

EVALUATION BRIEF | MARCH 2021

PROMOTING SUSTAINABLE RANGELAND MANAGEMENT IN MONGOLIA

Exclusive-use land rights, wells and training led to improved rangeland management

Program Overview

MCC's \$284.9 million [Mongolia Compact](#) (2008–2013) funded the \$10.1 million Peri-Urban Land Leasing Activity, which provided herders with wells, fencing and shelter materials, training, and 15-year land leases on previously open-access rangeland. The activity was based on the [theory](#) that providing private property rights and other direct support (wells, and promotion of dairy farming and herd management) on overgrazed land in select areas (Ulaanbaatar, Darkhan and Erdenet in Phase 1; and Choibalsan and Kharkhorin in Phase 2) would improve animal husbandry and sustainable land use, which in turn would reduce land degradation and raise herder incomes.

MCC commissioned Innovations for Poverty Action to conduct an independent final impact evaluation of the Peri-Urban Land Leasing Activity. Full report results and learning: <https://data.mcc.gov/evaluations/index.php/catalog/211>.

Key Findings



Land Tenure Security

- › In Phase 1, the program increased land tenure security both in terms of perceived ability to prevent overgrazing and protecting from land expropriation. In Phase 2, land tenure security improved in Kharkhorin but not in Choibalsan, where there was already high perceived tenure.



Rangeland Management and Pastureland Quality

- › In both Phases, program households' perceptions of pastureland quality improved.
- › Phase 1 and Kharkhorin households improved some rangeland management practices. In Choibalsan, land was not overgrazed so herd sizes increased.



Herd Management and Investment

- › Program households in Ulaanbaatar and Kharkhorin increased the proportion of improved breed of milking cattle.
- › Phase 1 households increased investments in immovable property, while in Phase 2, investment effects were mixed.



Earned Income and Milk Yields

- › Kharkhorin program households reported increases of 92 liters of milk per cow more than comparison households.
- › Earned income effects were mixed. In Erdenet households had negative income effects. In Ulaanbaatar, households increased non livestock income but not livestock income and in Choibalsan, they increased livestock revenue but not overall income.

Evaluation Questions

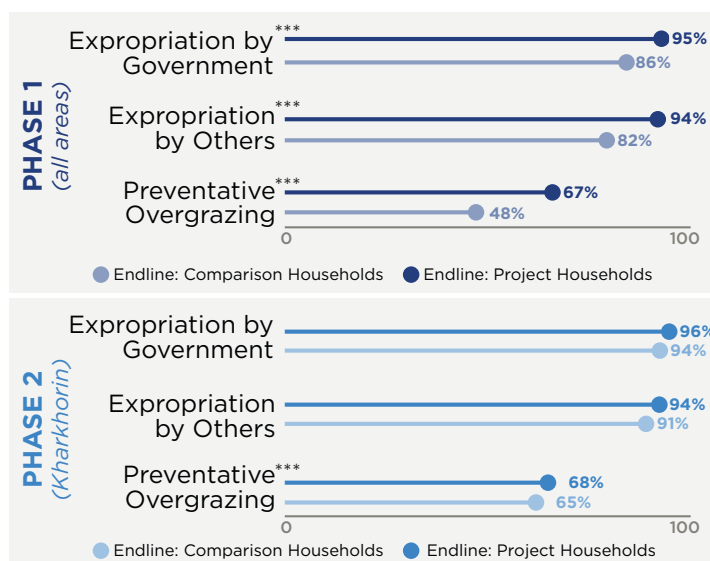
This evaluation was designed to assess the effects of the package of program investments, including long-term leases of grazing land providing exclusive use rights to groups of herder households, provision of wells, and herder training. The evaluation addressed a series of questions about the causal impact of the program on short- and long-term outcomes. This final impact evaluation was designed to answer the following questions:

1. What was the causal impact of participation in the program on herder incomes, rangeland carrying capacity, and productivity?
2. What individual and household-level characteristics predicted higher incomes, rangeland carrying capacity, and productivity due to participation in the program?
3. What individual and household-level characteristics predicted changes in rangeland and herd management behavior due to participation in the program?

Detailed Findings

Land Tenure Security

Phase 1 households were significantly more likely to feel secure from expropriation and overgrazing by other herders. Ninety-five percent of program households felt secure from government expropriation compared to 86 percent of comparison households. Sixty-seven percent of program households perceived they were secure from overgrazing compared with only 48 percent of comparison households. In Phase 2, which was in more rural and less crowded areas, 94 percent of program households in Kharkhorin felt secure from expropriation by others compared with 91 percent of comparison households. There were no significant effects seen in Choibalsan, which already had high perceptions of security.



*** $p < 0.01$

PROJECT IMPACT: Perceived Land Tenure Security across All Areas

Rangeland Management and Pastureland Quality

The program in Phase 1 was effective in improving land use and rangeland management practices. Households were 16 percent (43 percent) more likely to reserve pasture in case of bad weather than comparison households (27 percent). Program households in Darkhan (11 percent vs. 5 percent) and Ulaanbaatar (8 percent vs. 3 percent) also had a higher rate of reserving pasture for rehabilitation.

In both phases for comparison and program households, animal numbers increased over time due in part to a 2010 dzud (a natural disaster unique to Mongolia consisting of summer drought followed by a severe winter), which killed large numbers of animals, and the government of Mongolia's removal of the per head animal tax. Although herders increased their sheep units per hectare, Kharkhorin program herder groups

maintained a lower pasture load per hectare. In 2017, they grazed about one-third fewer sheep units per hectare than comparison herders (2.27 vs. 3.34). Program households in Choibalsan, however, increased herd sizes relative to comparison households. This may have been due to Choibalsan having a lower percentage of herder groups that had pasture overload. There were no effects on seasonal migration.

Phase 1 households increased their perceptions of winter pastureland quality, while comparison households experienced decreases. Program households in Kharkhorin had higher perceptions of winter and summer pastureland quality. Choibalsan had no effect, which may be due to that area already being under carrying capacity. Biomass data similarly indicates no significant treatment effect except for one species, where there was an effect in Kharkhorin but not Choibalsan.

Herd Management and Investment

There was some impact on awareness and adoption of improved animal husbandry practices. Darkhan experienced a higher increase in the rate of gathering hay or producing fodder but there was no effect in other areas. Some program households also improved the composition of their herds. In Ulaanbaatar, program households had a higher increase in the number of improved breed milking cows and a smaller decrease in the percentage of milking cows that were improved breed. Kharkhorin households also had a significantly higher increase in the percentage of milking cows that were improved breed and a significantly lower increase in the number of Mongolian cows.

Higher land tenure security translated into substantially higher investment in immovable property in Phase 1 areas. In Phase 2, there were mixed investment effects. In Choibalsan, program households spent more on the purchase and maintenance of wells, while in Kharkhorin, program households spent a significantly smaller amount purchasing and repairing animal shelters.







A sign indicating the boundaries of a program plot in Ulaanbaatar peri-urban area

Earned Income and Milk Yields

Earned income results were inconclusive. In Darkhan and Kharkhorin, program households had a smaller increase in total earned income than comparison households and a smaller increase in net livestock income, suggesting a reverse effect. Ulaanbaatar program households increased non livestock income by triple that of comparisons (1.84 million MNT vs. 660,000 MNT). In Choibalsan, program households had a significant increase in livestock revenue (doubling from 4 million MNT to 8.3 million MNT) that was driven by animal sales, compared with households in the comparison group (increased by 2.7 million MNT). Choibalsan program households had a larger increase in total earned income, though the difference was not statistically significant. There was no detectable program impact on income in Erdenet.

In Phase 1, there were no significant impacts in milk yield outcomes. In Phase 2, Kharkhorin program households increased milk production by 168 liters vs a 68 liter increase by comparisons—a difference of 140 percent.

MCC Learning

-  Legal and policy reform can significantly impact an intervention's ability to obtain results. MCC should keep channels open with the partner government on any pending policy and legal reforms even, if the compact is not funding those reforms.
-  An incomplete understanding during project design of existing land rights, land use behaviors, and land quality in the specific program areas can result in implementation delays and changes in focus and outcomes. Although a detailed picture of land is often unavailable without in-depth field work, key assumptions should be verified during compact due diligence.
-  Land quality can be a key factor in investment and behavior change land utilization. Land quality should be considered when establishing comparison groups and analyzing land-based outcomes.
-  The carrying capacity of a land parcel and related grazing patterns change frequently based on factors such as rain and land use. To understand program driven changes in these variables, more frequent monitoring is required, such as via GPS, and with guidance from sector experts.

Evaluation Methods

The evaluation used two methodologies. In Phase 1, IPA used a matching design, and in Phase 2, it used a randomized controlled trial (RCT) design.

Data was collected using a large scale, three-wave household panel survey, and surveys with herder group leaders and some government officials. Complementary data on land quality was collected by USDA's Agricultural Research Service.

Multi-component Evaluation

