Fleeing with their worldly goods: in 2009, heavy monsoon floods forced 30 million people to leave their homes.

Heading towards collapse —
The environment-migration nexus
Prof. Mohamed Hamza

While there is still a lot of work needed in terms of unpacking drivers of migration including environmental factors, in the meantime locations and hot spots around the globe are heading towards an irreversible tipping point of socio-environmental collapse.

Climate change will have a progressively increasing impact on environmental degradation and environmentally dependent socio-economic systems. The 2005 Millennium Ecosystem Assessment highlighted the fact that two billion people living in arid, semi-arid and sub-humid regions are extremely vulnerable to the loss of ecosystem services, including water supply. Societies which lack other coping mechanisms will have no option but to migrate. Data on the impact of rapid onset events on population displacement are disputed. We know little about the interplay between environmental change and migration. But the trend is unmistakable, with the greatest impact felt in the global south.

One estimate contends that, from 1980 to 2000, 141 million people lost their homes in 3,559 natural hazard events, of whom over 97% lived in developing countries. Two case studies in Bangladesh and Kenya currently form the basis of a research project conducted by the Stockholm Environment Institute, Oxford, to look into the interaction between multiple-drivers and their impact on potential humanitarian crises leading to population movement.

In Bangladesh, the coastal area of about 710 km, where more than eight million people live, is protected by embankments and polders. They keep the land safe from tidal flooding, but these areas remain vulnerable to frequent cyclone, storm-surge, and tidal intrusions. It is widely recognised that climate change may strongly aggravate this situation. An analysis of tidal data collected during 1975–2005 reveals that the mean sea level is rising in observed ranges from some 5–7.4 mm per year. A large proportion of the local population, who depend on natural resources, will be affected. With projected sea level rise of 32 cm and 88 cm, the coastal cultivable land will be reduced from 45% at the current level to 40% and 15%. People will have to move into other areas where, by nature in Bangladesh, population pressure is already high. They move into an uncertain future.

Climate change also poses a serious challenge to Kenya's development. Drought is probably the most prevalent climatic hazard, affecting about 70% of the country categorised as arid and semi-arid lands. Kenya experiences drought in a cyclic pattern. The major droughts come every ten years while the minor ones occur every three to four years. Migration, and specifically the movement of pastoralist communities, has persisted for many years as a form of coping strategy, but the lack of rainfall in places which people previously used as escape zones is clear evidence of new uncertainties in climate and of the impacts for marginal livelihoods. This has led to complete movement and migration to other urban centres and other countries with no return to original homes. This accelerates a challenging global trend: the growth of cities and megacities including slums and, at the same time, an exodus of the rural population.

Although it is extremely difficult to justify predictions of future patterns of climate-induced migration, the boundary conditions are far from promising. Today, most science estimates still concentrate on the numbers of people at risk rather than the number of people effectively likely to move.

Locations and hot spots that are heading towards an irreversible tipping point of socio-environmental collapse today could benefit from strengthening the adaptive capacity of affected populations, from the removal of barriers to internal mobility, and by greater attention being focused on urban planning, service provision and human security in areas to which people are already migrating. Furthermore, we have to enhance the capacity of urban labour markets to absorb large migrant populations as well as to identify and map the historical migration trends and monitor the potential tipping points.

Finally, a continuing high-level dialogue is needed in order to develop, strengthen and harmonise international understanding of concepts, knowledge base, vocabulary and experience related to the multiple cause-effect links and feedback loops between environmental degradation, socio-economic impacts and environmentally-induced migration.

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Africa's largest slum is in Nairobi. The photo shows Korogocho, where some 120,000 people from 30 different ethnic backgrounds are crowded into an area covering a few square kilometres.