

TECHNICAL ITEM I

Preventing Zoonoses at Source – towards enhancing capacity for prevention, rapid detection, awareness, control, and research on zoonoses

**Nitish Debnath &
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33rd Conference of the Regional Commission for Asia and the Pacific

13-16 November 2013, New Delhi - INDIA



World
Organisation
for Animal
Health
Founded as OIE

Organisation
mondiale
de la santé
animale
Fondée en tant qu'OIE

Organización
Mundial
de Sanidad
Animal
Fundada como OIE



Key elements to be covered in the Presentation

Prevention of Zoonosis at Source: Background Knowledge

Current state-of-play in the VS of WOAH Members in terms of capacity and implementation status for prevention detection, and response to known/emerging zoonosis at the human-animal-environment interface.

Situational analysis of OH coordination updates/progress/challenges since COVID-19 pandemic.

Situational analysis of the Member's understanding of the OH-JPA, the OH-JPA implementation guideline and updates on development of national action plans on OH.

Situational analysis of the Member's application/access to the Pandemic Fund applications and/or other funding sources for national OH actions.

• Recommendations to enhance Member capacity in prevention, preparedness, and response to zoonosis including wildlife diseases at the human-animal-environment interface based on the outputs of the questionnaire and research.



Three Approaches to Gather Evidences

Questionnaire- based Survey among Members which covered following areas:

- Surveillance system
- Laboratory system
- Biosecurity and biosafety measures
- Workforce & Epidemiological Capacity
- Research Capacity
- Multisectoral Coordination Capacity

Status of Understanding One Health Joint Plan of Action:

- Situational analysis of the Member's understanding of the OH-JPA, the OH-JPA implementation guideline and updates on development of national action plans on OH using Quadripartite Resources

Current Practices and Initiatives to support Pandemic Prevention & One Health Initiatives

- Pandemic Fund
- N4H
- PREZOOODE
- USAID/CDC Supported One Health Program
- UKAID Fleming Fund Grants etc.



Prevention of Zoonosis at Source: Background

Pathways of
Pathogen Spillover
from Animals to
Humans

Strategic Shift from
relying on Response
to Reducing Risk at
Source

Impact and
Outcome of
Prevent, Prepared,
Detect & Response



WEIGHT OF ALL VERTEBRATE LAND ANIMALS ON EARTH



10,000 YEARS AGO



👤👤 1% humans

TODAY

🐘 1% wild animals

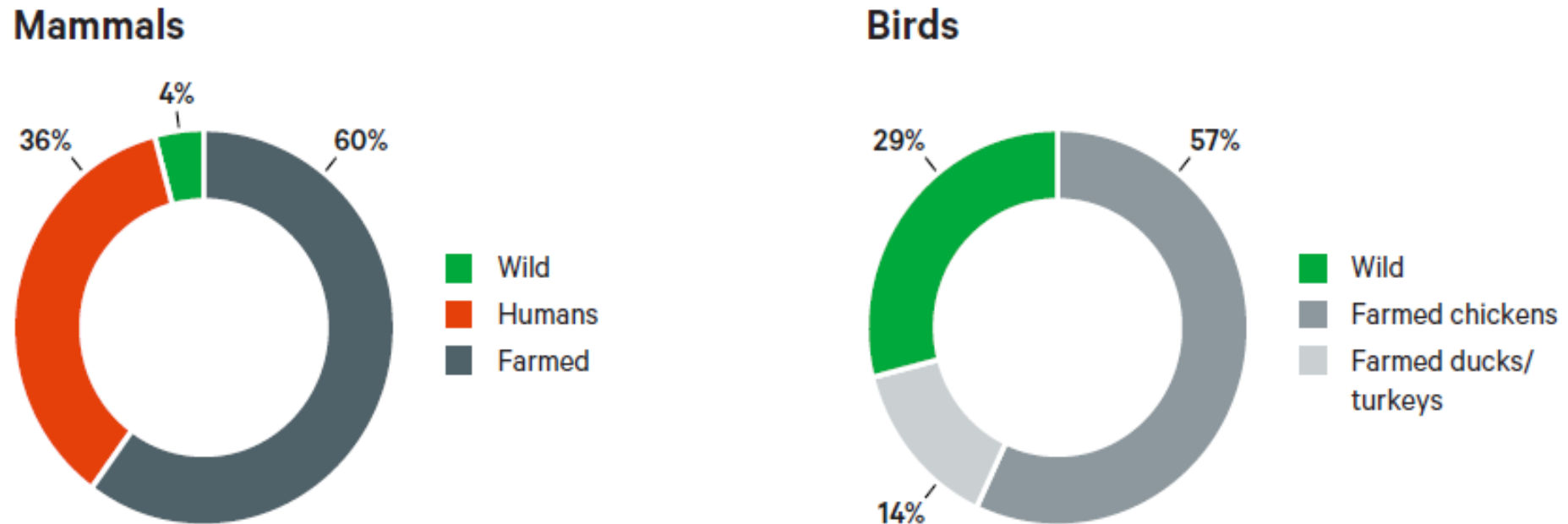


👤👤 32% humans

populationmatters.org
Calculations based on Smil (2011)



Distribution of Global Biomass across all Mammals and Birds

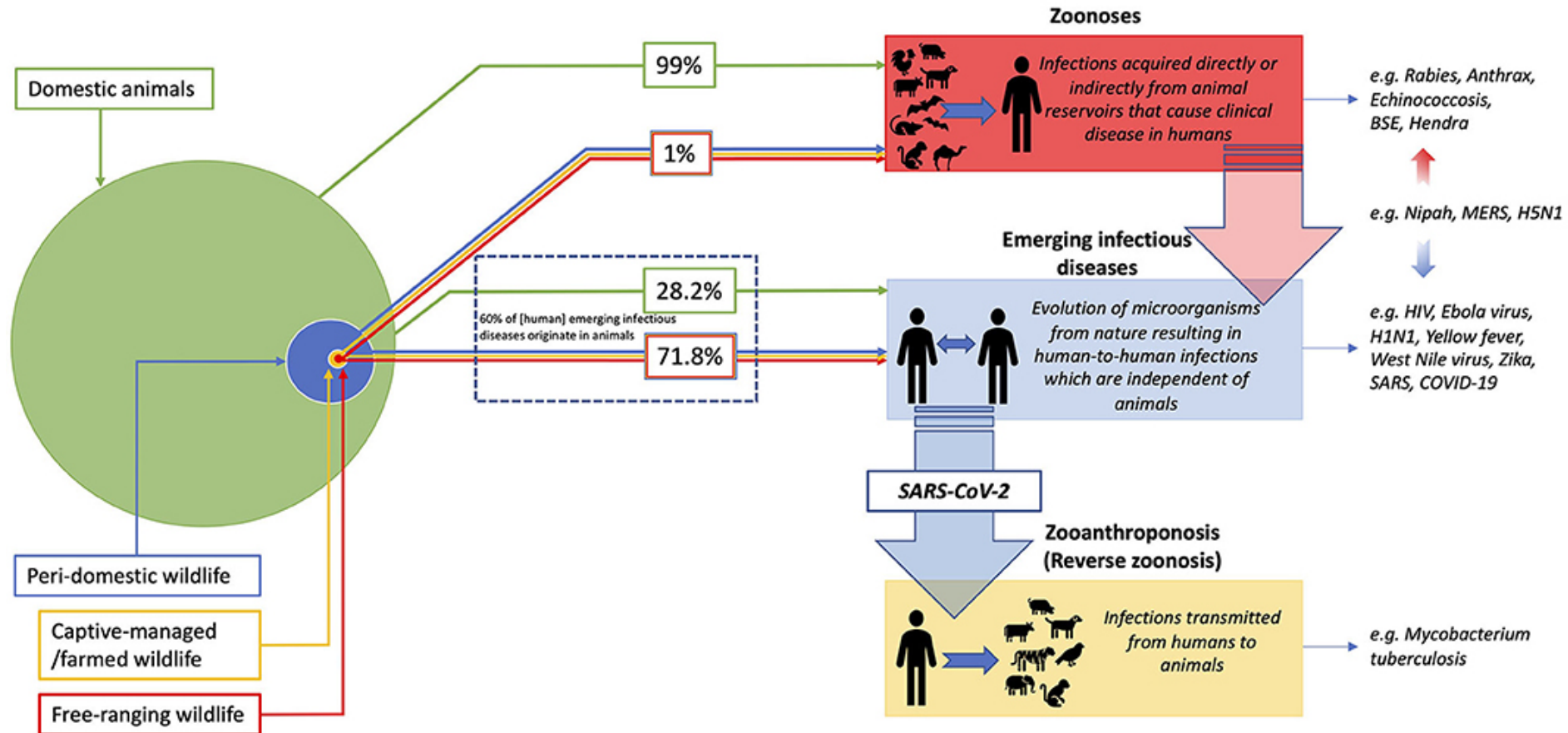


Source: Bar-On, Y. M., Phillips, R. and Milo, R. (2018), 'The biomass distribution on Earth', *Proceedings of the National Academy of Sciences of the United States of America*, 115(25): pp. 6506–11, doi: 10.1073/pnas.1711842115 (accessed 2 Nov. 2020).



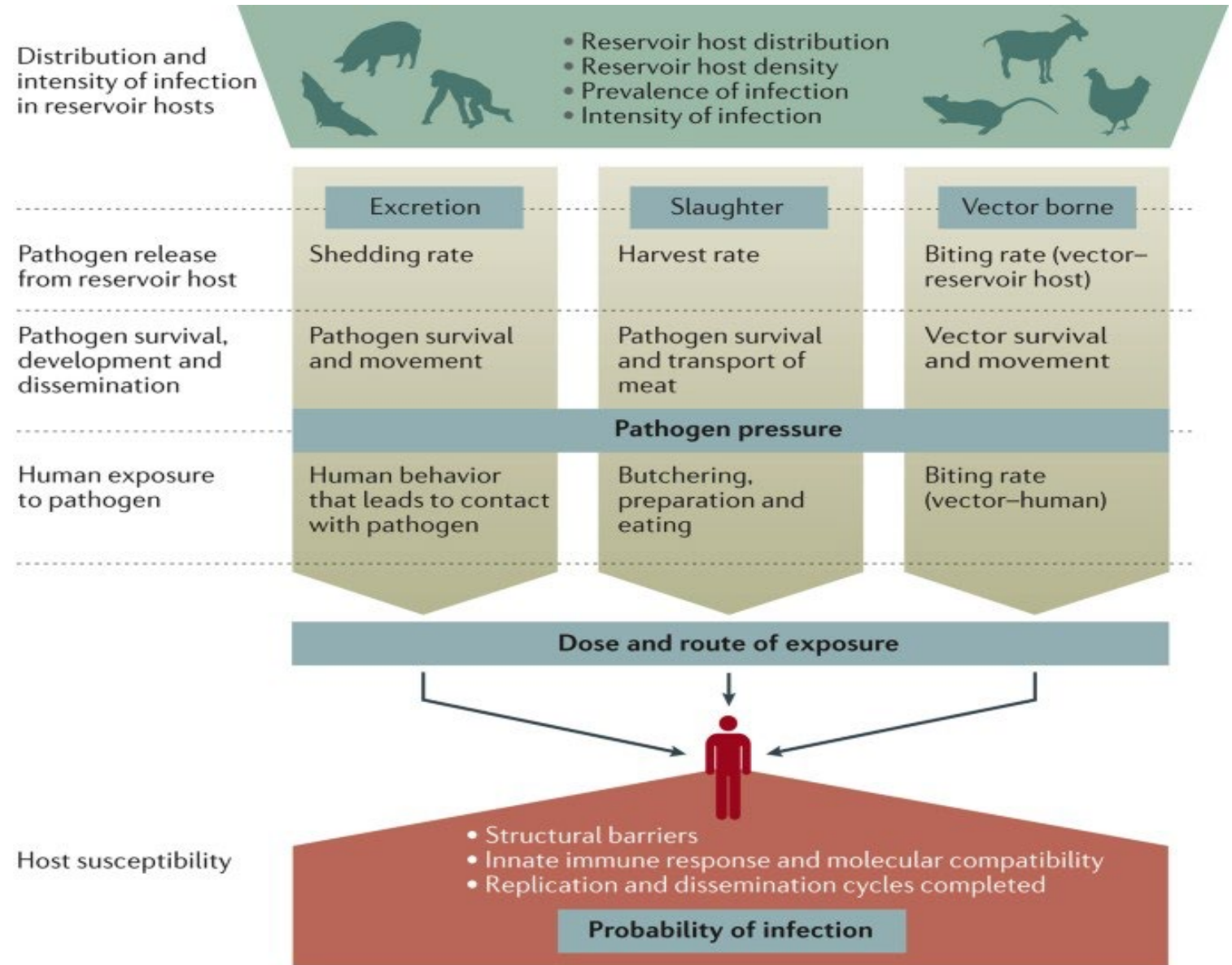
Pathway diagram for pathogen spill-over to humans from animals describes three distinct processes

SPILLOVER





Pathways to zoonotic spillover



Plowright et al. 2017



PREVENTION OF ZOOONOTIC SPILLOVER

FROM RELYING ON
RESPONSE TO REDUCING
THE RISK AT SOURCE

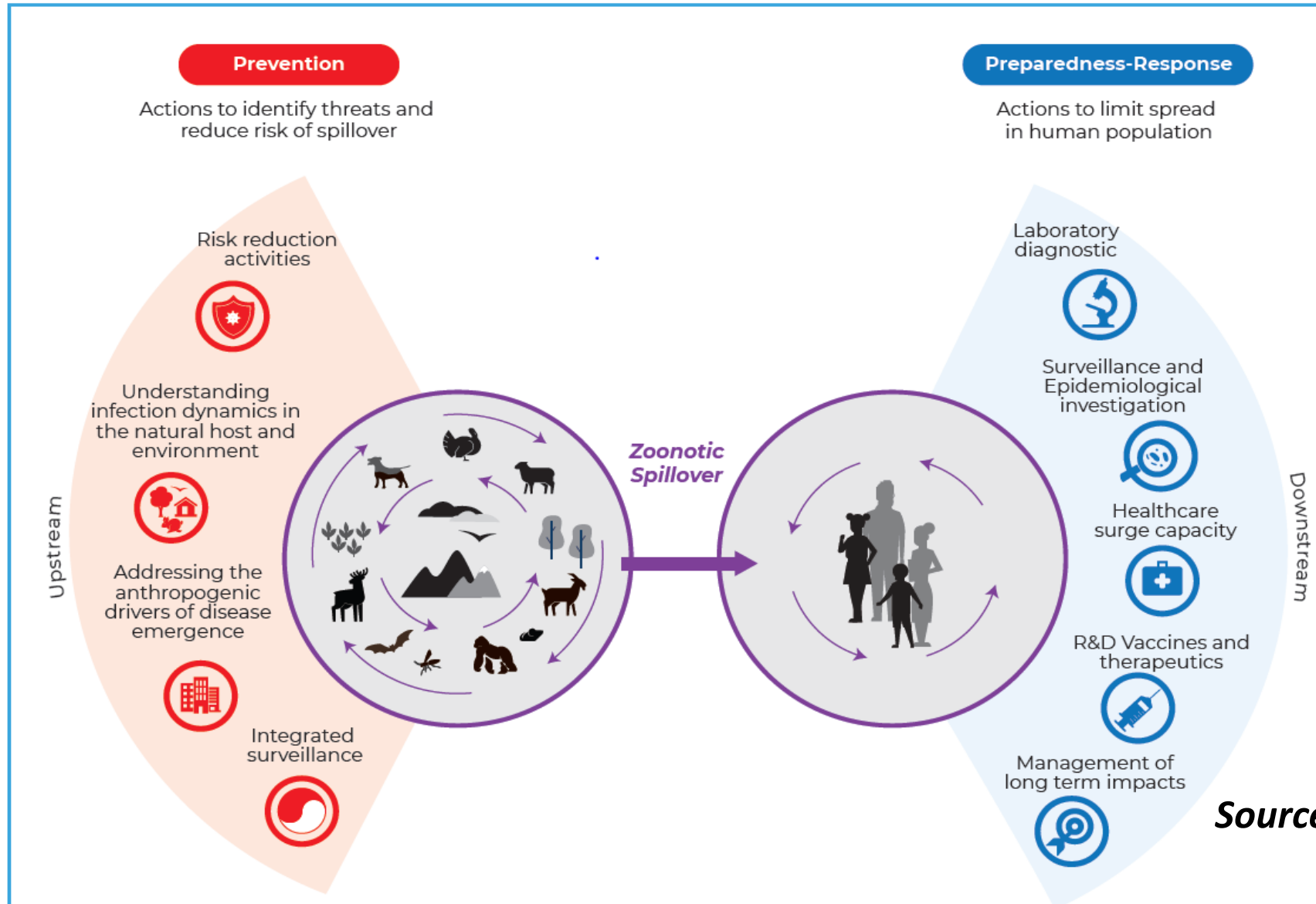
Shifting the infectious disease control paradigm from reactive to proactive (Primary prevention)

Prevention includes addressing the drivers of disease emergence, namely ecological, meteorological and anthropogenic factors and activities that increase spill over risk, in order to reduce the risk of human infection.

It is informed by, amongst other actions , biosurveillance in natural hosts, people and the environment, understanding pathogen infection dynamics and implementing intervention activities.



FIGURE 1. PREVENTION OF ZONOTIC SPILLOVER TO HUMANS



Source: OHHLEP: 2023



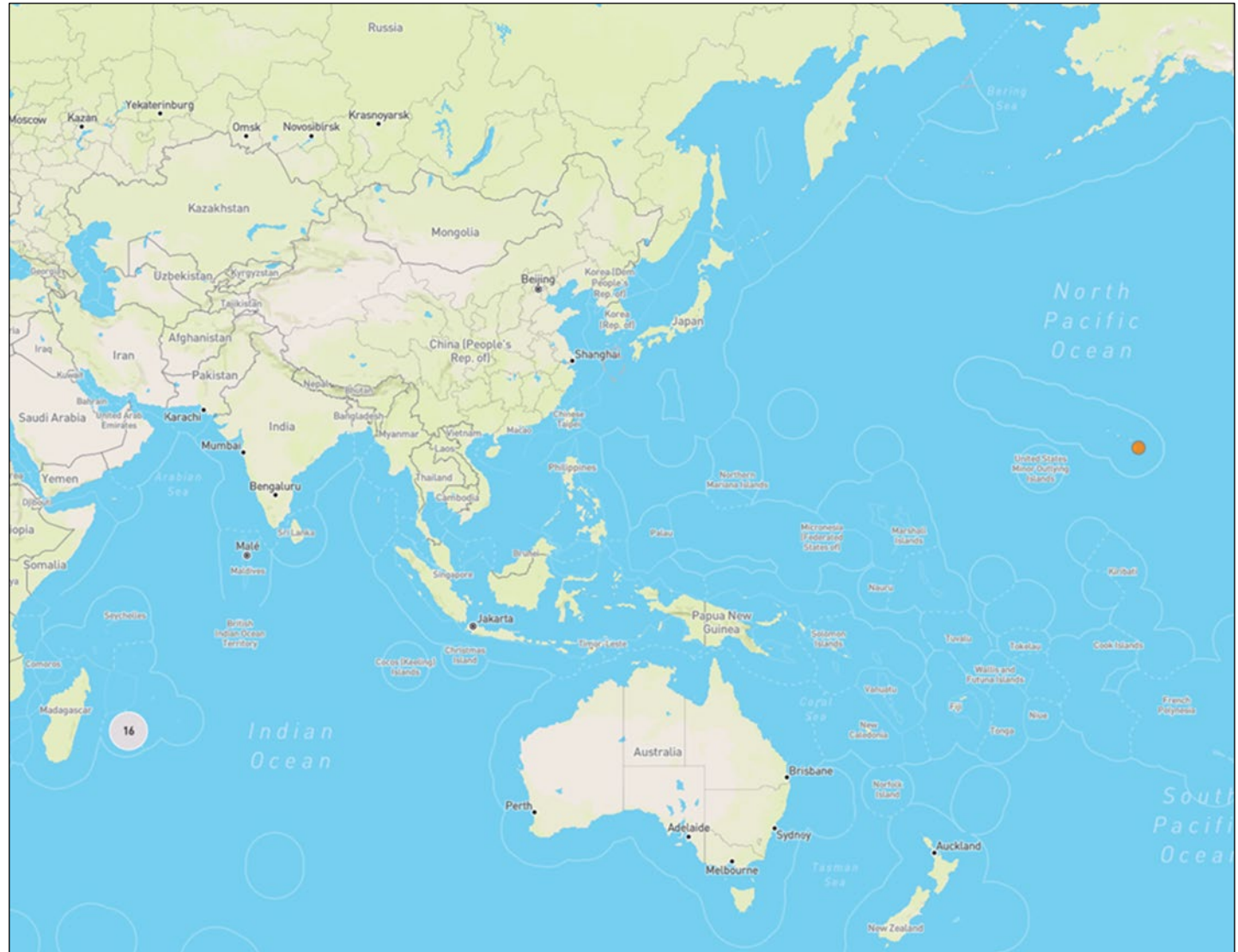
**Current state-of-play in the VS of WOA
H Members in terms of capacity and
implementation status for prevention detection,
and response to known/emerging zoonosis at
the human-animal-environment interface.**



Survey Findings:

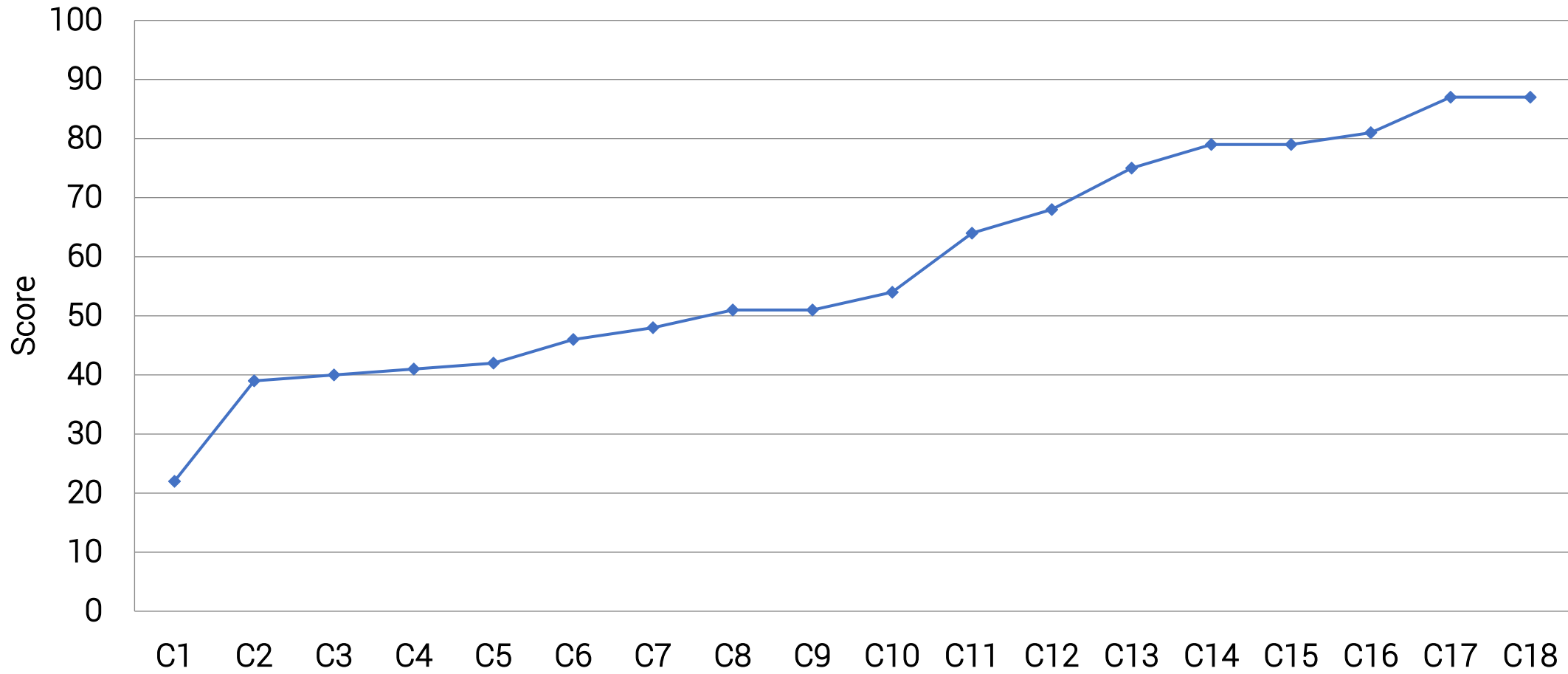
- ***Surveillance system***
- ***Laboratory system***
- ***Biosecurity and biosafety measures***
- ***Workforce & Epidemiological capacity***
- ***Research capacity***
- ***Multisectoral Coordination capacity***

[Questionnaire](#)





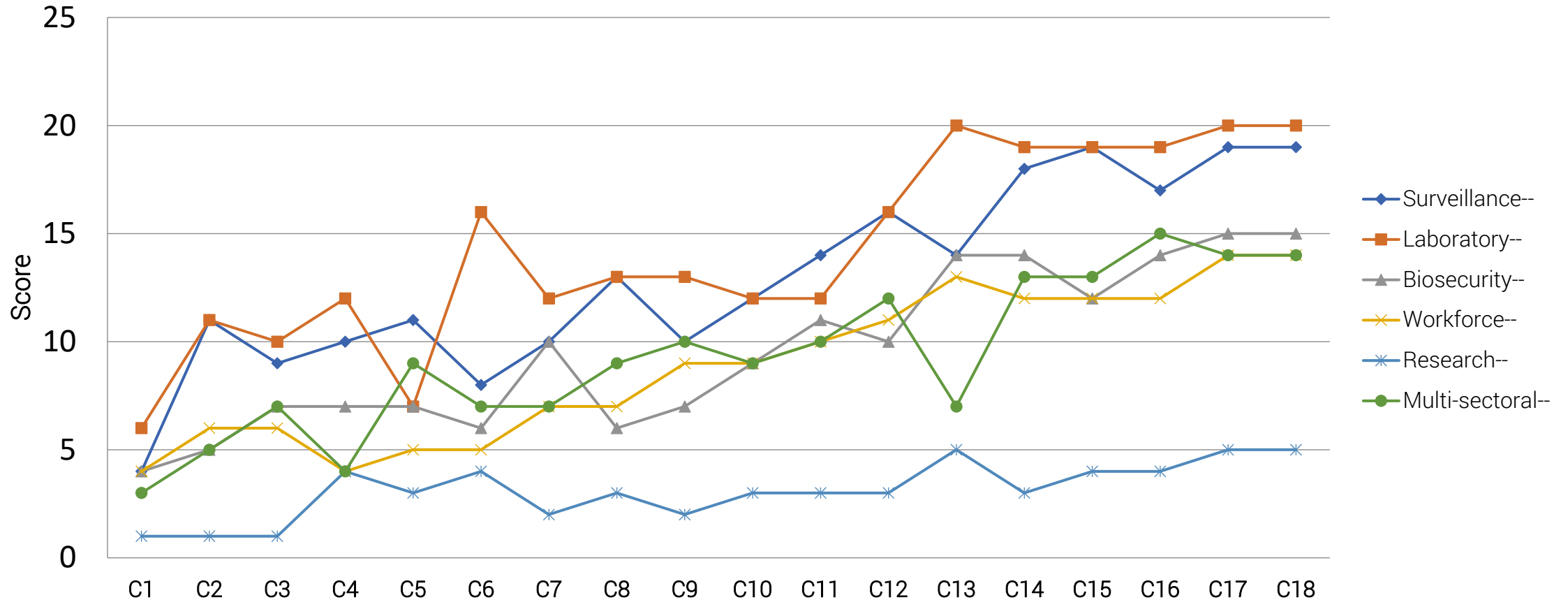
Score by Member



• **Total score: 90 (18 items *5)**



Score by area and by Member



Total score:

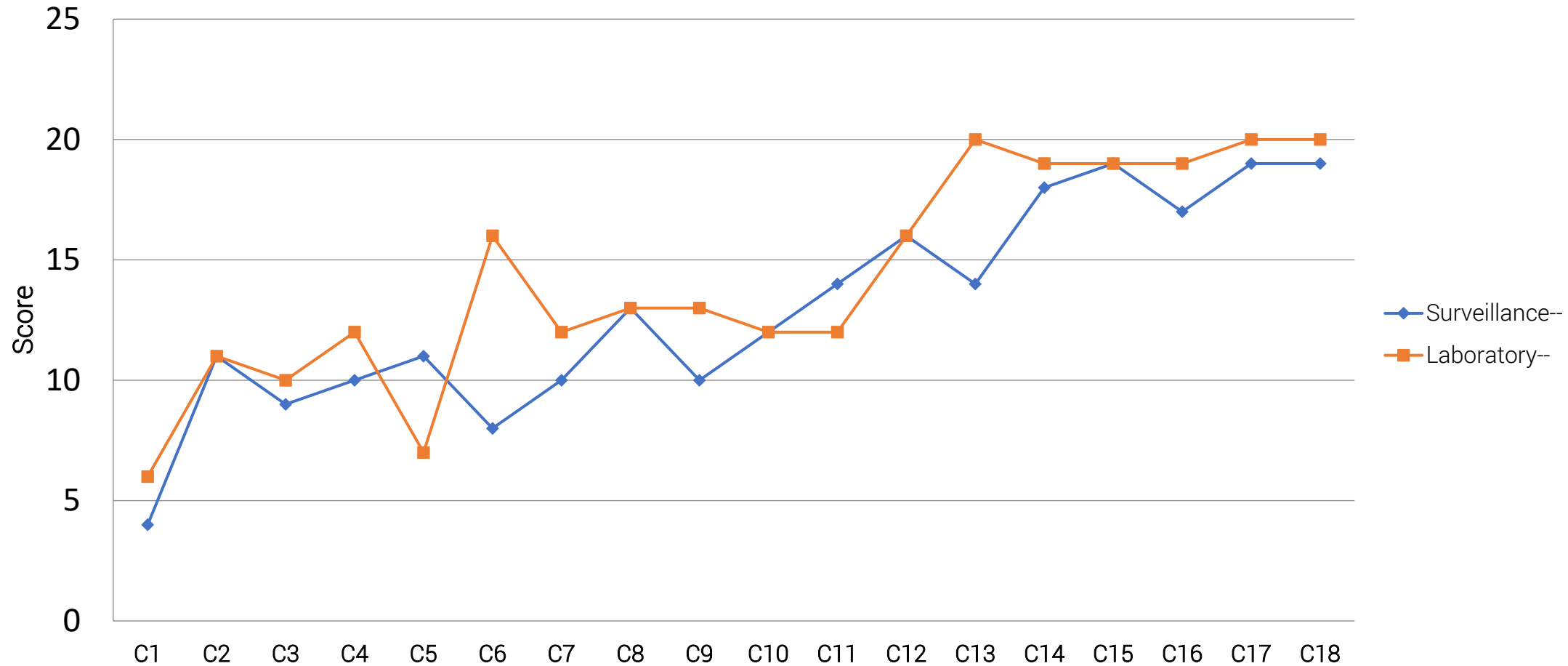
- Surveillance – : 20 (4 items *5)
- Laboratory – : 20 (4 items *5)
- Biosecurity – : 15 (3 items *5)

Total score:

- Workforce – : 15 (3 items *5)
- Research – : 05 (1 item *5)
- Multi-sectoral – : 15 (3 items *5)

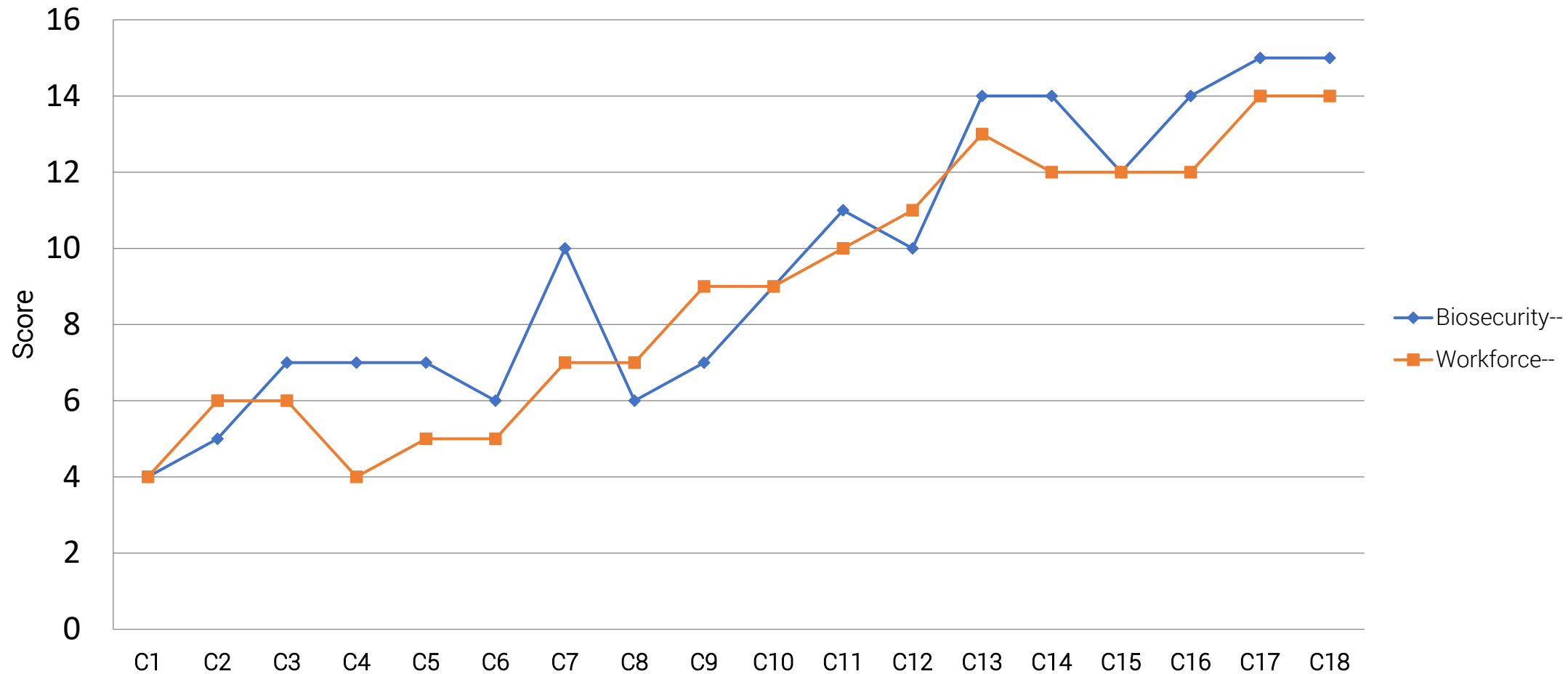


Score by area and by Member



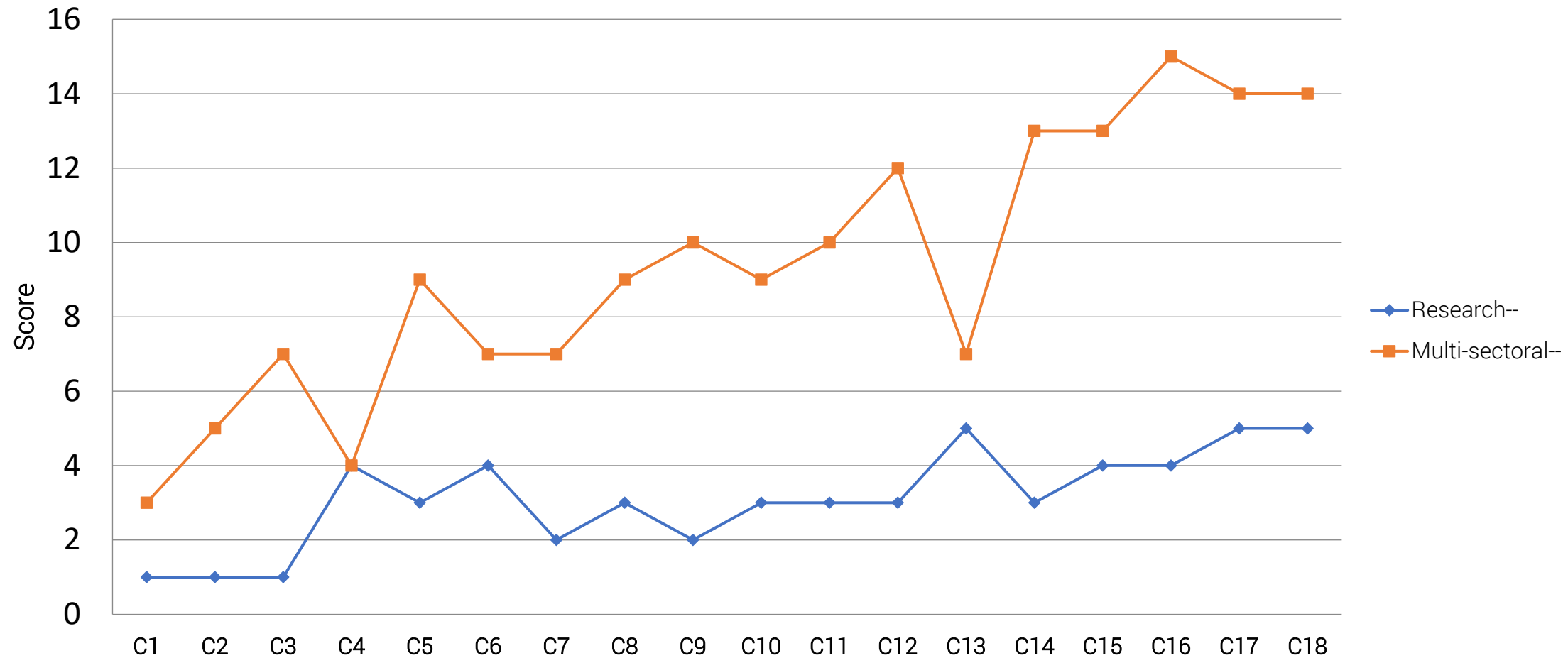


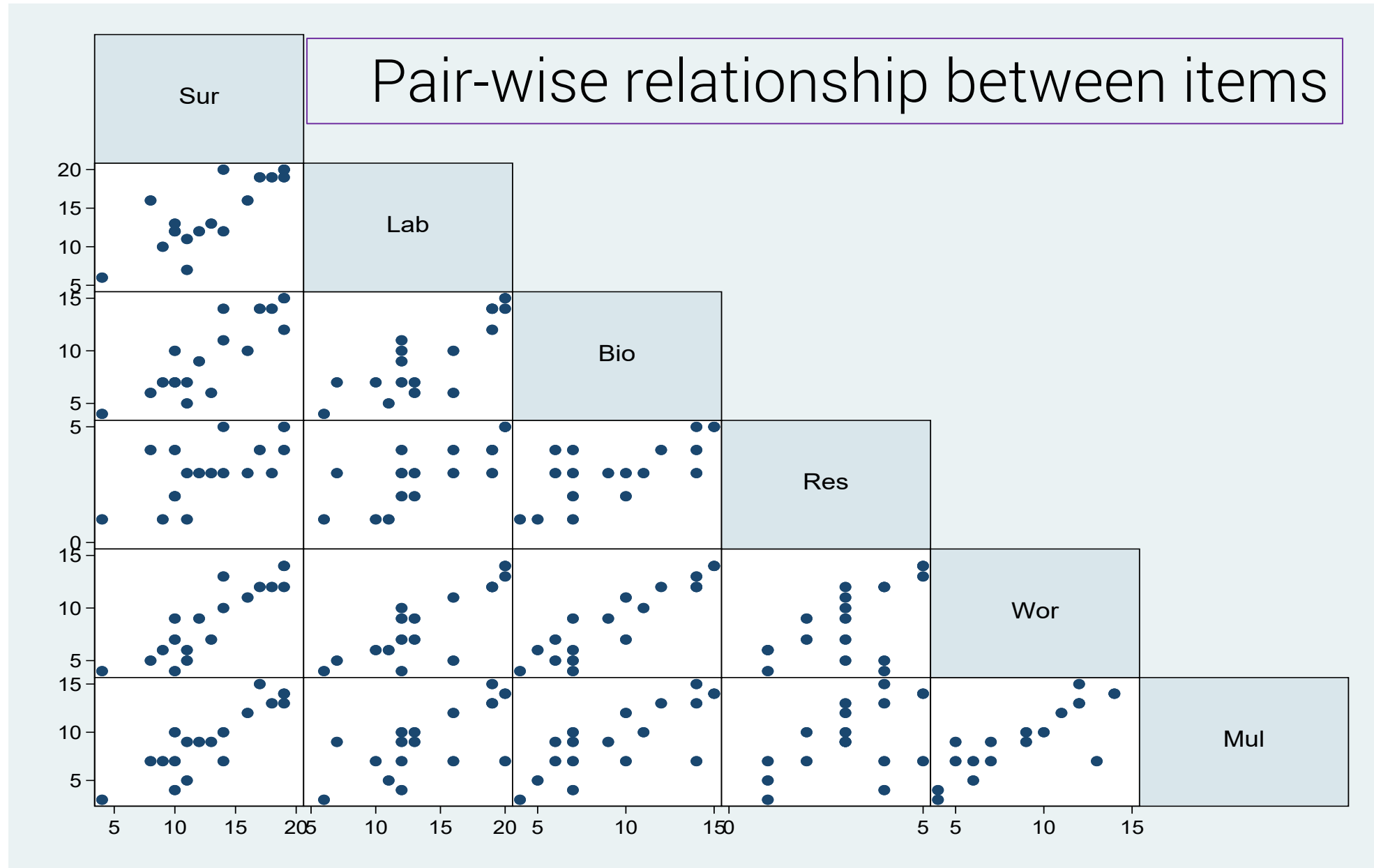
Score by area and by Member





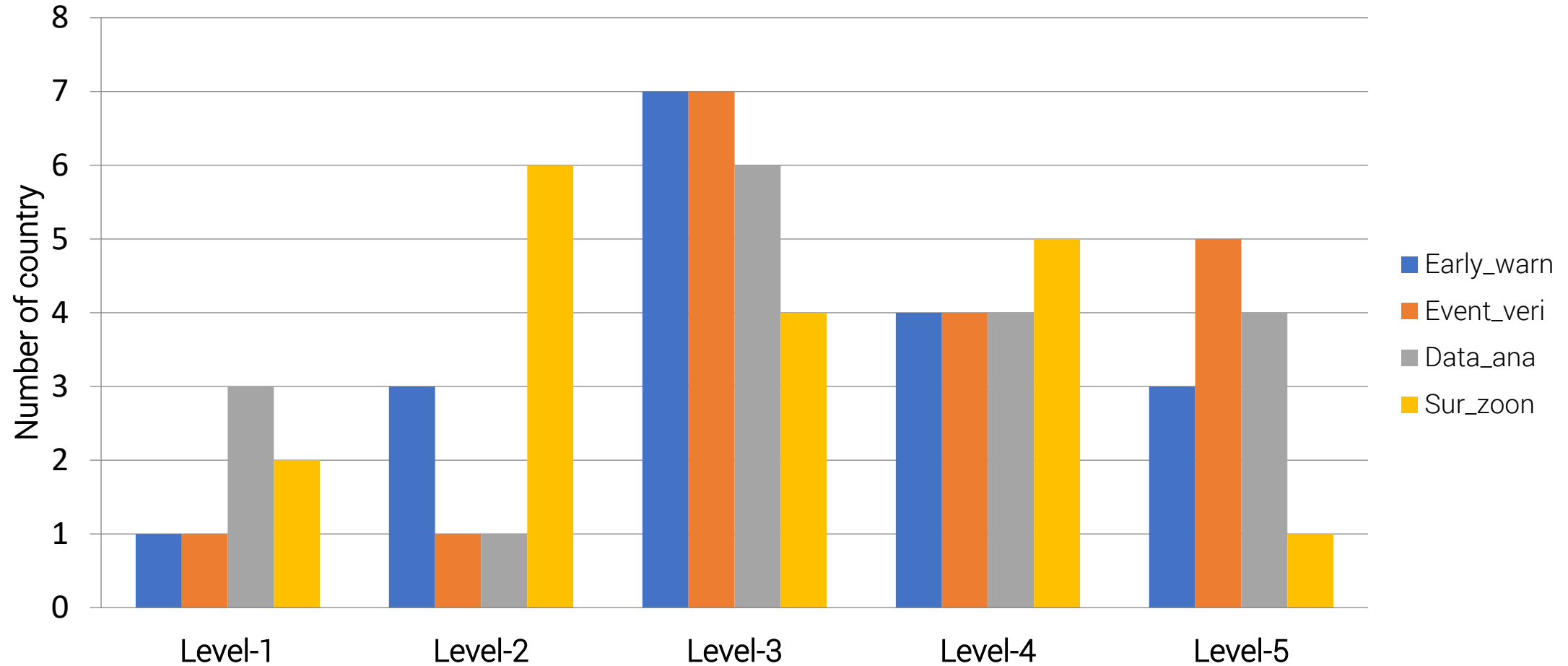
Score by area and by Member







Surveillance system





Surveillance capacity: Comments and suggestions

- Surveillance capacity inadequate
- Capacity development for animal health staff is essential
- Improvement of laboratory capacity and skill development on laboratory staff
- An app has been developed to collect surveillance data for specific diseases
- To suggest establishment of electronic platform and a dedicated team support data management
- No further comments offered
- NIL

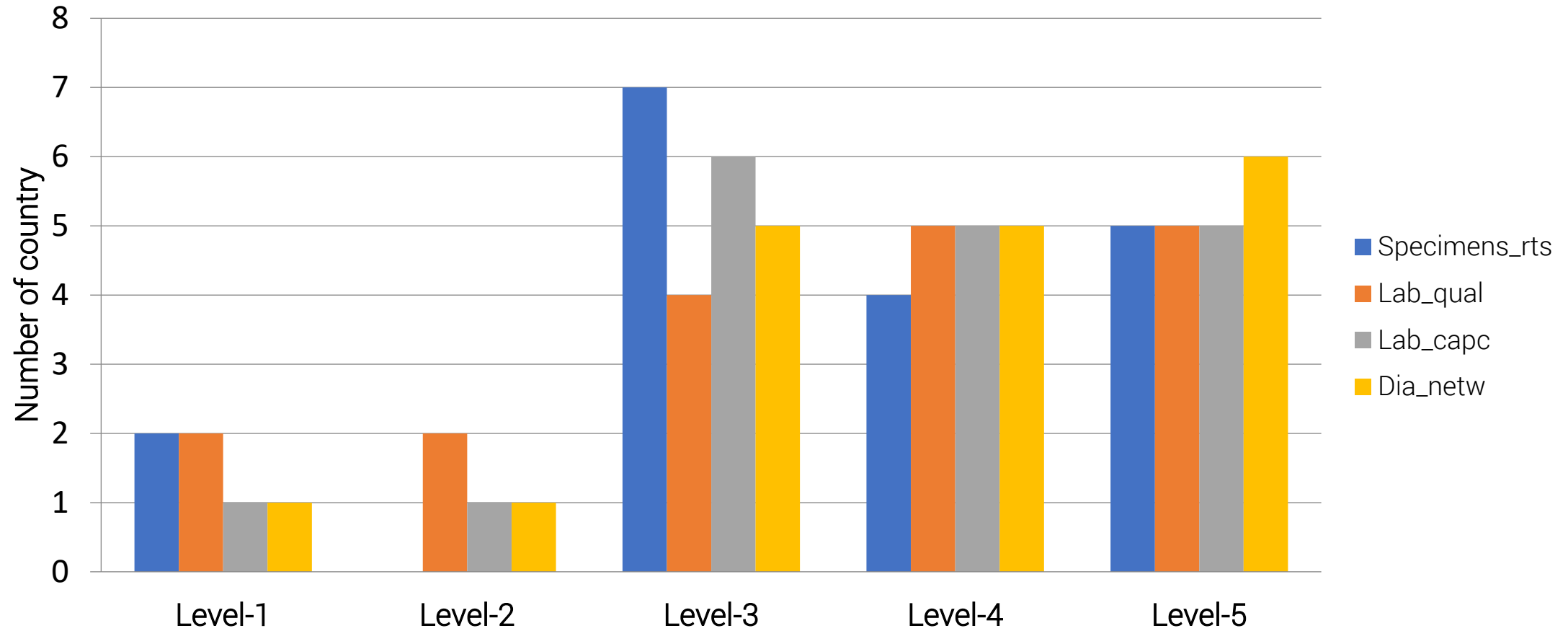


Surveillance of zoonosis: Comments and suggestions

- No coordinated surveillance between the animal health, public health and environment health
- No integrated surveillance mechanism has been developed
- National surveillance system for zoonotic diseases should be improved
- One Health processes are being developed
- To develop strategic plan for zoonotic diseases involving animal health, public health and environmental sectors
- We did not have enough time to consult other Ministries e.g. Health and Environment, thus this response is based on the best knowledge possible of Vet Authority (same for all questions)
- No further comments offered
- NIL



Laboratory system



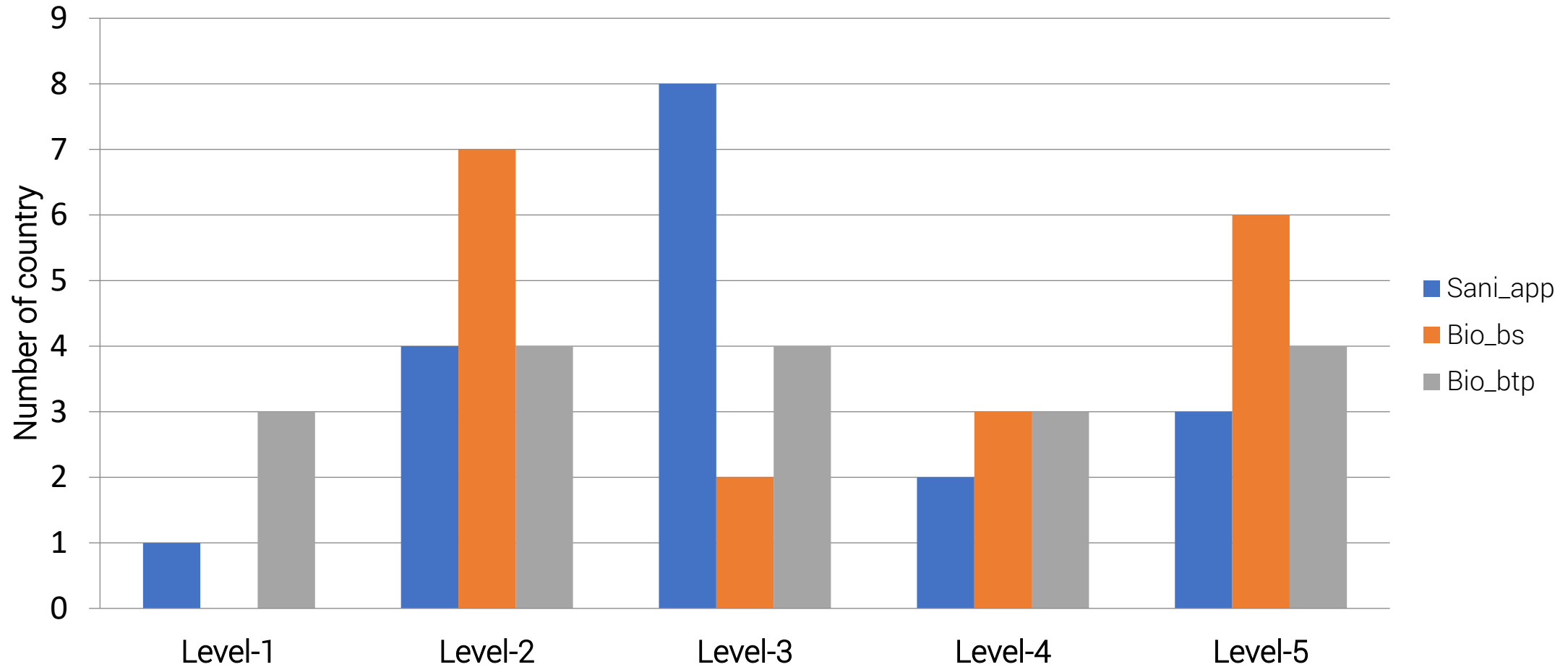


Laboratory capacity: Comments and suggestions

- Lack of capacity for tier specific diagnostic testing
- Capacity development for lab. staff is needed
- Improve laboratory quality management system and achieve ISO 17025 certification
- Development of quality standards, proficiency testing at regional labs
- Lab diagnostic capacities are presently under consideration
- One Member has to develop a career pathway to the laboratory personnel and focus on the specific training activities. More training capacity program and funding sustainability / resources are required to increase the competencies. In order to enhance more effective and sustainable cooperation between sectors, we need various or diversified platforms that involve inter-agencies cooperation from time to time.
- No further comments provided
- NIL



Biosecurity and biosafety measures



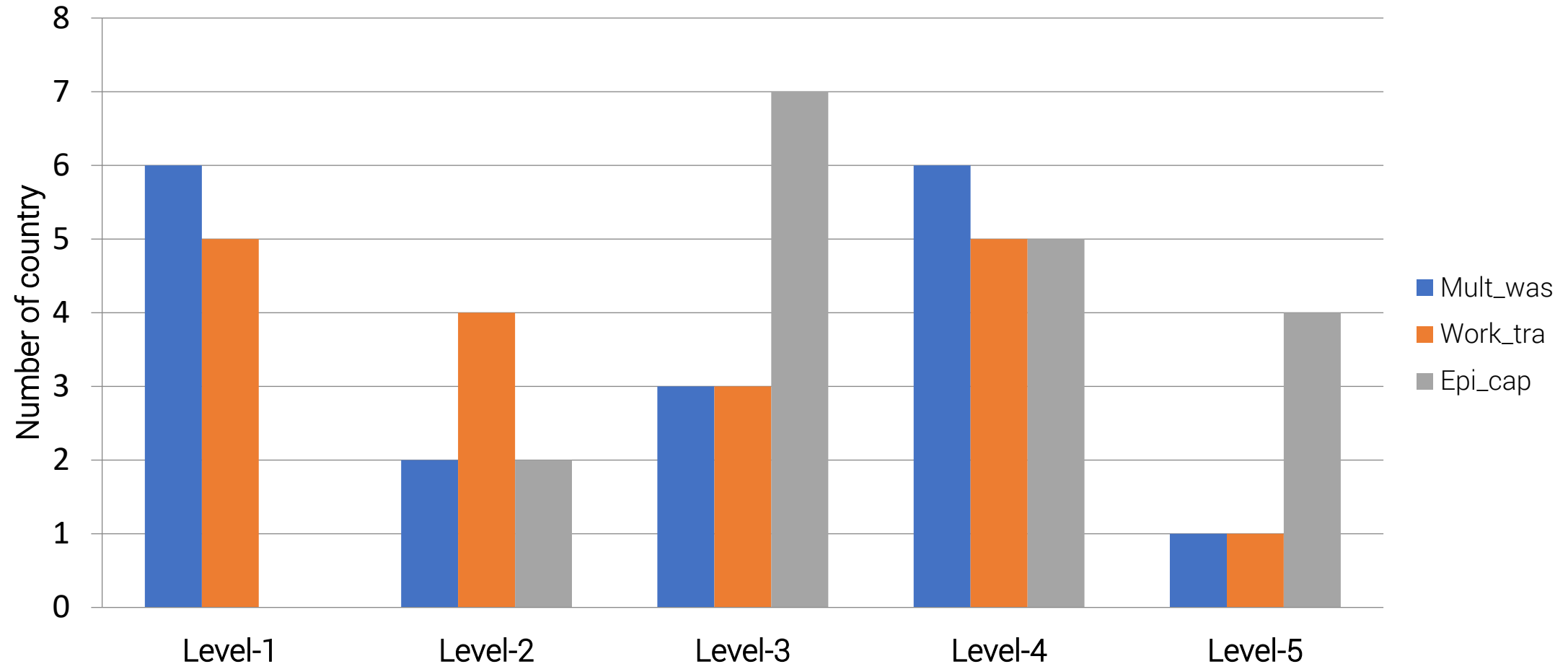


Biosecurity and biosafety capacity: Comments and suggestions

- Lack of capacity for biosecurity and biosafety training programme
- Comprehensive national biosafety and biosecurity system should be in place
- No proper training on biosafety and biosecurity in the country
- NZ / Australia are partners on biosecurity training
- Currently we have limited scope of training and funding available. Therefore we require experts and training of trainers in various field
- Capacity building is one of the key factors in good and practical bio-risk assessment and management. Particularly in working with large animals under bio-containment facility, experienced experts are keeping in need but few, so are those experienced in designing and managing bio-containment facilities for experiments of large animals. More experience sharing and technical supporting are encouraged.
- No further comments provided
- In one Member, a proper monitoring system exists but on facility or sector basis. Only missing is national level official monitoring system covering all relevant sectors.
- NIL



Workforce and epidemiological capacity





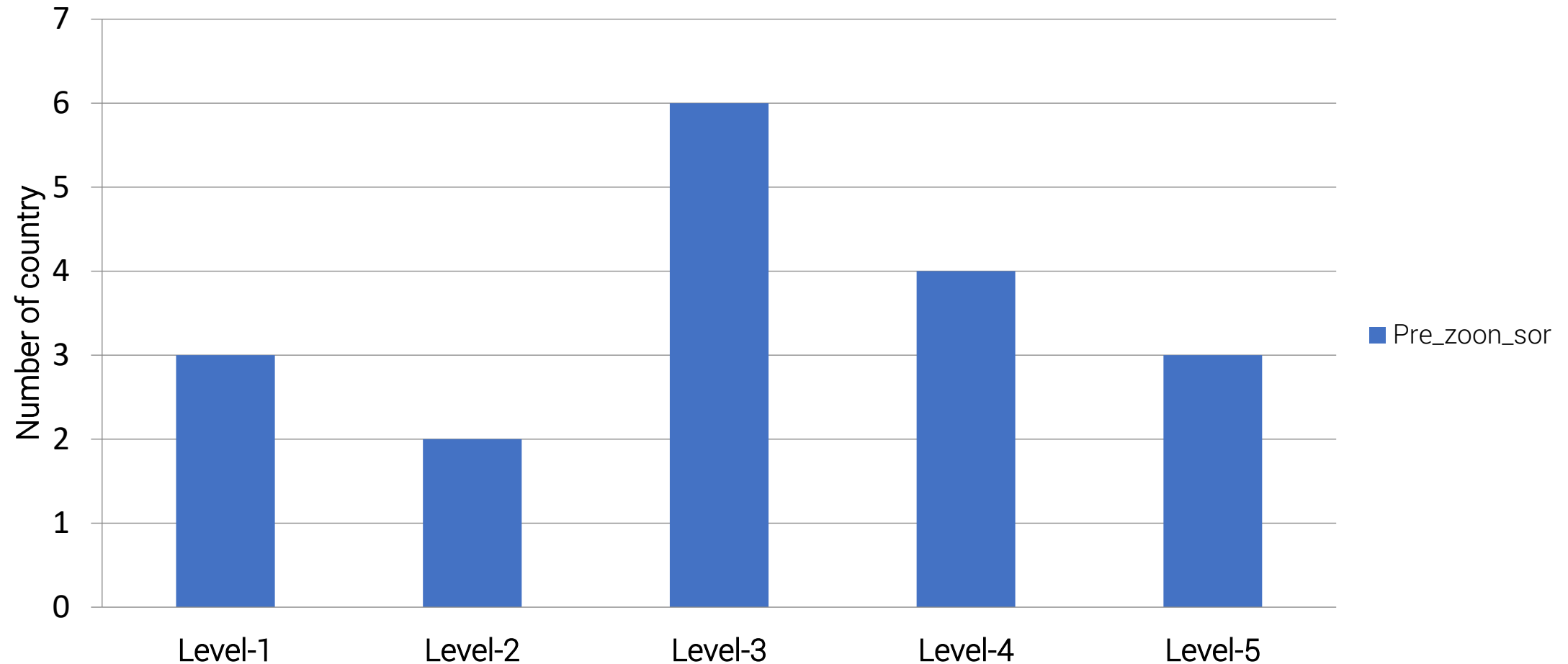
Workforce and epidemiological capacity:

Comments and suggestions

- Training on integrated epidemiological risk analysis
- More resources are needed to better implement
- One constraint is the relative national shortage of health professionals like medical doctors, nurses and veterinarians - a worldwide issue
- No further comments provided
- NIL



Research capacity



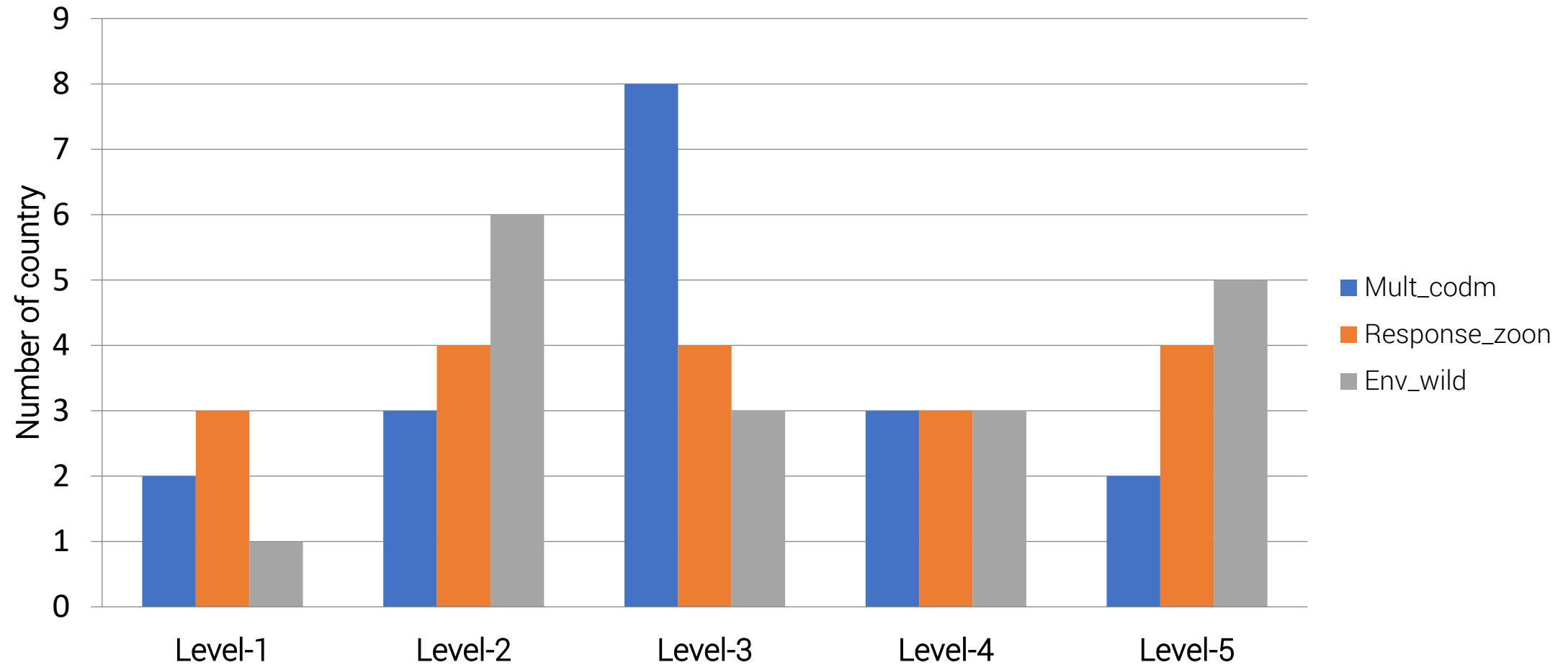


Research capacity: Comments and suggestions

- Research priority needs to be updated bi annually
- There is potential for more in-country research on zoonoses such as leptospirosis, Q-fever, scrub typhus
- While there is no formal list, there is a good national understanding of priority zoonoses
- No further comments provided
- NIL



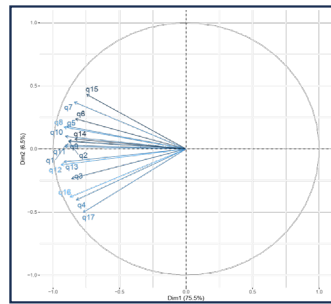
Multisectoral coordination capacity



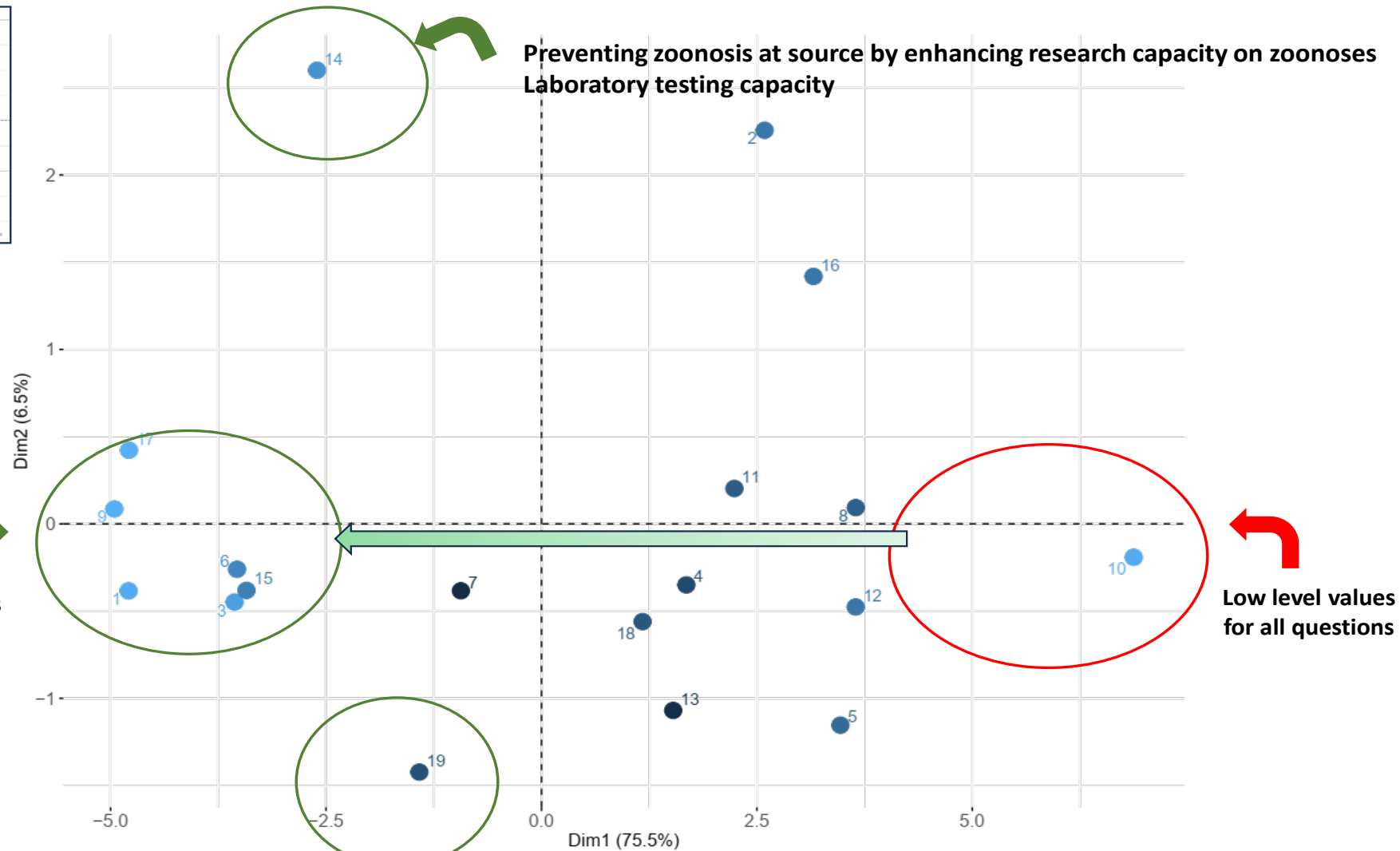


Multi-sectoral capacity: Comments and suggestions

- One Health process is improving collaboration across public health, animal health, environment
- Wildlife Department only focus on conservation of wildlife animals. We suggest the wildlife department to conduct disease surveillance program for wildlife to prevent spill-over of diseases
- Engagement and coordination of disease preparedness, response and reporting is coordinated between Federal/State/Tribal entities. Wildlife is regulated by state or tribe authority, while diseases of wildlife may be regulated by or coordinated with Federal authorities.
- There is generally good coordination across the animal health, human health and environmental sectors. One Member is also fortunate in that their geographic isolation, strict border controls and relative lack of wild native fauna (and in particular mammals) limits exposure pathways.
- NIL



High level values for all questions



Preventing zoonosis at source by enhancing research capacity on zoonoses
Laboratory testing capacity

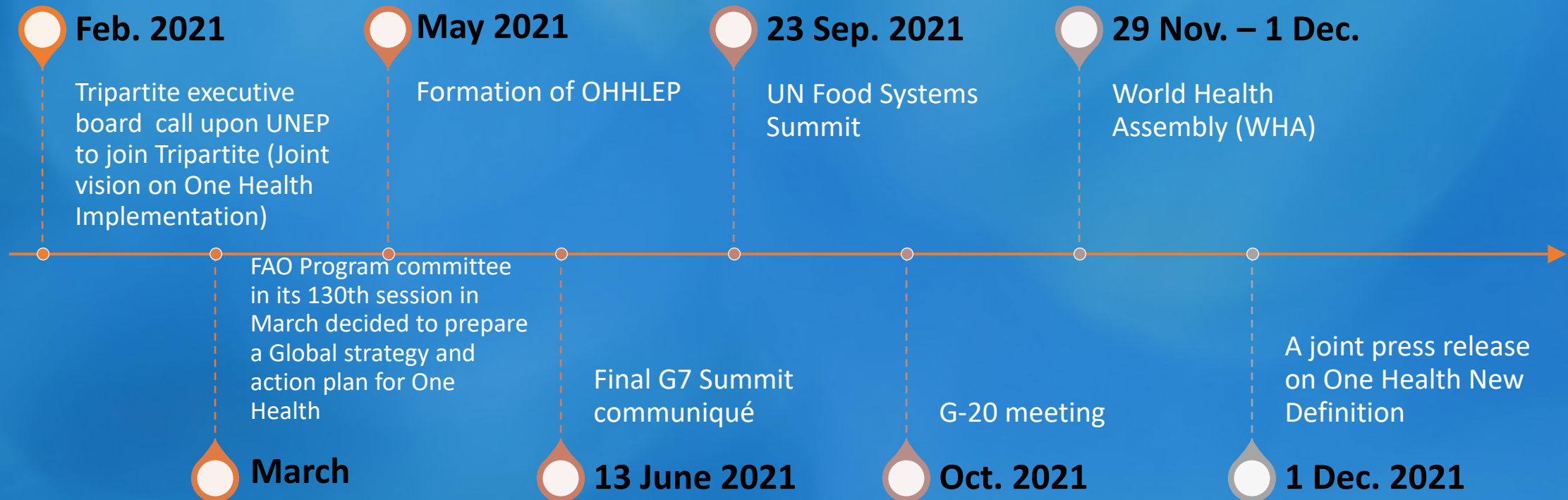
Low level values for all questions

Coordination of the Response to zoonotic diseases
Engagement of Environment and Wildlife Sector



**Situational analysis of OH coordination
updates/progress/challenges since COVID-19 pandemic.**

One Health Turns Global in 2021: Game Changers





New Impetus in Global One Health Sciences and Practices

- One Health New Definition and Theory of Change: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(23\)00086-7/fulltext#%20](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(23)00086-7/fulltext#%20)
- Quadripartite One Health Joint Plan of Action : <https://doi.org/10.4060/cc2289en>
- Lancet Publication on One Health <https://www.thelancet.com/series/one-health-and-global-health-security>
- **Independent Task Force on COVID-19 and Other Pandemics: Origins, Prevention, and Response** (<https://www.independentcovidtaskforce.org/>) Oct 2022
- **A GLOBAL DEAL FOR OUR PANDEMIC AGE:** Report of the G20 High Level Independent Panel June (<http://www.pandemic-financing.org/>)
- **An international treaty on pandemic prevention and preparedness:** WHO convention, agreement or other international instrument on pandemic prevention, preparedness and response (“WHO CA+”)
- Global warming of 1.5°C: An IPCC Special Report on the impacts of global warming of 1.5°C & Sharm el-Sheikh Climate Change Conference in Nov 2022 (**COP 27**)
- Bracing for Superbugs: Strengthening environmental action in the One Health response to antimicrobial resistance (<https://www.unep.org/resources/superbugs/environmental-action>)



Situational analysis of the Member's understanding of the OH-JPA, the OH-JPA implementation guideline and updates on development of national action plans on OH.



ONE HEALTH QUADRIpartite JOINT PLAN OF ACTION (2022-2026)

WORKING TOGETHER FOR THE HEALTH OF HUMANS, ANIMALS, PLANTS AND THE ENVIRONMENT

17 October 2022

FAO, UNEP, WHO, and WOA. 2022. One Health Joint Plan of Action (2022-2026). Working together for the health of humans, animals, plants and the environment. Rome.
<https://doi.org/10.4060/cc2289en>



One Health Joint Plan of Action Content



II.1. Theory of change (Next slide)

II.2 Impact, outcomes, and operational objectives

Desired Impact : A world better able to prevent, predict detect and respond to health threats and improve the health of humans, animals, plants and the environment, while contributing to sustainable development

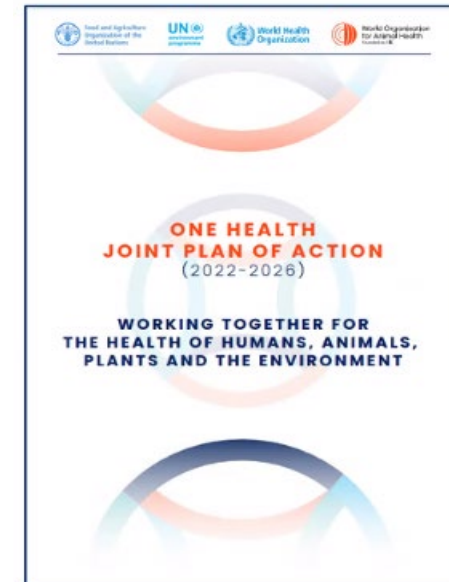
II.3 Guiding principles

Cooperation and shared responsibility

Multisectoral action and partnership

Gender equality

Inclusiveness and equity



One Health Joint Plan of Action Theory of Change and Framework for Action

1- PATHWAYS OF CHANGE

Pathway 1. Policy, legislation, advocacy, and financing

Pathway 2. Organisational development, implementation and sectoral integration

Pathway 3. Data, evidence and knowledge

2- ACTION TRACKS (AT)



High-level actions		
AT3.2 Strengthen policy frameworks for the control and prevention of neglected zoonotic disease	AT3.3 Increase political commitment and investment for control of neglected zoonotic diseases	
AT5.2 Reinforce global and regional initiatives to influence and support One Health responses to AMR		
AT1.2 Generate mechanisms, tools, and capacities to establish a One Health competent workforce and to facilitate One Health work	AT1.5 Generate an enabling environment for effective implementation of One Health	
AT5.3 Strengthen global governance structures for AMR		
AT6.1 Protect, restore and prevent ecosystem and environmental degradation	AT6.4 Create an interoperable One Health in-service training program for environment, medical and veterinary sector professionals	
AT1.1 Establish the foundations for One Health capacities	AT2.3 Strengthen One Health surveillance, early warning and response	
AT4.1 Strengthen One Health approach in national food controls systems and food safety coordination	AT4.2 Improve food system data and analysis, scientific evidence, and risk assessment	AT4.3 Foster the adoption of One Health approach in foodborne disease surveillance systems and research
AT6.3 Integrate environmental knowledge, data and evidence in decision-marking		
AT2.1 Understand drivers of emergence, spillover and spread of zoonotic pathogens	AT2.2 Identify and prioritize evidence-based upstream interventions for prevention of zoonoses	
AT3.1 Enable countries to implement community-centric and risk-based solutions to neglected zoonotic diseases	AT5.1 Strengthen country capacity and capability to control AMR	
AT6.2 Mainstream the health of the environment and ecosystems into the One Health approach		

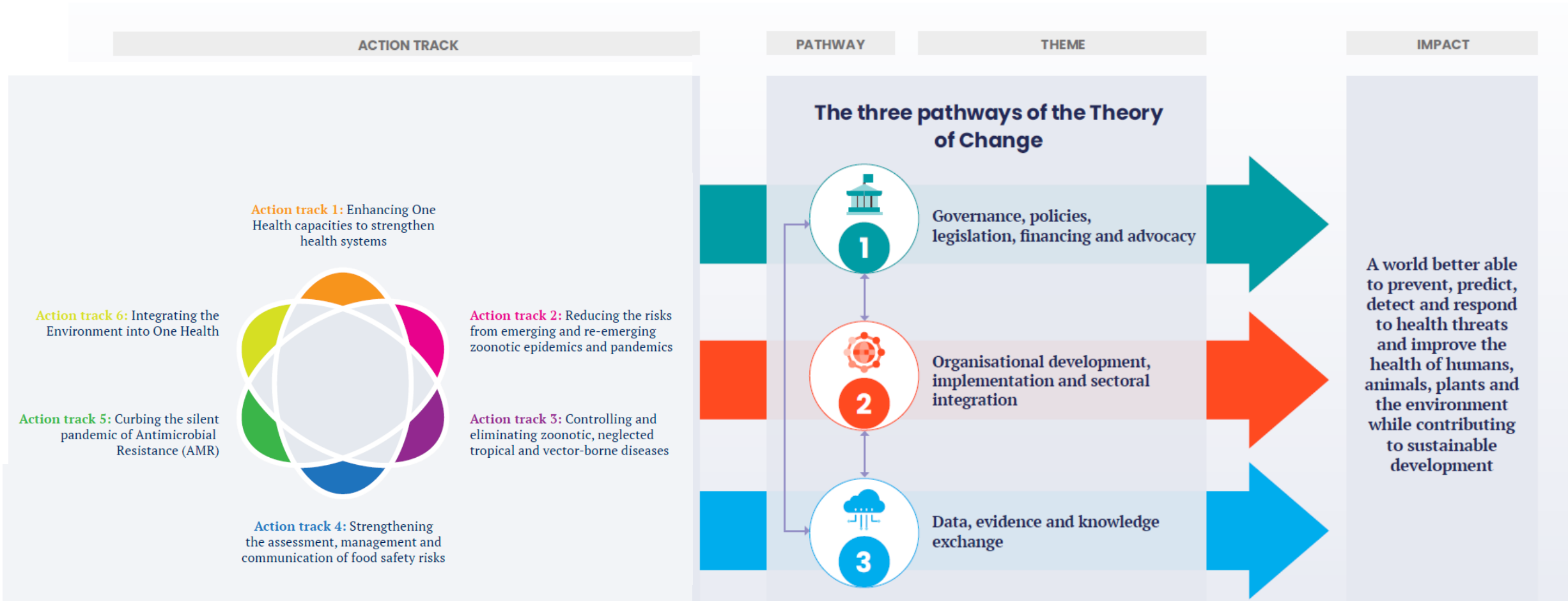
5 – IMPACT
 A world better able to prevent, predict detect and respond to health threats and improve the health of humans, animals, plants and the environment, while contributing to sustainable development

4- LONG-TERM OUTCOMES
 Improved health of humans, animals, plants and the environment while identifying sustainable system-wide One Health solutions that allow our ecosystems to thrive in harmony
 Reduced risk and impact of health threats at the human-animal-plant-environment interface using a One Health approach efficiently, effectively, and equitably

- 3- MEDIUM-TERM OUTCOMES**
- Improved coordination, communication and alignment of activities and capacity building efforts, research, education and guidance
 - Organizations collaborate and synergize effectively to implement OH equitably and inclusively
 - Strengthened cross-sectoral capacities
 - Improved use of One Health tools, technologies and practices

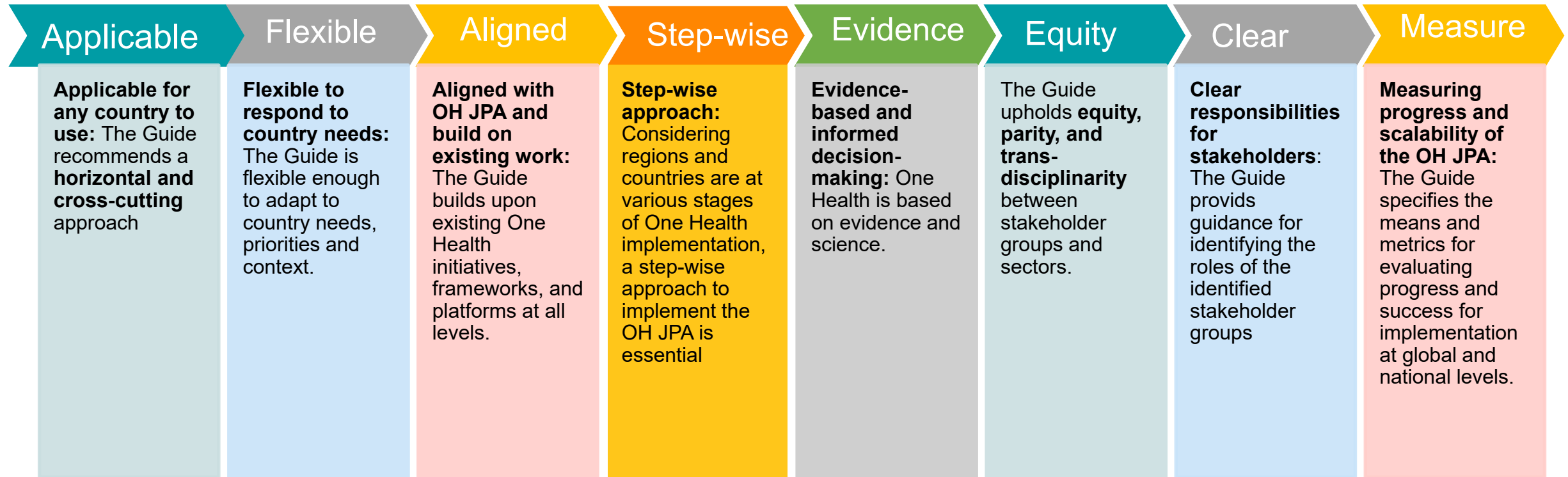


Toward implementation: Three pathways of change





Principles for implementation by countries





Pathway 1

**Policy, advocacy
and financing**

Actions related to:

- Fostering political will
- Policy development and enabling regulatory frameworks
- Securing investment and sufficient financing
- Promoting institutionalization of intersectoral governance

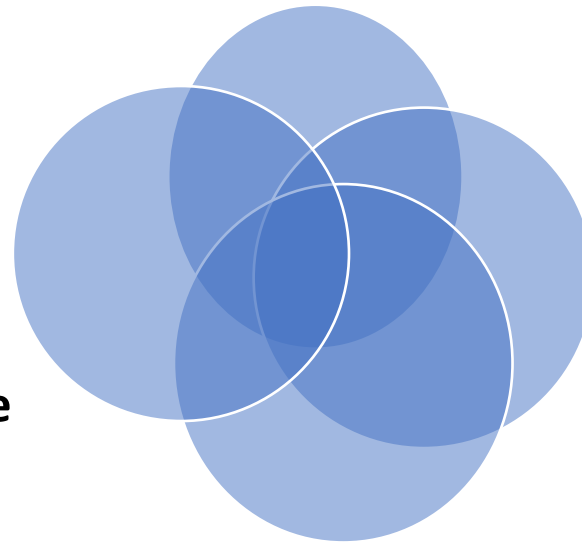


Other Examples of One Health Policy, Advocacy & Financing in Other Members

Presence of subject-matter experts in the House of Lords (UK)

Dedicated 1% budget from the Ministry of Health and Ministry of Agriculture for One Health secretariat (Bhutan)

National Action Plan on AMR (Almost all Members in Asia)



Strong national level One Health network (Thailand, Vietnam, Bangladesh, Bhutan, Myanmar, Nepal)

One Health strategic plan/framework (Bangladesh, Bhutan, Vietnam, Myanmar, Nepal etc.)

Budget support from the government and development Partners (FAO, WHO, USAID, WOA, World Bank & Fleming Fund) (Thailand, Bangladesh)

Source: Easrat Jahan Esha 2023



Pathway 2

**Organizational
development,
implementation
and sectoral
integration**

Actions related to:

- Scale up of capacity development
- Community engagement and equitable participation and mobilization for action
- Multi-sectoral collaboration

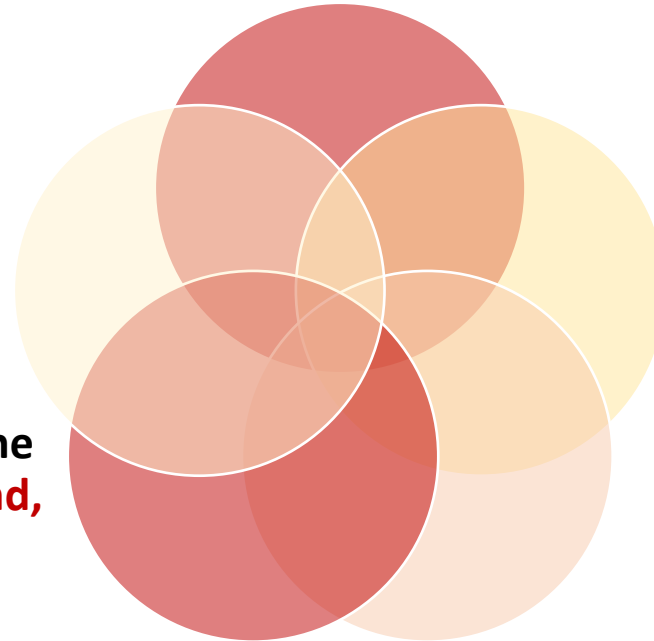


Pathway 2: Organizational Development, Implementation & Sectoral Integration

Student network- Thohun, Vohun, Mmohun, AFROhun (Thailand, Vietnam, Myanmar, Uganda) & One Health Young Voice Bangladesh (OHYV,B)

Strong provincial level One Health network (Thailand, Vietnam)

Strong national level One Health network (Thailand, Vietnam, Bhutan, UK, Myanmar, Nepal)



One Health training program- Field level training program (FETP), Bangladesh AMR response alliance (BARA)

Community level training programs & awareness program (Vietnam, Thailand)



Pathway 3

Data, evidence, and
knowledge

Actions related to:

- Strengthening the scientific evidence base
- Fostering knowledge exchange and continuing education
- Using better data and evidence to inform best practice
- Fostering innovation and enabling research and development and access to new tools and technologies



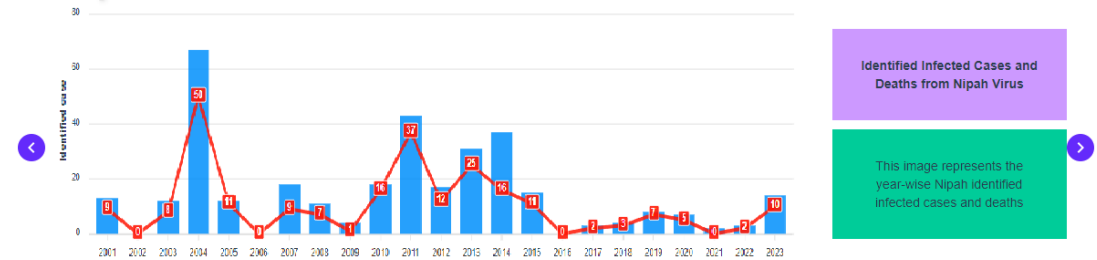
One Health Data Dashboard in Bangladesh

- **Launched on 14 March, 2022**
- Aim to strengthen OH approach through sharing reliable disease information timely among OH stakeholders.
- Internal dashboard (admin panel) is designed to improve collaboration & co-ordination from investigation to policy level intervention among stakeholders from different sectoral organizations.
- Contains EBS & IBS data on heatmap along with other graphical representation to visualize seasonal trends, severe affected areas, vulnerable cluster and many more.
- OH related research & publication from country perspective, PHEIC and other important link enrich this website content.

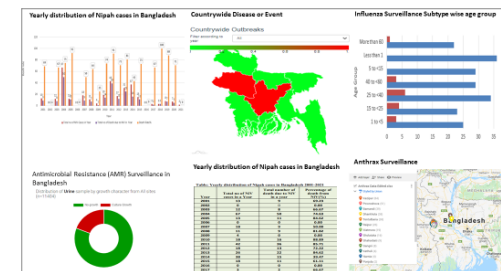


One Health Event Based Surveillance System Dashboard

One Health Event Based Surveillance Data Visualization (Management) Dashboard is a web based program aimed to help One Health stakeholders by improving the organization and access to local disease prevalence information. Timely and reliable disease information improves adequate recognition and reaction to high impact infections, such as emerging zoonosis, and promotes prevention and a progressive strategy to control.



Event Based Surveillance Indicator Based Surveillance



Important links

- IEDCR
- DLs
- DGHS
- BFD
- BLRI
- OHS
- WHO
- FAO
- OIE
- US CDC
- Ending Pandemics

Pandemic disease

- Covid
- Monkey pox

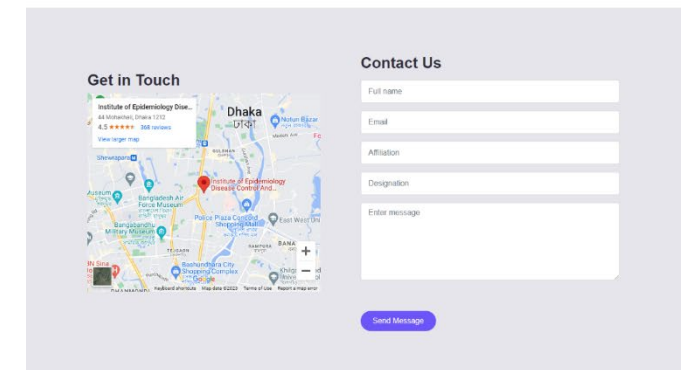
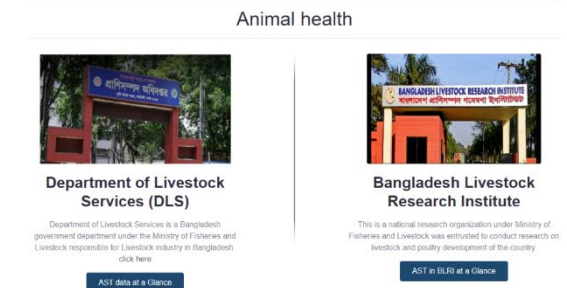
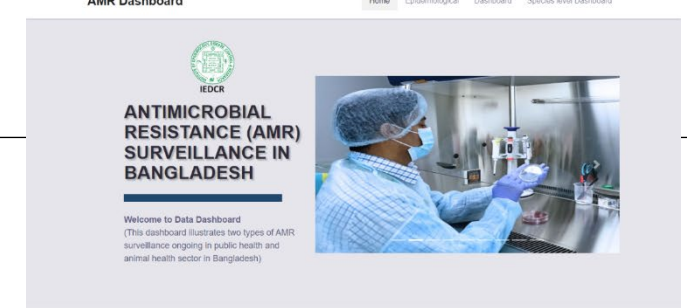
Research & publication

- Articles



National One Health AMR Data Dashboard

- **Start functioning from 2019**
- AMR dashboard visualize AST data from both human and animal health sector to achieve true one health approach.
- Human health contains Epi & Lab data from 11 sentinel sites in Case based and only lab data from 18 Laboratories covering both govt. & renowned private Laboratories.
- Animal health data contains data from laboratories works under department of livestock services and Bangladesh livestock research institute.
- Graphical representation of collected specimen and percentage of growth, top ten organism findings and antibiotics susceptibility pattern visualize the current situation of antibiotics usability.
- Antibiotics resistance pattern of animal sample from all parts of the country indicates importance of work following OH approach.



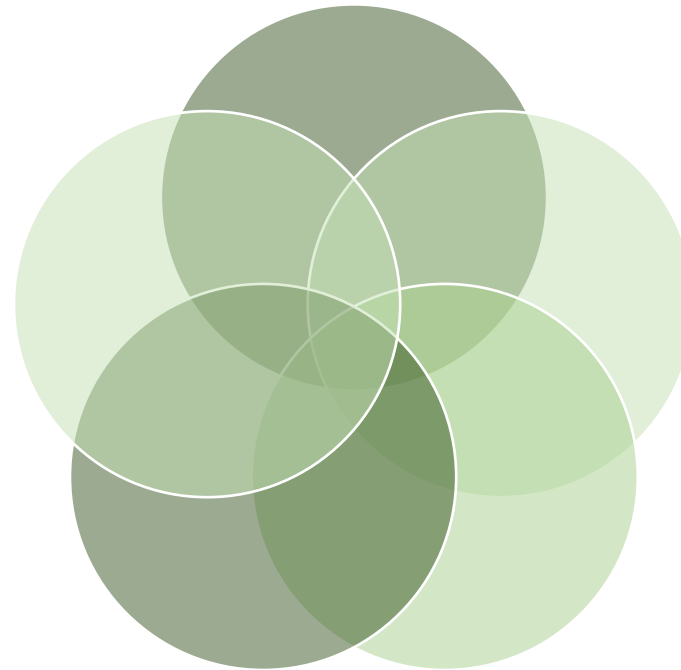


Pathway 3: Data Evidence & Knowledge

**One Health research networking
(BALZAC, One Health Poultry Hub,
Bangladesh; PANN CEIRR)**

**Growing interest in One Health
concept (Bangladesh, Nepal,
Bhutan, Vietnam, Thailand,
USA)**

**Building community
awareness through social
media posts, education
materials (e-book), brochures
(Thailand)**



**Develop course
curriculum/module for
Secondary School and University
level (Thailand, Vietnam)**

**One Health institute & One
Health data dashboard
(Bangladesh & Kerala-India)**



Situational analysis of the Member's application/access to the Pandemic Fund applications and/or other funding sources for national OH actions.



Pandemic Fund: A Brief Update



Pandemic
Prevention,
Preparedness &
Response (PPPR) FIF

What is the Pandemic Fund?

The Pandemic Fund finances critical investments to strengthen pandemic prevention, preparedness, and response capacities at national, regional, and global levels, with a focus on low- and middle-income countries.

- Intended to bring additional, dedicated resources for pandemic prevention, preparedness, and response, incentivize countries to increase investments, enhance coordination among partners, and serve as a platform for advocacy.



**The
Pandemic
Fund**

FOR A RESILIENT WORLD



Thematic Priorities for Pandemic Fund

- Strengthening country-level pandemic PPR capacity
- Building regional and global capacity
- Supporting technical assistance, analytics, learning and convening



Priority Areas for the first Call



LABORATORY SYSTEMS



WORKFORCE
STRENGTHENING

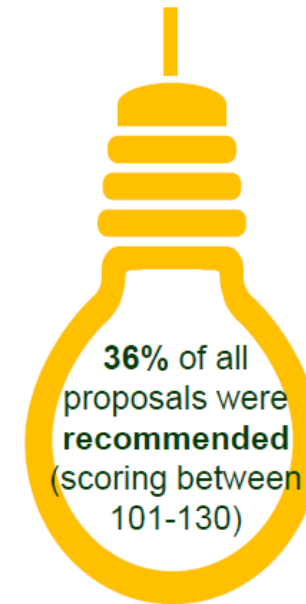


SURVEILLANCE SYSTEMS

- ✓ Relevant for 1st CfP and appropriate for present gaps and needs within PPR
- ✓ These areas remain a critical priority with much work still needed
- ✓ Future consideration could focus on how to ensure that pandemic prevention/risk reduction and preparedness/readiness for community protection, scalable clinical care and emergency coordination are also incorporated into calls

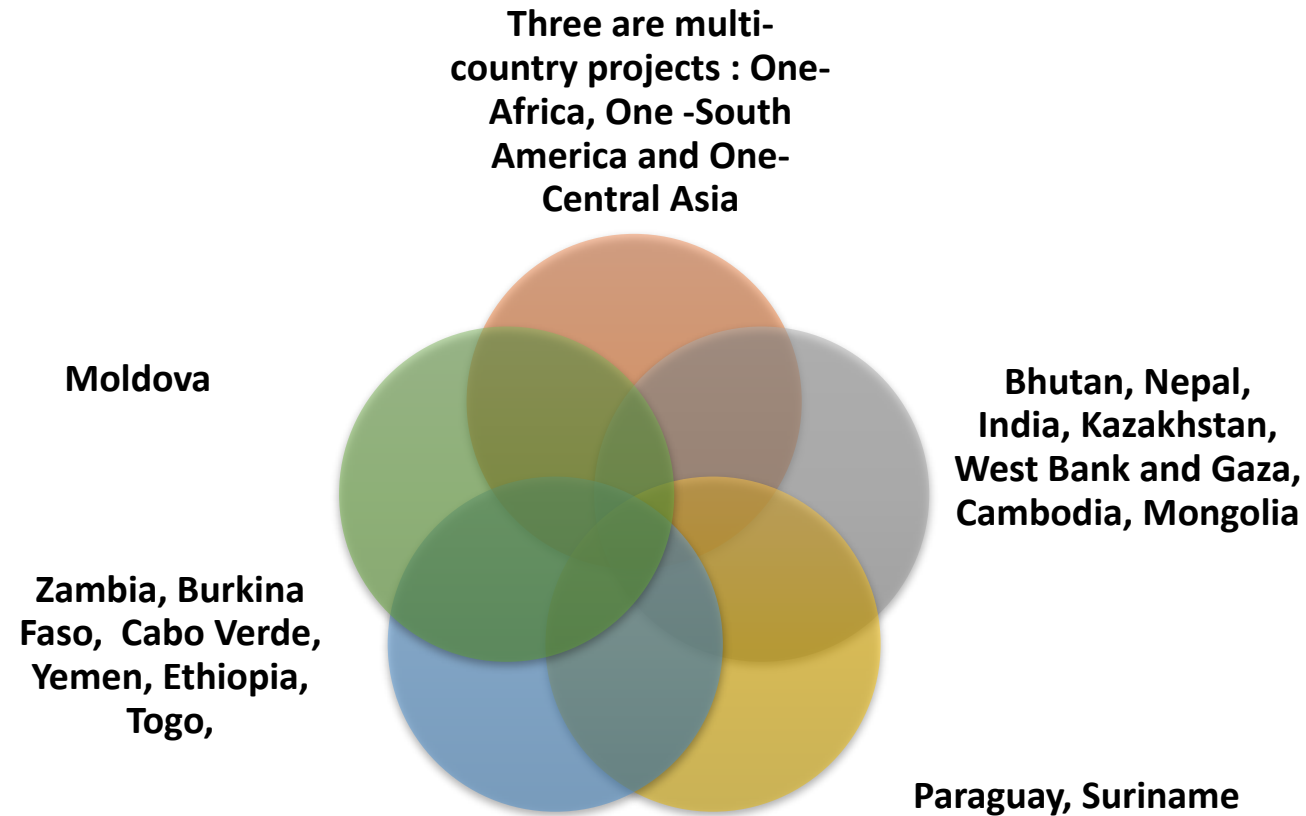


High number of good proposals: TAP recommended 49 Proposals





Distribution of 19 Approved Projects from First Call Proposal





PREZODE: A COMMON FRAMEWORK TO FOSTER COLLABORATION AND IMPACT

To take up the challenge of preventing pandemics, the **initiative was launched in January 2021 during the One Planet Summit**, with the support of the European Commission and the Quadripartite (FAO, WHO), WOA, and UNEP).





PREACTS: PREZODE in ACTION in the global South

- First operational project of PREZODE towards Members in the Global South
- Implementation: CIRAD&IRD
- **Objectives:**
 - Application of PREZODE Pillars and Strategic Agenda
 - Support for PREZODE signatory Members in the South
 - Operationalization through local research and development actions
 - Support for public policies and State-Science-Society dialogue
 - Consideration of gender and climate dimensions

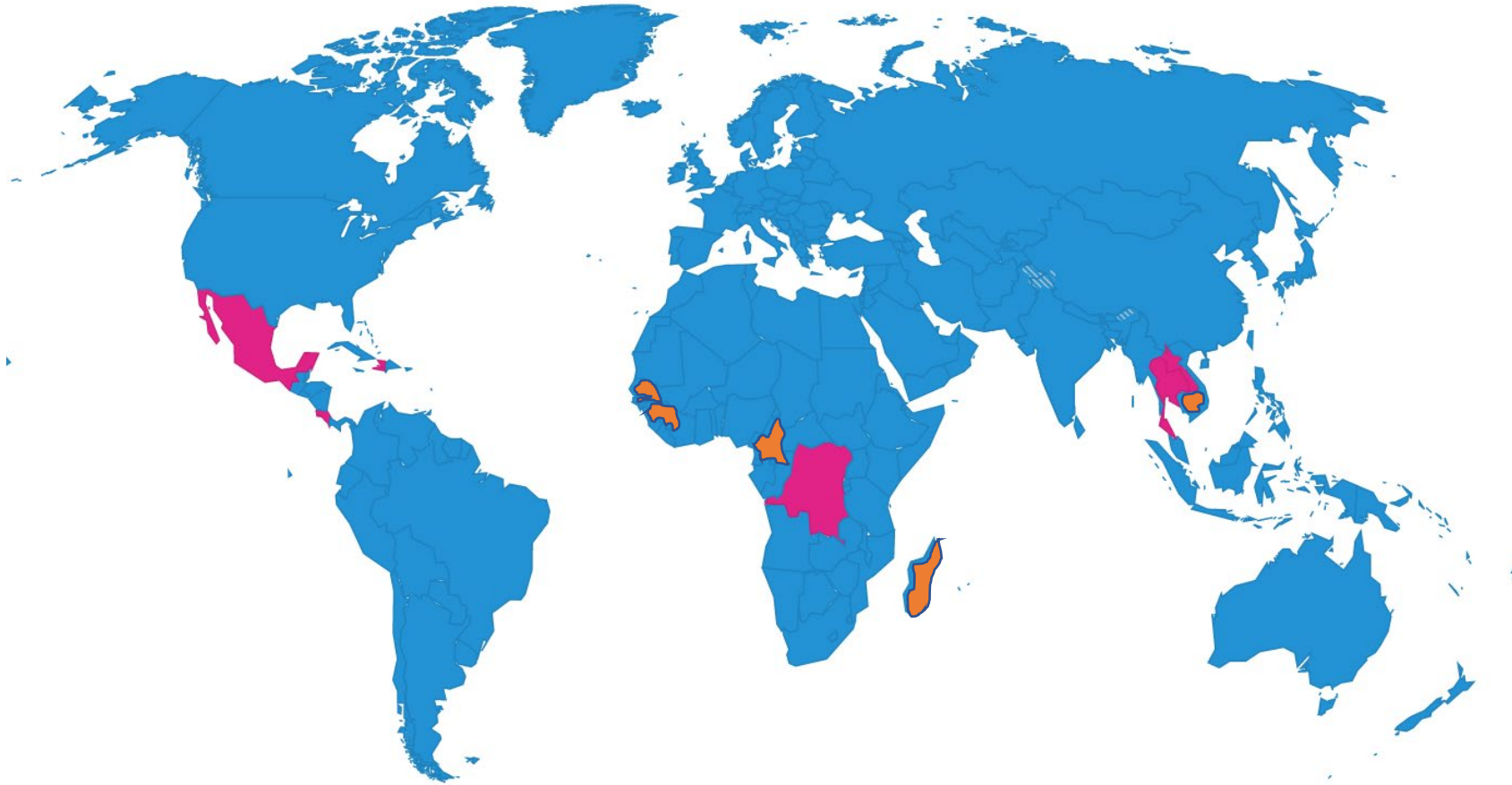


PREZODE in action
in the global South





PREACTS's geography



 AFRICAM

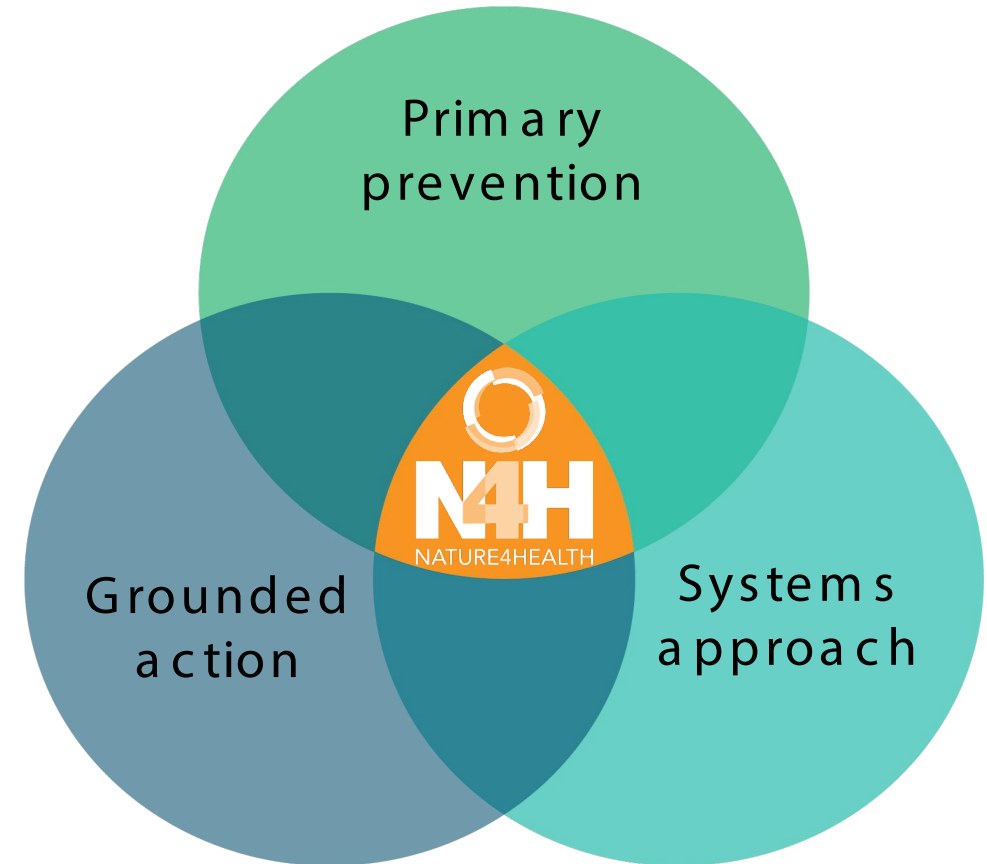
- Senegal
- Guinea
- Cameroon
- Madagascar
- Cambodia

 ASAMCO

- Mexico/Costa Rica/Haiti
- Democratic Republic of Congo
 - Lao/Thailand

What does N4H do?

- Acts to reduce the risk of zoonotic spillover upstream
- Promotes participatory, systemic approaches
- Champions the environmental dimensions of One Health



Who is N4H?

Leading environmental and health organizations who have joined N4H to apply their knowledge and skills set to strengthening the environmental aspects of preventative One Health, and committed to the growth of the fund.

Initial contribution of €50 million from Germany (BMUV through IKI)



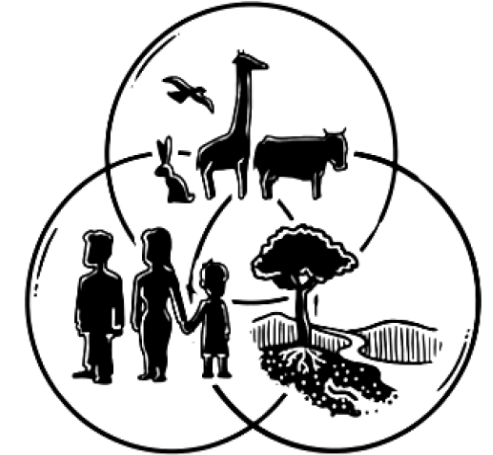


Upstream prevention

- Cost-effective
- Better health outcomes
- Maintains ecosystem services
- Supports climate change mitigation

BUT

- Complex and uncertain
- Cause and effect are blurred
- Requires new ways of thinking and doing
- Hard to demonstrate success: prevention paradox



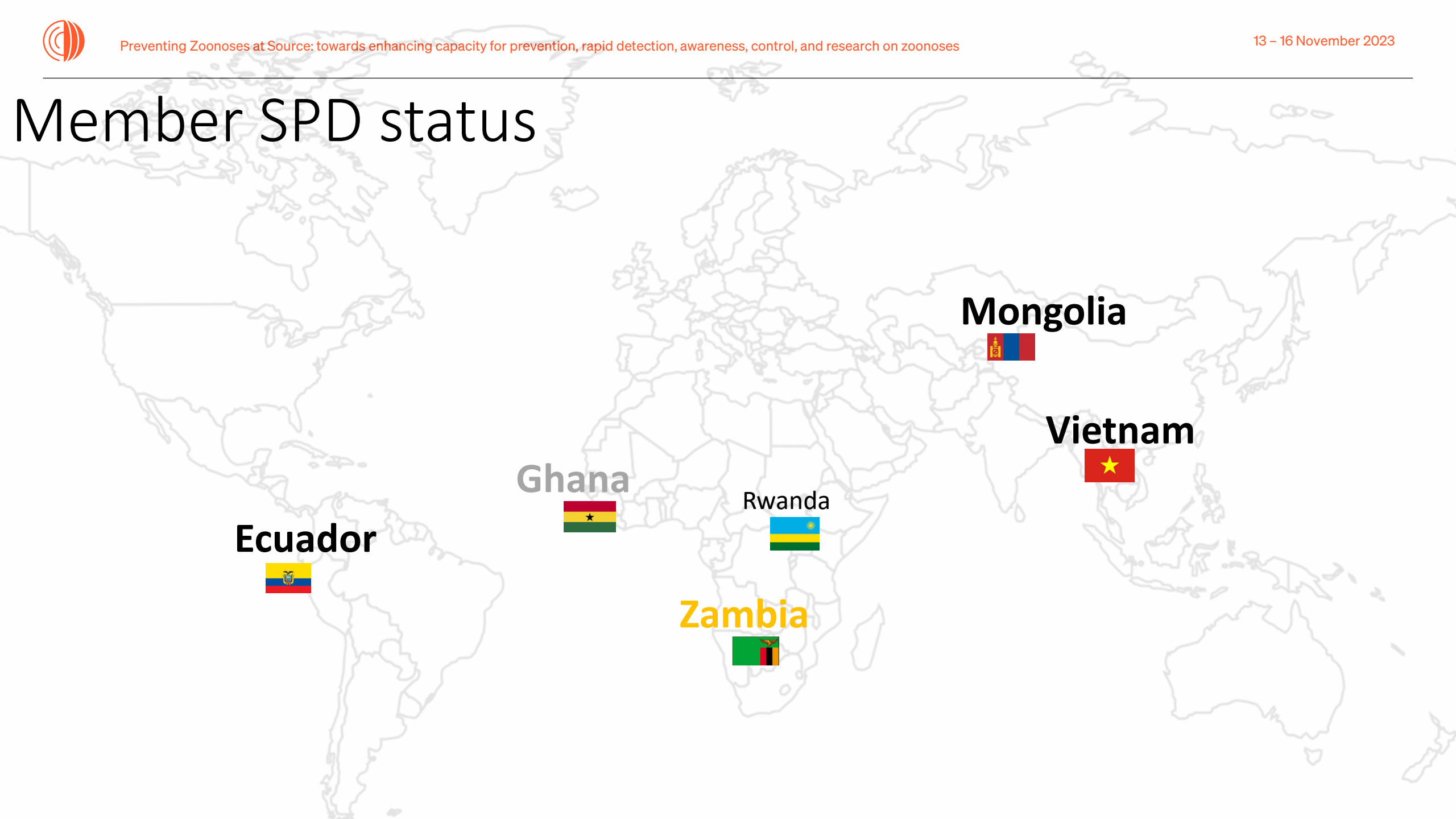
'... health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent...

...working together, at different levels of society, (we) foster well-being...address collective need...and contribute to sustainable development.'

One Health High-Level Expert Panel, 2022



Member SPD status





Nature4Health (Nature four health) is an international initiative supporting countries to reduce the risk of pandemics by strengthening environmental aspects of One Health, a multidisciplinary inclusive approach focused on the interdependencies of human, animal and ecosystem health.

N4H engages across sectors and communities at different societal levels to catalyse integrated policies, evidence based action and capacity development for impact locally, nationally and regionally.

<https://nature4health.org/>

PREZODE (Preventing Zoonotic Disease Emergence) is an international initiative with the ambition to understand the risks of emergence of zoonotic infectious diseases, to develop and implement innovative methods to improve prevention, early detection, and resilience in order to ensure rapid response to the risks of emerging infectious diseases of animal origin.

<https://prezode.org/>

ZODIAC (Zoonotic Disease Integrated Action) has been launched by IAEA (International Atomic Agency) to support countries to be better prepared to detect, identify and address, as early as possible, the ongoing and potential outbreaks of emerging or re-emerging zoonotic diseases.

<https://www.iaea.org/newscenter/news/zodiac-helping-prevent-future-pandemics-with-nuclear-techniques>



Conclusions & Recommendations to enhance Members' capacity in prevention, preparedness, and response to zoonosis including wildlife diseases at the human-animal-environment interface based on the outputs of the questionnaire and research.



Conclusions

Following lessons can be learned from this questionnaire Survey:

1. Integration and multi-sectorial collaboration is still weak for a great number of the Members.
2. There is still a great need for capacity building, which can be articulated to improve the multi-sectorial collaboration and better integration of the environmental sector.
3. Members reported quite good capacity in laboratory and surveillance system.
4. Despite reporting good capacity in surveillance, the level of biosecurity appeared to be quite low.



Recommendations

- Members are encouraged to develop proactive capacities to tackle the risks of zoonoses at the source, at the level of the ecosystem and the interface with wildlife, and not only to rely on their capacity to reaction, which however needs to remain optimal.
- Members capacity to prevent zoonosis should be enhanced significantly using the One Health approach, that bring relevant sectors and disciplines together and ensure engagement of the environment and wildlife sectors.
- Prevention of zoonosis requires sustainable investment in enhanced surveillance and Laboratory systems and research and in building OH health workforce.
- We also encourage the Members to take advantage of several important initiatives such as the Pandemic Fund, Nature4Health, PREZODE and ZODIAC initiatives to implement the OH Joint Plan of Action and to focus on prevention including biosecurity and biosafety measures.



Acknowledgements

- Chadia Wannous, One Health Senior Specialist and Global Coordinator, WOAH HQ
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Thank you

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