

Climate effects on nomadic pastoralist societies

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Oman and Mongolia reflect the modern climatic and social challenges to mobile pastoral livelihoods.

Nomadic or mobile pastoralism has long been a sustainable livelihood in a diverse range of countries because of herders' ability to move and manage risk in marginal landscapes where domesticated animals efficiently convert limited ecological productivity into sustenance. However, today pastoralism is being seriously affected by new environmental and social forces exemplified by climate change and government policy restricting movement and other practices.

In Oman and Mongolia, the governments encourage settlement or provide only limited support for customary mobile lifestyles

whilst favouring extractive industries for tax revenue. At the same time, climate change is affecting pasture quality and water resources and disrupts the rural landscape. Furthermore, mining and large-scale resource extraction competes for, and reconfigures, the land that pastoralists inhabit. This has the effect of changing land use, just as the ability to make a living from animals is being affected by increasing drought, extreme cold, storms and reduced availability of vegetation for livestock herding.

Changing climates have a significant influence on pastoralists who pursue

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A caravan of camels transporting the dismantled tents of Mongolian nomads to a new location in Northern Mongolia.

environmentally dependent livelihoods. In harsh hot or cold landscapes the ability to obtain adequate fodder to fatten animals is the endemic challenge. Shifts in weather patterns, seasonality of precipitation and recharge of sub-surface water sources are vital to the viability of herding.

In Oman, a 0.6°C annual temperature increase and a 21% decrease in precipitation from 1990 to 2008 have intensified water scarcity and increased evapotranspiration in the pastoral interior of the country, resulting in catastrophic storm episodes and reduced ecological productivity. Infrastructure related to extractive industry has also restricted movement and access to water. Mongolia meanwhile has experienced a 2°C warming trend since 1940, recurrent drought, changes in precipitation and in seasonality and reduced water sources. The detrimental impact of a changing climate manifests in the resultant rural poverty and out-migration to cities.

Years go by with rainfall in one region and not in a neighbouring one. With little

and highly variable rainfall large areas are needed to support a relatively small herding population. It is inevitable then that most areas will be seldom used because of local drought. The oil extractive industry in Oman operates largely in these same hyper-arid deserts resulting in serious challenges to the resilience of pastoralism and creating substantial vulnerability among these social groups. In Oman and in Mongolia too what might seem to a non-pastoralist an unused site is nevertheless an important part of the overall pastoral economy and land tenure systems.

Whilst in Mongolia pastoral production rather than wage labour remains the major source of income, in Oman wage labour now contributes more to household income than the sale of animals or animal products but the vast majority of that income is channelled in support of their livestock. In Mongolia, policy to encourage mining often disadvantages pastoralists, resulting in reduced access to pasture, rights and empowerment. The ongoing struggle to craft equitable mining laws, benefit the population and both preserve

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social custom and create new resource streams has proved elusive. In Oman, the role of labour and the long legacy of employment discrimination against herders has bred cynicism about extractive operations. These factors increase vulnerability to climate dynamics and resulting social change.

When customary physical and social systems are affected by climate or governance, herders can become 'environmental migrants', forced to migrate away from home territories, a process that often necessitates leaving pastoralism altogether. In the past this displacement might have resulted in cross-border movement. Today fixed frontiers, fences and politics restrict migration to within nation states. This

often channels herders to towns and cities where pastoral skills have limited value.

Thus climate change becomes a threat-multiplier for pastoralists who have reduced resilience to adapt, particularly financially, to climate threats. This centres on drought in Oman and extreme cold in Mongolia (often in combination with drought). In both regions these factors instigate out-migration to towns and cities with devastating implications for pastoralists.

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