

Introductory Note: Special Issue-12–Droughts and Floods in the Arid and Semi-Arid Lands



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Living with Droughts and Floods

Droughts and floods are interconnected climate phenomena that severely threaten the lives and livelihoods in Kenya's Arid and Semi-Arid Lands (ASALs). The abrupt, multi-year cycle of catastrophic droughts followed by sudden flash floods is a compounding climate crisis that devastates the milieu. This distressing pendulum swing destroys crops, decimates livestock, and leaves millions facing acute food insecurity and water scarcity. The constant fluctuation between the two extremes erodes local coping capacities, making recovery extremely difficult for inhabitant communities.

Droughts severely deplete groundwater and dry up vegetation, leading to massive crop failures and livestock mortality, stripping communities of their primary income and food source. Shrinking water sources force long walks to secure water, which at times is of reduced quality, at times spiking water related diseases. As pasture and water become scarce, resource-based conflicts frequently erupt among people, livestock and wildlife. When heavy rains eventually return after drought, they hit parched, baked earth that cannot absorb the water, resulting in rapid and destructive flash flooding. Swollen rivers and intense surface runoff wash away newly planted crops, displace households, and cause devastating infrastructural damage to roads, local markets, and homes. Stagnant floodwaters frequently trigger outbreaks of waterborne diseases, worsening the already fragile humanitarian situation.

The negative impacts of drought and floods and the local coping strategies present distinct challenges, the loudest

being absence of appropriate planning and sustainability building. The papers in this special journal edition indicate that the crises presented by the two extreme weather require comprehensive strategies that address both the immediate impacts and long-term resilience to safeguard the wellbeing of people and their means of support in the vulnerable regions. The papers' contents propose several strategic interventions, key being collaborative actions that manifest in integrated planning and actualization of mitigation and recovery measures. Building water harvesting infrastructures to store runoff for use during dry spells, embracement of climate-smart land use practices, adopting drought-resistant crops and livestock varieties suited to harsh conditions, and having livelihood diversification income streams that go beyond traditional rain-fed agriculture are vouched for.

Stakeholders are invited to revitalize and redesign the social protection programs to effectively deliver on cash transfers and livestock support to vulnerable households. Availing the unconditional will help in purchasing food and livestock feed during the most severe dry season or excessive water on land. Rangeland restoration efforts through community-driven reforestation and controlled grazing to restore degraded lands, helping to retain soil moisture and provide fodder during dry spells are seen to have the potential to raise the ASAL residents' resilience against droughts and floods. Floods from seasonal rivers cause soil salinity on crop farms primarily through evapo-concentration and the upward movement of shallow, salt-bearing groundwater. When floodwaters recede, the water evaporates rapidly, leaving behind dissolved salts in the crop root zones. This leads to crop failures, and farmers do not know how to mitigate or manage the situation and have to make do with losses.

Managing and reclaiming saline soils on farms involves a targeted approach to wash out the salts and improve soil structure which the farmers have no capacity to carry out. Extension services have failed in Kenya, which would have inculcated some of the locally possible ways of dealing with saline soils such as planting salt-tolerant crop varieties to maintain agricultural productivity while the soil undergoes restoration.

The herein papers bring to the fore the fact that the number of droughts and floods in the ASALs is increasing, with climate change worsening the intensity and frequency of the two extreme weather conditions, leading to heavy rainfall, high temperatures, and longer periods of drought, potentially exposing these areas to greater damages in the future. The problem is further amplified by population growth and human activities such as urbanization, inappropriate land use, economic development, and missing awareness. In addition, both droughts and floods are poorly understood natural hazards. It is however clear that management of the two needs addressing a set of challenges, some of which are unique to particular localities. Accordingly, developing a comprehensive understanding of droughts and floods and related risk is paramount. This special edition journal is a contribution in this direction.

The papers in this journal brings together thoughts that have emanated from participatory research in Kenya with the aim of building an understanding on the current state of droughts and floods weather circumstances. A common indication in the papers is that droughts and floods present multidimensional challenges, and thus require an integrated approach in mitigating and recovery. This amplifies the need for a comprehensive understanding of the two weather events in order to sustainably mitigate resultant negative impacts on the environment, economy, and society. Therefore, the contents of this special journal is a service in this direction, that invites keeping the debate on droughts and floods alive, with a view to have informed preparedness and actions. The Institute for Environmental Studies (IVM) through its perfectSTORM project is happy to have facilitated the field work undertaken by the South Eastern Kenya University (SEKU) that resulted in the papers contained in this document.

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