Proceedings of the
National Conference on

One Health Synergy: Integrating Human, Animal, Plant and Aquatic Life for a Sustainable Future

25-27 February 2026
Sri Vijaya Puram, Andaman and Nicobar Islands

Organized by

Andaman Science Association (ASA)

In collaboration with

ICAR- Central Island Agricultural Research Institute
Sri Vijaya Puram, Andaman and Nicobar Islands

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Executive Summary

The National Conference on One Health Synergy: Integrating Human, Animal, Plant and Aquatic Life for a Sustainable Future was held on 25-26 February 2026 at Sri Vijaya Puram, Andaman and Nicobar Islands. The conference was organized by the Andaman Science Association (ASA) in collaboration with the ICAR–Central Island Agricultural Research Institute (CIARI) and brought together scientists, academicians, policymakers and researchers from diverse disciplines associated with the One Health framework. The conference provided a platform for interdisciplinary dialogue on emerging health challenges at the interface of human, animal, plant and environmental systems. Through thematic sessions and expert discussions, participants highlighted the need for stronger collaboration among institutions working across health, agriculture, fisheries and environmental sectors. The conference emphasized the importance of integrating scientific research, policy support and community participation to address interconnected health challenges and ensure sustainable resource management. The deliberations culminated in the formulation of key recommendations and the Sri Vijaya Puram One Health Declaration-2026, reaffirming the commitment of participating institutions and stakeholders to advance the One Health approach in research, policy and practice. The outcomes of the conference are expected to contribute to strengthening interdisciplinary cooperation and guiding future initiatives aimed at promoting resilient and sustainable health systems within the broader One Health framework.

Introduction

The National Conference on *One Health Synergy: Integrating Human, Animal, Plant and Aquatic Life for a Sustainable Future* brought together scientists, academicians, policymakers and practitioners from diverse fields including biomedical sciences, veterinary sciences, agriculture, fisheries, forestry and environmental sciences. The conference was organized in hybrid mode under the aegis of the Andaman Science Association in collaboration with ICAR–Central Island Agricultural Research Institute, Sri Vijaya Puram. The conference aimed to promote interdisciplinary dialogue and strengthen the implementation of the One Health framework for sustainable development. Scientific deliberations were organized under four thematic sessions focusing on animal health, human health, aquatic animal health, and plant and environmental health. These discussions highlighted the importance of integrated surveillance systems, biosecurity preparedness, antimicrobial stewardship, ecosystem monitoring and translational research, particularly in fragile island ecosystems such as the Andaman and Nicobar Islands. The conference witnessed participation from scientists, academicians, research scholars and students representing multiple disciplines associated with the One Health framework. A total of 21 lead papers and 126 oral presentations were delivered across the four thematic sessions of the conference. The contributions represented a wide spectrum of research areas including zoonotic diseases, antimicrobial resistance, aquatic animal health, environmental monitoring, plant biosecurity, biodiversity conservation and sustainable agricultural systems. The conference received scientific contributions from researchers affiliated with several national research institutions, universities and scientific organizations working in the domains of human health, veterinary sciences, fisheries, agriculture and environmental sciences. The multidisciplinary nature of participation provided a strong platform for knowledge exchange and collaborative research.

Thematic Areas of the Conference

The conference was organized in hybrid mode involving scientists dealing with biomedical research, agricultural research, as well as experts from forestry and fisheries sciences. Deliberations were done under four different themes:

Theme 1: Animal health at the core of one health

Theme II: Advancing human health through One Health strategies

Theme III: Enhancing aquatic animal health through innovations in disease surveillance, zoonotic risk management and antimicrobial stewardship under one health framework

Theme IV: Safeguarding plant and environmental health: addressing biosecurity risks, microbial threats and ecosystem monitoring through integrated one health approaches

Recommendations from Theme-wise Presentations

THEME I
ANIMAL HEALTH AT THE CORE OF ONE HEALTH

A total of five lead papers and fourteen oral presentations were delivered under this theme addressing zoonotic diseases, livestock health management, microbial surveillance and ecosystem health.

Key Recommendations

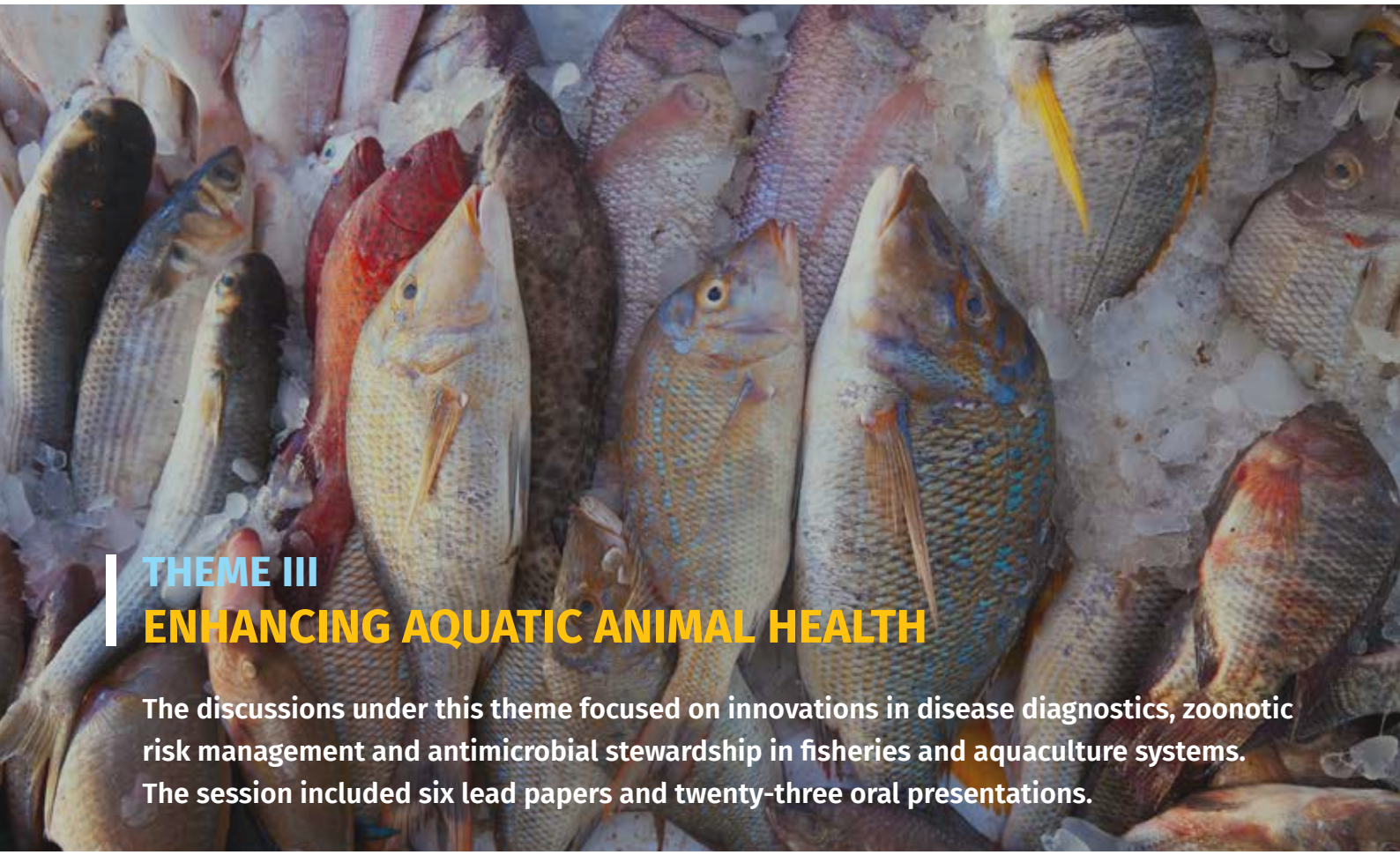
1. Strengthening integrated One Health surveillance systems across the human–animal–environment interface with targeted monitoring of poultry value chains, wildlife habitats, wetlands and vector-prone ecosystems.
2. Institutionalizing wildlife and sentinel animal surveillance programmes, including equine-based monitoring for Japanese Encephalitis, using advanced serological and molecular diagnostic techniques to support early detection and timely interventions.
3. Enhancing laboratory harmonization, risk assessment protocols and biosecurity measures across wildlife, livestock and allied sectors to monitor pathogen circulation and mitigate spillover risks.
4. Strengthening microbial and genomic infrastructure including pathogen repositories, interoperable digital databases and inter-institutional networking to support surveillance, preparedness and translational research.
5. Promoting intersectoral coordination and capacity building through improved data sharing mechanisms, simulation exercises, frontline workforce training and evidence-based vaccination strategies within a unified One Health framework.

THEME II
ADVANCING HUMAN HEALTH THROUGH ONE HEALTH STRATEGIES

This session included six lead papers along with ten oral presentations addressing antimicrobial resistance, zoonotic diseases and traditional medicinal systems.

Key Recommendations

1. Establishing an integrated One Health surveillance network linking human health, animal health, fisheries and environmental sectors within the Andaman and Nicobar Islands.
2. Promoting the judicious use of antibiotics and developing policy guidelines on antibiotic use across human healthcare systems, livestock production chains and aquaculture sectors.
3. Encouraging research and validation of phytochemical-based therapeutics and AYUSH-based alternatives while ensuring structured pharmacovigilance and safety monitoring mechanisms.
4. Implementing sustained community awareness programmes focusing on food safety, zoonotic disease risks and the implications of antibiotic residues in the food chain.



THEME III
ENHANCING AQUATIC ANIMAL HEALTH

The discussions under this theme focused on innovations in disease diagnostics, zoonotic risk management and antimicrobial stewardship in fisheries and aquaculture systems. The session included six lead papers and twenty-three oral presentations.

Key Recommendations

1. Developing standardized protocols for the identification and application of therapeutic agents in fish medicine including disinfectants, antiseptics, antibiotics, antiviral agents, anthelmintics and antimycotic agents for effective chemoprophylactic and chemotherapeutic interventions.

2. Promoting research on the development of vaccines against major fish pathogens using advanced biotechnology approaches such as recombinant DNA technology and nucleic acid vaccines (DNA/RNA).

3. Strengthening laboratory infrastructure for rapid pond-side diagnosis of fish-borne zoonotic diseases through field-adaptable technologies such as immunochromatographic assays and LAMP-PCR based diagnostics using lyophilized reagents.

THEME IV
SAFEGUARDING PLANT AND ENVIRONMENTAL HEALTH

Under this theme, ten lead papers and forty-three oral presentations were delivered by experts from environmental science, plant pathology, horticulture, marine biology and livestock product technology.

Key Recommendations

1. Monitoring the disposal of domestic waste and organic materials in the coastal waters of South Andaman District and conducting impact assessments on floral and faunal communities as indicators of ecological health.
2. Reviewing the operational status of sewage treatment plants periodically and sharing monitoring data with research and academic institutions to assess environmental impacts of waste discharge across coastal ecosystems.
3. Establishing and strengthening mega plant propagation facilities within India to minimize the risk of introduction of exotic plant pathogens associated with imported planting materials.
4. Ensuring judicious selection of biocontrol agents by avoiding microorganisms capable of growth at 37°C to minimize potential pathogenic risks while prioritizing organisms that grow optimally at 26 ± 2°C.
5. Documenting and scientifically validating ethnobiological uses of medicinal plants endemic to the Bay Islands to preserve indigenous knowledge systems and explore their pharmacological potential.
6. Encouraging comprehensive scientific evaluation of traditional formulations such as Panchamrit for their nutritional composition, probiotic and postbiotic components, therapeutic potential, safety parameters and shelf-life stability.
7. Promoting responsible application of silver nanoparticles in agriculture and health sectors by ensuring proper characterization using analytical tools such as Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM) and Fourier Transform Infrared Spectroscopy (FTIR), while encouraging environmentally sustainable green-synthesised alternatives.

Sri Vijaya Puram One Health Declaration – 2026

- The participants of the National Conference on *One Health Synergy* collectively recognize that the health of humans, animals, plants and ecosystems are intrinsically interconnected. The conference therefore calls for strengthened interdisciplinary collaboration and policy integration to address emerging health and environmental challenges.
- The declaration emphasizes the need to adopt integrated surveillance systems, promote sustainable agricultural and aquaculture practices, strengthen antimicrobial stewardship, and protect fragile ecosystems through evidence-based research and community participation.
- The participants reaffirm their commitment to advancing the One Health framework in research, education, policy and field-level implementation to ensure resilient and sustainable health systems in island ecosystems and beyond.

Strategic Policy Recommendations

1. Establish dedicated **One Health research and surveillance hubs** in ecologically sensitive regions such as the Andaman and Nicobar Islands to monitor emerging zoonotic diseases, antimicrobial resistance and ecosystem health indicators.
2. Strengthen **interdisciplinary research collaborations** among institutions working in human health, veterinary sciences, fisheries, agriculture and environmental sciences.
3. Develop **national and regional guidelines for antimicrobial stewardship** across human healthcare, livestock production and aquaculture sectors.
4. Promote **community-based awareness and citizen science initiatives** to support disease surveillance, biodiversity monitoring and sustainable resource management.
5. Encourage **integration of traditional ecological knowledge with modern scientific approaches** for sustainable health and environmental management.
6. Enhance **capacity building and training programmes** for frontline health workers, veterinarians, fisheries professionals and environmental managers to operationalize One Health approaches.

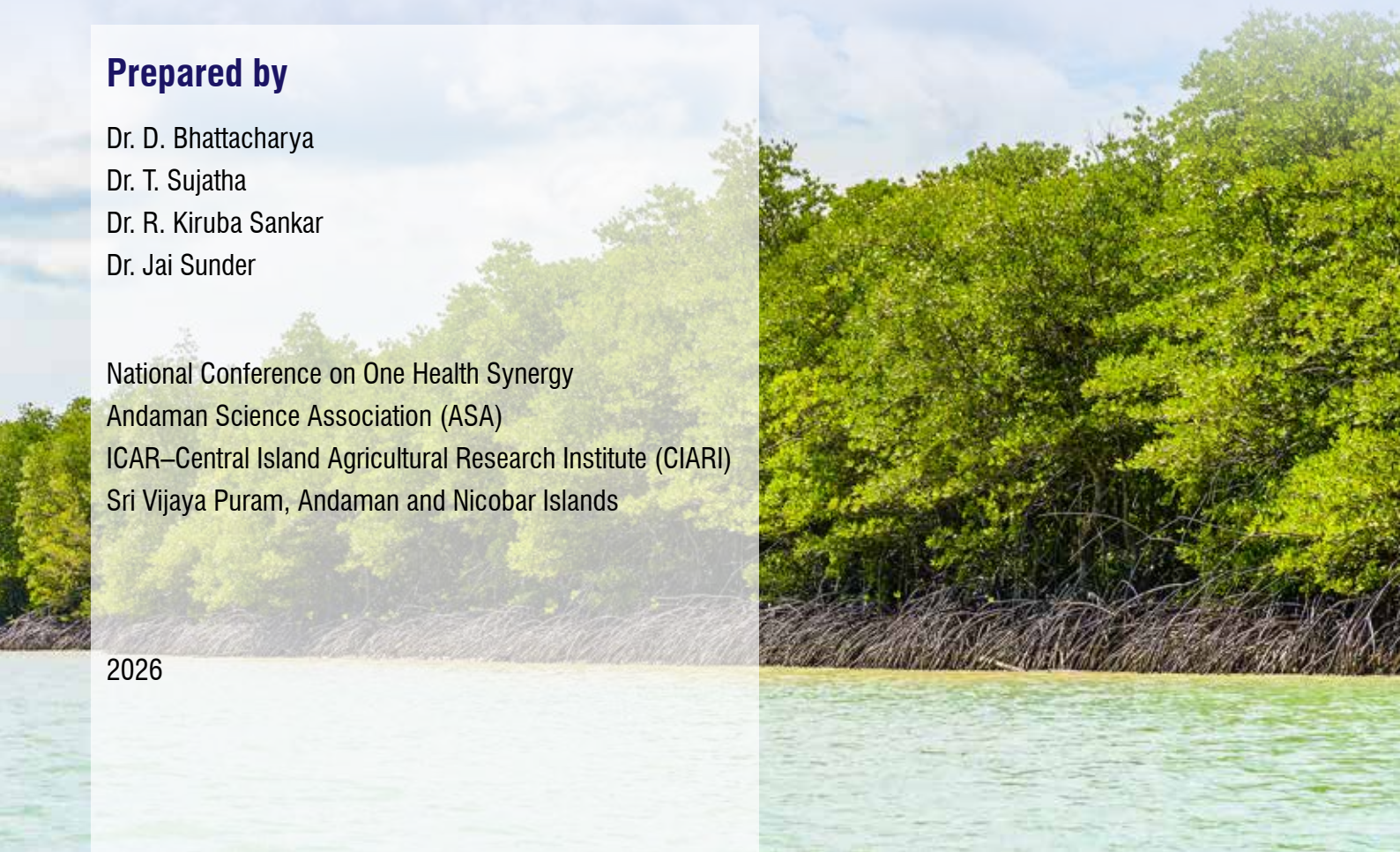
Way Forward

The conference strongly emphasized the need for sustained interdisciplinary collaboration to translate the One Health concept into actionable programmes and policies. Strengthening institutional partnerships, improving surveillance networks and integrating modern scientific approaches with traditional knowledge systems will be critical for addressing emerging health and environmental challenges. Future initiatives should focus on developing regional One Health research networks, strengthening laboratory capacities, promoting open data sharing platforms and supporting community-based monitoring programmes. The outcomes of this conference are expected to guide future research priorities, inform policy frameworks and contribute to building resilient health systems capable of addressing the interconnected challenges of human, animal, plant and environmental health.

Acknowledgement

The organizing committee expresses its sincere appreciation to all speakers, session chairs, researchers, students and participants who contributed to the success of the National Conference on *One Health Synergy: Integrating Human, Animal, Plant and Aquatic Life for a Sustainable Future*. The conference benefited from the valuable insights shared by experts representing diverse scientific disciplines.

The organizers also acknowledge the support extended by the Andaman Science Association and ICAR–Central Island Agricultural Research Institute, Sri Vijaya Puram, in facilitating the successful conduct of the conference. The active participation and scientific contributions from researchers and institutions across the country greatly enriched the deliberations and outcomes of the meeting.



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