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Space technology assists Mongolia herders and farmers to reduce disaster risk

*PhD. Togtokh Norjmaa, Head of Agriculture Risk Study Center, NGO, Mongolia;
PhD. Oyun Ravsal, General Director of JEMR Consulting Company, and
Coordinator of the Risk Study Working Group (RSWG), Mongolia*

Since 1998 in Mongolia consequent droughts in summer have affected natural pasture resources, crop plants and vegetables, and caused mass loss of animals in winter and spring and loss of plant yields in autumn. In 5 years Mongolia had lost one third of its livestock, occurred shortage of meat, milk products, wheat flour and vegetable, increased unemployment, and as a result poverty incident in rural area has reached to 43%.

Paper describes lessons learnt from the R&D of "Risk manager" information system that uses space technology and has been piloted successfully at the several counties of Mongolia. The system is a product of series of climate change, disaster risk, environmental impact and poverty studies conducted by the RSWG since 2000, and collaborative initiative and valuable support of the central and local governments, UNDP funded projects, business entities, civil society organizations, politics, rural communities and individuals.

Disaster risk reduction begins with information, and providing it at right time and place will assist to warn, secure, develop and empower people enriching their knowledge and improving awareness and creativity.

The system has been operating at the Erdenedalai county of Dundgobi province since October 2004 with support and participation of 15 organizations. Network for partnership is shown on Figure 1. It regularly provides warning information on hazards and vulnerability of pasture and livestock to the herders enriching their indigenous knowledge and traditional practices with the findings of science and advances of digital technology, and assists rural community in participatory risk assessment, cost-benefit calculation and contingency planning. Here climatic norms specified by local geography monthly, and pasture vegetation map with biomass assessment and moisture has being produced weekly. Herd location and animal bodyweight at different parts of the county has been measured every two months. The weather and carrying capacity of pasture for coming winter-spring of 2004-2005 was predicted and assessed in October of 2004. Household index for capacity/vulnerability assessment has been tested for 200 households for year of 2004. All these assessments have been made with combined use of data of population and animal census, county economy, digital elevation model, land cover/use and thematic maps, regular meteorological observation and ground measurement, and NOAA AVHRR data. Nomads been participated in monthly and seasonal weather prediction with their indigenous knowledge on astrology and nature, local hazard monitoring, and also in classification and interpretation of Landsat satellite images.

Pilots that have started in May 2005 to assist the crop farmers from Tsagaannuur and Tushig counties of Selenge province (main crop producer) and Teshig county of Bulgan province are to provide more detailed information on weekly and longer term weather prediction, warning for drought and hoarfrost, and assessment of crop growth. Landsat data is used mapping of crop fields and land cover/use, while NOAA ANHRR is used for mapping of soil temperature and moisture, and crop growth.

Rural inhabitants and public and private entities, who are the main actors, participants, and beneficiaries of this exercise, are interested to continue to participate in and noticed significance of services the “Risk manager” system provides. The real benefit of these new, collaborative and continuous learning-by-doing processes is to be determined by the actual reduction of losses in drought, dzud and other hazards. Meanwhile there is a need to develop a training programme, curricula and simplified textbooks for capacity building of rural residents and decision makers on use of information and technology.

Success of “Risk manager” info-system encouraged initiating e-Soum¹ project proposal, which is designed to bring advances of modern digital information technology to rural Mongolia to serve the basic needs and desire of ordinary people at the grassroots in order to improve their livelihoods. This best practice of resilient community for disaster risk reduction is to be core and model for further development of broad partnership around e-Soum initiative. By end of July total 34 organizations have been joined to this initiative.

¹ “e-Soum” is Mongolia equivalent of “Digital village”. Soum is a primary administrative unit like county.

Figure 1. Networking for public-private partnership for disaster risk reduction



