutional development impact:
The project is considered to have had substantial institutional impact in the participating provinces, and a lesser but valuable impact at national level. The health workforce database models and planning approaches, and the training networks established under the project helped to bring change in understanding the scope and methods of human resource development in health, and the role that can be taken by governments in developing rural health workers. These activities have been institutionalized and are likely to be sustained. Experiences from the teaching reform pilots have been introduced to some non-project areas and provinces. At the national level, the project has made a contribution to policy development for human resources in health, but the impact on ongoing rural health policy at the same level is less clear, due to absence of strong links of the project with policy-makers.

Through expansion of prefecture level training capacity, the project has contributed to the recent increase in the private sector workforce. This change will profoundly influence the medical market and has stimulated the government to work on suitable policies for standard setting, regulation and support of private practice.

The project was not in a position to address some major structural problems in rural health which remain to be solved. These include the regulatory and financial aspects of retaining competent staff and reducing unqualified staff in rural areas; defining the role of the private sector, and the overall issue of rural health financing. However the project has provided some tools and examples of good practice in workforce planning and monitoring, which have the potential to be very useful, particularly if they are applied to the whole health sector.

5. Major Factors Affecting Implementation and Outcome
5.1 Factors outside the control of government or implementing agency:
The following factors were noted:

- The exchange rate between US dollars and RMB during implementation was about 45% higher than at appraisal. To make use of the credit, greater allocations of counterpart funds were needed than were committed by local governments at the time of project effectiveness. This was a problem for the poorest areas.

- Double-digit inflation in the first two years of implementation increased the price of construction materials and affected the availability of counterpart funds. Nevertheless, the project civil works were completed ahead of schedule, with greater constructed area and greater expenditure than had been appraised.

- Natural disasters caused delays and damage to the project, through reducing availability of counterpart funds and for specific events, such as flooding in Guizhou, Henan and Fujian, causing destruction of facilities which had to be rebuilt.
5.2 Factors generally subject to government control:
The project benefited from the leadership and vision of key officials in the Ministry of Health (MOH) and the provinces during project preparation and implementation, as well as dedicated work from officials and health workers at every level of government down to the township level. However, several factors in the government environment added to the challenges and may have delayed implementation:

Civil service reforms, instigated by the State Council but outside the direct control of MOH or lower level governments, led to the reorganization and downsizing of MOH and provincial health bureaus in the later years of project implementation. This brought about changes in senior personnel, who had less knowledge of the project and also had less time to spend on project issues and on the policy implications of the project experience.

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. As a result, the supply of basic and mid-level health workers increased rapidly and reversed the situation from shortage to sufficiency or even over-supply of these cadres. To adjust to this change, the project shifted its overall training priority from pre-service training of new workers to in-service training of current workers. This adaptation of the project's training strategy involved some slowing of activities in the training component as the strategy was adjusted and also resulted in savings in the training component.

Changing government policies on rural health financing, including the cooperative medical insurance system (CMS) delayed progress in the Rural Doctor's Financing and Payment Study. The State Council's ban on unauthorized fees and taxes on rural families made the project areas reluctant to seek financial contributions from households for CMS schemes. These constraints reflected the real difficulties facing CMS implementation in poor communities where there is no public subsidy of health financing.

Government requirements for on-lending of IDA credit to provinces, prefectures and counties led to many agencies being involved in approving the use of funds for lower levels and contributed to the complexity of fund flow for the project. Where there was good leadership from the Provincial Bureau of Finance and strong working relations between finance and heath sectors, relatively smooth implementation took place, and it could be seen that the implementation rate was directly tied to the effectiveness of financial management, as measured by turnaround time and frequency of reimbursement. The problem was further complicated by the shifting of foreign exchange risk to the local level in some provinces. The policy of "who uses the credit is responsible for the repayment" even in non-productive health sector and in the poorest areas, had an adverse effect on utilization of credit in areas that most needed it, and on their ability to generate counterpart funds. The requirement of counterpart fund or repayment from health institutions in some prefectures added pressure for those schools to increase their intake of fee-paying students.
5.3 Factors generally subject to implementing agency control:
The leadership of provincial project directors, involvement of multi-sectoral leading groups, and
the competence, dedication and hard-work of project management staff at each level contributed
to successful implementation of the project. Formal and informal monitoring and supervision
conducted by project management at all levels had a positive impact on the implementation.
Project implementing units were affected by the civil service reforms mentioned above, with
changes of leadership and staff. Some provinces did better than others in reporting project
progress, in financial management and in linking the project to the work of relevant line divisions
in the health bureau. While some provinces maintained their focus on infrastructure improvement,
others took a more strategic view and used the project to help address important reform issues
and health priorities.

At the central level, as in many provinces, a core team of staff retained continuous involvement in
the project from identification through to completion, which greatly benefited the project.
However, leadership and support of the central team fluctuated, making it difficult for the team to
operate productively in some areas. Despite the importance of the topic, the interest and support
of MOH line departments and national technical institutions seemed more difficult to mobilize,
coordinate and maintain than in earlier IDA-supported health projects. Areas where there might
have been stronger communication and support included: (a) management of contracts with
national experts and academic institutions; (b) linkage of international experts with national and
provincial institutions for capacity-building; and (c) establishment of regular monitoring and
reporting of project targets and outputs, which began to function smoothly only after the
mid-term review.

5.4 Costs and financing:
The final estimated total project cost of US$185.7 million is 98% of the appraised cost estimate.
The small difference is partly due to changes in exchange rates, including the change of US$ to
RMB from 1:5.7 at appraisal to 1:8.3 (a 45% increase) and small fluctuations of the SDR:USD
exchange rate. Since most project expenditures were in-country, the change of exchange rate led
to increased purchasing power of the IDA credit, but this also required a higher counterpart
allocation.

At mid-term, some credit funds were re-allocated from training and technical assistance categories
mainly to the equipment category, with a smaller amount to civil works. These changes in effect
transferred much of the savings from the exchange rate change to the purchase of additional
clinical equipment. The reallocation reduced the final cost of Component B (Health Worker
Training) and increased the final cost of Component C (Health Service Management), as shown in
Annex 2.

6. Sustainability
6.1 Rationale for sustainability rating:
Overall project sustainability is rated as Likely. During the project implementation period, human
resource planning and development became identified as top priorities in national policy, and this
view has now become widely accepted in the health sector. Initiatives supported by the project
such as monitoring health workforce trends and planning for human resource needs in the sector,
reforming health worker training, and improving health service management, are closely linked to the National Tenth Five-Year Plan. Lessons from this (Health IV) project on human resource planning and management are being incorporated into revised County Health Resource Plans of the Basic Health Services (Health VIII) project, and will be of increasing relevance as the new rural policies are implemented.

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. Overall the project has provided substantial long-term benefits for rural health infrastructure and workforce development. However, the role and contribution of individual facilities will vary according to location, service quality and catchment population. As in other countries, 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 will be to ensure appropriate maintenance of both the buildings and equipment, in order to obtain long-term value for the investment.

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. The prefecture schools can continue to play a valuable role in upgrading of village, township and county level workers, if they are prepared to institutionalize their teaching reform experience and recruit teaching staff capable of working effectively in a higher standard, modern teaching institution.

The likelihood of continued use of the planning mechanisms and training networks is higher in provinces where the finance and planning bureaus appreciate the importance of health workforce issues, and where health bureaus have taken responsibility to continue these initiatives after project completion. In most project provinces, these approaches have now become a part of the government system.

The results of the Rural Health Financing Study have already contributed to ongoing policy development on this subject. There is now an active debate over the relevance of CMS as presently conceived to meet the broad future needs for rural health financing in the face of rapid social and economic change. CMS remains a policy priority of the Government and may be feasible for areas with middle-income level of development in China. However, it may not be appropriate in poor areas unless the Government is prepared to make a substantial contribution. A new national policy on rural health financing is now under discussion, and the Health IV experience has drawn the attention of the experts and Government leaders involved in this process.

6.2 Transition arrangement to regular operations:
In the final year of implementation each province prepared plans for continuation of relevant project activities after project completion. Provincial managers issued documents on how to transfer personnel, assets, knowledge and skills into the regular government structure. In most
provinces, the workforce planning units has moved to the planning division of the Health Bureau. The training networks will be continued, training materials and teaching models will continue to be used by the training institutions in the project areas and some will be adopted by non-project areas.

7. Bank and Borrower Performance

Bank

7.1 Lending:
During preparation, the Bank team worked closely with MOH and provincial teams to develop the guiding principles, objectives, activities and costing for each component; these became key references for project implementation. The Bank introduced a software program to help with project planning. Though the program may not have been suitable for ongoing management of this kind of project, it did introduce modern concepts and methods of project management. The Bank’s introduction of new ideas in health planning and training through international technical assistance was also appreciated, although not all views advocated by international experts during preparation were found to be practical for implementation.

7.2 Supervision:
The supervision schedule of the Bank team, i.e. twice a year before the mid-term review (MTR) and once or twice a year after the MTR, was acceptable and generally effective. However, better communication between the Bank and the Borrower may have prevented the misunderstanding that occurred at the time of the MTR. The Government teams prepared and internally approved reallocations of project funds, including the credit, in advance of the MTR mission, whereas the Bank team came to the mission to discuss the findings of the review, and assumed that any reallocation would follow agreements reached during the mission for adjustment of the project.

7.3 Overall Bank performance:
The overall Bank performance was satisfactory during preparation and implementation. The Bank team maintained some continuity of membership; the Government appreciated the Bank’s systematic approach to project design, implementation, monitoring, supervision and evaluation.

Borrower

7.4 Preparation:
The Borrower’s performance during preparation was Satisfactory. The central level and each participating province fielded strong teams for the preparation process, and the core Government Planning and Finance agencies took an active role in cooperation with the Health sector units at each level. For more detail, please refer to section 3.5 on quality at entry.

7.5 Government implementation performance:
Please refer to section 5.2 on implementation factors subject to Government control.

7.6 Implementing Agency:
The core project management teams from the central and province levels were relatively stable throughout implementation, which allowed continuity of institutional memory and accumulation
of project management experience.

The implementing agencies made good use of the “inter-provincial activities”, an innovative approach of the project to share resources, expertise and experience, and to address common issues faced by project provinces. This approach allowed cost sharing for technical support and training exercises.

7.7 Overall Borrower performance:
The Borrower’s overall performance was rated as satisfactory. The Government made a strong commitment from the beginning of project and this was particularly true of the six provinces for which it was the first Bank-supported health project. Health and finance bureaux at each level made an effort to ensure proper use of the IDA credit and the provision of counterpart funds. Financial management of Special Account in the Ministry of Finance (MOF) was satisfactory; financial management in the provinces was variable, and dependent on many factors including level of coordination between the Finance and Health bureaux, the commitment of Finance bureau staff to the project, and the skill and retention of financial staff in the project teams. Attention to the audit reports helped to identify and solve problems.

8. Lessons Learned
The key lessons learned from this project are as follows.

- **Ongoing commitment from high levels of government** is critical to the success of the project, both for technical progress and for resource mobilization and allocation. Project design and management arrangements should facilitate this.

- **Integration of project activities into the routine work programs** of local government is essential for achieving impact and sustainability of the project achievements. Many local governments included project activities into the local development plan and work program, which ensured attention and material support.

- **Using project as an incentive for reform and health gain.** Many local governments give priority to investment in health infrastructure, but the importance of system reform, capacity building, and service quality and affordability may not be appreciated. Central fund transfers, including international transfers, should be used as incentives for structural reform in health services and for health gain, in line with national policy and local needs.

- **Human resource issues** remain a critical constraint in rural health reform. Focused sector work and pilots of new arrangements for human resources are needed, including adjustment of the roles of public and private sector. Analysis of trends in training intakes and outputs, compared with policy and emerging needs is quite urgent.

- **Project financing.** Ways should be found to reduce the complexity of financial arrangements and the financial burden that is imposed on the most needy communities.
• **Policy and Planning as part of Project Design.** For projects which emphasize inputs and supply side improvements, a specific planning and policy framework is desirable as a yardstick for appropriate investment. Monitoring of output and coverage indicators is needed from the beginning of the project, as an aid to ensure benefits from the investment.

• **Use of Technical Assistance.** A project needs a clear strategy for using international expertise to build technical capacity and transfer skills, in order to obtain sustainable benefits from the investment. Performance contracts for both international and national technical experts and institutions are needed.

• **Advantages and disadvantages of wide coverage.** Wide geographic and population coverage of a project may enable more communities to share the benefits of project resources. However this type of project requires more supervision inputs and more sustained technical transfer from higher levels. These needs are generally under-estimated. The balance between population coverage and supervisory support needs to be considered in project design.

• **Procurement of equipment.** Equipment for health facilities should match the defined service functions of that facility. Procurement methods should ensure appropriate items are purchased, while being appropriate for the financial autonomy of the provinces and the need for users to be satisfied with specifications, maintenance contracts, etc.

9. **Partner Comments**

(a) **Borrower/implementing agency:**
The Borrower's contribution to the ICR is in Annex 8.

(b) **Cofinanciers:**
Not Applicable

(c) **Other partners (NGOs/private sector):**
Not Applicable

10. **Additional Information**

NA
Annex 1. Key Performance Indicators/Log Frame Matrix

<table>
<thead>
<tr>
<th>Indicator Definition</th>
<th>Target</th>
<th>1997</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Counties providing workforce planning reports.</td>
<td>100</td>
<td>254</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>2. Prefectures providing workforce planning reports.</td>
<td>100</td>
<td>25</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>3. Clinical training bases meeting quality criteria.</td>
<td>80</td>
<td>487</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>4. Training completed at clinical training bases (person months).</td>
<td>100</td>
<td>218,072</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>5. Pilot schools with teaching reform.</td>
<td>100</td>
<td>31</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>6. Non-pilot schools with teaching reform.</td>
<td>95</td>
<td>87</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>7. Training of township and village health workers conducted in last 12 months (person months).</td>
<td>100</td>
<td>1,400,320</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>8. Village doctors completed systematic training.</td>
<td>80</td>
<td>103,193</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>9. Village clinics with at least one systematically trained health worker.</td>
<td>90</td>
<td>89,031</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>10. Village clinics with a systematically trained female health worker.</td>
<td>50</td>
<td>45,394</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>11. Counties assessing performance of health graduates in the field.</td>
<td>65</td>
<td>95</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>12. Township hospitals with a trained manager.</td>
<td>90</td>
<td>4,486</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>13. Townships with CMS or service integration.</td>
<td>40</td>
<td>2,694</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>14. Township hospitals which have a supervision agreement with higher level.</td>
<td>50</td>
<td>2,797</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>15. Village clinics which have a supervision agreement with higher level.</td>
<td>35</td>
<td>28,714</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>16. Township hospitals competent in managing common emergencies.</td>
<td>80</td>
<td>4,661</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
</tbody>
</table>

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.
Annex 2. Project Costs and Financing

Table 2a. Project Cost and Financing by Component
  Appraisal Estimate and Actual  (US$ million equivalent)

<table>
<thead>
<tr>
<th>Component</th>
<th>Appraisal Cost Estimate</th>
<th>Actual Cost</th>
<th>Actual as Percentage of Appraised Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bank</td>
<td>GOC</td>
<td>Total</td>
</tr>
<tr>
<td>A. Workforce Planning</td>
<td>3.33</td>
<td>0.84</td>
<td>4.17</td>
</tr>
<tr>
<td>B. Workforce Training</td>
<td>85.08</td>
<td>64.54</td>
<td>149.62</td>
</tr>
<tr>
<td>C. Services Management</td>
<td>18.86</td>
<td>8.50</td>
<td>27.36</td>
</tr>
<tr>
<td>D. Project Support</td>
<td>1.82</td>
<td>2.08</td>
<td>3.90</td>
</tr>
<tr>
<td>E. Technical Assistance</td>
<td>1.05</td>
<td>0.00</td>
<td>1.05</td>
</tr>
<tr>
<td>Total</td>
<td>110.14</td>
<td>75.96</td>
<td>186.10</td>
</tr>
</tbody>
</table>

Note: Contingencies are included in the appraised cost
  
  Bank: International Development Association (IDA)
  
  GOC: Government of China
Table 2b. Project Costs by Procurement Arrangements

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>ICB</th>
<th>NCB</th>
<th>Other /1</th>
<th>NIF /2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Works</td>
<td>18.1 (4.5)</td>
<td>22.2 (5.5)</td>
<td>40.3 (10.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>15.5 (12.6)</td>
<td>11.7 (8.8)</td>
<td>5.0 (3.8)</td>
<td>32.2 (25.2)</td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>2.9 (0.0)</td>
<td>2.9 (0.0)</td>
<td>4.3 (0.0)</td>
<td>4.3 (0.0)</td>
<td></td>
</tr>
<tr>
<td>Furniture</td>
<td>86.5 (61.4)</td>
<td>86.5 (61.4)</td>
<td>5.4 (5.4)</td>
<td>5.4 (5.4)</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>8.0 (8.0)</td>
<td>8.0 (8.0)</td>
<td>2.5 (0.0)</td>
<td>2.5 (0.0)</td>
<td></td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>3.9 (0.0)</td>
<td>3.9 (0.0)</td>
<td>13.6 (0.0)</td>
<td>186.0 (110.0)</td>
<td></td>
</tr>
</tbody>
</table>

Note: 1/ Other procurement methods include direct purchase, local shopping, and consultant services.
2/ NIF denotes non-IDA financing.
Figures in parentheses are amounts financed by the Bank.
Table 2c. Project Costs by Procurement Arrangements
Actual (US$ million equivalent)

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>Procurement Method</th>
<th>ICB</th>
<th>NCB</th>
<th>Other /1</th>
<th>NIF /2</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Works</td>
<td></td>
<td>27.6</td>
<td>(6.9)</td>
<td>14.5</td>
<td>(3.6)</td>
<td>42.1</td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
<td>16.7</td>
<td>(13.3)</td>
<td>15.2</td>
<td>(12.2)</td>
<td>36.9</td>
</tr>
<tr>
<td>Vehicles</td>
<td></td>
<td></td>
<td></td>
<td>2.9</td>
<td>(0.0)</td>
<td>2.9</td>
</tr>
<tr>
<td>Furniture</td>
<td></td>
<td>4.3</td>
<td>(0.0)</td>
<td>4.3</td>
<td>(0.0)</td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>71.4</td>
<td>(50.0)</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td></td>
<td>0.4</td>
<td>(0.4)</td>
<td>3.8</td>
<td>(3.8)</td>
<td>4.2</td>
</tr>
<tr>
<td>Research</td>
<td></td>
<td></td>
<td></td>
<td>7.0</td>
<td>(7.0)</td>
<td>7.0</td>
</tr>
<tr>
<td>Maintenance Cost</td>
<td></td>
<td></td>
<td></td>
<td>2.8</td>
<td>(0.0)</td>
<td>2.8</td>
</tr>
<tr>
<td>Operational Cost</td>
<td></td>
<td></td>
<td></td>
<td>4.2</td>
<td>(0.0)</td>
<td>4.2</td>
</tr>
<tr>
<td>Unspecified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>17.1</strong></td>
<td>(13.7)</td>
<td><strong>42.8</strong></td>
<td>(19.1)</td>
<td><strong>101.7</strong></td>
</tr>
</tbody>
</table>

Notes:
1/ Other procurement methods include direct purchase, local shopping, and consultant services.
2/ NIF denotes non-IDA financing.

Figures in parentheses are amounts financed by the Bank.
Annex 3. Economic Costs and Benefits

An economic rate of return was not estimated for the project at the time of appraisal, nor at closure.
## Annex 4. Bank Inputs

**Missions:**

<table>
<thead>
<tr>
<th>Stage of Project Cycle</th>
<th>Month/Year</th>
<th>Count</th>
<th>Specialty</th>
<th>Performance Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification/Preparation</td>
<td>Ident. 10/1989</td>
<td>2</td>
<td>HG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ident/Prepn. 06/1990</td>
<td>3</td>
<td>HG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prepn. 11/1990</td>
<td>4</td>
<td>ED, HG, HP, HS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prepn. 06/1991</td>
<td>8</td>
<td>ED, EP, HG, 2 HP, HR, HS, TR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-Appraisal 10/1991</td>
<td>6</td>
<td>HE, HG, HP, HR, PI, TR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-Appraisal 6/1992</td>
<td>6</td>
<td>HE, HG, HP, HR, HS, TR</td>
<td></td>
</tr>
<tr>
<td>Appraisal/Negotiation</td>
<td>Apprr. 10/1992</td>
<td>7</td>
<td>AR, HE, HG, HP, HR, PI, TR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neg. 03/1993</td>
<td>4</td>
<td>HG, HR, LC, DO</td>
<td></td>
</tr>
<tr>
<td>Supervision</td>
<td>Project Launch 06/1993</td>
<td>4</td>
<td>HG, HP, HR, PI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spn 1 04/1994</td>
<td>7</td>
<td>AR, HG, HP, OO, PC, PH</td>
<td>U S</td>
</tr>
<tr>
<td></td>
<td>Spn 2 11/1994</td>
<td>3</td>
<td>HG, HO, PH</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 3 05/1995</td>
<td>3</td>
<td>HG, HO, PH</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 4 11/1995</td>
<td>4</td>
<td>HG, HO, PH, TR</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 5 10/1996</td>
<td>4</td>
<td>HG, HO, HS, PH</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 6 (MTR) 07/1997</td>
<td>6</td>
<td>FM, HE, HG, HO, PH, TR</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 7 08/1998</td>
<td>2</td>
<td>HO, PH</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 8 05/1999</td>
<td>3</td>
<td>FM, HO, PH</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 9 11/1999</td>
<td>2</td>
<td>HE, PH</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 10 05/2000</td>
<td>3</td>
<td>FM, HS, PH</td>
<td>S S</td>
</tr>
<tr>
<td></td>
<td>Spn 11 10/2000</td>
<td>3</td>
<td>PH, HE, HS</td>
<td>S S</td>
</tr>
<tr>
<td>ICR</td>
<td>ICR 1 05/2001</td>
<td>1</td>
<td>HE</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Specialist Skills: AR = Architect; DO = Disbursement Officer; ED = Educator; EP = Education Planning; FM = Financial Management; HE = Health Economist; HG = Health Management; HO = Operations (Health); HP = Health Manpower; HR = Human Resources Economist; HS = Health, Other Specialty; LC = Legal Counsel; OO = Operations Officer; PH = Public Health; PI = Project Implementation; PS = Procurement; TR = Training.
(b) **Staff:**

<table>
<thead>
<tr>
<th>Stage of Project Cycle</th>
<th>Actual/Latest Estimate</th>
<th>No. Staff weeks</th>
<th>US$ ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification/Preparation</td>
<td>NA</td>
<td></td>
<td>365,750</td>
</tr>
<tr>
<td>Appraisal/Negotiation</td>
<td>NA</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>Supervision</td>
<td>NA</td>
<td></td>
<td>408,541</td>
</tr>
<tr>
<td>ICR</td>
<td>NA</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>NA</td>
<td></td>
<td><strong>774,291</strong></td>
</tr>
</tbody>
</table>
### Annex 5. Ratings for Achievement of Objectives/Outputs of Components

(H=High, SU=Substantial, M=Modest, N=Negligible, NA=Not Applicable)

<table>
<thead>
<tr>
<th>Component</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro policies</td>
<td>O H O SU O M O N O N * NA</td>
</tr>
<tr>
<td>Sector Policies</td>
<td>O H O SU O M O N O N * NA</td>
</tr>
<tr>
<td>Physical</td>
<td>O H O SU O M O N O N * NA</td>
</tr>
<tr>
<td>Financial</td>
<td>O H O SU O M O N O N * NA</td>
</tr>
<tr>
<td>Institutional Development</td>
<td>O H O SU O M O N O N * NA</td>
</tr>
<tr>
<td>Environmental</td>
<td>O H O SU O M O N O N * NA</td>
</tr>
</tbody>
</table>

#### Social
- Poverty Reduction | O H O SU O M O N O N * NA |
- Gender | O H O SU O M O N O N * NA |
- Other (Please specify) | O H O SU O M O N O N * NA |

#### Health
- Private sector development | O H O SU O M O N O N * NA |
- Public sector management | O H O SU O M O N O N * NA |
- Other (Please specify) | O H O SU O M O N O N * NA |
### Annex 6. Ratings of Bank and Borrower Performance

(HS=Highly Satisfactory, S=Satisfactory, U=Unsatisfactory, HU=Highly Unsatisfactory)

#### 6.1 Bank performance

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lending</td>
<td>○ HS ● S ○ U ○ HU</td>
</tr>
<tr>
<td>Supervision</td>
<td>○ HS ● S ○ U ○ HU</td>
</tr>
<tr>
<td>Overall</td>
<td>○ HS ● S ○ U ○ HU</td>
</tr>
</tbody>
</table>

#### 6.2 Borrower performance

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation</td>
<td>○ HS ● S ○ U ○ HU</td>
</tr>
<tr>
<td>Government implementation performance</td>
<td>○ HS ● S ○ U ○ HU</td>
</tr>
<tr>
<td>Implementation agency performance</td>
<td>○ HS ● S ○ U ○ HU</td>
</tr>
<tr>
<td>Overall</td>
<td>○ HS ● S ○ U ○ HU</td>
</tr>
</tbody>
</table>
Annex 7. List of Supporting Documents

This Annex lists selected World Bank documents. Many proposals and reports were prepared by the Government at each level, and by the implementing units, to meet both GOC and World Bank requirements, throughout preparation and implementation of the project. These included an independent assessment prepared for the mid term review, and a comprehensive completion evaluation.

World Bank Documents

Additional Annex 8. Borrower's Contribution

China Health Workers Development Project
Borrower's Contribution to the Implementation Completion Report

1. Project Background

In the late 1980’s, rural health development in China was increasingly put onto the national policy agenda. Studies and a policy seminar jointly held by China’s Central Government and the World Health Organization, with the participation of senior officials from both the Central and Provincial governments, concluded that the rural health was one of the highest priorities in health sector. It was noticed that the insufficient rural health workforce, the poor performance of health workers at grassroots levels, and the backward health infrastructure were the major constraints in meeting the health needs of rural population. The findings of the second World Bank supported Health Sector Report, entitled “Long Term Issues and Options in the Health Transition” also indicated huge gaps in health status, quality of health workforce and services between the urban and the rural regions. Based on these situation analyses and national health policy priority, China’s Government proposed the Rural Health Workforce Development Project as a candidate project for World Bank support and this was agreed by the Bank.

2. Project Objectives, Design and Organization

Project Objectives. The goal of the project is to improve the quality of rural health workforce, thereby contribute to better quality health services and an improved health status of the rural population in project areas. To achieve this goal the project would: (1) strengthen workforce planning capacity in six project provinces; (2) train and retrain better qualified medical teachers, rural health workers and managers by re-orienting the training process through curriculum reform, introducing a wider variety of teaching and learning methods and better supervised practicum, and emphasizing training in the practical skills needed in rural settings; (3) strengthen management and clinical supervision of health service institutions in rural areas; (4) improve inter-institutional coordination and develop integrated provincial training networks with a defined role for each level of training institution; and (5) upgrade the physical conditions of training institutions at prefecture and county levels and of service delivery institutions at the township and village levels.

Project Design. The project has three components: (1) Health Workforce Planning; (2) Health Workforce Training, and (3) Rural Health Service Management. The Health Workforce Planning component was to conduct situation analysis and assess project workforce requirements so that the information could be provided and used for making decisions on training endeavors. The Health Workforce Training component was to facilitate teaching reform and search for training innovation for improving problem-solving skills. The Rural Health Service Management component was designed to improve working conditions so that the new skills learned could be
fully utilized and to improve rural doctor’s performance by clinical auditing and regular supervision. A pilot study on Rural Health Care Financing and Payment to Rural Doctors was included in the third component with the aim to test community financing of health services, increase service accessibility by the poor, and improve service effectiveness by changing the incentives related to the behavior of health workers, especially in selling drugs.

**Project Management.** The Foreign Loan Office (FLO) of the Ministry of Health (MOH) was responsible for overall project management under the guidance of the Project Leading Group of MOH chaired by a Vice-Minister. At the central level, three line departments were involved: (1) The Department of Personnel was responsible for Health Workforce Planning Component; (2) The Department of Medical Education was in charge of the Workforce Training Component; and (3) The Department of Medical Administration was responsible for the Rural Health Service Management Component. At the provincial level, the project management structure was similar to that at the central.

3. **Key Project Activities and Achievements**

**Component A: Health Workforce Planning**

1. Each of 6 provinces has set up the database for rural health workforce planning. At the beginning, the database only included rural workforce in public sector, but now it also includes the private doctors. The database has been updated regularly and used by health and other sectors such as education and personnel.

2. Health workforce planners have been trained. At provincial level, these planners mastered the methods and skills of workforce projection and have developed health workforce plans. These plans provided valuable information for decision making in recruitment of students and assignment of health workers. At prefecture and county levels, the planners have conducted rural health workforce situation analysis. The outputs of both workforce development plan and the situation analysis have been widely disseminated among relevant government sectors.

3. Mechanism of health workforce planning has been instituted in project provinces. Cross-sectoral leadership groups and technical panels for health workforce planning were established and functioning at provincial, prefecture and county levels.

4. The methods of job description preparation for health workers at township and village levels have been introduced. The job description has been used as a valuable instrument for education planning, training materials development and performance assessment.

5. The competence of health workers at township and village levels has been improved and the quantity, structure and distribution of the health workforce have been rationalized in project areas. In comparison with the data of 1993, the number of villages without a health worker was reduced by 67.1%; at the township level the number of health staff holding senior qualification doubled, those with middle-level qualification increased by
more than 70%, those with primary qualification increased by 30% and the number of unqualified staff reduced by 20%.

(6) A Manual of Health Workforce Planning was developed which incorporated national and international theory, experience and skills, and has been made available to non-project areas.

**Component B: Workforce Training**

(1) The project strengthened the infrastructure of health workforce training networks from provincial to prefecture and county levels, and the practice bases at county and township levels. The training capacity of these institutions has improved.

(2) Key teachers have been trained systematically. One assumption of the project success identified during project preparation was teaching reform. The teachers at secondary health schools and county health schools play the critical role in conducting teaching reform. Therefore the project provided support for a sequence of activities covering training needs assessment, curriculum development, case study and analysis, training quality improvement and training program evaluation.

(3) Teaching reforms were widely conducted, aimed at changing the focus from “Chalk and Talk”, theoretical methods to problem-solving approaches. Various teaching reform pilots have been carried out in health schools and training centers. The results showed that most of the innovative teaching methods had improved practical skills and problem-solving ability of trainees.

(4) A large number of rural health workers have been trained through the project. One of the major problems identified during project preparation was the low quality of rural health workforce, which resulted in poor quality of service delivered. A target of the project was to improve the practical competence and problem-solving skills of health workers. With the project’s support 185,394 health workers at village level, 100,193 at township, 6,616 at county and 2,928 health managers, trainers and planner at prefecture and provincial levels have been trained.

**Component C: Rural Health Service Management**

(1) Rural Health Care Financing and Rural Doctor’s Payment Studies were conducted in Shanxi, Henan, Fujian and Guizhou provinces. The major problems identified included sustainability of cooperative medical system (CMS) and the loss of competent rural health workers. The study was designed to explore mechanisms of maintaining CMS and how to keep the rural doctors. However, with the introduction of market economy, to change the over-prescription and drug-selling behavior became a priority. The results of the pilot intervention showed some positive impacts on prescribing behavior, with reduction in the average cost of prescription, and it obtained a lot of valuable experience in CMS financing and management. A policy seminar was held to discuss the findings and reports on the pilot evaluation have been widely distributed among government
departments and relevant research institutes.

(2) Infrastructure and working conditions at township health centers and village clinics were improved substantially. They can now provide most of the primary health care, and the trained health workers can apply their skills newly learned in the project for better practice.

(3) Managers from township health centers and county health institutes were adequately trained. This training added great value to the improvement of services resulting from the health workers' training and physical inputs of the project.

(4) The project has improved emergency care and the first aid network in rural areas by providing appropriate equipment, staff training and community mobilization.

(5) A mechanism of clinical supervision and service quality monitoring were established in project areas. Guidelines on clinical supervision and related training materials were developed, and are being disseminated together with experience from piloting.

Inter-Provincial Activities

Some project activities such as international and national technical assistance, development of job description for rural health workers and joint supervisions were organized by FLO as inter-provincial activities. The major advantages of this kind cooperation were to reduce the cost, coordinate the activities among project provinces and share experience. It was found that most of these activities were productive and successful.

4. Project Sustainability

In May 2001 the Central Government issued a new policy to guide the rural health reform and development. It emphasized that an accreditation process should be applied to ensure the posts of township and village health institutes are filled with qualified professionals, and the training for rural health workers should be further strengthened. Within the new policy framework most of the project achievements are sustainable.

(1) Health workforce planning. Now the Central Government calls on changing government roles from micro-control to macro planning and adjustment. Local governments are changing their functions from daily personnel management to human resource development (HRD). Health workforce planning is one of the major components of HRD. Local health departments have taken over the function of health workforce planning as their responsibility, and are in the process of making workforce development plan base on the database established through the project. The concepts, methods, manuals and experience of health workforce planning developed in the project are highly relevant to the current health personnel reforms in both urban and rural China.
(2) **Teaching reform.** Health service organizations now pay more attention to the quality of graduates as the health service market becomes more competitive. Health schools now have great motivation to improve their teaching methods through innovations in order to produce better graduates with practical ability. The teaching reform experience gained and training models established in the project will be sustained and adopted.

(3) **Training of rural health workers.** Qualitative inquiry shows that township health centers view their workers as a major source of competitive advantage, and will continue to allocate substantial funds for in-service training. The training capacity and networks built by the project will be well sustained, as long as they can respond to the needs of the service providers.

(4) **Service management.** The mechanisms of clinical supervision and quality monitoring established in the project have been proven important to ensuring service quality. The newly issued national policy on rural health reform and development also stressed these aspects and the successful experience gained in the project will be adopted in other health projects and non-project areas.

5. **Lessons learned**

(1) **Decentralized planning and decision-making.** To integrate health workforce planning, training, and utilization at township level would be an effective way to improve service provision. Township health center managers know more about the kind of services which need to be provided locally, who deserves and can benefit from training, how to better use the trainees, and what kind of equipment is required for delivering such care. However these sorts of decision are often made at higher levels such as the central and provincial, where the roles of planning, training and service management are segmented among several departments. The Team Approach for training and service provision, which was initiated by township health centers in Fujian Province as a result of local needs assessment, is a good model which has proven to be effective and efficient.

(2) **Project management and coordination.** Project management is actually a learning process. It is important to set up a mechanism that allows and empowers local people to take their initiatives, make their plans and take responsibility for the results. When several line departments and divisions are involved and responsible for different components of a project, the task of coordination could be substantially increased. Clearly defined responsibility and regular performance assessment for each involved party would reinforce their accountability and improve intra-sector coordination.

(3) **Rural health workforce development is closely linked with personnel reform.** Health education and training can provide qualified workers. But without personnel reform to remove the unqualified staff and introduce competitive mechanisms for position appointment, it is hard to improve the overall quality of the workforce, reduce the excessive staff and improve the efficiency.