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Perspective

Need to demystify One Health approach

The Wildlife Conservation Society, in a symposium in 2004, had given a call for collective multisectoral global action to improve the health of humans, animals, and the environment through a 'One World One Health' approach[1]. The call enunciated 12 Manhattan Principles that essentially recognized the crucial interconnectedness between human, domestic animal and wildlife health. These emphasized the imminent threat of diseases to people, their food supplies, economies, and the indispensable biodiversity essential for maintaining healthy environments and functioning ecosystems[1].

Over the past two decades, One Health has caught the attention of global agencies and leaders. However, there are several complexities hidden under the One Health approach. These need to be simplified for effective implementation of this approach for the containment of antimicrobial resistance (AMR), zoonoses control, strengthening pandemic preparedness and response (PPR) and implementing International Health Regulation (2005). Such complexities pertain to One Health's definition, comprehensiveness of existing technical documents, diverse spectrum of stakeholders and specific intricacies of zoonoses control, AMR and PPR, particularly in developing countries, including India.

Definition of One Health: comprehensive but complex

The United Nations established the 'One Health High Level Expert Panel' (OHHLEP)[2], which defined 'One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems'. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent. The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems while addressing the collective need for clean water, energy and air, safe and nutritious food, taking action on climate change, and contributing to sustainable development'[3]. Various international technical agencies including the Quadripartite FAO-WHO-WOAH-UNEP have accepted this definition. However, such a long definition, despite its comprehensiveness, sub-optimally conveys its precise and simple meaning to the implementers at the district and peripheral levels. There is a need to simplify the OHHLEP definition to this target population and emphasize the core essence, which is essentially 'working together for improving human and animal health and their shared environment'. Simplifying the concept to underscore this fundamental idea can enhance understanding and promote effective implementation of One Health principles. This is achievable through enhanced communication capacity of the health system, and those of other sectors, and conveying unambiguous messages and assuring faithful compliance, and thus mitigating some of the barriers to the implementation of One Health[4].

While the comprehensiveness and characteristics of the OHHLEP definition are beyond doubt[3,5], the major concern is about a better and more accurate understanding of One Health concept and its efficient implementation especially by the workers at peripheral and rural areas. Issue of inadequate awareness and knowledge among policy makers, professionals and community have been highlighted by Yopa *et al*[6]. Communicating essence of One Health to all target groups, in a language and with contents that are easily understood by them is prerequisite for encouraging all stakeholders to contribute towards achieving One Health. Effective communication involves understanding their unique needs, interests, and priorities and framing the message in a way that resonates with them. Effective communication requires a nuanced approach that is simplified, focussed and tailored to the diverse audience groups[7].

Improved understanding of One Health approach, through sustained and target-oriented communication

should aim at having a shared and accurate understanding of the complexity of the One Health so that planners, implementers, technical professionals and potential beneficiaries are on same page regarding health and economic benefits. The simplification should address barriers and obstructions. It is possible by initiating comprehensive awareness on basic underlying principle of working together across the sectors to address emerging health challenges in a language that is easy to understand by policy makers for promoting its use and allocation of adequate resources[4].

One Health is a complex approach but provides efficient solution for multi-faceted challenges. To make its benefits acceptable to all stakeholders, and to extensively deploy One Health approach, it is imperative to have a strong political commitment that is translated into an efficient well-funded programmatic mechanism that assures seamless intersectoral and multidisciplinary operations from planning to monitoring stages utilizing the expertise and infrastructure available in different sectors. Evidence base on the benefits of One Health through technical and scientific studies need to be broadened. This will provide strength to the programme and facilitate strengthening of engaged sectors. This acquired knowledge can subsequently be translated into actions and specific interventions.

Capacity enhancement of all categories of human resource both in technical and management aspects of One Health will go a long way in making people understand One Health and willingly work together and share their resources for the common good. Several field studies, most from the developing countries, have demonstrated efficacy of One Health[7]. These good practices should be made accessible to all stakeholders as evidence of feasibility and benefits of One Health approach. Such elaboration will unmask the complexity of One Health approach.

An important reason for inadequate traction for One Health is the lack of evidence-based awareness that can facilitate decision and policy making at senior administrator level-most of whom may not have technical background. Making them understand the scientific and economic benefits of applying One Health approach shall convince them to push forward the agenda of One Health. It is possible by initiating comprehensive awareness on the basic underlying principle of working together across the sectors to address emerging health challenges in a language that is easy to understand by policy makers for promoting its use and allocation of adequate resources[4]. This would warrant enhanced capacity across sectors on all aspects of One Health including unambiguous understanding on awareness on its benefits to all sectors and communities.

There are several field studies from India and other developing countries that demonstrate the efficacy of One Health approach. A 30 per cent decrease in animal bite/exposure cases in study villages was observed after the one health project was implemented[8]. Similarly, zoonoses control could achieve tangible success in Tanzania with One Health approach[9]. Several cases studies from the field including developing countries[8] are now available but remain within scientific realm. Bringing them to the knowledge of policy makers and other technologists could lead to wider adaptation of such approaches, initiate collaboration and sharing of the technical and financial resources of different administrative units or ministries. At present, in most countries, the components of the One Health approach (human health; animal health; food animal rearing; agrifood systems, specifically crops/plants; and environment) are administratively overseen by different ministerial (federal and local) departments or conglomerates. They have administratively independent mandates, which also determine separate budgets.

Plethora of technical guidelines and stakeholders: Apart from complex definition, One Health is beset with several complexities which are bound to act as obstacles in its implementation. Several guidelines from Quadripartite of FAO-WHO-WOAH-UNICEF and other global technical agencies are available[10-12]. Technically these are accurate but are beyond the scope of their efficient application in developing countries, especially the peripheral and rural areas. Countries must ensure converting these exhaustive technical documents into simplified standard operating procedures or instruction manuals tailored to the country context to ensure high local users' acceptance.

One Health touches every sphere of life. The number of stakeholders is numerous. This is good but also makes execution complex. India's National One Health Mission has enumerated various stakeholders in the Indian context[13], which include the ministries of health, veterinary services, environment, pharmaceuticals, biotechnology, national councils for medical, scientific & industrial and agricultural research, defence research and development organizations, various departments of State governments, private sector, civil society,

international development partners and community representatives[13].

Fundamental to One Health is 'working together.' All stakeholders have to operate in a harmonized manner to achieve the best results. However, one needs to recognize that no two stakeholders are the same. Aligning all stakeholders towards the common objective of One Health is critical to the commencement of the project or the programme. Many different stakeholders can also pull the project team in too many directions. Continuous monitoring of performance and understanding of all stakeholders shall facilitate expected outcomes.

Multisectoral complexity of AMR

Antimicrobial resistance (AMR), though recognized globally as a serious public health challenge and a silent pandemic, continues to be ignored, underestimated and unrecognized. Its complexities are like an unopenable Gordian Knot[14]. This multisectoral complexity has prevented developing countries from bending the curve. There is an urgent need to simplify the complexities of AMR, enabling better understanding by policymakers, antimicrobial prescribers, and users. Its multifaceted dimensions, coupled with incomplete comprehension, have obstructed any significant gains in combating AMR. This is evident from the poor progress in implementing various National Action Plans (NAPs) in numerous countries. Consequent to the formulation of Global Action Plan on AMR in 2015 by the WHO[15], almost all countries have developed their respective national action plans against AMR. Still, just 57 per cent adopted budget and programmatic approaches, while only nine per cent of countries have started witnessing impactful implementation[16]. Identifying the reasons for the suboptimal performance of various NAPs on AMR, with an allowance for the COVID-19 pandemic, to take off and suggesting suitable measures to launch simple-to-implement and cost-effective programmes are therefore urgently necessary. Exploring the integration of AMR control within the broad gambit of Universal Health Coverage could offer a promising avenue for addressing the global issue[17].

AMR and environment: internecine linkages: Global attention to AMR has been dominated by a focus on the human health and agriculture sectors. However, evidence is mounting that environmental drivers play a significant role in AMR development, transmission and spread, including transmission to humans and animals[18]. One of the important AMR complexities is the seamless movement of resistant microbes and genes across sectors. This necessitates simultaneous actions in human health, animal health and environment sectors in the true spirit of One Health[19]. Environment plays a triple role in the whole dynamics of AMR. It is the recipient of resistant genes, provides a conducive milieu for the exchange of genetic material between microbes and subsequently acts as a reservoir for humans and animals through the food chain[20,21]. Sometimes, the extent of the environment where AMR proliferates remains unrecognized. The potential of the environment to create a conducive milieu for the transfer of resistant genes is enormous and recognized as a global problem[22].

Amplification of AMR in the environment is followed by transmission of resistant pathogens/genes to humans and animals through the food chain, resulting in difficult-to-treat enteric infections.

One Health and pandemic preparedness and response (PPR)

Public health emergencies are occurring more frequently than ever[23]. Given the occurrence of two pandemics and several health emergencies during the current millennium itself, it is imperative to strengthen national PPR with a 'One Health approach'. The COVID-19 pandemic demonstrated, through significant mortality and morbidity, global unpreparedness in confronting such challenges[24].

WHO has been advocating the utilization of the One Health approach in several areas notably International Health Regulation (2005)[25] as many existing threats to human health, including zoonotic diseases, food-borne diseases, chemical events, radiological events, and antimicrobial resistance, are complex, and cannot be managed by the human health sector alone. WHO takes multisectoral approaches to monitor and evaluate of country capacities under IHR (2005). In consonance with fundamentals of One Health, WHO is also advocating use of 5C's collaborative surveillance, community protection, safe and scalable care, access to countermeasures and emergency coordination[26].

Based on self-assessment, India has claimed to have 85 per cent capacity as enunciated in the International Health Regulation (2005), including 100 per cent capacity to respond to zoonotic infections[27]. However, it is yet to undergo an independent joint external evaluation[28]. According to the Global Health Security Index, India ranks 66th out of 195 countries, with a score of 42.8 per cent[29]. Clearly there is a need to improve the rankings and scores of these

parameters by all the countries. Prioritizing zoonoses and pandemic preparedness and response using One Health approach is crucial. It is well known that many pathogens originating from animals are responsible for causing endemic diseases as well as initiating pandemics[30].

Most of the recent public health emergencies have their origin from wildlife – another neglected area in our scheme of things where One Health can play a critical role. It is estimated that between 320,000 to 850,000 viruses[31,32] are lurking in the wildlife and have the potential to reach human habitation through land-use changes and environmental degradation. Most of these viruses are transmitted from wildlife through bats which act as carriers and vectors of these viruses. An integrated surveillance on role of animals, especially bats is essential to detect migration of novel viruses from hidden wildlife to human and livestock populations. The integrated surveillance should be at district level to gather data and immediate mounting of public health response in true spirit of One Health[32].

Since fundamental of One Health is working together, one should not construe that a stand-alone consolidated structure of One Health is needed. Rather, it is imperative to strengthen health systems along with capacity of each sector according to its mandate and foster collaborate with other relevant sectors through 5Cs, *i.e.*, capacity, cooperation, collaboration, communication, and coordination. In simple words, this entails working together with active oversight and guidance from all elements of the ecosystem. This working together is the essence of One Health and must form the basis of demystifying One Health to a wide spectrum of stakeholders.

Way forward

The essence of One Health is working together across the sectors to achieve the common objective of promoting and protecting human and animal health as well as environment. Through strong advocacy at the highest level, one health needs to be integrated into various multisectoral policies. This is possible only when a productive and evidence-based awareness amongst policy makers is created.

One Health has remained a theoretical concept so far. Time has come to convert conceptualized framework into impactable field actions, upgrade One Health from a purely government programme to comprehensive whole-of-society response with a multisectoral approach and joint execution of interventions. Simplifying the principles of One Health, and communicating these in an effective way is essential to improve governance, foster multisectoral collaboration and facilitate impact-oriented implementation. By embracing the whole-of-society response we can harness the benefits of One Health concepts and approach to strengthen IHR (2005) PPR, zoonoses control and mitigate threat of AMR thereby preventing the world from sliding into dark post-antibiotics era.

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