

राष्ट्रियान वैचारिक

SPECIAL Edition

From the Office of PSA

विज्ञान धारा

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Foreword By:
Prof. Ajay Kumar Sood
Principal Scientific Adviser
to the Government of India

A Vision for a Healthier, Sustainable Future



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Scientific Secretary,
Office of the Principal Scientific Adviser
to the Government of India



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Foreword



Prof. Ajay Kumar Sood

Principal Scientific Adviser
to the Government of India

The National One Health Mission marks a significant step forward in our nation's commitment to ensuring a sustainable future. The intricate relationship between human, animal, and environmental health underscores the need for a holistic approach to address complex health challenges.

One Health and its underlying principles are deeply rooted in India's culture and history. The National One Health Mission formalises this intrinsic understanding and provides a platform for diverse stakeholders to collaborate and foster innovative solutions.

As we navigate an increasingly interconnected world, the focus on One Health is more crucial than ever.

In a world facing the constant threat of disease outbreaks and pandemics, the Mission's proactive approach is essential. By fostering collaboration among different Government Ministries/ departments and a wide range of other stakeholders - healthcare professionals, veterinarians, environmental scientists, NGOs and multilateral organisations, the Mission aims to develop a comprehensive pandemic preparedness plan for human, animal and environmental sectors.

The National One Health Mission is a visionary initiative that recognises the urgency of addressing pressing health challenges. Several initiatives across sectors are being implemented through the Mission. I am confident that the Mission will play a pivotal role in addressing the health challenges of our time and drive a positive change.

Anchoring the efforts of the National One Health Mission is the National Institute for One Health (NIOH), Nagpur. NIOH is envisioned as a hub for research, development, training, and capacity building. It will serve as the cornerstone of the nation's One Health strategy. The foundation stone for this ambitious project was laid by the Hon'ble Prime Minister Shri. Narendra Modi on December 11, 2022. The establishment of NIOH marks a significant step forward in India's commitment to the One Health approach, ensuring a healthier and more sustainable future for all.

It gives me great pleasure to bring out this edition of Vigyan Dhara, dedicated to the National One Health Mission. I encourage you to explore and discover how the Mission is working to create a healthier and more sustainable future for India. This publication will provide insights into the Mission's progress, highlight success stories, and inspire action. I invite you to read through the newsletter and ascertain how you can contribute to the Mission goals.

Together, we can build a healthier world for ourselves and future generations. Let us embrace the principles of One Health and work towards a sustainable and resilient India.



Inauguration of the National Institute for One Health by the Hon'ble Prime Minister



From the Scientific Secretary's Desk



Dr. Parvinder Maini

Scientific Secretary,
Office of the Principal Scientific Adviser
to the Government of India

I am pleased to introduce the special edition of our newsletter Vigyan Dhara, which captures India's growing leadership in the global One Health movement. Since the beginning of this Mission, we have witnessed tremendous strides in uniting diverse sectors — human, animal, and environmental health — towards a holistic and collaborative approach to address emerging health challenges.

India is at a critical juncture, where rapid urbanisation, climate change, socio-economic and other demographic factors have contributed to the rise in the incidences of infectious diseases. This demands comprehensive and robust preparedness, and response systems for holistically addressing the health, and well-being of all organisms. The National One Health Mission has brought together policymakers, researchers, and practitioners across disciplines to develop innovative strategies that protect the health of humans and animals while preserving our ecosystems. This synergy between various stakeholders underscores our commitment to improve health outcomes not only for our people but also for our planet.

This is a unique endeavour which brings together more than 13 departments who have played a pivotal role in conceptualising, developing and shaping the Mission's trajectory.

The Mission envisions to improve health outcomes at all levels. At the grassroots level, we are actively engaging with the state governments to support the implementation of One Health approach that addresses specific state-level challenges and enhances preparedness for

disease outbreaks. The positive response from state governments has reinforced the Mission's critical importance for India. The state engagement can provide a platform for knowledge sharing and dissemination of best practices.

This edition of the newsletter focuses on covering stories from Gujarat and Kerala that have been nominated to participate in the governing committees of the Mission at the national level, for the first two years.

On the global stage, India's G20 presidency highlighted the significance of One Health, and we continue to engage in the global One Health discourse for the holistic well-being of our planet by advocating for a global network that fosters knowledge sharing and facilitates effective responses to future pandemics and epidemics.

India is forging a new path that showcases the power of cross-sectoral partnerships. Furthering this edition, we intend to share knowledge and highlight the work happening in the One Health space across the country through a dedicated newsletter titled "*Sarvasya Aarogyam*". Its editions hereafter will also showcase success stories and best practices from the stakeholders of the Mission.

I urge everyone to engage with the initiatives shared in this newsletter and continue driving our collective Mission forward to make One Health a reality for all. Our work is crucial in building a healthier and more resilient future, and I look forward to the impactful collaborations that lie ahead.



Key Messages from Government Stakeholders

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India's National One Health Mission encompasses a multi-sectoral and whole-of-government strategy focused on Pandemic Preparedness, Integrated Surveillance, Strengthening Prevention and Joint Outbreak Investigation across human, livestock and wildlife ecosystems. The Mission aims to converge research and development, data and databases, regulatory systems and governance streams into a synergistic endeavour to protect the nation from zoonotic outbreaks and pandemics.

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Dr. Vinod Kumar Paul
Member (Health),
NITI AAYOG

“

The National One Health Mission is a comprehensive initiative recognising the interconnectedness of human, animal, and environmental health. Indian Council of Medical Research (ICMR) is committed to the Mission's vision of building an integrated disease control and pandemic preparedness system in India. The National Institute for One Health, Nagpur, established under the aegis of the National One Health Mission, is envisioned as a hub for research, development, training, and capacity building. The Institute is in its nascent stages, but a core team of scientists are actively engaged in research activities. ICMR through a multi-pronged approach for One Health, has spearheaded research on zoonotic diseases, helped enhance disease surveillance systems across the country, trained a cadre of scientists and researchers in One Health principles as well as fostered strong collaborations with other government agencies, academic institutions, and international partners.

”



Dr. Rajiv Bahl
Director General,
Indian Council of Medical Research (ICMR) &
Secretary, Department of Health Research



Key Messages from Government Stakeholders

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National Centre for Disease Control envisions a robust One Health framework where human, animal, and environmental health sectors collaborate seamlessly to prevent and control zoonotic diseases. Strengthening sentinel surveillance sites, establishing collaborative surveillance mechanisms, enhancing risk communication, community engagement, and building transdisciplinary capacity at the district level are key pillars of our commitment. These efforts are shaping a future of proactive, coordinated, and data-driven responses to emerging public health threats.

”



Ms. Punya Salila Srivastava
Secretary,
Ministry of Health & Family Welfare (MoHFW)

“

Biosecurity is crucial for protecting human health, animal health, agriculture, and the environment from biological threats. The COVID-19 pandemic highlighted the need for a “whole of nation approach” while dealing with Bio-threats. Under the National One Health Mission, a mock drill “Vishanu Yuddh Abhyas” was conducted in Rajasthan, depicting a realistic scenario of a health emergency to test the response mechanisms of the National Joint Outbreak Response Team in field conditions. The mock drill clearly brought out the importance of strengthening the Biosecurity & Biosafety aspects in the event of a Bio-threat. This first of its kind mock drill conducted in India, can be utilised as a model by any State / District or Department to test their response SOPs in case of a health emergency/Bio threats.

National Security Council Secretariat (NSCS)

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Key Messages from Government Stakeholders

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The National One Health Mission exemplifies a whole-of-government approach, uniting over 13 departments with national and international partners in a crucial collaboration. Spearheaded by the Office of the Principal Scientific Adviser, the Mission aims to coordinate across sectors achieving overall pandemic preparedness and integrated disease control against priority diseases of human, animal and environment sectors. By collaborating with the states, the Mission showcases India's commitment to proactive, interdisciplinary solutions, fostering resilience through innovation and cross-sectoral partnerships.

”



Dr. Parvinder Maini
Scientific Secretary,
Office of the Principal Scientific Adviser
to the Government of India

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The Department of Animal Husbandry & Dairying (DAHD) is committed to strengthening animal health security, mitigating zoonotic risks, and improving livestock-dependent livelihoods under the One Health approach. As part of this vision, the Department is implementing the G20 Pandemic Fund Project on "Animal Health Security Strengthening in India for Pandemic Preparedness and Response," with a funding of 25 million USD. This is a crucial project in reducing the threat of zoonotic diseases.

Additionally, the Livestock Health and Disease Control Programme ensures 100% centrally assisted vaccination against major livestock diseases. Through the National Digital Livestock Mission (NDLM)-Bharat Pashudhan Application, livestock-related activities, including traceability measures, are digitally registered, advancing disease control and management.

Through these efforts, DAHD is enhancing pandemic preparedness, safeguarding animal health, and reinforcing disease prevention measures.

”



Ms. Alka Upadhyaya
Secretary,
Department of Animal Husbandry & Dairying (DAHD)



Key Messages from Government Stakeholders

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The Department of Biotechnology is committed to advancing research and development under the One Health framework by fostering innovations in vaccines, diagnostics, and therapeutic solutions. These are crucial for the country's pandemic preparedness. Successful implementation of the National One Health Mission will rely on these key pillars of preparedness and surveillance to detect outbreaks and avert the impact of infectious disease outbreaks.

”



Dr. Rajesh Sudhir Gokhale
Secretary,
Department of Biotechnology (DBT)

“

The Central Zoo Authority (CZA) supports biodiversity conservation through the One Health approach, linking animal health, ecosystem integrity, and human well-being. It ensures the protection of zoo animals and ecosystems, contributing to a healthier environment for humans. The CZA also provides training on wildlife health management to zoo personnel, veterinarians, and relevant stakeholders, strengthening national capacity to address health challenges.

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Shri Tanmay Kumar
Secretary,
Ministry of Environment, Forests &
Climate Change (MoEF&CC)



Key Messages from Government Stakeholders

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Indian Council of Agricultural Research has been spearheading agricultural research, education and extension activities for productivity enhancement and diversification of Indian agriculture. Our vision to strengthen food security and minimise the risk of zoonotic diseases are aligned to the goals of the National One Health Mission. By undertaking R&D projects on animal diseases, developing disease-resilient livestock, promoting sustainable agriculture, ensuring food safety, and building capacity among stakeholders, we are committed to developing a healthy ecosystem.

”



Dr. Himanshu Pathak

Former Director General,
Indian Council of Agricultural Research (ICAR) &
Former Secretary, Department of
Agriculture Research and Education (DARE)

“

The Department of Pharmaceuticals is committed to advancing the goals of the National One Health Mission by ensuring access to quality, affordable medicines and driving pharmaceutical innovation.

The Department is promoting research and innovation in pharmaceutical and medical technology sectors through the “Scheme for Promotion of Research and Innovation in Pharma MedTech Sector (PRIP)” to better address emerging health challenges.

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Shri Amit Agrawal

Secretary,
Department of Pharmaceuticals (DoP)



Key Messages from Government Stakeholders

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As part of the National One Health Mission spearheaded by the Office of PSA, CSIR, in collaboration with other organisations, is carrying out wastewater surveillance to monitor antimicrobial resistance (AMR). We have launched a multi-institutional AMR Mission to discover new chemical entities. Furthermore, CSIR also plans to embark on a Mission-mode One-Health project to investigate zoonotic and reverse zoonotic transmissions among rural and urban populations.

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Dr. N. Kalaiselvi
Director General,
Council of Scientific & Industrial Research (CSIR) &
Secretary, Department of Scientific &
Industrial Research (DSIR)

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The Ministry of Ayush promotes a holistic approach to healthcare by integrating traditional and integrative medicine systems, aligning with the core principles of the National One Health Mission. Ayush systems provide a deep understanding of preventive, therapeutic and holistic health practices. These systems emphasise a comprehensive and sustainable healthcare system for the nation, aligned with the principles of the Mission and aiming to realise the vision of One Earth, One Family, One Future.

”



Dr. Vaidya Rajesh Kotecha
Secretary,
Ministry of Ayush



Key Messages from Government Stakeholders

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DRDO is committed to strengthening India's Biological Defence Capabilities as a major stakeholder and technology partner to the National One Health Mission being steered by the Office of PSA. World-wide threats due to emerging infectious diseases and pathogens are of great concern to our country given the scale of our population of humans and animals. The Mission provides a strong framework to prioritise biosecurity through inter-agency collaboration, ensuring seamless coordination across the ministries catering to the health and well being of humans, livestock, agriculture, environment and wildlife.

DRDO has undertaken several initiatives that will contribute towards this national objective. It is also engaged in fundamental research on viruses, bacterial pathogens and toxins. DRDO has developed high-end technology, intensive verification mechanisms for confirmation of pathogens of interest. DRDO has established state-of-the-art training facilities for tackling Chemical, Biological, Radiological and Nuclear emergencies. This knowledge will be highly useful in achieving the objectives of the National One Health Mission; HEALTH FOR ALL.

”

Dr. Samir V Kamat
Chairman,
Defence Research and Development
Organisation (DRDO)



Key Messages from Government Stakeholders

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For the Department of Science and Technology, the Mission represents an opportunity to harness cutting edge technologies for integrated health solutions. DST will drive innovation in areas such as early-warning systems, data integration platforms, and predictive modeling for disease outbreaks. Additionally, it will promote cross-disciplinary research to address health challenges at the human-animal-environment interface, ensuring evidence-based decision-making and preparedness for future pandemics.

”



Prof. Abhay Karandikar
Secretary,
Department of Science &
Technology (DST)

“

Strengthening disaster resilience requires a holistic approach—integrating health sector preparedness, safeguarding animals from disaster impacts, and conducting tabletop exercises to identify and bridge preparedness gaps. Through proactive planning and collaboration, we can build a future where communities, ecosystems, and livelihoods withstand and recover from disasters more effectively.

”



Shri Rajendra Singh
Head of Department & Member,
National Disaster Management
Authority (NDMA)



National One Health Mission: Transforming India's approach to integrated health outcomes

– Dr. Rajiv Bahl

Director General,

Indian Council of Medical Research (ICMR) &
Secretary, Department of Health Research

Today, the world is facing a unique set of challenges which include emerging infectious diseases, antibiotic resistance, foodborne illnesses, and environmental degradation; all of which have significant implications for health. Increasingly, we are recognising that these problems are not isolated but interconnected. In a country like India, with its rich biodiversity and ethnic heterogeneity, a collaborative, integrated and multisectoral approach for holistic health of humans, animals and environment is not just essential but also pivotal to overall social and economic progress.

The National One Health Mission (NOHM) is a cross ministerial effort to coordinate, support, and integrate the activities of One Health significance in the country. It has been set up as

per the recommendations of the Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC).

The primary goal of the Mission is to achieve overall pandemic preparedness and integrated disease control against priority diseases of human, animal and plant sectors, with early warning systems built on integrated surveillance systems and response readiness for endemic as well as emerging epidemic or pandemic threats. The Mission will also address critical pillars of preparedness in the form of targeted research and development to develop important tools such as vaccines, diagnostics and therapeutics; access to advanced genomic tools for metagenomics and waste water surveillance; readiness in terms of clinical care, streamline



Launch of the slaughter house surveillance study under One Health Mission



data and information linkages and access across sectors; and develop models of close community participation to keep our readiness to respond.

In alignment with the National One Health Mission, Indian Council of Medical Research (ICMR) undertook an intense review of literature and deliberations to identify priority pathogens and develop syndromic algorithms for disease diagnosis in surveillance settings for different syndromes such as Acute Febrile Illness (AFI), Acute Encephalitis Syndrome (AES), Acute Respiratory syndrome, and Acute Diarrhea. The development of syndromic algorithms for disease diagnosis in surveillance settings served the twin purposes of establishing disease diagnosis protocols and also led to mapping of available kits /methods for infectious pathogens presenting across syndromes. Thus, ICMR has identified gaps in the currently available diagnostics and is now collaborating with industry partners for co-development of diagnostics, as well as vaccines and monoclonal antibodies for diseases of national importance.

Efforts have been initiated with other departments and private companies, to develop and implement medical countermeasures (MCMs) for emerging viral diseases such as Avian Influenza, Kyasanur Forest Disease (KFD), Nipah virus, and Chandipura virus.

Through these countermeasures, it is aimed to mitigate outbreaks and reduce fatalities through a combination of vaccines, antiviral drugs, diagnostics, surveillance, and modern artificial intelligence based tools.

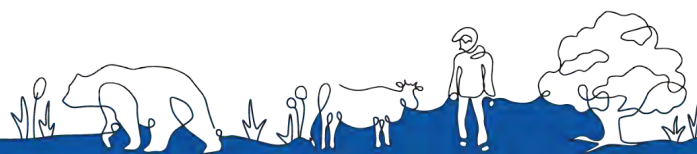
Initiatives to develop models for integrated surveillance with other ministries and sectors in settings with increased animal-human environmental interaction are being undertaken. Such studies focusing on integrated One Health surveillance in humans, animals / birds, environment have been launched in slaughterhouses and bird sanctuaries currently.

The One Health surveillance in selected slaughterhouses in Ludhiana, Guwahati and Telengana is targeting identification of important zoonotic pathogens that have been prioritised for identification in humans, animals and slaughterhouse environment. A similar study is being initiated in bird sanctuaries and wetlands to capture zoonotic infections and potential spillover among bird sanctuary workers, migratory birds, ectoparasites and the environment in select locations across Maharashtra, Sikkim and Tamil Nadu.

In efforts towards pandemic preparedness, a comprehensive national mock drill, Vishanu Yuddh Abhyas (VYA) was also conducted in Ajmer district of Rajasthan state, from August 27 to August 31, 2024. During VYA, an avian Influenza outbreak was simulated. This exercise aimed to evaluate the readiness and response of the National Joint Outbreak Response Team (NJORT) composed of experts from human health, animal husbandry and wildlife sectors.

A network of 22 Bio-Safety Level (BSL) -3 labs has been set up and is being prepared to provide diagnosis to any undiagnosed outbreak irrespective of their department or domain status, in line with the One Health approach.

The National One Health Mission holds the promise of transforming India's approach to health, ensuring that we are not just treating diseases but preventing them at the source. By integrating human, animal, and environmental health, this Mission will create a more resilient health system, which will be capable of facing current and emerging challenges. Through collaboration, research, and a shared commitment to public health, we can achieve a healthier, safer India and '*Vasudhaiva Kutumbakam*' (meaning 'the world is one family') for future generations.



National One Health Mission: "Sarvasya Aarogyam"

-Dr. Sindura Ganapathi &
Dr. Sangeeta Agarwal
Office of PSA

Inception of the Mission and Cabinet approval

The Prime Minister's Science, Technology, and Innovation Advisory Council (PM-STIAC) during its 21st meeting recommended the establishment of a National One Health Mission to coordinate, support, and integrate existing One Health activities within India, addressing any identified gaps.

A comprehensive 'whole of the government' approach was taken for the development of an integrated framework that guides the National One Health Mission. Developed collaboratively by over 13 government departments, the Mission also partners with the private sector, academic organisations, multilaterals, and other stakeholders. This framework facilitates coordination and synergy across sectors for priority activities. The Mission received further impetus with its approval by the Union Cabinet chaired by the Hon'ble Prime Minister Shri Narendra Modi in February 2024.

Governance Framework of the Mission

The Mission is governed by a two-tiered governance structure. The Executive Steering Committee on One Health is chaired by the Hon'ble Health Minister and has the Principal Scientific Adviser (PSA) to the Government of India (GoI) as vice chair. Member (Health), NITI Aayog is the permanent invitee to this committee. Secretaries of stakeholder departments are members of this committee. This committee provides overall policy guidance to the Mission. The Union Health Minister Shri JP Nadda chaired the first meeting for the National One Health Mission, on July 10, 2024.

The Scientific Steering committee on One Health, chaired by the PSA to the GoI, has secretaries of all the stakeholder departments as members. This committee sets the scientific agenda of the

Mission and provides oversight to all the Mission activities.



First meeting of the Executive Steering committee on One Health

Both these committees have Chief Secretaries of two states as members on a rolling basis. For the initial phase of two years, Gujarat and Kerala have been nominated by the Hon'ble Health Minister.

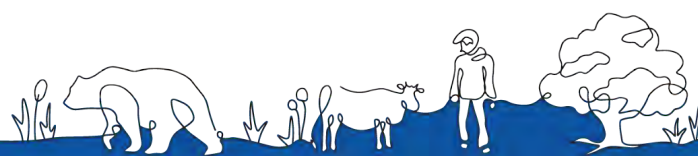
Committees for advising and reviewing different aspects of the Mission

Four advisory and review committees have been constituted under the Mission to recommend the course of action of key activities. These committees will be on - Surveillance & Outbreak Investigation, Network of high containment Bio-Safety Level (BSL) 3/4 labs, Research and Development, and Integration of Databases and Data Sharing.

Further, subject - specific working groups/ committees can be constituted by different departments as per implementation requirements.

Snapshot of Activities under the National One Health Mission

Several activities have been initiated under the Mission, which include:



- **A network of high-containment BSL 3/4 labs** that are critical to India's preparedness for disease outbreaks and response was created to serve as a national resource in responding to disease outbreaks across human, livestock, and wildlife sectors. This network plays a crucial role in preventing, detecting, and responding promptly and effectively to disease threats and will also be critical in enhancing India's preparedness for emergencies.
- The Mission is also focused on strengthening the existing **disease and environmental surveillance systems** and building frameworks for surveillance at the interface of human, animal and environmental sectors. It focuses on developing a robust network of sentinel based surveillance that provides an ongoing real time picture of pathogens/disease spread, bridging a major gap in our understanding of disease transmission dynamics across multiple diseases in human, livestock and wildlife.
- To foster a shared understanding of research, policy, and implementation in environmental surveillance, two workshops have been conducted. These workshops facilitated networking among practitioners and enabled collaborative opportunities. The first workshop was held on February 9, 2023, at the Indian Institute of Science, Bengaluru, while the second was held at IIT Gandhinagar on January 16, 2024.
- Under the Mission, the Indian Council of Medical Research (ICMR), in collaboration with the Indian Council of Agricultural Research (ICAR), the Department of Animal Husbandry & Dairying (DAHD), and the National Centre for Disease Control (NCDC), launched a collaborative study on 'Building a surveillance model for detecting zoonotic spillover in increased animal-human interaction setting using the One Health approach' in selected slaughterhouses in Punjab, Assam, and Telangana. This project was launched in August 2024.

- Creation of the **National Joint Outbreak Response Team (NJORT)** composed of experts from human health, animal husbandry and wildlife sectors. The NJORT is responsible for coordination with the relevant state authorities to get access to the affected place and management of samples. The team handles data collection, analysis, creation of reports and dissemination amongst concerned stakeholders.

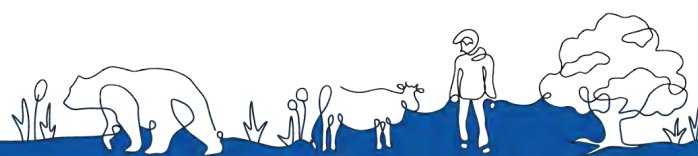


NJORT Investigation of Nipah Virus - Collecting data on bat populations

- To ensure India's preparedness for any disease outbreak, under the National One Health Mission, mock drills are being conducted to plug the gap areas and prepare for any real disease outbreak scenario and ensure a coordinated and efficient response during emergencies. The first national mock drill, **"Vishanu Yuddh Abhyas"** was conducted in Ajmer, Rajasthan, from August 27 to August 31, 2024.



NJORT Investigation of Nipah Virus - A multidisciplinary team in action



- The Mission is also building a network of trained professionals across the human, animal and environmental health sectors to enable integrated response at field level. Two trainings have been conducted as a **capacity building** exercise for the One Health Mission. The first training was conducted at National Institute of Virology (NIV), Pune and the second training was held at National Institute of High Security Animal Diseases (NIHSAD), Bhopal. These trainings help the BSL 3/4 labs of the network across the country to handle human, animal and environmental samples during outbreaks. NCDC also conducts the 'Sector Connect Field Epidemiology Programme in One Health' (FEP-OH) which is designed for professionals across various sectors to build preparedness for an integrated response.

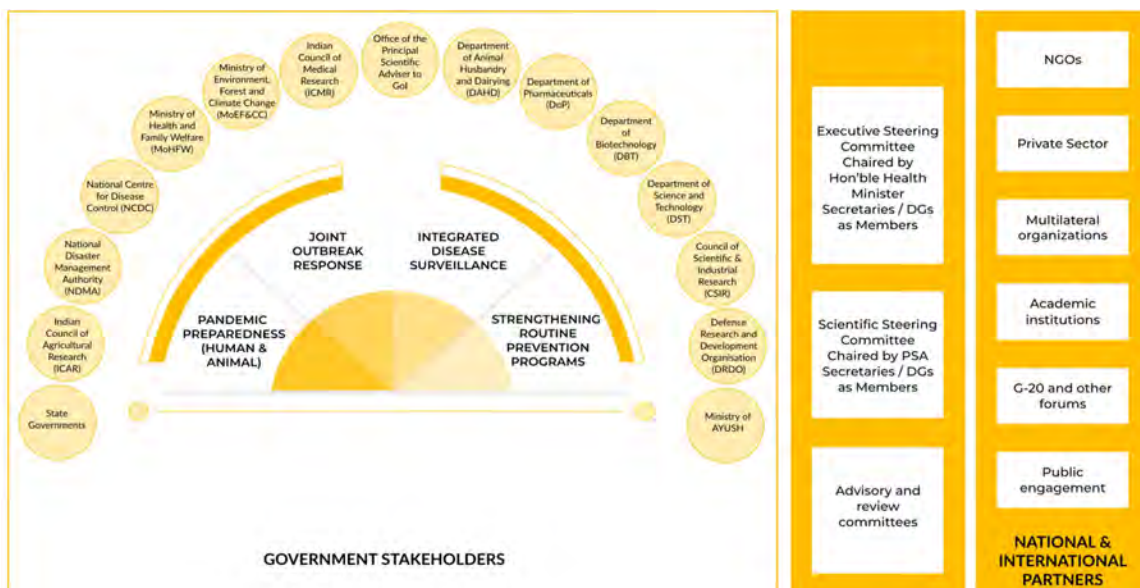


Training program of BSL officials at NIV, Pune

- Under India's G20 presidency, 'One Health' was an important topic of discussion emphasising the interconnectedness of human, animal, and environmental health.

As an outcome of the G-20 Chief Science Advisers Roundtable (CSAR) meetings, a virtual network of One Health Institutes for facilitating **global collaboration** and capacity development for knowledge and technologies related to priority areas of interest under One Health was initiated.

- State governments** are an important stakeholder in advancing the goals of the National One Health Mission. Nodal officers from the state/U.T are nominated for one-on-one discussions, focusing on the governance structure and initiatives under One Health. These discussions will guide the coordination of One Health programs in the states/U.T's. The deliberations also underline funding avenues for research and development and capacity-building requirements while addressing the knowledge gap on the implementation of the One Health approach and other challenges.
- The Mission is also supporting sector-specific programs such as the development of the National Referral Centre - Wildlife (NRC-W), an initiative of the Ministry of Environment, Forest & Climate Change (MoEF&CC), the Animal Pandemic Preparedness Initiative, spearheaded by the Department of Animal Husbandry and Dairying (DAHD) and others.



Stakeholders of the National One Health Mission



Gujarat's Innovations in One Health: An Integrated Approach to Health

- Dr. Jayesh Solanki
Gujarat State Epidemiologist,
Government of Gujarat

Gujarat has established itself as a leader in One Health implementation, demonstrating a commitment to integrated health management through strategic initiatives on laboratory infrastructure, climate adaptation, capacity building, technological innovation, and intersectoral collaboration.

The state has strategically established advanced diagnostic laboratories at B.J. Medical College in Ahmedabad, PDU Government Medical College in Rajkot, and Government Medical College in Surat under the National One Health Programme for Prevention & Control of Zoonoses (NOHP-PCZ). These facilities enable

comprehensive data integration across human, animal, and environmental sectors, enabling the early detection and management of critical zoonotic diseases, including brucellosis, leptospirosis, rabies, and avian influenza.

Furthermore, Gujarat proactively addresses the health impacts of climate change by monitoring climate-sensitive diseases and implementing resilience-building programs for vulnerable populations. Action plans on climate change and human health, developed at both state and district levels, ensure localised and effective strategies.



Gujarat NCDC-Sector connect



Gujarat prioritises human resource development through continuous training programs for health professionals, veterinarians, and scientists focusing on sustained capacity-building efforts. The state has successfully implemented four batches of the “Sector Connect Field Epidemiology Programme in One Health (FEP-OH)”, in collaboration with the National Centre for Disease Control (NCDC) and the Department of Animal Husbandry and Dairying (DAHD).

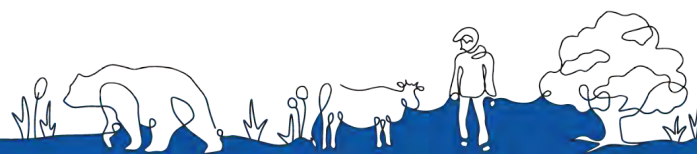
The program provides a three-month, on-the-job field epidemiology training designed for district-level personnel. Moreover, the NCDC's “Public Health Emergency and Disaster Management Professional Capacity Development Program (PHEDM-PDP)” organised by the Central Surveillance Unit enhances district-level preparedness for public health emergencies and disasters.

Strategic partnerships between the Health, Animal Husbandry, and Environment Departments facilitate coordinated action in zoonotic disease prevention and sustainable practices. A multi-sectoral meeting on zoonotic

diseases, convened on October 14, 2024, under the chairpersonship of the Additional Chief Secretary, Agriculture, Farmers Welfare & Cooperation, at Gandhinagar, reinforced cross-sectoral collaboration and emphasised data sharing.

Gujarat leverages cutting-edge technologies, including Geographic Information System (GIS) mapping, for targeted vector surveillance and control, demonstrating effectiveness in managing diseases such as Chandipura virus and malaria. Collaboration with the Gujarat Biotechnology Research Centre (GBRC), drive research in genomic studies and vaccine development. Digital platforms are used for real-time data sharing, and disease outbreak monitoring. The state also actively monitors Antimicrobial Resistance (AMR) across human, animal, and environmental sectors, enabling targeted interventions to mitigate the risks associated with resistant pathogens.

Gujarat's multifaceted approach exemplifies a commitment to proactive and integrated health management, establishing a benchmark for One Health implementation.



Kerala's Governance Model for One Health

- Ms. Madhavikutty M.S.

IAS, Deputy Secretary,
Health & Family Welfare Department,
Government of Kerala

Kerala has pioneered the One Health approach, a significant step towards a more holistic and integrated approach to public health. The state has been facing recurrent outbreaks of Nipah, Swine Flu (H1N1), Dengue, and Avian Influenza for the past decade. In addition, the frequency and severity of extreme weather events have risen in recent years, resulting in catastrophic landslides and floods. The state's vulnerability to disease outbreaks is due to its high population density, large volume of international travel, ageing population with a high prevalence of comorbidities and extensive forest cover.

Taking cognizance of these vulnerabilities, the Government of Kerala initiated the One Health

Programme (OHP) in 2021 under 'Aardram Mission' and the Rebuild Kerala Initiative in partnership with the World Bank, Asian Infrastructure Investment Bank (AIIB) and Agence Française de Développement (AFD). The OHP is currently being implemented in the four Pamba basin districts; Pathanamthitta, Alappuzha, Kottayam and Idukki and its expansion to all fourteen districts is to be rolled out soon.

Kerala's One Health (OH) initiative is guided by a robust governance mechanism that ensures multisectoral and transdisciplinary coordination and collaboration. This mechanism includes state, district and Local Self-Government (LSG)



The Rapid Response Team (RRT) holds a meeting in South Cherthala Panchayat, Alappuzha District



level governing One Health committee with key officials from stakeholder departments at each level. The Department of Health and Family Welfare (H&FWD) is the nodal department for implementing the Programme and the Minister for Health, Women & Child Development is the Chairperson of the State level Committee. At the district and LSG level One Health committees, the District Collector and Head of the concerned LSG are the chairpersons of their respective committees.

Agriculture, Animal Husbandry, Dairy Development, Drugs Control, Environment and Climate Change, Fisheries, Food Safety, Forest, Irrigation, Kerala Water Authority, Pollution Control Board and Local Self Government are the departments or agencies collaborating with the Programme. Nodal Officers have been identified for each stakeholder department at State and district level for coordinating OH activities of their respective departments.

The Centre for One Health – Kerala (COH-K) has been established at the state level for managing and coordinating the activities of the OHP. The Deputy Secretary of the H&FWD is the Director of the COH-K. The Public Health Division of Department of Health Services under H&FWD monitors the progress of the activities.

In addition to the above structures, a State Level Core Committee under the chairpersonship of the Additional Chief Secretary, H&FWD monitors and assesses the progress of the activities, and a technical committee provides technical inputs for the programme.

Government agencies, like Kerala Institute of Local Administration (KILA), State Health Systems resource Centre - Kerala (SHSRC-K), Kerala Medical Services Corporation Ltd (KMSCL) and Digital University -Kerala (DUK) have also collaborated for system development, capacity building and development of IT platforms for the programme.

Despite a lot of challenges, Kerala has made significant progress in integrating One Health principles into its healthcare system and can continue to improve public health outcomes and build a more resilient health system.



Government of Gujarat's Commitment to Public Health: Gujarat Biotechnology Research Centre's Role in One Health Initiatives

- Dr. Madhvi Joshi

Scientist 'D' & Joint Director,
Gujarat Biotechnology Research Centre

The Government of Gujarat remains dedicated to addressing emerging health threats, through One Health approach. As part of the Department of Science and Technology (DST), the Gujarat Biotechnology Research Centre (GBRC) has been at the forefront of public health research and innovation. GBRC's contributions span multiple sectors, and integrates human, animal, and environmental health to address critical risks like Antimicrobial Resistance (AMR), zoonotic diseases, and environmental pollutants, underscoring its vital role in supporting the government's efforts to build a robust public health infrastructure.

The Government of Gujarat, through GBRC, has taken proactive steps to combat the global threat of AMR. Under the Network Program on AMR and One Health, GBRC has successfully sequenced over 4,000 bacterial genomes and identified more than 10,000 bacterial isolates using Matrix-Assisted Laser Desorption/Ionisation - Time of Flight (MALDI-TOF) technology. This work has enabled the government to track bacterial resistance mechanisms and devise strategies to minimise the impact of superbugs on human Health.

The State Action Plan for Containment of Antimicrobial Resistance (SAPCAR) addresses the misuse and overuse of antimicrobials across sectors such as human health, veterinary care, and the environment. GBRC plays a pivotal role in the implementation of SAPCAR, focusing on enhancing surveillance, improving infection prevention measures, and optimising antimicrobial use. Through the Gujarat State Biotechnology Mission (GSBTM), GBRC has also

launched various AMR research projects aimed at understanding drug-resistant pathogens in different ecosystems.

GBRC's involvement in the One Health Poultry Hub, funded by the Royal Veterinary College and UK Research and Innovation (UKRI), is another testament to the government's dedication to improving health outcomes. This international project, spanning India, Bangladesh, Vietnam, and the UK, has highlighted antibiotic-resistant bacteria in poultry farms and workers. The Government of Gujarat is now focused on developing safer, more sustainable farming practices to reduce the spread of AMR.



Sample Collection at a Poultry Farm

Recognising the importance of environmental surveillance, GBRC organised a workshop on this topic at IIT Gandhinagar, in collaboration with the Office of the Principal Scientific Adviser to the GoI. The discussions were centred on methodologies for detecting emerging pathogens and pollutants, and on improving collaboration across sectors. GBRC continues to



lead environmental monitoring initiatives through its multi-omics approaches by analysing samples from various locations, the centre is generating critical baseline data for the early detection of public health threats.

GBRC participated in the Indian SARS-CoV-2 Genomics Consortium (INSACOG), funded by the Department of Biotechnology and sequenced over 4,000 SARS-CoV-2 genomes, identifying critical variants like 'Delta'. Our wastewater surveillance expertise allowed authorities to detect COVID-19 early, positioning Gujarat as a model for pandemic management.



Environment Sampling for Surveillance

GBRC has also been instrumental in protecting endangered wildlife. After the death of 26 Asiatic lions in the Gir Forest in 2018 due to Canine Distemper Virus (CDV), GBRC initiated a study that revealed significant differences between the CDV genome found in the lions and the strains used in vaccines. This research provided vital insights into vaccine efficacy and has helped the state develop better strategies for protecting endangered species.

The Government of Gujarat, through GBRC, continues to integrate cutting-edge science and foster collaboration across sectors to address health challenges. From tackling AMR and zoonotic diseases to advancing COVID-19 surveillance and environmental monitoring, GBRC plays a pivotal role in shaping the state's public health strategy. By adopting the One Health approach, Gujarat is building a resilient public health system that safeguards the well being of its people, animals, and environment for the future.



The Role of One Health in Deciphering the Nipah Virus Mystery

- Dr. Asma Rahim

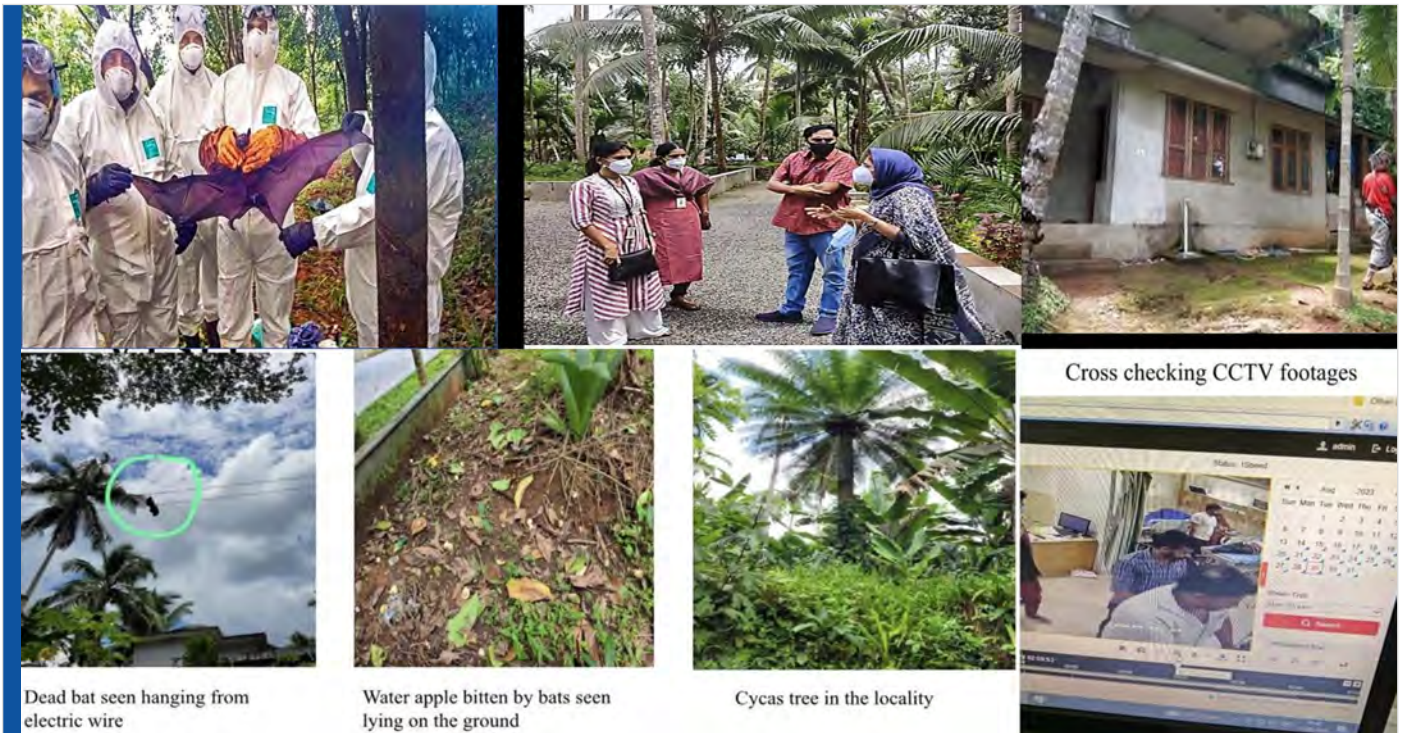
Professor and Head,
Department of Community Medicine,
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The Nipah virus (NiV), a highly fatal zoonotic pathogen, poses a significant public health challenge in regions such as Malaysia, Bangladesh, the Philippines, and India. Its intricate transmission dynamics—spanning animals, humans, and the environment—make controlling outbreaks particularly complex. To address this, the One Health framework has emerged as a crucial tool for managing NiV outbreaks. In Kerala, where recurring outbreaks have occurred since 2018, this framework has been instrumental in guiding a coordinated and multisectoral response.

The One Health approach integrates human, animal, and environmental health sectors, recognising their interconnectedness in managing zoonotic diseases. Kerala's experiences with NiV underscore the necessity of such collaboration in addressing the viruses'

multifaceted challenges; surveillance systems form the backbone of outbreak preparedness and response. In high-risk areas such as Kozhikode, integrated monitoring tracks bat populations, domestic animals, and human health trends. Advanced diagnostic tools, including portable Real time - Polymerase Chain Reaction (RT-PCR) kits, enable real-time virus detection in both humans and animals. Additionally, healthcare facilities are equipped with point-of-care diagnostic tools, allowing for the swift identification of encephalitis or respiratory symptoms linked to NiV.

Findings from surveillance efforts directly inform community awareness initiatives, ensuring that public health messaging is evidence-based and targeted. Educational campaigns emphasise preventive behaviors, such as avoiding bat-contaminated fruits and raw date palm sap - two



Dead bat seen hanging from electric wire

Water apple bitten by bats seen lying on the ground

Cycas tree in the locality

Cross checking CCTV footages

Highlights from Nipah virus investigation in Kerala



significant sources of NiV exposure. Simple behavioral changes, such as thoroughly washing fruits and avoiding fallen or bat-bitten produce, are encouraged. Working closely with local leaders ensures that these measures are culturally sensitive and widely adopted, strengthening public compliance.

Environmental changes play a crucial role in disease spillover events. Deforestation and biodiversity loss have increased human-bat interactions, elevating the risk of NiV transmission. Practical mitigation measures, such as using netting over fruit trees and sap containers, help reduce bat access to human food sources. However, long-term strategies must also address climate-induced shifts in bat migration and habitat loss, which drive these animals closer to human settlements.

Integrating environmental considerations into disease prevention policies is essential for reducing future outbreaks. The state has significantly strengthened its healthcare infrastructure to handle NiV outbreaks. Infection control measures, including the use of personal protective equipment (PPE), designated isolation wards, and strict biosafety protocols, are now standard in hospitals. Regular training ensures that healthcare workers can rapidly identify, manage, and contain suspected NiV cases while maintaining their own safety. Additionally, the establishment of BSL-3 laboratories has improved the state's ability to conduct timely and secure diagnostic testing.

Ongoing research and innovation play a critical role in combating NiV. Vaccine development efforts, including promising work on the mRNA-1215 vaccine, offer hope for long-term prevention. Simultaneously, ecological studies tracking NiV transmission drivers, help predict and prevent future spillover events. Cross-sectoral collaboration among research institutions, governments, and international partners accelerates scientific advancements and enhances global preparedness.

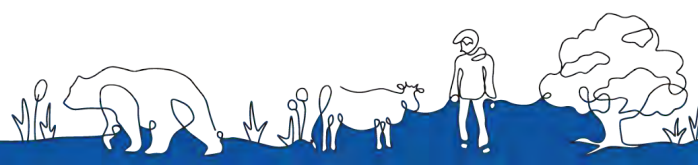
To institutionalise the One Health approach, Kerala has established coordination committees comprising experts from health, veterinary,

wildlife, and environmental sectors. These bodies streamline decision-making, strengthen outbreak response, and facilitate interdepartmental collaboration. Additionally, the development of Standard Operating Procedures (SOPs) ensures that outbreak detection, containment, and management efforts are well-coordinated.

Despite the state's commendable response to the NiV outbreaks, certain challenges persist. Multidisciplinary collaboration among ecologists, policymakers, veterinarians, and medical professionals is often hindered by differences in methodologies, priorities, and institutional silos. Establishing regular communication platforms and interdisciplinary training programs can help bridge these gaps. Additionally, strengthening surveillance networks, expanding research initiatives, enhancing policy coordination, and fostering long-term community engagement will be essential for building resilience against future outbreaks.

Kerala's experience with NiV highlights the effectiveness of the One Health framework in addressing zoonotic diseases. By integrating efforts across human, animal, and environmental health sectors, the state has laid a foundation for a robust, proactive response to NiV and other emerging public health threats.

As global zoonotic risks continue to rise, the lessons from Kerala serve as a valuable roadmap for other regions, reinforcing the importance of cross-sectoral collaboration in preventing and managing complex disease outbreaks.



Important Updates on the National One Health Mission

29 February 2024 | The Union Cabinet chaired by the Hon'ble Prime Minister Shri Narendra Modi approved creation of the post of Director, National Institute for One Health, Nagpur to spearhead the National One Health Mission for integrated disease control and pandemic preparedness. Over 13 Departments have worked together to develop the Mission, aimed at addressing pressing issues under One Health.



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19 April 2024 | The first phase of training, capacity building and knowledge sharing to handle disease outbreaks under the National One Health Mission was completed. The 'Training on Biosafety and Biosecurity for handling high-risk pathogens in Bio-safety Level - 3 laboratories in the network was held at the National Institute of Virology (NIV), Pune coordinated by the Indian Council of Medical Research.



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10 July 2024 | The Union Health Minister Shri JP Nadda chaired the first Executive Steering Committee on One Health meeting for the National One Health Mission to enhance disease control and pandemic preparedness. The Mission aims to integrate 'One Health' approach for comprehensive health solutions.



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3 September 2024 | A comprehensive national mock drill, "Vishanu Yuddh Abhyas" (Virus War Exercise), was conducted in Ajmer district of Rajasthan state, from August 27 to August 31, 2024 to assess pandemic preparedness. This exercise aimed to evaluate the readiness and response of the National Joint Outbreak Response Team (NJORT) composed of experts from human health, animal husbandry and wildlife sectors. A mock zoonotic disease outbreak scenario was created to simulate a real-world outbreak.



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20 September 2024 | The first meeting of the Scientific Steering Committee on One Health was convened under the chairmanship of Prof. Ajay Kumar Sood, Principal Scientific Adviser to the Government of India. Key priority areas and the upcoming next steps for the Mission were discussed along with insights to the National Mock Drill "Vishanu Yuddh Abhyas".



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2 December 2024 | The Office of the Principal Scientific Adviser to the Government of India conducted a brainstorming session to explore potential collaborations with Multilateral Organisations under the National One Health Mission. The session focused on strengthening India's efforts to build integrated disease control and pandemic preparedness by bringing together human, animal, and environmental sectors with a vision to coordinate, support, and integrate the activities in the country as part of the Mission.



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