



1. Project Data

Project ID

P120028

Project Name

Community Agri. Res. Managem. and Comp.

Country

Armenia

Practice Area(Lead)

Agriculture

L/C/TF Number(s)

IDA-48910

Closing Date (Original)

30-Sep-2016

Total Project Cost (USD)

21,330,000.00

Bank Approval Date

22-Mar-2011

Closing Date (Actual)

30-Sep-2016

IBRD/IDA (USD)

Grants (USD)

Original Commitment

16,000,000.00

0.00

Revised Commitment

15,857,584.26

0.00

Actual

15,333,394.07

0.00

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2. Project Objectives and Components

a. Objectives

As stated in the Financing Agreement, the objective of the Community Agricultural Resource Management and Competitiveness Project was to **“improve productivity and sustainability of pasture/livestock livelihood systems in selected communities”** of Armenia. This was identical to the development objective stated in the Project Appraisal Document (PAD). The objective in the Financing Agreement is used in this Review’s assessment of the extent to which the project achieved its objective.



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

No

c. Will a split evaluation be undertaken?

No

d. Components

The PAD partitioned the project into four major components. The main activities in these components and their total costs are summarized below.

Component 1: Community Pasture/Livestock Management System (Appraisal: US\$15.36 million; Actual: US\$17.88 million). This component aimed to introduce efficient and sustainable livestock production systems based on community-managed pasture/fodder in selected mountainous communities. The plan was to reverse the trend of destructive grazing by implementing more efficient pasture use, improving systems of fodder production and animal feeding, and raising the efficiency of animal production. This was implemented through two sub-components: (a) development of pasture/livestock management plans (Appraisal: US\$2.30 mil.) which aimed to finance participatory preparation of sustainable pasture and livestock management plans based on comprehensive assessments of all pasture and fodder production areas; and (b) Community Fund for implementation of pasture/livestock management plans (Appraisal: US\$13.06 mil) through block grants for Pasture User Associations (PUAs) to implement their plans. The financial support under the two sub-components also covered mobilization of the Pasture User Associations (PUAs) at village level and carrying out pasture assessments, and studies on cost recovery mechanisms for beneficiaries to repay the whole or part of costs of agricultural equipment (PAD, Paragraph 19).

Component 2: Strengthening Support Services (Appraisal: US\$2.48 million; Actual: US\$2.35 million). This component aimed to increase livestock productivity and improve pasture production and grazing systems by improving the supporting services for farmers involved in livestock production. This was planned to be achieved by providing support to: (a) improve agricultural advisory services in livestock-related topics; and (b) improve community animal health services (PAD, Paragraph 20).

Component 3: Competitive Grants Program (Appraisal: US\$2.05 million; Actual: US\$2.09 million). This component aimed to increase sales revenues from livestock and natural resources through support to village-level agribusiness and farmer groups to develop new business opportunities, improve marketing, promote food safety practices, and introduce and demonstrate new technologies that benefit communities engaged in livestock production (PAD, Paragraph 21).

Component 4: Project Management and Monitoring and Evaluation (Appraisal: US\$1.45 million; Actual: US\$1.2 million). This component included management of the project by the Agricultural Projects Implementation Unit (APIU) under the Ministry of Agriculture (MoA) that implemented the previous World Bank (WB) supported projects - Rural Enterprise and Small-scale Commercial Agriculture Development (RESCAD) Project and the Avian Influenza Preparedness (AIP) Project. More specifically, this component aimed to finance (i) project management and training, including annual operational reviews and audits; and (ii) monitoring and evaluation (PAD, Paragraph 23).



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

Project Costs: The full cost of the project at appraisal was US\$21.33 million. The actual costs at the time of closing were US\$23.52 million, of which US\$15.33 million was contributed by IDA loan. The increase was largely because of the increased contribution by the recipient.

Financing: The project was financed through an IDA Sector Investment Loan (SIL) of SDR 10.3 million (equivalent to US\$16.0 million at the time of appraisal).

Borrower Contribution: The Government of Armenia as Recipient committed US\$5.33 million to the project at appraisal but eventually contributed US\$8.27 million when the project closed.

Dates: The project was formally approved on March 22, 2011 and closed as planned on September 30, 2016. The mid-term review (MTR) was planned and completed on July 28, 2014.

3. Relevance of Objectives & Design

a. Relevance of Objectives

The project's objective was to **"improve productivity and sustainability of pasture/livestock livelihood systems in selected communities"**. The ICR breaks down the PDO into three key outcomes: (1) improved livestock productivity; (2) more sustainable pasture management systems; and (3) improved livelihoods in selected communities. The ICR indicates that all three elements of the PDO remained highly relevant to the World Bank Country Partnership Strategy (CPS) for Armenia at the time of closing, the FY14-FY17 CPS. Under Engagement Area 1.2: Rural Economy Sustainably Improved, the Armenia CPS states that "the focus of the program is on boosting incomes of the poorest segments of the rural population through strengthening agricultural productivity..." (p. 25). It goes on to state: "Given the importance of the agriculture sector for employment and livelihoods in the rural areas, it will be a priority for the Bank's investment support with a focus on targeting the poorest 40% (often female-headed rural households). The ongoing CARMAC Project [and] a follow-up CARMAC-2 project...are all instruments that focus on strengthening agricultural productivity and improving the welfare of the rural population" (p. 25). The FY14-FY17 CPS Results Framework also has a goal under Engagement Area 2 of "Improved management of land and pastures in the agricultural sector" (p. 38). In addition, the Armenia Sustainable Development Program (SDP) 2014-2025 includes objectives focusing on reduction of poverty, accelerated human development, and promoting inclusive territorial development through acceleration of economic growth in underdeveloped regions (p.10). The SDP states that "development of agriculture is critical for increasing productivity and creating non-agricultural jobs in rural areas, contributing to balanced regional development" (p.51). The SDP highlights the need for addressing the problem of coordinated and targeted use of natural feeding areas particularly pastures and hayfields through: (a) development of programs to improve management of natural feeding areas, (b) coordinated and effective use of pastures and hayfields, (c) ensuring access to and from pastures (road rehabilitation), and (d) promoting creation of 'cooperatives of pasture users' and supporting their activities (p.52). These indicate that all the three PDO outcomes remained highly relevant in the CPS as well as the SDP at the time of project closing.



Rating

High

b. Relevance of Design

The CARMAC project was designed to generate three major benefits: (i) promote increased diversification, competitiveness and economic growth; (ii) reverse the trend of land degradation in pastures and grasslands; and (iii) increase incomes for the poorest mountainous communities, where livestock are essential for subsistence and the main source of cash income (PAD, Paragraph 51). The project's activities under the three operational components were substantially relevant to the project's development objectives. The first and second components were relevant for raising the livestock productivity and establishing more sustainable pasture management systems. The third component was relevant for improving livelihoods by raising incomes and developing village-level agri-business opportunities. Another strong feature of the design, as the ICR notes, was the project's management system which was quite effective in saving resources and implementing planned activities - the ISR rating was Satisfactory except for one case in the supervision process, indicating acceptable overall progress of the project as planned.

The PAD contains a simplified M&E framework presenting the key indicators selected for monitoring of outcomes under the different project components. However, the underlying project logic and the results framework (causal chain) linking the project's inputs and outputs to the outcome(s) that the project seeks to achieve were not developed. This means that despite the good understanding of the main components of the project and its activities and how it could improve communal pasture and livestock systems, the underlying theory of change or project logic was not fully developed. Looking at the outcome indicators under the different components, one key omission was lack of indicators for monitoring changes in the sustainability of pastures and communal grazing areas. As outlined in the PAD, the communal pasture management plans were expected to arrest degradation of target pastures, reverse productivity losses, and boost biodiversity conservation (PAD, Paragraph 71). However, there was no direct indicator for measuring and monitoring changes in *pasture resource degradation*. The degradation of communal pastures and grazing lands was perceived as a major problem that leads to declining soil fertility and vegetation cover and increasing soil erosion due to poor soil and water management. Better livestock and grazing management practices were therefore needed to boost sustainability of communal pasture and grassland resources and contribute to reversing land degradation. The ICR and PAD indicate that the project used Pasture Management Effectiveness Tracking Tool (METT) but mainly for monitoring and assessing performance of the PUAs using some adapted scoring systems. The outcomes related to restoration or rehabilitation of degraded pastures as well as the risk that these problems will not be simply moved to newly opened remote grazing areas were not directly monitored. Similarly, the design, despite its strong components, did not include indicators for monitoring household livelihood outcomes – especially changes in non-livestock income and diversification of income sources beyond sales revenue from livestock.

Rating



Substantial

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

Improve livestock productivity

Rationale

The project development objective was to: **“improve productivity and sustainability of pasture/livestock livelihood systems in selected communities”**. For the purpose of the evaluation and discussion of achievement of the objectives, this compound objective is partitioned into three objectives:

- PDO 1: Improve livestock productivity
- PDO 2: Improve sustainability of pasture management systems
- PDO 3: Improve livelihoods of livestock farmers in selected mountain communities

Due to overlap, and to avoid repetition, under this Objective 1 section is given, classified by operational activity, the output level achievements each contributing to one or more of the three objectives. The operational activities are: (i) Community Pasture/Livestock Management System, (ii) Strengthening Support Services, and (iii) Competitive Grants Program. Outcomes are discussed separately under the Rationale heading for each objective.

Community Pasture/Livestock Management System

(a) development of pasture/livestock management plans;

- Community Pasture Management and Livestock Development Plans (CPMLDPs) were developed and implemented in 81 beneficiary communities (147% of target value), with the involvement of 133,000 livestock farmers (31,000 families - 100% of the target value).
- Community Pasture Management and Livestock Development Committees (CPMLDCs) and PUAs consumer cooperatives established in 81 communities (147% of the target value)

(b) Community Fund for implementation of pasture/livestock management plans

- 200 km water pipelines, 243 stock-watering points, 75,900 square m pasture access roads, 23 barns, 22 shepherd houses (100% of the target values).
- procurement of 736 sets of agricultural machinery for the production of winter fodder (100% of target value) in 81 communities,
- additional 121,500 ha of previously unused or underused valuable pasture lands,
- 342 ha of degraded pasture areas rehabilitated (100% of the target value),
- Reduced pressure on heavily grazed nearby areas 176,000 ha of land in total,



- Revenue increase from AMD 328,893 in 2012 to AMD 561,395 in 2016 (121% of the target value) from increased lease of pasture and grass land from 123,714 ha to 176,000 ha (50% of the target value)
- Increased production of winter fodder from 45% to 90% of the actual requirement (112% of the target value)
- Demonstration of technical measures for rehabilitation and protection of pasture resources:
 - increase in productive pasture areas through better management (stone collection etc),
 - improved vegetative cover and pasture productivity (e.g. direct seeding of grass mixtures with leguminous species (about 18-20 kg seed mixture per ha),
 - increased topsoil aeration and improvement of soil NPK nutrients through mineral fertilization

Strengthening Support Services

(a) Agriculture Advisory Services

- 148 Technology Assessment Projects (TAPs) (99% of target) and 94 fact sheets published
- 49 sets of agriculture machinery provided (100% of the target)
- 33 sets of communication and office equipment (video equipment and computers for television production purposes) provided
- 47 portable computers provided to increase access to information
- training provided for 1,138 community advisors and specialists (100% of the target)
- 228 technical advisory staff (including 40 women) participated in annual training programs, enabling provision of training to more than 20,000 farmers annually
- Increased advisory service output (70,000 farmers served - 146 demonstrations, 186 field trials, 1,370 seminars or trainings, 107 radio and TV programs, 1,223 business plans and 899 publications)

(b) Community Animal Health Services

- Five Vet Service Centers (VCS) equipped with necessary tools and equipment established (125% of target)
- Four mobile vet vehicles procured for VSCs
- 67 community veterinarians trained (139% of the target value)
- 15 veterinarians also received artificial insemination equipment
- Mobilization and Training of Community Veterinarians

Competitive Grants Program:

- A total of 69 grants funded (100% of the target) over seven rounds.
 - average project size was US\$37,000
 - average grant amount was US\$16,000
 - 24 of the 69 grants related to livestock production and processing, while the remaining grants primarily were related to production and processing of fruit and vegetables and other non-traditional



commodities

- Improved business practices and technologies demonstrated
 - 210 technical seminars and 108 field visit days; 11,600 leaflets and 4,700 brochures distributed;
 - 105 TV spots broadcast and 90 different posters and 15 newspaper articles published
 - Mobilized beneficiary contribution (in-kind and cash) estimated at US\$1.792 million (57% of the total grant projects cost).

Outcomes for Improved livestock productivity

As proposed in the PAD, the ICR indicates that the PDO outcome on increased livestock productivity was measured by changes in milk productivity and livestock weight gain. The ICR based on the project's M&E reports indicates that milk production had increased from 1,428 kg/year (baseline) to 1,964 kg/year in 2016 for cattle (17% higher than target), and from 66 kg to 85 kg/year for sheep (18.7% higher than target). The live animal productivity (meat production) increased from 320 to 408 gram/day for cattle and 81 to 103 gram/day for sheep (7% and 22% higher than the PAD, respectively).

The intermediate outcome indicators related to livestock productivity also indicate that improved systems of animal feed production, infrastructure for animal drinking water sites, access roads to remote pasture areas, and use of pasture management plans were implemented as planned or exceeded targets. In addition, the improved regional and local technical advisory systems (under Component 2), led to increased adoption of new technologies by farmers by 92% (compared to the target rate of 90%). The newly established veterinary service centers, with additional trained and certified community veterinarians, contributed to improving herd parameters such as calving rates, mortality, milk quality, etc. In addition, 69 small grants projects (Component 3) were completed (98 % of target) and provided support for modernizing livestock production.

Despite data and methodological limitations, the impact assessment data provides plausible evidence that the outcomes were related to the project interventions (some evidence of causal contribution). The project did not establish relevant control groups for various outcome indicator but applies a modified difference-in-differences approach, whereby the without-project scenario is projected based on annual average trends in the national flock or herd after some adjustment to remove the contribution of the beneficiary communities in the national statistics. The changes in milk and live animal (meat) productivity were not based on actual measurements but rather roughly estimated based on milk yield data provided annually by communities (based on discussion with all their members) (ICR, p.45) or average weights for the animals sold during the year, but without information on the numbers sold (ICR, p.45).

Rating

Substantial



Objective 2

Objective

Improve sustainability of pasture management systems

Rationale

Outcomes

The PDO outcome for increased sustainability of communal pasture management systems was measured using two indicators – (i) increased efficiency of communal pasture management, as proxied by increased communal budgetary revenues from lease of pastures, and (ii) increased pasture management effectiveness (based on METT scoring system). The ICR documents attainment of these outcomes and presents some evidence that the interventions contributed to the observed results. The efficiency of communal pasture management systems was achieved through the improved institutional, technical and financial sustainability of PUAs at community level. The M&E data indicates that at project completion, the collection of revenue from lease of pastures transferred to PUAs' budget accounts increased from AMD 328,893 in 2012 to AMD 561,395 per community in 2016 (27% higher than target). The METT scoring system data also indicated a significant and continuous improvement of management capacity and organizational coherence of the PUAs in the targeted communities.

In terms of the intermediate outcomes, institutional arrangement for community pasture management were established: 90 PUAs in 81 communities; community pasture and livestock development plans were developed and implemented in all communities covering 176,000 ha of pasture, supported by regional and local technical advisory and veterinary services. The ICR indicates that the financial sustainability of the cooperative pasture management system was strengthened through the fee-based community services and diverse revenue resources (e.g. the agriculture machinery and extension services, pasture land lease, and other business opportunities – see below). However, changes in the agro-ecological sustainability of the communal pastures was not directly measured although some data was provided on reduced grazing pressure and rehabilitation of degraded nearby pastures (342 ha) as a result of road-access and opening of 121,500 ha of previously unused or underused remote pasture lands. It is to be seen in the future whether community pasture management systems will be able to prevent degradation and grazing pressure in all the areas or whether the new system will transfer destructive grazing practices to the remote mountainous pastures where monitoring and regulating use by the PUAs could be challenging.

Rating

Substantial

Objective 3

Objective

Improve livelihoods of livestock farmers in selected mountain communities



Rationale Outcomes

This was captured through one PDO indicator measuring changes in farm sales from livestock – which is narrowly defined despite the broader intent of the objective in increasing and diversifying income and livelihood sources in target communities. The increase in farm sales from livestock was to be achieved through: (i) increasing farmers' incomes from the sale of livestock products; and (ii) providing grants to support activities to diversify income sources under Component 3 (but income from this second source was not measured).

The ICR indicates that revenues from livestock (including milk) increased from an average of AMD 532,147 per household in 2011 to AMD 1,226,226 in 2016 (increase of 112% over target). The ICR indicates that this was made possible mainly due to increase in livestock productivity as well as the shift from subsistence to commercial production. The ICR argues that increase in winter fodder production from 45% to 90% of the requirement was an important factor in this change. However, the increase in livestock sales revenue does not capture home consumption; in addition, the gains in milk yield and animal live weight were roughly estimated (see above). It is not clear how the technical interventions and availability of fodder alone would be able to bring this transformation from subsistence to commercialized production in the remote mountainous communities without complementary improvements in livestock marketing and value chains.

The ICR also indicates that the competitive grants program under Component 3 for village-level agri-business and farmer groups was able to introduce innovative income -generating activities. Out of the 69 grants, 45 grants financed production and processing of higher value fruits and vegetables and other non-traditional commodities like rabbits, chinchillas, fish and honey. It is indicated that all projects helped create viable business opportunities, and provided income gains to the beneficiaries ranging from 5 to 60%, and increased employment opportunities for 2 to 20 people under each project. However, because of selectivity problems, this does not reflect the gains for all households.

Rating Modest

5. Efficiency

The project was designed to increase the production of livestock products (predominantly milk and meat) and contribute to increase sales revenue and net-income from livestock, with majority of project benefits expected to occur within the project communities (PAD, Annex 9). Based on this, at the time of appraisal the project was estimated to have an **economic internal rate of return (ERR) of 83.1%**. The project's net incremental benefits with an economic net present value (NPV) at a discount rate of 12% and impact period of 15 years was given as US\$58.5 million, or US\$412 per ha of pasture, US\$3,488 per farm household, and US\$ 1,439 per animal unit in participating communities. Sensitivity analysis showed that project benefits would have to



fall by as much as 81% or costs increase by 440% to reduce ERR below 12% indicating high rate of returns and low sensitivity of the project returns to changes in the accumulation of costs and benefits (PAD, Paragraph 52).

The ICR presents the new ERR analysis repeated at the time of project closing. A combination of project data and national statistics was used to estimate the difference between “with” and “without” project scenarios. The benefits were calculated based on project’s estimated effect to increase the growth of livestock output by more than twice the national rate: 59% and 24% “with” and “without” the project respectively. The total value of project’s incremental livestock output at the community level was used to calculate changes in beneficiary incomes. The average annual benefit was estimated using the incremental gains in milk yield and live animal weight gain - AMD 7.2 billion (US\$14.9 million) over 2015-16. At the same time, total expenditures on Components 1 and 2 over the life of the project was US\$21.4 million. Assuming that the annual benefit of US\$14.9 million can be sustained until 2025, the ERR at project closing was estimated at 116%, which exceeds the 83.1% projected at project appraisal (ICR, Annex 3).

These estimated gains are substantial given the significant decline in both cattle and sheep prices of about 50% over the life of the project, while the costs and prices of inputs remained high or unchanged. The high return is partly driven by the low-input and less-intensive production system (relative to typical livestock projects) where very little purchased inputs are used given that mountain pastures were used for feeding stock with small pasture lease fees paid to the PUAs.

The ex-post rate of return of the competitive grant investments (component 3) was assessed on the basis of data from visits to all 69 sub-projects supported by the grants and the indicative effects on the incomes of beneficiaries. The average ERR for these sub-projects was 17.8%, indicating relatively lower returns. The ICR computed the weighted average ERR of all three project components (weighted by the cost of each component) at 107%, which is higher than the weighted average of 85% estimated at the time of appraisal. The weak data on livestock productivity gains which was the basis for calculating the returns has contributed to the high ERR estimates. In addition, while all the quantifiable benefits are counted in computing the returns, the additional investments in terms of the beneficiary and other contributions do not seem to be included in estimating the project costs.

The project has however benefited from effective project management and implementation. The overall cost of Component 4 declined from US\$1.45 million at appraisal to US\$1.2 million at closing. This has contributed to cost-effective use of project funds, leading to expansion of the target mountain communities from the initial 54 to 81. However, the ICR (Annex 2) shows that this did not increase the targeted pasture area or physical construction works (roads, watering points, etc.) which remained unchanged, suggesting that despite the increased coverage of communities the cost-savings did not produce additional outputs (and hence impact) from the project although the ‘demonstration effect’ (not estimated) from extending the projects to new communities could be significant. However, the ICR indicates that the project also benefited from timely co-financing by beneficiaries, as well as from productive partnership initiatives with HI, CARD, and commercial lenders.



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	✓	83.10	90.38 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	116.30	91.10 <input type="checkbox"/> Not Applicable

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

6. Outcome

The relevance of the project's development objectives was rated High as it fully reflected the Bank's Country Partnership Strategy as well as Armenia's Sustainable Development Plan for 2014-2025. The relevance of the project's design was rated Substantial – while the project had highly relevant components, the underlying project logic and the results framework (causal chain) linking the project's inputs and outputs to the outcome(s) were not fully developed. In addition, the design omitted PDO indicators for measuring and monitoring the biophysical sustainability of pastures and communal grazing areas. Out of the three partitioned objectives, two were rated Substantial and a third (smaller component) rated Modest. Efficiency was rated Substantial given the higher ERR and value for money. Overall, the CARMAC Project had minor shortcomings and its outcome is therefore rated *Satisfactory*.

a. Outcome Rating

Satisfactory

7. Rationale for Risk to Development Outcome Rating

The Armenia Sustainable Development Strategy (2014-2025) indicates high level of government commitment to agriculture and appropriate economic, financial and sector policies to reduce poverty for livestock dependent communities. As the ICR outlines, the ADS articulates the long-term development vision for Armenia: creating jobs, building human capital, promoting sustainable agricultural development, increasing rural incomes, and modernizing public administration and governance. The political, economic, and financial risks to development outcomes therefore seem to be low to moderate.

However, there are moderate level risks related to legal and institutional frameworks and capacity. Whereas the PUAs were registered as cooperatives and the recent adoption of the Law on Agricultural Cooperation in



Armenia provide better conditions for sustainable livestock production and pasture management, increased success and sustainability of the community based pasture management approach will depend on several factors. Experiences around the world show that cooperatives and community-based natural resource management can suffer from weak governance and lack of incentives (e.g. elite capture, unequal rights or unequal sharing of benefits), which could lead to free-riding and non-cooperative behavior. This could threaten the environmental sustainability of the communal pastures. Increased attention to creating and strengthening incentives for cooperation by ensuring access to reliable markets and market information, veterinary and agriculture extension services, new technologies, knowledge and capacity enhancement would be useful.

The ICR notes that the PUA concept itself was new to Armenia and significant effort was put to convince the Government that the PUAs would increase community motivation and bring greater accountability to the livestock raising communities. The project design foresaw signing of a Lease Agreement between the village council and PUAs so that the PUAs would collect pasture use fees and allocate them to various uses: (i) payment of the rental income to the community council; (ii) investments in pasture and livestock production infrastructure; and (iii) expenditure to maintain earlier capital investments in pasture improvements. In 2012 the GoA adopted a new Law on Pastures which not only instituted the requirement of pasture use fees collection but also made the village councils directly responsible for collection (ICR Section 2.2). The viability of the PUA model will therefore depend on how the village councils would be able to engage with PUAs as well as collect fees and allocate resources to various activities and needs required for communal management of pastures.

a. Risk to Development Outcome Rating

Modest

8. Assessment of Bank Performance

a. Quality-at-Entry

The project identification, preparation, and appraisal of the operation took about a year from the concept review to final approval – with about nine months needed for preparation of the PAD (Appraisal). As indicated earlier, the key components and objectives of the project were highly relevant to the development priorities of Armenia as evidenced by the CAS and the Armenia Sustainable Development Program (SDP). The well formulated PAD (of 79 pages with 15 Annexes) also included the M&E framework (limitations highlighted earlier) and triggered the relevant Safeguard Policy Issues. The PAD indicates that the project design process benefited from the World Bank global experience and successes in agriculture, rural development, pastures and livestock management, and participatory community development. It also indicates that the project design benefitted from institutional studies which identified governance arrangements that were broadly acceptable to rural communities.

The PAD also provides some evidence of citizen engagement and participation of diverse households including women and men in the project preparation process. Since PUAs were new to Armenia, the team also had to convince Armenian counterparts about the value of PUAs for community motivation and



sustainable management of pastures. In order to strengthen implementation capacity, the APIU prepared a detailed Operational Manual (OM) for the Component 1, which was useful in terms of establishing clearer guidelines for introducing community-based management arrangements. The PAD also outlines some components which were dropped including a dedicated component for “Improved Business Opportunities and Market Access” which was initially conceived to develop new opportunities and improve the marketing of Armenia’s livestock production. However, the activities were reconfigured to simplify project design and implementation, leading to the dropping of this seemingly relevant component (given the subsistence nature of livestock production in the remote mountain communities and the project’s interest to transform this). However, some components related to improved processing, packaging, marketing and product development were included under the CGP. The project had strong implementation arrangements, including local capacity to undertake and complete activities on schedule (e.g. mid- term review and closing).

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

The ICR documents how the WB project team worked closely with the project counterparts throughout the implementation of the project. The Bank has used about 172 staff weeks including field supervision missions and reporting. The Bank has also been involved in monitoring project procurement, disbursement, and auditing to verify that the project implementing unit and community implementing entities had fully complied with the WB environmental and social safeguards and fiduciary policies.

In addition, the WB responded quickly to the government’s requests for the reallocation of funds, which allowed the APIU to seek timely project counterpart contributions from the GoA and make any necessary adjustments in the implementation progress. This has made significant contributions for completion of all project activities by the expected project closing date. The ICR also indicates that the WB missions strengthened implementation through improved capacity building for the APIU and all PUAs, including technical training, problem solving, and knowledge exchange workshops. Given that community-based pasture management was relatively new to Armenia, proactive project supervision had contributed to implementing the project as designed.

The project has also benefited from close coordination and collaboration with some non-governmental organizations which provided complimentary support to specific components; all PUAs were supported by Heifer International (HI) through a separate grant program, which financed 30% of the machinery costs for procurement of agricultural equipment and machinery planned under Component 1. There is also evidence that the WB team actively encouraged coordination and harmonization with other development agencies (e.g. USAID, UNDP, GIZ, etc.) by APIU and beneficiary communities, and established the link between the APIU and its counterparts in other Europe and Central Asia countries to facilitate transfer (and exchange) of knowledge and experiences. The project was however managed by three different TTLs during its cycle although this turnover does not seem to have adversely affected the pace or quality of project implementation.



Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Satisfactory

9. Assessment of Borrower Performance

a. Government Performance

The ICR evidence indicates that the GoA had embraced the concept of community-based pasture management and provided strong support to the project from its design to completion. The GoA also arranged a smooth coordination between national and local (Marz-level) government and implementing agencies, which enabled efficient execution of the project activities. The GoA also provided in-kind contribution to support the involvement of national experts in project implementation and issued new policy and legislation to strengthen the community-based pasture management approach. This includes the new Law on Pastures of 2012 which instituted the requirement of pasture use fees collection and made the village councils directly responsible for collection and the Law on Agricultural Cooperatives in 2015. The ICR also indicates that the project benefited from timely auditing and good financial management - auditors issued unmodified (clean) opinions on the Project's annual financial statements. The government also complied with the public disclosure requirement for the audited financial statement. The ICR notes that due to the strong project ownership, CARMAC quickly became the flagship rural development initiative and the government decided to proceed with preparation of CARMAC 2 project even before the completion of the initial project.

Government Performance Rating

Satisfactory

b. Implementing Agency Performance

The ICR presents evidence that the performance of the project implementing agency (APIU) was consistently satisfactory. The APIU was able to meet the required standards for financial management, procurement, reimbursement, and compliance with Bank procedures and policies on environment and social safeguards and fiduciary requirements. The APIU also introduced a number of new and promising practices related to gender and citizen engagement to further enhance participatory planning and management. The APIU was responsible for implementing M&E systems including collection of data at household and community levels.

The APIU also organized local training programs for representatives from all project communities and played an important role in building capacity for the local communities. The APIU seems to have been effective in engagement of communities and their leaders in introducing the community-based pasture management approach. The ICR also notes that APIU staff were assigned responsibilities in specific districts which helped the team develop a deeper understanding of the development challenges and gain the trust of the target communities. Staff conducted frequent field visits to villages and participated in



community meetings, allowing the local stakeholders and beneficiaries to ask questions and discuss and find timely solutions to emerging problems.

Implementing Agency Performance Rating

Satisfactory

Overall Borrower Performance Rating

Satisfactory

10. M&E Design, Implementation, & Utilization

a. M&E Design

The PAD integrates M&E into the design by including it as the fourth component of the program along with project management by the APIU. It was conceived and designed for reinforcing effective project management with rigorous monitoring and evaluation (M&E) for successful project implementation. This was expected to include a baseline survey, field supervision of quality and safeguard compliance of works, mapping of target communities, progress reporting, monitoring surveys, midterm evaluation and a final completion report to document results and outputs. The M&E surveys were expected to be conducted in partnership with local NGOs and research institutions to measure, document and verify results in the target communities. The project also conceived the idea of creating a “central database” which will be a repository for village pasture plans and rural investments, including qualitative and photographic data. The ICR indicates that as planned in the PAD, a comprehensive M&E framework and database were designed and set up to keep track of implementation progress and performance of all project activities. The M&E framework included various indicators for monitoring PDO outcomes and intermediate outcomes/outputs and enabled project management to monitor and evaluate implementation status and progress. A project website was established to include the M&E results for all project implementation outputs and Outcomes, which was useful for documenting and sharing the lessons and results more widely.

b. M&E Implementation

The ICR reports that the M&E framework which was conceived in the PAD was rolled out by the APIU to collect relevant project data including the baseline at the beginning of the project and data for monitoring progress throughout the implementation process. One of the M&E instruments used was the Management Effectiveness Tracking Tool (METT) which was introduced during project implementation, and helped in generating data for monitoring the pasture management effectiveness and the overall performance of the PUAs. The M&E framework also included separate monitoring and reporting systems for the competitive grants and the veterinary and extension components. It is also indicated that all the monitoring data and information was regularly entered into a common database. While the METT application was instrumental for assessing the performance of the PUAs the actual tracking of outcomes related to sustainable management of pastures (e.g. rehabilitation of degraded pastures and related environmental outcomes) was limited. A useful component of the M&E system implementation was the beneficiary assessment and evaluation studies



which were used to identify and document beneficiary perspectives on project outputs, outcomes and impacts during and at the end of project implementation. The ICR reports that the good practices and lessons learned were identified and documented to facilitate dissemination at community, regional and national levels.

c. M&E Utilization

The ICR presents several examples on how the M&E data and knowledge was utilized for enhancing project management and implementation. The M&E system and the process monitoring data generated has contributed to identifying key implementation issues, recommending remedial actions, and enhancing the overall progress of physical and financial implementation. The M&E data was also used to inform decision-making and for resource allocation, including the re-allocation of cost savings from Component 4 (project management and M&E) to expand the number of communities in the pasture management activities in Component 1. The data collected on the various indicators for monitoring PDO outcomes and intermediate outcomes/outputs was used for project management to monitor and assess the implementation status and allowed the APIU to take timely corrective measures. It is indicated that the APIU was able to regularly access field level data for the preparation of periodic project monitoring reports and impact studies. The METT data was used to identify shortcomings and facilitated adaptive management and adjustments through immediate remedial actions (e.g. additional technical/capacity strengthening in specific PUAs). The use of the METT scores and M&E results contributed to assessing the extent to which the provisions of the CPMLDPs were implemented and whether the PUAs were able to adopt the planning process and develop their own rotational grazing regime to facilitate restoration of degraded pastures. Whereas information was not provided how the M&E system was used during the mid-term review, the ICR indicates that the METT and M&E system has been used in CARMAC 2 Project, further strengthening the APIU's M&E capacity.

M&E Quality Rating

Substantial

11. Other Issues

a. Safeguards

The project triggered OP/BP 4.01 Environmental Assessment, and was classified as environmental Category B. The project also triggered OP 4.09 Pest Management in relation to the anticipated application of pesticides on crop production activities. A framework Environmental Management Plan (EMP) was developed to guide application of environmental safeguards and was disclosed and discussed with relevant stakeholders prior to tendering of civil works. Recommendations on the on-site management and final disposal of liquids and solid organic waste as well as waste water were provided to limit any unintended environmental impacts. The ICR also indicates that monitoring by APIU and supervision by the Bank Task Team has contributed to enhancing compliance to health and safety standards and recommended waste management practices. The overall impact of the project on the environment and public health outcomes seems to be positive. If sustainable over the long term, the rehabilitation of degraded pastures is likely to have contributed to reducing soil erosion and restoration of the natural habitat. This will depend on the



continued regulation of grazing pressure and investments in improving productivity of pastures.

On the social safeguards, a grievance redress mechanism (including a village-based grievance focal point) was established and implemented, and local committees were responsible for resolving complaints and redressing grievances. The ICR also indicates that the system supported community-based participatory planning and decision-making to ensure equitable access to project benefits, promoting social inclusion, especially for women and youth. It is indicated that 150 women and 220 youth worked with the PUA's in various administrative roles (ICR, Paragraph 32).

The project also triggered OP 4.12 on Involuntary Resettlement in the course of the project implementation when it was discovered that the construction of communal livestock watering points might require use of private lands. It is indicated that a protocol was developed for consulting and negotiating with potentially affected private land owners on a voluntary basis and agreements reached with willing sellers of the private owned lands. But this compliance was monitored mainly during the second half of the project. The APIU has provided regular social progress reports to the Bank and ensured regular site visits, contributing to better understanding of social safeguard policies by the communities. The ICR indicates that based on post-evaluation of the relevant progress reports, the project compliance with social safeguards policy was satisfactory (ICR, Paragraph 34).

b. Fiduciary Compliance

The ICR indicates that procurement planning and procedures were in compliance with the Bank rules and policies. Project procurement was carried out in accordance with the Bank guidelines and provisions stipulated in the project Financing Agreement. Procurements during implementation were reviewed on a yearly basis and agreed plans of action were implemented. Some thirteen procurement contracts were reviewed by the Bank and both Compliance & Performance Risk Ratings remained unchanged at Moderate level (ICR, Paragraph 35). While the PAD identified a fiduciary risk under the community grants, competitive grants and advisory services components, especially with respect to control over funds flow to the beneficiaries and monitoring of the outputs, relevant mitigation measures were established with regular reporting arrangements and controls. The overall residual financial management (FM) risk of the project after mitigation was rated as Moderate.

Risks related to financial management were properly mitigated/resolved. The project's ISR for FM rating was Satisfactory during majority of the project duration. The government also complied with the public disclosure requirement for the audited financial statements (ICR, Paragraph 35 and 36).

c. Unintended impacts (Positive or Negative)

Although attribution has not been established and will be difficult to do so for results related to policy influence, the ICR indicates that the project led to changes in national policy and legislation such as the new Law on Pastures of 2012 and the Law on Agricultural Cooperatives in 2015.



d. Other

The WB procurement team in 2014 during a review mission identified US\$145,205.05 paid under contracts signed with “Small and Medium Entrepreneurship Development National Center” Foundation (SME DNC) as an ineligible expenditure. Because of the perceived conflict of interest as per the Bank Procurement Guidelines the amount was remitted into the project’s Designated Account.

12. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	---
Risk to Development Outcome	Modest	Modest	---
Bank Performance	Satisfactory	Satisfactory	---
Borrower Performance	Satisfactory	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

1. The establishment and empowerment of local communities can succeed in improving communal management even in the often challenging case of extensive pasture/livestock production systems. In the case of CARMAC, the Pasture User Associations (PUAs) were an important institutional innovation for stimulating collective management of communal pastures in mountainous regions. The PUAs were established as cooperatives and were mandated to collect pasture use fees and allocate them for various important uses including: (i) to pay pasture rental income to the community council; (ii) to invest in pasture and livestock production infrastructure; and, (iii) to maintain investments in pasture improvements.

2. When local communities are able to regulate grazing land use and are empowered to overcome incentive problems that often lead to "tragedy of the commons" issues, recovery of common property natural resources can be achieved within the lifetime of a single project. The quite rapid success factors in the case of CARMAC seem to be related to: (i) identifying the pasture governance arrangements that were broadly acceptable to rural communities; (ii) inclusive and participatory planning and decision-making to ensure equitable access to project benefits (including women and youth); (iii) sound project design based on careful assessment of local conditions and institutional studies and experiences from relevant projects in Armenia, Central Asia region and others; (iv) existence of opportunities for reducing grazing pressure on traditional communal pastures without reducing stock numbers through new infrastructure to



enable access to remote pastures (not always available); (v) effective project management; (vi) high level of commitment and policy support from the Government of Armenia.

3. Well-targeted solutions in community natural resource management that address limiting constraints in a complex production system (including service delivery, marketing and income diversification opportunities) can enable communities to realize higher economic gains and hence strengthen incentives for communal management. In the case of CARMAC, the targeted interventions addressing both pasture management and animal health were able to bring quite rapid improvements in livelihoods.

4. Delays in project implementation can be reduced or avoided in community-based natural resource management projects if a flexible approach is used in project design where learning and adjustment to local conditions is often required. In the CARMAC case, while the initial design required communities to provide 50% co-financing for agricultural equipment and machinery (which was not well-received by communities and difficult to meet), delays were avoided mainly because an NGO (Heifer International) was able to bridge the gaps.

5. A long term phased approach may be needed in a community-based natural resource management project to consolidate promising initial gains and to build a sustainable model for a viable pasture/livestock livelihood systems. In the case of CARMAC, sustainability will depend on: (i) efficient, transparent and participatory governance of PUAs as institutions for collective action and for continued ability to sustain and institutionalize local approaches for regulating grazing pressure and preventing free-riding and open-access; (ii) institutional and technical capacity of PUAs for the development of commercially-oriented and sustainable livestock production systems; (iii) financial sustainability of the cooperative pasture management model which was built on fee-based community services and new income resources; and (iv) market access and adequate producer prices of milk and meat. The follow-on CARMAC 2 project, which builds on the success of CARMAC, will need to consider these lessons to sustain the gains made during the first phase.

14. Assessment Recommended?

Yes

Please explain

This will be useful to better understand the long-term viability of community-based natural resource management systems in the smallholder livestock sector. Sustaining efforts and incentives for cooperation in community-based natural resource management systems is often challenging under increasing market, population and other exogenous pressures. Evidence of long-term outcomes from communal management of pastures will be relevant and useful to similar agricultural development and community-based natural resource management problems in Central Asia and in similar settings.



15. Comments on Quality of ICR

The ICR was well-written, comprehensive and presented good evidence and analysis. It has maintained good internal consistency and followed the relevant guidelines throughout the document. It was able to produce a solid and comprehensive report based on careful analysis of the available data and information. The Economic and Financial Analysis presented in Annex 3 was particularly detailed and informative. The issues related to environmental and social safeguards as well as fiduciary compliance were also covered in sufficient detail. Gender and youth issues relevant for inclusive growth were also highlighted.

a. Quality of ICR Rating

Substantial