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## TECHNICAL ITEM II

Ensuring strong performing and financially sustainable Veterinary Services in the Middle East Region.

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**I. INTRODUCTION**

Animal health and welfare management are changing in various ways that are affecting the missions, the organisation, and the functioning of Veterinary Services (VS). These changes include increased globalisation, rapid urbanisation, greater demand for animal protein, intensification of livestock production and an increase in the international movement of people, animals and animal products. These factors result in further challenges, due to the resurgence of outbreaks of epizootic and zoonotic diseases, including potentially catastrophic of pandemics. The newer threats such as environmental and uncommon patterns of antimicrobial resistance (AMR) add to the vulnerability of health and animal health systems. These threats are likely to become more complex due to a changing social, environmental and economic landscape as well as forecasted significant climate change that may potentially amplify the impact on health security, food security and safety and economic development.

Whilst these changes and risks constitute major challenges for all countries around the world, the Middle East region is particularly vulnerable owing to various factors including the geographical position that link 3 continents (Asia, Africa and Europe), climate constrained agricultural production potential, and the reliance on large import of animals and animal products to meet the need of fast growing population, exposing the region to increased risk of trade related diseases and threats.

In the face of these challenges, VS in the region are more essential than ever and are required to strengthen their capacities and capabilities to effectively implement policies and strategies for animal health and welfare, Veterinary Public Health (VPH) and international trade.

The purpose of this paper is to briefly review the good governance and quality of VS as defined in the WOA *Terrestrial code*, tentatively discuss factors impacting the performance and sustainability of VS in Middle East, and how they might be strengthened to ensure better animal health protection and meet their national and international obligations in compliance with international standards

## II. QUALITY AND GOOD GOVERNANCE OF VETERINARY SERVICES

According to the World Organisation for Animal Health (WOAH) *Terrestrial Animal Health Code (Terrestrial Code)*, the term Veterinary Services (VS) means “the combination of governmental and non-governmental individuals and organisations that perform activities to implement the standards of the *Terrestrial Code*” (1) under the overall control and direction of the Veterinary Authority (VA), which is “the Governmental Authority of a Member Country having the primary responsibility in the whole territory for coordinating the implementation of the standards of the *Terrestrial Code*” (1). The provision of veterinary services therefore involves a variety of organizations, ranging from the VA to private sector organisations, veterinarians, and veterinary paraprofessionals who may be delegated by the VA to deliver certain functions.

The national Veterinary Services (VS), play a crucial role in safeguarding animal health and welfare globally. They define and develop their core policies and activities across the veterinary domain. WOAHP defines the veterinary domain as “all the activities that are directly or indirectly related to animals, their products and by-products, which help to protect, maintain and improve the health and welfare of humans, including by means of the protection of animal health and animal welfare, and food safety” (2).

Good governance and quality of the VS is the key to establishing an effective and sustainable animal health system responsive to the present and future needs of society. Section 3 of the *Terrestrial Code* provides recommendations for the establishment, maintenance, and evaluation of VS (3). These standards identify the fundamental principles of quality for VS, including: professional judgment, independence, impartiality, integrity, transparency, scientific basis, and international collaboration. These operational principles are supported by appropriate veterinary legislation, effective organisation, and the capability of the VS to implement animal health policies and measures in compliance with international standards. These standards are intended to help Member Countries to meet their objectives and priorities as related to animal health and welfare, VPH, and international trade in animals and animal products.

The organisation and composition of VS can vary depending on the country and its specific needs. The composition of VS is dynamic and continuously evolving to address new challenges. However, there are key elements that are central in the functioning of a country’s animal health system. Broadly, they cover governance and technical aspects as stipulated in article 3.2 of the *Terrestrial Code* to ensure that VS operate in an effective and efficient manner and in compliance with WOAHP international standards of quality and good governance (3). These components are underpinned by transversal elements such as coordination and partnerships including effective coordination and partnerships (Figure 1).



Figure 1. Key components of a Member’s Veterinary Services as defined by the *Terrestrial code*.

### III. Challenging factors for the Veterinary Services in Middle East

The WOAHA Middle East region is composed of 20 Members with many cultural commonalities but also considerable variation among their populations, agricultural production, incomes, import patterns, and political governance (4). Like other parts of the developing world, the Middle East region has experienced strong population, rapid urbanisation, and income growth, which all contributed to changing food consumption patterns and growing demand for animal source food (5,6).

These trends are compounded by several factors contributing to the vulnerability of the region including:

- i) the geographical position at the crossroads of international transportation between Europe, Asia, and Africa, which creates risk pathways for introduction of sanitary threats;
- ii) the unstable political situation with ongoing conflicts and protracted crisis in some areas limit regional cooperation and coordination between Members;
- iii) the climate related constraints such as desertification, water scarcity, and degradation of pasture and rangelands which are severely affecting the agriculture production potential;
- iv) the diversity of livestock production systems dominated by extensive and traditional animal husbandry, characterised by communal grazing and uncontrolled intra and interregional movements of animals searching for water and pasture, and
- v) the increasing reliance on large imports of animals and animal products, sometimes from production systems with weak veterinary services, to meet the need of the fast-growing population.

These factors expose the region to increased risk of a wide range of threats including transboundary animal diseases (TADs) and zoonoses. As it has been demonstrated on several occasions, the introduction and spread of these diseases are usually associated with trade and cross border movements of animals and animal products. Common TADs in the Middle East include foot-and-mouth disease (FMD) and peste des petits ruminants (PPR). FMD is one of the key endemic livestock diseases of socioeconomic importance in the region with circulation of serotypes O, A and Asia1. The recent emergence of a new FMD virus serotype (SAT2) in an area where there is no vaccination coverage is of great concern (7). The events highlight how this virus can make significant and unexpected jumps, often through trade and movements of people, animals and animal products, and therefore there is a need for continued vigilance, effective vaccination and movement restrictions. PPR is endemic or suspected to be present in many countries, challenging their efforts to achieve eradication by 2030 (8). Other diseases such as Avian influenza, lumpy skin disease (LSD) and glanders to mention a few occur from time to time with significant economic losses. Rabies virus is considered endemic in many Members in the region, with increasing incidence in camels, one of the most important animals in the region. Brucellosis infection is persistent in many Members affecting particularly sheep and goat, cattle and camels with negative impact on public health.

In addition to these threats, food borne diseases have become increasingly prevalent in many Members, partly due to greatly expanded international and national trade in live animals, animal products and animal feedstuffs and increased production and consumption of processed or semi-processed foods (9).

The national VS in the region have an important role to face these challenges by putting in place functional structures for the development and implementation of policies to manage animal health risks and food safety hazards, which are underpinned by:

- efficient early warning and surveillance systems;
- rapid and reliable laboratory diagnosis;
- epidemiosurveillance, with appropriate communication networks both within and outside the country;
- an effective veterinary infrastructure in the field, to perform the necessary disease prevention and control measures; and
- efficient quarantine and border security measures.

Animal quarantine and animal movement control between Members are considered amongst the most important activities of VS in the region, as Members import considerable stocks of livestock for slaughter and meat. Import quarantine facilities are in various stages of development across the region. Members with adequate resources and functioning VS impose animal health regulations on imports and put in place inspection and quarantine measures to mitigate the risk of introduction and spread of pathogens through import of animals and animal products. However, most Members in the region are struggling with managing the risk of epizootic diseases which is strongly related to uncontrolled movements of animals across the borders and the inadequacy of border controls and health surveillance systems.

To address these gaps a cumulative effort is required at the regional level to reduce cross-border transmissions. There is need for creating a conducive environment for cooperation and coordination between Members of the region in the field of VS in order to safeguard their national livestock and public health and ensure safer regional and international trade in animals and animal products. Under the WOAHP principle of solidarity, Members of the Middle East Region with optimal capacities and resources are encouraged to aid other Members with lower level of resources within and beyond the region (particularly Members involved in interregional trade).

Dealing with prevention and control of existing and emerging TADs, VPH issues and other health threats involve considerable resources in terms of finance, facilities, trained workforce, technical competencies, as well as management competencies and enabling legislation and regulatory services as summarised in figure 2. But with limited supply of these resources and insufficient public expenditure on animal health in many countries in the region, the VS are not able to effectively improve governance, capacity and capability to ensure better animal health and welfare in compliance with international standards.

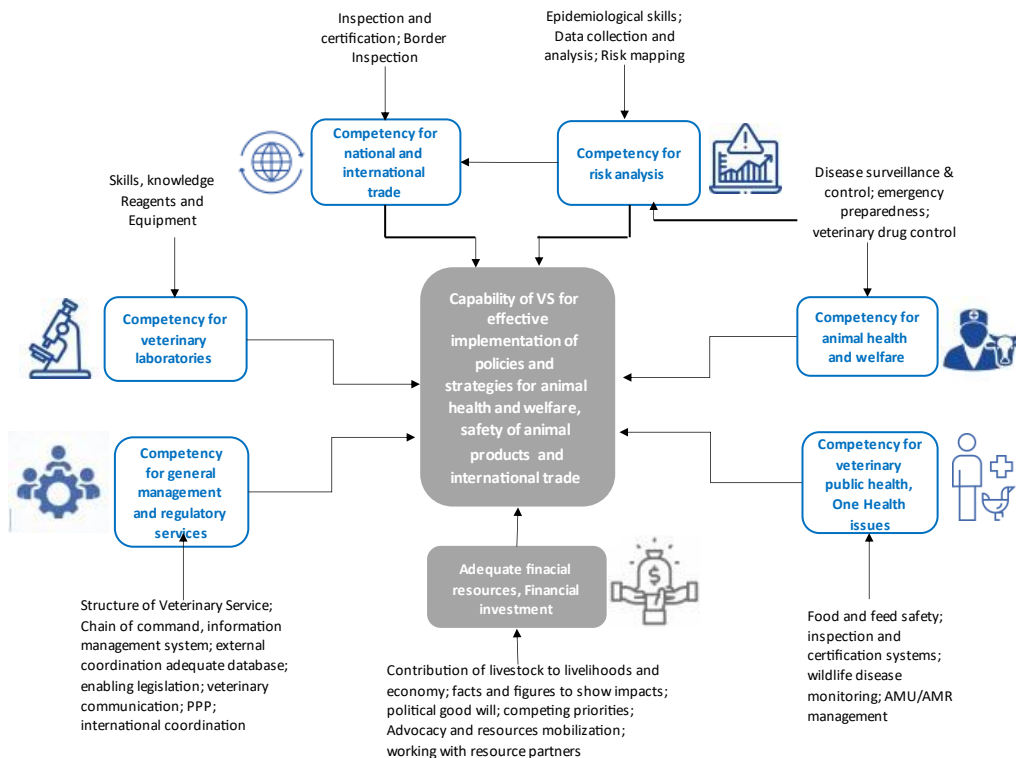


Figure 2. Competencies required for effective and sustainable veterinary services.

Source: adapted from (10)

#### **IV. Performance and sustainability of Veterinary Services in Middle East**

Strong performing and sustainable VS require a multifaceted approach that aligns with the standards on both the quality of Veterinary Services' provision, as well as technical animal health and welfare management. To comply with these standards, VS must be sustainably financed and supported by appropriately staffed systems with competent personnel, functional structures and comprehensive regulatory and policy frameworks (11).

There are strong economic rationales for public investment in national animal health services in the region. Animal diseases and zoonoses that are prevailing or threatening the region cause significant, unpredictable negative impacts on the livelihoods of communities, leading to economic losses, food security issues, and public health concerns. Thus, ensuring animal health and providing effective VS for the community is a global public good requiring sustainable and long-term investment. This would safeguard health and food security, grow economies and improve the lives of at least 84 million individuals (including North Africa) whose livelihoods depend on agriculture including fishing and livestock (12). Investing in animal health sector and VS not only would help prevent and respond to disease, but also it would increase private sector confidence in further investment and development in infrastructure (13).

In this paper sustainability of veterinary services will be addressed through three angles: investing in workforce through commitment to capacity building, ensuring financial viability of VS and engaging in the development and enforcement of appropriate legislative and regulatory framework.

##### 1. Investing in workforce through capacity building

Ensuring a well-trained and sufficient workforce across the national animal health system is essential for strong and sustainable VS. Investing in veterinary education and training programs, continuing education opportunities, and mentorship programs can help maintain a skilled, competent and appropriately resourced workforce. Continuous improvement of skills and knowledge will enhance the expertise and capabilities of veterinary professionals and keep them updated on the latest practices, advances, and regulations.

National Veterinary Services should develop strategies and plans for maximum utilisation of available national and development partner's resources to continue the sustainable capacity building of the Veterinary workforce, including private veterinarians and veterinary paraprofessionals, in order to both improve animal health and welfare and promote trade in compliance with WOAHA standards guidelines and recommendations. In some cases, this will require reforms of existing legislation and the regulatory environment to create a suitable enabling environment that ensures their effective inclusion in the veterinary workforce.

Members in the Middle East benefit from various capacity building activities offered by WOAHA and FAO along with WHO for health threats shared between humans and animals, as well as regional organisations such as the Arab Organization for Agricultural Development. To this end WOAHA developed the Performance of Veterinary Services (PVS) Pathway programme for the sustainable improvement of NVS. This programme encompasses several components: the initial PVS evaluation and follow up missions, PVS Gap Analysis and Strategic Planning, Veterinary Legislation Support Programme (VLSP), Laboratory mission and Laboratory Twinning Programme, the Workforce Development programme, and the Public/Private Partnership targeted support programme (14,15). To streamline all capacity building activities for the benefit of Member countries workforce, WOAHA has developed a competency-based training framework across 16 competency packages, encompassing the WOAHA knowledge system. Online modules are proposed at different levels of expertise, in the three official languages (16).

The PVS Evaluation, the cornerstone monitoring and evaluation component of the PVS Pathway, provides a qualitative assessment of the performance of a country's Veterinary Services and their compliance with WOAHA international standards (17). To date, 21 PVS Evaluation and Gap Analysis reports (15 PVS Evaluations and 6 Gap Analysis) were successfully developed in close collaboration with Members in the region. Most Evaluations were conducted between 2007 and 2013 and therefore the Evaluations are now outdated. As of 2023, only four Members have completed PVS Evaluation Follow-Up and few are in the pipeline for initial PVS Evaluation or Follow-Up missions. An overview of the publicly available reports of these Evaluations showed that VS in most Members have limited capacity and resources to plan and implement policies to achieve their missions in a sustainable manner. Critical deficiencies were identified in areas such as veterinary legislation, funding, technical workforce and expertise, and specific technical capacities (e.g., surveillance systems), which may hinder the effective delivery of VS. Figure 3 presents three models representing the PVS Level of Advancement of ten selected Critical Competencies from the PVS Tool (2019) used for PVS Evaluations. Most Members belong to models 1

and 2 where the circles on the graph are almost concentric towards low Levels for most Competencies. Only a few Members have VS with capacities that fall under model 3.

Members have also engaged in various targeted support initiatives such as VLSP (14), PVS-IHR National Bridging workshops (18) and laboratory twinning programmes (19). The region has benefited from 15 Laboratory Twinning projects for various topics in an effort to improve laboratory capacity for detection and control of specific diseases. Out of the 15 projects, three WOAHA Reference Centres have been designated as a direct result from participation of Members in these Twinning projects: The WOAHA Collaborating Centre for camel diseases in Abu Dhabi, the WOAHA Reference Laboratory for mycoplasmosis in Istanbul, and the WOAHA Reference Laboratory for fish diseases in Jeddah. Two more laboratories are candidates for becoming WOAHA Reference Centres. The WOAHA Collaborating Centre for camel diseases and quality management in Abu Dhabi are both great achievements for the region and beyond. The protection of camels from the risk of endemic and emerging infectious diseases is essential in the Middle East region because of the importance of this animal species for the local population.

Furthermore, WOAHA engaged Members in PVS Orientation Workshops. Since 2022, two regional and subregional Orientation Workshops for the Middle East (Amman, February 2023) and Gulf countries (Abu Dhabi, September 2022) were organized to provide Members with a better understanding and familiarity of the PVS Pathway and its benefits including methodology of the PVS Evaluation and effective use of PVS reports for investment and to drive change to strengthen VS.

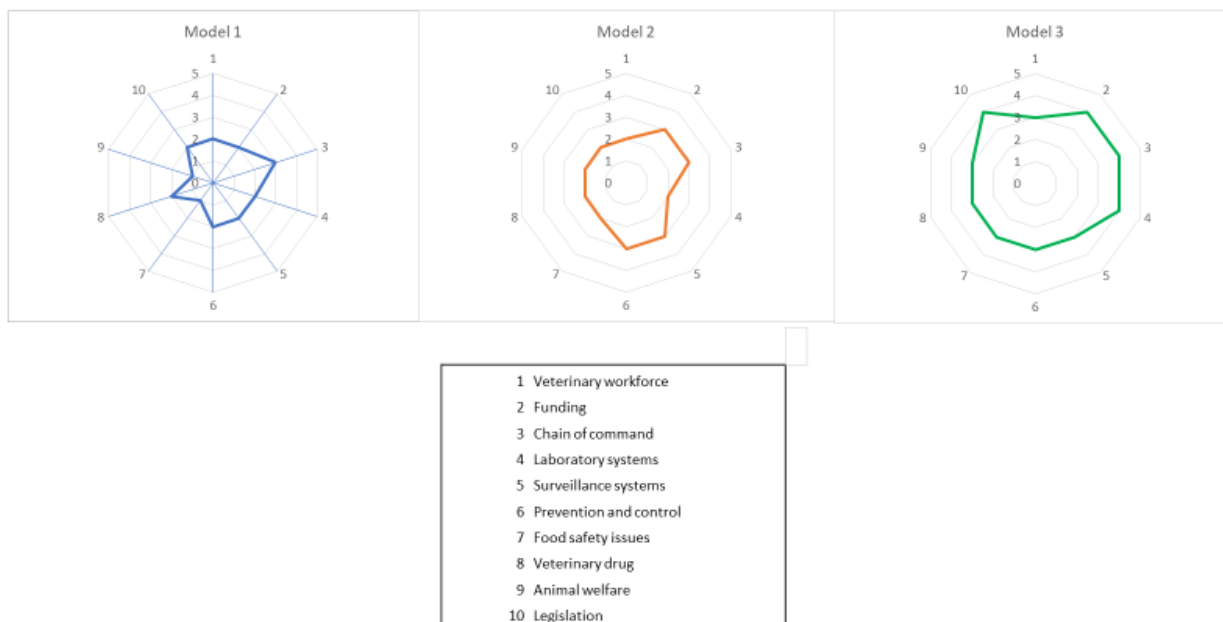


Figure 3. Representative models of the level of performance (1 to 5) of ten selected PVS Critical Competencies from PVS Evaluation for Members in the Middle East (n=12)

## 2. Financial sustainability

Financial sustainability depends on two factors: the allocation of resources to VS to operate efficiently at all levels of the national animal health system, and the development of management strategies that achieve efficient resource use (20). This includes setting up priorities and managing costs and revenue streams effectively to ensure long-term sustainability. The way in which financial resources are generated and managed are therefore critical for policy makers and planners (21).

Veterinary services in many Members in the region have limited financial resources and insufficient public expenditure on animal health which compromise their ability to effectively improve governance, capacity and capability to control animal health issues, improve VPH measures and have better access to international trade. Significant investment is needed in strengthening the capacities of VS, laboratories and surveillance systems; creating better capacity in forecasting animal diseases and import risk analysis; improving vaccination coverage; improving coordination at national and regional levels to harmonize animal production and disease control efforts; promoting technologies and innovative approaches for disease control and biosecurity, disease information systems and emergency management.

Ensuring the financial sustainability of NVS is a complex task, which require various strategies that can be implemented to achieve it. These strategies may vary based on the country's economic situation (high income vs medium and low-income countries), government policies, and the unique challenges faced. At the heart of these strategies is the way in which financial resources are generated and managed, a critical issue for policy makers and planners (21). VS should develop a comprehensive, long-term strategy that considers the following suggestions which can be adapted as needed:

- Advocating for increased government funding can help ensure resources are available for essential services and activities across the veterinary domain. Efforts should be made to educate policy makers and planners at high level and build the case about the importance of VS and their impact on global health, food security and sustainable development. As part of this exercise, it is vital that better economic analysis is done to estimate required levels of investment in animal health. The Global Burden of Animal Diseases (GBADs) programme, piloted by WOAHA and its partners, is one initiative aiming to fill this gap. This initiative allows to understand both the direct and indirect costs of animal diseases in order to improve not only animal health and welfare but also human well-being, particularly in rural, agriculture-based communities (22). In relation with this, implementing cost accounting practices to gain a better understanding of the various costs associated with the operations of VS. Cost accounting data can be used in realistic budgeting and financial planning, ensuring that resources are allocated efficiently and effectively to ensure long-term financial sustainability.
- Actively seeking grant funding from national and international organisations that support VS can provide much-needed financial assistance. PVS Reports including data and recommendations can be used as tools for advocacy and resource mobilisation in working closely with resources partners to guide the design and implementation of development programmes in support of stronger VS (23). Members in the Middle East are called to engage more in PVS Evaluations to monitor progress made since the initial PVS Evaluation in order to validate the need for more investment and other resources from the government. PVS Reports provide a roadmap for how to sustainably support and build the VS over time, which is the first step toward the economic viability of animal health. Also, PVS Reports can provide valuable guidance for resource and development partners aiming to work in a particular country for investment in animal health and VS.
- Engaging with the private sector in the animal health sector can help leverage the necessary expertise and resources while generating additional revenue streams. For example, partnering with private veterinarians and veterinary paraprofessionals for certain services or contracting with pharmaceutical companies for vaccine distribution can be mutually beneficial. Collaborating with other government agencies, NGOs, animal welfare organisations, veterinary and associations, producer associations, international organisations and other stakeholders through joint programmes can help share the financial burden and access additional resources. Partnering with academic institutions can also provide opportunities for research grants and funding.

In addition to the above, VS should get a seat around the negotiation table for funding proposals by international organisations and global initiatives. Having a seat at the negotiation table is a strategic imperative in the process of external assistance. VS should clearly identify their priorities and express their needs in building their capacities creates positive negotiation environment to strongly advocate for increasing investments on animal at national level. Examples of current global funding initiatives include the Pandemic Fund (PF) initiative launched in 2022 by the World Bank and WHO to help



countries build resilient and sustainable health systems to prevent, prepare and respond to next pandemic (24). The PF initiative recognises the importance of VS and animal health in the proposal development process and firms up the view that there can be no pandemic prevention without a One Health approach where animal health sector play a prominent role. The second initiative is the Antimicrobial Resistance Multi-Partner Trust Fund (MPTF) launched and managed by the Tripartite in 2019 and where eligible Members can solicit funding to address antimicrobial resistance issue using a One Health approach (25).

### 3. Development and enforcement of appropriate legislative and regulatory frameworks

Developing comprehensive legislation and regulations that cover all activities of the veterinary domain is critical for enhancing operational efficiency of VS while ensuring compliance with legal requirements and international standards. Legislation plays a vital role in shaping the sustainability of public VS by setting standards, promoting animal welfare, facilitating funding and resources, regulating disease prevention, control and international trade, addressing VPH concerns as well as encouraging collaboration. By ensuring compliance with sustainable practices and providing a legal framework, legislation helps create a supportive environment for the long-term success and impact of VS (13,20).

Appropriate legislation is a determinant for the quality, good governance and therefore of sustainability of VS. Without good veterinary governance, Members cannot sustainably deliver effective VS and improve the animal health and information systems required for effective disease monitoring, surveillance, and control (11).

As mentioned earlier, the PVS Evaluations in many Members in the region have identified critical deficiencies in the development and implementation of national legislation and regulations. Legislative frameworks in some Members do not depart from international norms. There is also a limited legal knowledge at the VS level. In some cases, national legislation does not provide the necessary legal powers to public authorities to perform their duties at all levels and does not state clear responsibilities of livestock owners and other stakeholders in observing the law.

Despite the human, material and financial resources needed for the VS to function properly, efforts are under way in many Members in the region to complete their regulatory framework to increase authority of each element in the veterinary domain to implement and enforce the overall animal health policies and strategies.

In this context, WOAHA through its Veterinary Legislation Support Programme (VLSP) along with FAO through the regulatory assessment programmes are assisting Members of the region to make an objective assessment of their veterinary legislation to discover the faults and omissions and on how then to correct the identified deficiencies in order to contribute to a better consistency of national legislations with international standards.

## V. Public good services vs private good services

The VS around the world including in Middle East are increasingly influenced by the current context in which:

- Animal production and health management are continuously changing as a result of increased globalization, greater demand for animal protein, intensification of livestock production and an increase in the trade in animal and animal products;
- Livestock farming is becoming more professional, and actors in the sector are increasingly able to organise and develop prevention and biosecurity strategies themselves;
- The supply of private VS increases considerably in the delivery of private good services; and
- The role of VS in many Members has been extended beyond meat inspection to include subsequent stages of the food chain in the “farm to fork” continuum.

These developments are increasingly impacting the missions and operations of modern VS and impose a clear distinction between veterinary functions which are public good and production functions driven by economic interventions. The VS are usually divided in three broad categories (10):

- Services whose benefits accrue to the entire population (not simply those who pay for them) are categorised as public goods. These include for instance control of epidemic animal diseases, policy and regulatory functions, import and export inspection, quality control of drugs and vaccines, certification, safety of animal products, etc. These functions are expected to remain at the heart of public veterinary services but not necessarily executed by them.
- Services that benefit primarily the individual or organisation that pay for it are placed under private goods. These include for instance provision of clinical services, artificial insemination services, production and distribution of remedies and vaccines, control of some endemic and parasitic diseases, etc. These services usually fall under the responsibility of the private sector and generally are not seen as the purview of government support.
- Services with both public and private goods characteristics these were placed in the category of mixed or shared goods, e.g., disease surveillance and reporting, zoonoses control, animal welfare, laboratory diagnostic support, continuing professional education and training, extension services.

While Members in the Middle East region are fully engaged in restructuring their VS shifting from a narrow disease perspective toward a comprehensive and risk-based animal health protection approach, some continue to provide most veterinary services including private goods, such as clinical activities and artificial insemination, that can be effectively delivered by the private sector. These private good services are burdening the public expenditures and overloading the government veterinary workforce sometimes at the expenses of the delivery of VS core functions. Another issue of the delivery of animal health services in some Members is related to the policies allowing government veterinary staff to work after office hours in private veterinary practice. While this arrangement may be considered necessary in some national contexts from a socio-economic perspective, it may lead to potential conflict of interest and create unfair competition to the private veterinary sector. There is an urgent need for these Members to engage a strategic review of their animal health systems, including the organisation of the VS, the definition of their priorities and missions with a clear demarcation of public and private good services, as well as the allocation of adequate resources to effectively deliver their functions. State Veterinary Services are part of the regulatory and organisational infrastructures of governments and should be reorganised around these responsibilities to ensure better animal health protection and meet their international obligations in compliance with WOAHA international standards.

## VI. The Challenges of adapting with evolving trends

In the face of the current and future challenges, VS are more essential than ever to improve livestock health and productivity, ensure high-quality food that meets safety standards, and to reduce animal diseases and public health risks across the human–animal–environment continuum. In addition, VS must assist in providing solutions to global challenges related to food security, global health, sustainable economic development, antimicrobial resistance, biodiversity loss and climate change (26).

In this context, VS in the region will need to shift from a disease focus to an animal health and welfare services focus across the veterinary domain considering collective and global perspectives. While maintaining focus on activities that form their core business such as disease prevention and control, animal health and food safety risk assessment and international trade, VS are called to expand their competencies and adapt their functions to new concepts that have traditionally been outside their remit, and which can only be addressed in a collaborative and multidisciplinary way involving the animal health sector. This section will briefly review five topics as examples.

### *The veterinary services and One Health*

To better manage health threats shared between humans, animals and the environment the NVS need to coordinate and collaborate within a One Health framework with government agencies in charge of health, food safety, environment, forestry and fisheries. The One Health approach is already familiar to governments in many Members in the region, and its application has promoted intersectoral and interdisciplinary collaboration, especially in the control of emerging infectious and zoonotic diseases, food safety and antimicrobial resistance. However, operating effectively in the intersectoral policy space with effective implementation in the field remain challenging (27). The emergence and spread of the Middle East respiratory syndrome coronavirus (MERS) in the Arabian Gulf region and the persistence of brucellosis in animal and human populations in most parts of the Middle East region, as well as the recent spread of Crimean Congo Haemorrhagic fever (CCHF) outbreaks have created conditions for the Members in the region to exert unique One Health efforts for intersectoral and coordinated actions. More details on One Health capacity in the Middle East will be addressed in technical Item I.

In line with the global One Health agenda and its strategic partnership with global partners, WOAHA encourages its Members to advocate for One Health to be adopted as an underlying foundation of sustainable and resilient health systems to strengthen the coherence between existing International Health Regulations (IHR) 2005, environmental treaties, and animal health regulations and standards. (28).

One Health is embedded in the PVS Pathway by evaluating the Veterinary Authority's ability to coordinate with other Competent Authorities that have a role to play in One Health, most notably public health, food safety, and environmental authorities. One Health in the PVS Pathway is particularly relevant to zoonotic diseases, AMR and food safety hazards such as foodborne zoonoses and residues (14).

WOAHA crucial role in mainstreaming One Health both at global and national levels is reflected in various global One Health initiatives such as the One Health Joint Plan of action developed by the quadripartite formed by FAO, WHO, WOAHA and the UN Environment Programme (29), the One Health High-Level Expert Council established by the quadripartite (30) and the One Health Global Leaders Group on Antimicrobial Resistance (31). National Governments in the region should engage actively in these global initiatives and similar ones at the regional level to strengthen their One Health capacities to effectively prevent, prepare and respond to health threats shared between humans, animals and their environment.

### *Digital technologies*

Today, exponential growth and globalisation are underpinned by rapidly advancing digital technologies and innovations that are transforming almost every sector, and the food and agriculture sector is not exempt (32). The technologies contributing to these developments include mobile applications, the Internet of Things, Cloud computing, big-data analytics, artificial intelligence, blockchain and many other such advances. The use of these technologies in animal health offers new ways and opportunities for better early warning, disease surveillance, prevention and control. VS have the responsibility not only to take part in this technological revolution but also to reassess the organisation of veterinary systems and ensure the appropriate application of new digital technologies for policy-making, decision making and planning (26)

Guided by its Seventh Strategic Plan (2021-2025), WOAHA has reinforced its digital framework to streamline the dissemination, and analysis of animal health data for all stakeholders, and support its Members' engagement and compliance with the international standards. Such measures will be key to the effectiveness of animal health systems and their capacity to better overcome present and future challenges at a community, national, regional, and international level.

### Climate change

Climate change is a global multi-faceted crisis. Reducing the impacts, mitigating its effects, and adapting to changes is a global and urgent priority. Climate-driven fluctuations in environmental conditions such as droughts, floods and unpredictable weather events can have devastating impacts on the health and wellbeing of humans and animals alike. Climate change can also affect disease patterns and impact wildlife, disrupting ecosystems and leading to shifts in animal populations (33).

The 2019 General Session of the WOAHA noted that climate change impacts animal infectious diseases and VS, thus threatening sustainable development. WOAHA's 6th Strategic Plan expressed the need to understand the relationships between climate change and ecosystem health, biodiversity loss, and the spread of diseases in order to address its strategic objective of securing animal health and welfare by appropriate risk management.

Animal health should be considered as an integral part of climate change strategies and VS are expected to play an important role in these strategies by mitigating impacts, reduce population vulnerability, enhance population resilience and address climate change risks and their sources. VS in the region will need to stay updated on these changes and adapt their strategies accordingly to support and protect global health security and food security. The task seems colossal and will require specific competencies and capacities as well as strategic partnerships and governance models that share and integrate knowledge and understanding of changes in global and local socioecological systems.

### Emergency and Disaster management

Emergencies and disasters are often complex and involve multiple hazards which can take different forms (34). While traditionally the focus for VS has been on infectious disease emergencies, the hazard landscape is much more extensive and there is a greater expectation from governments and society for VS to respond to all kinds of emergencies that involve animals or their products. Furthermore, emergencies are becoming more complex in which multiple events are interlinked and necessitate complex solutions (34).

The emergency management capacity of VS in the region should be strengthened adopting an inclusive and sustainable all-hazards approach and establishing linkages with relevant agencies and sectors for management of disasters which could have impact on animal health and animal welfare. FAO and WOAHA play an important role in disaster management by providing the guidelines, effective measures, training and simulation workshops. WOAHA has developed specific guidelines for disaster management and risk reduction in relation to animal health, animal welfare and VPH with the goal of strengthening the capacity of VS in Members (35). These guidelines embrace all stages of the disaster management cycle including: mitigation and prevention, preparedness, response, and recovery. They are meant to be applied in conjunction with existing strategies and tools.

FAO and WOAHA have also partnered with INTERPOL on a project, supported by the Weapons Threat Reduction Program of Global Affairs Canada, to sustainably build resilience against animal health emergencies resulting from agrocrime and agro-terrorism. The VS in Middle East region benefited from the project through assessment studies and tools developed by the three organisations, which aim to identify gaps and weaknesses in emergency management and implement fit-for-purpose capacity building for Members, including through multi-sectoral workshops and simulation exercises (36).

### Establishment of public private partnerships for sustainable animal health systems

A partnership between the public and private sectors (referred as public-private partnership-PPP) is an important means of optimising animal health systems and VS. Through this partnership the public and private sectors agree upon responsibilities, share resources and risks, and create synergies across sectors to help improve access to services that would otherwise be unattainable by either sector working in isolation. Recognising the potential of PPPs in the veterinary domain, WOAHA has developed dedicated guidelines, online courses and an open-access database on PPPs to support Members and strengthen the capacity of VS to establish and implement effective PPPs (37).

The effective delivery of animal health services in many Members of the region is often constrained by limited collaboration between the public and private sectors and the lack of legislation that promotes private-sector participation in animal disease control efforts. Governments should engage the private sector and take advantage of its resources and expertise to fill the gaps in the provision of animal health services, and to promote long-term sustainability (38).

At the 15th WOAHA Regional Conference for Middle East, Members were strongly encouraged to facilitate the establishment of legal and administrative frameworks allowing VS to develop effective, efficient and sustainable PPPs as a mechanism to address challenges in animal health and welfare. This would create a conducive environment for proper delegation of authority under PPPs with guarantees and commitments for the public sector to support the private sector in the long term while ensuring the ultimate responsibility of the delegated services remain within their legal mandate (39). In line with this recommendation a recent workshop on Strengthening Veterinary Services through PPPs organized by WOAHA Sub-Regional Representation for the Arabian Gulf, in partnership with the Ministry of Municipalities Affairs and Agriculture of the Kingdom of Bahrain. The Delegates or their representatives from thirteen Members in the Middle East region discussed the potential of PPPs in various critical areas of the veterinary domain such as, control of TADs, food safety, antimicrobial resistance, quarantine and trade and workforce development in the region. One of the key takeaways from the workshop was to explore all avenues for developing meaningful PPPs in order to overcome shared challenges and capitalise on opportunities to improve animal health, food security, and public health.

## **CONCLUSION**

The Middle East region is prone to increased risk of introduction and spread of TADs, zoonoses and food safety hazards, threatening health security, food safety and security, and livelihoods. In this context, the VS play a crucial role in ensuring better animal health and welfare in compliance with international standards. Good veterinary governance by VS is an absolute necessity to be able to meet the ever-increasing challenges of prevention, early detection, rapid response and control of disease threats which may be spread through trade and cross border movement of animals.

Building strong and sustainable veterinary services requires careful attention to legislation, human resources, and financial resources. Members in the region are called to invest in the development and implementation of capacity building programmes to strengthen the veterinary workforce and equip them with the required competencies in management and regulatory aspects, risk analysis, border controls and health surveillance systems. Also, growing economic globalisation requires VS to expand their competencies to rise to new challenges and evolving trends.

The animal health sector in most Members in the region is subject to low levels of public investment and consequent weaknesses in their animal health systems. It is essential to raise awareness of the political leadership and policy makers about the relationship that animal health has to global health, food security and safety and sustainable development. Policymakers should engage the private sector in the delivery of private good services and selected public good services potentially through arrangement such as public–private partnerships. Periodic monitoring of the capacity of VS through PVS Evaluation Follow-Up reports can demonstrate improvement in their governance and progression of their level of compliance with international standards. This dynamic evaluation over time can help to advocate for an increase in investments in VS both from national governments and resource partners.

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