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Report No: ICR00004468

IMPLEMENTATION COMPLETION AND RESULTS REPORT

TF099143

ON A

GRANT

IN THE AMOUNT OF US\$11.0 MILLION

TO

MONGOLIA

FOR THE

MONGOLIA LIVESTOCK AND AGRICULTURAL MARKETING PROJECT (P125964)

September 28, 2018

Agriculture Global Practice
East Asia And Pacific Region
[Click here to enter text.](#)

CURRENCY EQUIVALENTS

(Exchange Rate Effective September 28, 2018)

Currency Unit = Mongolian Tugriks (MNT)

MNT 2516 = US\$1

FISCAL YEAR

July 1 - June 30

ABBREVIATIONS AND ACRONYMS

AI	Artificial Insemination
ANFBC	Animal Nucleus Flock Breeding Center
EIRR	Economic Internal Rate of Return
ELS	End Line Survey
EMP	Environmental Management Plan
FMD	Foot-and-Mouth Disease
FIRR	Financial Internal Rates of Return
GAFSP	Global Agriculture and Food Security Program
GoM	Government of Mongolia

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P125964	Mongolia Livestock and Agricultural Marketing Project
Country	Financing Instrument
Mongolia	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Mongolia	Ministry of Food, Agriculture and Light Industry

Project Development Objective (PDO)

Original PDO



Private Sector Development	105
Jobs	100
Enterprise Development	5
MSME Development	5
Finance	15



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herding animals, (c) undermined veterinarian services, which lead to slow responses to infectious animal diseases and constrain effective veterinary service and disease surveillance, (d) collapse of the breeding system resulting in lower livestock productivity partly due to inbreeding, and (e) lack of winter fodder that reduces livestock productivity and increases the risk of livestock mortality during *dzud*.

4.



7. Livestock productivity improvements largely thrive on intensification of livestock-agriculture integration, for example, feed or forage crops, hay cultivation for winter preparation, pastureland improvements, and so on. Leveraging economies of scope from this link, introduction of high-value agriculture crops (such as vegetables and fruits) creates twin possibilities of providing attractive alternative livelihood options for women, young farmers, and vulnerable households and increasing the awareness and availability of vegetables and fruits, contributing to diet diversity and improved nutrition for women and children. On the other hand, the value chain approach seeks to address closely linked constraints in delivery of livestock services (animal health, animal breeding, genetics, and nutrition); market access; and price-quality relationships in an integrated manner resulting in improved livelihood incomes.

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Mongolia Livestock and Agricultural Marketing Project (P125964)



22. In line with the GAFSP requirement, the external impact evaluation of the project using counterfactual analysis was conducted. A stratified random sampling process was used for the end line survey (ELS) and each stratum was weighted according to the (a) coverage of beneficiaries at *Aimag/Soum* levels and (b) size of livestock (and by size of land holding for horticulture households). The sample size was 1,800 with 900 households in treatment areas and another 900 households in control *Soums*. The survey results were corroborated with the findings from the key informant interviews. In addition, the PIU initiated annual household surveys to capture results from implementation back-to-back with the Government's own annual livestock census, which was the core of the project's M&E system.

23. At the completion of the project, both evaluation data sets drew converging conclusions that the project had achieved all the target values of all the five outcome indicators. Their respective evaluations are summarized in table 1.

Table 1. Evaluations of Outcome Indicators

Indicator	Results by Internal M&E	Results by External Evaluation
<i>Objective/Outcome 1: Targeted coverage</i>		
Number of intended and actual direct beneficiaries, gender disaggregated. Target: 8,110	13,684 direct beneficiaries, which is 69 percent higher than the target of 8,110, through a combination of investment, capacity-building, and information dissemination activities. Project records show 44:56 female-to-male ratio of beneficiaries (6,083 female, 7,601 male). Women's participation was higher than expected, particularly for training and critical activities such as horticulture and fodder production.	Not covered.
<i>Objective/Outcome 2: Improved livelihoods and diversification of livestock production system</i>		
(GAFSP) Increase in household income from livestock and in selected cases horticultural products. Target: 20 percent	As the latest household survey results suggest, on average, 6(e)-7(y)-4(r)4dW'h	



Indicator	Results by Internal M&E	Results by External Evaluation
		and oral contracts contributed to 52.8 percent). The share of livestock products marketed through contracts for treatment households was 7 percent more than the control group, while this difference was 25 percent for horticulture products.
<i>Objective/Outcome 4: Enhanced productivity</i>		
Percentage of increase in output of livestock products (meat, milk, wool, cashmere) Target: 20 percent	Household survey results indicate highest percentage increase in cashmere output (66.8 percent) and the lowest in milk (20.1 percent). Wool and meat output increase were recorded at 25.2 percent and 37.2 percent, respectively. All figures exceed the target of 20 percent. A study by the Animal Nucleus Flock Breeding Center (ANFBC) showed that the amount of cashmere production increased from 260 grams to 400 grams per goat. At the same time fineness of the cashmere improved from 16.5 microns to 14.8 microns.	Average annual total output of meat was increased by 52 percent compared to the baseline value, which is 33 percent for milk, 22 percent for wool, and 48 percent for cashmere. Compared to control households those increases were substantially high, except for cashmere. Meat output was higher by 59 percent, milk output was higher by 395 percent, and cashmere output was higher by 10 percent, but wool production was lower by 1 percent when compared to the control households.
<i>Objective/Outcome 5: Improved food security</i>		
(GAFSP) Change in per capita consumption of various food ingredients, disaggregated by gender and vulnerable groups. Target: 5 percent	Consumption of key food items has increased by 18.75 percent on average.	



successfully achieved its development objectives in addressing constraints in market access, price-quality relationships, and livestock production (animal health, animal breeding, genetics, and nutrition). The results of the integrated, market-driven approaches exercised by the project in the 15 *Soums* provided models that the GoM has decided to replicate and scale up through its current and planned initiatives. In line with the causal relations between project interventions and the achievement of the PDO as shown by the theory of change, assessment of contribution by component to the achievements of specific outcomes is highlighted in the following paragraphs.

Component 1. Linking Herders to Markets

25. This component created productive partnerships by linking producers of livestock products (meat, fiber, milk, and horticultural products) to markets and diversifying sources of income and household nutrition. It also supported traceability of products for participating herder cooperatives. As such, the component directly contributed to the PDO outcome of (a) improved market access and (b) diversification in livestock-based production systems.

Case 1: Productive Partnerships in Meat Processing - Altain Surleg Nuruu LLC, Gobi-Altai

Problem. Small herders find it difficult to market their livestock at remunerative prices largely because of information asymmetry, long distances to organized markets, high transaction costs, and the exploitative behavior of local middle men.

Solution. LAMP facilitated productive partnerships between Altain Surleg Nuruu LLC, a meat exporter, and 350 local herders for regular supply of quality livestock for meat processing in Gobi-Altai Aimag. The company exported about 350 tons of meat to China during 2017. The project provided grant support of MNT 350 million (US\$145,000) against a total investment of MNT 1,150 million (US\$470,000) for expanding the plant capacity to slaughter up to 800 heads of small ruminants per day and upgrading processing technology and logistics infrastructure (freezer rooms, climate-controlled store houses, reefer vans, and so on). Under the arrangement, herders received technical advice on safety standards and support for improving livestock quality, besides price premiums for improved quality.

Links. The herders participating under the partnership are also linked to a local private veterinary unit (PVU) supported by LAMP. The *Aimag*-level laboratory provides health certification for the animals brought for slaughter.

Impact.



value chain. Matching grants served as a catalyst for cooperatives and agribusiness enterprises to leverage their private capital and commercial bank loans to deepen their service offering and enter into productive partnerships (formal contracts) with herder households. Micro grants delivered against production/business plans helped vulnerable groups build their productive assets and diversify livelihoods.

- (a) Meat and Fiber Development: A meat processing facility in Gobi Altai has started to export their meat products and has plans to further expand its demand for meat from the local herders. Besides promoting industrial processing of meat and meat products, the subprojects promoted product quality standards at the *Aimag* and *Soum* levels to improve sales. Marketing hubs, beyond the rural areas, were also established in Ulaanbaatar.
- (b) Pilot Horticulture Production: A total of 68 subprojects on horticulture, worth US\$1.2 million, have been disbursed and have directly benefitted 3,978 individuals from 787 households. More importantly, this included 203 female-headed households with less than the national average number of animals and 858 households with incomes below the minimum income level. In addition, 1,167 unemployed people were covered by the project, of which 610 or 52 percent are women. Horticulture production, aside from increasing household income and improving food security and diet diversification, also contributed to solving environmental issues, which fostered rehabilitation and development of green areas in the *Aimags* and *Soums*.

Component 2. Raising Liv1n @ 5m @ 10 31083 in 1 2.042. 90 Comp) on E 2) 4 3 (Raising 5) (L) 6 5 @ 1243 in 6s Qua On 1



- (b) Animal Breeding and Genetic Improvement: 41 subprojects, with a total investment of US\$1.4 million, procured 6,635 heads of breeding young sires and rams which resulted in 15 percent to 20 percent increase in productivity. The project established 20 male flocks and 19 nucleus flocks and initiated efforts to increase their number based on intensive usage of modern biotechnological methods such as artificial insemination (AI) and embryo transfers. The screening of livestock, in 2017, showed that 33.2 percent of ewes and 27.5 percent of does met selection standards for breeding, representing an increase of 11.4 percent and 8.1 percent, respectively, over 2015.
- (c) Animal Nutrition: The project also invested in 24 subprojects on animal nutrition with an investment of US\$1.7 million resulting in (a) fodder development of over 1,014.9 ha producing 1,050 tons of green fodder and 465 tons of natural hay and (b) production of 125 tons of mineral bricks and 14 tons of salt bricks.

Case 2: Animal Breed Improvement - Animal Nucleus Flock Breeding Center, Zavkhan

Problem. Low livestock productivity partly because of the collapse of the breeding services delivery and resultant inbreeding.

Solutions. Leveraging the technical capacity of ANFBC, Zavkhan, for collaborative research and a pilot methodology was developed for expanding the coverage of nucleus flocks in the project area and enabling genetic improvement of the herds based on continual selection from a putatively genetic superior population. LAMP financed the ANFBC MNT 200 million (approximately US\$80,300) for procuring and distributing high-quality animals for breeding purposes. The ANFBC also undertook collaborative research for cashmere goat and sheep breed improvement of 'Sartuul' and 'Zavkhan

Buural' breeds.

Impact. The ANFBC was able to increase its coverage by 80 percent by engaging with 540 herders for breed improvement when compared to their service capacity of 300 herders. These herds also saw an increase in good quality animals during the project period by 26.1 percent when compared to previous years. On the productivity front, the research shows significant increase in productivity. For instance, the quantity increase of cashmere produced by livestock of targeted herders was almost 53 percent, while the quality of cashmere measured in terms of the thickness of the fiber also improved to 14.8 microns compared to the national average of 16.5 mm. This translates into an increase in the average cashmere income generated per livestock by 41 percent (considering both the increase of weight and the value of decrease of microns).

Caveat. The duration left in the project was too short to see the results of the additional step of genetic



30. Assessment. The PIU was responsible for day-to-day activities of the project under the overall guidance of the assigned Director General in the MoFALI, reporting technical and financial progress to the Project Steering Committee (PSC) semiannually. The project's comprehensive M&E system had a positive impact on the overall efficiency and effectiveness of the project, which provided timely data and analysis for identifying implementation bottlenecks while generating robust evidence for reporting results around the theory of change. The project piloted several novel approaches, such as (a) extension service delivery through public-private partnerships, (b) deployment of risk capital in the form of matching grants, and (c) livelihoods and incomes needing professional facilitation at the local level. The PVUs and TSPs supported both the delivery of animal health care services and other extension services, organizing cooperatives and helping them develop business plans for raising investments from the project and local banks. The key organizing principle of the project organization was to facilitate partnerships between agribusiness and producers and incorporate local government offices as crucial partners in the implementation process. The experience gained by them in the implementation of the project greatly contributed to the drafting of the new Animal Health Law and Animal Breeding Law.

C. EFFICIENCY

Assessment of Efficiency and Rating

Rating: Substantial

31. A cost-benefit analysis was conducted to reassess the project's economic viability at the Implementation Completion and Results Report (ICR) stage using the same approach as at project appraisal. The project has generated a variety of benefits, including (a) increase of productivity of livestock products (especially for mutton and cashmere for benefits of the breeding interventions); (b) efficiency gains in processing, marketing, and transporting value-added products; (c) reduced losses and mortality of animals due to improvement in breeding and animal health services; and (d) reduced risks due to improved techniques of protecting livestock against severe weather conditions (*dzud*) and improved techniques in animal nutrition. Project costs are those that are incurred during project implementation, including production tools and equipment; labor costs; raw materials; utilities (water, electricity, and heating); and maintenance costs.

32. In line with the Project Appraisal Document (PAD) analysis and review of the actual project activities, the subproject models cover the following major areas: (a) small-scale slaughterhouse; (b) milk processing units; (c) wool cleaning factory; and (d) vegetable production, processing, and marketing. Depending on the types of project activities, models have been based on the implementing entities, which are cooperatives, small and medium enterprises (SMEs), and individual herders.

33. The total net present value (NPV) of the net benefit of the project was calculated at MNT 32,842.4 million (US\$13.5 million), with an economic internal rate of return (EIRR) of 35 percent. As shown in table 2, the EIRRs for the individual subprojects and the project as a whole are all higher than the opportunity cost of capital (12 percent), which confirms that the project was economically viable.

Table 2. Economic Internal Rate of Return (ERR) of Project Activities



Component	Models	EIRR (percent)	
		At Appraisal (PAD)	At Completion (ICR)
1. Linking Herders to Markets	1. Meat production: Slaughterhouse	56.0	57.9
	2. Meat storage	—	25.3
	3. Wool cleaning and processing	77.0	33.1
	4. Milk processing units: dairy	74.0	13.2
	5. Potato farming	—	23.9
	6. Greenhouse (cucumber and tomato)	—	13.9
	7. Sea buckthorn	—	24.2
	8. Mixed vegetable	100.5	49.1
2. Raising Livestock Productivity and Quality	9. Reducing livestock loss due to diseases	—	94.5
	10. Increasing productivity of sheep and goat meat	—	
	11. Increasing productivity of wool and cashmere	—	
	12. Oat	—	22.3
	13. Oat and hay	—	61.7
	14. Mixed fodder	14.0	19.9
	15. Mineral bricks	-	31.6
Overall		42.0	35.0

34. Other critical benefits of LAMP were strengthening animal health and breeding capacities both in *Soum* and *Aimag* levels through investing in laboratory equipment, vehicles, high-value nucleus flocks for small ruminants, capacity building, and so on. The annual total benefit of reducing livestock loss and improving livestock productivity of meat and hair was calculated at MNT 4,561.1 million (US\$1.87 million) with an EIRR of 94.5 percent and an NPV of MNT 26,110 million (US\$10.7 million).

35. Implementation efficiency.



E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

38. Ensuring gender equality was among the priority issues addressed by the project. Women in Mongolia are not considered to be disempowered in both business and everyday life. However, proper balance in implementation of the project with regard to gender equal participation and making sure that beneficiaries have equal access to all the project interventions was adequately considered. The project developed a Social Participation and Gender Mainstreaming Strategy. It was reviewed and endorsed at a regular PSC meeting in February 2015, before the actual launch of project interventions in the field upon completion of TSPs' selection and their dispatch to *Soums* for adoption.

39. Orientation training materials in line with the Social Participation Gender Mainstreaming Strategy were developed and disseminated to the project staff, TSPs, local government officials, and other stakeholders. To adequately implement the strategy, local focal points on gender and social participation were selected in *Soums* (*Soum* social affairs officer). They were appointed as members of the *Soum* Steering Committee to ensure female participation in the subprojects and provide them with priority access to horticulture microgrants. A total of 13,684 people benefited from LAMP, of which 6,083 or 44 percent were female beneficiaries. Among the total beneficiaries of 68 microgrants that supported livelihood and food security, 1,368 were women and 1,092 were men.

Institutional Strengthening

40. The project worked with the newly formed VABUs strategically to build their capacity within their established mandate, while using subcontracting and informal groups for the delivery of services, especially extension services. The herder groups and/or cooperatives owned nucleus herds, while male breeding flocks were owned and managed by breeding cooperatives affiliated with private veterinarians.

41. The project developed and implemented a capacity-building program consisting of a series of training packages, that reached beneficiaries in all *Soums*, on cooperative development, organizational structure, accountability, and reporting. These training sessions complemented one-on-one capacity building provided by *Soum*-based TSP consultants to actual beneficiaries who received investments. This combined approach was designed mainly for beneficiaries of microgrants in horticulture and matching grants in nutrition/fodder production because they were composed of lower-income and less-experienced cooperatives, which were partly newly established. The institutional capacity of the cooperatives and SMEs that received matching grants were 0 g0 G(co)4(o)-5(p)3(ert)10(edair)11(3M 0 6311(te)9(3 -5(p)3(ert)



supported both the delivery of animal health care services and other extension services, organizing



53. Unfortunately, the project lost almost two out of the four years because of delays in effectiveness. Furthermore, the engagement of TSPs required for field activities were also delayed substantially. The slow start

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the TSPs) that trained beneficiaries (cooperatives and SMEs) and (a) training of stakeholders at the national and local levels (*Aimag* and *Soum* environmental



minimum requirements. A Financial Management Manual was prepared to guide project implementation. World Bank supervision missions regularly reviewed the project financial management procedures being followed in the project to ensure that fiduciary requirements were being complied with at all levels. Although the World Bank's missions initially noted some financial management weaknesses, such as insufficient and incomplete supporting documents for expenditures and lack of systematic accounting records, the PIU took these issues seriously and remedial actions were taken to resolve the problems.

77. Procurement. As assessed during project preparation, the key risks associated with the project procurement was inexperience of the implementing agency in handling World Bank investment operations and its unfamiliarity with the World Bank's procurement procedures. To mitigate the risks, the prior planned mitigation measures were undertaken. For example, intensified procurement training sessions were conducted by the World Bank for key staff of the PIU and the ministry and a user-friendly and detailed Project Operational Manual was developed. However, in the initial phase of the project implementation, procurement processing was slow. The reasons were largely the risks identified at project preparation as mentioned earlier and frequent changes of the decision-making officials at the ministry. The PIU was staffed with competent members, including a procurement officer. Though the project hit the ground running, it required significant support from the World Bank. One of the challenges faced was the establishment of different bid evaluation committees for different procurement packages of the project leading to involvement of too many layers in the decision-making process. In some



Quality of Supervision

80. The World Bank supervision missions have been fielded regularly with a relatively stable team. The supervision teams were quick to find and were upfront with the key implementation issues such as delays and problematic procurement procedures. Notwithstanding the delays in decision making at the Government level (see section on factors within government control), in the early stages of project implementation, the task team could have been more proactive in coming up with alternative solutions to make up for the lost time, for example, aligning the PIM with the legal agreement and commencing the first household survey to reflect the changed composition of *Soums*. On the positive side, the team adhered to the original project objectives and designed project interventions without yielding to undue pressure from the Government.

81. The World Bank missions have accorded due attention to project sustainability, particularly for enterprises and cooperatives financed through the matching grant scheme. Market development was always emphasized by the supervision missions to ensure the financial sustainability. The supervision missions were candid and fair with the ratings of the project implementation status. Moderately Unsatisfactory ratings had been recorded in the early stage implementation to reflect the project delay and issues to be addressed. In general, the World Bank task team maintained a good working relationship with the counterparts throughout the project implementation.

Justification of Overall Rating of Bank Performance

Rating: Satisfactory

82. Overall, the World Bank performance is rated Satisfactory based on (a) satisfactory quality at entry for the innovative project design and appropriate implementation arrangements; (b) overall good quality supervision to address implementation and sustainability issues; and (c) candid and fair ratings of implementation status.

D. RISK TO DEVELOPMENT OUTCOME

83. The risk to development outcome is rated Moderate. For the public goods, supported under the project and which require continued budget allocations beyond the lifetime of the project, there is a risk that public budget will not be available after project completion. Currently, this risk can be addressed through the Government's planned follow-up operation on key livestock and agriculture programs. This will, however, depend on the Government's appetite in institutionalizing the project innovations and interventions in



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ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: The Project Development Objective (PDO) is to improve rural livelihoods and food security in selected Aimags and Soums through investments in enhanced productivity, market access and diversification i

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
(GAFSP) Number of intended and actual direct beneficiaries, gender disaggregated	Number	0.00 30-Aug-2013	8110.00 31-Jan-2017	12000.00 31-Dec-2017	13684.00 31-Dec-2017

Comments (achievements against targets): Internal MIS showed participation of 6,083 female beneficiaries (44 percent) and 7,601 male beneficiaries (56 percent)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
(GAFSP) Increase in household income from livestock and in selected cases horticultural products.	Percentage	0.00 30-Aug-2013	20.00 31-Jan-2017	20.00 31-Dec-2017	73.90 31-Dec-2017
From Livestock	Amount(USD)	1572.90	1887.50	1887.50	2736.20

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Per capita consumption of milk	Liter	27.10 30-Aug-2013	32.50	32.50 31-Dec-2017	31.80 31-Dec-2017
Per capita consumption of carrotsTJETQq621.82 47f4 8.4					



Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Increase of farm production under improved post-harvest management (i.e. value chains) (GAFSP)	Percentage	0.00 30-Aug-2013	20.00 31-Jan-2017	20.00 31-Dec-2017	47.00 31-Dec-2017



Component: Raising Livestock Productivity and Quality



Comments (achievements against targets): Internal MIS (Training and events participants: 7,450 i.e. Male: 4,552 and Female: 2,898). In addition number of herders who were reached with awareness events that include media campaigns through TV and radio broadcasts, as well as hand-outs and materials distributed (19 types of extension materials including 3 types of hand-outs in 8,000 copies each, 10 types of video lessons, 140 minutes of TV nation-wide broadcast, 114 minutes of nation-wide radio broadcast, etc.)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Existence and use of cold chain and SOPs for vaccines and sample transportation	Number	0.00	5.00	5.00	5.00



of improved males distributed from nucleus flock		30-Aug-2013	31-Jan-2017	31-Dec-2017	31-Dec-2017
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Comments (achievements against targets): Internal MIS: Number of improved sires distributed from male flocks established by the Project for animal breeding beneficiaries.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Genetics and breeding -					



Efficient and effective project management	Text	0.0 30-Aug-2013	Project management rated Satisfactory 31-Jan-2017	Project management rated Satisfactory 31-Dec-2017	Project management rated Satisfactory 31-Aug-2017
Comments (achievements against targets): World Bank supervision ratings, etc.					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Quality of the financial reports and audits	Text	n/a	Financial reports and audits rated Satisfactory		



Quality of the M&E reports	Text	0.0	M&E reports rated Satisfactory	M&E reports rated Satisfactory	M&E reports rated Satisfactory
		30-Aug-2013	31-Jan-2017	31-Dec-2017	31-Dec-2017

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C. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
Preparation		



ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US\$, million)	Actual at Project Closing (US\$, million)	Percentage of Approval
Component 1: Linking Herders with Markets	6.26	4.23	68
Component 2: Raising Livestock Productivity and Quality	4.23	4.98	118
Component 3: Project Management	1.00	1.74	174
Total	11.49	10.95	95



ANNEX 4. EFFICIENCY ANALYSIS

Introduction

1. LAMP benefitted 13,684 people not only in the target 15 *Soums*, but also in neighboring *Soums* and *Aimags*. The significant benefits were anticipated for strengthening cooperatives and increasing their incomes through investments for income-generating activities, including meat, fiber, dairy, horticulture



Project Benefits and Beneficiaries

5. LAMP has shown significant benefits to the local communities through building capacities of cooperatives, private companies, and local government organizations. Basically, the benefits could be divided into two broad categories: (a) income-generating activities and (b) non-income-generating activities, although both supplement each.

6. The benefits of the income-generating activities include economic profits earned from production of meat, fiber (wool), dairy, ho



(or target) *Soums* of LAMP and control (or non-target) *Soums*.³ Second, LAMP treatment households had higher rate of meat and hair output per small ruminant (sheep and goat) compared to control households,





17. The highest financial and economic returns was identified for 'oat and hay' farming. Oats were identified as being very resistant to drought, especially in 2017; apart from that, the fodder producers used their tractors for natural hay harvest and sold it in the market.

18. The dairy and milk processing unit has the lowest financial and economic performance with regard to FIRR and EIRR, although, both are above the benchmark of 12 percent of economic cost of capital. This is because of the high costs incurred in collecting raw milk, poor road conditions, and distance from herders. In the PAD, the milk processing unit was assumed to have much more higher capacity of milk processing plants, although at implementation stage that was not the case.

19. For horticulture cooperatives, growing mixed vegetables gives the highest return (FIRR 51 percent and EIRR 49 percent), but greenhouse (cucumber and tomato) farming was at survival level of feasibility.

Economic Analysis for the Whole Project

20. The livestock loss because of diseases might be reduced because LAMP invested in strengthening the VABUs and PVUs at the *Soum* level, *Aimag* veterinary divisions and laboratories, and buffer zone check points. LAMP also invested in breeding services to strengthen the livestock resistance to harsh climatic conditions, and fodder production. The *Soum*-level statistics reveal that the mortality rate in the treatment *Soums* decreased over the last four years, while target *Soums* experience higher mortality rates compared to control *Soums* especially in Khuvsgul *Aimag* (table 4.4).

21. Table 4.4 shows the number of livestock that could be saved from livestock loss because of diseases, which reached 4,660 heads of livestock equating MNT 411.1 million (US\$0(ii)).

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ANNEX 5. BORROWER, CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS







ANNEX 6. SUPPORTING DOCUMENTS (IF ANY)

1. SICA ELS Report
2. Government Project Completion Report
3. List of the subprojects financed by the project