Bringing agricultural value-added services (VAS) to Mongolian herders through mobiles

Adequate and timely weather forecasting information, using information and communication technologies (ICTs), if well distributed to herders, could substantially improve climate risk management practices and contribute to improve herders' livelihoods. Strengthening the herders' climate risk management and disaster preparedness capacities leads to better informed decision making that could reduce losses in case of disaster, and contribute to improved livelihood adaptation of both individual herder families and herder communities.

Despite the rapid development of the ICT sector in Mongolia, weather forecast communication is still poor. Mobile networks are available up to provincial level and have been slowly extending to the community level since 3-4 years ago. In addition to weather information, ICTs can contribute to rural economic development and empowerment in a number of other ways, by providing access to information that benefits rural producers and supply chains, e.g. market price and supply chain information. ICT also facilitates access financial services, land registration and government services. Mobile phone-enabled services show particular promise, because of their portability and increasing affordability.

Among the wide range of factors shaping the incomes of rural poor herders, issues related to market information and marketing effectiveness are also crucial. Traditionally, local herders accessed this information largely through their traditional social networks and broadcast media, particularly radio. Improving timely access to information – about market prices, about transport arrangements and costs, about the locations and demand of buyers could bring a positive impact on herders' income. However, supply from herders is vastly dependent on how they overcome each harsh winter and the mobile phone can become a strong ally of the Mongolian nomadic herder.

KEY RECOMMENDATIONS

1. Need to deliver to Mongolian herders weather forecast data, along with market prices on meat and raw materials from animals via mobile phones with higher frequencies at a nationwide basis.

2. Relevant government agencies need to intensify its policies to support mobile phone operators to expand its networks to rural parts of Mongolia.

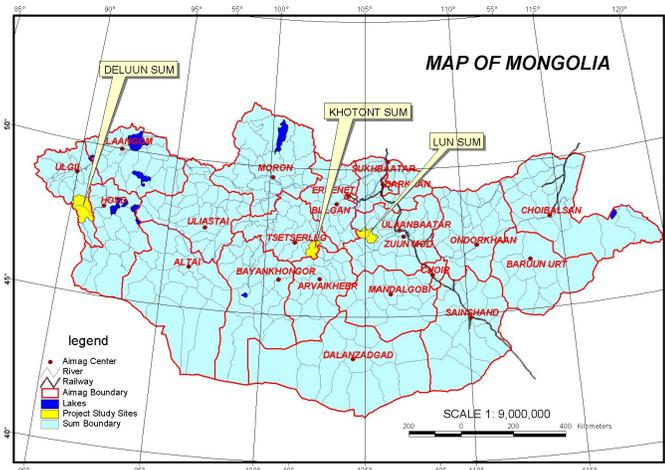## RESEARCH AND SUMMARY OF FINDINGS

Introduction

The baseline work of the pilot project was to learn more about herders' knowledge about local weather conditions and changes and how they use this knowledge to make key decisions. It was important to understand how herders receive information, the communication channels they use, in order to design content for new ICTs like mobiles. In this research project, the herders sent their local weather information to The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), then based on the previous database at the national level, RIMES downscaled the weather forecast for the local community with different lead times,

thus setting up an end-to-end early warning system. In this system, ICTs, especially mobile phones are key as the herders are remote.

The general objective of the project was to explore approaches of integrating location-specific weather/climate forecast into herders' livelihoods adaptation and resilience practices and strategies.

The research paper is based on preliminary data and focus-group discussions obtained from a survey of herders in the following three study sites in three different provinces of Mongolia, representing different ecosystems.

Figure 1. Project study sites

Methodology

The research activities were carried out in three stages:

Stage 1 identified the needs of local users (herders and local government agencies), for local weather/climate forecast information and the available information communication channels that can be used for receiving and transmitting this information.

Stage 2 was the design of a weather forecast system that integrated location-specific weather data monitored and submitted by the herders with weather information received from GSM and UMTS.

In Stage 3 use of the system in community-based climate risk management practices was tested and the extent that is timely forecast information is used by herders' for livelihoods improvement was evaluated.

Agricultural VAS

Only one season has elapsed since the system was introduced and more time is required to adequately analyze and compare the livelihood improvements of the herders and communities. Informants in the research were nevertheless able to identify several ways in which access to the weather forecast data (WFD) had resulted in livelihood improvements and economic empowerment of herders. The following improvements were noted:

- Easier to keep animals in good health during the winter, thereby generating higher incomes when they are sold in spring and throughout the year
- Improved pasture management, as the day to day selection of grazing sites could be determined in accordance with WFD information. For this purpose the herders used a combination of the 3-day and 10-day forecasts. With proper use of pasture, more animals can survive the winters. Almost no unexpected loss of animals was recorded for the 2011/2012 winter
- Assisted with hay-making and growing vegetables
- During the winter there was greater possibility to reserve and economize the fodder and hay resources, as suitable locations for animals to graze were determined according to the WFD
- Facilitated implementation of community activities associated with becoming self-sufficient with vegetable growing, particularly planting and harvesting activities
- Reduction in different types of livelihood expenses, including human health, weather caused injuries and animal losses
- Increased efficiency of activities by improving labor divisions within the community and the herder households.

Although the costs of upgrading meteorological data, analysis and reporting systems is substantial, but the benefits of improved forecasting and advance warning are considerable and have a strong pro-poor impact.

Mongolian mobile operators need to create subscription-based SMS-messaging services similar to Reuters Market Light and mKRISHI to deliver localized market prices on meat and raw materials from animals along with WFD. Since the literacy rate in the country is high, more affordable SMS-messaging services is preferred over voice-based services.

Infrastructure development

Since Mongolia has a vast territory and very low population density, mobile network coverage need to be rapidly expanded to overcome the digital divide, faced by rural population. Minimum goal to create opportunity to use basic mobile phone services with adequate signal strength in every corner of the country has to be reached in the near future.

Also, the country needs to expand internet connectivity in rural parts of the country. Currently, only 38 sums out of total 329 have access to Internet. This will enable herders to access web-based weather forecast information.

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