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Disaster risk finance and Anticipatory Action in Mongolia: Lessons from the 2022/23 dzud



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Abbreviations

| | |
|---------------|--|
| BIP | base insurance product |
| CERF | Central Emergency Response Fund |
| DREF | Disaster Response Emergency Fund |
| DRF | disaster risk finance |
| DRR | disaster risk reduction |
| DRP | disaster response product |
| EWS | early warning system |
| FAO | Food and Agriculture Organization of the United Nations |
| IBLI | index-based livestock insurance |
| IRIMHE | Information and Research Institute of Meteorology, Hydrology and Environment |
| LEGS | Livestock Emergency Guidelines and Standards |
| MoFALI | Mongolia Ministry of Food, Agriculture and Light Industry |
| MoF | Mongolia Ministry of Finance |
| NAMEM | Mongolia National Agency for Meteorology and Environmental Monitoring |
| NEMA | Mongolia National Emergency Management Agency |
| RCI | Resilience Capacity Index |
| SEC | State Emergency Commission |
| SFERA | Special Fund for Emergency and Rehabilitation Activities |
| TWGAA | Asia-Pacific Technical Working Group on Anticipatory Action |

Executive summary

This technical paper offers insights into disaster risk financing for Anticipatory Action in the context of *dzud* events in Mongolia. It specifically examines the Government of Mongolia's proactive measures during the 2022/23 winter, when state fodder and hay reserves were released at reduced prices in anticipation of the *dzud* based on early warnings.

This case study represents one of the first documented instances of such a decision and commitment within the realm of Anticipatory Action. The paper also presents key

recommendations to facilitate the scaling up and integration of this practice into disaster risk management at the national and local levels in Mongolia. Targeting considerations, linking with social protection mechanisms, leveraging local-level risk mitigation efforts, strengthening the Anticipatory Action trigger method and threshold, reinforcing ownership of the Anticipatory Action approach and stakeholder coordination for quick decision-making, and ascertaining sustainable financing sources for replication are among the essential recommendations discussed.

Overview of Anticipatory Action for *dzud* in Mongolia

For centuries, Mongolians and their livestock have co-existed on the expansive steppe, forming a symbiotic relationship. While the steppe may appear vast and desolate, it serves as a vital source of pasture for over 64 million animals. Livestock rearing remains the cornerstone of Mongolia's economy, providing the sole income for 35 percent of households. The life of a livestock herder is a testament to resilience in the face of Mongolia's challenging climate, characterized by scorching hot and arid summers and bitterly cold winters.

However, climate change has intensified the impact of a phenomenon known as a *dzud* over the past two decades, making it more severe and frequent. A *dzud* is an exceptionally harsh winter when the ground becomes frozen under deep

layers of snow, rendering the pasture inaccessible to animals. Typically, the pasture is already scarce following a dry and arid summer, during which the animals have been unable to accumulate sufficient fat reserves for the winter. The scarcity of extra fodder compounds the situation, as it is both expensive and in short supply. Consequently, the most impoverished herders face the imminent threat of plunging into destitution within a single season. Previous *dzuds* have resulted in the complete loss of livestock for numerous herding households (see Figures 1 and 2).

Unable to pursue their traditional livelihoods and pay back the high-interest loans they take out to survive, many herders have moved to the cities, where marginalization and social problems fuel a vicious cycle of poverty (FAO, 2018).

BOX 1: ANTICIPATORY ACTION AND PRE-ARRANGED DISASTER RISK FINANCING

Anticipatory Action can be defined as “a set of interventions that are carried out when a hazard poses imminent danger based on a forecast, early warning or pre-disaster risk analysis. Anticipatory action is taken by an individual or organization before an anticipated disaster to mitigate its impact on people, assets and infrastructure that are likely to be affected” (TWGAA, 2023).

Because Anticipatory Action is activated on pre-agreed, risk-informed triggers, the finance that covers the cost of specific interventions has to be planned and arranged in advance (*ex ante*) so that sufficient money will be available when needed. As opposed to *ex post* risk finance that is often arranged *ad hoc* when disaster strikes, pre-arranged risk finance can be reliably triggered upon predefined criteria – which in the case of Anticipatory Action is often necessary within very short timescales.

SOURCE: ASIA-PACIFIC TECHNICAL WORKING GROUP ON ANTICIPATORY ACTION. 2023. *TECHNICAL STANDARDS ON ANTICIPATORY ACTION IN ASIA AND THE PACIFIC*, BANGKOK.

Such conditions provide a strong rationale for investing in Anticipatory Action, which has proven to be an effective approach to responding to the need for innovation and transformation to cope with increasingly complex multiple hazards and climate change. In short, the Anticipatory Action approach (see Box 1) is acting ahead of a hazard, using early warning and forecasting data to protect and/or mitigate its impact on lives and livelihoods.

Since 2017, Mongolia has been at the forefront of Anticipatory Action, laying the foundation for this innovative approach on a global scale. The country has assumed a vital role in honing the technical intricacies of this approach, acting as an indispensable testing ground for establishing the standards and robustness that define Anticipatory Action. Through rigorous

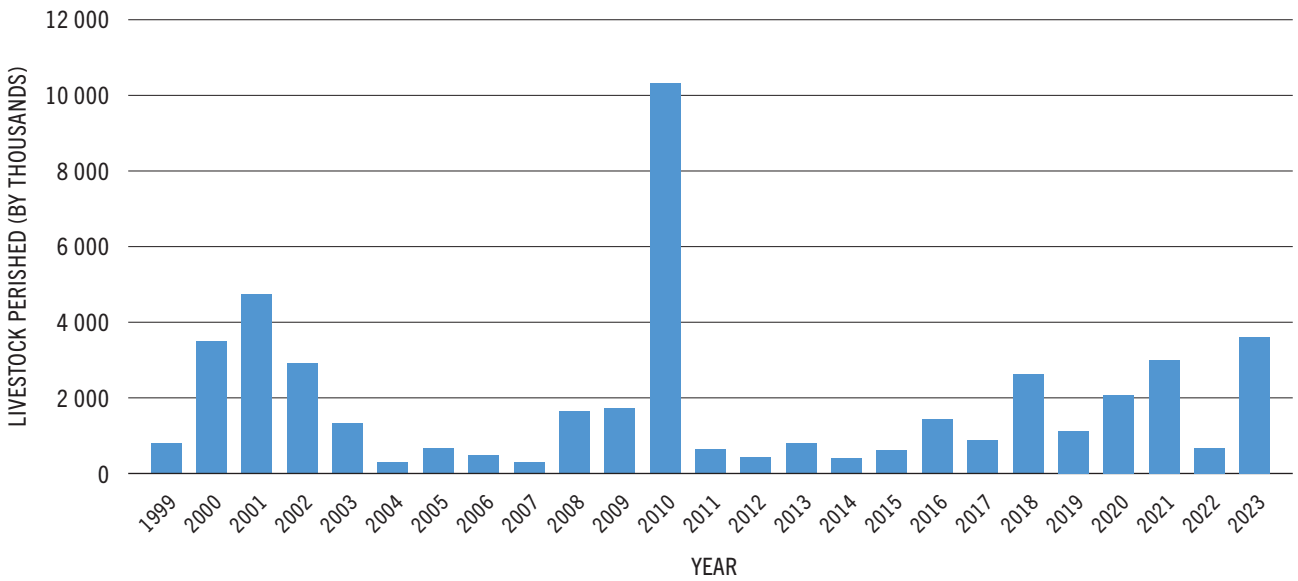
experimentation and learning, Mongolia has contributed significantly to shaping the vision and implementation of Anticipatory Action.

The underbelly of the work on Anticipatory Action was shaped by the Mongolia National Agency for Meteorology and Environmental Monitoring (NAMEM) and the *dzud* risk map that is produced annually to provide a snapshot into the season. These maps are created using a combination of remote sensing data and ground observation data. Various parameters – snow cover, drought index, summer condition, anomalous precipitation and temperature, snow depth, air temperature forecast, precipitation forecast, pasture productivity, livestock numbers and pasture carrying capacity – are considered in the process.



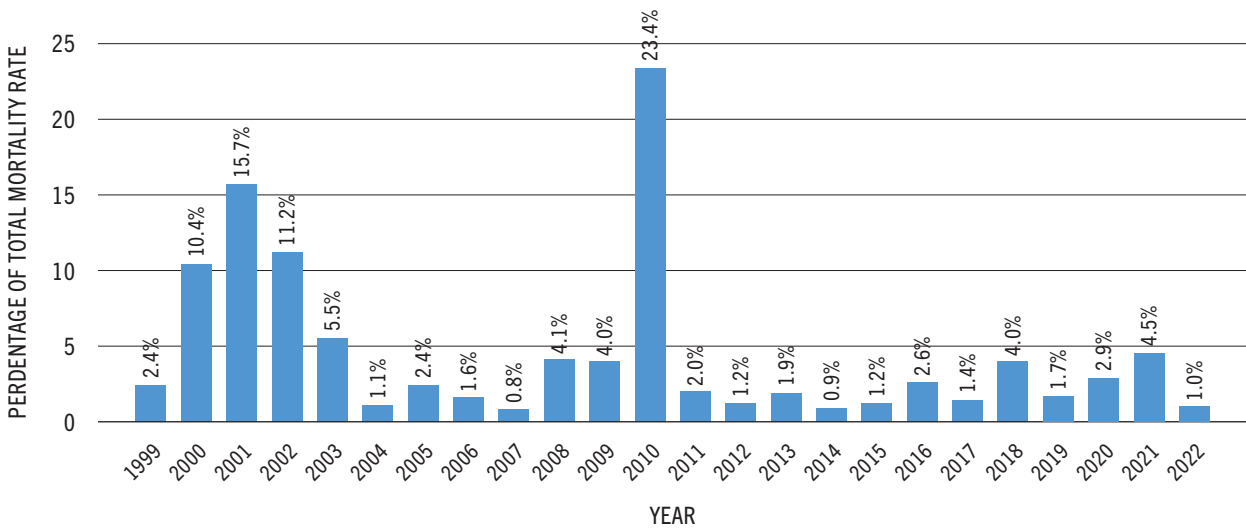
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FIGURE 1: LIVESTOCK PERISHED BY THE END OF THE YEAR 1999-2022



SOURCE: NATIONAL STATISTICS OFFICE OF MONGOLIA. 2023. LIVESTOCK PERISHED BY THE END OF THE YEAR 1999-2022. ULAANBAATAR, MONGOLIA.

FIGURE 2: LIVESTOCK MORTALITY RATE



SOURCE: NATIONAL STATISTICS OFFICE OF MONGOLIA. 2023. LIVESTOCK MORTALITY RATE. ULAANBAATAR, MONGOLIA.

Based on the *dzud* risk map warnings, four activations have occurred over the last seven years from various partners who have implemented a range of anticipatory actions. The implementation of activities commonly follows the crisis timeline in Table 1 and to date are primarily targeted to herders at high-risk of the event. Anticipatory actions have included multipurpose cash (with varying transfer amounts per agency, posing a need for synchronization); destocking of animals for cash; distribution of care kits for weakened animals consisting of ointments for the treatment of scratches on the shins, hooves and around the mouth, which occur when digging hard snow cover with feet and muzzle, and for the treatment of inflammation of the cornea caused by exposure to snow shine; a warm bag for newborn lambs and kids; and feed additives of water- and fat-soluble vitamins, essential minerals and granular concentrate. The most recent addition to this repository is the provision of reduced-price hay and fodder from the State Emergency Reserves which will be explored below. Moving forward with the Anticipatory Action approach, it will be key to explore what role other sector-specific interventions could play – from social protection to water and hygiene – to provide a more holistic package to herders.

A growing bank of evidence from Mongolia showcases that the approach is cost-effective, cost-efficient, and provides a dignified way to manage disaster risks (FAO, 2018). We know that for every USD 1 invested in Anticipatory Action, families can receive a return of more than USD 7 because they avoid the loss of their livelihoods and gain other benefits in the process.

After the last seven years of working towards this goal, we know that for Anticipatory Action to become the norm, we must take an institutional approach. Anticipatory Action is a critical tool for disaster risk management, and moving forward should be woven into existing systems while being complemented by ex ante and sustainable finance mechanisms. This is at the core of our success to upscale and secure the future of the approach for years to come.

The next section introduces existing and potential financing mechanisms for Anticipatory Action (AA) in Mongolia. This is followed by a detailed account of the Government of Mongolia's investment into Anticipatory Action for *dzud* during the 2022/23 winter, and a summary of perspectives of the local governments and communities on the matter. In closing, this paper discusses lessons learned and provides an outlook and recommendations to be considered for future replication.



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TABLE 1: CRISIS TIMELINE FOR *DZUD* IN MONGOLIA

| Month | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|--|------------------------------|-----------|-----------|------------|------------|--------|--------|--------|--------|--------|------------|------------|------------|
| Winter Season | | Dark Blue | Dark Blue | Light Blue | Light Blue | | | | | | Light Blue | Light Blue | Light Blue |
| Summer Season | | | | | Yellow | Yellow | Yellow | Yellow | Yellow | Yellow | | | |
| Lean Season | | | Red | Red | Red | | | | | | | | |
| Impact on Livestock | | | Orange | Orange | Brown | Brown | | | | | | | |
| Impact on Pasture | | | | | | | Green | Green | Green | Green | | | |
| Livestock Seasonality | | | | | | | | | | | | | |
| Prepare winter reserve feed (hay/fodder/materials) | Planting fodder crops | | | | | Green | Green | | | | | | |
| | Harvesting fodder crops | | | | | | | | Green | Green | | | |
| | Hay making | | | | | | | Green | Green | Green | | | |
| | Purchase Concentrated Fodder | | | | | | | | | | Green | Green | |
| Destocking (old and male castrates) | | | | | | | | | | | Orange | Orange | |
| Supplementary feeding of animals | Yellow | Yellow | Yellow | Yellow | | | | | | | | | |
| Prepare winter shelters | | | | | Brown | Brown | Brown | | | | | | |
| Organize otor migration | Purple | Purple | Purple | | | | | | | | | Purple | Purple |
| Birthing season | Lambing | | Red | Red | Red | | | | | | | | |
| | Calving | Red | Red | Red | Red | Red | | | | | | | |
| | Foaling | | | | Red | Red | Red | Red | | | | | |
| | Camel calving | Red | Red | Red | Red | | | | | | | | |
| Combing cashmere | Eastern Region | | | Brown | Brown | | | | | | | | |
| | Central Region | | | | Brown | Brown | | | | | | | |
| | Western Region | | | | | Brown | Brown | | | | | | |
| Sheep wool shearing | | | | | | | | | | | | | |
| Breeding Season | Cattle | | | | Green | Green | Green | Green | Green | Green | | | |
| | Camel | Green | Green | Green | | | | | | | | | |
| | Small Ruminants | | | | | | | | | | Green | Green | |
| Anticipatory action triggers and activities | | | | | | | | | | | | | |
| <i>dzud</i> risk map released | | Red | | | | | | | | | | Red | |
| Anticipatory action phases | | 2 | 3 | | | | | | | | | 1 | |
| Typical emergency response | | | | Red | Red | Red | | | | | | | |

Disaster risk finance landscape and its relevance to *dzud* response and Anticipatory Action

Financing for Anticipatory Action is commonly split into two areas:

- a) funding used to build a system, i.e. define triggers, select actions, improve targeting, and mainstream efforts, and
- b) funding for the activation itself when the trigger hits.

Due to the robust early warning system, most AA activations referred to above (b) have been primarily on an ad hoc basis, e.g. through rerouted funding, as opposed to being sourced from pre-arranged financing. Moreover, the Food and Agriculture Organization of the United Nations (FAO) and the Mongolian Red Cross Society have invested funds into developing a broader AA system (a). Still, securing funds for systems building and making pre-arranged disaster risk finance (DRF) accessible and usable for activations (in line with Box 1) remain nascent areas that can be explored and scaled up in the country. Building on government investment in AA in 2022/23, this technical brief provides a baseline for such efforts.

Different types of pre-arranged financing can be used for disaster risk management – and in principle, all of these could be used to provide the financial resources required for Anticipatory Action (TWGAA, 2023).

Multiple types of this pre-arranged DRF are present in Mongolia. The main framework with implications for DRF is provided by the [Law on Disaster Protection](#) (2017), which, among others, requires national and local governments and related entities to spend 1 percent of their annual budgets on disaster protection and risk reduction. As a result, disaster risk reduction (DRR) budgets have more than quadrupled between 2018 and

2021 (NEMA, 2022).¹ Furthermore, a [National Disaster Risk Financing Strategy](#) to provide the overarching framework for coordination and the cost-effective use of DRF instruments in a risk-layered fashion is being developed, with the National Emergency Management Agency (NEMA) and the Ministry of Finance leading the development process.² Sources of pre-arranged risk finance³ relevant to AA in Mongolia include:

- **Donor contingent funding:** International funds, which can be accessed under certain pre-arranged conditions, are among the main instruments used in Mongolia to pay for Anticipatory Action. One example is FAO's Special Fund for Emergency and Rehabilitation Activities (SFERA) whose AA window Mongolia has been able to access, including during the 2023 activation discussed under 2.a (FAO, 2023). Other examples include the Anticipatory Pillar of the Disaster Response Emergency Fund (DREF) of the International Federation of Red Cross and Red Crescent Societies (IFRC), the START Fund Anticipation, and the Central Emergency Response Fund (CERF) Anticipatory Action Window.
- **Budgetary risk retention instruments:** In line with the increasing evidence of AA effectiveness and value for money in the Mongolian context (see, for example, FAO, 2018), AA-related spending is increasingly being considered under national systems for disaster-related expenditures in Mongolia (see the 2022/23 example). Specific budget lines and reserve funds have been set up by the Government of Mongolia to trigger finance for disaster-related expenditures if certain conditions are met. Specifically, Mongolia's Ministry of Finance maintains two types of contingency funds, governed by the 2019 Law on Government Special Funds.

¹ Despite this promising trend, National Emergency Management Agency (NEMA) officials indicated that further guidance on the implementation of this legal requirement would help decision-makers and strengthen disaster risk finance.

² See the technical assistance project, "[Strengthening Capacity on Disaster Risk Assessment, Reduction, and Transfer Instruments in Mongolia](#)" (ADB, 2023), for additional information.

³ The outlined list of sources follows the list of financial instruments that can be used for AA from the Technical Standards on AA (TWGAA, 2023).

The Government Reserve Fund covers relief expenditures inter alia in relation to natural or human-made disasters. As illustrated in Section 2, this fund has been used to finance certain AA-related expenses such as the provision of fodder and hay to herders at *dzud* risk.⁴ The **Contingency Fund** is to be used for unexpected large revenue shortfalls such as “disruption in domestic production and services including agricultural production due to unforeseeable events or natural disasters” (World Bank, 2015), and has also been accessed for stocking up state emergency fodder reserves (Baljmaa, 2020; see also Box 1).

- **Risk transfer instruments, including insurance:** These are the most cost-effective instruments used to transfer risks associated with high-impact, low-frequency events away from vulnerable households and government books to insurance markets. In principle, insurance instruments can also be used to provide pre-arranged financing for Anticipatory Action, although few examples exist in practice.

In Mongolia, index-based insurance has been an important risk management tool for animal husbandry. While highly relevant to managing *dzud* risks, unlike Anticipatory Action, the relevant insurance scheme has operated exclusively on an observation (ex post) basis. The country’s **Index-based Livestock Insurance (IBLI)** was first introduced in 2006 and scaled up nationwide in 2012. IBLI covers livestock losses from December to June, i.e. the period marked by winter conditions. Herder households can voluntarily purchase IBLI insurance for 25 percent to 100 percent of the estimated value of their animals, covering goats, sheep, cattle, horses and

camels. The price (premium) of the insurance differs slightly across districts to cover differences in risk exposure. When the *soum*-level mortality of the insured species in a policyholder’s district (*soum*) exceeds 6 percent (as per the annual Livestock Census carried out in June), herders who previously signed up for the insurance receive a payout in line with the purchased coverage. This is irrespective of an individual herder’s actual incurred losses.

While this may incentivize prudent risk management, given the vast area covered by a single *soum*, basis risk is a frequently cited factor that diminishes the scheme’s attractiveness to herders.⁵ Another factor constraining uptake is widespread debt, as herders tend to prioritize repayments of bank loans over the purchase of insurance (FAO, 2022). In 2020, approximately 7 million animals or 10 percent of the national herd were insured by 28 000 Mongolian households who spent an average of 1 percent of their annual household income on IBLI insurance premiums (Kraehnert *et al.*, 2021). FAO (2022) also found that 22 percent of herders surveyed paid for insurance coverage in 2021.⁶

Beyond IBLI, insurance instruments are increasingly seen as a tool to manage shocks and climate-related disasters. Currently, a disaster risk insurance law is being prepared to provide the necessary legal basis for disaster risk insurance, which is required for all legal entities as per the DRM law. The insurance law may focus on financial protection against earthquakes, although it may also open doors to the development of insurance markets for other hazards such as droughts and floods.

⁴ In line with the overall growth of disaster risk reduction (DRR) budgets, expenditures for the preparation of hay and fodder to reduce *dzud* impact by the Government Reserve Fund have grown by 9.2 percent in 2015–2021 (NEMA, 2022).

⁵ Basis risk refers to the discrepancy between the index underlying the insurance and the actual incurred losses. Anecdotal evidence suggests this is elevated as meteorological and pasture conditions may vary substantially within one *soum*.

⁶ IBLI combines various insurance elements and integrates with Mongolia’s social protection system. Under IBLI, the first layer of loss (livestock mortality rate of 6–30 percent) is borne by participating private insurance companies. Insurance companies are not liable for livestock losses in case of a mortality rate higher than 30 percent: in these catastrophic cases, the Government of Mongolia bears the remaining risk through the disaster response product (DRP). Herders enrolled for the IBLI-Base Insurance Product (BIP) automatically receive social safety net payments from the government through the DRP, using the same payout structure. Herders can also opt to enroll for the DRP social safety net without BIP coverage for a small administrative fee.

Government investment in the 2023 Anticipatory *dzud* Action: A first-time in Anticipatory Action

Summer conditions in 2022 were dryer than normal in large parts of Mongolia. As the summer months are the main period for pasture growth, pasture conditions led decision-makers to take precautionary measures for winter and possible *dzud* preparedness. In July, for instance, national, *aimag* and *soum* administrations were instructed to prepare adequate amounts of emergency fodder reserves, in line with the needs projected by the Ministry of Food, Agriculture, and Light Industry (MoFALI) (see Government Resolution 277/2022 and FAO, 2022b). Such stocks are critical to ensure that livestock have enough fat stores to see them through the harsh winter period. Pasture conditions are a key consideration in Mongolia's *dzud* early warning system (EWS)

operated by the country's meteorological agency, NAMEM (see FAO, 2021). As conditions remained critical, the deputy prime minister and head of the State Emergency Commission (SEC),⁷ in an order dated 29 September 2022, tasked an expert group with a fact-finding mission to assess *dzud* risk in at-risk areas of the country, among others. The assessment was informed by the periodically updated EWS *dzud* risk map, provincial risk assessments, and an assessment of available fodder reserves. Figure 4 shows *soum*-level *dzud* risk as per standardized provincial risk assessments that were assisted and consolidated during the risk assessment mission. An alarming 82 out of 193 assessed *soums* were at high *dzud* risk.

BOX 2: EMERGENCY FODDER RESERVES AT DIFFERENT LEVELS

Given the huge differences in temperatures and pasture conditions in Mongolia, animals and herders usually follow a distinct annual cycle. While animals can feed on pasture even under snow cover, the limited to inexistent pasture growth during winter months means that animals need to build up bodily reserves in the preceding months. Herders usually prepare individual fodder reserves by haymaking or purchasing from markets (hay, green fodder, concentrate such as wheat bran, or other feeds) to be distributed to their herd during winter months. An additional coping strategy to provide animals with sufficient feed intake prior to or during winter consists in otor migration or managed transhumance, for which specific areas – state-designated emergency grazing reserves – are set aside.

Beyond individual reserves, governments at different levels prepare and store public emergency fodder reserves in warehouses. These fodder reserves are made available to herders as the need arises. After a catastrophic *dzud* event in 2000/01, a practice followed to this day was established: *soums*, *aimags* and central state reserves are responsible to prepare 25 percent of fodder required to sustain the animal herd of their area for 3 days each. Once individual herders' fodder reserves are used up, fodder reserves are usually made available by the *soum* first, *aimag* second, and state reserve third.

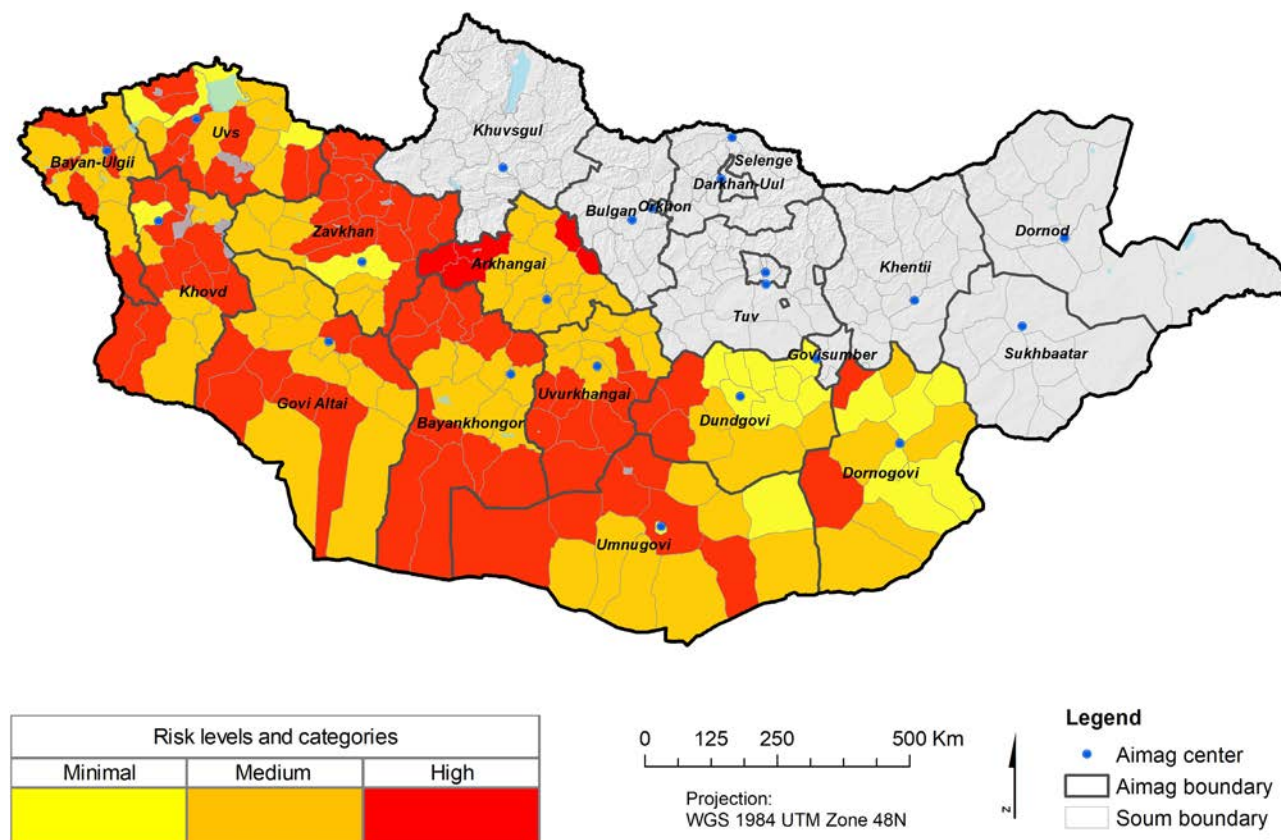
The Law on State Reserve requires these fodder reserves to be sold at the purchase price, as the sales revenues refinance the stocking up of the reserves. An explicit government decision specifying an alternative source of refinancing is required to reduce the price at which herders can access emergency reserves. Since *aimag* and state-level reserves are kept in warehouses – which in some cases are hundreds of kilometers away from herders in need – distribution challenges and transportation costs play key roles in the administration of these fodder reserves.

⁷ The State Emergency Commission (SEC), headed by the deputy prime minister, is responsible for providing integrated management and coordination for disaster management activities. The SEC is mirrored at local levels, where Local Emergency Commissions (LEC) are headed by the Governor of the respective administration unit in all *aimags* and *soums* (see also NEMA, 2022).

The assessment also included information on the preparedness of herders and public fodder reserves, as well as market conditions. It revealed, among other things, that the local prices of animal feed increased 70–88 percent year-on-year and fuel – specifically diesel – increased 49 percent year-on-year. These enormous and continuing price increases severely limit the ability of herders, *soums* and *aimags* to stock

up individual and local-level emergency fodder reserves. In fact, due to these challenges, most provincial and *soum* emergency reserves had not been able to stock 50 percent or more of the amounts required by the government preparedness order issued in July 2022. Due to the dry summer conditions, harvests of fodder crops by herders or commercial producers had decreased by 30 percent compared to 2020/2021.

FIGURE 3: ANTICIPATED *DZUD* RISK BY *SOUMS* IN 11 *AIMAGS*, AS OF OCTOBER 2022



NOTE: THE MAP IS BASED ON LOCAL RISK ASSESSMENTS DONE IN OCTOBER 2022. IT LARGELY CORRESPONDS TO THE RISK INFORMATION ON IRIMHE'S NATIONWIDE *DZUD* RISK MAP. MAP CONFORMS WITH UN. 2004. MAP OF MONGOLIA. NEW YORK, UNITED STATES OF AMERICA.

SOURCE: FAO. 2022. FINDINGS OF RISK ASSESSMENT MISSION CONDUCTED IN DROUGHT-AFFECTED PROVINCES (5–14 OCTOBER). UNPUBLISHED.

The alarming results of the fact-finding mission's assessment led the SEC under the leadership of the deputy prime minister to step up mitigative efforts. After reviews of the assessment results were done in two meetings in November and December 2022, the SEC recommended specific anticipatory actions, which were formally agreed upon by the Cabinet of Ministers during its meeting on 14 December 2022 (see [Government Resolution No. 461, 2022](#)), as required by the Law on State Reserve.⁸

The decision focused on the distribution of fodder (hay, green fodder and concentrate) from state emergency reserve to herders in the 11 at-risk provinces at a 50-percent discount of the price at which the government had purchased the fodder earlier in the summer. Since the state reserve managed by NEMA are required to be restocked from sales revenues, the price difference amounting to MNT 3.9 billion (USD 1 149 million) needed to be matched from another source of risk finance. Government Resolution No. 466 specified that this source of finance was the

Government Reserve Fund; hence, the Minister of Finance allocated resources to the state emergency reserve, in line with this decision. Beyond the price difference, this also covered transportation costs amounting to MNT 82 million (USD 24 100) for the delivery of purchased fodder and hay to state warehouses, but not last-mile delivery to *soums* and herders.

While state emergency fodder reserves are usually made available for purchase to herders at the government's purchase price – or sometimes at a discount, in years with severe winter conditions such as 2018 (see [Montsame, 2018](#)) – in prior years, this only happened at a more advanced *dzud* stage with visible impacts, especially after a state of emergency was declared in February or March. The novel character of the 2022/23 government action hence consisted in its timeliness and anticipatory character, reflecting increased confidence in the risk information and recognition of the benefits of acting early among decision-makers and authorities involved.

Anticipatory action efforts and investments at the local level: Provinces and *soums* complement the central government investment

As discussed, *dzud* risks and impacts in Mongolia are highly localized, with risk levels differing substantially across *aimags* (provinces) and *soums* (districts). As a result, local governments play a key role in *dzud* disaster risk management and have increasingly matched efforts by the Central Government, including the 2022/2023 anticipatory action investment. *Aimags* – and *soum* – administrations fulfill important DRM functions in line with responsibilities assigned by the Disaster Protection Law, for example, concerning fodder preparation and distribution. Provincial and *soum* governments collect and administer their own disaster-related funds.

Given the anticipated severity of *dzud* and the Central Government's decision to invest in Anticipatory Action, *aimags* followed suit. Not only did provincial governors administer and oversee the distribution of the discounted-price fodder to *soums* and herders, as per Government Resolution No. 461,⁹ but *aimags* and *soums* also matched the fodder from the state emergency reserve with additional, partially subsidized fodder made available to herders from their own reserves, in line with the established best practice described in Box 2. Some provinces also took it a step further and absorbed the remaining 50 percent of the cost of fodder from state reserves to enable herders to access the fodder with no charge.

⁸ The deputy prime minister who heads the SEC plays a key role in decisions on the use of the government reserve fund and emergency fodder reserves. The Law on Disaster Protection (2017) specifies that "the member of the Government in charge of emergency issues has the ... power to present to the government and decide on the issue of additional costs required for disaster protection activities from the Government's reserve funds, and goods, materials, and equipment from the state's reserves" (Article 28.1.4).

⁹ In most provinces, the discounted-price fodder from the state emergency reserve was made available in a uniform manner, i.e. all herder households were given the chance to purchase the same amount.



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According to Lieutenant Colonel Odonbayar, head of the *aimag* department of **Uvurkhangaï aimag**, the central-level decision to act in anticipation of *dzud* increased the confidence to do the same at the provincial level. In line with the established sequencing of fodder distribution (described in Box 2), in most parts of Uvurkhangaï *aimag*, *soum* reserves were made available to herders first upon signs of imminent *dzud* and depletion of herders' individual reserves.

In **Tugrug *soum***, hay and concentrate were sold to vulnerable herder households in need of assistance from 15 January onwards.¹⁰ Fodder was sold at its purchase price earlier in autumn, which by then was considerably lower than the current market prices. Eligibility was determined by the local governor's council using an existing social welfare registry, targeting assistance to those in most pressing need. An additional element of assistance consisted in a guarantee/loan scheme: cash-deprived herders unable to pay directly for the fodder were allowed to do so upon cashing

in on cashmere sales later in the spring. Tugrug *soum* had been able to build up the *soum* emergency reserves in the autumn using its locally established ***soum* risk fund** (amounting to MNT 40–50 million in 2022/23), in which herders' tax contributions under the Livestock Tax Law were matched with revenues from other sources.

According to Mr. Lkhagva, the *soum* governor, the need to take Anticipatory Action was clear by January, as local conditions in February and March would definitely worsen. Additional emergency fodder reserves from provincial and state reserves were made available to herders in Tugrug *soum* soon after. While hay and green fodder from provincial reserves arrived in three tranches (January, February and March) and was sold at purchase price,¹¹ wheat bran concentrate from the state emergency reserve arrived at the *soum* in early February. As 40 tonnes had been allocated to the *soum*, one sack of wheat bran was sold to each of the 800 herder households at only 50 percent of the purchase price.

¹⁰ Specifically, 5 000 bales of hay were sold at MNT 13 000 and 80 tonnes of wheat bran at MNT 20 000, significantly lower than their market price at the time.

¹¹ An additional province-level support scheme in Uvurkhangaï *aimag* was a government subsidy/guarantee scheme that enabled herders to buy fodder from private suppliers at a reduced rate. Under this scheme, upon seeing signs of reserve depletion and increased need, the *aimag* government subsidized the purchase of green fodder/hay by paying MNT 8 000 per bale of hay directly to private suppliers providing hay to herders, and guaranteeing the collection and payment of the remaining MNT 10 000 per bale of hay from herders at a later date (after the cashmere combing season). According to Mr. Tsendenbaljir, director of the provincial Food and Agriculture Department, resources for this subsidy were covered by the provincial disaster risk reduction fund.

Herders' perspectives



Mr. Enkhbayar Otgonbaatar

Mr. Enkhbayar Otgonbaatar is a herder in Tugrug *soum* who made use of fodder from the *soum*, provincial and state reserves. As the comparatively small herd size (140 animals) and the care needs of their newborn child made his family particularly vulnerable to *dzud* impacts, he also received a multipurpose cash transfer of MNT 450 000 (USD 125) under the FAO SFERA Anticipatory Action project. While the family had only been able to purchase 20 bales of hay for their individual reserve during the haymaking season, the cash transfer enabled Mr. Enkhbayar to purchase the same amount from the provincial reserve, as well as ten extra sacks of wheat bran from the *soum* reserve. Only two sacks of wheat bran were procured at the 50 percent reduced price from the state reserve. The fodder reserves, as well as the training and advice received at the *soum* centre, helped the family to sustain almost its entire herd over the winter: only one newborn goat and one yearling sheep did not survive the cold season. Without the cash transfer and cheaper-than-market-rate reserve fodder, the family might have resorted to taking on a loan or participating in the *soum* guarantee scheme. The cash transfer enabled them to keep the cash for productive investments and spend it on their own needs.



Mr. Myagmartseren Batsukh

Mr. Myagmartseren Batsukh similarly benefitted from fodder made available from different sources at rates that were significantly lower than market prices at the time of purchase. Fodder purchased from the different reserves included 4 sacks of grain (at 50 percent reduced price), 10 sacks of wheat bran, 20 bales of green fodder and 2 bags of rapeseed cake. Although 18 newborn goats of his herd of 167 animals (post-winter) did not survive, the fodder and cash transfer received shielded herder Myagmartseren from worse outcomes and prevented him from having to borrow cash from relatives or alternative coping strategies. Despite the small herd size and challenging herding conditions, this mortality is in line with the *soum*-wide mortality rate of 9 percent during the 2022/23 winter. Although the reduced-price fodder from the state reserve represented only a small proportion of fodder procured, the price reduction helped, as it enabled Mr. Myagmartseren to sustain more animals for a longer time than market-price fodder would have.

Lessons learned, outlook and recommendations

Herders, *soum* and *aimag* administration officials as well as national-level stakeholders all recognized the benefits of acting early and preventing the worst *dzud* impacts before they materialize. The timely procurement and provision of fodder reserves by authorities – including at partially reduced rates – and their use by herders were critical to this, and so was the willingness of governments at different levels to invest public resources to safeguard communities.

Many stakeholders now believe an anticipatory investment of the kind seen in 2022/23 would be replicable and worthwhile if similar conditions

arise in future. This pertains to the *dzud* risk looming in late 2022, which reflects both pasture conditions and forecast hydrometeorological conditions. Market conditions, i.e. prices of fodder purchases and livestock product sales, are important determinants influencing the timing of decisions to trigger investments for Anticipatory Action too.¹² While no formal evaluation has been undertaken yet, according to Colonel Baasansuren, director of the Disaster Risk Management Department of NEMA, it is clear that the timely distribution of subsidized fodder reserves was critical and adequate, and as such is replicable because *dzud* events will happen again.

In planning and implementing future fodder purchases and distribution in an anticipatory manner at different levels, and to fully seize their potential to mitigate the impact of an anticipated *dzud* event, the following recommendations might be considered:

Consider targeting vulnerable herders carefully

As illustrated for instance by results of the RIMA analysis undertaken in FAO (2022a), herders' sensitivity and resilience to *dzud* varies substantially. Even within the same geographic area, this leaves some herding households at higher risk of catastrophic outcomes and resorting to negative coping strategies than others. Public support and Anticipatory Action investments may account for these differences. The reduced-price hay and fodder in early 2023 were generally available to all herding households, as provincial governors, entrusted with the distribution of the state emergency reserve by Government Resolution No. 466, largely opted for uniform distribution. As a result – and as illustrated by the examples above – reduced-price fodder purchases by individual vulnerable herders represented only a minor share of overall fodder needs to sustain herds during *dzud*. In most cases, given the

governors' distribution decisions, those with larger herds and more financial means to purchase fodder at market rates before and during winter also benefited from the price reductions. While potential differentiation and targeting of subsidies raise fundamental questions around social justice, provincial governments may be supported in future in making corresponding decisions, for instance by the provision of criteria, tools and decision-making guidelines. Yet, potential caveats to the restricted provision of subsidized fodder to specific segments of herder households need to be considered, such as the potential to spur conflict within communities and unrest among non-recipients. Public messaging in the media around emergency reserve fodder access and provision might need to be carefully balanced, too.

¹² For instance, as stated in the October 2022 Risk Assessment report, the Livestock Emergency Guidelines and Standards (LEGS) recommend a 25 percent fall in livestock product market prices as a level at which an emergency response intervention is triggered, which has been considered in the Mongolian context.

Draw on available data and systems, and consider integrating anticipatory actions with social protection mechanisms

Where targeted distribution of reduced-price fodder is favored (see first recommendation), existing household-level data and information, as well as existing social protection system, would likely allow for effective targeting and integration. Specifically, household-level information on herders' resilience capacity as assessed in the Resilience Capacity Index or RCI (FAO, 2022a) could be used: households with an RCI below 25 will be deemed in particular need of support. In such a scenario of targeting support to the most vulnerable herders, given the overall cost savings and resilience benefits accrued by those most in need, access to reduced-price fodder could be coupled with anticipatory cash transfers as seen in 2022/23 or similar social protection schemes. Mongolia's social protection system comprises various schemes that provide

cash assistance and in-kind support to vulnerable population segments, and the creation of a shock-responsive social protection window, e.g. via the provision of financial means and priority access to reduced-price fodder in anticipation of *dzud*, can cost-effectively maximize resilience benefits. A conducive legal framework will benefit this approach: The United Nations (2022) recommends including shock-response social protection in the revision of the country's social welfare law, with a specific clause on *dzud*. Another example consists in the potential coupling of access to reduced-price fodder with an IBLI subscription, which could enhance the scheme's attractiveness to herders and effectively couple risk reduction with transfer of residual risks.

Strengthen the Anticipatory Action trigger method and threshold to build confidence, integrate it in national systems, and unlock financing

The current trigger for action, as devised by the Mongolian Red Cross Society, was set when 20 percent of the country is identified as being at high-risk or extreme levels of *dzud*. However, as the trigger has been reached in consecutive years, discussions are underway to reevaluate and potentially revise this threshold. The aim is to ensure the effectiveness and adaptability of the triggering system to the evolving dynamics of *dzud* occurrences. Figures 1 and 2 provide additional evidence supporting the notion that strengthening the threshold for action could yield benefits, considering the fluctuating impact of *dzud* events over the past two decades. Notably, the year 2010 stands out as having the most notable impact with over 23.4 percent livestock mortality rate. Usually, a *dzud* state of emergency is officially declared once overall mortality rates have hit at least 6 percent. However, it is important to note that

national-level data and the localization of the *dzud* impact must be considered. Regardless, it is crucial to align the impact data with the triggering methodology to accurately gauge the potential magnitude of the impact. More specifically, this requires analyzing the correlation between the percentage of area at high or extreme *dzud* risk levels in early winter and livestock mortality rates, then adjusting the AA trigger accordingly. This synchronization will aid in making informed decisions regarding the appropriate threshold for triggering anticipatory actions. In the future, a crucial suggestion is that a revised trigger, capable of instilling greater confidence, may naturally stimulate further government action similar to what was witnessed in 2023. Giving utmost priority to exploring avenues for government leadership concerning this trigger should be a central focus of our efforts.

Build on local-level risk mitigation efforts

Soum, *aimag* and state reserves complement each other in providing fodder at different *dzud* stages (see Box 2). *Soums* and *aimags* use their own risk funds or DRR budgets to support herders' access to fodder when most needed. Local officials' confidence in the early distribution of these reserves is strengthened by corresponding national-level action. Complementarities between the reserves at different levels and the timing and pricing of their distribution should be strengthened (e.g. by coordinating herder eligibility between them). The effective collection and use of local and provincial risk funds for expenditures related to Anticipatory Action could be further encouraged, for instance, by

strengthening *soum*-level risk funds via the creation of a legal framework or additional guidance on the collection and use of the livestock tax established in 2020. Fuel and transportation costs are a key bottleneck, as *soum* and *aimag* administrations were responsible for transport and distribution of fodder from state and *aimag* warehouses. Considering the exploding fuel prices, many found it difficult to cover these costs. While Government Resolution No. 466 covered transportation costs of fodder to state warehouses, innovative cost-sharing models for last-mile transport might also be considered in the future.

Continue to use established stakeholder coordination mechanisms and solidify ownership of Anticipatory Action within and across government institutions

Beyond local and provincial actors (see third recommendation) in line with the Disaster Protection Law, multiple line ministries (e.g. MoFALI and MoF) and technical agencies (e.g. NEMA) play distinct roles in managing *dzud*-related disaster risks at the national level. Coordination mechanisms within the government such as SEC and with humanitarian partners such as the Humanitarian Country Team are well-established and – as illustrated earlier – played an important role in the AA investment decision in 2022/23. Confidence in the AA approach could further be built across institutions, for instance by the generation and sharing of evaluations (as mandated by

Government Resolution No. 461) and reviews of lessons learned across stakeholders and with the public. Innovative models to maximize the contributions of different line ministries' expertise and capabilities in resilience-building via the AA approach could be explored and strengthened. These include, for instance, increasing the integration of AA with programmes overseen by the Ministry of Labour and Social Protection, maximizing benefits from MoFALI's coordinating role between the Livestock State Disaster Protection Service and provincial Food and Agriculture Departments, and securing available financing through the early involvement of the MoF.

Ascertain sustainable financing sources for Anticipatory Action

Buy-in from financial decision-makers, in particular the MoF, is crucial to make spending decisions such as those on the use of the Government Reserve Fund for anticipatory subsidized fodder distribution. Actual use of

existing government risk retention funds – both of which have been for hay and fodder preparation – remains low (World Bank, 2015). This points to the potential to make additional use of resources that were set aside to respond to

disasters. The National Disaster Risk Financing Strategy, a joint endeavor of DRR and finance stakeholders, is expected to provide a unifying framework guiding future action and expenditure decisions. Considering the financing of AA as part of the strategy will help to allocate resources and accelerate future financial decisions around it. In addition, stakeholders and officials at different levels perceive a need for additional guidance on fulfillment and use of the DRM law's requirement for 1 percent of budgets to be spent on DRR. Integrating AA expenditures into these funds will help to secure the necessary resources for effective AA, which in turn is likely to result in a positive return on investment (see FAO, 2018).

Strengthening the legal framework for *soum*-level or community contingency funds, as well as guiding the use of revenues from the livestock tax, might be conducive to unlocking pre-arranged, reliable local-level risk finance for Anticipatory Action. Lastly, considering the potential integration and relevance of AA in the context of future insurance reforms via the forthcoming Disaster Insurance Law, or in the case of IBLI adjustments, regarding threshold parameters in areas at increased risk of desertification, drought and *dzud* (as suggested by FAO 2022a) might open doors to the use of risk transfer instruments for AA financing.

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FAO Representation in Mongolia
fao-mn@fao.org

Food and Agriculture Organization of the United Nations
Ulaanbaatar, Mongolia