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[Abstract Title]

Equal contribution of climate warming and socioeconomic development in the future reduction of livestock snow disaster in the Qinghai-Tibet Plateau

[Abstract]

Future risks of extreme climate events in the context of global change is co-driven by the changing climate that alters hazard frequency and intensity, and socioeconomic development that changes exposure and vulnerability. Assessing future risk and understanding the contribution of climate and socioeconomic systems are critical for risk-informed adaptation. While warming climate is bringing higher risk to many regions and sectors in the world, sectors in the colder-regions and cold-season might benefit from it. Here we show that climate warming contributes equally as socioeconomic development in reducing livestock loss risk in snow disasters by 1.0~2.1% per annum during 1981-2100. In a 2°C warmer world, the reduced annual average loss could be 1038.1 thousand sheep units, or 83.4% smaller as compared to baseline period (1981-2010). Limiting global warming by 1.5°C instead of 2°C, nevertheless, would also limit risk reduction by 171.9 thousand (or 14 percentage points less). In response, the region needs 188% baseline GDP to compensate for such limited risk reduction. For less-developed prefectures, such a limitation effect would be too much to be compensated, calling for technical and financial supports from the outside.



[Keywords]

Livestock snow disaster; climate change; socioeconomic development;