

# Whither One Health in India?

## Challenges to Adopting Global Strategies for Tackling Zoonotic Diseases

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The COVID-19 pandemic has sharply brought into focus how intrusions into natural landscapes are not just environmental concerns, but are also intricately entangled with public health. Little attention has been paid to systemic causes such as large-scale biodiversity loss that underlie the emergence and re-emergence of these diseases. Institutional networks of public and animal health in India that are involved in the surveillance and control of zoonoses are outlined herein. It is shown that the lack of a systematic framework that explicitly involves institutions that manage biodiversity and wildlife health leads to gaps in operationalising a One Health framework in India. Addressing these lacunae requires a supra-ministerial mechanism that brings together public health, ecology, and veterinary and social sciences to combat the threats posed by existing and emerging zoonoses.

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The importance of biodiversity in sustaining the planet is widely accepted. However, any discussion of its critical role in supporting public health was largely confined to some specialised circles, until 2020 when the COVID-19 pandemic produced a potent example that no one could possibly ignore. Zoonotic diseases, that is, diseases that humans and animals contract from each other (WHO-FAO-OIE 2019), are on the rise (UNEP-ILRI 2020), and are often directly linked to the degradation of biodiversity caused by large-scale incursions into natural ecosystems (WHO-CBD 2015; Berthe et al 2018). The risk of zoonoses incidence increases in human-dominated ecosystems (Gibb et al 2020), and the loss of biodiversity is known to exacerbate the risk of disease emergence (Halliday et al 2020). Because zoonoses operate at the interface between humans and animals, in farmed as well as natural environments (UNEP-ILRI 2020), and have an impact on not just health, but also other developmental factors, such as education and livelihoods (Berthe et al 2018; Purse et al 2020), combating it falls across the domains of multiple governmental actors and agencies.

Across the world, zoonotic diseases pose a public health threat with a billion cases and a million deaths each year (Berthe et al 2018). India is a global hotspot for zoonotic diseases (Allen et al 2017). The plague has killed 12 million people since 1898, rabies cause about 20,000 deaths a year, while brucellosis in cattle and buffaloes is estimated to cause annual losses to the extent of about ₹24 million (NCDC 2016). A vast majority of the population interacts closely with livestock and wild animals, and is poorly serviced by public and veterinary healthcare facilities (NCDC 2016; Purse et al 2020). Tackling zoonoses, therefore, is not just a public health crisis, but also a broader governance concern because it demands hitherto unprecedented collaboration across administrative domains.

It is this ideal of intersectoral collaboration that is embodied in the One Health framework to tackle zoonotic diseases. One Health requires that

all relevant sectors and disciplines across the human–animal–environment interface are involved to address health in a way that is more effective, efficient, or sustainable than might be achieved if not all relevant sectors were engaged. (WHO-FAO-OIE 2019)

The World Health Organization, Food and Agriculture Organization of the United Nations, and the World Organisation for Animal Health jointly advocate a One Health approach through their Tripartite Zoonoses Guide (WHO-FAO-OIE 2019).

This paper examines whether and to what extent measures to tackle zoonoses in India follow the One Health model. It thereby engages with India's capacity to combat endemic and epidemic zoonoses—those that are current concerns, and others that are lurking in future.

Some aspects of One Health, for instance, surveillance, have been critiqued for not addressing the fragility of public health systems in many parts of the world (Calain 2007). This is particularly critical in India where public health has been systematically underfunded (Drèze and Sen 2013). It is, however, beyond the scope of this paper to engage with this, except to note that One Health in India must be cognisant of political and social factors (Leach and Scoones 2013) in order to be effective.

Bearing in mind that international One Health guidelines emphasise the backing of strong sectoral agencies and collaborative policy mechanisms (WHO-FAO-OIE 2019; UNEP-ILRI 2020; Berthe et al 2018), this paper attempts to map existing institutional mechanisms to address zoonotic diseases across the domains of five central ministries—Ministry of Agriculture and Farmer's Welfare (MOAFW), Ministry of Fisheries, Animal Husbandry and Dairying (MOFAHD), Ministry of Health and Family Welfare (MOHFW), Ministry of Environment, Forest and Climate Change, and Ministry of Science and Technology (Figure 1, p 42). It identifies the dissonances and alignment between these ministries (Figure 2, p 43), and locates existing One Health mechanisms, even if not designated as such. Drawing on international guidelines, this paper suggests policy fixes to strengthen India's response to zoonotic diseases using the One Health framing.

This network analysis (Provan et al 2005) is undertaken using publicly available information of national government agencies drawn from annual reports, official websites, programme guidelines, advisories, minutes of meetings, and inter-ministerial communications. Although integral components of One Health, the paper excludes antimicrobial resistance, marine and freshwater diseases, and state government institutions from its scope of analysis. It also restricts itself to government institutions, although there have been notable One Health initiatives led by non-governmental organisations in collaboration with government agencies (Yasobant et al 2019; Sekar et al 2011; Chatterjee et al 2016). Others have explored policy drivers that contribute to India's vulnerability to zoonotic diseases (Thomas et al 2019), and analysed problems with institutionalising One Health at the city level (Yasobant et al 2020).

### Institutional Structures

Under India's Constitution, public and veterinary health falls within the domain of state governments, while the mandate for controlling diseases and outbreaks is shared by the central government and the states. Each of the ministries under review (Figure 1) has several institutions and specialised programmes that undertake research and surveillance of zoonotic diseases, support disease reporting systems, and take up activities for the control and mitigation of diseases. Some of these interact with each other at various administrative and operational scales, and at different levels of efficacy. In the sections below, we review these structures and networks in further detail.

**Research and surveillance:** One of the main thrust areas of the animal science division under the Indian Council of Agricultural Research (ICAR) of the MOAFW is the surveillance and forecasting of zoonotic diseases. The Indian Veterinary Research Institute (IVRI), Izatnagar under ICAR has a veterinary public health division that aims to apply veterinary knowledge to address public health concerns through its mandate that includes research on the prevention and control of zoonoses (IVRI 2018d). The IVRI engages with wildlife health through its parasitology division, Centre for Wildlife Conservation Management and Disease Surveillance (CWC), and the Centre for Animal Disease Research and Diagnosis (CADRAD) (IVRI 2018a, 2018b, 2018c).

The CADRAD aims to be a national referral laboratory on animal diseases, and lists the development of a monitoring and surveillance system as a primary objective (IVRI 2018a). It operates as the central laboratory under the Directorate of Animal Health of the MOFAHD (DAHD nd). Along with four regional laboratories and 250 networked laboratories across ICAR institutions, universities, and state laboratories, they play a prominent role in the surveillance and diagnosis of zoonotic diseases, including avian influenza (DAHD nd). The National Institute of High Security Animal Diseases (NIHSAD), Bhopal is an ICAR institution with the mandate of research on exotic, emerging, and re-emerging animal diseases (NIHSAD 2020). It also shares data on diseases with MOFAHD (NIHSAD 2015).

On the public health side, the Indian Council of Medical Research (ICMR) of the MOHFW is the national body that coordinates medical research in India. The ICMR oversees a number of institutions and research facilities that work on zoonotic diseases. The National Institute of Virology (NIV), Pune undertakes epidemic investigations, diagnosis, and surveillance of a number of zoonotic diseases (ICMR 2019). The ICMR has proposed a centre for One Health under NIV, in collaboration with ICAR's Maharashtra Animal and Fishery Sciences University, Nagpur (Andrabi 2019).

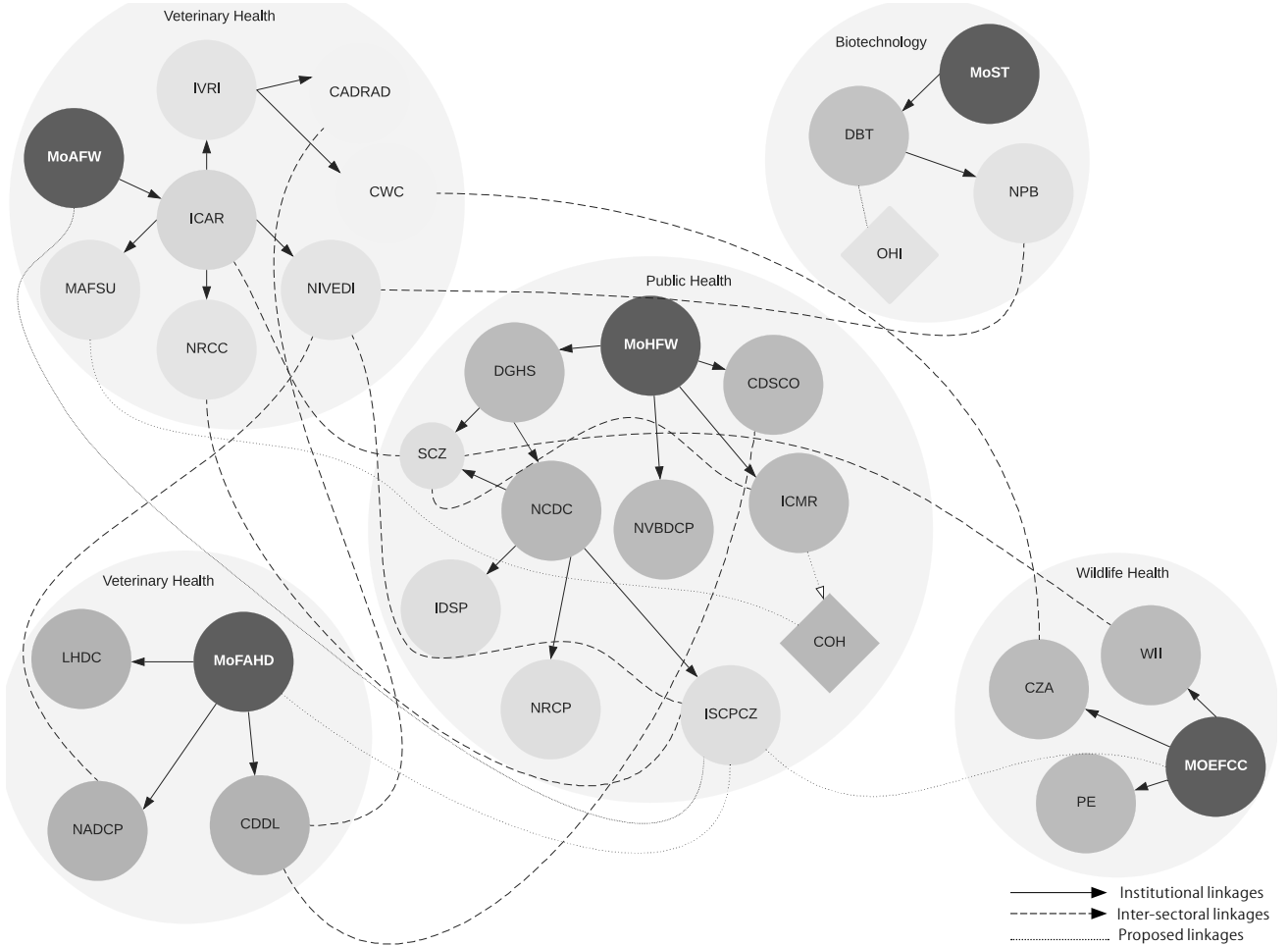
Through its National Institute of Cholera and Enteric Diseases, Kolkata, National Institute of Malaria Research, New Delhi, Vector Control Research Institute, Puducherry, National Institute of Traditional Medicine, Belagavi, National Institute of Epidemiology, Chennai, National Institute of Research in Tribal Health, Jabalpur, and Regional Medical Resource Centres, the ICMR undertakes vector surveillance, hospital-based surveillance, and has sentinel surveillance sites for a range of zoonotic diseases (ICMR 2019; NIRTH 2017). The MOHFW's National Vector Borne Disease Control Programme (NVBDCP) also has a mandate that includes zoonotic diseases, such as Japanese encephalitis or acute encephalitis syndrome (NVBDCP 2014).

**Surveillance platforms and databases:** The MOHFW, MOAFW, and MOFAHD support digital platforms for the reporting and visualisation of surveillance data. Under ICAR, the National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI), Bengaluru hosts the National Animal Disease Referral Expert System (NADRES), a dynamic virtual database of livestock disease (NIVEDI 2015). The NADRES receives data on incidences of endemic and emerging diseases of livestock and



**Figure 2: Network Analysis Map**

Plot of Institutional Networks Addressing Zoonotic Diseases in India



**Veterinary health:** MoAFW=Ministry of Agriculture and Farmer's Welfare, CADRAD=Centre for Animal Disease Research and Diagnosis, CWC=Centre for Wildlife Conservation Management and Disease Surveillance, ICAR=Indian Council of Agricultural Research, IVRI=Indian Veterinary Research Institute, MAFSU=Maharashtra Animal and Fishery Sciences University, NIVEDI=National Institute of Veterinary Epidemiology and Disease Informatics, NRCC=National Research Centre on Camel, MoFAHD=Ministry of Fisheries, Animal Husbandry and Dairying, CDDL=Central Disease Diagnostic Laboratory, LHDC=Livestock Health and Disease Control Scheme, NADCP=National Animal Disease Control Programme for Foot and Mouth Disease and Brucellosis.

**Biotechnology:** MoST=Ministry of Science and Technology, DBT=Department of Biotechnology, NPB=National Programme on Brucellosis, OHI=One Health Initiative.

**Wildlife health:** MoEFCC=Ministry of Environment Forest and Climate Change, CZA=Central Zoo Authority, PE=Project Elephant, WII=Wildlife Institute of India.

**Public Health:** MoHFW=Ministry of Health and Family Welfare, ICMR=Indian Council of Medical Research, IDSP=Integrated Disease Surveillance Programme, ISPCPZ=Inter-sectoral Coordination for Prevention and Control of Zoonotic Diseases, NCDC=National Centre for Disease Control, NRCP=National Rabies Control Programme, NVBDCP=National Vector Borne Disease Control Programme, COH=Center for One Health, CDSO=Central Drugs Standard Control Organisation, SCZ=Standing Committee on Zoonoses.

poultry through its 15 reporting sub-units across the country (NIVEDI 2015). NADRES is also fed by monthly updates from state animal husbandry and veterinary agencies, which fall within the domain of the MoFAHD.

Falling under the Livestock Health and Disease Control (LHDC) Scheme of the Department of Animal Husbandry and Dairying (DAHD) of the MoFAHD, the National Animal Disease Reporting System (NADRS) is a similar livestock disease reporting platform that collates information from 7,032 units across the country, down to the taluk level (DAHD 2019b). With the scope of daily incidence reporting through a mobile application, NADRS supports a near real-time disease monitoring and surveillance system (NADRS nd).

The National Centre for Disease Control (NCDC), New Delhi under the purview of the MoHFW's Directorate General of Health Services runs the Integrated Disease Surveillance

Programme (IDSP), a national surveillance programme of potentially epidemic diseases (IDSP 2020). It also has an outbreak response component in the form of Rapid Response Teams (IDSP 2020). IDSP draws on a network of 776 reporting units in the public health sector (IDSP 2020). About 96% of districts update the platform with weekly surveillance data (NCDC 2017). Through these efforts, the IDSP collates data on zoonotic diseases, such as anthrax, leptospirosis, and Kyasanur forest disease among others (MoHFW 2017).

**Control and mitigation of diseases:** The DAHD's Assistance for Control of Animal Diseases makes funding available to state governments for the control of zoonotic disease, bolstering laboratory facilities, and capacity building of veterinarians (DAHD 2019a). The DAHD recognises the importance of collaboration between state public and veterinary health departments and

advises state governments on the creation of a post of public health veterinarian (Bambal 2017).

NCDC is India's primary agency for disease control. The National Rabies Control Programme under NCDC makes an attempt at operationalising One Health with technical guidelines for the animal disease component being developed in collaboration with the MoFAHD and the MoAFW (NCDC 2020c). It has also developed a draft National Action Plan for Eliminating Dog Mediated Rabies from India following a One Health framing that clearly demarcates an inter-sectoral planning and reviewing mechanism that involves the MoFAHD, MoHFW, MoAFW, and the MoEFCC in addressing the animal and human disease components of rabies (NCDC 2020a).

The MoHFW's Department of Health Research has a network of about 106 Virus Research and Diagnostic Laboratories (VRDLs) across the country, and runs the Establishment of National Research Laboratories for Managing Epidemics and National Calamities Scheme through which it seeks to strengthen the existing surveillance and diagnostic infrastructure (DoHR 2020). Through this network, this scheme aims to combat epidemics and put measures in place to address emerging and re-emerging diseases (DoHR 2020). It is envisaged that a strengthened network of VRDLs will be in a position to better coordinate with state public health systems, IDSP, and NVBDCP (DoHR 2020).

**Network linkages:** The MoHFW's Department of Health and Family Welfare instituted the Programme for Inter-sectoral Coordination for Prevention and Control of Zoonotic Diseases (Inter-sectoral Zoonosis Programme) under the Twelfth Five Year Plan (2012–17), with the aim of utilising IDSP systems to develop a multiscale, inter-sectoral coordination mechanism to address “zoonotic diseases of public health importance” (NCDC 2019). Towards this, it looked to redeploy existing resources and infrastructure already in place within the veterinary, public health, and wildlife sectors, with most of its functionaries drawn from the IDSP system and the state health departments (NCDC 2019). The national Standing Committee on Zoonoses was constituted in 2006 under the joint chairpersonship of the Director General of Health Service, MoHFW and Director, NCDC. This inter-sectoral committee is constituted by members from a range of ICAR and ICMR institutions, and state health departments, with the Wildlife Institute of India (WII) as the lone MoEFCC representative (DGHS 2006).

Other One Health efforts include IVRI's Outreach Programme on Zoonotic Diseases with NIVEDI as a collaborator (NIVEDI 2019), and a One Health Initiative that was launched at the One Health India Conference convened by the Ministry of Science and Technology's Department of Biotechnology (DBT), in partnership with the MoFAHD, MoAFW, and MoHFW (OHIC 2019). The conference proposed the collaborative development of a One Health Roadmap and outlined some key priority areas, including the establishment of dedicated funding channels, a national policy on One Health, and an inter-ministerial One Health Commission (OHIC 2019).

This section outlines that national ministries are broadly cognisant of One Health principles and that there are a number

of inter-ministerial collaborations on zoonoses in India (Figure 2). However, these are largely disease-specific and there is inconsistency in terms of involving all the relevant sectors. Despite some promising efforts (Yasobant et al 2019), the country's overall response to zoonotic diseases is fragmented (Sekar et al 2011), and it is largely a case of different sectors focusing on their own priorities. Many of the collaborative initiatives that exist operate between the MoAFW and MoFAHD, which cannot exactly be termed inter-sectoral given that the latter was a department within the former until 2019.

### Missing the Inter-sectoral

In a scenario where inter-sectoral collaborations are not institutionalised, a number of aspects of tackling zoonotic diseases are bound to fall into the gaps. For instance, the MoFAHD's DAHD steers the National Animal Disease Control Programme for Foot and Mouth Disease and Brucellosis, a central sector scheme that aims to combat risks to human and animal health (NADCP 2019). This programme that envisages village-level serum screening for brucellosis, shows some promise of inter-sectoral collaboration in the scope it provides to involve veterinary officials at the district and subdistrict level (NADCP 2019). It receives laboratory support from the MoAFW's NIVEDI (NADCP 2019). NIVEDI is also associated with DBT's Network Project on Brucellosis. Therefore, the agriculture and animal husbandry sector, and the biotechnology sector to a smaller extent, engage with brucellosis. Yet brucellosis is a re-emerging zoonotic disease that particularly poses risk to those who work in the dairy and meat processing industries (Lindahl et al 2020). Furthermore, brucellosis is also a disease of concern for wildlife (Godfroid et al 2011). Yet neither the MoHFW nor the MoEFCC seem to have any role to play in brucellosis control.

The absence of the wildlife sector from zoonoses initiatives is a recurring feature. NIVEDI, which sees itself as well placed to spearhead One Health efforts in collaboration with other animal and public health institutions (NIVEDI 2015), does not make any reference to wildlife health. This is despite epidemiological surveillance of diseases of wildlife listed as an area of work (NIVEDI 2020). NIHSAD, which refers to One Health as an opportunity to create collaborative surveillance programmes involving veterinary and medical practitioners (NIHSAD 2015), also leaves wildlife out of the fray. State wildlife departments are prominently absent in the Inter-sectoral Zoonosis Programmes, whereas state public health and veterinary departments are mentioned (NCDC 2019).

Despite the well-accepted links between zoonotic diseases in wildlife and humans, the MoEFCC does not play a prominent role in addressing zoonotic diseases. The WII, Dehradun is a designated member in a number of zoonotic disease programmes of other ministries, but does not take an active role, even choosing to be absent from important deliberations such as that of the Standing Committee on Zoonoses (DGHS 2019). In its recent advisory addressing the import of “exotic live species” it does not make any references to zoonotic diseases (MoEF 2020), and appears largely oblivious to this concern (MoEF 2020).

One of the MoEFCC's initiatives on zoonotic diseases is the preparation of a standard operating procedure on anthrax developed by the project elephant division, that has an inter-sectoral bent, albeit marginally, in that it seeks the involvement of a district veterinary officer in tackling anthrax in captive and wild elephants (MoEF 2019). WII has a department of wildlife health management that has a mandate for the integration of veterinary medicine and wildlife management, and is envisaged as an interdisciplinary initiative that will involve the public health sector (WII 2020a). However, other than broad references to training programmes, consulting services for government departments, and a couple of studies on wildlife diseases (WII 2020a, 2020b), there is little clarity on the role of this department in tackling zoonotic diseases.

Existing One Health programmes in India also suffer from a lack of authority. An initiative, such as the Inter-sectoral Zoonosis Programme has limited scope to foster inter-sectoral collaboration because it is institutionally situated within the MoHFW. While it can suggest the involvement of veterinary and wildlife authorities at the state and sub-state levels (NCDC 2020b), it does not have the authority to mandate it. Even though the regional coordinators have a mandate of fostering inter-sectoral collaboration, the reporting requirements of the Inter-sectoral Zoonosis Programme indicate that administrative tasks such as the development of standard operating protocols for diagnosis of zoonotic diseases are the main focus area (NCDC 2019).

Regional coordinators do not face the same measure of scrutiny regarding their efforts to coordinate the state zoonosis committees, identify state focal points, or actively involve state veterinary and wildlife departments. This may simply be borne from practical considerations on account of the limited capacity of this programme to achieve these targets. Similarly, although the Standing Committee on Zoonoses can direct MoFAHD and ICAR institutions to include health officers when developing guidelines for animal diseases (DGHS 2019), it does not necessarily have the power to enforce this. This may be a reason why the committee is admittedly lagging behind its goals (DGHS 2019).

The IDSP is largely a data-collating exercise with some limited data-sharing between different sectors. It remains a surveillance platform that is entirely public health focused, with some capacity for training modules, including epidemiological training at the state and district levels (IDSP 2020). It is also admittedly human-centric with no integration of veterinary and wildlife disease data as it stands (IDSP 2020). A reconstitution exercise undertaken for state and district surveillance committees in 2019 to ensure their "revival" suggest that these are not entirely functional, although the revision promisingly specifies the appointment of representatives from the environment, wildlife, and animal husbandry department at the state and district levels to both bodies (MoHFW 2019).

Despite these institutional barriers, there is an increasing realisation of the relevance of the One Health framework in combating zoonoses. In 2019, the Standing Committee on Zoonoses proposed to reconstitute itself to encourage better representation of the MoEFCC, and to assign a nodal officer

under each ministry to oversee collaboration (DGHS 2019). A memorandum of understanding between the MoFAHD, MoAFW, MoHFW, and WII in this regard was also expected (NCDC 2020b). Similarly, requests from the MoHFW to MoFAHD to nominate veterinarians to the Rapid Response Teams under IDSP (MoHFW 2017) led to 27 states filling the post of veterinary consultant, while 24 states and 444 districts established Rapid Response Teams that included veterinarians (DGHS 2019).

At the level of individual institutions and programmes there are yet more instances of collaboration. NIVEDI aims to link NADRES data with NADRS for quicker and laboratory-confirmed disease reporting from subdistrict veterinary units (NIVEDI 2015). The MoFAHD makes similar overtures (NADRS nd), although it is still unclear how both these platforms will talk to each other. NIVEDI is engaged in a national surveillance project for anthrax which aims to develop response strategies that bring together multiple government agencies across the public health, animal health, and environmental sector (NIVEDI 2019). Some guiding principles and outlining of the role of diverse ministries and agencies with a One Health framing has been attempted by NCDC through a technical bulletin with respect to Kyasanur forest disease (NCDC nd). Although these efforts are welcome, they still fall short of establishing a fully functional and integrated One Health mechanism to address zoonotic diseases (Yasobant et al 2020).

### Operationalising the One Health Approach

International One Health guidelines prescribe a series of measures towards establishing a One Health framework. Among others, it calls for making the existing sectoral systems across public, veterinary, and wildlife health institutions robust (Berthe et al 2018). Within the MoEFCC, only the Central Zoo Authority appears to have some inter-sectoral linkages as a result of its association with ICAR-IVRI's CWC (IVRI 2018c). The absence of institutions that can comprehensively address zoonotic diseases prevalent in wild animals, and the dearth of veterinary professionals with wildlife experience (Aggarwal 2020) are indications of the structural flaws in the One Health initiatives undertaken thus far in India. The schema of IDSP, NADRS, and NADRES make data-sharing between the animal and public health sectors difficult (Dinesh et al 2020), and the absence of data from the wildlife sector remains a major lacuna in operationalising One Health efforts (DGHS 2019).

International One Health Guidelines strongly favour the creation of a multisectoral coordination mechanism that is institutionally located a level above sectoral ministries (WHO-FAO-OIE 2019). The limitations of a forum, such as the Inter-sectoral Zoonosis Programme make a good case for a supra-ministerial One Health mechanism that is not located within or reporting to a single ministry. The One Health Initiative led by DBT suffers from much the same concerns since it is also located within a single ministry. Further, it is largely a continuation of discussions on One Health within and across ministries and programmes, without actually establishing the institutional mechanisms, functionaries, and funding sources necessary to create a One Health framework for the country.

Above all, a sustainable One Health framework calls for dedicated funding channels (WHO-FAO-OIE 2019). The existing allocations for zoonotic diseases are ministry-specific, and the absence of funding for inter-sectoral collaboration hampers India's One Health efforts. A recent meeting of the Standing Committee on Zoonoses, which discussed financial and human resource support for states to tackle zoonotic diseases, assumed budgetary allocations to be the sole responsibility of the MoHFW (DGHS 2019). Within the MoHFW too, under the Twelfth Five Year Plan (2012–17), ₹400 crore were sanctioned for establishing branches of NCDC across all states (NCDC 2017). Contrast this with the meagre funds allotted to the Inter-sectoral Zoonosis Programme—₹8.68 crore for the period 2017 to 2020 (NCDC 2019).

### Conclusions

As we have shown, designing and operationalising an intersectoral One Health framework is challenging. Zoonotic diseases make the links between biodiversity and health blatantly, and dangerously, obvious. However, further work is required to effectively integrate these links into the One Health framework (CBD 2017). In this paper we have highlighted India's institutional networks on zoonoses and identified sectoral overlaps, gaps, and synergies. In doing so, this paper undertook a first-cut institutional network map of zoonoses control in India, which is a critical step to developing a One Health framework (WHO-FAO-OIE 2019). A more comprehensive governance network analysis that also includes state agencies would present a fuller picture, particularly if it is undertaken jointly by key sectoral agencies (Berthe et al 2018), that can then also formulate policy mechanisms to address the gaps.

At the heart of it, One Health requires a broad spectrum of collaboration and ownership across core and related

ministries, departments, and programmes (WHO-FAO-OIE 2019). The key step to operationalising One Health is forming the right partnerships and a joint interdisciplinary vision (Berthe et al 2018). For example, an interdisciplinary study on Kyasanur forest disease by government and non-governmental institutions from the public health, veterinary health, and the wildlife and forestry sectors revealed novel ecological and sociological risk factors for the emergence of the disease (Purse et al. 2020). The project used a co-production approach to model new hotspots of outbreaks, and integrated with public health practitioners to implement mitigation measures such as vaccination ahead of the outbreak season (Purse et al 2020).

The “OneHealth and Zoonoses” programme of the proposed National Mission on Biodiversity and Human Well-being proposes to bridge many of the gaps highlighted here by setting up multi-agency sentinel surveillance sites that will serve as open research platforms for systematic and integrated One Health surveillance. Further it will provide the necessary funding and institutional framework to build capacity for the next generation of One Health actors from diverse fields. It will also enhance infrastructure for One Health surveillance across India, including guiding the setting up of high security biosafety laboratories. Operationalising One Health at a national scale will require the setting up of the necessary inter-ministry and supra-ministry coordination cells to support the mission. A whole-hearted government-backed effort towards this will only come when the outcomes and impacts of zoonotic diseases in every sphere—the economy, food safety, and poverty alleviation, for instance—are visible to all. The wake of a zoonotic pandemic is perhaps the right time for such a push.

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