



1. Project Data

Project ID P093720	Project Name IN: Mid-Himalayan (HP) Watersheds		
Country India	Practice Area(Lead) Agriculture	Additional Financing P130944	
L/C/TF Number(s) IDA-41330,IDA-51590	Closing Date (Original) 31-Mar-2012	Total Project Cost (USD) 75,000,000.00	
Bank Approval Date 13-Dec-2005	Closing Date (Actual) 31-Mar-2017		
	IBRD/IDA (USD)	Grants (USD)	
Original Commitment	60,000,000.00	0.00	
Revised Commitment	97,000,000.00	0.00	
Actual	98,136,377.26	0.00	
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2. Project Objectives and Components

a. Objectives

The project's objective, according to the Development Credit Agreement (page 16), was to "assist Himachal Pradesh in improving its productive potential of the Project Area and increasing incomes of rural inhabitants in selected watersheds." This Review will use this PDO to assess the extent to which the project achieved its objectives.

In contrast, the Project Appraisal Document (PAD) declared that the project's primary objective was to "reverse the process of degradation of the natural resource base and improve the productive potential of natural resources and incomes of the rural households in the Project area." The secondary objective was to



"support policy and institutional development to harmonize watershed development Projects and policies across the State in accordance with best practices."

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

Yes

Did the Board approve the revised objectives/key associated outcome targets?

Yes

Date of Board Approval

03-Feb-2016

c. Will a split evaluation be undertaken?

Yes

d. Components

Institutional Strengthening: Institutional strengthening (appraisal US\$15.88 million; actual US\$20.81 million). This component sought to strengthen the capacity of the participating Panchayati Raj institutions and other local institutions within the project area to enable them to assume greater responsibility for planning, implementing, monitoring, and maintaining watershed treatments and livelihood activities.

Watershed Development: Watershed development and management (appraisal US\$75.5 million; actual US\$72.9 million). This component sought to support the implementation of watershed treatment as prioritized in watershed development plans as well as the treatment of critical lands that Gram Panchayats (GPs) administered. GPs are local self-government bodies.

Enhancing Mountain Livelihoods: Enhancing mountain livelihoods (appraisal US\$14.43 million; actual US\$11.56 million) attempted to promote value addition in crops, livestock, and nontimber forest products in the project area.

Project Coordination: Project coordination (appraisal US\$15.42 million; actual US\$16.66 million) financed the construction of office and residential accommodations, the purchase of equipment and vehicles, and the project's incremental operating costs.

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

Project Cost: The actual total project cost of US\$121.93 million, including US\$37million in additional financing, was only 0.6 percent above the total appraisal cost of US\$121.24 million.

Financing: The IDA provided US60 million at appraisal and this was increased to US\$97 million by additional financing. The actual total IDA contribution was US\$97.98 million. The Canadian and Spanish governments jointly provided US\$318,000 for the Biocarbon Facility of which US\$316,000 was disbursed. □

Borrower contribution: The borrower contributed 98.8 percent (or US\$23.95 million) of the appraised estimate.

Dates: The Mid-Himalayan Watershed Development Project was implemented over an extended duration, as shown below:



December 13, 2005: project approved; US\$60 million

February 24, 2006: effectiveness date

March 2008: a biocarbon subproject was added to mitigate climate change risks. There was no direct investment of IDA funding for the subproject but the catchment treatment under the larger project did help to consolidate the carbon sequestration.

March 31, 2012: Closing date anticipated at appraisal

Sometime in 2011 or 2012 the original closing date was extended to March 31, 2013. The ICR does not mention when this extension occurred.

August 24, 2012: Additional financing (AF) of US\$37 million was provided with the same closing date as the original project. The amount of the AF was mentioned in the Project Paper for the AF, but the amount was not explicitly mentioned in Annex 1 of the ICR.

September 27, 2012: Closing date for the project extended for three years to March 31, 2016 (ICR, paragraph 18).

February 3, 2016: Project subject to a level II restructuring (ICR, page xii and paragraph 33).

March 31, 2016: The original project closed as scheduled (ICR, paragraph 18); closing date for the AF extended to March 31, 2017 (ICR, paragraph 18) to permit use of nondisbursed US\$10.58 million from the original project (ICR, paragraph 18).

March 31, 2017: AF closed

September 20, 2017: The ICR reported combined results of original project and AF achieved through March 31, 2017 although the original project had closed a year earlier.

Restructuring: On August 24, 2012 additional financing (AF) of US\$37 million was provided with the same closing date as the original project. While the amount of the AF was mentioned in the Project Paper for the AF it was not explicitly mentioned in Annex 1 of the ICR. This first restructuring did not amend the PDO but amended the results framework and changed PDO indicators as well as some intermediate output indicators. Since changes to the PDO indicators associated with the AF reflected a material change in the project's ambition a split rating of achievements before and after the AF for determining the project's overall outcome was justified. On February 3, 2016 a level II restructuring authorized the extension of the closing date for the AF by one year to permit the use of undisbursed funds (US\$10.58 million) from the original project (ICR, paragraph 18). See also ICR, page xii and paragraph 33.

3. Relevance of Objectives & Design

a. Relevance of Objectives

The project's objectives were to assist the Government of Himachal Pradesh to improve the productive potential of the project area and increase incomes of rural inhabitants in selected watersheds. At appraisal, the project was consistent with the Bank's then-current Country Assistance Strategy (CAS) 2005-2008. That strategy aimed to "support better management of watersheds, while enhancing the livelihood opportunities of the poor" (CAS, page 24). This goal fell under the broad objective of "investing in people and empowering communities, particularly through state-level interactions." The project remained consistent with the Country



Partnership Strategies (CPS) 2009-2012 and for 2013-2017 (ICR, paragraph 48). The project's objectives also aligned with the overarching goals of the CPS 2013-2017 to help the Government of Himachal Pradesh accelerate economic growth, reduce poverty, and increase shared prosperity. In addition, the latter CPS recognized the income opportunities associated with increased agricultural production as well as India's desire for sustainable development and the sound management of its natural resources.

Despite the alignment of the project's objectives with country and Bank development strategies, the objectives were unambitious. While the original PDO indicator for productive potential was arguably ambitious, it was weak because there was no distinction regarding the expected yield increases for specific crops (i.e., 50 percent increase for all crops). Similarly, there was no baseline for the expected "income increases," and income increases were not defined and neither were "rural inhabitants in selected watersheds." The relevance of the original PDO was therefore rated modest. The PDO indicators (revised at the time of the additional financing) were improved to become more precise and relevant. The relevance of the revised objectives was therefore rated substantial but only marginally so.

Rating
Modest

Revised Rating
Substantial

b. Relevance of Design

The ICR (paragraph 21) notes that the project was well-designed "with a paradigm shift of implementation arrangements from the watershed development committees to constitutionally elected" Panchayati Raj institutions. Well-designed projects should facilitate correspondingly well-designed results framework, but the ICR noted multiple flaws in the original results frameworks. The ICR also noted "shortcomings" in the results framework including a "lack of rigor in the initial quality of the PDO and intermediary outcome indicators" (ICR paragraph 32), the project lacked a robust results framework from the start (ICR, paragraph 86), and some of the project's activities and outputs were identified as outcomes (ICR, Annex 2, paragraph 6). The flaws in the results framework were not addressed until the project's sixth year (i.e., in August 2012) in connection with the approval of additional financing to expand the project's geographical scope.

The relevance of the project's original design was therefore rated modest and relevance of design after additional financing was rated substantial.

Rating
Modest

Revised Rating
Substantial

4. Achievement of Objectives (Efficacy)

Objective 1 **Objective**



To assess the project's efficacy, the overall PDO has been unbundled into two subobjectives, namely (a) improving the productive potential of the project area through increasing the yields of milk, paddy, wheat, maize, and horticultural or high-value crops and (b) increasing real household incomes of rural inhabitants in selected watersheds through enhanced mountain livelihoods and improved agricultural practices. The following text provides an assessment of the extent to which the project achieved these objectives.

(a) Assist Himachal Pradesh in improving its productive potential of the project area.

Rationale

In 2012, additional financing was provided to the project. The additional financing continued selected activities in the original 602 Gram Panchayats (GP), which are local governments, and added 108 more GPs in areas adjacent to the original GPs. Targets for some indicators were revised for the original GPs and new targets were established for the new GPs.

Outputs: The original target was that 10 percent of available rain-fed agricultural land would have access to irrigation facilities; the project achieved 9.4 percent (ICR, page vii). The project also created 202 ha of pondage and covered nearly 600,000 ha with irrigation facilities spread over 272 microwatersheds (ICR, Annex 2, paragraph 9). The project constructed 13,795 water harvesting and storage structures and 468 km of irrigation channels; over 12,000 ha were brought under irrigation. Fifty-five percent of this land is now under high-value vegetable crops with the remainder under traditional crops (ICR, paragraph 60).

The evidence supports a plausible case that the project's activities and outputs contributed to the results achieved. These have included the introduction of high-yielding seeds, vermicomposting, integrated nutrients, integrated pest management, and other practices to improve crop management. In contrast, the ICR noted that only some of the results represent project outputs raising questions regarding attribution (paragraph 6). □

Outcomes: This section will review outcomes before and after the additional financing in August 2012 which provided financing for the project to be extended to additional GPs and the level II restructuring in February 2016. □

The original project target for increased crop productivity was to achieve a 50 percent increase in the yields of wheat, maize, milk, paddy rice, and high-value crops (HVCs - mainly vegetables). The original target for yield increases was 50 percent for all major traditional crops and high value crops (mainly vegetables) (PAD, page 16). There is no record in the ICR of the yields achieved by August 2012 when the Project Paper for additional financing was approved and agricultural productivity targets were adjusted. The ICR does, however, provide evidence of improvements in the productive potential in the project area. The ICR (page iii) reported that the actual increases in yields achieved in the original GPs were wheat +25.9 percent; maize +28.9 percent; paddy rice +26.5 percent; milk +10.7 percent; and high-value crops +700 percent. There was also a 46 percent increase (compared with a target of 50 percent) in the production of grasses, bushes, and trees but no baseline was mentioned in the ICR. The purpose of increasing this production was to reverse degradation of the natural resources base and to increase fodder production.

In the GPs added at the time of the additional financing there was a 20.7 percent increase in the production of wheat (target +10 percent) and a 25.2 percent increase in the production of maize (target +10 percent) (ICR, page iv).

The Project Paper for additional financing adjusted the targets for yield increases in the original project (the original project area) downward to 30, 30, 20, 20 and 50 percent for wheat, maize, milk, paddy rice and



HVCs, respectively. Crop production increases in the GPs added by the additional financing were a 20.7 percent increase for wheat (compared with a target of 10 percent) and an increase of 25.2 percent for maize (compared with a target of 10 percent) (ICR, page iv). One of the new PDO indicators established in the Project Paper for the additional financing was a 30 percent increase in irrigation potential in the project area at the end of the project but again no baseline was established. The ICR claimed that this target was exceeded because of an achievement of 38 percent when the project closed. The ICR also declared that the utilization and productivity of water increased substantially, resulting in increased irrigation and yields and the value of agricultural products. While the increased irrigation potential could plausibly have been attributable to the project and led to increased yields, the ICR could not establish the extent to which the increases in productivity potential before or after additional financing were attributable to the project. Fish farming may emerge as another additional source of income from water resource development after the additional financing.

This Review concludes (on the basis of information in the ICR) that the objective of increasing the agricultural productive potential of the project area was not achieved before additional financing using the PDO target associated with the original project (a 50 percent increase in crop yields). In contrast, Objective 1 was achieved after the additional financing that, among other things, amended the PDO targets downwards.

Hence the efficacy of Objective 1 was rated modest before additional financing and substantial after additional financing.

Rating
Modest

Objective 1 Revision 1

Revised Objective

(a) Assist Himachal Pradesh in improving the productive potential of the project area (with revised indicators)

Revised Rationale

See above explanation.

Revised Rating
Substantial

Objective 2

Objective

(b) Assist Himachal Pradesh in increase incomes of rural inhabitants in selected watersheds

Rationale

Outputs: As noted already there was a large shift from traditional crops (e.g., wheat, maize and rice) toward



high-value vegetable crops, improved irrigation infrastructure (ICR, paragraph 58), and a 30 percent reduction in the use of costly chemical fertilizers (ICR, paragraph 39), which a priori would have increased household incomes. According to the ICR the project also increased access to markets, schools, and health care centers as a result of new project-financed bridges and footpaths (Annex 4, paragraph 10).

Outcomes: The original target in the PAD (page 16) was a "20 percent increase in real incomes over the baseline for households in the project areas," but there is no information in the ICR regarding nominal or real income improvements for households in the project area during the implementation of the original project. □□

The targets for increases in real income were revised in the Project Paper (Annex 1) for the additional financing. They were as follows: 15 percent increase in the original GPs and an 8 percent increase in the new GPs. The ICR (page iii) reported that, on average, households in a "representative sample of villages" in the project area (Annex 4, paragraph 6) experienced an increase of 32.4 percent in their real annual incomes, which was 11.2 percent above the increase observed for an undefined control group (ICR, page iii). The 32.4 percent increase did not distinguish between the original and added GPs. It was not possible to confidently determine the increase in real annual household incomes separately for the original and added GPs due to a lack of data and methodological flaws in the final impact assessment (ICR, paragraph 55). In a comment on a draft of this Review the Bank task team provided information on estimates made by an Impact Evaluation (IE) that showed a 7.5 percent increase in household income among the original GPs and a 40 percent increase in income among the GPs that were added to the project in conjunction with the additional financing - above the control group. According to the Bank management team there was, however, considerable doubt among the ICR preparation team about the reliability of the 40 percent increase.

The ICR (page viii) does state that just over 62 percent of households benefitted from the Mountain Livelihood Fund through improved business plans. The original target was 60 percent; there was no separate target for the GPs added in August 2012. □

As the ICR concluded, "Practically all project activities have contributed to an overall increase in real income of the target beneficiaries" (paragraph 56). Without providing any evidence to support its conclusion, the ICR also declared in the same paragraph that marginal and small farmers realized the highest percentage increase in incomes, but again no evidence was provided to substantiate this claim. Questions surrounding the sampling of households in an "unspecified sample of villages" in the project area and questions about the sampling of households in an "undefined control group" outside the project area raised doubts about the reliability of the attribution of changes in real income increases of households in the project area to project investments. □

Two PDO-level indicators were added in conjunction with additional financing in 2012: number of project beneficiaries and number of female beneficiaries. The ICR asserts that as many as 723,000 people benefitted from the project (ICR, page iv), but no source for this assertion is provided although the ICR indicates that some of these people could also have been the continuing beneficiaries of the World Bank's Integrated Watershed Development Project (1999-2005). According to the ICR, women were elected to 62 percent of the positions in Panchayat Raj institutions (page iv). The ICR also noted that the project improved women's administrative capacity but there is no basis for this conclusion provided in the ICR.

Nevertheless, IEG acknowledges advice from the Bank's task team that this conclusion was drawn from "an



objective assessment based on interactions with women members and the project staff, and (the Bank) had no reason to believe it otherwise". Nonetheless, the ICR neither indicated the year in which the election(s) occurred nor did it identify a compelling explanation for this outcome. This Review notes that the Government of Himachal Pradesh has reserved 50 percent of all elected Panchayat Raj positions for women since 2009, and there is no upper limit on the percentage of women that can be elected to these positions. □

The additional financing provided in 2012 also continued funding some activities in the original group of GPs. The ICR does not indicate what proportion of the additional financing was used for activities in the additional GPs versus the proportion allocated to the original GPs. Due to the lack of data and methodological weaknesses and uncertainties in the final impact assessment of the project already mentioned, it was not possible to estimate the increase in incomes (nominal or real) of rural inhabitants separately for the project before or after the additional financing (ICR, paragraph 55). □□

This Review therefore rates the efficacy of Objective 2 as modest before and after additional financing.

Biocarbon Subproject. This subproject was implemented in parallel. There was one indicator for the Biocarbon subproject (i.e., a target of at least 5,000 hectares to benefit from biocarbon plantations) without a corresponding PDO-level indicator. The ICR (page viii) reported that 4,374 hectares benefitted from the biocarbon plantations, which indicates there was significant progress towards the target but it was not achieved. The biocarbon subproject was the first watershed project that aligned with the Kyoto Protocol (ICR, paragraph 16) in harvesting global environmental benefits by sequestering carbon from degraded lands. Carbon credits from the Spanish and Canadian governments provided US\$316,000, which was then distributed to project beneficiaries (ICR, Annex 3, paragraph 1). In addition to these economic benefits, there was an added benefit from biomass production in the form of dead wood and grasses harvested (estimated to be 120 tons per year) and sold by farmers. Other benefits included improved soil moisture content, higher soil organic carbon, and an increase in the discharge rate in the nearest spring downstream of the parcels (ICR, Annex 3, paragraph 11).

Rating
Modest

Objective 2 Revision 1

Revised Objective

(b) Assist Himachal Pradesh in increasing incomes of rural inhabitants in selected watersheds (with revised indicators)

Revised Rationale

See explanation above.

Revised Rating

Modest



5. Efficiency

This project sought to scale up the experience of the Bank's six-year Integrated Watershed Development Project (IWDP), which closed in late 2005. Hence, rather than completing an updated economic analysis for this new project, the project team chose to rely on the economic and financial analysis completed for the IWDP. According to the PAD (page 46), the estimated economic rate of return (ERR) for the IWDP at appraisal was between 16.6 and 17.2 percent, but the ICR (paragraph 70) noted that the ERR for the two main benefit scenarios for the completed IWDP was between 14.7 and 15.7 percent (ICR, Annex 4, paragraph 7). Relying on the IWDP's analysis compromised the Bank's ability to repeat such an analysis for the Mid-Himalayan Project with the actual project costs and the estimated benefits based on actual project data.

Noting "the absence of sound data for a comprehensive financial analysis" (ICR, Annex 4, paragraph 6) the project team used an alternative means of analysis. According to the Bank team the authors of the ICR had access to preliminary data on average household incomes estimated by the independent Impact Evaluation (IE) in the original Gram Panchyats (GPs) and in the GPs added as a result of additional financing (AF) during project restructuring. These authors, however, had concerns about the veracity of these estimates by the IE. The ICR team therefore adjusted elements of the IE analysis to derive amended income estimates but (as noted already in Section 4 of this Review) were left with doubts about these income levels in the original and additional GPs. Consequently the ICR mission undertook a field visit to five representative project areas to calculate typical household incomes for various project-financed enterprises. As Annex 4 of the ICR explained, based on these financial models of the various income-generating activities and the data collected from an unspecified sample of villages, incremental real incomes for each of the activities were calculated based on "an undefined control group." It was assumed that beneficiaries realize 50 percent of the average incremental annual income reported in year 2 after they joined the project and 100 percent of the reported income increase from year 3, with no changes thereafter. The total annual economic project costs (excluding taxes but including beneficiary contributions) were deducted to arrive at annual project incremental net benefits. The period of analysis was 20 years, including the project investment period, and it was assumed that beneficiaries' contribution to operations and maintenance during the last project year would continue for the remaining period for the analysis.

Using this approach, the ICR (Annex 4, paragraph 7) estimated an ERR for the project of 18.1 percent, which the ICR text claimed was well above the social discount rate of 10 percent that the Bank currently uses for investment projects in India. The ICR noted that the estimated EIRR is probably an underestimate because its calculation does not reflect some social and environmental benefits that are difficult to quantify in monetary terms. An example cited by the ICR was the benefit of the reduced vulnerability to the consequences of climate change. A sensitivity analysis provided by the Bank task team showed that, based on these estimates, "the project remains viable (with an EIRR of 10%) even if the actually realized benefits are 36% below the estimated benefits" (Bank task team). It should also be pointed out that the final IE (page 225) concluded that the project's benefit cost ratio was 1.11 and the EIRR was 22.8% which arguably provided an independent confirmation of the project's economic viability. This assessment is, however, of very doubtful validity because the benefit cost ratio of 1.11 was calculated using a discount rate of 8% and the same data could not possibly



have generated an internal rate of return as high as 22.8%.

In summary, this Review has several concerns regarding the estimates of the project's efficiency in the ICR. The estimates of project benefits for undefined households were (according to the Bank team) drawn from an unspecified sample of villages "representative of the project areas" in the project area and compared with an undefined control group outside the project area. The lack of an explicit record in the ICR of the methodology used to collect real income data for households raises valid questions about the reliability of the estimates of changes in real income increases of households (or rural inhabitants) in the project area. In addition, the attribution of the estimated increases in income from project investments was also not verified because it was based on comparisons against an "undefined control group". Therefore this Review concluded that there is considerable uncertainty regarding the reliability of the EIRR estimates based on the household data described in the ICR. Hence the estimate of the ERR for this project of 18.1% is also uncertain although the project team states that it "feels that 18.1% is a credible estimate". As mentioned already, the estimated internal rate of return of 22.8% for this project in final the IE report is also questionable. □

An example of the uncertainties is the summary of financial profitability of key livelihood activities in Table 4.5 of Annex 4 of the ICR. The table shows no data on labor associated with the operation of 50 percent of the livelihood activities listed in Table 4.5. This begs the question as to whether the costs of hired and family labor have been accounted for in the estimates of net profit for these activities. The substantial increases in the yields of high value crops (HVCs) mentioned in the ICR as a highlight and major achievement of this project are not reflected in Table 4.5. None of the activities in Table 4.5 focus on HVC production although 8 percent of the sample is aimed at vegetable nurseries. Nevertheless the Bank task team advised IEG that HVC crops were "included in the (rate of) return calculation in the economic and financial analysis (EFA)"

Finally, the project coordinating costs of 13.7 percent of total project costs was high. This was surprising because the ICR asserted that the Mid Himalayan Watershed Project "established a PMU and hired staff from the IWDP to benefit from their experience" (paragraph 21). Consequently, it might have been anticipated that coordinating costs would be relatively low, but it is acknowledged that the project's implementation period was extended from about 7 years to almost 12 years. This considerable extension would have resulted in major additional coordinating costs.

Based on the major concerns regarding the basis for the estimate of the project's rate of return this Review rates the project's efficiency as modest.

Efficiency Rating

Modest

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 (%)
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Appraisal		0	0 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	18.10	100.00 <input type="checkbox"/> Not Applicable

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

6. Outcome

This project's objectives were modestly and substantially relevant to the needs of Himachal Pradesh's agriculturally based economy and consistent with the World Bank's country program strategies for India before and after additional financing. Similarly, the project's design was rated, respectively, modest and substantial before and after additional financing. Based on the evidence in the ICR on increased agricultural yields achieved during the project's implementation this Review concluded that improvements in productive potential in the project area were modest before and substantial after the additional financing. According to the ICR average incomes in an unspecified sample of households increased by a margin of 11.2 percent over an undefined control group, but there were serious questions (according to the ICR) about whether the increased incomes were attributable to the project.

This Review concluded that the evidence that rural inhabitants (not defined in the ICR but implicitly assumed to be rural households) achieved increased income as a result of the project was weak and therefore rated the achievement of this objective before and after additional financing as modest. Given the importance of increasing productive potential for Himachal Pradesh (which could arguably over time lead to increased incomes) this Review's rating of the project's overall efficacy was dominated by its rating of that objective. □

Major questions have been raised in this Review about the reliability of the data used to arrive at the project's efficiency and the estimated ERR of 18.1 percent. The Review has also underlined the high cost of project coordination at 13.7 percent of total project costs, but it can be explained by the lengthy implementation period. Overall this Review rates the project's efficiency as modest. □

Combining the ratings for relevance, efficacy and efficiency the outcome before additional financing was unsatisfactory (score of 2) and after additional financing it was moderately satisfactory (score of 4). The average of the two outcome ratings (weighted by the project disbursements before and after additional financing, (respectively 53 percent and 47 percent) was $(0.53 \times 2) + (0.47 \times 4) = 2.94$.

On the basis of the split rating this Review concluded that the project had significant shortcomings and its overall outcome has therefore been rated as moderately unsatisfactory.

a. Outcome Rating

Moderately Unsatisfactory



7. Rationale for Risk to Development Outcome Rating

The PAD (page 7) identified the possibility that increased production would not lead to higher incomes for farm households. While the ICR asserted that productivity of traditional crops, such as wheat and maize as well as high-value crops had increased, the ICR lacked convincing evidence about the extent to which future productive potential had increased. It was plausible, however, that the project investments established a potential for higher agricultural productivity and that with continued maintenance of the project's infrastructure higher productivity and increased incomes for households could be sustained at least among households growing high-value crops. Through the protection of forested areas, a biocarbon subproject (added in 2008) could also be expected to provide continuing economic benefits to many rural households in the watersheds.

The project created or improved roads and footpaths and constructed some footbridges to provide or improve access to markets for farmers as well as health and education facilities. This infrastructure will require periodic maintenance or repair in the future to sustain higher productivity, but the ICR does not identify or discuss this issue.

Climate change was not identified in the PAD as a possible risk to the project's development outcome, but the ICR (paragraph 28) mentions that the "trend toward lower and more concentrated precipitation as possible impacts of climate change were not considered a possible risk." Given the uncertainty about the specific risks of climate change to particular geographic areas, it may affect the project's sustainability. It is not clear from information in the ICR that adequate arrangements are in place to help avoid or mitigate the uncertainties associated with climate change in the project area.

a. Risk to Development Outcome Rating

Modest

8. Assessment of Bank Performance

a. Quality-at-Entry

As a "repeater" project (PAD, page 2), the Mid-Himalayan Watershed project benefitted from the lessons and experiences of the Integrated Water Development Program (IWDP) and retained its core staff. Nonetheless, the project lacked a robust results framework (ICR, paragraph 86), and there was a mischaracterization of activities and outputs as intermediate outcomes. In addition, the absence of an ex ante economic and financial analysis at appraisal based on the parameters of this project compromised the comparability of economic and financial analysis at appraisal with the analysis of the completed project irrespective of the lack of reliable data with which to undertake the final analysis. Women were supposed to be major beneficiaries of the project, and (according to the ICR) they were, but there was no indicator relevant to the measurement of the extent to which women were beneficiaries until 2012 (see ICR, Data Sheet, PDO indicator 7)



Quality-at-Entry Rating

Moderately Satisfactory

b. Quality of supervision

Bank staff maintained good relations with the Government of Himachal Pradesh during project implementation. The ICR described the Bank's supervision as continuous, comprehensive, and responsive to the borrower's needs, such as the extensions of the project's duration and its restructuring in 2016, which the government requested (paragraph 87). The ICR also noted that following the midterm review (MTR) mission in November 2009 the Bank "incorporated the first ever Bio-Carbon technical assistance for creating a Carbon sink with significant benefits" (ICR, paragraph 89).

Despite these strengths, there were significant weaknesses. The MTR in 2009 recommended changes in some of the indicators and some targets, but the project team delayed acting on these recommendations until August 2012 in conjunction with the additional financing that increased the scope of the project (ICR, paragraphs 7 and 32). Only in that year, more than six years after the project began, was attention given to providing clearer evidence of a meaningful theory of change. There was also "a complete absence of implementation support and supervision of the economic and financial analysis" (ICR, paragraph 88) to inform decision makers about the impact of the project. In addition, economists played only a small – and late role – in designing the final impact assessment and in analyzing the project's benefits (ICR, paragraph 88).

A weakness related to data on the project's performance was that the multiple discrepancies between the presumably correct results reported in the ICR and the results reported in the last Implementation Supervision Report (discussed below in Section 15) which raised concerns in this Review about the quality of supervision. For example, if the data in the final ISR (which included similar data in previous ISRs) were incorrect, then decisions during project supervision (and perhaps Bank management assessments of the projects' progress) were being made based on invalid or unreliable information.

Quality of Supervision Rating

Moderately Satisfactory

Overall Bank Performance Rating

Moderately Satisfactory

9. Assessment of Borrower Performance

a. Government Performance

The Government of Himachal Pradesh demonstrated strong ownership of the project in multiple ways during the project's preparation and implementation including decentralizing responsibility for project implementation to local governments. It selected a state agency, the Himachal Pradesh Natural Resources



Management Society, to oversee implementation of the project. The state's Chief Minister chaired the Society (ICR, paragraphs 91 to 93). Toward the project's originally scheduled closing date, more than \$10 million remained unspent because of currency fluctuations. Consequently, the state government requested both an extension of the project as well as the inclusion of additional GPs. The state government also provided counterpart funds in a timely manner, allocated resources for operation and maintenance in the project areas, and appointed experienced staff to work on the project.

Government Performance Rating

Satisfactory

b. Implementing Agency Performance

Watershed development offices "proved successful in undertaking community organization and capacity-building activities, while supervising watershed development progress" (ICR, paragraph 95). Multisectoral teams assisted these offices in each of the ten districts. This "multidisciplinary arrangement proved to be the critical mix in inspiring ownership, strengthening commitment, and engaging in a participatory process" (ICR, paragraph 95). Although there were positive impacts that were "well evident" (ICR, paragraph 94), the implementing agency did not quantify them, which suggests they were not captured or suitably reported. In addition, there were different views about how satisfactory the communication was between the project's two regional offices and the office of the chief project director, as described below in the section on monitoring and evaluation. Data collected and stored at the regional offices were not always shared with or provided to the office of the chief project officer..

Implementing Agency Performance Rating

Moderately Satisfactory

Overall Borrower Performance Rating

Moderately Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

The PAD's discussion of M&E design (page 6) identified key elements of a useful but ambitious M&E system intended to provide regular and timely feedback to project management and to enable regular assessment of outcomes. This proposed system included a baseline survey (ICR, paragraph 35), which was conducted, monthly monitoring of outputs, semiannual status reports, two midterm reviews (in 2009 and 2014), and a final impact assessment. There were four initial PDO indicators, three of which were quantitative and well-matched with the PDO. The fourth, qualitative, indicator lacked specificity, had no measurable targets, and relied on subjective judgments about the "degree" to which the project had influenced state policies.

One of the project's objectives was to rely on environmentally sustainable approaches to watershed



management. According to the PAD (page 7), there would be indicators addressing soil and water quality as well as employment generation, labor reduction, and floral and faunal diversity, but the results framework did not include any such indicators, which meant that the M&E system was not able to track progress on these issues or to provide timely feedback. The ICR (paragraph 32) asserted that there was a "lack of rigor in the initial quality of the PDO and intermediate outcome indicators to measure project progress." Similarly, the project incorrectly identified several activities as intermediate outcomes (e.g., user groups taking care of resources in a sustainable manner). The validity of several indicators of strengthened institutional capacity was questionable (e.g., the percentage of meetings with a quorum; the frequency of meetings) and some indicators included more than one output (e.g., number of groups with a bank account and a policy for the resources they use). These were signs of weakness in the design of the original M&E system.□

Two PDO-level indicators added in 2012 associated with the additional financing had no baselines, so it□ was not possible to assess the appropriateness of the targets or how much change would be necessary to achieve the targets, thus precluding assessment of progress. There were also a dozen indicators representing a combination of outputs and intermediate results related to institutional strengthening but no corresponding PDO-level indicator. These were further examples of weak M&E design.

The PAD did not discuss how the M&E system would enable an assessment of attribution, which is a concern relevant to the system's design. As the PAD noted (page 5), there were three other watershed projects, such as the Integrated Watershed Development Project, in Himachal Pradesh and each of them might claim attribution for some of the changes in watershed development observed. If the IWDP had sustainable benefits, a portion of the observed benefits could reasonably be assigned to that project rather than to the Mid-Himalayan Watershed Development project.

b. M&E Implementation

In terms of M&E implementation, most of the indicators in the PAD's results framework were included in the ICR. An external midterm review of the project in 2009 prepared by an international consultancy recommended that several indicators be dropped or amended, but these recommendations were not acted upon until August 2012. At that time eight of the original intermediate outcomes were dropped and five new ones were added, including indicators on the number of beneficiaries and the percentage of beneficiaries who were female. In some instances the targets were lowered. As an illustration, the PAD (page 6) noted that primary stakeholders would be incorporated into a participatory monitoring system aimed at enhancing accountability and efficacy. The corresponding target was that 50 percent, or 301 of 602 Gram Panchayats (GPs), would have "participatory monitoring and evaluation systems in place and providing regular feedback" by March 2012. In developing the justification for the additional financing in 2012, which added 108 GPs, this indicator was dropped. In its place a new target was added to the project's results framework namely, "14 GPs are awarded by a competitive GP incentive scheme every year with their performance evaluated through participatory M&E" (ICR, Data Sheet, Intermediate Outcome Indicators 9). The number actually awarded was 117, or about 16 percent of the 710 GPs.

With the additional financing in 2012, a target of 8 percent was established for increases in real income in the added GPs. To measure change it was necessary to have a baseline, but no baseline data were collected for



the 108 added GPs (ICR, page iii). It was therefore not possible to measure any changes in income that might have occurred as a result of the project. There is therefore implicit evidence that, despite the optimistic tone of the ICR's text on M&E implementation, the unavailable baselines and data collected during implementation may not have been adequate to draw robust conclusions on the project's achievements. For example, in Annex 2 of the ICR rather than providing absolute data on improvements in productivity for crops and livestock, increases in the production and coverage of grasses, bushes and trees provides only percentage increases with no basis for these percentages in either the body of the ICR or in Annex 2. With respect to increases in real incomes for households in the project area for which the M&E was acknowledged in the ICR as being limited and unsystematic (Annex 4, paragraph 2) the basis for the analysis in Annex 4 is the earlier project Integrated Watershed Development Project assuming annual average incremental incomes.□□□□

c. M&E Utilization

The ICR (paragraph 36) noted that the project management unit's M&E team "provided reliable data." In contrast, timely and current monitoring data were not consistently available, thus diminishing the value of the data to decision makers responsible for tracking progress against planned activities.

According to the Bank project team, two regional offices had not shared data with the office of the chief project director. It is also possible that the state government wasted money on the M&E system because, despite assertions in the ICR that "the PMUs M&E team provided reliable data which highlighted the project's achievements and the lessons learned from implementation". The ICR suggests that much of the information generated by the project's M&E system may have been of poor quality and unreliable. As a result project performance data had to be revalidated for the Final Impact Assessment and for the ICR at considerable cost (ICR, paragraph 36).

M&E Quality Rating

Modest

11. Other Issues

a. Safeguards

This Environmental Category B project triggered five safeguard policies:

- Environmental Assessment (OP 4.01)
- Natural Habitats (OP 4.04)
- Pest Management (OP 4.09)
- Forests (OP 4.36)
- Indigenous People (OP 4.10)

The PAD identified each of these safeguard policies and explained how their expectations and requirements would be addressed, including completion of an Environmental and Social Assessment as well as an



accompanying monitoring plan. As required, the PAD contained an annex that explained the assessment processes and mitigation plans. In turn, the ICR identified the relevant safeguards and what was done to monitor and ensure compliance with them. The safeguards were an integral part of the participating communities' watershed development plans. According to the ICR attention to safeguards was the responsibility of the GPs; their monitoring was incorporated into the project's M&E system and was rated a satisfactory by the ICR (paragraph 38). The Gram Panchayats were tasked with the responsibility for ensuring compliance with the safeguards using checklists. This action was an assignment of responsibility but the ICR did not provide evidence of compliance with the safeguards. One of the project's indicators addressed whether environmental and social screening and mitigation systems were fully functional (ICR, page x), albeit without evidence to support this conclusion -- other than the project team's self-assessment. The ICR (page x) also noted that these systems "were fully operational" and that many of the project's interventions were intended to benefit environmental quality.

In 2012 the project received additional financing of approximately US\$37 million to expand by 108 the number of participating communities, for a total of 710 Gram Panchayats. The related Project paper concluded "that the additional financing activities are not expected to have any negative impact on [the] social and physical environment." Despite this prediction there is no evidence, at least not in the ICR, that the previous social or environmental assessments were updated.

The project neither requested nor received any significant deviations or waivers from the Bank's safeguard policies, and the ICR did not identify any problems that arose during implementation of the safeguard policies. Most important, at the project's closure, no negative social or environmental impacts had been reported.

b. Fiduciary Compliance

The project was consistently rated among the top five "Best Disbursed Projects" in the World Bank's portfolio in India. The project successfully established a web-based financial management information system. No significant audit observations were reported in any of the financial compliance reports, and all audit reports were submitted on time (ICR, paragraph 44). □□

Likewise, the project fully adhered to the World Bank's procurement procedures and guidelines (ICR, paragraph 45) and was rated satisfactory. Bidding and selection processes were conducted in a transparent manner and there was no mention of fraud, corruption, or misuse of funds in the ICR. The project discouraged cash transactions in favor of Bank transfers and relied on social audits by communities (ICR, paragraph 46).

c. Unintended impacts (Positive or Negative)

There were at least two unintended impacts, and both were positive. First, the building of foot bridges and foot paths to increase access to agricultural markets also increased access to schools and health facilities. Second, the project's design had not initially mainstreamed climate change mitigation and adaptation measures, but the addition of the biocarbon subproject in 2008 promoted the sustainable



management of forests. Over 3,200 ha of biocarbon parcels were covered under forest plantation and over 8,100 ha of lantana-infested plantation was rehabilitated with grasses (ICR, Annex 3, paragraph 2). The biocarbon subproject also provided economic incentives to some participating communities by creating a carbon sequestration mechanism. Carbon revenue of US\$316,000 was distributed to beneficiaries of the subproject. The biocarbon subproject was registered under the Clean Development Mechanism of the Kyoto Protocol.

d. Other

12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Moderately Unsatisfactory	The project's relevance improved from modest to substantial following the additional financing. While the prospects for improved productive potential of agriculture in the project area increased from modest to marginally substantial following the additional financing, the increase in incomes of rural inhabitants remained modest. Since efficiency was also rated modest the project's overall outcome was rated moderately unsatisfactory.
Risk to Development Outcome	Modest	Modest	---
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	---
Borrower Performance	Moderately Satisfactory	Moderately Satisfactory	---
Quality of ICR		Modest	---

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

The ICR identifies several key lessons of which two are especially important with useful implications beyond this project.

Local Capacity Building. There is value in developing local capacity and then linking the project's activities to local ownership and assumption of responsibility for many of the activities, such as cost sharing for the building of infrastructure. The ICR (paragraph 97) concluded that local ownership and responsibility provide a key explanation for the positive results achieved during implementation.

Watershed Development. Comprehensive treatment of selected catchments and application of productive practices have created improved income streams, thus making the watershed development project relevant for transforming the productive potential of rain-fed agriculture.

Other lessons, based on this Review, include the following:

Importance of a Robust Results Framework. The absence of a robust results framework (an explicit theory of change) and suitable indicators at the project's initiation demonstrated the value of having an M&E specialist involved in a project's design and the implementation of M&E programs.

Secondary Benefits from Investments in Agricultural Production. Investments aimed at increasing agricultural production, including those related to crop diversification, can produce many indirect benefits, such as improved nutrition, a healthier diet, as well as improved access to schools and health care when a project improves or builds roads, foot bridges, and foot paths for more efficient marketing of agricultural products.

14. Assessment Recommended?

No

15. Comments on Quality of ICR

The ICR represents a synthesis of the project's strengths, its accomplishments as well as its shortcomings. On the one hand, the ICR is well written, informative, provides a detailed overview of the project, and is well aligned with the PDO as described in the PAD. The lessons learned are clear, useful, and based on the evidence presented in the ICR. The ICR recognizes several of the project's weaknesses, such as a lack of rigor in the initial quality of the PDO and the intermediate outcome indicators, the delay in contracting a third-party monitoring agency for the final impact assessment (and its methodological flaws without specifying what they were), and the absence of an ex ante economic and financial analysis.

On the other hand, the ICR presents several conclusions on the project's efficacy without the evidence that led to or justified the conclusions. The ICR (paragraph 52) noted that the project was well designed but does not identify the criteria used to make this judgment or triangulate data to reach this conclusion. The ICR does not reference a theory of change and does not reconcile the seeming contradiction between a supposedly well-designed project and the absence of a robust results framework, which would logically follow the design.



As the ICR observed, more than six years after the project began there were several revisions to the PDO and intermediate outcome indicators. These revisions provided "clearer evidence on the logical progression along the results chain" (ICR, paragraph 86), which was absent during the project's first six years.

The ICR could usefully have provided the indicator values at the end of the project for the control areas so that the net gains attributable to the project could be distinguished from the gains attributable to other factors.

Many of the results reported in the ICR were considerably different from the results reported in the project's final Implementation Status and Results (ISR) Report of March 16, 2017, just two weeks before the date of the ICR. The ISR and the ICR indicated that their data were from the same source, namely an impact assessment of the project. The ICR did not explain why these discrepancies occurred.

Finally, the assessment of efficiency was weak not only because it relied on data from another project (IWDP) and estimates from an inadequate M&E system but also because there was no sensitivity analysis that might have allayed questions about the relevance of IWDP data and project-based estimates for the analysis of efficiency in this project.

a. Quality of ICR Rating

Modest