Food and Agriculture Organization
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From Early Warning to Early Action in Mongolia - Bracing for the cold to protect livestock and livelihoods

Webinar - 18 July 2018

SUMMARY POINTS, QUESTIONS AND ANSWERS

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Webinar organized by KORE - the knowledge sharing platform on resilience- within the INFORMED programme

Background

This third webinar on Forecast-based Financing (FbF) was presented as part of a series of webinars organized by **KORE** - the Knowledge sharing platform on resilience- within the INFORMED programme and dedicated to sharing knowledge on resilience building. This series of webinars is the result of a collaboration between EU-DEVCO and FAO strategic programme on resilience.

Introduction

Acting early before a disaster is critical: it can save lives and protect livelihoods from the immediate shocks as well as protecting longer term development gains by increasing the resilience of local communities over time. A growing body of evidence also supports the cost effectiveness of this approach. A recent contribution to this repository of knowledge is study of the 2017/2018 localized *dzud* event in Mongolia, where **FAO** and the **Mongolian Red Cross Society (MRCS)** implemented early actions to protect herder livelihoods.

The *dzud* is the Mongolian term for a harsh and cold winter season, characterized by **heavy snowfall and bitter temperatures** with some areas reaching -50 degrees. Commonly, these harsh winter periods are preceded by a dry summer period, which can compromise pasture availability and herders ability to collect enough hay for their stores. If the winter is severe, the animals must rely on stores of food rather than grazing. When the supplies run out, the animals get weaker until they freeze or starve to death. Such events are known to wipe out millions of heads of livestock, driving the poorer households into destitution and instigating rural-to-urban migration, as herders search for an alternative income source.

The webinar presented and discussed:

- An overview of the approach taken by FAO's Early Warning Early Action (EWEA) and Mongolia Red Cross Society's Forecast-based Financing (FbF) in Mongolia to act early to protect the most at risk and safeguard livestock in the face of *dzud*;
- The results of the Return-on-Investment analysis conducted to quantify the costs and benefits of acting early in Mongolia;
- The impact evaluation analysis that describes the reduction of risks achieved by the Forecast-based Financing intervention;
- The lessons learned from the case of Mongolia, also in light of the risks flagged in FAO's EWEA Report (July-September 2018).

Summary points

1. Early warning: the analysis of likelihood and expected impact of 2017/18 harsh winter (*dzud*) in Mongolia

Livestock is the main livelihood in Mongolia and is of great importance to the economy, contributing more than 80 percent of gross agricultural product. In particular, livestock is the only source of income for more than 36 percent of households. A total of 66.2 million livestock were reported at the beginning of 2018, a very high number that exceeds the pasture carrying capacity of the country and causes overgrazing.

Extreme winters, called *dzuds*, represent a major threat to pastoralist livelihoods in Mongolia. *Dzud* is defined as a cold and harsh winter preceded by a hot and dry summer, which reduces significantly pasture availability. The first warnings of the likelihood of drought-cum-dzud in 2017/2018 came from assessments conducted by FAO's Global Information and Early Warning System (GIEWS) during summer, when 80 percent of the country had experienced drought-like conditions, and wheat production dropped by 30 to 70 percent. These worrying signs were further confirmed by the FAO/WFP Crop and Livestock Assessment, and the forecasts of the International Research Institute for Climate and Society (IRI) of the Columbia University. In mid-November, the *dzud* risk map released by the government of Mongolia showed that 50 percent of the country's territory was at high risk of *dzud* and 30 percent was at medium risk, especially in central and western areas of Mongolia. Based on early earning information, FAO and MRCS devised early actions in the most at-risk areas and coordinated closely to avoid duplication and overlapping.

2. FAO's Early Action Project in Mongolia: timeline and results of the return on investment (ROI) analysis

Timely early warning information allowed FAO to design and implement an Early Action project to mitigate the impact of *dzud* on the livelihoods of the most vulnerable herders in the areas potentially most affected. In December 2017, FAO's Early Action Fund promptly released the funds to finance early action in Mongolia. After a rigorous technical process to identify the most suitable actions and to target the most vulnerable herders, the project focused on two key interventions:

- Between December and January, FAO purchased 2 goats at a set market price from each of the 504 beneficiary herder households. This intervention is known as destocking-for-cash. Destocking is a controlled reduction of the size of herds, usually done by encouraging herders to sell their animals while they still have value and the burden of feeding them is not overwhelming. The purchased animals were slaughtered and the meat distributed to 504 poor urban households in Ulaanbaatar.

- In February 2018, livestock feed and supplements were distributed to the same 504 beneficiary herder households to complement the cash support provided in December, and help herders keep their key breeding livestock healthy through the winter.

These actions were implemented well before the standard *dzud* emergency response, which started in April/May 2018. Finally, following an outbreak of Foot-and-Month Disease (FMD), FAO distributed equipment to prevent the spread of FMD in targeted *soums*.

Early actions are directed towards the most vulnerable people, whose livelihoods and food security are threatened by a forecasted hazard. To make sure that early actions would reach the most vulnerable herders, FAO applied a number of vulnerability targeting criteria.

In order to measure the impact of early actions, FAO conducted an ROI analysis by comparing primary data collected in May 2018 from 87 beneficiary and 54 non-beneficiary (control) households. Interviewed beneficiary and control households had similar socioeconomic conditions, and they had been affected by the same *dzud* severity. This ensured a meaningful statistical comparison between the two samples. The ROI analysis found that, for each USD 1 spent on early actions, herder households had a return of USD 7.1 through avoided livestock losses and added benefits. Depending on the assumptions used, the returns can range between 5.1 and 12.1. Such significant returns derived from: (1) maintained animal body conditions throughout the *dzud*, and consequent avoided loss of herd value; (2) reduced livestock mortality; (3) reduced livestock newborn mortality; (4) avoided loss of cashmere production value; and (5) Increased cow milk production. Furthermore, beneficiary households were better able to repay the new loans taken to cope with the impact of the *dzud*, and they found that the early actions contributed to improve their food security.

Interviews were conducted also with urban beneficiary households that received meat from the Early Action project. It was found that food expenditures decreased by about USD 16 per month in each beneficiary urban household during the winter period, corresponding to about one-fifth of a monthly pension. Families used the saved money to purchase fuel to keep their houses warm over winter; to pay for health care, or to buy clothes and school supplies for their children.

Four key lessons learned from FAO's Early Action project in Mongolia should be highlighted:

1. The government of Mongolia constantly monitors a set of forecast indicators on *dzud* severity. The positive results of the ROI analysis provided key evidence on the importance to systematically use available forecast information to trigger early actions.
2. The results of the ROI analysis may help advocating for destocking as a successful coping strategy. Indeed, most beneficiary households used all or part of the cash received in exchange for meat to buy additional feed and safeguard the remaining animals. If consistently promoted and scaled up, destocking could also help reduce overgrazing and its harmful consequences on pasture availability. However,

improving herder access to markets and value chains is a fundamental precondition to ensure that destocking is sustainable and economically viable.

3. By anticipating the impact of *dzud*, herders can avoid taking loans for response activities. On the other hand, they may feel more confident to take up new loans for investments in livelihood diversification in the longer-term. Indeed, there is a clear link between the preservation of livestock assets through early actions in the short-term, and the strengthening of household resilience to natural hazards in the medium and long-term.
4. The partnership between FAO and MRCS was crucial to ensure coordination and technical exchange on early action against *dzud*. The areas of intervention were agreed based on the *dzud* risk map developed by the government, in order to avoid duplication. Furthermore, FAO and MRCS exchanged on technical aspects of early actions (e.g. targeting, type of livestock assistance) as well as on methods and indicators for measuring the impact of early actions on herder livelihoods.

3. Mongolia Red Cross Society (MRCS): FbF for vulnerable herders in Mongolia

Forecast-based action by MRCS in anticipation of extreme winter conditions

On 26 November 2017, the National Agency for Meteorology and Environmental Monitoring (NAMEM) released the *Dzud* risk map which triggered the FbF programme implemented by MRCS with financial support from the British Red Cross (BRC) and technical advice from the Red Cross Red Crescent Climate Centre.

MRCS targeted the 40 most-at-risk *soums* in twelve provinces based on the risk map and assisted 2 000 herder households with unrestricted cash grants of USD 100 (equivalent) in December 2017 and with animal care kits in January 2018. The kits included mineral blocks, hoof ointment and fish oil – supplies that do not require veterinary training to administer and are well-known and used by herders.

A quasi-experimental study to assess the effectiveness of forecast-based assistance

To assess the effects of providing forecast-based cash on the livelihoods and well-being of herder households, MRCS - with technical support from the Climate Centre - conducted a sample survey of 223 FbF beneficiaries and 223 comparison households that were equally vulnerable and exposed to the same extreme winter conditions. Preliminary findings of the study are available, while the full results – including a cost-benefit analysis, will be shared in due course.

Preliminary findings

- The forecast-based assistance came just as winter conditions were becoming extreme;
- Households were already short on hay and fodder reserves;
- FbF cash assistance allowed beneficiaries to stock hay/fodder before extreme conditions;
- It also enabled herders to buy hay at discounted rates, early enough before a later price surge, saving beneficiaries up to USD 0.7 per bundle of hay;
- FbF assistance may have contributed to reduced animal newborn mortality rates.

Questions and answers

1. **If *dzud* can be localized, how do we use localized data and indicators to justify a FbF/EWEA response, when relocations may help too?**

   After summer, 80 percent of the territory of Mongolia was affected by drought, and pasture was scarce in most parts of the country. Therefore, migration (*otor* in Mongolian) was not the appropriate way to deal with localized *dzud*. Also, prepositioning of fodder would have been challenging because it would have required displacements of herders over long distances. Since the slaughtering season in Mongolia goes from mid-November until the first week of December, it was appropriate to carry out the destocking-for-cash interventions in that period to provide beneficiaries with cash to purchase animal feed. Finally, the feed distributed in February was intended for 40 percent of the herd for 60 days in order to ensure that key breeding animals would survive through the harsh winter. These early actions were thus considered the most appropriate given the vulnerability and climatic conditions.

2. **Would FbF/EWEA be implemented in conjunction with the government? Otherwise, how do we reduce risks of leaning on these mechanisms for survival, and making sure it's meant for the most vulnerable?**

   There was close collaboration between FAO and the government of Mongolia, especially the Ministry of Agriculture and the Ministry of Social Protection and Labour, for the identification of the most vulnerable households and the areas potentially most impacted by *dzud*. The success of this collaboration and the proved benefits of early action may help institutionalize this approach in order to safeguard the livelihoods of the most vulnerable herders and create the conditions for strengthened resilience.

3. **How were the households within the control group identified in order to ensure they have similar socio-economic status as beneficiaries? What indicators were used, and how were they targeted?**

   For the return on investment (ROI) analysis of FAO's early actions, the same indicators and thresholds used for targeting the beneficiaries were also used for selecting the control group households. Criteria included, among others: small size of the herd, limited access to social welfare funds, limited access to markets and to hay ad fodder reserves. FAO has worked closely with local authorities to identify households complying with this strict set of inclusion criteria. The interviewed households were then randomly selected from the lists prepared by local authorities.

4. **How were the households within the comparison group selected for the study identified in order to ensure they have similar socio-economic status as beneficiaries? What indicators were used, and how were they targeted?**

   The MRCS local branch and volunteers worked together with the Local Emergency Management Agency (LEMA), social welfare officers, local government, statistics office and community leaders to identify eligible households. The same eligibility criteria that were used to select Fbf beneficiaries were used to identify households for the comparison group sample, i.e. herders with 50-200 livestock who fulfil one of the following criteria: (a) Families with multiple children (more than 5 under 16); (b) families with disabled members; (c) elderly families aged over 60 who have no guardian; (d) single-headed households with 3 or more children under 16; or they needed to be herders with up to 400 livestock who live in high *dzud* risk areas identified by LEMA.

5. **How did you estimate avoided losses due to the impact of early actions on reduced livestock mortality and maintained animal body conditions?**

   For reduced animal mortality, we have calculated the mortality rate of each species of animals in each household, and then we compared the average mortality rate in beneficiary households and control households, for each species of animal. Based on the difference between the two samples, we calculated the number of animals that would have died in the absence of FAO's early actions. To assign a monetary value to reduced animal mortality, we have used the average price of live animals between November 2017 and April 2018 (project duration), for each species of animal.

   For animal body conditions, we have started by calculating the number of animals that were still alive in each household at the time of interview (May 2018). Then, based on replies from the interviewees, we have calculated the percentage of animals that were in deteriorated conditions at the time of interview, and we have calculated the difference in average percentage of deteriorated animals between beneficiary and control household, for each species of animal. Based on the difference between the two samples, we calculated the number of animals that would have been in deteriorated conditions in the absence of FAO's early actions. The avoided loss of herd value was calculated assuming that deteriorated animals lose 30 percent of their value. This assumption was based on the findings of the FAO/WFP Crop and Livestock Assessment Mission conducted in Mongolia in December 2017. Importantly, we have conducted sensitivity analysis to determine the sensitivity of the results with respect to this assumption.

   FAO and Red Cross will seek to produce a joint note on the results of these studies. In addition, FAO usually publishes an advocacy booklet on the findings of EWEA Return on Investment studies. The booklet on Mongolia should be published in September 2018. In the meantime, if there are other specific questions on the methodology they can be directed to the email address: EWEA@fao.org.

6. **If FbF/EWEA is to be mainstreamed in high risk countries/settings, can it be mainstreamed into existing processes, for example Contingency Planning, or is it more effective to keep it as a separate planning process? If it is to be mainstreamed into existing processes, what are some of the recommendations coming out of the Mongolia experience?**

   FAO's approach is to connect the early action activation process - including risk monitoring, identification of early warning triggers etc. – to existing internal emergency mechanisms. This is an important lesson learned from our country work: in order to ensure sustainability, it was essential to link the EWEA process to the technical expertise available across the organization. Furthermore, FAO has closely linked early action operations to the procedures of its emergency response team. FAO's Early Action Fund is embedded within the wider emergency fund of FAO, which is called SFERA. A similar approach was followed also by the Red Cross with the Disaster Relief Emergency Fund (DREF). Regarding complementary processes such as preparedness, FAO has made the Early Action Plans a subset of the wider contingency planning process, which is more oriented towards response scenarios. Indeed, it is important to link early actions to response with view to facilitate scalability and targeting. Therefore, FAO is creating a connected stream of work between early action and emergency response through internal procedures.

   Early action should not be a separated process, but rather integrated into existing Inter-Agency coordination and preparedness processes. This is why FAO is working closely with other agencies for integrating the early action approach into the emergency response preparedness (ERP) approach, and to include risk monitoring and early action as a subset of these existing coordination mechanisms. In Mongolia, there was close coordination between FAO and the Mongolian Red Cross Society on risk monitoring and beneficiary targeting to avoid overlapping. However, a more structured platform could be established at country level to discuss and share information on risk analysis and targeting, and for the development of complementary early action plans between organizations.

7. **If FbF/Early Action is to be mainstreamed in high risk countries/settings, can it be mainstreamed into existing processess, for example Contingency Planning, or is it more effective to keep it a separate planning process? If it is to be mainstreamed into existing processes what are some of the recommendations coming out of the Mongolia experience?**

   Ideally, FbF and forecast-based actions are mainstreamed into existing plans, processes and institutional arrangements, for example, national disaster preparedness plans and financing mechanisms. Contingency planning has typically meant planning for preparedness to respond to a disaster that has already occurred. Forecast-based financing implies the preparation of an early action protocol that gets triggered when a reliable

forecast crosses a pre-identified danger and impact level, to enable action before the disaster impacts occur. FbF has already been mainstreamed as a dedicated Forecast-based Action funding window under the IFRC's Disaster Relief Emergency Fund.

8. **Did the return-on-investment analysis consider the livestock population's environmental impact?**

   In Mongolia, the large number of animals causes overgrazing and related environmental risks, further exacerbating climate change impacts on soil erosion and pasture availability. Although FbF and EWEA are not primarily aimed at addressing longer-term sustainable development problems, these were carefully considered when designing early actions. For instance, the destocking-for-cash intervention encouraged herders to slaughter their animals when the prices were still high, at the same time contributing to reduce the livestock population. This good practice could be encouraged and scaled up in Mongolia.

   It is important to stress that early actions are short term interventions aimed at shielding the most vulnerable people against an incoming risk. The people assisted in Mongolia by FAO and the Red Cross owned very few animals – if they had lost their animals during the *dzud*, these families would have been forced to migrate to Ulaanbaatar, where most destitute herder families live in poverty and rely on government aid. Therefore, these actions proved correct and should be complemented by other actions to address longer-term issues such as overgrazing.

9. **Did you target the *aimags* Bayankhongor, Khentii and Uvs where the World Bank implemented the Livestock Insurance Project? Has this insurance scheme played a role in the emergency? Would you consider to link up with existing climate risk financing strategies like insurance? Given the cooperation with governmental institutions, were there any discussions and/or plans of integrating FbF within the national system, e.g. through social protection?**

   Bayankhongor, Khentii and Uvs *aimags* were not targeted by the FAO's early action project. In general, climate risk financing and social protection schemes are considered in the setting up of Early Action projects. For instance, innovative schemes can be institutionalized to further improve the timeliness of cash transfers to the most vulnerable communities based on forecasted impacts of hazards on agricultural livelihoods.

10. **Beyond the additional qualitative observation (food security improvement, repayment of loans, etc.), is it planned to monitor what these beneficiaries will make with the profits they get in terms of reinvestment, and other impacts on their well-being?**

    It is very important and relevant to assess the secondary effects of early actions such as the cascading effects on well-being and resilience. We have not conducted a quantitative

assessment of cascading effects due to the fact that the early action project was very short, with a duration comprised between the early warning trigger and the hazardous event. For future assessments, we want to explore the possibility to collect and analyze data from the same households at different points in time, in order to assess potential longer-term impacts of early actions. In the meantime, some secondary effects (e.g. on loan repayment, indebtedness) were analyzed through qualitative analysis.

11. **Right now, interventions are based on expendables, i.e. feed and nutrition products. What about animal blankets, for example, that can continue to be circulated for the next *dzud*?**

    In FAO, early actions were identified and prioritized based on extensive consultations with livestock experts and early action experts within the organization, as well as consultations with partner institutions in Mongolia. The consultation process led to the identification of actions that could be implemented in the time frame comprised between the early warning trigger and the peak of the *dzud*, and that were well suited to the socioeconomic conditions of targeted households, the situation in local markets, the observed price trends, among other elements.

12. **What did the process of identifying/prioritizing early action activities include (how was it done?)**

    In FAO, early actions were identified and prioritized based on extensive consultations with livestock experts and early action experts within the organization, as well as consultations with partner institutions in Mongolia. The consultation process led to the identification of actions that could be implemented in the time frame comprised between the early warning trigger and the peak of the *dzud*, and that were well suited to the socioeconomic conditions of targeted households, the situation in local markets, the observed price trends, among other elements.

13. **What did the process of identifying/prioritizing early action activities include (how was it done?)**

    MRCS, with technical support from the Red Cross Red Crescent Climate Centre, developed a long-list of possible early actions using a theory of change (ToC) approach. The intervention logic and feasibility of each potential action was assessed considering (1) the effectiveness of the action to reduce a specific impact and (2) the capacity of MRCS and its branches to implement the specific actions within the lead time of the forecast. The actions selected to best enable herders to prevent the deaths of their livestock was an unconditional cash transfer (delivered via bank accounts) of
    USD 100, approximately one month income for a lower-income herder household, and the distribution of animal care kits, valued at around USD 50.

For more information

- Webinar series on Forecast-based Financing (FbF)
- KORE FbF Webinar I: FAO Early Warning Early Action- What's new?
- KORE FbF Webinar II: Reducing disaster risk vulnerability in Bangladesh – Partner perspectives
- FAO Early Warning Early Action (EWEA)
- FAO/WFP Crop and Livestock Assessment Mission to Mongolia
- Global EWEA report - July-September 2018
- Global Information and Early Warning System on Food and Agriculture (GIEWS)

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