World Organisation for Animal Health

Regional Workshop on Antimicrobial Resistance in Aquaculture for English-Speaking African Countries

13 - 15 August 2025
Harare, Zimbabwe

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PVS Aquatic Tool: Critical competencies for better management of AMR

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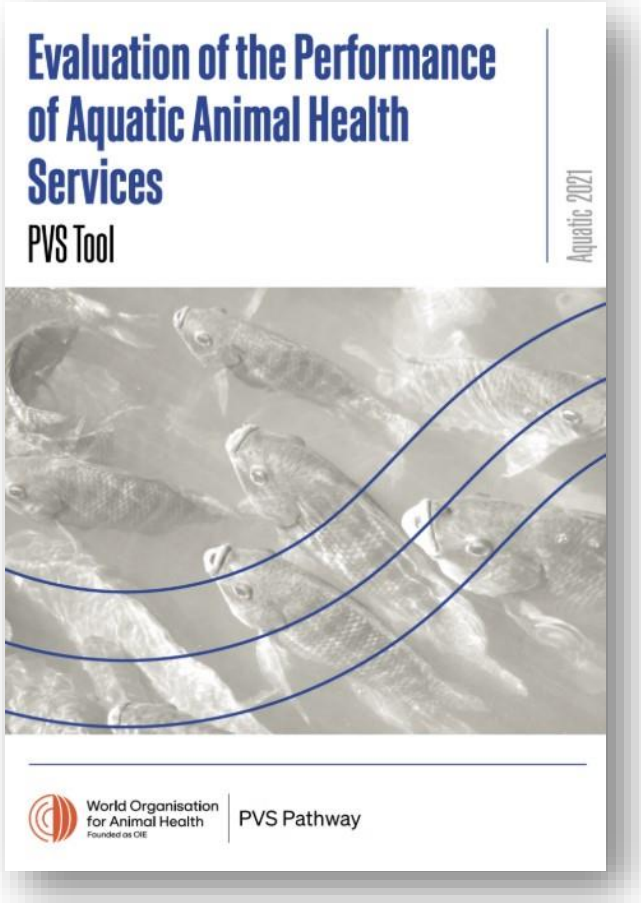
PVS : Performance of Veterinary Services (and Aquatic Animal Health Services, AAHS)

- The « Aquatic » PVS Tool, second edition, was adopted and published in 2021, following the comprehensive review of the « Terrestrial » PVS Tool, seventh edition, adopted and published in 2019.
- A PVS Aquatic mission raises awareness among stakeholders and supports continuous improvement by assessing **47 Critical Competencies** that address the entire aquatic animal health domain (public and private), including human and physical resources, disease prevention, early detection, diagnosis and control capabilities, to mention a few.



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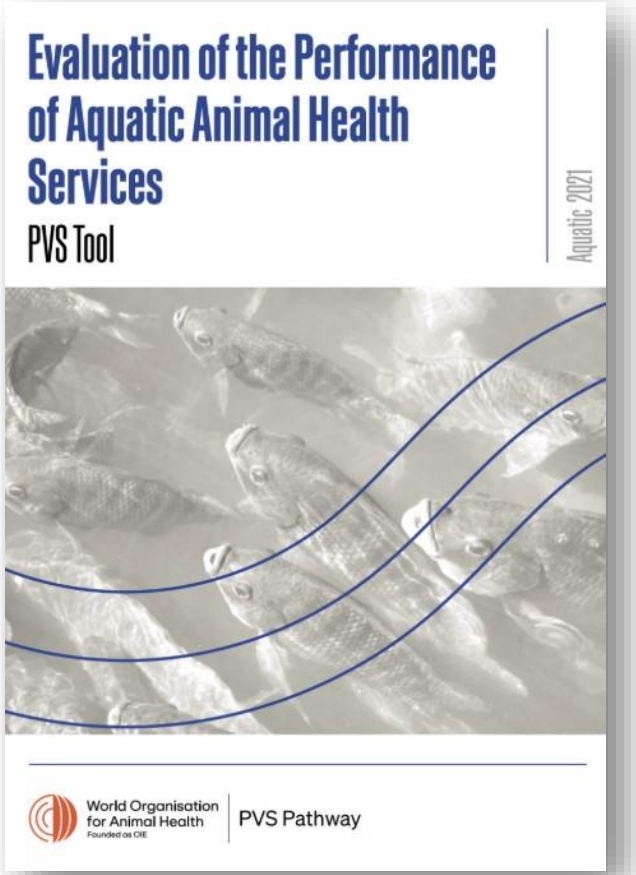
PVS : Performance of Veterinary Services (and Aquatic Animal Health Services, AAHS)

The 47 critical competencies (CC) cover:

- **Staffing** – veterinarians, technical and para-professionals
- **Resources** – facilities, transport, laboratories, funding
- **Management** – coordination and programme development
- **Programme delivery** – surveillance, disease control, emergency preparedness, food safety / veterinary public health, drug control and AMR, welfare, border control
- **Legislation and the Veterinary Statutory Body**
- **Communications** – consultations, delegations and joint programme development
- **International trade and market access** – certification, zoning, compartmentalisation



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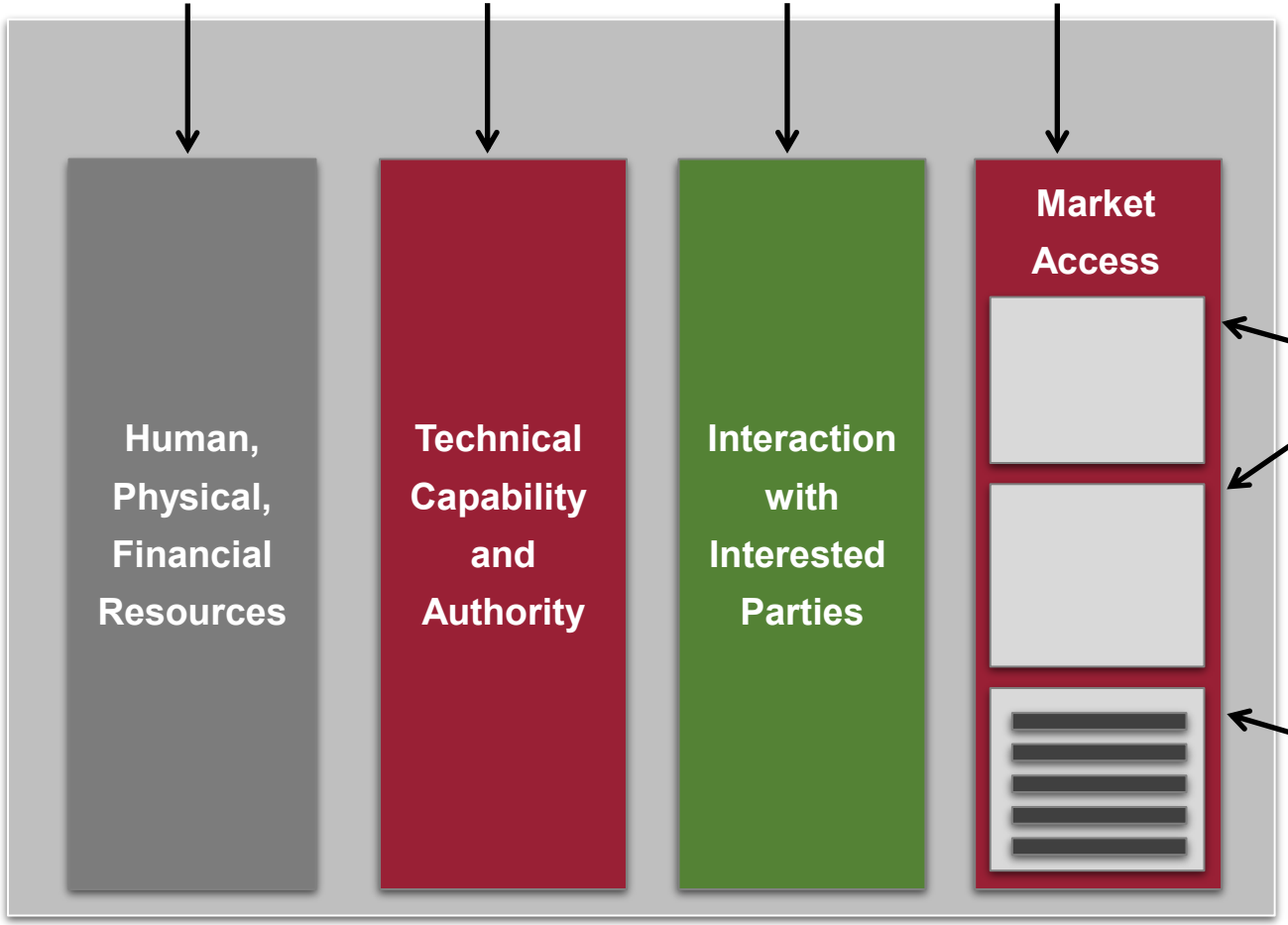
Structure of the PVS evaluation matrix

4 fundamental components



Critical competencies (6 - 18)

47 in total

5 levels of advancement

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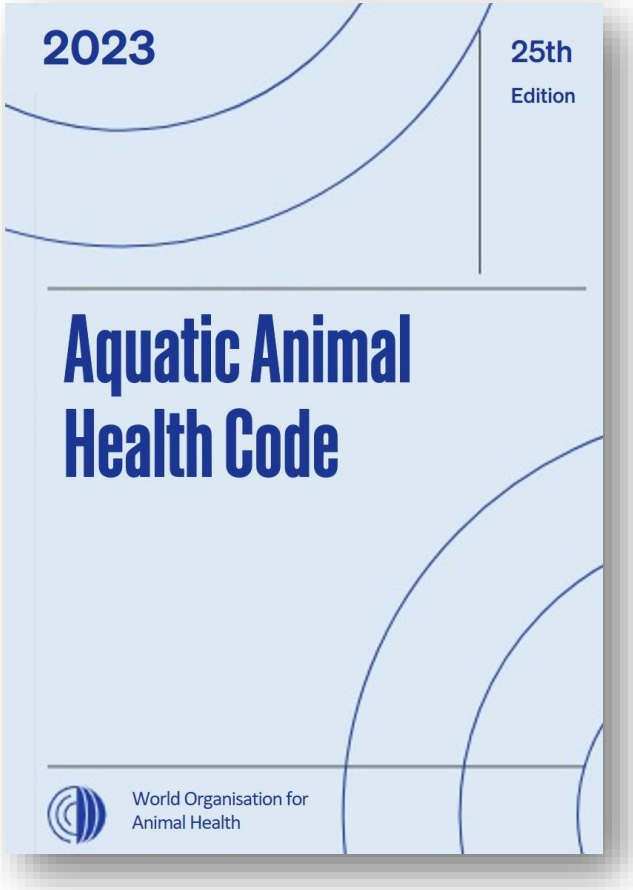
Structure of the PVS evaluation matrix



A **Critical Competency** (CC) is:

'a specific competency required for the AAHS to comply with WOAH standards'

For example : 1.7 Physical resources and capital investment

The access of the AAHS to functional and well-maintained resources, including buildings, transport, information technology (e.g. Internet access), cold chains, and other necessary equipment or structures. This includes whether major capital investment is available.

Structure of the PVS evaluation matrix

Chapter I		**Human, physical and financial resources**
	I-1	Professional and technical staffing of the *Aquatic Animal Health Services (AAHS)*
	I-2	Competencies and education of veterinarians or aquatic animal health professionals, and other technical personnel
	I-3	Continuing education
	I-4	Technical independence
	I-5	Planning, sustainability and management of policies and programmes
	I-6	Coordination capability of the Aquatic Animal Health Services
	I-7	Physical resources and capital investment
	I-8	Operational funding
	I-9	Emergency funding

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Structure of the PVS evaluation matrix

Chapter II		**Technical authority and capability**
	II-1	Laboratory diagnosis
	II-2	Risk analysis and epidemiology
	II-3	Quarantine and border security
	II-4	Surveillance and early detection
	II-5	Emergency preparedness and response
	II-6	Disease prevention, control and eradication
	II-7	Aquatic animal production food safety
	II-8	Veterinary medicines and biologicals for aquatic animals
	II-9	Antimicrobial resistance (AMR) and antimicrobial use (AMU)
	II-10	Residue testing, monitoring and management
	II-11	Aquatic animal feed safety
	II-12	Identification, traceability and movement control
	II-13	Welfare of farmed fish

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Structure of the PVS evaluation matrix

Chapter III		**Interaction with stakeholders**
	III-1	Communication
	III-2	Consultation with stakeholders
	III-3	Official representation and international collaboration
	III-4	Accreditation/authorisation/delegation
	III-5	Veterinary Statutory Body (VSB)
	III-6	Participation of producers and other stakeholders in joint programmes
	III-7	Aquatic animal health management and clinical services

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Structure of the PVS evaluation matrix

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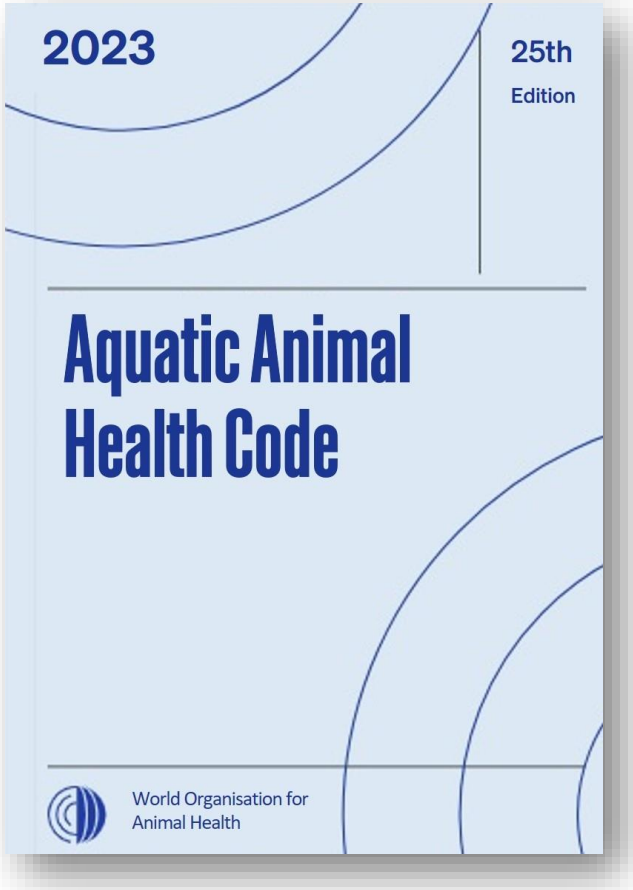
Structure of the PVS evaluation matrix



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Structure of the PVS evaluation matrix

- **5 levels** of advancement for each Critical Competency
- Increasing compliance with WOAH standards
- Progressive: a higher level assumes **compliance with <u>all</u> preceding levels**

Level of advancement 1
No compliance

Level of advancement 2

Level of advancement 3

Level of advancement 4

Level of advancement 5 - Full compliance with WOAH Standards

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I-7. PHYSICAL RESOURCES AND CAPITAL INVESTMENT

DEFINITION

The access of the AAHS to functional and well-maintained resources, including buildings, transport, information technology (e.g. Internet access), cold chains, and other necessary equipment or structures. This includes whether major capital investment is available.

LEVELS OF ADVANCEMENT

1. The AAHS have no or unsuitable physical resources at almost all levels, and maintenance of existing infrastructure is poor or non-existent.
2. The AAHS have suitable physical resources at the national (central) level and at some regional levels, and maintenance and replacement of obsolete items occur only occasionally.
3. The AAHS have suitable physical resources at national, regional and some state/provincial levels, but maintenance, as well as replacement of obsolete items, occurs rarely.
4. The AAHS have suitable physical resources at all levels and these are regularly maintained. Major capital investments occur occasionally to improve the AAHS operational infrastructure over time.
5. The AAHS have suitable physical resources at all levels (national, state/provincial and local) and these are regularly maintained and updated as more advanced items become available. Major capital investments occur regularly to improve the AAHS operational capability and infrastructure.

I

II

III

IV

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II-1. LABORATORY DIAGNOSIS

DEFINITION

The authority and capability of the AAHS to effectively and efficiently use accurate *laboratory* diagnosis to support their aquatic animal and public health activities.

A. Access to *laboratory* diagnosis

The authority and capability of the AAHS to have access to *laboratory* diagnosis to identify and record *pathogenic agents*, including those relevant for public health, that can adversely affect *aquatic animals* and *aquatic animal products*.

LEVELS OF ADVANCEMENT

1. *Disease* diagnosis is almost always conducted by clinical means only, with no access to or little use of a *laboratory* to obtain a correct diagnosis.
2. For major *aquatic animal diseases* of national economic importance or potential zoonotic importance, and for the food safety of *aquatic animal products*, the AAHS have access to and use a *laboratory* to obtain a correct diagnosis.
3. For *aquatic animal diseases* (and potential zoonoses) present in the country, and for *feed* safety and veterinary AMR *surveillance*, the AAHS have access to and use a *laboratory* to obtain a correct diagnosis.
4. For *aquatic animal diseases* of economic or zoonotic importance not present in the country, but known to exist in the region and/or that could enter the country, the AAHS have access to and use a *laboratory* to obtain a correct diagnosis.
5. In the case of *emerging diseases* in the region or worldwide, the AAHS have access to and use a network of national or international reference *laboratories* (e.g. an WOAH or FAO Reference *Laboratory*) to obtain a correct diagnosis.

I

II

III

IV

***Aquatic Code* reference:**

Point 9 of Article 3.1.2. on Fundamental principles of quality: Procedures and standards.

***Aquatic Manual* references:**

Chapters 1.1.1. to **1.1.2.** on Quality management in veterinary testing laboratories/Principles and methods of validation of diagnostic assays for infectious diseases.

Part 2. on Recommendations applicable to specific diseases.

Part 3. On WOAH expertise.

***Terrestrial Code* references:**

Article 3.2.10. on Laboratories.

***Terrestrial Manual* references:**

Chapters 1.1.1. to **1.1.6.** on Management of veterinary diagnostic laboratories/Collection, submission and storage of diagnostic specimens/Transport of biological materials/Biosafety and biosecurity: Standards for managing biological risk in the veterinary laboratory and animal facilities/Quality management in veterinary laboratories/Principles and methods of validation of diagnostic assays for infectious diseases.

Section 2.2. on Validation of diagnostic tests.

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Structure of the PVS evaluation matrix

Report

- Definitions
- Levels of advancement
- Evidence
- Findings
- Strengths
- Weaknesses
- Recommendations

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Structure of the PVS evaluation matrix

REPORT

- Definitions
- Levels of advancement
- Evidence
- Findings
- Strengths
- Weaknesses
- Recommendations

	Levels of advancement
surveillance and early detection *The authority and capability of the VS to determine, verify and report on the sanitary status of the animal populations, including wildlife, under their mandate.* A. Passive epidemiological surveillance	1. The VS have no passive surveillance programme.
	2. The VS conduct passive surveillance for some relevant diseases and have the capacity to produce national reports on some diseases.
	3. The VS conduct passive surveillance in compliance with OIE standards for some relevant diseases at the national level through appropriate networks in the field, whereby samples from suspect cases are collected and sent for laboratory diagnosis with evidence of correct results obtained. The VS
	4. The VS conduct passive surveillance and report at the national level in compliance with OIE standards for most relevant diseases. Producers and other interested parties are aware of and comply with their obligation to report the suspicion and occurrence of notifiable diseases to the VS.
	5. The VS regularly report to producers and other interested parties and the international community (where applicable) on the findings of passive surveillance programmes.

Terrestrial Code reference(s): Appendix 1

Evidence (listed in Appendix 6): E1, 2, 7-8,10-11, 15, 24, 34-36, H20, 22, PB39, PD1, 8, PP5-7, 10, 29-34, 64-68

Extensive opportunity for passive surveillance is presented by the dip tank activities for all cattle and goats in the country. However, there is no similar opportunity for such extensive passive surveillance in other species. The diptank serves as the epidemiologic unit although farmers are identified down to the farm (kraal) level even for non-ruminant species such as poultry or dogs which are associated with a public diptank number in all records.

In general, the VSD visits farms during routine inspection and extension visits (pigs, poultry).

The VSD maintain an extensive list of 102 notifiable diseases (see CCII-1A). The surveillance that is carried out is largely focused on cattle

Strengths:

- Regular reporting from the field provides opportunity for good passive surveillance
- VSD regularly notify OIE of the suspicion of disease occurrence (see table 4 OIE history)
- Good annual animal census data and presence of extension personnel within VSD
- Strong chain of command from central to local levels in place
- The SLITS database provides individual identification with uniquely numbered eartags of all cattle supported by computerized records

Weaknesses:

- Lack of communication and interaction with sectors other than ruminants is very limited.
- No formal individual identification of species other than cattle

Recommendations:

- Develop stakeholder interaction to enhance level of technical knowledge to recognise and report the presence of suspected disease in all species

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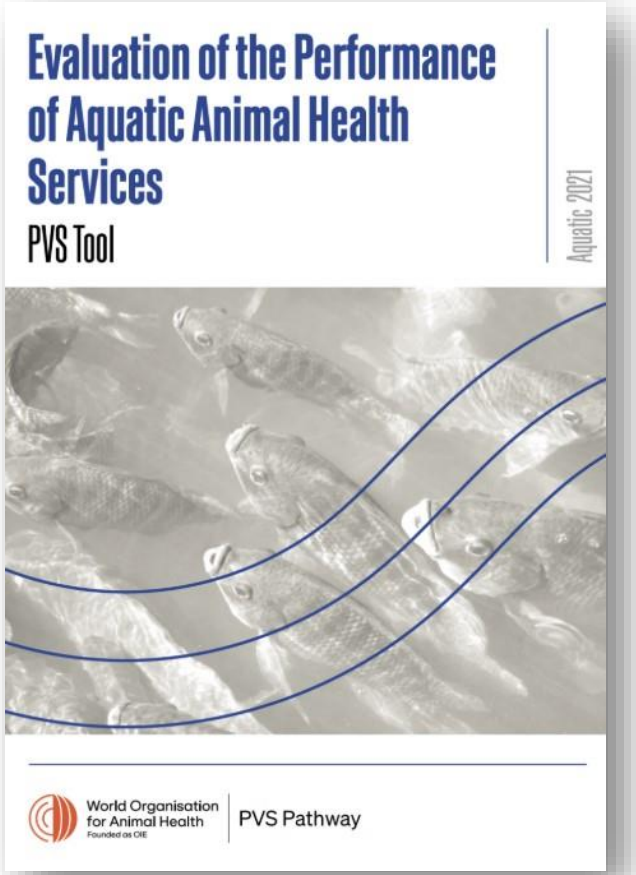
PVS : Performance of Veterinary Services (and Aquatic Animal Health Services, AAHS)

- The 2021 second edition offers a more user-friendly approach to facilitate ownership and use at national level by Members, including for self-evaluations to monitor advancements achieved on a regular basis.
- It addresses current aquatic animal health issues relating to **antimicrobial resistance and antimicrobial use,** the One Health approach, bio-threat reduction, and welfare of farmed fish. Finally, it expands the evaluation of **biosecurity for aquaculture establishments**, a critical element in disease prevention, to reflect the new Chapter 4.1. in the Aquatic Animal Health Code, as well as disease investigation and tracing, food safety in export and domestic markets, and public–private partnerships



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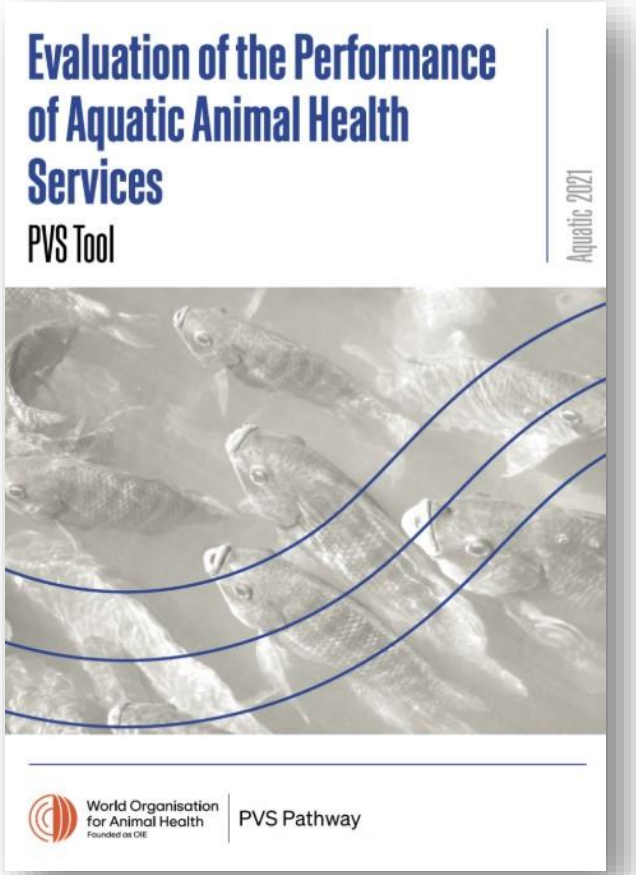
II-9. Antimicrobial resistance (AMR) and antimicrobial use (AMU)

DEFINITION

The authority and capability of the AAHS to manage AMU and AMR, and to undertake surveillance and control of the development and spread of AMR pathogens in aquatic animal production and aquatic animal products, as well as aquatic animal production environments, via a One Health approach.

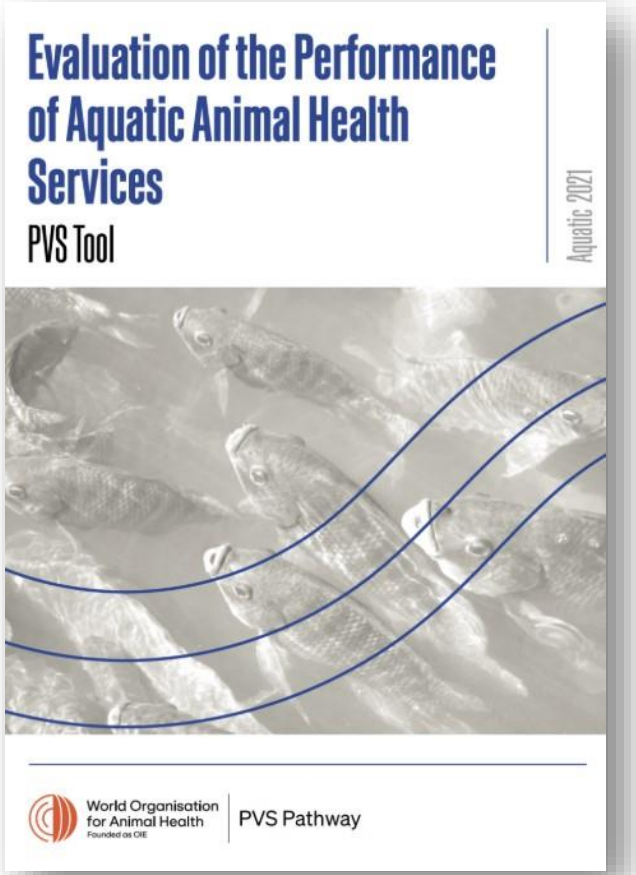


II-9. Antimicrobial resistance (AMR) and antimicrobial use (AMU)

LEVELS OF ADVANCEMENT

1. The AAHS **cannot regulate AMU and AMR** and have not developed or contributed to an **AMR action plan** covering the aquatic animal health domain.

2. The AAHS are contributing or have contributed to a **national AMR action plan**. The action plan has initiated some activities to **collect AMU/AMR data or control AMR**, e.g. awareness campaigns targeting veterinarians/aquatic animal health professionals or farmers on the prudent use of antimicrobial agents in aquatic animals. The use of antimicrobials for **growth promotion** and indiscriminate prophylaxis for disease prevention is **discouraged**.



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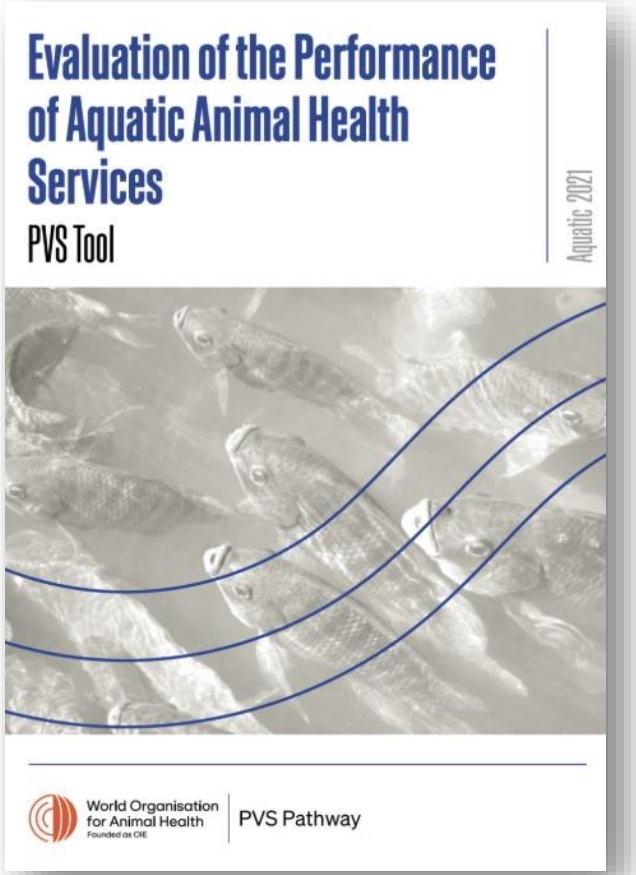
II-9. Antimicrobial resistance (AMR) and antimicrobial use (AMU)

LEVELS OF ADVANCEMENT

3. The AAHS have defined a **national AMR action plan in coordination with the public health** authorities and other stakeholders and are implementing some **AMU/AMR surveillance and regulations**. The use of antimicrobial agents for **growth promotion** and indiscriminate prophylaxis for disease prevention is **prohibited**.



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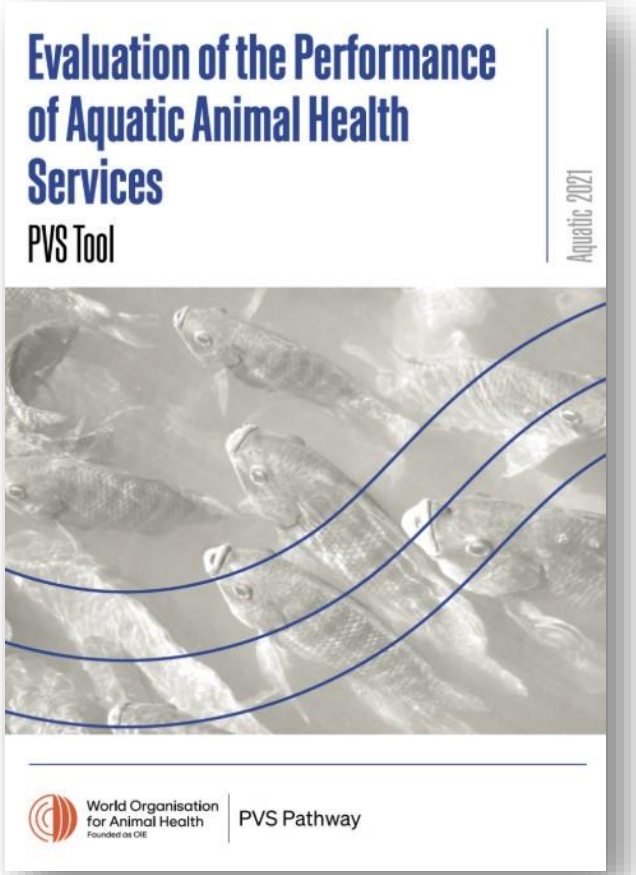
II-9. Antimicrobial resistance (AMR) and antimicrobial use (AMU)

LEVELS OF ADVANCEMENT

4. The AAHS are **implementing a comprehensive AMR action plan** based on risk, including **AMR surveillance of the most important pathogenic agents** for aquatic animal health or foodborne diseases, the monitoring of AMU, and the prudent use of antimicrobial agents in aquatic animals (especially the use of critically important antimicrobials). The use of antimicrobial agents for **growth promotion** and indiscriminate prophylaxis for disease prevention **does not occur.**

5. An **effective national AMR action plan** covering the aquatic animal health domain is **regularly audited, reviewed and updated** by the AAHS with public health authorities and other stakeholders, using the results of AMU/AMR surveillance. The scale and **type of antimicrobial use in aquatic animals poses minimal risk of AMR** and **alternative solutions** for the control of diseases in aquatic animals are being implemented.



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II-9. Antimicrobial resistance (AMR) and antimicrobial use (AMU)

REFERENCES TO THE WOAH CODES

Aquatic Code references: Points 6 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations/ Procedures and standards.

Section 6. on Antimicrobial use in aquatic animals

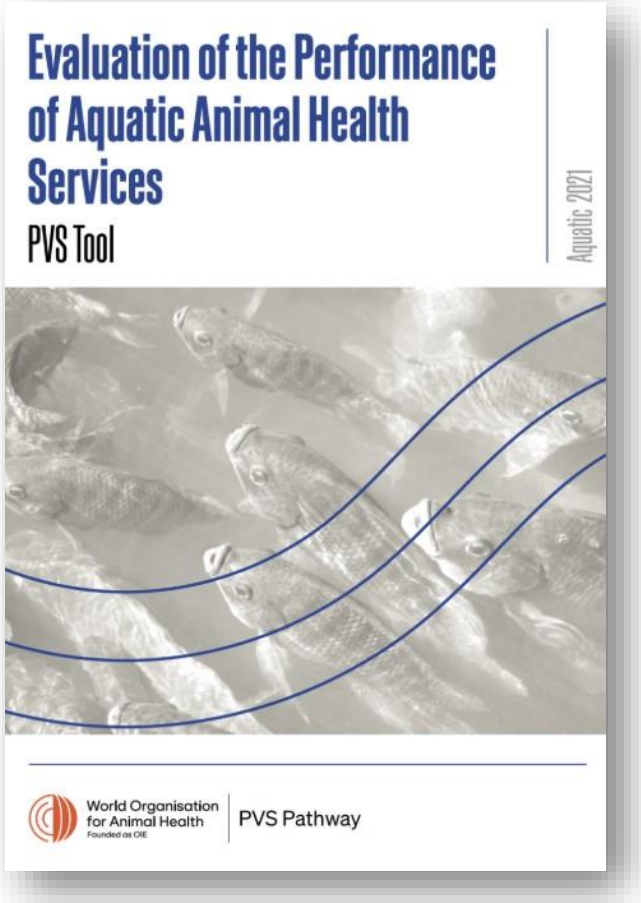
Terrestrial Code references: Chapter 6.7. on Introduction to the recommendations for controlling antimicrobial resistance.

Chapter 6.8. on Harmonisation of national antimicrobial resistance surveillance and monitoring programmes.

Chapter 6.9. on Monitoring of the quantities and usage patterns of antimicrobial agents used in foodproducing animals.

Chapter 6.10. on Responsible and prudent use of antimicrobial agents in veterinary medicine.

Chapter 6.11. on Risk analysis for antimicrobial resistance arising from the use of antimicrobial agents in animals.



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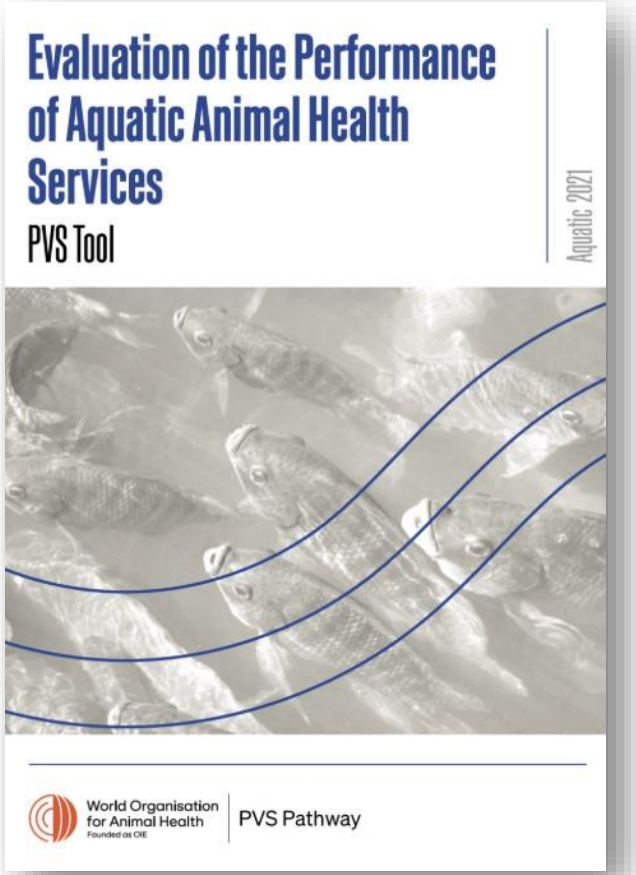
II-9. Antimicrobial resistance (AMR) and antimicrobial use (AMU)

REFERENCES TO CODEX ALIMENTARIUS

References to Codex Alimentarius Commission Standards:

Guidelines for Risk Analysis of Foodborne Antimicrobial Resistance (CAC/GL 77- 2011).

Code of Practice to Minimize and Contain Antimicrobial Resistance (CAC/RCP 61- 2005)



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Some concluding remarks

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Definitions matter

- Aquatic Animal Health Services
- Aquatic animal products
- Aquatic animals
- Certifying official
- Competent authority
- Veterinary authority
- Veterinary domain
- Veterinary services
- etc…

Glossary

Terms defined in the *Aquatic Animal Health Code* that are used in this publication are reprinted here for reference, as at 2021. Users are advised to refer to the latest version of the Glossary within the *Code* to ensure they are using the most up-to-date definitions.

Antimicrobial agent	a naturally occurring, semi-synthetic or synthetic substance that, at *in vivo* concentrations, exhibits antimicrobial activity (kill or inhibit the growth of microorganisms). Anthelmintics and substances classed as disinfectants or antiseptics are excluded from this definition.
Aquaculture	the farming of *aquatic animals* with some sort of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc.
Aquaculture establishment	an establishment in which amphibians, fish, molluscs or crustaceans for breeding, stocking or sale are raised or kept.
Aquatic animal health professional	a person who, for the purposes of the *Aquatic Code*, is authorised by the *Competent Authority* to carry out certain designated tasks in a *territory* and has the appropriate qualifications and training to perform the designated tasks.
Aquatic Animal Health Services (AAHS)	the governmental and non-governmental organisations that implement animal health and *welfare* measures and other standards and recommendations in the *Aquatic Code* in the territory. The *Aquatic Animal Health Services* are under the overall control and direction of the *Competent Authority*. Private sector organisations, *veterinarians* or *aquatic animal health professionals* are normally accredited or approved by the *Competent Authority* to deliver the delegated functions.

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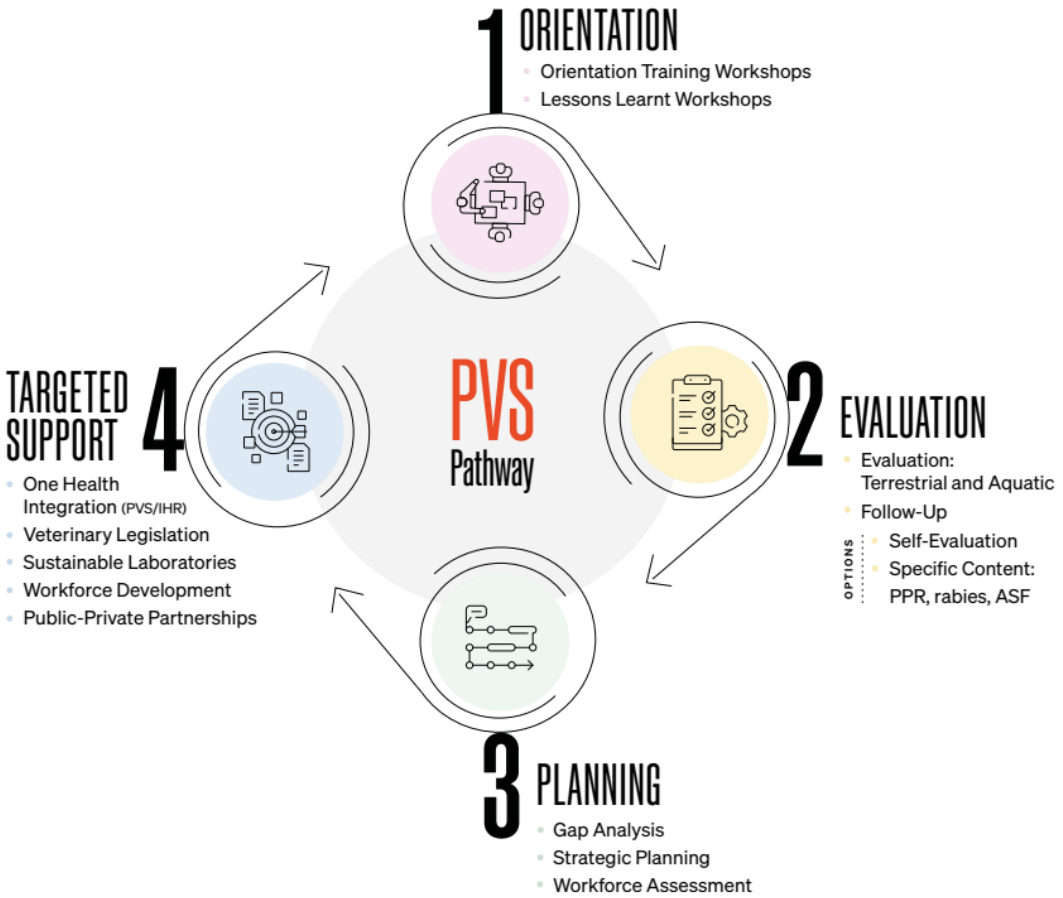
PVS Evaluation and Tool are part of a process

- Orientation (training, lessons)
- Evaluation (self-evaluation, initial external evaluation, follow-up external evaluation, specific content : aquatic)
- Planning (gap-analysis, strategic planning, workforce assessment)
- Targeted (legislative review, sustainable laboratories, workforce development, PPP)



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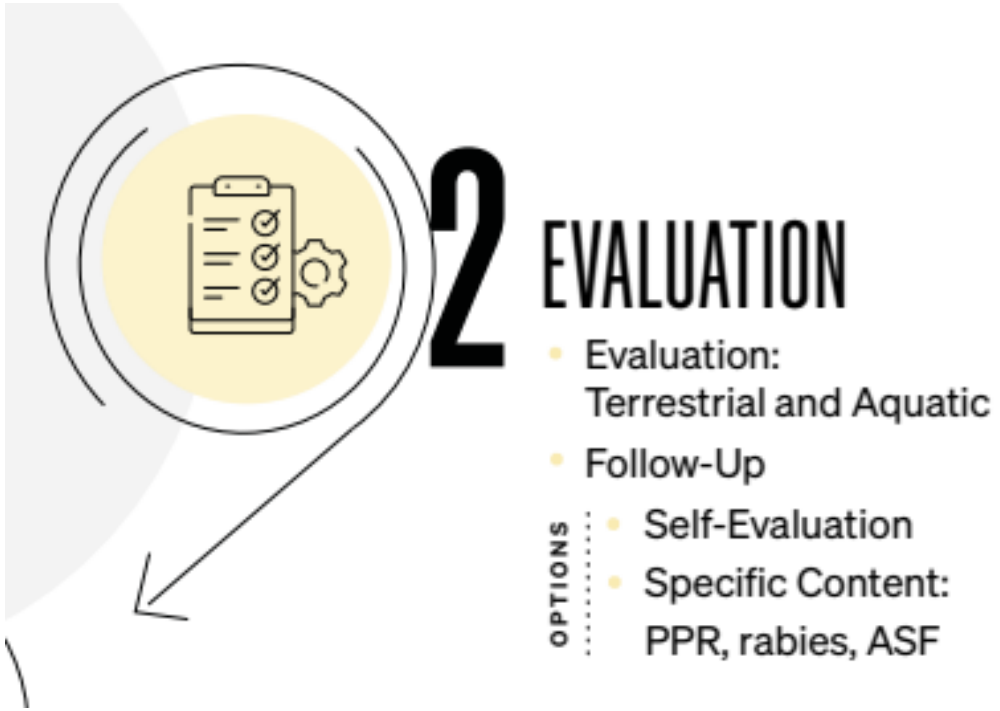
PVS Evaluation is country-owned and driven

- PVS Evaluation reports may be cleared for the public domain by the WOAH Delegate, or :
  - Distributed to technical partners and donors only, or :
  - Kept confidential.
- PVS is a circular process that should ideally be repeated every 3 – 4 years to measure progress.



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PVS Evaluation reports can now be searched

World Organisation for Animal Health | PVSIS

pvs.woah.org

Patrick Bastiaensen
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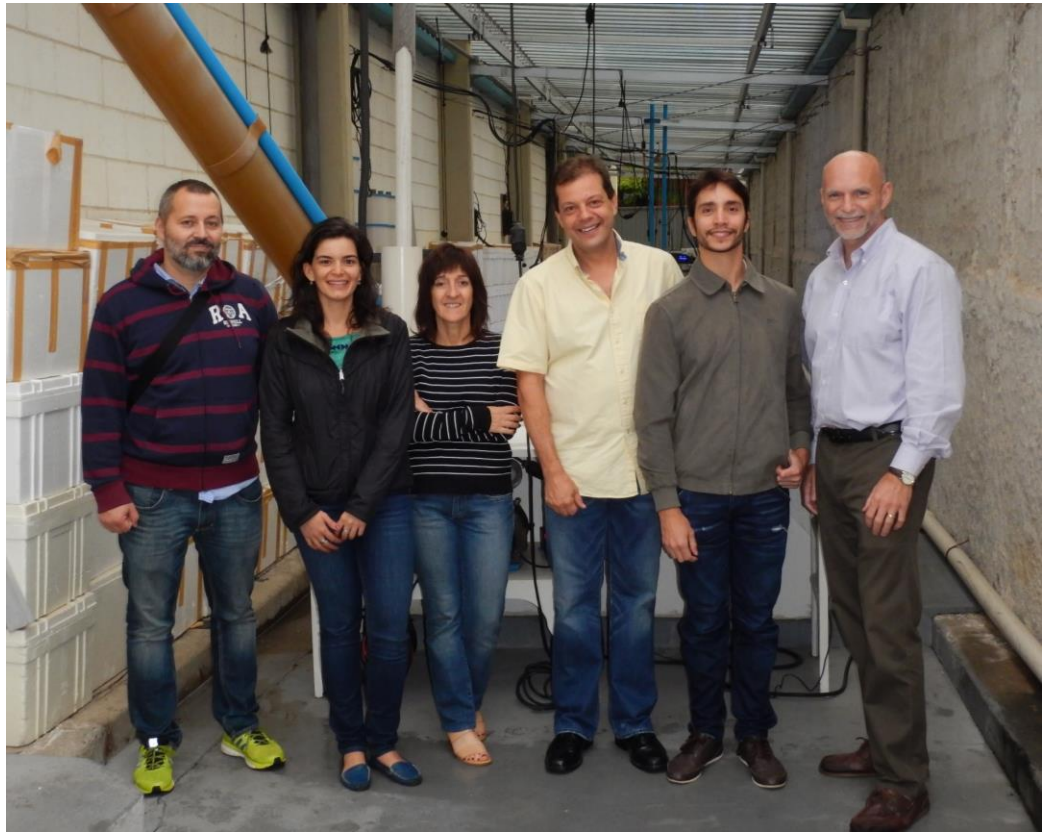
PVS Aquatic Evaluations are under-utilised

- In Africa
  - Benin
  - Cote d'Ivoire
  - Ghana
  - Mozambique (2)
  - Seychelles
- Worldwide, including Africa
  - 23 missions



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I thank you very much ! See you tomorrow !

- Further information :

  rr-africa.woah.org

  pvs.woah.org

  https://www.woah.org/en/document/pvs-aquatic-tool-2021/

  https://www.woah.org/en/what-we-offer/improving-veterinary-services/pvs-pathway/

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