Report Number : ICRR0020647

1. Project Data

Project ID	Project Name
P112759	CN-Shandong Ecological Afforestation
Country	**Practice Area(Lead)**
China	Environment & Natural Resources

L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
IBRD-78820	31-Jul-2016	119,720,000.00
Bank Approval Date	**Closing Date (Actual)**	
06-May-2010	31-Jul-2016	

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	60,000,000.00	0.00
Revised Commitment	60,000,000.00	0.00
Actual	60,000,000.00	0.00

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2. Project Objectives and Components

a. Objectives

To demonstrate effective afforestation models for environmentally degraded areas in support of Shandong's environmental afforestation programs.
Source: Loan Agreement Shandong Ecological Afforestation Project, June 17,2010
(The wording in the PAD is identical.)

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Will a split evaluation be undertaken?

No

d. Components

Components

The Shandong Ecological Afforestation Project (SEAP) comprised: (1) a plantation establishment component with two sub-components – (a) for degraded mountainous areas; and (b) protection of saline coastal areas; and (2) a technical support and project management component:

Component 1 : Environmental Plantation Establishment
(Estimated cost at appraisal - $90.62 million; actual costs $155.64 million)

a Revegetation of Degraded Mountainous Areas

Establishing tree and shrub vegetation on 38,000 hectares of highly degraded hillsides with shallow sandstone and limestone-derived soils; and planting of mixed species trees and shrubs for creating a dense, multistory, vegetative cover, as a means of reducing soil erosion and runoff and producing a diversified landscape in the longer term.

b. Protective Plantations on Saline Coastal Areas

Establishing multistory, mixed species tree cover on 28,000 hectares of saline soils in the Yellow River delta. Mixed species trees and shrubs were for protection of agriculture from desiccating winds, improving soil productivity, and stabilizing newly created alluvial lands. (The focus was on areas where agriculture was important and where investments had been made in infrastructure such as roads, dykes and irrigation, much of which had been designed to reduce soil salinity.)

Component 2: Technical Support and Project Management:
(Estimated cost at appraisal - $6.35 million; actual costs $4.78 million)

This comprised: (i) infrastructure and equipment to diversify and upgrade nursery seedling production; (ii) applied research to develop new technologies, improve cost-effectiveness and fill information gaps; (iii) extension to disseminate innovations , in particular for mixed species afforestation, and best forestry practices); (iv) training, technical assistance and equipment to strengthen project management capacity in implementing agencies and communities; (v) M&E; and (vi) monitoring environmental and social safeguards.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Costs: Total project costs estimated at appraisal were $108.30 million, including physical and price contingencies of $4.53 million and $6.80 million respectively. Costs at project completion were $160.42 million, an increase of 48 percent. The increase in costs was due to cost escalation for component 1, for which costs increased by 72 percent - from $90.62 million to $155.64 million. The smaller component 2's costs decreased from $6.35 million to $4.78 million. The increase in project costs was mostly due to appreciation of the RMB (renminbi, Chinese currency) against the dollar, which substantially increased costs in local currency, especially for planting.

Financing: The $60.00 million IBRD Loan was fully disbursed. There were no co-financers. The cost increase was financed by an increase in counterpart funding, in particular from beneficiaries. Government financing increased by 18 percent, from $23.45 million estimated at appraisal to $27.57 million, actual. Beneficiary share increased by 160 percent, rising from the appraisal estimated $28.72 million to $74.55 million at completion. The increased beneficiary contribution was primarily in-kind (labor and materials).

Dates: The project was approved on 05/06/2010 and closed as scheduled on 07/31/2016 - a project period of just over six years. The Mid-term review was, as intended at appraisal, in October 2013.

Restructurings and Adjustments: There were no restructurings, or changes in objectives or key indicators. Project components were not changed during implementation, although there was a slight change in component sizes: (i) two of the original 30 counties participating in the project dropped out in the first year of the project when local government initiatives took over their intended project activities; and (ii) the number of nurseries was reduced from 11 to four, which were found adequate to satisfy the project's seedling requirements. At mid-term review, the saved funds were reallocated to coastal area planting, within the same financing category.

3. Relevance of Objectives & Design

a. Relevance of Objectives

Relevance of Objectives
China's rapid economic growth in the last several decades left environmental management as a secondary concern to productivity. This put environmental pressures on most natural resources, degrading water quality, air quality, vegetative cover, biodiversity, soils, and other environmental resources. An increase in the prevalence of climatic disasters (drought, floods, wind) has also occurred.

Until the 1990s China's forest program was focused mainly on timber production, primarily through industrial monoculture plantations. Little attention was paid to biodiversity conservation and ecological stability. This approach has changed in the last two decades, with a progressive shift in attention from industrial monoculture to afforestation, biodiversity and soil conservation. This shift has been quite recent. The first

major change in policies was in 2006, under Government's 11th Five Year Plan for 2006 – 2010. The Plan proposed balances between people, nature and the environment, and set the stage for shifting forestry from monoculture plantations towards environmental conservation and ecological stability.

Recent Bank policies have also favored environmental conservation. The China Country Partnership Strategy of 2006 advocated "managing resource scarcity and environmental challenges," and focused on improving the management of natural resources such as land, grasslands, forests and water resources. The 2012 China Country Partnership Strategy for FYs 2013-2016, the Bank strategy applicable during most of project implementation and at completion, includes under "Supporting Greener Growth," "demonstrating sustainable natural resources management." The forest and environmental situation in Shandong province well illustrates the appropriateness of the changes in forest conservation strategies of both China and the Bank.

Shandong is one of China's more economically advanced provinces, and its economic growth has put particular pressure on its natural resources. With a forest cover of only 13 percent, it is one of China's least forested provinces. The deteriorating forest resources base has had wide-reaching environmental consequences, amongst them - land denudation, soil erosion, reduced water retention, declining biodiversity and biomass, and a thinning canopy of the remaining forest cover. Such ecological degradation has also had its economic and social impacts - reduced productive potential of the land, and resultant constraints on improvement of the population's living conditions.

The project's objective is at the heart of China's and Shandong's forest environmental conservation strategy. Environmental afforestation of degraded lands was fundamental to the new strategy. But China's knowledge of environmental afforestation was limited. There was a need to experiment and gain experience from actually implementing afforestation pilot models. Hence, the project's objective - "to *demonstrate effective afforestation models for environmentally degraded areas in support of Shandong's environmental afforestation programs*" - was fully responsive to Shandong's and China's needs, and, moreover, to needs that were and remain urgent. The Objective of the Shandong Ecological Afforestation Project (SEAP) was Highly Relevant.

Rating
High

b. Relevance of Design

Relevance of Design

The project's design was a close fit with the objective. Testing and demonstrating effective afforestation models for environmentally degraded areas was the entire purpose of the project's field component (Component 1 - 93 percent of project baseline costs). And the other component (technical support) provided the training, research, technical assistance and extension to support component 1. Most of the 28

afforestation models under the project were specific to a different environmental situation, thus helping identify what worked best in the field, and providing widespread demonstration value to foresters, officials and farmers. Possibilities for scale-up after the project were made easier by using the existing Governmental institutional structure to implement the project.

The project focused exclusively on the new paradigm of environmental afforestation. The technical features, while varying in detail between sites, comprised in all cases the use of mixed species of trees and shrubs, aimed at establishing dense, multi-species, multi-story vegetative cover. The switch from plantation monoculture forestry to the new afforestation approach required a radical change in mind-set of forest related officials and local governments. Setting off on the new paradigm would require skill and effort in training and public outreach, well designed planting methods, and the beginnings of positive results fairly early in implementation. In view of these challenges, the choice of a tightly focused objective, with design features limited to achieving these objectives only, without ancillary activities, was sound. Changing the approach to afforestation was already an ambitious agenda.

Inevitably, moving away from monoculture plantations, would require innovation and adjustments as experience was gained, and the project design was flexible enough to accommodate changes as the project was implemented. One innovation in the project's design was, for hillside afforestation to comprise ecological afforestation on the upper slopes and "economic" trees such as nuts and fruits on the lower slopes. This approach provided income and helped community welfare and a willingness to participate in forest monitoring. The project's Relevance of Design was High.

Rating
High

4. Achievement of Objectives (Efficacy)

Objective 1

Objective
To demonstrate effective afforestation models for environmentally degraded areas in support of Shandong's environmental afforestation programs.

Rationale
Efficacy
The degree to which the project met its objective (Efficacy) is assessed below commencing with project outputs (implementation achievements against targets), followed by the project's achievements relative to the objective.

Project Outputs

Establishment of Afforestation Models and Training

Project Outputs exceeded targets. Afforestation of degraded mountain areas reached 36,897 ha, about five percent more than the targeted 35,000 ha. (This is broken down in the ICR to two land categories – (a) mountain afforestation in limestone areas where the project achieved 19,341 ha, five percent more than targeted; and (b) granite/sandstone areas, where achievement was 17,556 ha, 10 percent below target. Two participants – a forest farm and an economic development zone - withdrew from the project, effectively reducing the feasible area. The money saved from these withdrawals was used to finance expansion of the program in the saline coastal areas. Plantations in saline coastal areas were 30,018 ha, or 9 percent above the target. Overall planted area (mountain plus saline areas) was 7 percent above the target.

Technical Support. Technical support to the afforestation program was consistent with appraisal intentions. In combination, nearly a million forestry personnel and farmers received training, 9 percent more than targeted; and 62 staff received overseas training, the number targeted at appraisal. Written guidelines and use of the media was extensive: 266,000 brochures, 24 specialist papers, a project web site, and 300 media broadcasts were undertaken (no targets).

The project's research program – primarily on tree species, planting modalities germplasm resources conservation, and the relative effectiveness of the different models – had benefits in terms of enhancing the rate of establishment of the plantations and reducing planting costs (a direct seeding planting method with costs 30 percent lower than traditional tree planting was found). The rate at which the new technologies were adopted, more recently also including outside the project area, suggests that research and extension services were well connected, and that the ecological afforestation model was (eventually) well accepted by officials and communities.
Selected Technical Results

Available information for some of the project's impacts are as below:
(NB. From the ICR text it is clear that more data exists, and inclusion of such would have been helpful given, in particular, that SEAP is a pilot project. In the same vein, for critically informative yet difficult to measure data such as vegetation cover and soil erosion, brief information on measurement technique and sampling procedures, even if restricted to only a few variables, would provide greater precision and reliability.)

- Vegetation cover (density of vegetation of the land afforested) in the hill models increased from baseline conditions of 16 percent to 73 percent coverage, compared with a target of 60 percent.
- For the saline coastal models, vegetation cover went from 7 percent baseline to 59 percent, (the target was 55 percent).
- The number of plant species in the hill models increased from 10 (baseline) to 40 species, as compared with the target of (target: 30 species).
- For the saline coastal models, the number of plant species increased from the baseline 3 species to 18 species (15 species targeted).
- Seedling survival rates were 95 percent for the mountainous areas and 86 percent for the saline coastal

areas, about the same as the appraisal targets.

- Soil erosion in mountainous models was reduced from a 100 percent baseline to 32 percent, substantially better than the targeted 80 percent.
- In coastal saline areas, wind velocity (at half the average height of the plantation vegetation) decreased from a base of 100 percent to 48 (the target was 85 percent).
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- The ICR also comments on greater resistance to pests and diseases under the new model, and other possible environmental impacts such as reduced soil erosion, better water retention of the soil in the hills, and lower soil salinity in the coastal models. But data limitations mostly preclude confirmation.

Project Outcomes

The core of the SEAP's' Objective is to "demonstrate effective afforestation models," and here the project forged major progress. Demonstration had to contend with an initially skeptical forestry and civil society populace. Monoculture forestry has been the traditionally accepted forestry practice, and there was minimal experience with the multi-species, multi-story afforestation practiced under the project. The higher environmental impact, lower costs and greater sustainability of ecological afforestation served as a convincing demonstration of the impact of the new approach. Take-up of the project model beyond Shandong Province is difficult to assess as multiple influences may be at play. However, Shandong's afforestation model is attracting the interest of other provinces and the National Government recognizes the project's approach as part of its increasing focus on ecological afforestation.

The demonstration impact appears to be far-reaching. Some 84,000 ha of land (twice the land area under the project) have been planted using the project’s afforestation models, and the Shandong government has included ecological afforestation in its 13’th Five Year Development Plan (2016-2020).

The project successfully piloted and demonstrated a new approach to afforestation, which is beginning to be piloted~~~~~~ or reviewed in a number of provinces and in national policy. Efficacy was High.

Rating
High

5. Efficiency

Economic Rate of Return

Based on averages of the economic rates of return for each of the afforestation model plantations in the mountainous districts and coastal saline areas, the ERRs calculated in the ICR are 16.7 percent in the hills, 20.3 percent in the coastal areas, and 18.2 percent for mountain and coastal models combined. Only one of the model plantations is estimated to have an ERR of less than 10 percent.

The estimated 18.2 percent for the overall project – is slightly greater than the overall project ERR estimated at appraisal of 15.8 percent. The higher ERR estimate in the ICR may have been influenced by higher production and unit values of the economic activities (e.g. production of fruits, nuts, tea, small livestock on the lower slopes of the mountainous models) which were higher than expected at appraisal.

(NB.The ICR does not provide information on the sources of the data; data collection for some environmental variables can vary depending on measurement techniques, nor does it outline the "without project" scenarios for the land treated. For key variables such as land erosion and vegetative cover, brief commentary on collection method, sampling, and representation of the control land use, would have given greater credence.)

The benefits estimated in the ICR were limited for comparative purposes to the benefit sources estimated at appraisal; namely: incremental wood and timber products; incremental fruit, nuts and tea; and incremental carbon sequestration. This limited choice leaves out a number of environmental benefits which are part of the essence of an ecological project, and their absence is likely to have contributed to a significant understatement of the ERR. Matters left out, for instance, include: improved soil and water conservation, increased biodiversity, improved micro-climate in the project area, and reduced wind damage. The ICR highlights the limited environmental benefits in the original ERR calculation but also shows the difference that the omissions can make. Thus, if the benefits from soil and water conservation are added, the project's overall ERR goes from 18.2 percent to 23.8 percent.

(NB. An ERR for an environmental project which, other than carbon sequestration, is based only on commercial activities (timber and land products in the case of SEAP), only marginally captures the benefits of ecological afforestation. While difficult, more environmental analysis or qualitative discussion, or even sensitivity analysis of possible environmental scenarios, would have been desirable. Some data on such impacts is noted in the ICR, suggesting that quantification and inclusion of at least some additional environmental benefits might have been possible.)

Cost Effectiveness

A variety of technical improvements reduced costs and increased productivity. Most notable were the modifications to planting practices via the "three smalls" (smaller seedlings, smaller planting holes and lower planting density), which reduced establishment costs by 30 percent.

Implementation Efficiency

The project was implemented as scheduled with no extensions, restructurings, or significant changes in components. Component 1 had a 72 percent cost over-run in current terms, but this was primarily due to appreciation of the Chinese currency, affecting plantation costs in particular.

Overall Efficiency.

The project was implemented on schedule and, net of inflation, cost-effectiveness was higher than expected. The project's ERR, even with omission of several important environmental benefits, was 18 percent (this is given in the table below as a comparator with the appraisal estimate). If benefits from soil and water conservation are included, the ERR increases to 24 percent. For a forestry project, this is a substantial. Additionally, there are the further unmeasured ecological benefits of the project. However, the methods of data collection and the without project scenario in the ICR analysis are not described somewhat reducing the strength of the conclusions. Nevertheless, SEAP's Efficiency is rated Substantial.

Efficiency Rating
Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	16.00	97.00 ☐Not Applicable
ICR Estimate	✓	18.00	97.00 ☐Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The project's objectives were highly relevant. China's forest, land and water resources are deteriorating, and traditional monoculture plantations have had limited effectiveness in environmental protection and restitution. There was a need to develop, test and demonstrate a new afforestation approach. The project's design was also highly relevant. It found a new multi-species, multi-story, ecological afforestation model, and designed implementation modalities and institutional interlinkages that could make this work. Efficacy was high. All physical outputs were achieved, and, for the three variables included in the monitorable indicators, environmental impacts were greater than expected. The increases in vegetation cover and the number of plant species exceeded targets, and soil erosion was reduced more than expected. There were other beneficial environmental impacts as well. Despite some data limitations, the project's efficiency was substantial, with an ERR, excluding several environmental benefits, estimated at 18 percent. The project's ecological afforestation approach is being scaled-up, attesting to its value in the project's objective for *demonstrating effective afforestation models for environmentally degraded areas*. The Shandong Ecological Afforestation Project's Outcome is rated Highly Satisfactory.

a. Outcome Rating
Highly Satisfactory

7. Rationale for Risk to Development Outcome Rating

The project has already found effective afforestation models for environmentally degraded areas. The fact that the project approach is already being scaled-up by Shandong province in the vicinity of the project models, and has attracted further interest of the Shandong and National governments indicates that government commitment is building. The ongoing monitoring of the model plantations is creating understanding of the environmental impact of the approach – compared with traditional monoculture afforestation: more protective vegetative cover with indications of better preservation of soils, reduced runoff and wind resistance, and with the groundcover more resistant to diseases, pests and weather extremes.

Implementation within the existing government institutional structure was effective, so scale-up, providing it is accompanied by supporting training, extension and research, would likely be within institutional capabilities.

The greatest risk may be maintaining the interest of the communities. For the moment, farmers appear content to participate in plantation establishment, and the ICR comments that, for the mountainous models, farmers are interested in the lower return plantation maintenance in upper slopes because of the higher returns from the economic activities on the lower slopes. The incentives link between plantation and economic activities will need to continue for sustained interest of local communities in plantation maintenance. While other risks are small, this possible eventuality – a reduction in the interest of the communities might be a future concern unless forestry staff and communities commit to and monitor development in the higher slopes as part of the overall costs-incentives package.
points to a rating for Risk to Development Outcome of Modest.

a. Risk to Development Outcome Rating
Modest

8. Assessment of Bank Performance

a. Quality-at-Entry
The Bank recognized the strategic importance of tackling China’s declining and degrading forest and land resources. The preparation team introduced a radically different approach to forestry – mixed stand, ecological afforestation – with significantly better ecological impacts, sustainability, and incentives for community participation than the traditional monoculture plantations. The new paradigm was technically well prepared with innovative design features, and practical implementation arrangements. This required a broad

spectrum of technical expertise from Bank staff, Bank consultants and FAO (The Task Team has advised IEG that the range of expertise included the fields of silviculture, plantation management, soil conservation, plant physiology, saline land management, environment, biodiversity, pest management, social, and economics.). The team extended technical capacity and fostered ownership, by working with Government's "Expert Team" (for project monitoring), universities and researchers. Another strength was the preparation team's advocacy. The Task Team put considerable effort into discussions with senior government, foresters and civil society, as well as with farmers and local officials at the demonstration sites. to counter initial doubts and cultural resistance, and SEAP's design provided resources in project costing for government to continue such activities. (Project financing after the significant depreciation of the dollar against the Renminbi is reviewed in Section 2.)

Other preparation aspects were well handled; amongst them: a clear project focus, monitorable indicators that reflected project objectives, a well-designed M&E program, institutional arrangements using the existing government institutional structures and responsibilities, targeted training, and employing lessons from previous forestry projects. In particular because of the new vision and technical innovations brought in by the Bank, the Quality at Entry is assessed Highly Satisfactory.

Quality-at-Entry Rating
Highly Satisfactory

b. Quality of supervision
Supervision
Supervision missions were regular and covered standard supervision areas such as procurement, financial management, safeguards, identification of issues, and practical solutions for implementation problems. These were generally well handled, enabling the project to be completed as scheduled, and to good standard. Supervision missions continued the major effort to champion the new afforestation approach forged during project preparation. This included a number of technological changes as experience was gained. The team kept in close touch with implementers, universities and the Expert Team, and encouraged prompt adoption of technological improvements as they were identified. Greater effort had to be placed at grass roots levels – with local government agencies and farmers – to implement the ecological afforestation approach. Continued outreach was required at more senior government levels, though this became easier as the model plantations started to bear results. The team also put major emphasis on training and study tours of ecological afforestation elsewhere, and on contacts with Chinese centers of excellence such as Shandong University. The Quality of Supervision was Highly Satisfactory.

With the Quality at Entry and Supervision Performance both Highly Satisfactory, the Bank's Overall Performance was also Highly Satisfactory.

Quality of Supervision Rating
Highly Satisfactory

Overall Bank Performance Rating

Highly Satisfactory

9. Assessment of Borrower Performance

a. Government Performance

Borrower
Government
After an initial period of doubt about the effectiveness of the new approach, provincial, county, city and municipal governments became highly committed to the project. They were responsive to needs as they arose and were flexible to changes when project experience indicated that adjustments in implementation activities was required. When, as a result of the appreciation of the Chinese currency against the dollar, extra funding was required, counterpart funding was increased to the full amount necessary. Provincial and local governments facilitated linkages between the entities involved with the project. Community and civil society "ownership" was also encouraged. Inter-institutional linkages such as between academia, other research, extension services, demonstration sites and communities were facilitated. By the end of the project, the Shandong government showed its continuing commitment, with an additional afforestation program of 84,000 hectares (larger than the area of the project) modelled on the new approach. Government Performance was Highly Satisfactory.

Government Performance Rating

Highly Satisfactory

b. Implementing Agency Performance

The project implementers were primarily staff from the provincial, county and city Forest Bureaus and the involved communities They had to rapidly adjust their mind-sets to grapple with the new approach. Despite initial skepticism, Forest Bureaus and other involved institutions persevered, committing themselves to an approach that they had not seen in practice. They achieved or exceeded all implementation targets, and environmental improvements were also better than targeted. Local communities participated in land-planning as needed, and adjusted grazing and other uses of the land to be used as model afforestation sites. Monitoring of project actions and progress was good, and reports were timely. M&E was thorough and as technical data became more available, environmental impact also began to be reported. Supervision mission recommendations were followed up diligently. An effective chain linking research, extension, demonstration and training was established, and Shandong University was brought in to provide research, assistance with M&E, and other technical knowledge. Despite the challenges of taking on a new paradigm, the project was implemented on schedule. The Performance of the Implementing Agencies was Highly Satisfactory.

Implementing Agency Performance Rating

Highly Satisfactory

Overall Borrower Performance Rating

Highly Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

Three informative monitorable indicators were chosen to assess achievement of project objectives: (i) increases in vegetative cover; (ii) increases in plant species; and (iii) improvements in environmental conditions such as soil erosion in mountainous areas and wind velocity in coastal saline areas. Other indicators were also devised during project implementation for informally (i.e. not for evaluating the project) measuring project outputs with environmental impact - such as soil quality, seedling survival, pest incidence, and soil salinity – but the ICR does not report these (in part due to incomplete data series). The M&E system was also set up to provide management information on project progress.

b. M&E Implementation

The M&E system was established promptly, becoming operational in the first year of the project. A baseline survey was also done in the first year. Shandong Agriculture University was responsible for data collection and evaluation, assisted by extension and county staff. Over time the number of environmental parameters being measured increased, and also became more sophisticated: for instance, soil porosity, water retention, runoff, sedimentation, soil organic content, biodiversity, and economic indicators such as household incomes.

c. M&E Utilization

The management information type data informed the project implementers on project progress and performance. The increasing array of environmental data being collected has provided a rich source of scientific information for improving the project's afforestation models.

Overview

The M&E program has been strong in all phases (design, implementation and utilization), and has expanded to include monitoring of more sophisticated scientific information. The Quality of M&E has been High.

M&E Quality Rating
High

11. Other Issues

a. Safeguards
Safeguards

The project was classified as Category B and generated the following safeguards: Forestry (OP 4.36), Environmental Assessment (OP 4.01), and Pest Management (OP 4.09). During preparation, an Environmental Assessment was carried out. An Environmental Management Plan, including Environmental Protection Guidelines and a Pest Management Plan was also prepared; and a Social Assessment was undertaken. Environmental and social concerns were integrated into project design. Design features included measures to protect against: soil disturbance and erosion, contamination by chemicals, and invasion by non-local species. Other actions included: smaller planting holes (reducing erosion and improving establishment); use of local species; multi-layer stands; and, where possible, use of integrated pest management rather than chemicals. The inclusion in hill-afforestation of economic activities (fruits, nuts, mushrooms, poultry) on the lower slopes added income for local communities. The ICR reports a “win-win” situation with the ecological benefits of afforestation, supplemented also by the economic activities.

Little has been said in the ICR on land and land rights. The PAD states that "Project sites would be selected from areas classified as national and Shandong provincial environmental forest development areas with plans for their improvement through afforestation programs." However, based on international experience, some persons might be using the forest for their livelihoods (eg. sale of wood, forest plants, illegal cultivation, grazing). Unless already included in the Environmental Management Plan,social screening for this issue might have been useful, with appropriate actions taken to provide compensation to affected families.

b. Fiduciary Compliance
Fiduciary

A Financial Management Manual was prepared and staff trained at the beginning of the project. There were some financial misunderstandings initially, but, with guidance and training shortcomings were corrected. All audits were unqualified.

Procurement

Procurement Guidelines were issued at the beginning of the project. As with fiduciary management, staff skills had to be built up through training and guidance. The completion of the project as scheduled attests that

implementation of procurement was not a binding constraint to project implementation. The ICR does not report any cases of misprocurement.

c. Unintended impacts (Positive or Negative)

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d. Other

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12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Satisfactory	Highly Satisfactory	---
Risk to Development Outcome	Negligible	Modest	Continuation of participation by communities not yet demonstrated.
Bank Performance	Satisfactory	Highly Satisfactory	Strong innovation, technology transfer and dialogue for change in afforestation approach
Borrower Performance	Highly Satisfactory	Highly Satisfactory	---
Quality of ICR		Substantial	---

Note
When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.
The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons

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Lessons

1. Specialist inputs from Bank staff or consultants can be determining factors in recognizing, identifying, preparing and implementing a project.

Introducing the new paradigm of mixed species ecological afforestation required a departure from China's tradition of forest monoculture plantations. Specialist knowledge provided the awareness to identify the new approach, and the technical skills to design and implement it.

2. Interlinkages, operationally and intellectually, between researchers, extension staff and farmers improve effectiveness of a change agenda.

Such interlinkages, for instance, helped explore and develop planting methodologies with 30 percent lower costs than expected at appraisal.

3. Changing mind-sets can be a necessary and high payoff activity in innovation.

The Bank team, progressively joined by Chinese decision makers and implementers, had to persuade and demonstrate the new approach to a largely skeptical community of decision makers, foresters and villagers. Without such outreach, changing the afforestation approach, despite the larger benefits of ecological afforestation, would have met resistance.

4. Environmental impacts should be the primary yardstick for estimating the benefits of an environmental project.

As currently presented, the ERR is estimated as if it were for a fruit and timber project. Key environmental benefits such as from improved soil and water conservation, protected water catchments, and reduced soil erosion are not included in the main calculation. While such environmental impacts can be difficult to measure, broad estimates are possible, at least for more quantitative discussion. In the case of the project, some soil and water conservation benefits were estimated and were included in the ERR discussion and ERR estimates, but only in the sensitivity analysis rather than as part of the main estimate of the ERR.

5. *In a pilot project especially, key results data needs information on source, methodology and collation*.

The ICR presents even core data without background on data source, measurement technique, and sampling. This leaves the reader with no basis to assess the quality of the data. All that is generally available are, without background, two numbers - baseline value and actual, with little basis provided to appreciate the degree of accuracy.

14. Assessment Recommended?

Yes

Please explain

1. As part of a group of ecological afforestation projects in China, and perhaps one or two other countries, to compare different project types and experiences, and draw lessons therefrom.

2. To better understand the data, the range of the environmental benefits, and the "without project" land use scenarios.

15. Comments on Quality of ICR

Quality ICR
The ICR is an informative and well organized report with format covering the structure of the ICR guidelines. It contains a concise yet informative sector background. Information to back up the ICR's review is mostly provided. The summary of the borrower ICR is clear. These strengths notwithstanding, there are several areas which could have been elaborated.
(i) An otherwise strong ERR analysis would have best been based as much on environmental as commercial benefits (section 5). The text could also have reviewed the viability of the new afforestation model with traditional afforestation, the practice the project was departing from; (ii) the other environmental gains from the project (beyond performance related to the monitorable indicators) could, to the extent possible given data constraints, have been further detailed. In particular, for key data such as vegetation cover and soil erosion, information on the methods by which the data was measured and sampled, and whether controls were used, would have given more credence to project results than simply stating the information;(iii) the Bank Quality at Entry section is brief and too generic; and, (iv) more information on the scale-up and how this arose would have had relevance to other pilot projects. Overall, however, the ICR is a well written and thoughtful document, and its Quality is rated Substantial.

a. Quality of ICR Rating
Substantial