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Report No: 57525-AM

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 10.3 MILLION

(EQUIVALENT TO USD 16.0 MILLION)

TO

REPUBLIC OF ARMENIA

FOR A

COMMUNITY AGRICULTURAL RESOURCE MANAGEMENT AND COMPETITIVENESS PROJECT

February 23, 2011

Sustainable Development Department
South Caucasus Country Unit
Europe and Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective January 31, 2011)

Currency Unit	=	US$; SDR
364.0 AMD	=	1 US$
1 SDR	=	1.56 US$

FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AIPP	Avian Influenza Preparedness Project
ADCCF	Animal Disease Control and Compensation Fund
CARD	Center for Agriculture and Rural Development
CPS	Country Partnership Strategy
CFAA	Country Financial Accountability Assessment
CGP	Competitive Grant Program
CPAR	Country Procurement Assessment Review
CV	Community Veterinarian
DCFTA	Deep and Comprehensive Free Trade Agreement
EMF	Environment Management Framework
EMP	Environment Management Plan
ERR	Economic Internal Rate of Return
EU	European Union
FAO	Food and Agriculture Organization
FSVI	Food and Safety Veterinary Inspectorate
FMM	Financial Management Manual
GIS	Geographic Information System
GOST	A set of technical standards maintained under the auspices of the CIS
HACCP	Hazard Analysis and Critical Control Points
ICB	International Competitive Bidding
ICT	Information and Communication Technologies
IDA	International Development Association
IDF	Institutional Development Fund
IFAD	International Fund for Agriculture Development
IFR	Interim Financial Reports
MASC	Marz Agricultural Support Center
MCC	Millennium Challenge Corporation
MOA	Ministry of Agriculture
MOH	Ministry of Health
MST	Marz Support Teams
MTEF	Medium Term Expenditure Framework
NADSS	National Animal Disease Surveillance System
NCB	National Competitive Bidding
NGO	Non-Government Organization
NRMRP	Natural Resource Management and Poverty Reduction Project

OIE	World Organization for Animal Health
PFM	Public Financial Management
PIU	Project Implementation Unit
PMP	Pest Management Plan
PUA	Pasture User Association
PVS	Performance of Veterinary Services
RASC	Republican Agricultural Support Center
RESCAD	Rural Enterprise and Small Scale Commercial Agriculture Development
SDR	Special Drawing Rights
SIL	Sector Investment Loan
SPS	Sanitary and Phytosanitary Standards
TAP	Technology Assessment Project
VSC	Veterinary Service Centers
USDA	United States Department of Agriculture
WHO	World Health Organization
WTO	World Trade Organization

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ARMENIA

COMMUNITY AGRICULTURAL RESOURCE MANAGEMENT AND COMPETITIVENESS PROJECT

PROJECT APPRAISAL DOCUMENT

EUROPE AND CENTRAL ASIA

ECSSD

Date: February 23, 2011 Country Director: Asad Alam Sector Manager/Director: Dina Umali-Deininger / Peter D. Thomson	Team Leader: Doina Petrescu Sectors: General agriculture, fishing and forestry sector (50%); Agricultural marketing and trade (50%) Themes: Rural non-farm income generation (40%); Rural markets (20%); Other environment and natural resources management (20%); Rural services and infrastructure (20%)
Project ID: P120028 Lending Instrument: Specific Investment Loan	Environmental category: Partial Assessment

Project Financing Data

[ ] Loan [X] Credit [ ] Grant [ ] Guarantee [ ] Other:

For Loans/Credits/Others:
Total Bank financing (US$m.): 16.00
Proposed terms: IDA credit with 20-year maturity including a 10-year grace period

Financing Plan (US$m)

Source	Local	Foreign	Total
BORROWER/RECIPIENT	5.33	0.00	5.33
International Development Association (IDA)	0.00	16.00	16.00
Total:	5.33	16.00	21.33

Borrower:
Republic of Armenia

Responsible Agency:
Ministry of Agriculture
Republic Square, Governmental Building
#3, 375010
Armenia
Tel: (374-10)524-641 Fax: (374-10) 524-641

Estimated disbursements (Bank FY/US$m)									
FY	2012	2013	2014	2015	2016	2017			
Annual	0.70	1.90	3.50	4.70	4.60	0.60			
Cumulative	0.70	2.60	6.10	10.80	15.40	16.00			

Project implementation period: Start July 1, 2011 End: June 30, 2016
Expected effectiveness date: July 1, 2011
Expected closing date: September 30, 2016

Does the project depart from the CAS in content or other significant respects? ***Ref. PAD I.C.***	[ ]Yes [X] No
Does the project require any exceptions from Bank policies? ***Ref. PAD IV.G.***	[ ]Yes [X] No
Have these been approved by Bank management?	[ ]Yes [ ] No
Is approval for any policy exception sought from the Board?	[ ]Yes [X] No
Does the project include any critical risks rated "substantial" or "high"? ***Ref. PAD III.E.***	[ ]Yes [X] No
Does the project meet the Regional criteria for readiness for implementation? ***Ref. PAD IV.G.***	[X]Yes [ ] No

Project development objective ***Ref. PAD II.C., Technical Annex 3***

The project development objective is to improve productivity and sustainability of pasture/livestock livelihood systems in selected communities. This would be evidenced by: (i) increased livestock productivity as measured by milk productivity and increase in daily animal weight gain; (ii) increased efficiency of communal pasture management, as measured by increased communal budgetary revenues from lease of pastures; (iii) increased farm sales from livestock; and (iv) increased Pasture Management Effectiveness.

Project description ***Ref. PAD II.D., Technical Annex 4***

The Project would consist of four main components:

(1) Community Pasture/Livestock Management System. This component aims to introduce efficient and sustainable community-managed pasture/fodder-based livestock production systems in selected mountainous communities, where livestock is the main source of livelihood and communities express a strong interest in improving their pasture production, through support for the development of pasture/livestock management plans and a community fund for the implementation of these plans.

(2) Strengthening Support Services. This component aims to increase livestock productivity and pasture health by improving the supporting services for farmers involved in livestock production. This will be achieved by providing support to: (a) improve agricultural advisory services in livestock-related topics; and (b) improve community animal health services.

(3) Competitive Grants Program. This component aims to increase sales from livestock and natural resources through support to village-level agri-business and farmer groups to develop new business opportunities, improve marketing, promote food safety practices, and introduce and demonstrate new technologies that could benefit communities focused on livestock production.

4) Project Management and Monitoring and Evaluation. The project would be managed by the same Project Implementation Unit (PIU) that was implementing the RESCAD and the AIP projects. This component will finance (a) project management and training, including annual operational reviews and audits; and; (b) monitoring and evaluation (M&E).

Which safeguard policies are triggered, if any? ***Ref. PAD IV.F., Technical Annex 10***

The project triggers OP/BP 4.01 Environmental Assessment and OP 4.09 (Pest Management).

Significant, non-standard conditions, if any: ***Ref. PAD III.F.***

None

Board presentation:

None.

Loan/credit effectiveness:

The Operational Manual, acceptable to the Bank, shall be approved by the Government before effectiveness; and the EMP, acceptable to the Association, shall be approved by the Government before effectiveness.

Covenants applicable to project implementation:

(1) The Borrower shall maintain or cause to be maintained a financial management system in accordance with the provisions of Section 4.09 of the General Conditions.

(2) The Borrower shall prepare and furnish to the Bank not later than forty five days after the end of each calendar quarter, interim unaudited financial reports for the Project covering the quarter, in form and substance satisfactory to the Bank.

(3) The Borrower shall have its Financial Statements audited in accordance with the provisions of Section 4.09 (b) of the General Conditions. Each audit of the Financial Statements shall cover the period of one fiscal year of the Borrower. The audited Financial Statements for each such period shall be (i) furnished to the Bank not later than six months after the end of such period and (ii) made publicly available in a timely fashion and in a manner acceptable to the World Bank.

I. STRATEGIC CONTEXT AND RATIONALE

A. Country and sector issues

Country economic background

1. **Sustained economic reforms have significantly improved income levels in Armenia.** Annual growth averaging 12 percent during 2001 to mid-2008, driven by higher commodity prices, remittances, and foreign investment, led to GDP per capita increase from US$691 to US$3,873 during this period; along with improved social service provision, these changes led to a sharp drop in the poverty level—from more than half of the population in 1999 to 23.5 percent in 2008.

2. **The global financial crisis hit Armenia severely despite swift Government response**. In 2009 the economy contracted by 14.4 percent, poverty rose by nearly 3.0 percentage points, and the fiscal deficit increased to 7.0 percent of GDP. Remittances fell by about 35 percent, exports by about 34 percent, and commodity prices collapsed. Construction activity, a key engine of growth over the past several years, fell significantly leading to substantial job losses. Authorities responded with a stimulus package to safeguard key social programs, increase public investments and short-term job creation, and provide credit and guarantee facilities for private enterprises.

3. **The medium-term outlook remains uncertain but Government has taken steps to restore growth, consolidate its fiscal position, and advance structural reforms**. Armenian authorities expect modest recovery over the medium term. In 2010, GDP increased by 2.4 percent. Reactivated remittances and trade could accelerate recovery, but authorities recognize the need to advance a comprehensive structural agenda that includes consolidating the fiscal position and securing new sources of growth.

Livestock sector issues

4. **Once again, agriculture has been a buffer and safety net during the economic downturn, amplifying challenges in this labor-intensive agricultural system.** For some 186,000 rural households, raising livestock is the main source of livelihood. For the poorest rural people in mountainous communities, revenues from livestock production are essential for subsistence and a major source of cash income. Higher altitude small-scale farmers and livestock breeders are particularly vulnerable, as their livelihood often relies on combined subsistence agriculture and seasonal labor migration to the Russian Federation. The economic downturn has increased their vulnerability by making them more dependent on livestock and natural resources for their livelihoods.

5. **Armenia has a long history of animal production and breeding.** Historically, in mountainous areas, climatic and topographic factors have restricted agricultural activities to raising ruminants; most of Armenia is mountainous, with altitudes of over 1,000m and more than two-thirds of the land has slopes of 6º or more. Grassland and pastures occupy about half of total agricultural land (1.1 out of 2.1 million ha); fodder crops, including corn, beets, oats, and alfalfa, are cultivated on about 5.0 percent of land.

6. **However, the livestock sector is facing serious challenges.** Among these are unsustainable pasture management and underutilization, persistent livestock diseases, processing and marketing constraints, and reduced productivity overall as a result of these constraints. Additionally, for the dairy sector there are huge fluctuations in supply, with most milk produced in the summer months and almost no production in winter and spring. This constrains milk processors, who need a consistent and stable milk supply.

7. ***Pasture resource degradation.*** Uncontrolled and unmanaged exploitation of grazing lands since the collapse of the Soviet system has resulted in unprecedented resource destruction clearly visible in most mountainous villages, especially on nearby pastures. This has reduced soil fertility and vegetative cover, increased soil erosion due to poor soil and water management, and diminished overall biomass, all of which has constrained livestock sector development.

8. ***Animal diseases.*** Animal diseases are widespread, compromise production and pose severe risks to food safety and human health for producers and consumers, and are now of national concern. In addition to the direct impact on animal production and breeding health, the zoonotic diseases pose multiple threats: human infection, environmental contamination, reduced livestock production, and limit exports of live animals and dairy products.

9. ***Farm advisory services.*** Farm advisory services are developing, but need to be further strengthened to better address livestock and pasture-related issues. In 2005, the advisory system was fully donor-funded, but was gradually shifted by 2010 to a system with all core funding provided through the government budget and additional funds generated from cost recovery and through consultancy services. In 2009, around 6 percent of total advisory system costs were covered by retained earnings from paid services.

10. **Notwithstanding the numerous challenges, the livestock sector has significant opportunities for development.** The demand for quality livestock products has been increasing regularly for the past 5 years and the supply is not sufficient to cover the national demand. Domestically, increasing incomes have been major drivers of rapid growth in demand for meat, dairy and other livestock products in recent years. There is still an unmet demand for fresh meat and milk, and a greater share of the domestic market could be covered by local livestock production if current constraints are addressed. Externally, demand for Armenian meat and meat products is high in the Commonwealth of Independent States (CIS) and some of the Middle East countries and potential for increased exports to these countries is high. Exports to countries other than the CIS and Middle East countries constitute a real challenge for Armenia at the moment. In those countries the demand for improved quality standards and supply traceability is higher and Armenia is yet to comply with specifics of Sanitary and Phyto-Sanitary Standards (SPS) vis-à-vis these demands. This might not be a priority for the sector at the present time and might not be so until the livestock market develops and expands beyond capacity to fulfill domestic and regional demand.

11. **Government recognizes the importance of livestock sector development and pasture management.** The Sustainable Agricultural Development Strategy for 2010-2020 links livestock development objectives to improving food security and food safety while fully utilizing sector potential to raise economic productivity. Among the main Strategy objectives are increasing livestock productivity through improved breeding, artificial insemination, veterinary services, and zoonotic diseases protection, and improving pasture management through improved infrastructure (e.g. watering points). While no dedicated legal and institutional system exists to regulate pasture resource management, existing laws—including the Land Code, the Law on Local Governance and relevant legislation regarding associations and leases—provide sufficient legal basis to initiate reforms in the livestock sector. Local governments and the communities are aware of the consequences of not addressing the current constraints and are willing to change the existing situation.

B. Rationale for Bank involvement

12. **Livestock related products which are the result of pasture-based production systems, as it is mostly the case in Armenia, are generally less competitive as compared to conventional, farm-based production systems.** This is mostly due to lower yields and productivity, high costs for overwintering

stocks and complementary feeding, high transportation costs due to long distance to markets, and more difficult access to markets overall. However, on the domestic market in Armenia, current prices of beef and milk products are not significantly different relative to prices of CIS countries, with only the price of milk being higher relative to CIS countries. Therefore, with productivity increases resulting from a more rational use of pastures, better feeding and increased overall efficiency of production systems, it is expected that Armenian products will be in a better position to supply the domestic market and to compete regionally. This project will support these changes.

13. **This project builds on World Bank experience and successes in agriculture, rural development, pastures and livestock management, and participatory community development to help Armenia address these urgent challenges and provide investment support**. The project would combine and apply these experiences, providing a unique window of opportunity to integrate a strategic approach to natural resource management, human and animal health, and food safety in Armenia. This includes experience gained in pastures and livestock management, such as the China Loess Plateau Watershed Rehabilitation Project and the Kyrgyzstan Agricultural Investments and Services Project (AISP), and achievements and lessons learned from previous and ongoing World Bank projects in Armenia, notably the Rural Enterprise and Small Scale Commercial Agriculture Development Project (RESCAD), which introduced successful participatory community development and competitive grants procedures, both highly applicable to this project. Also, the Bank has played a major role in establishing an effective agricultural advisory system that can now be used to deliver extension programs for project livestock-related activities. The ongoing Armenian Social Investment funded targeted social infrastructure gaps in the poorest rural communities and was successful in strengthening the capacity of communities to select and implement micro-projects. The Natural Resource Management and Poverty Reduction Project (NRMRP), closed in 2009, gained valuable experiences on community management of pasture and natural resources, also fully applicable in this project. In addition, the project would build on the Avian Influenza Preparedness Project (AIPP), which strengthened veterinary services capacity to monitor and control avian flu and other zoonotic diseases. Without the Project, resource degradation is likely to continue unabated until it becomes irreversible, leading to desertification and failure to establish competitive livestock production in Armenia.

C. Higher level objectives to which the project contributes

14. **The Sustainable Development Program approved by Government in October 2008 (the second poverty reduction strategy paper) aims to reduce poverty, ensure human development, deepen economic growth and accelerate development of lagging regions.** Support for the agricultural sector, which contributes one-third of national GDP, is crucial to meet these goals. The FY09-12 Country Partnership Strategy (CPS) acknowledges the importance of agriculture and rural development, and explicitly proposes a new agriculture project as a priority to address the two main CPS pillars: protecting vulnerable populations and strengthening competitiveness for post-crisis growth. The project will accomplish this by targeting vulnerable people in mountainous areas while strengthening livestock sector competitiveness to meet growing demand on the domestic market.

II. PROJECT DESCRIPTION

A. Lending instrument

15. The project would be financed through a Sector Investment Loan (SIL) financed from IDA resources. The total project cost is US$21.33 million, of which SDR 10.3 million (equivalent to US$16.0 million) is financed by an IDA credit.

B. Program objective and Phases

16. Not applicable.

C. Project development objective and key indicators

17. **The project development objective is to improve productivity and sustainability of pasture/livestock livelihood systems in selected communities.** This would be evidenced by: (i) increased livestock productivity as measured by milk productivity and increase in daily animal weight gain; (ii) increased efficiency of communal pasture management, as measured by increased communal budgetary revenues from lease of pastures; (iii) increased farm sales from livestock; and (iv) increased Pasture Management Effectiveness[1].

D. Project components

18. **The Project consists of four main components**: (1) Community Pasture/Livestock Management System; (2) Strengthening Support Services; (3) Competitive Grants Program; and (4) Project Management and Monitoring and Evaluation.

19. **Component 1: Community Pasture/Livestock Management System (US$15.36 million).** This component aims to introduce efficient and sustainable community-managed pasture/fodder-based livestock production systems in selected mountainous communities, where livestock is the main source of livelihood and communities express a strong interest in improving their pasture production. This would require reversing the trend of destructive grazing, implementing more efficient pasture use, improving systems of fodder production and animal feeding, and raising the efficiency of animal production.

a) Development of Pasture/Livestock management plans (US$2.30 mil.) This sub-component would finance the participatory preparation of sustainable pasture and livestock management plans based on comprehensive assessments of all pasture and fodder production areas. This preparation will take place in parallel to the mobilization of Pasture User Associations (PUAs) that will be formed at the village level. Throughout the process of plan development, groups of pasture users that will ultimately form the membership of the PUAs will be consulted and provide input on key aspects of the plan. Ultimately, the document will be finalized and adopted by the PUA once it has been registered as a legal entity. This bottom-up approach would allow target communities, through the PUAs, to select detailed investment needs and commit to management plan targets and principles. The planning process would be supported by Marz Support Teams (MSTs) and the technical experts working with groups of pasture users. Pasture assessments will be done in collaboration with pasture users, and will include soil tests, plant assessments, evaluations of productivity and production quality, and productivity estimates for grassland and fodder production areas in the context of the feed/fodder demand in villages (village-level fodder balances). Management plan development would use participatory approaches involving the groups of pasture users in target communities. The management plan objective would be to define options: (i) to increase quantity and quality of overall fodder production; (ii) reduce pressure on overgrazed degraded areas; and (iii) regenerate productive capacity to achieve sustainable resource management. It is expected that this will be achieved by (i) reducing grazing on nearby pastures; (ii) increasing the proportion of cultivated fodder and hay, and (iii) improving utilization of remote pastures. The plans would define measures to improve pasture productivity, such as implementing rotational grazing, protecting areas for

[1] The 'Pasture Management Effectiveness Tool' measures 25 key parameters critical for effective management in a scoring system with a total possible score ranging from 0 to 85. The Tool is fully detailed and included in the Operational Manual.

complete regeneration, undertaking rehabilitation measures, providing additional fodder production opportunities, and improving access to remote pastures, among others. Management plans would also define basic requirements for animal health, such as timing and coverage of vaccinations, and provide simple monitorable indicators and implementation targets.

The Project will also finance a study on introducing cost recovery mechanisms by which beneficiary communities would repay the cost of equipment in installments. This study will be conducted within six months of project effectiveness.

b) Community Fund for implementation of Pasture/Livestock management plans (US$13.06 mil). This sub-component will finance block grants for each Pasture User Association to implement their plan; grant amounts will depend on pasture area and existing number of livestock units but preliminary estimates are US$100,000 to 300,000/village. Pasture User Associations will be able to select with guidance from an indicative open list of eligible investment activities: (i) *infrastructure* to access and use remote pastures, such as spot road improvements, stock watering points, shelters, milk cooling devices, among others; (ii) *machinery* to produce and harvest fodder, including grass cutters, haying machines, silage choppers, etc; (iii) *protective and natural resource rehabilitation measures* for degraded areas, including fencing, demarcation, weed and shrub control, supplementary seeding, etc; (iv) *fodder production support*, including seeds for leguminous plants and corn, etc; (v) *stock breeding improvements* through artificial insemination; (vi) *training and advisory services* supplied by both public and/or private service providers; and (vii) *support for Pasture User Associations*, such as office equipment and furnishings. Project funds could be used for financing between 50 and 100 percent of the costs of shared community investments depending on the nature of the investment ranging from partially public to fully public. Activities would be implemented as Community Grants, following implementation arrangements successfully tested under RESCAD, with the additional element of linking disbursements to measured improvements in community resource management performance.

20. **Component 2: Strengthening Support Services (US$2.48 million).** This component aims to increase livestock productivity and pasture health by improving the supporting services for farmers involved in livestock production. This will be achieved by providing support to: (a) improve agricultural advisory services in livestock-related topics; and (b) improve community animal health services.

a) Agricultural Advisory Services (US$1.49 million). The project would support advisory and extension programs aimed primarily at livestock-related activities of farmers, farmer associations and cooperatives, and small-scale processors, through the existing network of the regional-level Marz Agricultural Support Centers (MASCs) and the national-level Republican Agricultural Support Center (RASC). The sub-component would strengthen capacity for the MASC/RASC system to deliver services to farmers in topics including farm-level livestock-related technologies; principles of food safety and hygiene; animal health care; pasture and fodder management; market requirements and other related topics. Sub-component activities would include: (i) improving advisory system effectiveness and outreach through training, technical support, and provision of essential equipment for the planned program; (ii) funding incremental tasks in line with the project livestock focus, including technology assessment projects (TAPs); (iii) livestock training programs, materials and demonstration activities for farmers; and (iv) improved information systems using modern information and communication technologies (ICT), including a pilot SMS messaging system that may potentially provide weather alerts and other information.

b) Community Animal Health Services (US$0.99 million)**.** This sub-component will finance: (i) mobilization of community veterinarians; (ii) provision of basic start-up set of equipment and consumables for delivery of clinical services and including artificial insemination equipment; and (iii) establishment of veterinary service center facilities in project Marzes. The approach will be closely

synchronized with the specific flock and herd health training programs for farmers which will be delivered and budgeted under the agricultural advisory services sub-component.

21. **Component 3: Competitive Grants Program (US$2.05 million)**. This component aims to increase sales from livestock and natural resources through support to village-level agri-business and farmer groups to develop new business opportunities, improve marketing, promote food safety practices, and introduce and demonstrate new technologies that could benefit communities focused on livestock production.

22. **The project would fund proposals from village agri-business and farmer groups to introduce innovative technologies and income-generating activities at the national level.** The maximum grant amount would be US$ 20,000, plus a beneficiary contribution of at least 30 percent of the grant. Each beneficiary would be required to link with one or more local service providers who would provide technical assistance and organize a demonstration program to transfer the technologies to potential adopters. Topics could include: (i) a wide range of improved livestock-related practices; (ii) promoting alternative natural resource use; (iii) developing alternative income opportunities such as honey production, medicinal herbs, agro-tourism, or development of niche products or by-products; (iv) improving food quality and safety; (v) improving processing, packaging and marketing; (vi) developing new products; and (vii) provision of services such as veterinary or artificial insemination services. The Competitive Grants Program (CGP) would include: (i) a comprehensive information program to ensure that potential beneficiaries are aware of the program; (ii) a rigorous and transparent selection process; (iii) a strong monitoring program to ensure that implementation takes place as agreed; and (iv) an evaluation program to accurately assess the technology costs and benefits. Selection of grants would be made from at least four competitive rounds of submitting proposals.

23. **Component 4: Project Management and Monitoring and Evaluation (US$1.45 million).** The project would be managed by the same Project Implementation Unit (PIU) that implemented the RESCAD and the AIP projects. This component will finance (a) project management and training, including annual operational reviews and audits; and; (b) monitoring and evaluation (M&E).

E. Lessons learned and reflected in project design

24. **Competitive Grants.** Competitive Grants Programs (CGPs) have proven effective in supporting emerging rural businesses to introduce, test, and demonstrate innovative technologies to a broader audience of potential rural entrepreneurs and beneficiaries. CGPs have been implemented successfully in Armenia under the previous RESCAD project as well as in Albania, Azerbaijan, and Kazakhstan. Results from the RESCAD project indicated a substantial financial benefit with an average internal rate of return (IRR) as high as 104 percent. There was also a multiplier effect, with some two-thirds of grant technologies emulated by an average of 5.5 emulators per grant immediately after project completion. Among key lessons learned are that essential CGP elements include a broad-based information campaign, a strong monitoring and evaluation program, a focus on technology transfer activities, a simple milestone-based disbursement schedule, and clear and transparent procedures including separating grant processing, selection, and evaluation. Under the CARMAC project, a similar mechanism to the RESCAD project will be adopted and the CGP will be governed by a comprehensive Operational Manual which will include the detailed methodology, procedures and criteria.

25. **Advisory services**. Effective agricultural advisory systems are catalysts in the process of introducing new practices and improving small farm productivity and are a key aspect of many projects in the region. Lessons learned from the RESCAD project and other regional extension activities include the need to include a demand-driven and decentralized approach, clear work-plans and budgets, a continuing program of in-service training to upgrade skills and knowledge, modern information and communications

technologies, and a focus on increasing cost recovery and paid services. Long-term support is also necessary to help establish a system with operational and financial sustainability. A major achievement of the RESCAD project was to support development of a stable and functional agricultural advisory system with core funding from the MOA budget and an additional 15 percent of revenues from cost recovery and consultancy services. The system includes ten regional-level MASCs, the main bodies responsible for informing and advising farmers and small rural businesses, and the national-level RASC, the main coordinating body. The project will build on this network to deliver advisory and extension programs for livestock-related activities for farmers, farmer associations and cooperatives, and small-scale processors. Building on RESCAD, this project would pilot a new system of contracting the MASCs for specific deliverables, which aims to reinforce system accountability.

26. **Natural Resource Management.** The project design incorporates major lessons learned from successful natural resource management: (a) offering an integrated package of measures and practices that combines income generation for local beneficiaries and communities with sustainable resources use; (b) creating strong ownership through high participation levels and extensive stakeholder interactions; and (c) reinforcing effective project management with rigorous monitoring and evaluation (M&E) for successful project implementation. Many design elements from successful projects, such as the China Loess Plateau Watershed Rehabilitation Project, would be adopted for the proposed project, in particular, offering a menu of economically attractive activities to the local population as incentives to adopt sustainable practices. The proposed project would strengthen participatory approaches to natural resource management using a more programmatic approach to grazing management and livestock development and through an even stronger inclusion of local communities and households, a process that would be guided through an Operational Manual. Successful models of output monitoring that lead to strong accountability in implementation would be extended, and a comprehensive M&E system would include strong input and output monitoring with project funds only if behavior changes can be clearly monitored.

27. **Animal Health Services**. The Avian Influenza Preparedness Project (AIPP) in Armenia demonstrated the value of investing in animal health services, and provided the basis for better understanding and institutional commitment to veterinary services to support communities and their livestock. The AIPP supported the initial development of some critical national level institutional resources including a National Animal Disease Surveillance System (NADSS), reference laboratory and surveillance systems. This project will now focus primarily on community level service delivery in the project areas, providing important animal health supporting services for the project interventions. In this context, the integration of AIPP resources and approaches as precursors in support of the follow-on project is an excellent example of complementarities and value-added continuity among projects.

28. **Community mobilization and development.** In Armenia, both the RESCAD and the ASIF projects demonstrated the value of building the capacity of local governments and community organizations to prepare and implement micro-projects designed to rehabilitate basic infrastructure. These projects demonstrated the potential of even the poorest and most remote communities in Armenia to manage and implement infrastructure sub-projects. The project will build on these successful experiences, as well as on the community structures (such as the MSTs) already functional under RESCAD in order to mobilize communities.

F. Alternatives considered and reasons for rejection

29. **Project scope.** A broader scope of the project was initially considered, including strengthening and/or creating national level institutions in order to develop the institutional framework and reforms for pasture management and animal health. However, this would have made the project overly complex and would have attempted to address too many objectives and activities within a limited budget. It was decided therefore to focus the project activities at the community level. The current framework is

sufficient for the project to operate, and the project experience will be used to inform and put the basis for subsequent national level institutional and legal reforms.

30. **Competitive Grants Program**. Restricting the grant program to cover livestock activities only, limiting the geographical focus, and providing grants only to formal businesses and groups were discussed. However, to draw on innovative ideas from a wide range of entrepreneurial applicants and to maintain a competitive approach, and since technologies introduced in one area may be applicable to other areas, the program would not be limited in these ways. Accordingly, the program would be implemented on a national level with a wide range of eligible applicants and potential technologies. To meet grant selection criteria, applicants would be required to indicate how their proposal could benefit livestock-based communities, how products would be marketed, and how technologies would be transferred. Grant selection criteria would also consider potential economic benefits, improved market accessibility, technology replicability and sustainability.

31. **Dedicated Component for Improved Business Opportunities and Market Access.** A dedicated component was initially considered to develop new business opportunities and improve the marketing of Armenia's livestock production on local and international/EU markets, as well as enhancing food safety capacities and practices. However, activities were reconfigured to simplify project design and implementation, while preserving much of the objectives. Accordingly, eligible activities under the CGP will include upgrading food safety practices as well as enhancing market accessibility through improved processing, packaging, marketing and new product development.

32. **Dedicated component for Brucellosis control program.** A dedicated sub-component was initially considered to reduce the prevalence of brucellosis. This would have addressed the multiple threats that this zoonotic disease poses for both animal and human health, environment contamination and trade restrictions, and support fundamental systems to address the broader context of zoonotic diseases occurring at the animal/human interface. However, this was dropped, in order to streamline project design around the project development objective, and in the absence of a clear Government endorsed strategy and official commitment to such a national program. Instead, the project will focus on supporting the community animal health services in selected communities.

III. IMPLEMENTATION

A. Partnership arrangements.

33. **Specific partnerships would take place at the level of specific components.** Activities under the first component will partner with community and civil society organizations, while activities under the third component will partner with farmer and agro-business groups. Activities under the Veterinary Services will be based on work to be completed by the OIE, which has worked with Government to complete the Performance of Veterinary Services (PVS) and related gap analysis, and has agreed to facilitate development of a strategic plan for reforms and recommendations related to the legal framework and revising veterinary laws to ensure alignment with international standards. The OIE has agreed to provide technical assistance for this work, which will be coordinated under the proposed project. Elements of the strategic plan that relate to national disease control programs and establishing private veterinary services would also inform the CARMAC project implementation.

B. Institutional and implementation arrangements

34. The implementation arrangements will be guided by the Operational Manual, which was finalized before negotiations and is acceptable to the Bank.

35. ***Component 1: Community Pasture/Livestock Management System.*** This component will be implemented mainly by the PIU, through community-based Pasture User Associations. These associations will be mobilized with the support of Marz Support Teams using a model of community mobilization tested successfully under the RESCAD Project, and detailed in the operational manual for this component. The model of Pasture User Associations, where users agree on pasture management arrangements and key investments to improve productivity, is based on successful experience in other ECA Countries – such as under AISP in Kyrgyzstan, along with successful experience with watershed and pasture management projects in Mongolia and China. Furthermore, the PIU and Marz Support Teams already have significant experience in supporting Village Based Organizations that implement sub-project investments under RESCAD. These associations will be established as Legal Entities (Consumer Cooperatives) under Armenian Law, and will sign an agreement with the local authorities to lease all available pastures and to take responsibility for pasture improvement and infrastructure.

36. ***Sub-component 2.a***: ***Agricultural Advisory Services.*** Project-funded activities would be implemented using current advisory structures and systems consisting of 10 regional-level MASCs and the national-level RASC. The MOA budget would provide core funding for salaries and operating costs, based on approved annual work plans and budgets. Provisions of paragraph 1.11(c) of the Consultant Guidelines will be applied to enter into Single Source contracts with Marz Agricultural Support Center (MASC) and Republican Agricultural Support Center (RASC) for Livestock Interest Group Programs (with MASC); TAP Projects (with MASCs and RASC); and training (with RASC). These are the only institutions in Armenia with the relevant outreach and mandate to provide the required services, and that have the capacity to deliver the MOA's programs. Eventually, these activities will lead to the future development of an entirely autonomous system through which the MOA and donors will contract to provide public extension activities. Among the incremental project-funded activities, the RASC would organize the preparation of training modules and in-service training of MASC staff. The RASC would coordinate and monitor TAPs, using implementation arrangements as in the RESCAD project, including a 25 percent beneficiary contribution. The MASCs would implement incremental programs for farmer livestock interest groups based on agreed work plans; funds would be provided on an agreed schedule based on submission and verification of technical and financial reports. Selection of project–provided equipment would be based on MASC and RASC preferences, supported by a detailed justification including a cost-benefit analysis. The project would provide laptop computers to each MASC and advisors would assist farmers to access Internet information on an agreed schedule in the community advisory rooms. The MASCs would also introduce an SMS messaging system to provide information, potentially including weather information , initially on a pilot basis in one region. Each MASC and RASC would provide quarterly reports indicating progress. All activities and reports would be reviewed and approved by the MOA's Department for Research, Extension and Education. In addition to MOA oversight, coordination and monitoring of activities would be carried out by an Extension Specialist housed in the PIU, while financial management and procurement would be carried out by PIU specialists. The implementation of this sub-component will be guided by the detailed Operational Manual.

37. ***Sub-component 2.b: Community Animal Health Services.*** This sub-component would be implemented by the PIU, which would oversee the mobilization process, the selection and procurement of equipment and the construction and functioning of the Veterinary Service Centers. The mobilization program will be supervised by the PIU but implemented through a qualified service provider under contract to the PIU. The project would emulate pilot efforts by other donors, which use a mechanism to support community veterinarians—basically a demand driven delivery of services to farmers on a fee-for-service basis, and government contracting that provides them with supplementary income in exchange for carrying out public good animal health services (e.g. vaccination, blood sampling, animal health inspection).

38. ***Component 3: Competitive Grants Program (CGP).*** Implementation arrangements would be similar to those used successfully in the RESCAD project. The CGP would be administered by a small Competitive Grants Secretariat (CGS) within the PIU that would arrange calls for proposals, organize information meetings, screen applications for criteria compliance, arrange technical reviews and selection meetings, prepare grant contracts, monitor grants, arrange publicity, and organize final grant evaluations. Each proposal would be reviewed by two technical reviewers, and evaluated and selected according to criteria in the CGP Operational Manual by a Competitive Grants Commission (CGC) comprising nine members, with the majority from the private sector. Grant winners would sign contracts to carry out agreed activities based on a set of monitorable milestones; the grant would be released in tranches as each milestone is met. Grant winners would be responsible for procurement according to methods set out in their contracts and the CGS would be responsible for monitoring contract compliance and environmental regulations. An independent contractor would carry out evaluations. Overall implementation would be governed by a comprehensive Operational Manual based on the manual used for the RESCAD project.

39. ***Component 4: Project Management and Monitoring and Evaluation.*** The same Project Implementation Unit (PIU) that implemented the RESCAD and the AIP projects were selected to manage this project based on their highly successful experience in managing ongoing projects, and prevailing Armenian institutional and ministerial regulations, which stipulate that ministries have primary responsibility for formulating policies, and policy implementation is carried out through structures external to the ministries. The central PIU staff will support daily project implementation activities and provide key fiduciary and technical inputs for communities and other entities involved in project implementation. This component will finance project management costs related to contracts for consultants, audits, and expenses for central PIU staff and facilitators in the MSTs.

C. Monitoring and evaluation of outcomes/results

40. **Sound overall monitoring and evaluation is essential.** Monitoring and evaluation is central to deriving lessons that can be disseminated among participating and non-participating villages given the innovative nature of the project, and the fact that community-based natural resource management is new to Armenia. Monitoring and evaluation (M&E) activities would include field supervision of quality and safeguard compliance of works, surveys, mapping instruments, progress reporting, a baseline survey, a midterm evaluation and a final completion report to document results and outputs. The project will explore options for creating a central database of all village pasture plans and rural investments, including qualitative and photographic data. The M&E surveys will be conducted in partnership with NGOs and research institutions to record, measure, and verify results in participating communities. Lessons learned would be recorded to facilitate wide dissemination. A project website will also be established, which will include the M&E results.

41. **In addition to overall project M&E, each component will have specific M&E procedures under the responsibility of PIU specialists.** For example, the communities will have a substantial role in M&E for the Community Pasture/Livestock Management System component through the Pasture User Associations. The Extension Coordinator in the PIU will conduct regular monitoring of the Agricultural Advisory Services sub-component; the MASCs and RASC will provide annual reports detailing activities carried out and cost recovery achieved. An assessment of each TAP will be undertaken annually, and impact assessments and client satisfaction surveys will be carried out during project years two and four. For the Community Veterinary Services sub-component, the veterinary specialist in the PIU will conduct regular monitoring and evaluate its sustainability. The CGS within the PIU will monitor the CGP grants for compliance throughout their implementation and based on milestones included in each contract. Each grant will be evaluated within two months of completion, including a cost/benefit analysis and an assessment of the number of beneficiaries and adopters of the technologies.

42. **The project will also adopt an innovative approach to M&E, by applying a Community Resource Management Effectiveness Tool.** This tool will use a scoring system to assess and monitor changes in the effectiveness of all relevant community pasture resource management arrangements on an annual basis. The tool will define and measure achievements of key benchmarks used to trigger investments. The tool will also allow to quickly spot weaknesses in resources management and will allow taking immediate actions to improve management performance at the village level.

D. Sustainability

43. **The first component will change incentives, behaviors and motivations for behavior, thereby demonstrating to stakeholders that sustaining the project approach is in their own interest.** Component 1 would be built around three design features: (i) interlinked objectives of environmental conservation and poverty reduction that provide a holistic approach to rural development with all activities reinforcing one another; (ii) intensive participation among community-level stakeholders; and (iii) cost-sharing among public and private stakeholders to provide sufficient incentives for farmers to continue adopting good practices for pasture management and livestock production, and for communities to maintain investments through adequate management. It is expected that the PUAs will continue to function based on the lease contractual arrangements and the pasture fees they collect from their members.

44. **For the agricultural advisory sub-component, project interventions will improve the capacity of the agricultural advisory system to deliver services to farmers.** This will also increase the possibility for cost recovery and provision of paid services, and thus contribute to the achievement of long-term sustainability of the system. In addition, the comprehensive demonstration and training program will enhance farmer knowledge and uptake of improved livestock and related technologies and may result in long-term improvements in management of natural resources. For the animal health services sub-component, the fee-for-service and related income for community veterinarians are expected to be the critical catalysts to ensure sustainability of the program and provide the basis for similar programs.

45. **For the CGP, technology transfer activities are likely to result in adoption of improved technologies and long-term benefits after project completion.** The results of the evaluation of each grant, including a cost-benefit analysis, will also be widely publicized and made available to financial institutions and potential adopters.

E. Critical risks and possible controversial aspects

46. **The overall project risk is Moderate.** The following risks have been identified during the course of project preparation, and mitigation measures have been proposed:

a) **Legal framework, institutional capacity and technical expertise.** Existing laws provide sufficient legal basis to implement the project. However, no dedicated legal and institutional system exists to regulate pasture resources management and use, and Armenia's institutional capacity and technical expertise in pasture/grassland management is weak. To mitigate this risk, the project will operate within the existing legal framework and primarily at the community level, where pasture management plans will be part of signed lease contracts between village authorities and Pasture User Associations. The residual risk after mitigation is Moderate.

b) **Acceptance and continuation of pasture management regulations by communities.** Productivity increases may take longer than expected, thus impacting on the local communities' acceptance and continuation of management regulations, in particular access restrictions to areas for regeneration. Mitigations measures will enable essential investments to mobilize communities and build

capacity in community organizations for pasture resource management. The pasture management measures will be complemented with sufficient direct investments in order to generate short-term benefits. Village allocations for implementation of management plans will be released in tranches during the first three years of project implementation, and will be triggered by successful implementation of agreed management measures. Project financing would introduce and support a bottom-up approach, allowing livestock herders to join PUAs, and enabling communities to manage their resources through developing capacities and mechanisms for decision making about common resource management frameworks. The residual risk after mitigation is Moderate.

c) **Systemic corruption.** The project incorporates adequate mitigation measures and Bank staff will closely monitor performance during implementation. Mitigation measures promote more transparency, including recording disclosable procurement-related documentation on the project's website; and a robust mechanism for grievance redress, where complaints will be dealt with systematically and in a timely fashion. This will encourage increased demand for good governance by the beneficiaries, as well as a mechanism for expressing any concerns related to issues such as elite capture or corruption. The details of this system are outlined in the operation manual. The country risk is Significant.

d) **Financial management.** There is a fiduciary risk under the community grants, competitive grants and advisory services components, particularly in respect of control over funds flow to the beneficiaries and monitoring of the outputs. Mitigation measures established a clear funds flow mechanism with adequate reporting arrangements and controls, which are described in the Operational Manual. Project financial statement annual audit and regular supervisions will help to monitor the compliance. The overall residual FM risk of the project after mitigation is Moderate.

e) **Procurement.** The fact that part of the procurement will be carried out by communities is another source of risk. The mitigation measures include training for the representatives of the participating communities to introduce procurement rules and procedures as described in the Operational Manual, and provide them with copies of the procurement documents. Communities will start procurement activities only after their representatives attended procurement training. The residual risk after mitigation is Moderate.

F. Credit conditions and covenants.

47. The Operational Manual, acceptable to the Bank, shall be adopted by the Government before effectiveness; and the EMP, acceptable to the Association, shall be approved by the Government before effectiveness.

48. The Borrower shall maintain or cause to be maintained a financial management system in accordance with the provisions of Section 4.09 of the General Conditions.

49. The Borrower shall prepare and furnish to the Bank not later than forty five days after the end of each calendar quarter, interim unaudited financial reports for the Project covering the quarter, in form and substance satisfactory to the Bank.

50. The Borrower shall have its Financial Statements audited in accordance with the provisions of Section 4.09 (b) of the General Conditions. Each audit of the Financial Statements shall cover the period of one fiscal year of the Borrower. The audited Financial Statements for each such period shall be (i) furnished to the Bank not later than six months after the end of such period and (ii) made publicly available in a timely fashion and in a manner acceptable to the World Bank.

IV. APPRAISAL SUMMARY

A. Economic and financial analyses

51. **The CARMAC project will have three major benefits:** (i) promote increased diversification, competitiveness and economic growth; (ii) reverse the trend of land degradation; pastures and grassland occupy half of the total agricultural land and about 15 percent of this land is severely degraded; and (iii) increase incomes for the poorest rural people in mountainous communities, where revenues from livestock are essential for subsistence and the main source of cash income; currently one third of the rural people depend on raising livestock as their main source of livelihood.

52. **The economic internal rate of return (ERR) of the project is 83.1percent.** The project net incremental benefits with an economic net present value at a discount rate of 12 percent are 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. Switching values show that project benefits would have to fall by 81percent or costs to increase by 440 percent to reduce ERR below 12 percent. Given that the project analysis was conducted using conservative assumptions for accumulation of project benefits in participating communities, the project analysis did not show sensitivity to any reasonable lag of accumulation of benefits. The projected incremental annual net benefits per US$1 of investments are US$9.74.

53. **The economic and sensitivity analysis is summarized in the tables below:**

	Basic assumptions	With 1 year delays in accruing benefits	With 2 year delays in accruing benefits	With 3 year delays in accruing benefits
ERR	83.1%	77%	58%	47%
Incremental net benefits	$59.8million	$59.3 million	$55.4 million	$50.4 million

	Appraisal value	Switching value	% change
Incremental benefits	$71,871,037	$12,048,133	-83%
Incremental costs	$12,048,133	$71,871,037	497%

54. **Most project benefits are expected to occur within project communities.** Benefits may also occur beyond project communities largely due to spillover effects and improved joint infrastructure projects, but these benefits were impossible to quantify. About 78 thousand people live in the project communities, and most of them (97.6 percent) are engaged in livestock production and would benefit directly from this project. Overall, the project is expected to increase production of livestock products (primarily milk and meat) and contribute to increasing net income through a range of income-generating measures.

55. **The spillover effects of introducing improved natural resource management practices are expected in nearby and other communities.** The project investments are expected to improve the marketing of livestock production through improved access roads which will make remote pastures more accessible for commercial dairy processors. Small community level slaughtering facilities are expected to improve the safety of slaughtered meat. In the short-run, the re-introduction of fodder crops and short-term employment opportunities for small infrastructure works will provide increased income support.

56. **In addition to increasing livestock production and improving incomes, the project will provide significant benefits by reducing the trend of pasture degradation.** Better livestock and grazing management practices would help sustainably manage pasture and grassland resources within communities, and in the long run reverse the trend of land degradation.

B. Technical

57. **The technical approaches take into account experiences with similar activities in Armenia and other countries in the Region.** They have been widely discussed and agreed with Government and other stakeholders. All proposed technical design elements are sound and each has been proven successful in many countries and projects; however, there is little knowledge or awareness of efficient pasture/livestock management systems in Armenia. Consequently, a successful project will require a comprehensive approach using an array of technical and managerial activities. Improved pasture management and higher productivity should be accompanied by the following activities: (i) restructure livestock production and feeding systems; (ii) improve animal health and nutrition; and (iii) develop new market and business opportunities. To be sustainable, project interventions must be acceptable to beneficiaries and eventually result in significantly increased incomes; therefore, to minimize technical design risks, the project design is comprehensive but not overly complex. Limiting the number of communities allows a holistic approach, and offers a wide range of technical interventions at the individual and community level. Other activities, such as agricultural advisory services and business development through the Competitive Grants Program, require a nationwide approach.

58. **The Competitive Grants Program (CGP) is based on good practices from similar programs in the region and lessons learned during the RESCAD project.** The CGP is well-suited to supporting rural businesses and emerging entrepreneurs as they introduce and test innovative technologies with potential to provide significant direct benefits and rural employment. Through CGP technology transfer and information activities, wider benefits can be realized as more people adopt technologies, and service provision and inputs for livestock-based communities improve. The project will support the MoA to develop a demand-driven, decentralized, agricultural advisory system that includes rising levels of cost recovery, and an increasing focus on livestock and pasture activities to support project objectives.

59. **Support for community veterinarians builds on successful pilot projects in Armenia and experiences in other countries in the region.** Technical elements of community animal health services will address farm level animal health and production diseases. Broader risks associated with infectious diseases would be addressed through Government contracting of community veterinarians to undertake national level disease control programs.

C. Fiduciary

60. **The PIU will implement project financial management (FM) including flow of funds, budgeting, accounting, financial reporting, internal controls, and external auditing.** The PIU is successfully implementing the RESCAD project, and the CARMAC is largely built on the implementation experience and structure of the RESCAD.

61. **Fiduciary Risk at the Project Level.** The PIU's FM arrangements were reviewed and found satisfactory. The CARMAC project FM assessment, undertaken in August 2010 and updated in December 2010 and February 2011, established that PIU has acceptable FM arrangements in place: (i) accounting and reporting is performed using reliable and flexible 1C accounting software; (ii) the filing system is adequate; (iii) FM staff has extensive experience in Bank procedures and financial reporting; (iv) the internal control system is overall adequate; and (v) results were satisfactory from previous FM supervision and the FY09 annual audit of the RESCAD project. The Operational Manual details the flow

of funds and controls for the Community Grants under Community Fund for implementing pasture/livestock management plans, financing to private veterinarians in project communities to upgrade local service delivery, and Competitive Grant Program for village agribusiness and farmers groups; the overall approach will be similar that to used under RESCAD.

62. **Annual audits of project financial statements will be provided to the Bank within six months of the end of each fiscal year and at project closing.** If the period from the date of effectiveness of the credit to the end of the borrower's fiscal year is no more than six months, the first audit report for the project may cover financial statements for the period from effectiveness to the end of the second fiscal year. The Borrower has agreed to disclose the audit reports for the CARMAC within one week of their receipt from the auditors, by posting the reports on the MOA Website. Following the Bank's formal receipt of these reports from the Borrower, the Bank will make them publicly available according to World Bank Policy on Access to Information. The project will produce a full set of quarterly Interim un-audited Financial Reports (IFRs), to be submitted to the Bank within 45 days of the end of each calendar quarter, from the first disbursement and throughout the project life.

63. **The overall FM risk for the project before mitigation measures is Substantial and the residual rating is assessed as Moderate.**

64. In the environment of project implementation, corruption is perceived as an important issue; therefore adequate mitigation measures have been established and will be closely monitored to ensure that the residual project risk remains acceptable.

65. **Fiduciary Risk at the Country Level.** The October 2008 PEFA assessment report found that several critical Public Financial Management (PFM) elements remain weak, including internal controls, internal and external audit, and financial reporting. Despite these assessments, efforts are being made to use some elements of the country PFM system. In particular, the Treasury system is being piloted to maintain the designated accounts of Bank-financed projects, including this one, which plans to open the designated account in the Treasury. Other country PFM systems will be considered for project implementation as Government progresses with ongoing PFM reforms.

D. Social

66. **Livestock represents an important source of food and cash income.** The project is expected to generate positive social benefits by improving the productivity of livelihood resources such as communal pastures and livestock, which are critical to poor households in Armenia. Additionally, through the competitive grants program, the project will support diversifying the income base of livestock dependent communities and their constituent households. Project activities are clustered in the poorer mountainous parts of Armenia, where pasture resource degradation is the most problematic. Around 54 mountain village communities in six of the poorest regions in Armenia—a total population of around 78,000, would benefit from the project.

67. **Project social risks relate primarily to potential unequal access to decision making processes and unequal distribution of project benefits.** More affluent or influential households may be in a position to dominate the decision making process for resource allocation, improved pasture utilization, and the promotion of projects to be funded under the competitive grants scheme, resulting in a form of 'elite capture'. Furthermore, women, who have a critical role in livestock production in Armenia, could be excluded by male-dominated community-based decision making structures and processes. To mitigate these and other risks, the project has emphasized public consultation and social assessment during preparation, and participatory decision making and channels to address grievances during implementation.

68. **Extensive consultations have taken place with key stakeholders.** They confirm the following: (i) addressing the dual objective of natural resource conservation and economic development is relevant and important for village communities; and (ii) community-driven development implementation mechanisms are relevant within the project context. Meetings were held with Marz governors in the six proposed Marzes and intensive participatory assessments were conducted in six villages (Avan, Lorut, Berdashen, Akunq, Rind and Gorayq), which resulted in community proposals for institutional arrangements that were incorporated in project design, including creation of pasture/livestock associations. A summary report, based on these assessments strongly supports the participatory approach for addressing dual objectives of natural resource management and economic development at the community level.

69. **Social assessment (SA) findings affirmed the proposed project design.** The SA report emphasized the need to raise awareness among pasture users, organize participatory pasture user associations for implementation, and ensure that creating new pasture management regimes is accompanied by investments to improve productivity. Project design has taken all these factors into account, and has established robust channels for monitoring, and addressing grievances.

70. **Community-based planning and decision-making processes are critical for project success.** Project implementation will closely monitor and support community-based planning and decision-making processes to ensure equitable access to project benefits, and establish a grievance redress system, which will be integral to the system of community decision making that was recommended in the social management plan; this will include a village-based grievance focal point, along with a designated member of the PIU. In addition, the PIU will conduct periodic consultations with beneficiaries in each target village to solicit feedback on their satisfaction levels with the overall project, their perceptions of equitable access to project benefits, and their ability to participate in decision making processes. Throughout the process of mobilizing Pasture User Associations, the Marz Support Teams will place a strong emphasis on the inclusion of female household members and female head households. Additionally, one third of the Board members of the PUAs will be women. OP 4.12 is not triggered for this project, as project activities do not require land acquisition and any access restriction will take place on the basis of a participatory decision making process.

E. Environment

71. **Long-term environmental benefits are expected.** It is expected that the project will impart long-term environmental benefits through sustainable pasture management, improved waste management from animal farms and community veterinarians, and improved dissemination of good farming practices among rural communities. Development and implementation of pasture management plans are expected to arrest degradation of target pastures, reverse productivity losses, and boost biodiversity conservation in the alpine zone of Armenia. However, organized pasture management would shift pressure on nearby grazing lands to remote areas, intensify fodder production, and increase the efficiency of animal production, which imply certain environmental threats and require a cautious approach. For example, fodder production, some CGP projects, and advisory services may require pesticide use. Therefore, improved veterinary services and delivery of competitive grants to animal farming communities will require sensitizing beneficiary institutions and communities to potential damage from improper disposal of the organic animal waste and of biological and hazardous waste from veterinary service centers. All these are in line with improved waste management practices now applicable in Armenia.

72. **Most of the project's temporary negative environmental impacts are minor.** These are linked to small construction and rehabilitation works to improve access roads and other infrastructure of pastures and premises of veterinary service delivery centers. Grant-financed small agricultural and agro-processing subprojects in rural areas may have some adverse impacts on natural resources and environment due to

generally low awareness among rural communities of the risks associated with waste disposal, pesticide use, and poor farming practices. The project design not only aims to mitigate risks of financed activities but also to disseminate knowledge of good agricultural practice for the use beyond project scope and lifetime. The mitigations measures are included in the Environment Management Plan (EMP).

F. Safeguard policies

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP 4.01)	[X]	[ ]
Natural Habitats (OP/BP 4.04)	[ ]	[X]
Pest Management (OP 4.09)	[X]	[ ]
Indigenous Peoples (OP/BP 4.10)	[ ]	[X]
Physical Cultural Resources (OP/BP 4.11)	[ ]	[X]
Involuntary Resettlement (OP/BP 4.12)	[ ]	[X]
Forests (OP/BP 4.36)	[ ]	[X]
Safety of Dams (OP/BP 4.37)	[ ]	[X]
Projects on International Waterways (OP/BP 7.50)	[ ]	[X]
Projects in Disputed Areas (OP/BP 7.60)*	[ ]	[X]

i. **Social:** World Bank Policy on Involuntary Resettlement (OP 4.12) is not triggered because the project does not involve land acquisition; any restriction of access to natural resources will result from community decision-making processes, deemed satisfactory to the Bank, which provides for identifying appropriate measures to mitigate any adverse effects on vulnerable members of the community.

ii. **Environment:** The project aims to improve pasture use patterns to increase environmental sustainability, thereby creating environmental benefits. To achieve these benefits, the project will promote shifting pressure from nearby pastures to remote pastures, intensifying animal fodder production, and increasing animal production efficiency, activities that carry certain environmental risks. The project is classified Category B and project preparation included an environmental assessment (OP 4.01) of proposed activities. An environmental management plan (EMP) was developed to propose measures to mitigate any minor to medium negative environmental impacts. Project environmental screening revealed potential long-term benefits for biodiversity and alpine meadows, and potential modest short-term negative environmental impacts, confined to project activity areas. Medium risks from improper disposal of organic wastes from beneficiary animal farms, processing entities, and veterinary service centers were also noted. The EMP specifies procedures to identify and address environmental issues related to specific activities under the project, which cannot be predicted in detail during project preparation. The EMP includes an Environmental Management Framework (EMF) for environmental assessment, screening, supervision, and monitoring of subprojects financed under the CGP. The EMP was disclosed to the public in an accessible manner and meaningful consultations were held with affected communities to generate feedback. A finalized EMP was disclosed in-country and through the World Bank InfoShop on January 31, 2011.

iii. **The project triggers OP 4.09 *Pest Management.*** Fodder production, and some CGP component subprojects may involve use of project proceeds for pesticide procurement, or may indirectly increase pesticide use while stimulating agricultural production by improving availability of other

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

inputs and machinery. Also, the project-supported agricultural advisory service providers may extend pest and pesticide management techniques to their clients, which carry a risk of disseminating environmentally harmful practices. The main principles of sound pest and pesticide management are outlined in the project EMP, while individual Pest Management Plans will be developed for individual subprojects under CGP as required, to ensure that only sustainable use of pesticides is supported / promoted under the project.

G. Policy Exceptions and Readiness

73. **The project does not require any policy exceptions.** The project is ready to start, and selected readiness indicators include: (i) the Project Implementation Unit is established, staffed, and operational, with core staff in place and organigram and TORs available; (ii) the M&E system is in place, the baseline is established, the performance indicators and the data collection strategy are agreed; (iii) the Procurement and Financial Management arrangements are agreed and in place, including the Operational Manual and the procurement plan; (iv) the Project Implementation plan for the first year has been agreed and the first component can begin implementation with a number of five pasture management plans already developed and ready to start; (v) the safeguard issues are addressed, disclosed and reflected in the project costs; and (vi) the institutional and social assessment is completed, and findings incorporated in the project design.

Annex 1: Country, Sector, and Program Background

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

Country economic background

1. **Armenia has a history of sustained economic reform, which aided the transition to middle-income country status over the past decade and a half.** Growth accelerated in particular after 2000 (12 percent on average during 2001-mid-2008), assisted by increased inflows of private capital (foreign direct investment and remittances) and high commodity prices. This, and improved social services, led to a sharp drop in the poverty rate from over half of the population in 1999 to about 23.5 percent in 2008; and to an even sharper fall in extreme poverty (from 21 percent in 1999 to roughly 3.0 percent in 2008). The overall fiscal deficit fell to around 2.0 percent of GDP during 2004-2008 and led to an operational surplus of around 2.0 percent of GDP during the same period.

2. **The global financial crisis dealt a severe blow to Armenia's economy.** In 2009, the economy contracted by 14.4 percent, poverty rose by nearly 3.0 percentage points, and the fiscal deficit reached 7.0 percent of GDP. Growth was affected by sharp contractions in remittances—about 35 percent, and exports—about 34 percent. The construction industry, a key engine of growth over the past several years, collapsed leading to massive job loss. The global crisis had little effect through the financial sector channel because the banking sector had mobilized resources, primarily from domestic sources.

3. **The crisis revealed many of Armenia's economic vulnerabilities, including high dependence on remittances, weak trade development, excessive economic dependence on the construction industry, and low competitiveness.** The country faces significant economic constraints, such as closed borders to the east and west. To respond to the global crisis, and advance a structural agenda to address these issues, the authorities are pursuing a multi-pronged approach including measures to consolidate its fiscal position and restore growth. In particular, the authorities opened discussions on a deep and comprehensive Free Trade Agreement with the European Union.

Livestock sector issues

4. **Agriculture has once more served as a buffer and a labor safety net.** This amplifyied the challenges of a labor intensive agricultural system, which now contributes only 16 percent to the total GDP, down from 37 percent in 1999, and employs about 42 percent of the national labor force of 1.2 million people. Early 1990s land reforms caused major shifts from large-scale farms to higher numbers of individual farms, resulting in more labor-intensive agricultural sectors such as horticulture and livestock production.

5. **Higher altitude small-scale farmers and livestock breeders, who often combine subsistence agriculture with seasonal labor migration to the Russian Federation, have been particularly vulnerable during the recent economic downturn.** For the poorest rural people in mountainous communities, where off-farm employment opportunities are scarce, revenues from livestock are essential for subsistence, and often the major source of cash income. For one-third of the rural population, raising livestock is the main source of livelihood. Unless specifically and carefully targeted, the farmers and livestock producers in the high altitudes of Armenia will remain vulnerable with little prospect for recovery in the near future.

6. **Armenia has a long tradition of animal breeding**. Livestock has been an important source of livelihood for many rural families due to favorable climatic and topographic factors for raising animals. Most of Armenia's mountainous topography is at altitudes of over 1,000m and over two-thirds of the land

has slopes of 6º or more. Grassland and pastures comprise half of the total agricultural land (1.1 out of 2.1 million ha); fodder crops including beets, oats, and alfalfa are also cultivated on some 5.0 percent of the land. Livestock production is essential for subsistence among Armenia's poorest rural people in mountainous communities and often their sole source of cash income is from sales of animals and livestock products. For about 186,000 rural households, livestock is the main source of livelihood.

7. **Following the collapse of the Former Soviet Union, the livestock sector went through a fundamental restructuring process which handed over the ownership of livestock from large public cooperatives to small private farms managed at subsistence level**. During that period the livestock numbers decreased dramatically, as well as milk and meat production. The number of cattle declined from around one million heads in 1992 to less than half in 1996. The development and growth of animal production during the transition was hindered by the failure of the production system to reorient and adapt to the new small farm production system and also by the inability of farmers to pay for necessary inputs and support services.

8. **The sharp decline of the early years of transition was followed by recovery, starting mid nineties when livestock inventories began to rise.** From 1996 onwards the cattle inventory increased steadily by about 33 percent up to around 600,000 cattle heads in 2008. During this time milk and meat production were growing at an annual rate of 3.1 and 3.4 percent respectively. The trade balance on livestock products improved between 1995-2006, with an annual average of 3.6 percent drop in livestock imports and a remarkable annual average of 36.6 percent increase in livestock exports, mostly in the recent years. Imports dropped from US$ 58 million to US$38.7 million, while exports increased from US$ 0.1 million to US$4.3 million. The majority of export was to CIS countries.

9. **With productivity increases resulting from a more rational use of pastures, better feeding and increased overall efficiency of production systems, it is expected that Armenian products will be in a better position to supply the domestic market and to compete regionally**. The technical performance of the present production systems is limited for the following major reasons.

*(i) Natural resource management***.** Armenian farmers and livestock producers have access to a vast pasture land for grazing; nonetheless, grazing practices over the last twenty years had led to land degradation and had reduced pasture productivity. The resource degradation is a major contributory factor to the contraction of Armenia's livestock sector, undercutting its role as a key source of economic growth and of rural livelihoods. Uncontrolled and unmanaged exploitation practiced over the last decades has resulted in unprecedented resource destruction clearly visible around most mountainous villages in Armenia. Following the collapse of the Soviet system of pasture management, these unsustainable practices led to the degradation of this important natural resource base. It is now estimated that about 15 percent of the pastures and grassland is degraded. The reduced use of seasonal grassland, the move to intensive use of pastures, and the poorly regulated access to near-by community land that are easier to access than more remote pastures, have together contributed to the excessive use of certain pastures. This unsustainable land management has led to the loss of soil fertility and vegetative cover, extensive soil erosion, and a general loss of biomass. Despite availability of vast pastures, grazing is excessively carried out in only 19 percent of that land-this is the land in close vicinity, 0-7 km, to the livestock farmers' villages. This results in a grazing load of 5.7 and 2.5 head/ha for land which is 0-3 and 3-7 km away from villages respectively. The rest of 81 percent of the grazing land is underutilized with grazing load of only 0.4 head/ha. The problem of overgrazing in nearby village pastures and under-grazing in remote areas had led, on one hand to degradation and erosion of nearby pastures, and on the other hand to under utilization of other remote pastures, resulting in a build-up of a soil crust and reduced water absorption and the displacement of valuable pasture flora by lichens. On the other hand, remote pastures are underused (because of distance and access), but still subject to degradation: in this case by development of bushes, small trees and non interesting species for ruminants.

(ii) Fodder and feeding. As a result of the low productivity of their livestock, producers receive little returns on the sale of their products. The low productivity is attributed to many factors, including the use of dairy cattle for meat production and the low quantity and quality of feeding. Cattle slaughtered for meat are mostly dairy cattle, with potential for producing high volumes of milk and little volumes of meat. The daily weight gain of these cattle is only 400g/day as opposed to 600-700 g/day for beef cattle. Measured by the average weight of carcass over the last ten years, Armenia's cattle are declining in their average weight and they fall well below the average of Turkey and Iran; for example, on average Armenia's carcass weighs 70 kg less than that of Turkey. Because of inadequate winter feeding, with only dry feed and no or very little high energy/high protein feed, there are also significant seasonal variations in milk production. Seasonal variations in milk supply impact on the current willingness of processors to invest in local supply chains. As much as 70 percent of the volume is produced from April to October, which results in a market price that is 20 percent below that in the winter. Many collecting centers are also closed during winter.

(iii) Organization and farm size. Farm size and the dispersal of small farm producers in remote areas disconnect them from the main markets and put them at a disadvantage from earning higher returns for their products. Cattle farms in Armenia are small by any comparison. Small farms, defined as those with three or less cows, constitute 88 percent of total cattle farms; medium sized farms are those with four to seven cows and constitute 10 percent total cattle farms; and large farms, defined as those with above eight or more cows constitute 8 percent of total cattle farms. Commercial farming is very limited. The small size of herds makes it difficult for farms to participate in more modern supply chains (even as contract deliverers to stores), where quantity is of essence. This in turn results in very limited profit potentials, and thus negatively impacts on both the willingness to invest in more sustainable methods and the incentive to raise productivity through for example improved feeding schemes. Also, this gives them limited market power to negotiate prices and limited opportunities to be part of more developed supply chains, where quantity, standards, and timing are of essence, but where returns are higher.

*(iv) Animal diseases***.** Infectious diseases are common, pose severe risks to food safety and human health for producers and consumers, and are now of national concern. Among the several diseases, brucellosis, tuberculosis and foot-and-mouth disease are the most prevalent. These diseases pose multiple threats: human infection, environmental contamination, reduced livestock production, and limit exports of live animals and dairy products.

(v) Breeding technologies. Beside the poor quality of feed, livestock productivity is also hampered by lack of breeding technologies that carry great potential for yield enhancement. Producers are often unaware of such technologies (such as artificial insemination) and efforts to introduce them might pay off in the longer run.

(vi) Farm advisory services. Existing extension services do not generally target small-scale mountainous producers and are thus not providing the necessary advisory support to help farmers increase productivity and develop sustainable natural resource management in these areas. Farm advisory services are developing but need to be further strengthened to cover livestock and pasture-related issues. During the last five years the advisory system shifted from a fully donor-dependent funded system to a system with core funding provided through the government budget and additional funds generated from cost recovery and through consultancy services. In 2009, around 6 percent of the total costs of the advisory system were generated in this way, through retained earnings from paid services. However, these services have proven inadequate in providing necessary services to mountainous smallholders, especially with regards to increased productivity in the livestock sector, improved organization of farmers, and sustainable natural resources management.

(vii) Branding and Marketing. The demand for meat and dairy products provide a good opportunity for Armenia's livestock sector, however packaging, labeling, and marketing need to be further developed in order to fully take advantage of the existing demand. In addition to the demand for meat, there is a strong domestic demand for a variety of milk products, ranging from powdered milk to yoghurt and cheese. There is also a market for sheep and goat meat and milk, both domestically and internationally. However, branding and marketing of products is an issue and needs to be further developed. A notable exception is organic production, where about 4,000 farmers are currently organically certified in Armenia, which gives them the possibility to better price and market their products.

(viii) Quality and food safety standards. Insufficient compliance with international food safety standards limits the tradability and international competitiveness of the Armenian agri-food products. Higher international standards for food safety and agricultural health have posed great challenges for Armenia. Although abolished in 2005, Armenia still follows the sanitary and phytosanitary (SPS) agro-food standards from the GOST system established under the former Soviet Union. Armenia acceded to the WTO in 2003, but the replacement of GOST standards with new WTO requirements is still in its early stages. Improved SPS capacity will help Armenia gain access to higher-priced markets. There is a substantial demand of Armenian cheese products abroad mainly in Russia and the CIS countries but also in the EU and the USA where there is a large Armenian diaspora. Along with traditional markets, new niche markets are emerging. However, the lack of proper quality and food safety standards prevent Armenian producers to fully capture these new opportunities and export markets. Major gaps in the strategic and legal framework of the food safety domain and regulation still exist. While a Food Safety Strategy has been prepared in 2004, it has not been adopted and there is currently no such strategic document in force. A new Food Safety Law has been adopted in 2006, setting the general framework, however its enforcement is constrained by gaps in the supporting actions and secondary legislation. In particular, the Food Safety Law provides for the mandatory implementation of the Hazard Analysis and Critical Control Point (HACCP) system principles. However, the accompanying implementation plan is currently missing, and the Government had postponed the deadline for developing it until 2013.

(ix) Infrastructure. With farms generally being small-scale and often located in remote areas, physical access to markets is limited. Almost all meat and milk in Armenia is produced by small farms, often located in remote areas with poor infrastructure. In addition, the small production volume and poor quality has been a disincentive to developing more organized dairy supply chains and both cooling facility and networks with collection points are insufficient. This has resulted in that as much as 50 percent of milk production in Armenia is used for self-consumption.

10. **Notwithstanding the numerous challenges, the livestock sector has significant opportunities for development.**

(i) Domestic demand. As reflected in the statistics of both the FAO and the Statistics Department of the MoA, the demand for high quality products has been increasing regularly for the past 5 years and the supply is not sufficient to cover the national demand. Domestically, increasing incomes have been major drivers of rapid growth in demand for meat, dairy and other livestock products in recent years. Between1995-2005, per capita calorie intake from livestock products was increasing by 1.7 percent annually. This is higher than the annual consumption growth in neighboring Azerbaijan and by far higher than the average of -0.1 percent in all former centrally planned economies. Despite high local demand, the low productivity of the livestock sector, compounded by fluctuations in the supply of raw materials, contributed to the country's dependence on imports in order to meet rising domestic demand, mostly for meat. About 30 percent of the meat consumed in Armenia is currently imported. However, the imported meat is mainly meat used as raw material for the processed meat products industry, and not as fresh meat, which is mainly supplied from local production. There is still an unmet demand for fresh meat, and a

greater share of the domestic market could be covered by local livestock production if current constraints are addressed.

(ii) External demand. Demand for Armenian meat and meat products is high in CIS and some of the Middle East countries and potential for increased exports to these countries is high; however, exports are hindered by the poor communication between producers and traders. In Russia, the demand is highest, not just among the Armenian diaspora, but also among the general population who developed their taste and preference for Armenian origin meat and meat products during the Soviet era. In the Middle East the sheep market is mostly covered by imports of mutton meat from Australia. This leaves the market for lamb from fat tail sheep breeds unfulfilled, leaving Armenia an opportunity to fill that gap, especially since the preferred breed of fat tail sheep could only be reared in the Caucasus and Central Asia. Exports to countries other than the CIS and Middle East countries constitute a real challenge for Armenia at the moment. In those countries the demand for improved quality standards and supply traceability is higher and Armenia is yet to comply with specifics of SPS vis-à-vis these demands. This might not be a priority for the sector at the present time and might not be so for a while-not before the livestock market had developed and expanded beyond capacity to fulfill domestic and regional demand.

(iii) Enabling domestic environment. The Government recognizes the importance of livestock sector development and pasture management. The Sustainable Agricultural Development Strategy for 2010-2020 links livestock development objectives to improving food security and food safety while fully utilizing sector potential to raise economic productivity. Among the main Strategy objectives are increasing livestock productivity through improved breeding, improved fodder production and feeding, artificial insemination, veterinary services, and zoonotic diseases protection; and improving pasture management through more stock watering points and other infrastructure. The program also includes measures for artificial insemination, as well as the elaboration of a farm animal identification and registration system. While no dedicated legal and institutional system exists to regulate pasture resource management, existing laws - including the Land Code, the Law on Local Governance and relevant legislation regarding associations and leases, provide sufficient legal basis to initiate reforms in the livestock sector. The local governments and the communities are aware of the consequences of not addressing the current constraints and are willing to change the existing situation.

(iv) International assistance for the livestock sector. The donors also recognize the potential of livestock sector development and are supporting the sector through several programs. The EU is providing technical assistance for food safety, quality and standards within the framework of preparations for the Free Trade Agreement. In the past, the EU has also supported a pilot animal identification and registration program, which could be replicated in the future. The USDA has also supported rural development and livestock through its Marketing Assistance Program, which was re-organized into an Armenian NGO – the Center for Agribusiness and Rural Development (CARD). CARD has several programs for business generation in rural communities, including a Goat Industry Development Project to develop a sustainable dairy goat industry along the supply chain, and a pilot animal health control program in the Syunik Marz. The FAO has also provided assistance for the livestock sector, which included assistance for the control of the african swine fever, food and mouth disease, and support for slaughter house development and food safety capacity building.

Annex 2: Major Related Projects Financed by the Bank and other Agencies

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

1. **The World Bank was financing four recent agricultural projects in Armenia**: the Rural Enterprise and Small-scale Agriculture Development Project (RESCAD), the Irrigation Rehabilitation Emergency Project (IREP),the Avian Influenza Preparedness Project (AIPP) and the Natural Resource and Poverty Reduction Project (NRMPRP). In addition, the Armenia Social Investment Fund (ASIF) is operating in rural areas.

2. **RESCAD (DO/IP – S/S).** The project objective is to support small and medium-scale rural business development in Armenia by improving the ability of farmers and rural entrepreneurs to access markets and by stimulating market-oriented private and public investments in rural areas. Primary project target groups are small- and medium-scale farmers and rural entrepreneurs who would benefit from improved information services, access to finance, improved inputs and technologies, and support for marketing activities. The RESCAD helped farmer advisory services reduce reliance on donor funding, and by 2010, all extension funding for operational costs and salaries has come through the national budget. In addition, RESCAD set up an efficient and transparent system for a competitive grant scheme to support the development of small farm and rural businesses, and supported 141 communities to set up and finance their priority development needs through community-based interventions.

3. **IREP (DO/IP – S/S).** This project is part of an ongoing national program supporting irrigation system rehabilitation and restructuring. The program was initiated under the first Irrigation Rehabilitation Project with financial support from IDA and IFAD, and further support from the IFAD-financed North West Agricultural Services Project. The IREP project was an emergency operation to provide counter-cyclical responses in the aftermath of the global financial crisis that included increased public spending, job creation, and possible social spending. Project objectives are: (i) to improve water use efficiency in two selected irrigation schemes; and (ii) to foster immediate rural employment. These objectives are being achieved by rehabilitating irrigation canals to reduce water losses in two selected schemes, and by providing limited assistance to strengthen institutions that manage irrigation infrastructure.

4. **AIPP (DO/IP – S/S).** The Armenian government requested the AIP project in the wake of the Avian Flu outbreaks in the region in 2006. The original Development Objectives were to minimize the threat posed to humans by the highly pathogenic avian influenza (HPAI) and other zoonoses in domestic poultry, and to prepare for the control and response to an influenza pandemic and other infectious disease emergencies in humans. Originally, the project was designed to support three areas: (i) prevention; (ii) preparedness and planning; and (iii) response and containment. In 2008, as the risk of avian flu diminished worldwide, the PDO was expanded to include other zoonotic diseases and provide more comprehensive support to animal and human health services. The project focused Government attention on improved animal health services and their importance to public health, and supported preparation of the national brucellosis control program framework, the national animal disease surveillance system (NADSS), and the central veterinary reference laboratory.

5. **NRMPMP (DO/IP – S/S).** The project aimed to: (a) promote adoption of sustainable natural resource management practices and alleviate rural poverty in mountainous areas where degradation has reached a critical point; and (b) preserve the mountain, forest and grassland ecosystems of the southern Caucasus. The project worked on community-based watershed management in two Marzes. Development of watershed management plans proved time-consuming. Project lessons have been taken into account, especially in the community-focused component, some project activities provide examples for potential economic investment activities in communities.

6. **ASIF III (DO/IP – S/S).** The project aims to assist the Government of Armenia in its continuing endeavor to improve living standards of the lower income groups among the Armenian population and strengthen institutions at the local level.

7. Several other donor agencies are involved in agriculture, community development, and animal health. CARMAC will complement and build upon these ongoing activities.

8. **IFAD.** IFAD has supported three successive projects in Armenia, focusing on mountain areas and including rural finance, irrigation support, orchard development, and infrastructure rehabilitation. Recently, IFAD approved a Rural Assets Creation Program (RACP), which aims to: (i) increase the assets and incomes of poor smallholders and workers involved in agriculture and related activities; (ii) improve access among poor rural people to production and productivity-enhancing technology and profitable engagement in key agricultural value chains by developing and applying management systems and financial products; and (iii) enhance access among poor rural people to social and economic infrastructure that supports primary producers, agro-processors, and agro-related traders.

9. **USDA.** USDA has long been supporting rural development in Armenia through its Marketing Assistance Project (MAP); this was reorganized into an Armenian-operated NGO–Center for Agribusiness and Rural Development (CARD). This has many small-scale programs for business generation in rural communities—of which of particular interest for CARMAC are the animal health projects.

10. **Millennium Challenge Corporation (MCC).** MCC supports high-value agriculture development projects, introducing new irrigation technologies and new planting varieties for orchards.

11. **Other Donors.** Active in rural areas are USAID, GTZ, and Swiss Development Cooperation.

Annex 3: Results Framework and Monitoring

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

Results Framework

PDO	Project Outcome Indicators	Use of Project Outcome Information
Improve productivity and sustainability of pasture/livestock livelihood systems in selected communities.	Increased livestock productivity measured by: (a) milk production, and (b) increase in daily animal weight gain Increased effectiveness of communal pasture management, as measured by increased communal budgetary revenues from lease of pastures Increased farm sales from livestock Increased Pasture Management Effectiveness[2]	YR1-YR2: Assess village-level acceptance with project approach. YR3: Determine if technical models need to be changed YR5: Feeds into Government strategy for mainstreaming project results in national livestock/pasture management policy. Scaling up project models for other villages
Intermediate Outcomes	**Intermediate Outcome Indicators**	**Use of Intermediate Outcome Monitoring**
Component One: *Community Pasture/Livestock Management System* Utilization of communal pasture areas is rational and sustainable Livestock feeding is improved on a year-round basis	**Component One:** Setting up Pasture User Associations Number of pasture management plans developed and agreed by the communities Areas of pastures and grasslands leased Percentage of winter-fodder requirements met	**Component One:** YR1-YR2: Revise communication strategy and participatory approach if progress lower than expected YR2-YR5: Assess effectiveness of monitoring procedures and acceptance, revise if necessary YR2-YR5: Low levels flag wrong incentive structure YR2-YR5: Low levels flag poor understanding or technical problems to be addressed

[2] The 'Pasture Management Effectiveness Tool' measures 25 key parameters critical for effective management in a scoring system with a total possible score of 85. The Tool is fully detailed in the Operational Manual.

Component Two: ***Strengthening Support Services***	**Component Two:**	**Component Two:**
Sustainable regional and local technical advisory system in place	Increased adoption rate of new technologies by farmers in targeted communities Improved outreach and performance as measured by increased share of revenue from contracts	YR2-YR5: Determine message effectiveness and reach. Realign delivery mechanism, etc. as needed YR2-YR5: Low levels require additional training of extension service providers
Veterinary Services at the community level provide adequate animal health services	No. of trained and certified community veterinarians providing services	
Component Three: ***Competitive Grants Program***	**Component Three:**	**Component Three:**
Competitive Grant Program (CGP) for agribusiness and farmer groups yields innovative and viable business opportunities in the livestock based communities	Percentage of grants completed with satisfactory rating No. of non-recipients adopting similar technical innovations outside the grant scheme	YR2-YR4: Flags issues in selection or other operational procedures YR5: Feeds into broader programs and replication under an envisaged government program
Component Four: ***Project Management and M&E***	**Component Four:**	**Component Four:**
Effective project management system in place M&E system generates lessons for scaling up and transferring project experiences to other areas	Key staff appointed and annual work plans prepared M&E system developed Mid-term evaluation done End-project impact assessment done	YR1-YR5: Deficiencies affect overall project implementation effectiveness YR1: Essential for learning and scaling up results YR3: Identifies potential need to restructure YR5: Tool for mainstreaming project results in national livestock/pasture management policy. Scaling up project models for other villages

Arrangements for results monitoring

Outcome Indicators	Baseline	Target Values		Data Collection and Reporting		
		Mid-term	End-project	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Increased livestock productivity measured by:						
(a) milk productivity (kg/year, for cattle and sheep)	100%(cattle) 100%(sheep)	107%(cattle) 105%(sheep)	120%(cattle) 110%(sheep)	Mid-term, end-project	Field Survey	PIU/Contracted monitoring team
(b) growth rates of animals (gram/day for cattle, sheep)	100%(cattle) 100%(sheep)	107%(cattle) 105%(sheep)	120%(cattle) 105%(sheep)	Mid-term, end-project	Field Survey	PIU/Contracted monitoring team
Increased efficiency of communal pasture management, as measured by increased communal budgetary revenues from lease of pastures	100%	115%	130%	Mid-term, end-project	Field Survey	PIU/Contracted monitoring team
Increased sales from livestock by livestock raising households (AMD/household)	100%	110%	120%	Mid-term, end-project	Field Survey	PIU/Contracted monitoring team
Increased Pasture Management Effectiveness (scoring system)	0	25	60	Annually	Assessment	PIU
Intermediate Outcome Indicators						
Component One: *Community Pasture/Livestock Management System*						
Number of pasture management plans developed and agreed by the communities	0	25	46	Annually	Project Reporting	PIU
Areas of pastures and grasslands leased (%)	100%	115%	140%	Mid-term, end-project	Field Survey	PIU/ Contracted monitoring team
Number of farmers associations established	0	25	46	Annually	Project Reporting	PIU
Percentage of winter fodder requirements met	45%	60%	80%	Annually	Project Reporting	PIU

Outcome Indicators	Baseline	Target Values		Data Collection and Reporting		
		Mid-term	End-project	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Component Two: *Strengthening Support Services*						
Adoption rate by farmers in targeted communities	70%	75%	90%	Annually	Survey	PIU
Improved outreach and performance as measured by increased share of revenue from contracts	6%	8%	10%	Annually	Survey	PIU
No. of trained and certified community veterinarians providing services	0	48	48	Annually	Project Reporting	PIU
Component Three: *Competitive Grants Program*						
Percentage of grants completed with satisfactory rating	0	80%	80%	After completion of each grant	Assessment	PIU
No. non-recipients adopting similar technical innovations outside the grant scheme	0	100	250	Annually	Assessment	PIU
Component Four: *Project Management and M&E*						
Key staff appointed and annual work plans prepared	Done	Done	Done	Semi-annual	Project Reporting	PIU
M&E system developed	Done			Project start	Project Reporting	PIU
Mid-term evaluation done		Done		Mid-term	Field Survey	PIU/Contracted monitoring team
End-project impact assessment done			Done	End-Project	Field Survey	PIU/Contracted monitoring team

Annex 4: Detailed Project Description

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

1. ***Component 1: Community Pasture/Livestock Management System (US$15.36 million)*** The component objective is to develop and implement an efficient and sustainable community-managed pasture/fodder based livestock production system in selected mountainous communities, where livestock is the main source of livelihood and communities express strong interest in improving pasture production. This objective would be achieved by reversing destructive grazing, using pastures more efficiently, improving fodder production and animal feeding systems, and raising animal production efficiency.

2. **In order to meet these objectives, the project aims to build individual and community awareness.** Under the project, Pasture User Associations will assume management and control of community pasture areas. An investment package linked to organizational and behavioral change would provide an entry point for disrupting the destructive cycle of pasture resources degradation. In the medium and long-term, increased income from livestock should provide incentives necessary to improve pasture resources management.

3. **Based on an application process from a long list of 154 communities, about 53 communities will finally be selected, covering around 230,000 ha.** The selection of the long list of communities will be based on an index composed of equal shares of two quantitative criteria, namely the area of pasture lands and the number of livestock. The selection of the short list will be based on a written application by the interested communities and qualitative criteria such as geographic location including watershed, economic linkages, existing associations, common economic infrastructure, and synergies with other development projects. The selection process is extensively explained in the Operational Manual. The average pasture area for one village is about 4,500 ha ranging from about 1,000 ha to 10,000 ha with the exception of one village with over 20,000 ha. The investments made will be roughly 35$ per ha plus another 35$ per livestock unit.

4. ***Component Description.*** **The following component design addresses the issues described:**

a) Development of Pasture/Livestock management plans (US$2.30million). This component would carry out a comprehensive village-level **assessment of all pasture and fodder production areas,** including soil tests, plant assessments, productivity, production quality, and productivity estimates for grassland and fodder production areas in the context of village feed and fodder demand (village-level fodder balances). A participatory technical assessment would be the entry point for mobilizing Pasture User Associations for a common resource management framework. Authentic participation can only emerge from recognition among pasture users that their common resources have value, and that unsustainable practices degrade this value. To this end, component outputs would include productivity estimates for grassland and fodder production areas to be put in the context of the feed/fodder demand in the villages (village level fodder balances); and participatory development of village fodder and feed maps, for use in making decisions on pasture management. The assessment would use a participatory approach to reinforce understanding among pasture users of using common resources and improving the system for managing resource use to raise incomes for each member of the Pasture User Association.

Based on the participatory assessment and improved understanding among pasture users, sustainable **pasture resource management plans and livestock development plans** would be developed. The plans would define options to increase fodder quantity and quality, reduce pressure on degraded pastures, and regenerate their productive capacity (sustainable resource

management). In general it is expected that this will be achieved by reducing grazing on nearby pastures, improving utilization of remote pastures, introducing a higher proportion of cultivated fodder and hay in overall livestock feeding, and could involve shifting some farmers' livestock production systems to stall-feeding from grazing. The plans would define measures necessary to improve pasture productivity, which could include introducing rotational grazing, enforcing temporary protection for areas needing regeneration and rehabilitation, providing opportunities for additional fodder production, and providing better access to remote pastures, among others. The plans would also include basic animal health requirements such as vaccination timing and coverage, and simple and monitorable indicators and targets for implementation. Using a bottom-up approach, pasture users can determine detailed investment needs to demonstrate that management plans would be achieved, including targets and management principles. Pasture User Associations would sign agreements committing them to implement the plans and achieve the targets. The planning process would be supported by Marz Support Teams and technical experts working with Pasture User Associations.

The Project will also finance a study on introducing cost recovery mechanisms by which beneficiary communities would repay the cost of equipment in installments. This study will be conducted within six months of project effectiveness.

b) Community Fund for Implementation of Pasture/Livestock management plans (US$13.06 million). Subject to member agreement, each Pasture User Association in the target villages would receive a block grant to implement their plan, based on total pasture area and number of livestock (preliminary estimates are US$100,000-US$300,000 per village with an average of US$200,000 /village). Pasture User Associations would receive an indicative open list of eligible investment activities including (i) *infrastructure* to access and use remote pastures such as spot road improvement, stock watering points, shelters, or milk cooling devices; (ii) *machinery* to produce and harvest fodder such as grass cutters, haying machines, or silage choppers; (iii) *protective and natural resource rehabilitation measures* for degraded areas including fencing, demarcation, weed and shrub control, and supplementary seeding; (iv) *support for fodder production* including leguminous plant seeds, corn seeds; (v) *breed stock improvements* including artificial insemination; (vi) *training and advisory services*, and (vii) *support for Pasture User Associations* such as office equipment and furnishings. Project funds could be used to finance up to 50 percent of costs for fodder production, 80 percent for agricultural machinery, 95 percent for public infrastructure and resources protection/rehabilitation measures and 100 percent for training and technical services.

Community Fund Use Restrictions are as follows:

(i) a minimum of 5 percent of the community grant should be allocated to protective and natural resource rehabilitation measures of degraded land, which could include: fencing; demarcation; weed/shrub eradication; supplementary seeding of community pastures; tree planting; and a demonstration and learning site no less than one hectare, fully protected from grazing to learn about natural re-vegetation and potential for regenerate land to naturally;

(ii) a minimum of 5 percent of total funds in each community should be used for farmer training and advisory services supplied by either public and/or private providers;

(iii) funds would be allocated over a period of at least 3 years starting with the completion and adoption of a pasture resource management and livestock development plan with no more than half of the funds to be allocated for investments in the first year;

(iv) provision of funds to communities would depend on progress in improved community management assessed using a management effectiveness tool;

(v) indicative investment activities could be adjusted for each community pasture and livestock management plan, but activities must have clear links to management plans objectives;

(vi) the project will not support social benefit payments or social infrastructure investments; and

(vii) no breeding stock will be provided to individual farmers.

5. ***Component 2: Strengthening Support Services (US$2.48 million.)*** This component aims to improve the support services for farmers involved in livestock production through: (a) improving agricultural advisory services in livestock-related topics; and (b) improving animal health services.

a) Agricultural advisory services (US$1.49 million). The project would support national level advisory and extension programs, primarily for livestock-related farmer activities; farmer associations/ cooperatives, and small-scale processors, through the existing network of MASCs and RASC. The sub-component would strengthen the MASC/RASC system capacity to deliver services in topics including farm-level livestock-related technologies, principles of food safety and hygiene, animal health care; pasture and fodder management, marketing requirements and other related topics. Specific activities would include: (i) improving advisory system effectiveness and outreach through training, technical support, and provision of essential equipment; (ii) funding incremental tasks, including technology assessment projects (TAPs); (iii) demonstrations, training programs, and information materials in livestock topics for farmer interest groups; and (iv) improving information systems using modern information and communication technologies (ICT). Farmer training programs related to herd and flock health will be coordinated with the community veterinary services component to ensure that content and approach are fully synchronized and that community veterinarians participate in the delivery of these programs.

Recently, mobile phone services have expanded rapidly in Armenia; the country now has three providers and competition is increasing among them. An estimated 95 percent of households now have mobile phone access and nearly all villages have potential access to the Internet. Therefore, it is feasible to use SMS messaging and to increase website access to expand outreach to villages. The project will support a pilot mobile phone messaging system through the MASCs to provide information, potentially including weather information; the project would also provide laptop computers, office software, and Internet access for each MASC, so advisors could access information, and provide regular Internet service for farmers in the community advisory rooms. MASC advisors would receive computer training and technical support to improve the RASC website, including links to the USDA-supported Market Information System.

Furthermore, to improve outreach, each MASC will receive one new car or small truck up to a value of around US$20,000. In addition, the RASC and each MASC would receive up to US$40,000 for small equipment for activities such as grafting and nursery establishment, printing and publications, and for providing a range of small services to farmers, in particular items to improve MASCs business efficiency and increase cost-recovery opportunities. Project

funds could not be used for purchasing land, buildings, or livestock, or for establishing a processing unit, or purchasing vehicles that exceed the specified cost range. However, a MASC could request additional equipment rather than a vehicle, if preferred. Requests for additional equipment for activities such as disinfecting animal housing or plant protection must be accompanied by an environmental mitigation plan and appropriate training in pesticide use, storage, and disposal. Project-provided equipment and vehicles would be selected based on MASC and RASC preferences and detailed justifications, including a cost/benefit analysis submitted to the PIU and MOA for approval.

Training activities would be based on a two-step approach. First, MASC advisors would receive training on livestock management and associated issues such as pasture management, animal health, food safety and hygiene, legal issues, farm economics, and marketing. The RASC, contracting with experts from other organizations, would prepare training modules and carry out training over the first four years of the project, based on MOA-approved annual training plans. Trained MASC advisors would then deliver demonstration and training activities to farmer interest groups in these topics, based on an agreed work-plan, with provision made for about 100 advisory days per year for each MASC.

The Technology Assessment Program (TAPs) would be carried out in a similar way to the RESCAD project. The TAPs aim to improve research/extension/farmer linkages and have proved to be successful in ensuring that research activities are applicable and acceptable. Topics are identified from applications by farmer groups and extension agents, and approved based on MOA priorities. Around 40 TAPs would be conducted annually at an average cost of US$2,000 including a 25 percent beneficiary contribution; around one-third is expected to directly address livestock issues, and two-thirds to address related topics. The project will also support an impact assessment of advisory activities.

b) Community Animal Health Services (US$0.99 million). This sub-component would cover: (i) mobilization of community veterinarians, including training and certification programs focusing on clinical practice, pharmacology, basic business management, infectious disease control, and artificial insemination; (ii) packages of veterinary equipment, consumables and medication for participating veterinarians to support essential diagnostic and treatment services; and (iii) establishment of veterinary service centers facilities in each of the project Marzes. This sub-component will also be closely coordinated with the advisory services sub-component to ensure that these programs are synchronized in terms of approach and content.

(i) *Mobilization of Community Veterinarians.* The project would finance development of community-based veterinarians in the project Marzes to ensure ability to provide essential diagnostic and treatment services for production diseases and conditions not addressed by Government programs. Candidates for this program would be selected based on an initial market survey in project areas, in close consultation with communities and PUAs. Selected veterinarians will participate in an orientation program, which will include an opportunity to select needed equipment and supplies for enhanced animal health services delivery. The project will emulate a successful pilot mechanism for supporting community veterinarians that has been implemented by other donors. Public good animal health services, such as vaccination, would be delivered under government contract to supplement community veterinarians' income. The MASC advisory system and community Marz Support Teams (MSTs) would help support public awareness and communications regarding animal health and related public health issues. Although the project targets individual communities for pasture activities, veterinarians are expected to provide ambulatory veterinary services and

AI services for up to six adjacent communities, the scope of coverage for successful veterinarians.

The project would support training and certification programs for community veterinarians in the project area. Criteria for selecting community veterinarians to be enrolled in the program would include: (i) veterinary degree; (ii) minimum years of on-farm experience; (iii) minimum years of experience with government contract work; and (iv) experience in other donor supported programs, among other criteria to be determined. Selected veterinarians will undertake a modular training program of practical skill-based training focusing on clinical practice, pharmacology, basic business management, control of infectious diseases and artificial insemination. Successful veterinary candidates would obtain a Certificate of Qualification (CQ). The program will be delivered in the project Marzes, in intermittent one-week modules over an 18-24 month period, to encourage community veterinarians' participation. The delivery of training could include participation of the veterinary faculty, NGOs, RASC, among others.

(ii) *Equipment, Consumables and Medication for Community Veterinarians.* The selected veterinarians will undertake an orientation program during which they will be given the opportunity to select the equipment and medications needed to enhance their delivery of animal health services. The package per community veterinarian is estimated at $2,500 (total $0.120 million). The medications and drug inventory is expected to be provided in two tranches over a six month period with the provision of the second package being contingent upon sales and revenues being generated at a reasonable level from the first set of supplies. Procurement of the equipment packages will be carried out by the PIU under a separate tendering process.

(iii) *Veterinary Service Centers.* The project will support the construction and establishment of Marz level Veterinary Service Centers (VSCs) following a similar approach implemented under the CARD/USDA pilot project in Syunik Marz. This will be carried out in five of the six project Marzes and will be developed on the basis that they would become self-sufficient service centers. The VSCs will be equipped with basic amenities and facilities including a meeting room, office, clinic area and dispensary for sales of equipment, semen, liquid nitrogen, consumables, and restricted drugs and medications for access by the CVs in the Marz. The centers will be owned and operated by the CVs and, where deemed appropriate, would include pasture management associations in the management structure.

6. ***Component 3: Competitive Grant Program (CGP) (US$2.05 million).*** The project would support, at the national level, proposals from village agri-business and farmer groups for innovative technologies and income-generating activities that could benefit communities focused on livestock production. Selected proposals would receive grants of up to US$20,000 plus beneficiaries would be expected to provide a cash contribution of at least 30 percent of the grant amount. Around 70 grants are foreseen. Each beneficiary would be required to link with one or more local service providers who would provide technical assistance and to organize a demonstration technology transfer to demonstrate the technologies to other potential adopters. Activities could include a wide range of livestock-related activities; alternative natural resources use; alternative income opportunities such as honey, medicinal herbs, agro-tourism, or development of niche products or by-products; improving food quality and safety; improved processing, packaging, and marketing; new product developments; and delivering services such as veterinary or artificial insemination services. The CGP would include a comprehensive information program to promote awareness among potential beneficiaries, a rigorous and transparent selection process, and a strong monitoring and evaluation program. Grant projects would be monitored regularly during implementation, and an independent evaluator would assess technology costs and benefits and the

extent of adoption. Information on successful grants would be disseminated to banks and financial institutions, agro-processors, advisory service providers, MOA staff, donors, and other interested parties through a series of annual workshops, publications, newspaper articles and media spots.

7. ***Eligibility Criteria.*** To attract a wide range of entrepreneurial applicants and maintain a competitive approach, the CGP would be open to all geographical areas and technologies, and be implemented nationally. However, applicants would need to indicate how their proposal could lead to benefits to livestock-based communities, as well as define how products would be marketed and how the technologies would be transferred. Selection criteria would also include potential economic benefits, market accessibility, replicability and sustainability. Eligible applicants would include formal businesses, associations, informal farmer groups, and service providers such as community veterinarians.

8. ***Component 4: Project Management and Monitoring and Evaluation (US$1.45 mil.)*** The Project Implementation Unit (PIU) was selected for this project based on their highly successful experience with the RESCAD and the AIP projects; also, under prevailing Armenian institutional/ ministerial regulations, ministries are in charge of formulating policies, and policy implementation is carried out by external bodies. In addition to the PIU, several other government structures and NGOs will participate in project implementation, including the Ministry of Agriculture, the Pasture User Associations, and the Food Safety and Veterinary Inspectorate (FSVI), These arrangements would build sustainability and replicability beyond the project period, support capacity building, and integrate project activities into participating line ministries and agencies.

9. **This component would finance**: (a) project management and training, including annual operational reviews and audits; and (b) monitoring and evaluation (M&E).

a) *Project management and training.* The communities will carry out planning and physical implementation but central PIU-level staff will need to provide overall technical guidance and implementation support. Central PIU staff will support daily implementation activities and provide key fiduciary and technical inputs for communities and others involved in project implementation. This sub-component would finance project management costs related to consultant contracts, audits, and expenses for central PIU staff and facilitators in the MSTs. Also, it will finance training for MSTs to build capacity for community based natural resources management. Training is essential to project success because communities must be engaged for the project duration; it is anticipated that training would be delivered by an international NGO, experienced in community-based natural resources management, partnered with a local NGO to build local training capacity. About 20-25 facilitators would be trained in practical field work and theoretical underpinnings of community-based sustainable natural resource management. Around 10-15 community grants would be audited (operationally reviewed) per year, within the life of the project.

b) *Monitoring and evaluation.* Sound monitoring and evaluation (M&E) is central to disseminating lessons learned among participating and non participating villages because the project is innovative and community-based natural resource management is new to Armenia. The M&E activities would include the baseline, mid-term, and final surveys, mapping instruments, progress reports, and a completion report to document results and outputs. Possibilities would be explored to gather local plans into a larger central database of pasture plans and rural investments, including qualitative and photographic data, including establishing a project website. The M&E surveys will be done in partnership with NGOs and research institutions to measure, record, and verify results.

Annex 5: Project Costs

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

Project Cost Summary
(USD '000)

	Cost Including Contingencies	% of Total	IDA Financing	% Financing
A. Community Pasture/Livestock Management System				
Pasture/Livest. Managem. Planning & Support System	2.30	10.8	1.73	75.0
Community Funds	13.06	61.2	9.79	75.0
Subtotal	15.36	72.9	11.52	75.0
B. Strengthening Support Services				
Agricultural Advisory Services	1.49	7.0	1.12	75.0
Community Animal Health Services	0.99	4.6	0.74	75.0
Subtotal	2.48	11.6	1.86	75.0
C. Competitive Grant Program	2.05	9.6	1.54	75.0
D. Project Management and M&E				
Project Management	1.09	5.1	0.82	75.0
Monitoring and Evaluation	0.36	1.7	0.27	75.0
Subtotal	1.45	6.8	1.09	75.0
Total PROJECT COSTS	21.33	100.0	16.00	75.0

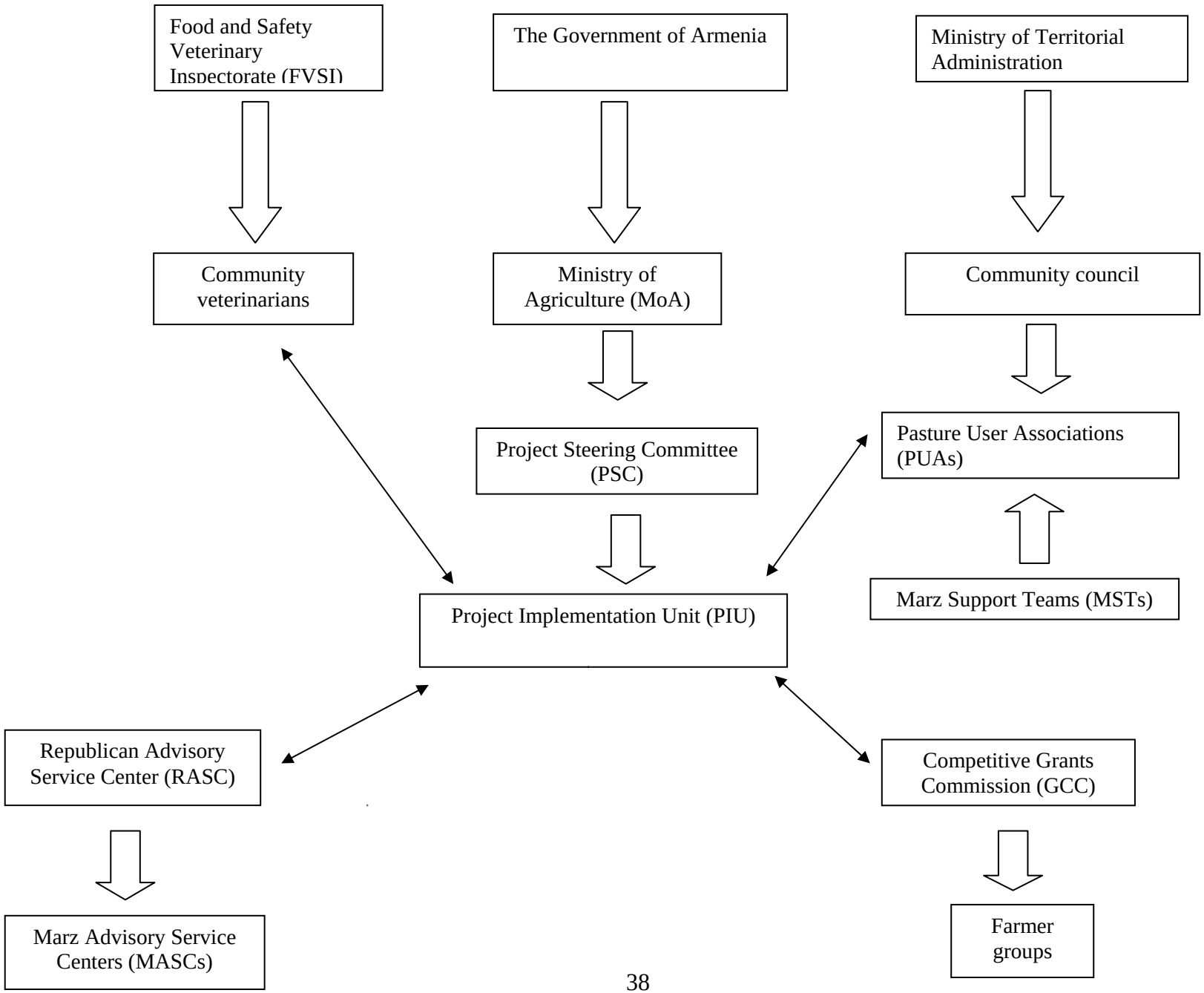
Identifiable taxes and duties are US$3.51 million, and the total project cost, net of taxes, is US$17.82 million. Therefore, the share of project cost net of taxes is 83.5 percent.

Annex 6: Implementation Arrangements

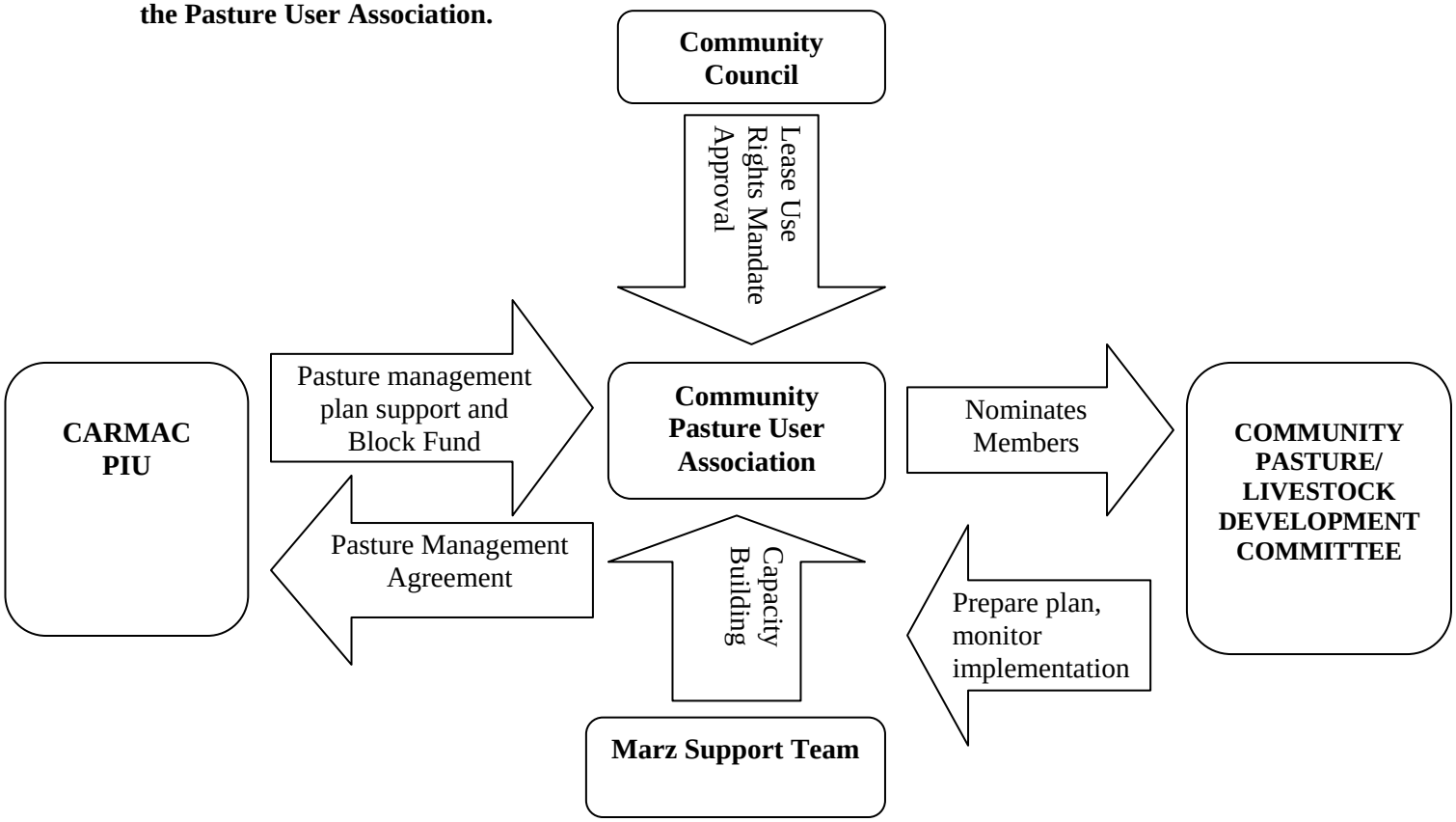
ARMENIA: Community Agricultural Resource Management and Competitiveness Project

1. The organizational structures and institutions participating in the project are detailed in the following scheme, while the specific implementation arrangements for individual components are described below:

2. ***Component 1: Community Pasture/Livestock Management System.*** This component will be implemented mainly by the PIU, through community-based Pasture User Associations (PUAs). These associations will be mobilized with the support of Marz Support Teams using a model of community mobilization tested successfully under the RESCAD Project, and detailed in the operational manual for this component. The model of Pasture User Associations, where users agree on pasture management arrangements and key investments to improve productivity, is based on successful experience in other ECA Countries – such as under AISP in Kyrgyzstan, along with successful experience with watershed and pasture management projects in Mongolia and China. Furthermore, the PIU and Marz Support Teams already have significant experience in supporting Village Based Organizations that implement sub-project investments under RESCAD. These associations will be open to all pasture users in the community, will be established as Legal Entities (Consumer Cooperatives) under Armenian Law, and will sign an agreement with the local authorities to lease all available pastures and to take responsibility for pasture improvement and infrastructure. As such, the PUAs would be entitled to lease land and own assets, and will be responsible for managing, operating and maintaining all pastures and pasture-related infrastructure. Based on experience with RESCAD and elsewhere in the region, it is expected that these Associations will take between 3 to 6 months to be mobilized and registered. Pasture users' mobilization will take place in combination with the preparation of the Pasture Management Plan, which will be finalized and fully adopted once the Association is mobilized and registered. Once approved, pasture management plans represent a binding agreement between the PIU, the Pasture User Association and the Local Council to adhere to the specified management regime in exchange for investments in pasture improvement (block grant). Pasture User Associations will also have responsibility for preparing and implementing sub-project investments to be financed by the block grant, and the implementation and enforcement of the pasture management plan. These tasks will be supported by the Marz Support Teams and PIU staff, following a similar model of capacity building for community organizations, successfully tested under RESCAD.


Food and Safety Veterinary Inspectorate (FVSI)
The Government of Armenia
Ministry of Territorial Administration
Community veterinarians
Ministry of Agriculture (MoA)
Community council
Project Steering Committee (PSC)
Pasture User Associations (PUAs)
Marz Support Teams (MSTs)
Project Implementation Unit (PIU)
Republican Advisory Service Center (RASC)
Competitive Grants Commission (GCC)
Marz Advisory Service Centers (MASCs)
Farmer groups

3. **The schematic below presents institutional relationships and responsibilities centering on the Pasture User Association.**



Component 2: Strengthening Support Services

4. ***Sub-component 2.a***: ***Agricultural Advisory Services.*** Project-funded activities would be implemented using the current advisory structures and systems consisting of 10 regional-level MASCs and the national-level RASC. In line with their mandates, the MASCs would be responsible for informing, advising, and training farmers and small rural businesses; the RASC would act as the main coordinating body, linking the MASCs with sources of information and expertise, disseminating information, and organizing in-service training of MASC staff. Core funding would be provided by the MOA for salaries and operating costs of the system through the government budget, based on approved annual work-plans and budgets. Provisions of paragraph 1.11 (c) of the Consultant Guidelines will be applied to enter into Single Source contracts with Marz Agricultural Support Center (MASC) and Republican Agricultural Support Center (RASC) for Livestock Interest Group Programs (with MASC); TAP Projects (with MASCs and RASC); and training (with RASC). These are the only institutions in Armenia with the relevant outreach and mandate to provide the required services, and that have the capacity to deliver the MOA's programs. Eventually, these activities will lead to the future development of an entirely autonomous system through which the MOA and donors will contract to provide public extension activities.

5. **The RASC would be responsible for incremental project-funded activities, preparing training modules, organizing in-service training of MASC staff, and contracting specific expertise from other organizations as needed**. The RASC would also coordinate and monitor the TAPs, using implementation arrangements similar to the RESCAD project, including a 25 percent beneficiary contribution. Topics would be identified based on applications from farmer groups and their extension

advisor and would be forwarded to the RASC for review and final approval by the MOA based on Ministry priorities. The MASCs would implement demonstration and training programs for farmer livestock interest groups, based on an agreed work-plan, with funds provided on an agreed schedule based on submission and verification of technical and financial reports.

6. **Project-provided equipment selection will be based on MASC and RASC preferences with a detailed justification provided, including a cost-benefit analysis.** Laptop computers provided to each MASC will be available according to a schedule posted in each community advisory room informing farmers when advisors would be present to help access information through the Internet. The MASCs would also be responsible for providing information through a pilot SMS messaging system, potentially including weather information.

7. **Each MASC and RASC would provide quarterly progress reports.** All activities and reports would be reviewed and approved by the MOA's Department for Research, Extension and Education; in addition to MOA oversight, activity coordination and monitoring would be carried out by an Extension Specialist housed in the PIU, with financial management and procurement carried out by PIU specialists. Sub-component implementation will be guided by a detailed Implementation Manual.

8. ***Sub-component 2.b: Community Animal Health Services.*** This sub-component would be implemented by the PIU, which would oversee the mobilization process by supervising the service provider contract for mobilization and would monitor the qualifications and selection of veterinarians involved in delivering animal health services. The project would emulate similar projects being implemented by other donors, which use a mechanism to support community veterinarians—basically a demand driven delivery of services to farmers on a fee-for-service basis that would ensure sustainability. Government contracts would also provide them with supplementary income in exchange for carrying out public good animal health services (eg. vaccination, blood sampling, animal health inspection). The mobilization program will be implemented through a qualified service provider. Procurement of the equipment packages and civil works contracts for the veterinary service centers will be managed by the PIU.

9. ***Component 3: Competitive Grant Program*.** Implementation arrangements would be similar to those used successfully in the RESCAD project. A small Competitive Grants Secretariat (CGS) within the PIU would administer the program, arrange the call for proposals, organize information meetings, screen applications for compliance with criteria, arrange technical reviews and selection meetings, prepare grant contracts, monitor grants, arrange publicity, and organize final evaluations of each grant. Following the call for proposals in newspapers and mass media, the MASCs would distribute information materials and organize meetings to ensure that the widest possible range of potential beneficiaries are aware of the CGP, how to participate, and mechanisms and criteria. The CGS would conduct initial screening of all proposals to ensure compliance with criteria, with eligible proposals then evaluated by two technical reviewers. Those proposals that passed the technical review would then be evaluated and winners selected by a Competitive Grants Commission (CGC) consisting of nine members with the majority from the private sector. After the CGC decision meeting, the CGS would visit each grant winner to verify that the information and resources indicated in the proposal were correct.

10. **A contract with each grant winner would specify the agreed budget and budget items, cost-sharing, procurement methods, and reporting schedule.** Grants would be provided in tranches as contracted monitorable milestones are achieved. Grant winners would be responsible for procurement as set out in their contract. The CGS would be responsible for monitoring and compliance with agreed activities, including all technology transfer activities, and compliance with environmental regulations. An independent evaluator would be contracted to assess the projects. A comprehensive Operational Manual based on the manual for the RESCAD project would govern overall implementation.

11. ***Component 4: Project management and Monitoring and Evaluation.*** The project will be managed by a Project Management Unit (PIU) composed of the Project Director, financial management specialist, accountant, procurement specialist, technical coordinator for the advisory sub-component, technical coordinator for the animal health services sub-component, and two sub-units for the pasture and for the CGP components respectively. A Project Steering Committee composed of representatives of the Ministry of Agriculture, Ministry of Territorial Administration, Food Safety and Veterinary Inspectorate and the Republican Advisory Support Center will coordinate project implementation and resolve issues across various stakeholders.

Annex 7: Financial Management and Disbursement Arrangements

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

1. ***Country Issues.*** According to the Doing Business Survey 2010, Armenia was among the top-rated CIS countries and compared favorably to many other developed and developing countries (43 of 183) on ease of doing business. A 2004 Country Procurement Assessment Review (CPAR), updated in 2009, concluded that the environment for conducting public procurement in Armenia was high risk based on analysis of the legislative framework, procurement practices, institutional capacity, and opportunity for corruption. The 2005 Country Financial Accountability Assessment (CFAA) report concluded that the overall fiduciary risk[3] in Armenia is significant due to: (i) inadequate capacity of core control and supervisory agencies performing public sector audits; and (ii) low-quality auditing, monitoring, and supervision, although most of the basic laws are in place with respect to private sector and public enterprises, including state non-commercial organizations, but financial reporting, and compliance remains a problem. The October 2008 PEFA report also noted that several critical Public Financial Management (PFM) elements are still weak, including internal controls, internal and external audit, and financial reporting. Despite these assessments, efforts are being made to use some elements of the country PFM system. In particular, the Treasury system is being piloted to maintain designated accounts of Bank-financed projects, including this project. Using other country PFM systems for project implementation will be considered as Government progresses with on-going PFM reforms.

2. **Since the CFAA and the CPAR reports were delivered, some reforms were initiated regarding PFM.** Specifically, following the amendment to the Constitution of the Chamber of Control (COC-Armenian Supreme Audit Institution), this entity has gained more independence from Parliament, and the new Law on COC has been adopted, although it is not yet aligned with international standards and best practices. Internal audit reform is under implementation; the Government strategy is in place, supported by PRSC I to III programs and the Internal Audit IDF grants provided to support strategy implementation. The MOF has adopted an action plan to implement the IPSAS in the Government sector and is designing a detailed timeline to transfer to cash basis IPSAS and then to accrual. Reforms in adopting IPSAS in the public sector are supported by the Bank via separate IDF grants. However, fiduciary risk of stand-alone financial management arrangements for Bank-financed investment projects in Armenia is considered Moderate to Low. Government counterpart funding is assessed to be adequate for a number of years.

3. **The project has developed specific procedures to secure project financial accountability and minimize project financial management risks.** Additional project financial management arrangements will include an audit of project financial statements by independent auditor acceptable to the Bank, in accordance with term of reference acceptable to the Bank. The country risk is assessed to be Significant.

4. ***Risk Assessment and Mitigation.*** Overall project financial management risk before mitigation measures is assessed as Substantial and residual risk is Moderate. Although the project will be implemented in an environment of perceived high corruption, adequate mitigation measures are in place to ensure that the residual risk is acceptable. The following table summarizes project financial management assessment and risk ratings.

[3] Risk of illegal, irregular or unjustified transactions not being detected, measured on a four point scale according to the CFAA Guidelines (low, moderate, significant or high).

	FM Risk	*Risk Mitigating Measures*	*Residual Risk*
INHERENT RISKS			
Country level			
Transparency International's Corruption Perception Index 2009 identified corruption as an issue. CFAA report addressed overall fiduciary risk as significant. PEFA assessment of critical PFM elements as weak. Weak PFM institutions (additional information is included in country issues in the previous section).	S	Chamber of control has become independent and is being strengthened. Internal audit reforms are under way. Public sector accounting standards are being improved. PIU is to maintain a sound financial management system and use of private auditors.	S
Entity level			
Risk of political interference in entity's management.	M	Board composition and structure of PIU will provide for independence of the entity.	M
Project level			
Project is medium sized, with the Treasury to be used for flow of funds from the Bank and the Government with risk of inefficiency of the operations on the Treasury resulting slow funds disbursement.	S	Implementation arrangements and procedures at the Treasury that allow close monitoring of activities under the project (including flow of funds) by the Bank.	M
OVERALL INHERENT RISK	S		M
CONTROL RISKS			
Budgeting Reasonably good budgeting system. Budget is prepared in much detail which is necessary for monitoring the project.	M	No additional mitigation measures proposed.	M
Accounting. The accounting staff has extensive experience in the Bank procedures for disbursement and financial management, including IFRs preparation. Currently the chief accountant acts also as a financial manager until a new financial manager is appointed. The PIU utilizes adequate accounting software.	S	A financial manager is planned to be appointed by project effectiveness.	M
Internal Controls The PIU's Internal Control system is adequate, however there are several subcomponents involving grant disbursement elements.	S	PIU has developed the project's FMM to reflect the activities and detail controls under the new project. In addition the grants' OMs were updated to reflect the grants' funds flow and controls over them.	M
Funds flow Government and the Bank funds will flow through designated account in the Treasury.	S	Funds flow arrangements and procedures at the Treasury to be closely monitored by the Bank.	M

Financial Reporting Usually the projects' FMRs/IFRs were received on-time and were acceptable to the Bank; however some exceptions and inconsistency in the quality were observed in several FMRs/IFRs.	S	The controls over IFRs preparation will be exercised consistently as reflected in the FMM.	M
Auditing No issues have arisen in the last FY2009 audit of the active Bank-financed RESCAD project implemented by PIU.	M	The audit will be carried out by independent auditors acceptable to the Bank. No additional mitigation measure required	M
OVERALL CONTROL RISK	**S**		**M**
OVERALL FM RISK	**S**		**M**

H – High S – Substantial M – Moderate L – Low

5. ***Strengths.*** Significant strengths provide a basis for reliance on project financial management system including the following: (i) significant experience of PIU FM staff in implementing Bank-financed projects over several past years; (ii) adequate accounting software utilized by PIU, (iii) FM arrangements similar to the active RESCAD project implemented by PIU and found to be adequate overall, and (iv) no issues have arisen in the last FY09 audit of the active Bank-financed RESCAD project.

6. ***Weaknesses and Action Plan.*** The following action was agreed to address the weaknesses identified in the PIU:

Agreed action	Implementation Deadline
Appoint the project Financial Manager acceptable to the Bank **(a capacity building action).**	By effectiveness

7. ***Implementing Entity.*** The Project Management Unit (PIU) under the Ministry of Agriculture will manage the project. Key functions of the PIU will include financial management, procurement, monitoring and evaluation, and translation of project documents. Several specialists in the PIU would be responsible to coordinate project components and ensure timely start-up, implementation, and completion of project activities. A Project Steering Committee, including the Ministry of Territorial Administration, would supervise implementation of project activities. The most important components from FM perspective are subcomponents with grant funding elements, particularly Community Fund (subcomponent 1,b) and Competitive Grant Program (component 3). The risk associated with implementing entity is assessed as Moderate.

8. ***Budgeting and Planning.*** PIU is capable of preparing relevant budgets. The annual budget is based on the procurement plan. The final plans and budgets are submitted to the MOF and then to the Project Management Board for approval. The PIU seeks agreement with the Bank and the government on all variations from the budget before making changes to the annual budget. The risk associated with planning and budgeting is assessed as Moderate.

9. ***Accounting Staffing.*** The FM staff of PIU consists of a chief accountant (also acting as a financial manager) and a financial specialist. The financial manager has overall responsibility for FM function at PIU. The chief accountant is responsible for RESCAD (including the additional financing)

project's accounting, while the financial specialist - for another project (Avian Influenza – now closed) project accounting. All FM staff participated in the regional joint FM and Disbursement workshop organized by the World Bank in Yerevan in June 2007 and in April 2010, and in Tbilisi in November 2009. In addition, the chief accountant and the financial specialist participated in "Financial Management for Development Projects" training in Turin in 2008. For the new project, the PIU will need to appoint a financial manager to be agreed with the Bank. This is particularly necessary for maintaining proper internal control and for managing the FM workload under the CARMAC project which has various grant components/subcomponents and substantial volume of activities. The risk associated with staffing after mitigation is assessed as moderate.

10. ***Information Systems.*** PIU uses 1C accounting package, which is used by several PIUs in Armenia. The package has been functioning in the PIU for several years and the software has multi-user and dual currency (AMD and USD) functionalities and can generate the required reports including Sources and Uses of Funds, and Uses of Funds by Project Activities forms of IFRs/FMRs. For payroll preparation PIU uses Excel spreadsheets. Monthly back-ups of accounting data are made on a server hard disk and on CDs. The risk associated with information systems is assessed as Moderate.

11. ***Accounting Policies and Procedures.*** The accounting at PIU is maintained on an accrual basis. For reporting purposes, cash basis IPSAS is used. It has been agreed that the same reporting basis will be used under the CARMAC project. The current chart of accounts used for RESCAD project will be adapted to the CARMAC project's requirements. The risk associated with accounting policies and procedures is considered as Moderate.

12. ***Internal Controls and Internal Audit.*** Overall there are reasonable internal control procedures in place at PIU, which is capable of providing timely information and reporting on the projects. The payment of invoices for the operating expenses is authorized by the acting financial manager and the director. All payment orders are prepared by the acting financial manager and approved by the director. Considering the small size of the PIU, no internal audit function is required. The risk associated with internal controls and internal audit after mitigation is considered as Moderate.

13. ***Financial Reporting.*** Project management-oriented Interim un-audited Financial Reports (IFRs) will be prepared under CARMAC project. The format of IFRs has been agreed during the assessment and includes: (a) Project Sources and Uses of Funds, (b) Uses of Funds by Project Activity, (c) Project Balance Sheet, (d) Designated Account Statements, and (e) SOE Withdrawal Schedule. These financial reports will be submitted to Bank within 45 days of the end of each quarter for the quarter. The first quarterly IFRs will be submitted after the end of the first full quarter following the initial disbursement. Those requirements and IFR formats are incorporated in the FMM. The PIU also submits monthly and quarterly reports for Government of Armenia by sources of funds showing project financing and expenditures by categories. The risk associated with reporting and monitoring is assessed as Moderate.

14. ***External Audit.*** The audit of CARMAC project will be conducted (i) by independent private auditors acceptable to the Bank, on terms of reference (TOR) acceptable to the Bank and procured by PIU, and (ii) according to the International Standards on Auditing (ISA) issued by the International Auditing and Assurance Standards Board of the International Federation of Accountants (IFAC). The PIU's current auditing arrangements are satisfactory to the Bank (no issues arisen in FY2009 audit of RESCAD project), and it has thus been agreed that similar audit arrangements will be adopted for CARMAC project, to cover the CARMAC project financial statements (including SOEs and Designated Account Statement). The annual audited project financial statements will be provided to the Bank within six months of the end of each fiscal year and also at the closing of the project. If the period from the date of effectiveness of the credit to the end of the borrower's fiscal year is no more than six months, the first audit report for the project may cover financial statements for the period from effectiveness to the end of

the second fiscal year. The Borrower has agreed that it will publish (posting on MOA Website) the audit reports for the CARMAC within one week of receipt of the reports from the auditors. Following the Bank's formal receipt of these reports from the Borrower, the Bank will make them available to the public in accordance with the World Bank Policy on Access to Information. The contract for the audit awarded during the first year of project implementation may be extended from year to year with the same auditor, subject to satisfactory performance. Audit costs will be financed from the credit proceeds. The following table identifies required audit reports and dates of submission for the project implementation agency.

Audit Report	***Due Date***
Continuing Entity financial statements	N/A
Project financial statements (PFS). The PFS include: a) The cash receipts and payments of the project during the year [or period] ended [MONTH DATE, YEAR], showing the World Bank, project funds from other donors, and counterpart funds separately, b) Accounting policies and explanatory notes (including additional accounting policies and disclosures), covering • a Summary of Summary Reports or SOEs used as the basis for the submission of withdrawal applications in the notes, as appropriate; • A Statement of Designated Account in the notes, as appropriate; • a Statement of Financial Position showing Accumulated Funds of the Project, bank balances, other assets of the Project, and liabilities, if any; and [*The explanatory notes should include reconciliation between the amounts shown as "received by the project from the World Bank" and that disbursed by the Bank and a summary of movements on the project's Designated Account.*] When the entity makes publicly available its approved budget, a comparison of budget and actual amounts either as a separate additional financial statement or as a budget column in the statement of cash receipts and payments	Within six months of the end of each fiscal year and also at the closing of the project

15. In addition, the Armenian Chamber of Control, the country's supreme audit institution, performs ad hoc external audits of the PIU and the project under its implementation. The risk associated with external audit is considered Moderate.

16. ***Funds Flow and Disbursement Arrangements.*** A separate project account will be opened in the Treasury for transfer of Government Counterpart Funding. Project funds will flow from:

(i) the Bank, either via a single Designated Account (DA), or by using the direct payment method or the Special Commitment. Further details on this are provided in the Disbursement Letter;

(ii) the Government, via the PA where, as part of the implementation arrangements, the Government shall deposit its contribution to the Project and replenish it on a regular basis. Both Bank and Government funds will be managed solely by the PIU. Withdrawal applications for the replenishments of the DA will be sent to the Bank on a quarterly basis.

(iii) the beneficiaries are also planned to contribute for the project implementation (under Community Fund and CGP subcomponents) and the arrangements will be similar to those under RESCAD project. For this purpose a separate account will be opened in Treasury for beneficiaries co-financing. The risk associated with fund flow and disbursement arrangements is considered as Moderate.

(iv) The IDA allocated amounts by Category are the following:

Category	**Amount of the Credit Allocated (expressed in SDR)**	**Percentage of Expenditures to be Financed**
Goods, Consultants services, Training and Operating Costs for the Project	3,000,000	100%
Community Grants under Part A.2 of the Project	6,300,000	100%
Competitive Grants under Part C of the Project	1,000,000	100%
TOTAL AMOUNT	10,300,000	

17. ***Supervision Plan.*** During project supervision missions, the Bank will conduct risk-based financial management supervisions within a year of project effectiveness, and then at appropriate intervals. During project implementation, the Bank will supervise project financial management arrangements as following: (a) review project quarterly IFRs, annual audited financial statements, auditor's management letter, and remedial actions recommended in the auditor's Management Letters; and (b) during the Bank's on-site implementation support and supervision missions, review the following key areas (i) project accounting and internal control systems; (ii) budgeting and financial planning arrangements; (iii) disbursement management and financial flows, including counterpart funds, as applicable; and (iv) any incidences of corrupt practices involving project resources. As required, a Bank-accredited Financial Management Specialist will assist in the implementation support and supervision process.

18. ***Disbursement Arrangements.*** The proceeds of the IDA Credit would be disbursed in accordance with the traditional disbursement procedures of the Bank and will be used to finance project activities through the disbursement procedures currently used: i.e. Advances, Direct Payment, Reimbursement and Special Commitment, accompanied by appropriate supporting documentation (Summary Sheets with records and/or Statement of Expenditures (SOEs)) according to procedures described in the Disbursement Letter and the Bank's "Disbursement Guidelines". The minimum application size for direct payment, reimbursement and special commitment will be the equivalent of 20% of the Advance ceiling amount.

19. ***Designated Account.*** The Project Implementation Unit (PIU) will open a segregated Designated Account in the Treasury in US Dollars to cover Credit's shares of eligible project expenditures. The Ceiling of the Designated Account would be 10% of the Credit's amount. The PIU will be responsible for submitting monthly replenishment applications with appropriate supporting documentation.

20. ***Statement of Expenditures – SOEs.*** Necessary supporting documents will be sent to the Bank in connection with contracts that are above the prior review threshold, except for expenditures under

contracts with an estimated value of (a) US$300,000 or less for works; (b) US$200,000 or less for goods; (c) US$100,000 or less for consulting firms; (d) US$50,000 or less for individual consultants, as well as all operating costs, training and community grants, which will be claimed on the basis of SOEs. The documentation supporting expenditures will be retained at the PIU and will be readily accessible for review by the external auditors and Bank supervision missions. All disbursements will be subject to the conditions of the Credit Agreement and disbursement procedures as defined in the Disbursement Letter.

Annex 8: Procurement Arrangements

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

A. General

1. **Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works, and Non-Consulting Services Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" published by the Bank in January 2011 and "Guidelines: Selection and Employment of Consultants Under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" published by the Bank in January 2011, and the provisions stipulated in the Financing Agreement.** The various items under different expenditure categories are described in general below. For each contract to be financed by the credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

2. **Procurement of Works**: Works to be procured under the project would include: (i) construction/ rehabilitation of infrastructure to access and use remote pastures (e.g. spot road improvement, stock watering points, shelters etc.), rehabilitation measures for degraded areas (fencing, demarcation, weed and shrub control, supplementary seeding, etc.). The above mentioned works will be financed under the block grants to be provided to the Pasture User Associations to implement their plans. The project will finance civil works for construction of Veterinary Service Centers (VSCs) in six Marzes. Procurement will be done following implementation arrangements described in the Operational Manual and using the Bank's Standard Bidding Documents (SBD) for all ICB, NCB and Shopping agreed with or satisfactory to the Bank. Procurement will be carried out by the PIU (for VSC buildings, infrastructure to access and use remote pastures etc.) and communities in line with para 3.17 of the Guidelines (CPP) and in accordance with the procedures outlined in the Operation Manual (for civil works for fencing, demarcation, weed and shrub control, supplementary seeding, etc., estimated to cost US$10,000 equivalent or less per contract).

2. **Procurement of Goods:** Goods procured under this project would include: IT equipment, vehicles, testing reagents and equipment for MASCs, RASC and VSCs, etc.; machinery to produce and harvest fodder (including grass cutters, haying machines, silage choppers, etc.) and support for fodder production (leguminous plant seeds, corn seeds, etc.). Communities (Pasture User Associations) will be provided an indicative open list of goods and equipment/machinery eligible under the block grants. Procurement will be done following implementation arrangements described in the Operational Manual for the project and using the Bank's Standard Bidding Documents (SBD) for all ICBs, NCBs and Shopping agreed with or satisfactory to the Bank. Procurement will be carried out by the PIU (for machinery, equipment, etc.) and communities in line with para 3.17 of the Guidelines (CPP) and in accordance with the procedures outlined in the Operation Manual (for seeds, fuel, estimated to cost US$10,000 or less equivalent per contract).

3. **Selection of Consultants**: Consultant firms will be selected and contracted to carry out impact assessment; national surveys (impact evaluation); external evaluation; audits (including 10-15 community grants audited per year), mobilization and training; and to set up farmer field schools. Individual consultants will be hired to develop plans for sustainable pasture resource management and livestock development; targeted support to strengthen the capacity of the MASC/RASC system to deliver services in topics including farm-level livestock-related technologies; animal health care; pasture and fodder management; market requirements and other related topics. Short lists of consultants for services

estimated to cost less than $100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

4. **Single Source**: Provisions of paragraph 1.11 (c) of the Consultant Guidelines will be applied to enter into Single Source contracts with Marz Agricultural Support Center (MASC) and Republican Agricultural Support Center (RASC) for: Livestock Interest Group Programs (with MASC); TAP Projects (with MASCs and RASC); and training (with RASC). These are the only institutions in Armenia with the relevant outreach and mandate to provide the required services, and that have the capacity to deliver the MOA's programs. Eventually, these activities will lead to the future development of an entirely autonomous system through which the MOA and donors will contract to provide public extension activities.

5. **Operating Costs**: the project would finance project management costs related to contracts for consultants, publicity and expenses for the central PIU staff and facilitators in the Marz Support Teams (MSTs). Goods and services will be procured following the administrative procedures presented in the Projects Operational Manual, acceptable to the Bank.

6. **Others**: Competitive Grant Program (CGP) (component 3 of the project) envisages provision of grants (maximum size of US$20,000) to the village agro-business and farmer groups. The proposals would introduce innovative technologies and promote new income-generating activities which could result in benefits to communities that are focused on livestock production such as a wide range of livestock-related activities, including activities promoting alternative uses of natural resources or providing alternative income opportunities (e.g. honey production, medicinal herbs, agro-tourism etc.); improved food quality and safety; processing, packaging and marketing; new product development; and provision of services such as veterinary or artificial insemination services. Procurement will be carried out by the grant winners under the guidance and supervision of the implementing agency (PIU), following the rules and procedures specified in the Project's Operational Manual.

7. **Retroactive Financing**: Retroactive financing, in an amount not exceeding US$450,000 from IDA sources, will be used for procurement of urgently needed Goods and Consultant Services presented in the Procurement Plan and marked with asterisk. All items that are subject to the retroactive financing will be prior reviewed by the Bank.

B. Assessment of the agency's capacity to implement procurement

8. **Procurement activities will be carried out mainly by the PIU.** The winners under the Competitive Grant Program (CGP) will carry out procurement under the guidance and supervision of the PIU procurement staff. Procurement by communities (CPP) for contracts estimated to cost US$10,000 or less will also be carried out under the guidance and supervision of the PIU procurement staff. Procurement function will be implemented by two procurement specialists. The PIU was created in 1997 and since that time implemented several WB funded projects in agricultural sector. Procurement capacity of the PIU is found adequate.

9. **An assessment of the Implementing Agency's (PIU) capacity to implement procurement actions for the project has been carried out on February 22, 2010.** The assessment reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement Officer and the Ministry's relevant central unit for administration and finance.

10. **The key issues and risks concerning procurement for implementation of the project have been identified and include participation of the numerous communities with no procurement**

capacity. The corrective measures which have been agreed are: (i) Project Operational Manual describing in details rules and procedures to be followed for procurement under the project components; (ii) experienced PIU procurement staff providing day-to-day guidance and supervision over the project financed procurement implemented by the communities.

11. The overall project risk for procurement is Moderate.

C. Procurement Plan

12. **The Borrower, at appraisal, developed a procurement plan for project implementation which provides the basis for the procurement methods.** This plan has been agreed between the Borrower and the Project Team on December 21, 2010 and is on PIU's web site www.arspiu.com . It will also be available in the project's database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

Initial Procurement Plan (years 2011 – 2015) Dated December 21, 2010

a) Works and Goods

Package No.	Description/ Location	Estimated Cost (US$'000)	No. of Packages	Procurement Method	Review By the Bank	Invitation Date (mm/dd/yy)	Expected Bid-Opening Date	Contract Award Date	Start Date	Completion Date
1. WORKS										
CW-11/101	Vet. Service Centers (VSC) buildings	300.0	5	SH	Post	06/20/11	07/05/11	07/18/11	08/18/11	12/16/11
Total 1. for Works		300.0								
2. GOODS										
G - 11/01	Vehicle for Secretariat*	28.0	1	SH	Prior	03/26/11	04/10/11	05/01/11	05/01/11	04/30/11
G - 11/02	IT & GIS equipment for Secretariat, MASCs, CGC, PIU	96.8	1	SH	Post	07/27/11	08/12/11	08/30/11	09/15/11	11/16/11
G - 11/03	Information dissemination*	22.0	2	SH	Prior	03/17/11	04/01/11	04/06/11	04/09/11	06/08/11
G -11/04	Equipment for MASCs	440.0	multi	ICB/ SH	Prior/ Post	Throughout the Project				
G - 11/05	Vehicles for MASCs	195.0	1	ICB	Prior	06/24/11	08/05/11	09/02/11	10/02/11	12/01/11
G - 11/06	Commun. Vets equipment and consumables	120.0	2	SH	Post	03/16/11	03/31/11	04/28/11	05/06/11	07/06/11
G - 11/07	Equipment and furniture for VSC	75.0	5	SH	Post	10/02/11	10/17/11	11/01/11	12/01/11	01/30/12
G - 11/08	Medicines and supplies for VSC	100.0	5	SH	Post	10/02/11	10/17/11	11/01/11	12/01/11	01/30/12
	Total 2. for Goods	1,076.8								

	3. GRANTS					
CPP-11/	Community Fund (with contingencies)	13,100.0	multi	CPP	Post	Throughout the Project
CGP-11/	Competitive Grant projects (w/beneficiary's contribution)	2,050.0	multi	CPP	Post	Throughout the Project
	Total 3. for Grants	15,150.0				

Legend:

ICB = International Competitive Bidding (in accordance with section 2 of the Guidelines)
For works contracts valued at or more than USD 2,000,000
For goods contracts valued at or more than USD 300,000

NCB = National Competitive Bidding (in accordance with section 3.3 of the Guidelines)
For works contracts valued less than USD 2,000,000
For goods contracts valued less than USD 300,000

DC= Direct Contracting (in accordance with section 3.6 of the Guidelines)

SH = Shopping (in accordance with section 3.5 of the Guidelines)
For works contracts valued at or less than USD 100,000
For goods contracts valued at or less than USD 100,000

CPP= Community Participation in Procurement (in accordance with section 3.17 of the Guidelines and Operations Manual)

Prior review

(i) All ICB Goods and Works contracts
(ii) First two NCBs; all NCBs >US$1,000,000 and all DC contracts for Works.
(iii) First two NCBs; all NCBs >US$200,000, all DC contracts for Goods

Pre Qualification = Not Anticipated

Domestic Preference = will not apply

Items marked with asterisk will be procured under retroactive financing.

b) Consultants' Services

Package No.	Description of Assignment/ Location	Estimated Cost (US$'000)	Selection Method	Review by Bank	Advertisement for EOI Date	Expected Proposal Submission Date	Contract Award Date	Start Date	Completion Date
	4. CONSULTANTS' SERVICES								
CS-11/201	Grassland/Pasture expert (Int'l experience)*	260.0	IC	Prior	03/25/11	04/09/11	04/24/11	05/03/11	03/03/14
CS-11/202	Feeding/Livestock expert (Int'l experience)*	100.0	IC	Prior	03/25/11	04/09/11	04/24/11	05/03/11	03/03/14
CS-11/203	Livestock economist expert (local experience)*	10.5	IC	Prior	03/25/11	04/09/11	04/24/11	04/19/11	04/19/12
CS-11/204	Grassland/Pasture expert (local experience)*	33.0	IC	Prior	03/25/11	04/09/11	04/24/11	04/19/11	04/19/12

CS-11/205	Feeding/Livestock expert (local experience)*	9.0	IC	Prior	03/25/11	04/09/11	04/24/11	04/19/11	04/19/12
CS-11/206	Institutional/Community expert (local experience)	19.5	IC	Post	07/26/11	08/10/11	08/17/11	08/20/11	02/19/12
CS-11/207	GIS/Mapping expert (local experience)*	18.0	IC	Prior	03/25/11	04/09/11	04/24/11	04/19/11	04/19/12
CS-11/208	TA depending on emerging needs	18.0	IC	Post	Throughout the Project				
CS-11/209	TA for website improvement, development of training module in livestock, pasture and vet. topics, food safety, hygiene, legal, economic, marketing (local experience)	28.0	IC	Post	Throughout the Project				
CS-11/210	TS specialist (Int'l experience) for Livestock/Pasture extension topics, food safety	40.0	IC	Post	09/25/11	10/10/11	10/20/11	11/01/11	12/01/13
CS-11/211	Impact assessment of Advisory Services	30.0	CQ	Post	01/25/14	02/09/14	02/15/14	02/19/14	04/19/14
CS-11/212	Technology Assessment Projects (TAP) with RASC/MASCs	320.0	SSS	Prior	Throughout the Project				
CS-11/213	Livestock Interest Group Programs with RASC/MASCs	66.0	SSS	Prior	Throughout the Project				
CS-11/214	Mobilization of Community Vets	180.0	QCBS	Prior	03/23/11	04/20/11	05/20/11	05/30/11	05/29/13
CS-11/215	CGC Impact assessment specialist	24.5	IC	Post	01/25/14	02/09/14	02/15/14	02/19/14	06/30/14
CS-11/216	In-service training by RASC	24,000	SSS	Prior	06/26/11	09/15/11	10/15/11	11/01/11	03/30/12
CS-11/217	Audits	50.0	LCS	Post	Five audits, one at the end of each fiscal year				
	Total 4 for Consultancy	1,156.5							
5. OPERATING COSTS (Components 1 -4)		3,438.0							

Legend	
QCBS =	Quality and Cost-based Selection (in accordance with sections 2.1 - 2.28 of the Consultant's Guidelines)
QBS=	Quality Based Selection (in accordance with section 3.2 the Consultant's Guidelines)
CQ=	Consultants Qualifications (in accordance with section 3.7-8 of the Consultant's Guidelines)
LCS =	Least-Cost Selection (in accordance with section 3.6 of the Consultant's Guidelines)
SSS=	Single source Selection (in accordance with section 3.9-13 of the Consultant's Guidelines)
IC =	Individual Consultant (in accordance with section V of the Consultant's Guidelines)
Items marked with asterisk will be procured under retroactive financing.	
Prior Review	
	(i) All contracts with consulting firms >US$ 100,000 and single-source contracts (ii) All contracts with individual consultants >US$50,000 and sole-source contracts (iii) All items procured under retroactive financing

D. Frequency of Procurement Supervision

13. In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended semiannual supervision missions and field visits to carry out post review of procurement actions.

Annex 9: Economic and Financial Analysis

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

1. **The CARMAC project will have three major benefits:** (i) promote increased diversification, competitiveness and economic growth; (ii) reverse the trend of land degradation; pastures and grassland occupy half of the total agricultural land and about 15 percent of this land is severely degraded; and (iii) increase incomes for the poorest rural people in mountainous communities, where revenues from livestock are essential for subsistence and the main source of cash income; currently one third of the rural people depend on raising livestock as their main source of livelihood.

2. **The economic internal rate of return (ERR) of the project is 83.1percent**.The project net incremental benefits with an economic net present value at a discount rate of 12 percent are 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. Switching values show that project benefits would have to fall by 81percent or costs to increase by 440 percent to reduce ERR below 12 percent. Given that the project analysis was conducted using conservative assumptions for accumulation of project benefits in participating communities, the project analysis did not show sensitivity to any reasonable lag of accumulation of benefits. The projected incremental annual net benefits per US$1 of investments are US$9.74.

Years	PY1 ($)	PY2 ($)	PY3 ($)	PY5 ($)	PY10 ($)	PY15 ($)
Without Project						
Expected Net Benefits (Milk Cow)	2,317,658	9,270,633	10,197,697	21,785,988	21,785,988	21,785,988
Expected Net Benefits (Sheep)	484,486	1,937,943	2,131,737	4,554,166	4,554,166	4,554,166
Total	2,047,921	8,191,684	9,010,852	19,250,457	19,250,457	19,250,457
With Project						
Expected benefits (Milk Cow)	2,617,280	11,653,894	14,059,884	34,025,950	40,758,135	45,249,920
Expected benefits (Sheep)	530,998	2,458,237	2,820,829	7,513,318	10,612,693	12,130,904
Total	2,306,223	10,306,410	12,376,238	30,226,088	36,851,585	41,052,298
Investment per year	1,788,556	5,365,668	5,365,668	-	1,126,790	-
Net benefit from project	306,223	4,306,410	6,376,238	30,226,088	35,724,795	41,052,298
Incremental net benefit	(1,741,698)	(3,885,274)	(2,634,614)	10,975,631	16,474,338	21,801,841

NPV @ 12%	$59,822,904
per farm household in participating communities	$3,563
per ha of pasture land in participating communities	$421
per animal unit in participating communities	$1,470
ERR	83.1%
B/C ratio	1.60

Description of benefits to improving diversification, competitiveness and economic growth

3. **The project investments are expected to improve livestock production and productivity parameters in the participating communities**. It is expected that improved feeding, breeding, animal health and livestock management practices would result in the above benefits. Particularly, the benefits are expected to be in the form of improved productivity of beef, improved productivity of sheep (predominantly lambs), and smoothing seasonal effects of milk production.

4. **Overall it is expected that these incremental increase in production would be covered by the market demand.** Some stronger linkages with the market will be supported by the competitive grants through new product development and marketing.

5. **It is expected that the beef production would be improved through increased livestock numbers and productivity.** The projected increase in cattle numbers at year 5 by 9 percent compared to without project scenario, combined with improved herd parameters (increased calving rate, reduced mortality and better replacement rate for milk cows) would result in 75 percent more revenue from beef in a participating community. The current un-met market demand would capture the incremental increase. While overall the price levels in the international and Armenian market for beef show similar trend of increase, the price increase rate in Armenia is considerably lower. This is largely because the domestic livestock sector did not respond immediately at the price signals and increased demand and failed to utilize the existing capacity to increase production. That also led to increase of imports to cover the demand gap. However, currently most of the imported beef is used in sausages or as ground meet, i.e. largely as a cheap raw material. There is a premium market for domestic fresh beef. It is expected that this premium market would be served through improvements in production quantities.

6. **The project impact on the milk marketing and value chains would be demonstrated mainly through smoothing the seasonality of milk production and thereby seasonality of prices.** This would be achieved by promoting improved breeding practices (including AI to have better timing of calving) and improved feeding. Currently, there is significant difference between off-season prices and quantities during fall and winter, and main season prices and quantities during spring and summer. The dairy processors now have to smooth the quantity differentials by using imported milk powder. However, milk powder cannot be used as a raw material in production of Armenian cheeses, and as such the demand for fresh milk would continue to be strong. It is expected that this demand would be met partly through project communities producing more milk off-season. This would also have direct benefits to the communities, as off-season prices are at least 30 percent higher than production season prices.

7. **The project would also impact the productivity of sheep, particularly by increasing the lambing rate in participating communities**. This would result in more lamb available to be marketed. There is considerable market demand for live sheep, especially for exports to the Middle East. The improved breeding, feeding and animal health would also result in increasing weight gains of lambs, and as such make more sheep available for exports in the participating communities.

Description of benefits to natural resources

8. **In addition to increasing livestock production and improving incomes, the project is expected to provide significant benefits by reducing the trend of degradation**. Nearly all pasture areas which are close to village settlements are severely degraded and current grazing practices are unsustainable. If the uncontrolled and unsustainable grazing practices continue, the nearby pastures would be irreversibly lost for productive agricultural systems. Also, considerable crop lands in village communities are not being utilized, and majority of these have either become grassland (for harvesting less valuable hay) or have been left uncultivated. Most of the remote pasture areas are largely

underutilized and maintain highly valuable fodder resources that could potentially improve the productivity of livestock with proper management and improved access arrangements. The problem of overgrazing in nearby village pastures and under-grazing in remote areas had led, on one hand to degradation and erosion of nearby pastures, and on the other hand to under utilization of other remote pastures, resulting in a build-up of a soil crust and reduced water absorption and the displacement of valuable pasture flora by lichens. Remote pastures are also underused (because of distance and access), and still subject to degradation: in this case by development of bushes, small trees and non interesting species for ruminants.

9. **The project is expected to stop the trend of pasture degradation and promote opportunities for improving livestock productivity in participating communities.** The project will take a proportion of degraded pasture areas entirely out of grazing for natural regeneration, in the meantime turning underutilized grassland and pasture resources into sustainable use by promoting access to and sustainable management of these resources. The project will promote improved grazing and livestock management practices in the participating communities. These improved practices will secure long-term productivity of those areas and raise incomes for the local people who are dependent on pasture based livestock production systems. It is expected that introduced better livestock and grazing management practices would help sustainably manage pasture and grassland resources within communities, and in the long run reverse the trend of land degradation.

Description of benefits to participating communities

10. **The majority of project benefits are expected to occur within the project communities.** While benefits may also occur beyond the project communities largely due to improved infrastructure, the extent of these benefits was not possible to quantify. About 78,000 people or 19,300 farm households live in the project communities of which 97.6 percent are engaged in livestock production. The average annual incremental net benefit calculated over the project impact period (15 years) to an average participating household is US$ 4,423, whereas the same value calculated over the life of the project (5 years) is US$ 919. The project area covers around 230,000 ha of conditional land, of which more around 2/3 is pastures. The total livestock numbers are around 46,000 heads (animal units). Overall, the project is expected to increase the production of livestock products (predominantly milk and meat) and contribute to the increase in sales and net-income.

11. **In the short-run, new investments in pasture infrastructure, such as improved roads and stock watering points, would improve the livestock's access to more remote and productive pasture areas**. In addition, the project would support re-introduction of fallow or abandoned crop land into production of perennial fodder crops. The estimated demand for re-introduction of fallow land into crop rotation is at least 200 ha per community or roughly10,000 ha for the life of the project. These investments are expected to make more and higher quality fodder available for the livestock. The project investments in animal health improvement at the community level are expected to improve herd parameters, such as calving rates, mortality rates and milk quality and as such contribute to improved productivity of livestock.

12. **These investments, combined with improvements in grazing practices and livestock management, would help improve the productivity of livestock production in the project area.** The spillover effects in terms of introduction of improved management practices are expected in nearby and other communities. These effects are supported by the agricultural advisory activities under the project, but not accounted in the economic analysis.

13. **The project investments are also expected to improve the marketing of livestock production (meat and milk).** In particular, improved roads are expected to make remote pastures accessible for commercial dairy processors to source high quality milk during the pasture season. Small community level slaughtering facilities are expected to improve the safety of slaughtered meat. The Competitive Grant program will also support marketing and sales. The extent of these benefits has not been quantified. In the short-run, it is expected that the project benefits would be in a form of direct income support, through re-introduction of fodder crops, and short-term employment opportunities on small infrastructure works.

14. **The project support to improving livestock productivity is expected to contribute to the increase in farm incomes.** The project communities have a considerable area of remote pastures, which can be sustainably utilized without any improvement in land development. Alpine pasture areas of Armenia are rich in high quality grass resources and have the potential of significantly improving fodder balances if well managed. The project investments will support improved access infrastructure in these pastures (access roads, stock watering points etc.). Most communities can maintain higher livestock numbers on a sustainable basis, provided that grazing systems are carefully designed and supported by fodder balance calculations. The market prospects for meat and milk are relatively favorable in Armenia.

15. **Communities will also directly benefit from the Competitive Grants Program (CGP) and the Technology Assessment Programs (TAPs) under the Agriculture Advisory Component.** Such interventions were also supported under the RESCAD project. The ex-post economic analysis revealed that, under CGP, the incremental annual net benefits per US$1 of investments are on average 0.76 percent and the investment rate of return is 104 percent; and under TAPs, the incremental annual net benefits per US$1 are on average US$1.98 and the investment rate of return is 85 percent.

Methodology and major assumptions

16. **The economic benefits of the project will arise from an increase in the net value of production, as a result of more efficient use of pastures and livestock resources each participating community.** To capture the mutual benefits and costs of different project interventions, it was therefore assumed that all project investments will support these objectives. On top of this, the rural advisory services support predominantly the objectives of the pasture component and as such were included in the calculation of economic feasibility under the pasture component. The separate estimation of CGP and TAP sub-projects was conducted based on the ex-post analysis done for the RESCAD project.

17. **The economic net cash flow was derived from comparing the 'without project' and the 'with project' net value of production**. The 'without project' case is one in which there is no investment. For simplification a continuation of present livestock parameters were used to represent it. The 'with project' case is one that reflects the changes livestock parameters. The various investments and agricultural activities (fodder crops, ag. machinery, access roads, etc.) were assessed in terms of their impact on improving livestock parameters in the models.

18. **Prices.** For the analysis, constant farm-gate prices were used for most traded input and output prices. There are no price distortions for agricultural product prices in Armenia. For unskilled labor a constant daily rate of AMD 3000 was used as a financial labor cost. However, given the significant level of rural unemployment, which will likely continue the financial labor costs were converted by a factor of 0.6 to reflect the economic opportunity cost for the unskilled hired labor of AMD 1800 per day.

19. **Livestock models.** The net value of production for cattle and sheep production enterprises was derived using partial budgeting approach. The analysis used average livestock numbers at the community level, and employed the herd projection approach to derive herd characteristics for both cattle and sheep.

Assumptions for the cattle models

Cattle mortality to decrease due to improved feeding and animal health	Decrease from current 10% to 7% in Year 5 and 4 % in Year 15
Culling rate of bulls to increase due to less bulls being used for breeding	Increase from current 15% to 18% in Year 5 and stay as it is to Year 15
Number of breeding bulls projected to decrease, due to AI and castration	Bulls/Breeding cow ration would decrease from current 0.25 to 0.02 in Year 5 and 0.01 in Year 15
Average cow age projected to decrease	The cows would be replaced more frequently
Calving rate to increase due to improved feeding and animal health	Increase from current low 67% to 78% in Year 5 and 80 % in Year 15
Calf mortality to decrease due to improve feeding and animal health	Decrease from current 20% to 15% in Year 5 and 8% in Year 15
Heifer culling rate to decrease as the cow replacement age decreases	More heifers would be retained to replace cows

Assumptions for the sheep models

Sheep mortality to decrease due to improved feeding and animal health	Decrease from current 10% to 6% in Year 5 and 5% in Year 6
Number of ewes per ram to increase	Increase from current average of 10 to around 33 because of improved breeding practices
Average ewe age projected to decrease	Ewes would be replaced more frequently
lambing rate to increase due to improved feeding and animal health	Inrease from current 1.1 to 1.2 in year 5 and 1.3 in year 15
Lamb mortality to decrease due to improve feeding and animal health	Decrease from current 20% to 15% in year 5 and 10% in year 15

20. **Investments and phasing.** Benefit accumulation is estimated for 15 years, but it is assumed that the project's full development would be at year 7. At year 8, there would be a need for reinvestment, which is assumed to be at 30 percent of the original investment phased at the above rates. The recurrent costs of maintenance of infrastructure and machinery improved under the project are assumed to be covered by from feed and grazing fees.

Annex 10: Safeguard Policy Issues

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

1. **Social Safeguards:** The project promotes sustainable community resource management, which is likely to include community self-regulation of access to pastures. As there will be no government establishment or enforcement of access restrictions, and no land acquisition or resettlement-related impacts, OP 4.12 is not triggered. As good practice, a social assessment was undertaken to assist communities in formulating equitable and sustainable management regimes. Prohibition against private land acquisition or other resettlement-related impacts are reflected in the project Operational Manual.

2. **As part of component 1, the project promotes community-based pasture resource management.** Communities will voluntarily enter into pasture management agreements with the project implementation unit, and investments will be made in the improvement of pasture resources on the condition that a management regime is put in place. The community decision-making process governing the preparation and implementation of these agreements will involve the establishment of pasture user associations that will be open to all pasture users and that will democratically elect a representative management group and approve management plans through a referendum of members. These management plans will identify appropriate measures to mitigate any adverse impacts on vulnerable community members, taking into account the recommendations of the social assessment. Furthermore, they will include a robust grievance redress and monitoring mechanism. This approach was recommended by the social assessment and builds on the successful experience of mobilizing and building the capacity of community based organizations under the RESCAD Project. Details on the procedures for mobilizing these groups, along with the decision making structure, roles, responsibilities and systems of grievance redress are summarized in Annex 6, and details are in the Operational Manual.

3. **Social assessment.** During project preparation, a social-institutional-legal assessment was conducted in the six project pilot villages that included collecting secondary socio-economic data on villages, a sample survey of 290 livestock households (almost 50 per village), six focus group discussions (one per village), and in-depth interviews with community heads and village veterinaries. Key findings are as follows:

a) *Pasture Community and Household Poverty.* Most of these communities experience budget deficits that must be covered by the State budget, which means villages lack discretionary resources to resolve critical social or environmental problems. Pasture management is an important example: leasing fees are insufficient to finance construction of essential infrastructure such as access roads or stock watering points. Among households surveyed, livestock production was the most important economic activity—cattle production was the most popular, followed by sheep production. Among households with insufficient income from livestock production, public sector employment was the most important source of income. Most households in the study live below the poverty line; close to one-third live in extreme poverty, therefore many farmers lack access to equipment and agricultural machinery necessary to manage pasture lands and fodder production, such as seeding equipment, ploughs, combine harvesters, or spraying machines. Project financing will help address these constraints.

b) *Organization of Pasture Use.* Project preparation studies revealed no evidence of an organized system of pasture use; instead, there is more or less unlimited open access, which ignores the need to limit stocking levels. As a result, pasture loads observed in two of the study villages far exceed their carrying capacity; in three other villages, pasture loads were approaching carrying capacity. Community Councils, official pasture custodians, are not active in pasture management through allocating user rights. Community heads, responsible for pasture management, have not

carried out this mandate; they organize informal discussions with farmers on pasture use but they have no formal pasture management plans. Typically, meetings with farmers produce a voluntary schedule of pasture use; although farmers rely on pasture lands, they rarely pay rent and ironically, they must pay land tax for 'unused arable land'. In fact, it appears that pasture use rents are seen as voluntary—community authorities have little capacity to enforce collection. Only two villages in the study area revealed cases of pasture use rights that were legally registered. Some communities are reluctant to change this system; small farmers in particular suspect that more closely managed pasture systems will allow larger operators to control most of the pasture and grazing lands. However, some farmers understand that the management regime must change, but they are concerned about implementation; therefore, community mobilization, raising awareness, and participation are emphasized during project implementation.

c) *Marketing.* Surveyed farmers reported extensive bartering of agricultural products such as exchanging dairy products for fruit and vegetables. Most small-scale livestock-producing households use their meat and dairy products primarily for their own consumption, and sell only surpluses. However, to increase sales, farmers need assistance to find markets, to access finance to scale up production, and to connect with processing facilities. Among farmers who sell livestock products, most sell milk to processors, cheese directly to final consumers, and meat through intermediaries. Contractual arrangements apply only to milk sales, primarily for accounting purposes. Little cooperation exists among livestock producing households, although one cooperative was identified in a study village, but members lacked a strong sense of ownership of cooperative assets. Project-financed grants through the Competitive Grant Scheme will help address these constraints.

d) *Animal Health and Productivity.* Serious issues affect animal health and productivity; animal productivity is diminished by the daily need to move animals to and from remote pastures over poor quality access roads. Veterinary services are limited to state-mandated measures such as disease control, and little demand exists for commercial veterinary services despite the fact that some 20 percent of surveyed households reported animal diseases—foot and mouth and brucellosis were the most prevalent. One village reported that five people were infected by brucellosis in 2009, resulting in compulsory killing of 17 head of cattle and 53 sheep. Animal health and productivity problems are compounded by a serious lack of animal housing and hygiene facilities for washing, manure storage, or milking, and most households do not practice artificial insemination. Project financing for Community Veterinary Services sub-component will help address these issues.

e) *Women and Young People.* In most communities, younger people were migrating in search of work in Armenia or abroad, rather than engaging in agriculture. Currently women are key actors in livestock production, especially milking and milk processing, but have little control in overall decision making. This suggests that women (and women's groups) are likely to benefit from Competitive Grants Program focus on small-scale agri-processing. While the project is not directly targeting women, its implementation mechanisms ensure women's equitable access to resources and equitable representation in decision making. This is based on positive lessons learned from the experiences of RESCAD. Mechanisms for combating elite capture and male dominance will mainly focus on community mobilization processes and decision making structures, and ensuring a robust system of grievance redress during implementation.

4. **Environmental Safeguards.** The Project supports adoption of the sustainable management of pastures, improvement of the quality of veterinary service provision, and adoption of productive and environmentally sound farming and other agricultural practices. All these are aimed at the achievement of positive long term environmental impacts through preserving biodiversity of alpine graze lands and

decreasing nutrient and pesticide pollution from farming and agro processing. Encouraging the use of currently abandoned remote pastures, which would allow mitigating overgrazing in the already degraded nearby areas, is an integral element of promoting sustainable pasture management but at the same time it carries the risk of environmental damage in new locations if not implemented properly. The other possible negative impact of the operational phase could be mismanagement of manure, liquids, fragments of animal carcasses, and hazardous waste from animal sheds, farms, processing facilities, and veterinary service provision centers. Short term negative impacts of the project activities are expected from small scale construction and rehabilitation of access roads and buildings to shed animals and to house veterinary services providing centers. These impacts will be temporary, modest, and confined to the construction area.

5. **The project triggers OP/BP 4.01 Environmental Assessment and is classified as environmental Category B.** In accordance with the safeguard requirements, an Environmental Management Plan (EMP) was developed, which describes potential environmental impacts of all components of the project and provides measures for mitigating these impacts. The EMP recommendations are built into the project, as provision are in place to reflect them in the designs of pasture infrastructure and other construction works, and into the guidelines for developing pasture management plans and operating of veterinary service centers. The EMP carries an Environmental Management Framework (EMF) for the CGP. The EMF outlines procedures of environmental review, approval and monitoring and subprojects to be financed from the CGP. The main principles of this procedure are screening and categorization of subproject proposals, preparation of site-specific EMPs and Pest Management Plans (PMPs) if deemed necessary, and the oversight of adherence to the good environmental practice and recommendations of EMPs/PMPs throughout implementation of subprojects. Subprojects of environmental Category A would not be eligible for financing under the CGP. Only Category B and C subprojects will be accepted for further review and approval.

6. **OP 4.09 *Pest Management* is also triggered by the project.** Although its mainstream activities do not require procurement and use of agrochemicals, procurement of minor amounts of pesticides under the CGP financed subprojects is not excluded. An indirect increase of pesticide use is possible as a result of some subprojects if they improve farmers' access to other agricultural inputs and help to intensify ago production. Also, triggering of OP 4.09 will ensure that any recommendations on the pest and pesticide management issued by the project-supported providers of advisory services are based on the basics of Integrated Pest Management and are least harmful for the environment. EMF calls for the development of subproject specific PMPs as necessary depending on the nature of activities financed.

7. **The PIU under the Ministry of Agriculture will provide day-to-day management of the project, including oversight on the adherence to the environmental and social safeguards triggered by the project.** This PIU has extensive experience gained through the implementation of the RESCAD project, including management of the environmental safeguards. Nonetheless, satisfactory performance under the CARMAC project would require strengthening of the environmental capacity of PIU for performing the functions of (i) reviewing pasture development plans to ensure that they are in line with EMP recommendations, (ii) assisting rural communities and designers with filling out environmental checklists for small construction and rehabilitation works under pasture development and/or upgrading of veterinary facilities, (iii) screening and classifying grant proposals incoming under CGP and ensuring development of EMPs for category B subprojects and PMPs as required, and (iv) producing regular records of environmental supervision of civil works supported by various components of the project and reports on environmental monitoring of subprojects' implementation under CGP.

Annex 11: Project Preparation and Supervision

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

	Planned	Actual
PCN review	12/10/2009	02/22/2010
Initial PID to PIC	12/18/2009	03/11/2010
Initial ISDS to PIC	12/18/2009	03/17/2010
Appraisal	04/26/2010	11/24/2010
Negotiations	09/06/2010	02/10/2011
Board/RVP approval	10/29/2010	03/22/2011
Planned date of effectiveness	07/01/2011	
Planned date of mid-term review	11/30/2013	
Planned closing date	09/30/2016	

Key institutions responsible for preparation of the project: Ministry of Agriculture of Armenia; World Bank

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Doina Petrescu	Sr. Rural Development Specialist	ECSS1
Artavazd Hakobyan	Operations Officer	ECSS1
Brian G. Bedard	Sr. Livestock Specialist	ECSS1
Darejan Kapanadze	Sr. Environmental Specialist	ECSS3
Martin Henry Lenihan	Social Development Specialist	ECSS4
Arman Vatyan	Sr. Financial Management Specialist	ECSO3
Alexander Astvatsatryan	Procurement Officer	ECSO2
Irina Ramniceanu	Young Professional	AFTAR
Josef Ernstberger	Natural Resource Management Specialist	FAO
David Lugg	Sr. Agriculture Specialist	FAO
Anara Jumabayeva	Sr. Economist	FAO
Jeren Kabayeva	E T Consultant	ECSS1
Valencia M. Copeland	Program Assistant	ECSSD

Bank funds expended to date on project preparation:

1. Bank resources: US$211,400
2. FAO resources: US$185,290
3. Total: US$396,690

Estimated annual supervision cost: US$120,000

Annex 12: Documents in the Project File

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

1. Armenia Livestock Sector Study; Jean-Jacques Franc de Ferriere and Michel Vaucoret, FAO
2. Armenia Livestock: A Sector Strategy Note; World Bank
3. Livestock Study Report on Community Agricultural Resources and Social Assessment; PIU, local consultants
4. Pasture/livestock management plans for five communities; PIU, external consultants
5. Project social assessment; PIU, AM Partners Consulting company
6. Environment Impact Assessment and Environment Management Plan; PIU, local consultant
7. Project Operational Manual; PIU

Annex 13: Statement of Loans and Credits

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

			Original Amount in US$ Millions						Difference between expected and actual disbursements	
Project ID	FY	Purpose	IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P115647	2011	E-SOCIETY & INNOVATION	24.00	0.00	0.00	0.00	0.00	24.00	0.00	0.00
P116451	2011	Armenia DPO 2	4.00	21.00	0.00	0.00	0.00	24.94	0.00	0.00
P116681	2010	IRRIGATION REHABILITATION EMERGENCY PROJ	30.00	0.00	0.00	0.00	0.00	2.03	-3.36	0.00
P117384	2010	PSMP II	9.00	0.00	0.00	0.00	0.00	8.78	-0.06	0.00
P115486	2009	LIFELINE ROADS IMPROVEMENT PROJECT	76.60	25.00	0.00	0.00	0.00	30.25	-47.14	-14.03
P115109	2009	AM Access to Finance for SME	50.00	0.00	0.00	0.00	0.00	19.88	15.83	0.00
P107772	2009	EDUC QUAL & REL (APL#2)	0.00	25.00	0.00	0.00	0.00	24.01	1.76	0.00
P104467	2007	HLTH SYS MOD (APL2)	19.00	22.00	0.00	0.00	0.00	22.09	1.50	0.00
P099630	2007	JUDICIAL REFORM 2	0.00	22.50	0.00	0.00	0.00	4.64	-2.57	0.00
P094225	2007	SIF 3	7.00	33.00	0.00	0.00	0.00	6.48	-9.90	-2.96
P057880	2006	URBAN HEAT	0.00	15.00	0.00	0.00	0.00	0.63	0.32	0.00
P083352	2006	RENEW ENERGY	0.00	5.00	0.00	0.00	0.00	0.21	-0.13	0.00
P087641	2005	YEREVAN WATER/WW SERVS	0.00	20.00	0.00	0.00	0.00	3.37	3.42	2.11
P060786	2004	PUB SECT MOD	0.00	10.15	0.00	0.00	0.00	0.15	-0.14	0.00
P063398	2004	MUN WATER & WW	0.00	43.00	0.00	0.00	0.00	6.07	-14.17	5.81
P087620	2004	SOC PROT ADMIN	5.00	5.15	0.00	0.00	0.00	4.79	-0.58	0.00
		Total:	224.60	246.80	0.00	0.00	0.00	182.32	- 55.22	- 9.07

ARMENIA
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
2002	ACBA Leasing	2.00	0.27	0.00	0.00	2.00	0.27	0.00	0.00
2004	Armeconombank	2.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00
2000	Hotel Armenia	0.00	0.00	3.57	0.00	0.00	0.00	3.57	0.00
2004	Hotel Armenia	0.00	0.00	1.25	0.00	0.00	0.00	1.25	0.00
2006	Inecobank	3.00	1.30	0.00	0.00	3.00	0.00	0.00	0.00
2006	NAREK	5.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total portfolio:	12.20	1.57	4.82	0.00	7.00	0.27	4.82	0.00

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
	Total pending commitment:	0.00	0.00	0.00	0.00

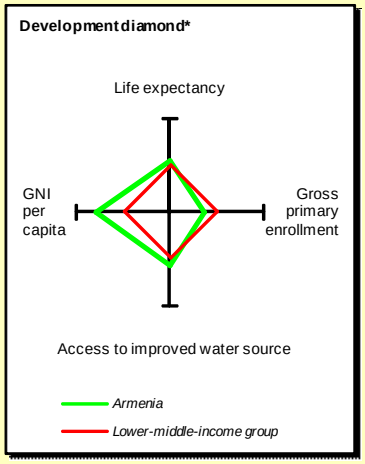
Annex 14: Country at a Glance

ARMENIA: Community Agricultural Resource Management and Competitiveness Project

Armenia at a glance

12/9/09

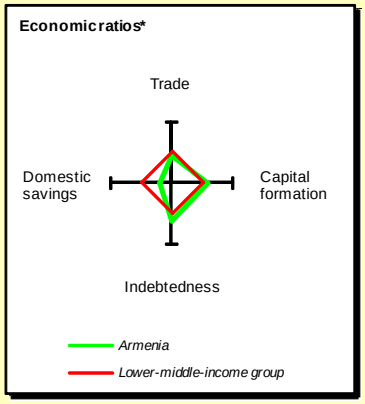
POVERTY and SOCIAL	Armenia	Europe & Central Asia	Lower-middle-income
2008			
Population, mid-year *(millions)*	3.1	441	3,702
GNI per capita *(Atlas method, US$)*	3,350	7,418	2,078
GNI *(Atlas method, US$ billions)*	10.3	3,274	7,692
Average annual growth, 2002-08			
Population *(%)*	0.1	0.1	1.2
Labor force *(%)*	0.9	1.0	1.6
Most recent estimate (latest year available, 2002-08)			
Poverty *(% of population below national poverty line)*	..	..	..
Urban population *(% of total population)*	64	64	41
Life expectancy at birth *(years)*	74	70	68
Infant mortality *(per 1,000 live births)*	21	21	46
Child malnutrition *(% of children under 5)*	4	..	26
Access to an improved water source *(% of population)*	98	95	86
Literacy *(% of population age 15+)*	99	98	83
Gross primary enrollment *(% of school-age population)*	80	98	109
Male	79	99	112
Female	81	97	106



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

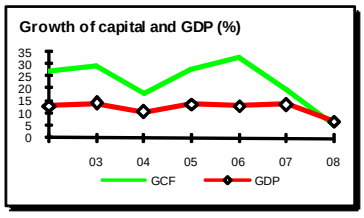
	1988	1998	2007	2008
GDP *(US$ billions)*	..	1.9	9.2	11.9
Gross capital formation/GDP	..	19.1	37.8	40.8
Exports of goods and services/GDP	..	19.0	19.2	14.7
Gross domestic savings/GDP	..	-14.7	17.8	15.8
Gross national savings/GDP	..	-2.1	31.1	30.2
Current account balance/GDP	..	-21.3	-6.4	-11.6
Interest payments/GDP	..	1.1	1.2	0.7
Total debt/GDP	..	42.5	31.5	28.7
Total debt service/exports	..	11.0	5.5	9.5
Present value of debt/GDP	..	..	29.0	21.2
Present value of debt/exports	..	..	78.0	65.3

	1988-98	1998-08	2007	2008	2008-12
(average annual growth)					
GDP	-4.7	11.3	13.7	6.8	-3.5
GDP per capita	-3.0	11.4	13.6	6.6	-7.8
Exports of goods and services	-25.3	13.0	-3.5	-13.1	-9.7

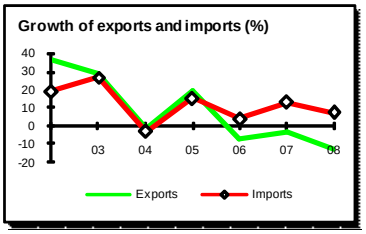


STRUCTURE of the ECONOMY

	1988	1998	2007	2008
(% of GDP)				
Agriculture	..	34.0	20.3	17.8
Industry	..	30.8	43.9	45.0
Manufacturing	..	21.9	16.6	14.7
Services	..	35.2	35.8	37.2
Household final consumption expenditure	..	103.6	72.0	72.7
General gov't final consumption expenditure	..	11.1	10.2	11.6
Imports of goods and services	..	52.8	39.2	39.8



	1988-98	1998-08	2007	2008
(average annual growth)				
Agriculture	-0.4	6.5	10.3	1.4
Industry	-12.7	14.3	11.7	7.2
Manufacturing	-7.2	6.2	2.8	2.4
Services	6.9	12.1	12.8	7.2
Household final consumption expenditure	-2.4	7.7	17.9	12.8
General gov't final consumption expenditure	-2.0	9.4	5.1	16.7
Gross capital formation	-6.0	20.5	19.7	5.9
Imports of goods and services	-17.0	10.2	13.0	7.3



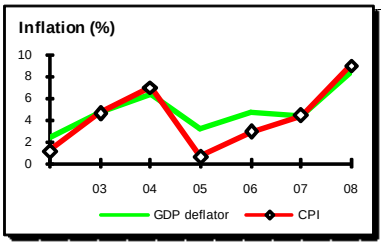
Note: 2008 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

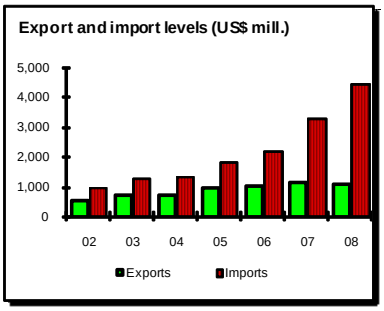
PRICES and GOVERNMENT FINANCE

	1988	1998	2007	2008
Domestic prices				
(% change)				
Consumer prices	0.0	8.7	4.4	9.0
Implicit GDP deflator	..	10.7	4.3	8.4
Government finance				
(% of GDP, includes current grants)				
Current revenue	..	17.1	21.0	21.3
Current budget balance	..	1.3	5.2	1.6
Overall surplus/deficit	..	-4.3	-1.2	-0.5



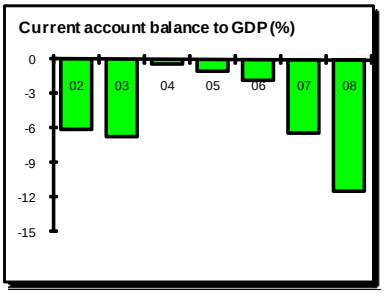
TRADE

	1988	1998	2007	2008
(US$ millions)				
Total exports (fob)	..	221	1,152	1,057
Gold, jewelry, and other precious stones	..	53	209	173
Machinery and mechanical equipment	..	41	40	40
Manufactures	..	102	429	377
Total imports (cif)	..	902	3,268	4,426
Food	..	292	536	756
Fuel and energy	..	203	483	645
Capital goods	..	113	850	1,219
Export price index *(2000=100)*	..	..	102	102
Import price index *(2000=100)*	..	..	123	133
Terms of trade *(2000=100)*	..	..	83	76



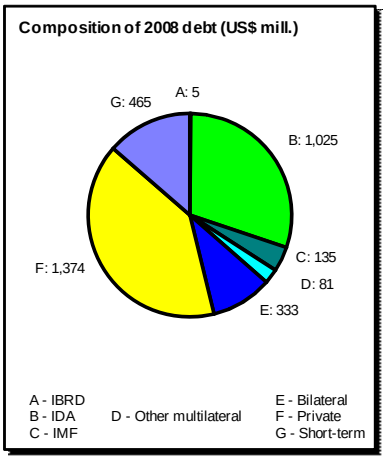
BALANCE of PAYMENTS

	1988	1998	2007	2008
(US$ millions)				
Exports of goods and services	..	360	1,777	1,757
Imports of goods and services	..	1,000	3,589	4,748
Resource balance	..	-640	-1,813	-2,991
Net income	..	60	279	471
Net current transfers	..	177	945	1,138
Current account balance	..	-403	-589	-1,382
Financing items (net)	..	404	1,149	1,168
Changes in net reserves	..	-1	-560	214
Memo:				
Reserves including gold *(US$ millions)*	..	328	1,659	1,745
Conversion rate *(DEC, local/US$)*	..	504.5	342.1	306.0



EXTERNAL DEBT and RESOURCE FLOWS

	1988	1998	2007	2008
(US$ millions)				
Total debt outstanding and disbursed	..	804	2,898	3,418
IBRD	..	10	5	5
IDA	..	293	965	1,025
Total debt service	..	61	189	366
IBRD	..	1	1	1
IDA	..	2	14	19
Composition of net resource flows				
Official grants	0	54	127	132
Official creditors	..	67	190	149
Private creditors	..	5	502	374
Foreign direct investment (net inflows)	1,147	221	699	935
Portfolio equity (net inflows)	0	1	0	-1
World Bank program				
Commitments	..	133	96	20
Disbursements	..	43	93	80
Principal repayments	..	0	8	12
Net flows	..	43	85	68
Interest payments	..	2	7	8
Net transfers	..	40	78	60



Note: This table was produced from the Development Economics LDB database. 12/9/09


ARMENIA
GEORGIA
GEORGIA
TURKEY
ISLAMIC REPUBLIC OF IRAN
AZERBAIJAN
AZERBAIJAN
43°E
44°E
45°E
46°E
47°E
41°N
40°N
39°N
To T'bilisi
To T'bilisi
To Borjomi
To Gäncä
To Gäncä
To Gäncä
To Kars
To Naxçivan
To Naxçivan
To Qubadli
To Qubadli
To Füzili
To Ordubad
Tashir
Alaverdi
Stepanavan
Lesser Caucasus Mountains
SHIRAK
LORRI
TAVUSH
Ijevan
Vanadzor
Dilijan
Gyumri
Artik
Aragats (4090 m)
ARAGATSOTN
Sevan
Hrazdan
Karmir
Artsvashen
Kura
Mingechevir Reservoir
Lake Sevan
GEGHARK'UNIK'
Gavar
Vardenis
Martuni
Vardenis Range
KOTAYK'
YEREVAN
YEREVAN
Ashtarak
Hrazdan
ARMAVIR
Armavir
Aras
Arpa
Artashat
ARARAT
Ararat
Aras
VAYOTS' DZOR
Yegegnadzor
Jermuk
Vaik
Arpa
Angekhakot
Goris
Vorotan
Zangezur Range
SYUNIK'
Kapan
Aras
Megri
Aras
0 10 20 30 40 50 Kilometers
0 10 20 30 Miles
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ARMENIA
SELECTED CITIES AND TOWNS
PROVINCE (MARZ) CAPITALS
NATIONAL CAPITAL
RIVERS
MAIN ROADS
RAILROADS
PROVINCE (MARZ) BOUNDARIES
INTERNATIONAL BOUNDARIES
SEPTEMBER 2004
IBRD 33364