



# Winter is coming

LAURA HERSHEY

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**CORRESPONDENCE:**

[laura.hershey@meteoprotect.com](mailto:laura.hershey@meteoprotect.com)

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[stag\_intro]The coming seasons will hit their lands the hardest, the extreme weather brought on by climate change placing them in a state of warning and constant vigilance. For millions of smallholder farmers in the developing world, the dire warning “Winter is Coming”, from the imaginative mind of the writer of Game of Thrones, is that which they must accept as their harsh reality, as natural forces are increasingly disrupted, disruptive and extreme.[/stag\_intro]

They call it the dzud.

The harsh and unsettling name is suggestive of the reality it describes: a drought followed by a very heavy winter snow, winds and brutal cold temperatures. Cattle will die, food security will worsen, livelihoods will be put in jeopardy, the poorest of the poor will be hit the hardest.

The dzud is not a creation of Game of Thrones. Jon Snow and the Watch can’t hold it back. Winter IS coming. Mercilessly, the dzud returns every five to eight years, but sometimes year after consecutive year, wreaking havoc across the countryside, the most important climate-related shock impacting Mongolian pastoralists.

The challenges facing small farm holder households and pastoralists are echoed across the developing world. In Ethiopia, great droughts lead to farmers having to walk kilometres to fetch drinking water, and at other times flooding rain washes away their lands and their freshly sown corn, and they sell their limited livestock to survive. An average of 20 typhoons tear into the Philippines each year, many cutting a path through the farming regions of Luzon, damaging or destroying thousands of hectares of rice paddies. Delayed monsoons in India lead to crop failure, having devastating implications for a country which has over 58 percent of its population sustained by agriculture.

In total, about 2.5 billion people live in 500 million smallholder farmer households in developing countries, the majority of these subsisting in absolute poverty. They are particularly vulnerable to climate-induced change, including a rise in global average temperatures, increased unpredictability of rainfall, and other extreme anomalies in weather events, which have profound impacts on agriculture. Making things worse, it is extremely unlikely these farms are insured. The logistical difficulties and expense involved in sending qualified assessors to the insured farms in regions with a poor transport infrastructure mean that agricultural indemnity insurance is often prohibitively expensive for small holder farmers and not feasible for insurance companies.

However, there has been a movement across developing nations to provide increased insurance coverage to the most vulnerable farmers, using index insurance instead. Index-based weather insurance overcomes a number of the problems facing traditional insurers in developing countries. Unlike indemnity insurance, where the contract payout is dependent on the crop outcome on the client’s farm, the payout of index insurance is tied to an objective index, such as the level of

precipitation, temperature, or wind speed in the region.

Accordingly, there is no need to verify crop yield or asset losses suffered by a farm. Thus, there is no need for field inspections. In fact, isolated, inaccessible or rural locations lacking agronomic or meteorological data can be covered using remotely sensed data from satellites (using vegetation, evapotranspiration, soil-moisture and rainfall datasets). The moral hazard of traditional insurance is reduced (such as allowing crops to fail in order to collect a payout) since the criteria that triggers a payment are not only transparent to all parties, and can't be tampered with, resulting in lower premiums. Moreover, if a farm thrives despite adverse weather conditions, a payout is still received and the farmers can increase their savings, reinvest the money and unlock opportunities that can increase production and build their resilience to extreme weather events (such as investing in new technologies, fertilizers or improved seeds, or expanding operations), pay for further insurance premiums, or leverage to access credit.

In some cases, index-based weather insurance is succeeding thanks to state subsidies through an agricultural credit (such as the National Agricultural Insurance Scheme in India). In other instances, successful programs have forged strong links to aggregators and mobile technology (the Agricultural and Climate Risk Enterprise in Kenya, Rwanda, and Tanzania). In Ethiopia and Senegal, farmers have come together in order to build rural resilience, whereas in Mongolia, a public-private partnership covers approximately 15,000 herders, providing livestock-mortality insurance based on local temperatures.

The success of these and other index insurance schemes have recently been assessed as part of a research report conducted by the Research Program on Climate Change (CGIAR), Agriculture and Food Security (CCAFS) and the International Center for Climate and Society (IRI) at Columbia University. The report, released last month, showcases projects that have overcome many of the challenges that have previously hindered the uptake of index-based insurance, such as poor infrastructure and lack of financing, and have gone on to reach millions of smallholder farmers in developing countries.

Amongst its findings, the report finds that there is a significant latent demand in developing countries for index-based insurance and that it can benefit large numbers of smallholder farms in multiple ways. For instance, successful index-based insurance programmes are often integrated into broader programmes for development and climate risk management, invest in farmer education, work closely with research organisations for agro-metrological and social knowledge, and unlock new opportunities to improve farmer income.

Although the scale of existing index-based weather insurance schemes across the developing world is presently small relative to the numbers of smallholder farmers who are impacted by climate-related risk, new players such as Meteo Protect, which has the largest team in Europe dedicated exclusively to weather risk management, are committed to working with developing nations to help them adapt to climate change and mitigate the financial impact of weather risk by providing weather risk assessments and weather hedging solutions, as well as supporting alternative energy production by providing insurance to wind and solar farm enterprises. In conjunction with programmes that address the causes and effects of climate change, Meteo Protect is making a big difference in the lives of small farmholders and the most vulnerable populations. It has already branched out to India, having this year opened a regional office in Mumbai.

Unlike the House Stark, we can't build a wall to try and protect us from the coming winter- the changes in the average climate conditions and the increases in variability of weather resulting from climate change- but we can reduce the risks associated with it.