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

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**Introduction:**

Mongolia - landlocked country between Russia and China. 17th largest country in the world by territory (1,564,000 km²). Population- 2.8 million, the lowest population density in the world. Major economic sectors – mining, services and agriculture.

34% of Mongolian households reside in rural areas and agriculture comprises 16% of country’s GDP. Animal husbandry is the largest agricultural subsector.

Human Development Index - 0.653. (110th place out of 187 countries) (UNDP, 2011) Nominal GDP per capita - USD 3042 (IMF, 2012). Literacy rate - almost 100%.
Problem and issues:

Mongolia – harsh continental climate. The extreme minimum temperature is usually between -31°C and -52.9°C in January and the extreme maximum temperature ranges from 28.5°C to 42.2°C in July.

Zuds or extremely harsh winters are having a huge impact on herders. The consecutive zuds of 1999/2000 to 2000/2001 and 2009/2010 resulted in combined losses of over 12 million head of animals, or about 20 percent of the total livestock population.

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.
Research objectives:

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. Specific objectives are to:

- Identify 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.

- Design a system by which the local herders would participate by gathering and reporting location specific data to be integrated with weather information from GSM and UMTS.

- Test and evaluate the use of the system in community-based climate risk management practices.

- Identify other agricultural value-added services of the herders that could be rendered through mobile phones.
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.
Findings:

Several ways in which access to the weather forecast data (WFD) had resulted in livelihood improvements and economic empowerment of herders were identified:

- 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. With proper use of pasture, more animals can survive the winters.
- 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.
Policy 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.

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

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.
• Thanks for your attention!

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