The 2014/15 outbreak of Ebola virus disease (EVD) in Guinea, Liberia and Sierra Leone has resulted in more than 11,300 deaths, massive social upheaval and billions of dollars in lost economic activity.

With the West African outbreak of Ebola virus disease (EVD) largely under control, post-EVD economic recovery in the affected countries is focusing mainly on improving healthcare systems and restoring pre-crisis economic activities. Although it is hypothesised that changes in African landscapes promoted the Ebola virus ‘jumping’ from its wild host to a human, the international community is focused on being better prepared for the next outbreak, which is regarded as “inevitable”, and helping countries return to development-as-usual. Relatively little attention has been given to reducing the likelihood of initial outbreaks where the virus is first transmitted to a human.

In response, a report by the Environmental Foundation for Africa (EFA) and the ERM Foundation investigated seven outbreaks where the Ebola virus was transmitted from its wild reservoir, suspected to be bats, to a human. It analysed the forest-cover conditions at the times of the seven outbreaks and, in three cases, changes in the landscape in the thirty years leading up to the outbreak.

The results should stimulate serious debate and further study: in six out of seven cases studied, EVD emerged where and when specific forest fragmentation parameters – the Shannon Diversity Index and ‘connectance’ – were within a narrow range of values. While many have speculated that changes in vegetative cover can promote outbreaks of emerging infectious diseases, this report described specific forest characteristics correlating with EVD outbreaks.

The report then analysed bats’ response to fragmented, forested landscapes, indicating that in such conditions it is possible for several species – bats, other animals and humans – that normally would not be in contact, to come into contact, possibly in stressed circumstances where their immunological defenses could be compromised and diseases more readily transmitted.

Conclusions from the report

1. Further, rigorous scientific study is imperative to understand the causal relations underlying this correlation. In the absence of greater scientific certainty, it is difficult to make precise recommendations to policy-makers or rural communities how to manage forested landscapes and wildlife to reduce risks of outbreaks of zoonotic diseases.

2. Natural resources management and environment should be integrated as core elements and evaluation criteria of recovery programs, not as box-ticking exercises to fulfill a requirement for impact assessment. Given the uncertainties surrounding outbreaks of zoonotic diseases like EVD, a precautionary approach is required to evaluating what are acceptable versus unacceptable environmental impacts.

3. Funding isolated, sector-specific ‘forest and wildlife management’ projects with no structural links to other recovery and development interventions misses the point of sustainable development. It is tempting to address a perceived need to do something about environment through such projects, but they do not address the risks of zoonotic diseases, nor are they sufficient to ensure environmental sustainability in economic activity. The ‘One Health’ approach integrating human, animal and environmental health is recommended.

4. As a precautionary measure, large forest blocks should be protected from fragmentation within a landscape so that wildlife-human contact is minimized, and conditions are avoided for unusual species assemblages to occur that could increase the risk of transmission of the Ebola virus from its natural reservoir(s) to new hosts, including humans.

5. An interdisciplinary expert group should advise policy-makers how to apply a precautionary approach to economic recovery plans to reduce the risk of future EVD outbreaks, advising how land uses and forest fragmentation may influence emergence of zoonotic diseases. This group could advise and/or review environmental and social impact assessments of post-EVD, economic recovery programmes. It could review emerging research and advise future research priorities to ensure new research is relevant to the challenges and opportunities in forested African nations where the Ebola virus and other zoonotic diseases exist in their wild reservoirs.

A departure from familiar development models is uncharted territory, but traditional strategies may exacerbate the conditions that increase the likelihood of EVD outbreaks. The new Sustainable Development Goals require structural changes in nations’ economies, re-working the relationship of people to the natural environment on which they ultimately depend.

The EVD crisis is not the only reason to re-evaluate development approaches, but it is a call-to-arms to evaluate critically what should change.

The full report can be downloaded from www.efasl.org

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