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Disruptions in adaptation of sudden-onset and slow-onset risks: insights from a local case in the Andes of Peru for global policies

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Climatic changes involve emergence and changes of both sudden-onset and slow-onset risks. In the field of disaster risk reduction a solid range of strategies and measures has been developed to address sudden-onset risks such as floods, mass movements or storms. Comparably less experience is available for management of slow-onset risks. While, for instance, drought prone regions do have important knowledge how to cope with such conditions in other regions where climatic changes have induced new challenges and risks there is limited experience about how to adapt to slow-onset processes and risks. Examples are impacts of sea level rise in coastal regions or glacier shrinkage in mountain regions. The lack of understanding of how to address impacts from slow-onset processes has recently also been highlighted by the Executive Committee of the Warsaw International Mechanism on Loss and Damage (WIM) acting under the United Nations Framework Convention on Climate Change (UNFCCC).
In climate change science, practice and policy it is often assumed that risk management and climate change adaptation would see a seamless continuum when addressing both sudden-onset and slow-onset risks. Here we draw on recent experiences from the Andes of Peru showing that management of, and adaptation to combined sudden-onset and slow-onset impacts of climate change may involve serious social disruption.
Carhuaz, a city in the Cordillera Blanca of Peru with a number of local communities pertaining to it, is affected by multiple effects of climate change and glacier shrinkage. After a flood event from glacier lake 513 a flood early warning system has been developed and installed. Multiple use and demand of glacier melt water makes water resource management a challenge and conflicts arise especially during the dry season when water is scarce. The drought at the end of 2016 over much of the tropical Andes has resulted in a situation where local communities started to vigorously and violently turn against the management of sudden-onset risks, more specifically against the technical components of the flood early warning system, because they believed that rainfall measuring and data transmitting devices keep the rains away. The background of this extraordinary local action is complex and rooted, among other, in cultural and historical experiences, mistrust in political and scientific institutions and local power relations.
This local case, however, is highly instructive for global climate change policy. It shows that locally perceived priorities in terms of risks can be in great contrast to scientific knowledge and policies with profound implications for adaptation to sudden-onset and slow-onset risks. In fact, there may be a need to re-think current adaptation strategies which is also highly relevant in the context of current discussions on loss and damage related to negative effects of climate change. Furthermore, while the case certainly underlines the need to closely engage with local communities it also indicates where the limits of adaptation may be hit.