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AFROHUN Learning Series 2024

# Empowering Future Leaders: Enhancing Workforce Capacity through Students One Health Innovations Clubs in Senegal

**Author** **Malik Orou Seko**
*AFROHUN Senegal Country Administrator*

*Figure 1: Students learning practical aspects of bird ecology and egg count process during field based experiential learning in 2023.*

## Introduction

The world faces complex and interconnected challenges at the human-animal-environment interface, driven by emerging and re-emerging diseases. According to the World Organization for Animal Health (WOAH), approximately 75% of emerging infectious diseases in humans, such as avian flu, HIV, and Ebola, originate from animals. Addressing these challenges requires a paradigm shift and enhanced collaboration across sectors to tackle the intricate linkages between humans, animals, and the environment.

Effective management of these problems hinges on the availability of skilled human resources capable of operationalizing the One Health (OH) approach. Senegal, like many countries, faces a shortage of professionals trained to work at the intersection of human, animal, and environmental health, leaving critical gaps in preparedness and response capacity.

To address the critical gaps in human resources and skills needed to tackle challenges at the human-animal-environment interface, AFROHUN introduced the Students One Health Innovations Clubs (SOHICs) in Senegal. This initiative promotes cross-sectoral collaboration by bringing together students from diverse disciplines to learn and apply One Health (OH) principles. Operating under the guidance of experienced mentors and supported by various stakeholders, SOHICs equip members with the technical expertise and interpersonal skills necessary to address real-world problems. This paper highlights the establishment, implementation, and impact of SOHICs in Senegal, showcasing their role in fostering leadership, collaboration, and practical problem-solving skills among the next generation of health professionals.

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# Approach/Methods

## Establishment and Expansion of SOHICs

AFROHUN began the initiative in 2016 with the formation of a pilot SOHIC at Cheikh Anta Diop University (UCAD). This club included students from veterinary medicine, medicine, environmental sciences, and related disciplines, creating a multidisciplinary framework for collaboration. Over time, the initiative expanded, leading to the establishment of seven SOHICs across Senegal's public universities. By 2024, five of these SOHICs were fully operational, engaging over 350 students. These clubs provided platforms for learning, leadership, and community engagement activities, fostering a holistic understanding of the One Health approach.

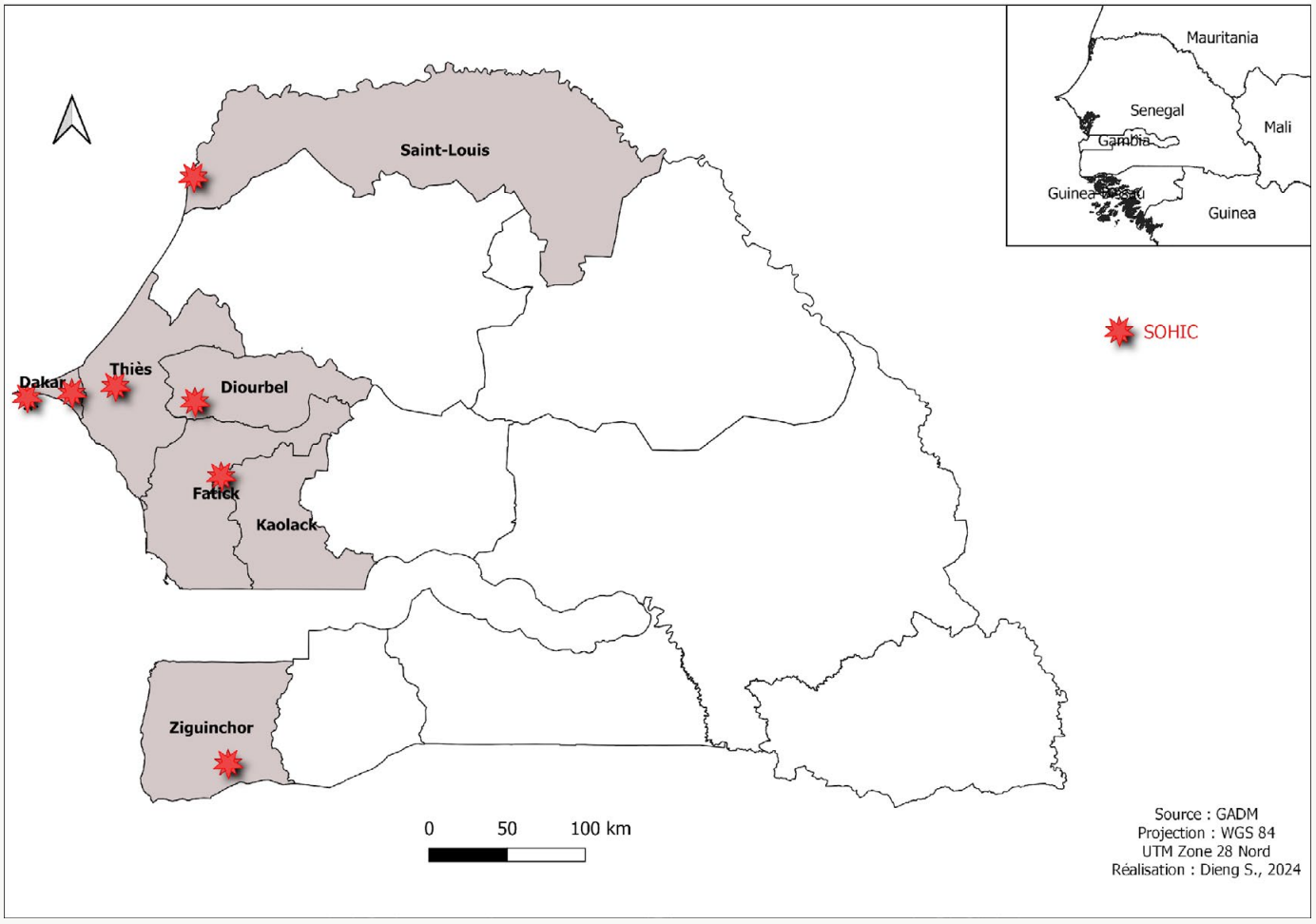
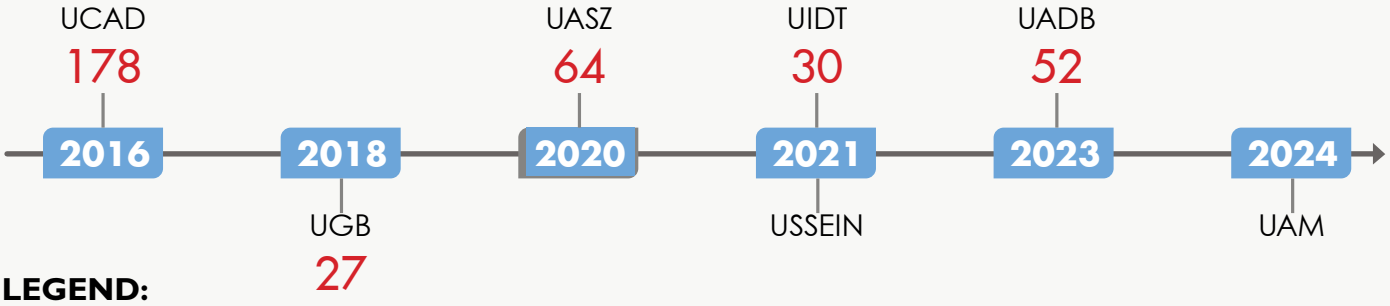



*Fig. 2 : Distribution of SOHICs in public universities in Senegal*




**LEGEND:**

**UCAD:** Université Cheikh Anta Diop; **UGB:** Université Gaston Berger de Saint-Louis; **UASZ:** Université Assane Seck de Ziguinchor; **UIDT:** Université Iba Der Thiam de Thiès; **USSEIN:** Université du Sine Saloum El-Hâdj Ibrahima Niass; **UADB:** Université Alioune Diop de Bambey; **UAM:** Université Amadou Mahtar Mbow.

*Figure 3: Timeline of SOHICs establishment and membership at the Senegal's public universities*

# Training and Capacity Building

Capacity building under the One Health initiative in Senegal was designed as a comprehensive process combining theoretical training, awareness creation, and field-based experiential learning. Each component contributed uniquely to equipping students with the knowledge, skills, and real-world experience needed to address complex health challenges.

## I. Theoretical Training on One Health Core Competencies and Major Health Issues

Over four weeks, with sessions held every Saturday, approximately 120 students participated in virtual training via Zoom. The sessions were tailored to cover essential One Health core competencies and critical health topics, including i) Leadership and conflict management, ii) Principles and concepts of the One Health approach and iii) Emerging issues such as zoonotic diseases (e.g., avian flu), antimicrobial resistance (AMR), and bird ecology. This theoretical foundation was made possible through collaboration with USAID-Global Health Security Implementing Partners (IPs), including FAO-ECTAD and Breakthrough ACTION. These partners provided technical expertise in areas such as AMR and Risk Communication and Community Engagement (RCCE). The theoretical training equipped students with foundational knowledge and critical thinking skills, enabling them to approach health challenges holistically.

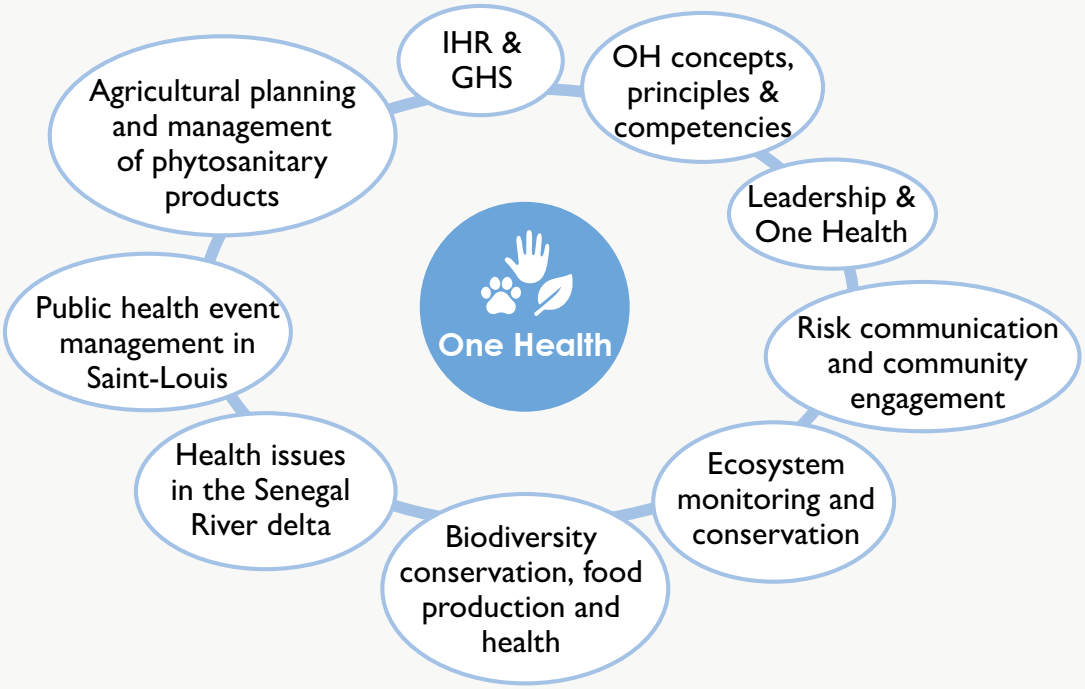



*Figure 4: Overview of the One Health topics covered during the theoretical trainings*

## II. Awareness Creation Sessions

SOHIC members organized and participated in awareness-raising activities to bridge the gap between academia and the community. These activities included One Health Case Competitions, Community visits and advocacy events such as Annual One Health Day celebrations. These sessions were instrumental in:

- Educating communities about priority zoonotic diseases, including avian flu and rabies.
- Promoting understanding of the One Health approach and its principles among peers, faculty, and local stakeholders.
- Creating platforms for dialogue during events such as One Health celebration days, which brought together faculty, students, and implementing partners to share knowledge and experiences.

These sessions not only enhanced students' communication and leadership skills but also built trust and understanding within communities.

## III. Field-Based Experiential Learning

Field-based experiential learning was the culmination of the capacity-building process, allowing students to apply their theoretical knowledge and awareness-raising skills in real-world contexts. In 2023 and 2024, 41 students (21 male and 20 female) from diverse disciplines including environmental sciences, veterinary medicine, sociology, and agronomy—participated in a four-day practical training program in Saint-Louis. The region was chosen for its ecological significance and its high human-animal-environment interaction, making it an ideal site for applied learning on zoonotic diseases.

*Figure 5: Students sensitizing community members on HPAI and rabies during field-based experiential learning in 2024*

Key activities included:

- **Practical Skills Development:** Training in bird identification and ecological monitoring, and simulating responses to avian flu outbreaks.
- **Knowledge Exchange:** Learning from the Saint-Louis Regional One Health Committee (OHRC) about outbreak management and multisectoral collaboration.
- **Community Engagement:** Awareness campaigns reaching over 300 community members on zoonotic disease prevention.

*Figure 6: Students sensitizing community members on HPAI during field based experiential learning in 2023*

## Results

The implementation of the One Health field-based learning program has yielded notable results:

**Student Capacity Building:** Over 120 students from diverse disciplines gained theoretical knowledge on One Health core competencies, including leadership, risk communication, and zoonotic disease management, and 41 students further honed their skills through experiential learning in real-world settings. Students expressed the transformative impact of this training:

*"Participating in this practical training enabled me to see the direct impact of our actions in the field and to understand the importance of collaboration between different sectors in managing zoonoses."* – A student after the training

*"This training gave me the opportunity to put into practice what I had learned during the theoretical sessions. It reinforced my commitment to promoting the One Health approach daily through concrete actions."* – A student after the PNOD training.

**Enhanced Community Engagement**: Awareness campaigns conducted in surrounding villages of the Saint-Louis parks reached approximately 300 individuals, strengthening community trust and understanding of zoonotic disease prevention.

**Strengthened Collaboration:** Students experienced the importance of interdisciplinary collaboration, working with local public health officials, veterinarians, environmental scientists, and community leaders to address health threats. One of the students further shared: "…*before the practical training, most of the Club members didn't know each other. The practical phase was a time for sharing, helping and learning between students, teachers, public service officers and other partners. It enabled me to expand my social network."*

**Empowered Local Stakeholders:** By engaging local One Health stakeholders, the program fostered a shared responsibility for health and environmental risks, enhancing community resilience.

## Lessons Learned

- **Value of Interdisciplinary Collaboration**: Bringing together students and professionals from diverse disciplines showcased the significance of interdisciplinary approaches in addressing complex health issues.
- **The importance of multi-sectoral collaboration and stakeholder commitment**: The involvement of the NOHP and other stakeholders was key in ensuring the success of the One Health training program. Their strategic engagement facilitated effective coordination between universities, implementing partners, and local communities, while their technical expertise enriched the training content and delivery. This highlights the importance of multi-sectoral collaboration in the design and implementation of impactful and sustainable capacity-building programs.
- **Community Involvement is Essential**: Actively engaging local communities provided critical insights into site-specific challenges and fostered ownership and participation in health initiatives.
- **Practical Application Reinforces Learning**: Experiential learning enabled students to apply theoretical knowledge in real-life scenarios, enhancing their problem-solving abilities and confidence.
- **Capacity Building Beyond Academia**: Strengthening communication and leadership skills during community awareness sessions proved invaluable for both students and communities.

## Challenges

- The short duration of experiential learning limited the depth engagement of students with local health challenges and experience sharing with communities and public institutions.
- The program relied on donor funding, and securing sustainable domestic financial resources remains a significant challenge for scaling and sustaining its activities.
- Students from private universities were not included, potentially limiting the diversity of perspectives.

## Recommendations

1. To strengthen the program, the duration of experiential learning should be extended to allow for deeper community engagement, joint planning, practical skill application and sustainability.
2. The training should also incorporate the development and implementation of local action plans to provide a practical framework for continuity of programs.
3. Partnerships with private universities and industries should be established to diversify resources and perspectives.
4. 4. Establish One Health clubs in primary and middle schools to build awareness and capacity at an early age.

## Conclusion

The One Health field-based learning program has demonstrated significant impact in equipping the next generation of professionals with the knowledge, skills, and experience needed to address global health challenges. By integrating theoretical, practical, and community-oriented training, the program has strengthened interdisciplinary collaboration and fostered sustainable approaches to managing health threats. To build on its success, future iterations must prioritize inclusivity, extended engagement, and enhanced local ownership, ensuring that One Health principles continue to drive global health security and resilience. Additionally, partnerships with the private sector, the inclusion of action plans within the training, and the establishment of One Health clubs in schools will ensure the program's sustainability and broaden its reach.

**ABOUT AFROHUN**

Africa One Health University Network (AFROHUN) is an international network, currently in 28 higher education institutions of public health, veterinary medicine, pathobiology, environmental sciences, medicine and global health, in 10 countries in Africa. The countries are ***Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, Kenya, Liberia, Rwanda, Senegal, Tanzania and Uganda.*** AROHUN is formerly OHCEA.

AFROHUN is working to transform the training environment and approaches in universities and allied institutions in Africa, to develop a One Health workforce: a workforce with no disciplinary boundaries. AFROHUN is building a workforce with competency to predict, detect and respond to the kind of complex health challenges we are witnessing today. To achieve this transformation, we are reviewing curricula, designing new and exciting experiential learning multidisciplinary training programs, re-tooling teachers and trainers, educating communities on existence and transmission of zoonotic and infectious diseases, while engaging national and sub-national governments to integrate One Health into national policy and strategic planning.

**For More Information about AFROHUN**
Block 383, AFROHUN Ring Road, Bwebaja-Uganda
P.O Box 100953 Kampala
+256 392 001 642 secretariat@afrohun.org www.afrohun.org @AFROHUN

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