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THE TIME IS RIGHT FOR ONEHEALTH SCIENCE

Relevant for: Developmental Issues | Topic: Health & Sanitation and related issues

As India goes into emergency mode to tackle the potentially catastrophic impacts of the novel coronavirus (COVID-19), the ‘Kerala model’ is being widely cited as an example to emulate. In 2018, Kerala reacted quickly and efficiently to tackle the Nipah virus outbreak and successfully managed to confine it to 23 cases. This success has been credited to the strong public health infrastructure and the political will to quickly seek help from a multidisciplinary team of national and international experts. The Kerala Nipah virus outbreak was thought to have come from fruit bats, a group of animals that may also be implicated in other more deadly outbreaks, possibly including the novel coronavirus.

These diseases, which “spillover” from animals to humans are referred to as zoonotic diseases, and represent more than 60% of emerging infectious diseases worldwide. The destruction of the natural environment, globalised trade and travel and industrialised food production systems have created numerous pathways for new pathogens to jump between animals and humans. Understanding this critical intersection between human health, domestic and wild animal health and the environment requires a new integrated framework — a paradigm called ‘OneHealth’.

Although OneHealth, as a conceptual entity, emerged relatively recently, a stellar example of OneHealth being operationalised in the field was seen in India in the late 1950s. It helped discover the source of Kyasanur Forest Disease (KFD), a highly dangerous haemorrhagic fever more threatening than COVID-19. It was locally called ‘monkey fever’ because of the links between monkey deaths and human infections in Shimoga District of Karnataka where it emerged in 1957. It took pioneering interdisciplinary work to bring together diverse entities like the Rockefeller Foundation and the Virus Research Centre (later the National Institute of Virology), Pune, the World Health Organization (WHO) and the Bombay Natural History Society.

The Rockefeller Foundation provided the financial and technical support, including laboratory facilities, while P.K. Rajagopalan and a team of dedicated researchers from the Virus Research Centre combed the forests of the Western Ghats for potential carriers and autopsied monkeys in their investigations into the cause of the disease. The legendary bird man of India, Salim Ali, supported by WHO funds, tagged migratory birds to rule out the possibility that they were carrying pathogens responsible for the disease in their cross-continental flights.

As successful as the epidemiological investigation into KFD was, it largely remained an isolated example. This model of cross-sectoral collaboration did not set the tone for further research along similar lines or fructify into readying our public health system to address zoonotic diseases. To our great loss, everyone slipped back into their silos. Many decades later, India is yet to operationalise a true OneHealth policy.

Further, the regulatory framework for doing OneHealth research in India with international collaboration typically requires approvals from multiple authorities, including ICMR, the Ministries of External Affairs and Finance, Directorate General of the Armed Forces, National Biodiversity Authority, Committee for the Purpose of Control & Supervision of Experiments on Animals and State health authorities, among others. Additional permissions are required from state forest authorities and biodiversity boards for accessing biological resources within natural landscapes. While the necessity for research permits is not being questioned, the range of permissions needed and the long waiting periods (ranging from three months to more than a year), raises the issue of whether we are unwittingly hampering our ability to rapidly respond to emerging threats from infectious diseases.

Given our pioneering historical contribution to combat zoonotic diseases, and robust institutional framework for biomedical research, India has the opportunity to take the lead in combating the massive public health crisis posed by emerging infectious diseases. An opportunity now exists for India to leap-frog over the systemic and institutional barriers that prevent an integrated OneHealth framework from being operationalised.

The Government of India has recently launched the National Mission on Biodiversity and Human Well-being. The mission aims to explore the neglected links between biodiversity science and human well-being across the sectors of health, economic development, agricultural production and livelihood generation, in combination with efforts to mitigate climate change and related disasters. One of the components of the mission explicitly links biodiversity to human health through the OneHealth framework.

The OneHealth programme aims to encourage team science by having networks of institutions collectively bid for grants to set up integrated OneHealth surveillance systems across India at 25 sentinel surveillance sites in potential emerging infectious disease hotspots. In this manner, government and private institutions, across a range of disciplines, from virology to epidemiology, genomics to ecology, and social and behavioural sciences to veterinary and animal sciences can collaborate to understand how zoonotic diseases can emerge, the threats they can pose, and the mechanisms by which the emergence or spread can be controlled.

The frequency with which new pathogens are emerging or old ones are re-emerging across the world are alarm calls for greater transparency, cross-country collaborations, and enhanced national infrastructure and capacity for integrated OneHealth science. The cause of mitigating large-scale human suffering justifies making such a hitherto unprecedented effort.

(Abi Vanak is a Clinical and Public Health Fellow, DBT/Wellcome Trust India AllianceProgram, and Mridula Mary Paul is a Senior Policy Analyst with ATREE)

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The WHO had to come up the name in line with the 2015 guidelines between the global agency, the World Organisation for Animal Health and the Food and Agriculture Organization.

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