Academy of public administration under the President of the Republic of Kazakhstan

UDK 351/354:351.773(779):614.449

NURTAZINA GULZHAN SABYROBNA

The public management of the veterinary system of the Republic of Kazakhstan within the membership of the WTO

6D051000 – Public and local administration

Thesis for the doctor of public and
local administration (professional degree)

Scientific advisors
doctor of economic sciences,
professor
M. Kemel

doctor of veterinary medicine,
professor
K. Lukauskas

Republic of Kazakhstan
Nur-Sultan, 2020

CONTENT

NORMATIVE REFERENCES

In this thesis references to the following standards are used:

The message of the President of the Republic of Kazakhstan, Leader of the nation N. Nazarbayev. Strategy of Kazakhstan-2050: A New political course of the established state: as of 14 December, 2012.

The message of the President of the Republic of Kazakhstan K-J. Tokayev. Constructive public dialogue - the basis of stability and prosperity of Kazakhstan: as of 2 September, 2019.

The Law of the Republic of Kazakhstan. On ratification of the Treaty on Eurasian Economic Union: as of 14 October 2014, №240-V.

The law of the Republic of Kazakhstan. On ratification of the International agreement on establishment of the Office International des Epizooties in Paris: adopted on 24 December 2008, №109-IV.

The Law of the Republic of Kazakhstan. On ratification of the Protocol on accession of the Republic of Kazakhstan to the Marrakesh Agreement Establishing the World Trade Organization of 15 April 1994: adopted on 12 October 2015, №356-V.

Budget Code of the Republic of Kazakhstan: adopted on 29 October 2015, №375-V.

Code on administrative offences of the Republic of Kazakhstan: adopted on 5 July 2014, № 235-V ЗРК.

Entrepreneurial Code of the Republic of Kazakhstan: adopted on 29 October 2015, №375-V ЗРК.

Penal Code of the Republic of Kazakhstan: adopted on 3 July 2014, №226-V ЗРК.

The Law of the Republic of Kazakhstan. On veterinary: adopted on 10 July, 2002, №339.

The law of the Republic of Kazakhstan. On legal documents: adopted on 06 April 2016, №480-V.

The Law of the Republic of Kazakhstan. On state regulation of development of the agro-industrial complex and rural areas: adopted on 8 July 2005, N 66.

The Law of the Republic of Kazakhstan. On food safety: adopted on 21 July 2007, №301.

The Decree of the Government of the Republic of Kazakhstan. On adoption of the State program on development of AIC for 2017-2021; adopted on 12 June 2018, №423.

WTO Agreement on application of sanitary and phytosanitary measures.

CAC/RCP 1-1969 General Principles of FOOD Hygiene. Codex Alimentarius.

DEFINITIONS

In this thesis the following terms are used with the corresponding definitions:

Animal welfare – the state of physical and mental health of an animal in relation to the environment in which it lives and dies.

Emerging disease – a new manifestation of a disease or infection with serious implications for animal and public health. This might be either a known but modified pathogen or its introduction into the new area or species, or an unknown pathogen reported for the first time.

Endemic – a disease persistent to a particular territory or area.

Epidemic – an outbreak of a disease localized in one area or region.

Infection – a pathogen that enters and develops in the organism of human or animal.

Monitoring – collection of data and analysis of observations with the aim to detect changes in the status of animal health.

Outbreak – the occurrence of a disease in a certain animal population.

Pandemic – an epidemic that spreads to large territories across the globe.

Risk – a possible adverse effect on animal or public health with in terms of biological and economic implications.

Risk analysis – a process of identification of a hazard, its assessment and management.

Risk assessment – an evaluation of possible biological and economic implications caused by introduction, establishment and distribution of a hazard.

Sanitary and phytosanitary (SPS) measures – are any measures applied with following objectives: protection of public and animals from risks coming from food additives, microorganisms in food, contaminants or toxins; protection of public from diseases coming from plants or animals; protection of plants and animals from pests, diseases or other pathogens; prevention or minimization of other damages caused by introduction, establishment or distribution of pests.

Transboundary animal disease – a highly infectious and transmissible animal disease that can spread rapidly through the borders of countries with a significant socio-economic impact and consequences for public health.

Veterinary measures – a set of epidemiological and veterinary procedures aimed at prevention of the occurrence, introduction, spread and eradication of animal diseases and provision of safety of livestock products, feed and feed additives.

Veterinary safety – conditions in which animal health, safety of livestock and epidemiological well-being of the territory, as well as veterinary public health from animal diseases are ensured.

Zoonosis – a disease that can spread from animal to human.

ABBREVIATIONS

AIC – Agro-industrial complex
AMR – Antimicrobial resistance
CAC – Codex Alimentarius Commission
CIS – Commonwealth of Independent States
CQCS – Committee for quality control and safety of goods and services
CSI – Committee on state inspection of AIC
CVCS – Committee of veterinary control and supervision
DVFS – Department of veterinary and food safety
EAEU – Eurasian Economic Union
EEC – Eurasian Economic Council
EFTA – European Free Trade Association
EU – European Union
FAO – Food and Agriculture Organization
GATT – General Agreement on Tariffs and Trade
IHR – International Health Regulations
IPPC – International Plant Protection Convention
MH – Ministry of health of the Republic of Kazakhstan
MoA – Ministry of agriculture of the Republic of Kazakhstan
MTE – Ministry of trade and integration of the Republic of Kazakhstan
MRL – Minimum residue level
MCI – monthly calculated index
NGO – non-governmental organization
OECD – Organization of economic cooperation and development
OIE – World Organization for Animal Health
PVSCS – Public veterinary-sanitary control and surveillance
PVS – Performance of Veterinary Services
RK – Republic of Kazakhstan
SDGs – Sustainable Development Goals
SPS – sanitary and phytosanitary measures
UN – United Nations
WHO – World Health Organization
WTO – World Trade Organization

INTRODUCTION

Relevance of research. Veterinary domain plays an essential role in development and preserving livestock for producing food products and reducing poverty worldwide. In particular, veterinary service advocates for the protection of animal health and food safety of animal origin. The importance of veterinary services has increased drawing a careful attention of governments due to various challenges related to reduction of livestock production and new emerging risks, coupled with international trade development.

Development of livestock production is not consistent with the world population growth. The livestock sector contributes around 40% of the global value of agricultural production supporting the livelihood and food security. The growth of GDP in agriculture was decreased in the last two decades from 4,8 to 3,4%, while the global human population is constantly growing and highlighting the needs for greater food production. According to the UN data, the world human population was accounted for 7.7 billion people in 2019, and it is projected to increase.

In this light Kazakhstan has took a course in development of food production with the aim to supply foreign markets with livestock and crop products with a special attention to organic and ecological food products. These goals were outlined in several strategic programmes adopted by Kazakhstan. One of the tasks indicated in the Strategy of Kazakhstan-2050 is modernization of agriculture in the context of growing global demand on food. An increase of agricultural products by 4.5 folds was announced in the recent message of the President of Kazakhstan K. Tokayev as of 2 September, 2019. Ensure of food security and development of export in food products were included into the current state programme on development of AIC for 2017-2021 adopted by the Government of Kazakhstan.

The capacity and quality of veterinary service are the main criteria for ensuring safe livestock production and development of trustful and long-term international trade. In this term the World Trade Organization along with other standard-setting international organizations such as OIE, IPPC and Codex Alimentarius have developed certain standards and recommendations. The basic requirement is to provide the conditions in which the WTO member states ensure the safe trade in food products. The ability to demonstrate that country follows the international standards and recommendations largely depends on veterinary service.

The membership to the WTO itself demands the implementation of certain regulations and commitments. There is a set of requirements to the application of veterinary measures based on principles to trade without any discrimination and non-trade restrictive manner. Food producers and suppliers have to implement veterinary measures in order to demonstrate the ability to ensure safe food products and to build the trust in trading partners. Failure to follow them might retain countries from entering to the new foreign markets.

Today the veterinary service of Kazakhstan has certain weaknesses and gaps. According to the assessment of the national veterinary service made by the OIE experts in 2018, there were identified various areas that need further improvements in

accordance with international standards and recommendations with the aim to improve the quality of veterinary service and its performance. The veterinary legislation has no provisions on fundamental principals applied in international trade in animals and livestock products. Food control system is divided between two different authorities where overlapping and lacking of control measures noted throughout the food production chain.

Moreover, there is a weak collaboration between veterinary and sanitary-epidemiological services in Kazakhstan. This is due to being under the authority of different ministers and having different tasks. Moreover there are some gaps and duplications in control measures carried out by these services. In fact veterinary public health is a part of public health standing for prevention of animal diseases at first source and safety and quality of food products. Both veterinary and sanitary-epidemiological services have similar objectives and common risks for animal and human health along the value chain of food production.

In addition, the global challenges are another concerns raised by global communities that present emerging risks in international trade. New unknown diseases common to animal and humans present the high risks to animal and public health. The most recent one is a global spread of COVID-19 that locked down numerous countries and resulted in a number of deaths in human population. This severe disease has almost blocked the planet. It is suggested that the primary source of this infections in animal populations, in particular horseshoe bats. This kind of risks is highlighting the importance of cooperation between animal and public health authorities as well as between nations at international level.

All above mentioned challenges put pressure on national veterinary service demanding to respond in a timely and adequate manner. In this context the role and significance of the public management of veterinary system increases, in particular the application of veterinary measures in compliance with international standards and recommendations. Veterinary service is responsible for not only treatment, diagnosis and prevention of animal diseases, but at the same time for guarding animal and public health, safety of livestock products and health of environment. Therefore, it is important to meet the demands of new developments in order to design and implement the suitable veterinary system aimed at delivering of veterinary services to the public.

This research also meets the first three SDGs developed by UN. The first goal «no poverty» deals with eradication of poverty worldwide. Agriculture is one of the main sources of incomes in rural areas of developing countries that can provide labour and food for the most vulnerable part of population. The second goal «no hunger» aims at ensuring the access to sufficient and nutritious food for all people, including those in poor conditions and children around the year. This is possible through the development of sustainable system of food production and increase of agricultural productivity. In this regards the contribution of veterinary service is high in terms of provision of safe livestock products. The third goal «good health and wellbeing» addresses the public health problems. The current pandemic COVID-2019 is demonstrating the great needs for emergency preparedness. Several global

public health risks in recent decades evidenced that animal and public health are tightly interconnected domains that require close collaboration and common efforts.

The relevance of this research is determined by the needs to address above mentions challenges through: *firstly*, generalization of advanced international practices in the veterinary and food control systems; *secondly*, analysis of the current veterinary system of Kazakhstan; *thirdly*, appropriate application of international standards and recommendations designed for veterinary service; and *fourthly*, development of the novel structure of veterinary service of Kazakshtan.

The degree of scientific elaboration of the problem. Since animal diseases have been discovering and their certain characteristics have been studying the public management of veterinary service are gained more attention from researchers, civil servant and policy makers. Numerous scientists of the post Soviet Union, including Kazakh and Russian researchers have studied the veterinary services in terms of their organizational, institutional and functional frameworks. Among them Kazakh scientists such as Sh. Tursunkulov, K. Biyashev, B. Biyashev, M. Mynzhanov, B. Maikhanov, S. Abdrakhmanov, Zh. Adilbekov and B. Kalymbek. There are also Russian scientists have studied the veterinary service and veterinary control system on the basis of certain regions and functions. There are L. Yushkova, I. Nikitin, A. Baicherova, G. Kalinin, M. Tarshis, R. Nigmatzanov, B. Apalkin, V. Vasilyev, B. Voronin, Y. Barsukov, D. Orekhov, N. Kalishin, B. Voronin, S.Khabarova, N. Donchenko, M. Amirokov, N. Zavodchikov., D. Zakhodnova, A. Bobicheva, V. Vasiliev and others.

There are also foreign scientists and specialists that have studied the veterinary system from the perspectives of governance in this domain. In particular the initial studies were triggered by the international communities such as OIE, EC, World Bank, FAO and WTO. Among them often were those who have been working for international organizations. OIE is the first international organization established in Paris in 1924 with a sole competence in development and promotion standards and recommendations in of animal health and food safety. The most insightful and interesting papers were written by the previous and current OIE employees. For example, D.W. Wilson, K. Hamilton, G. Brückner, B. Vallat, M. Éloit, A. Dehove, L. Msellati, J. Commault, A. Dehove, S. de La Rocque, D. Belton, F. Caya, E. Tagliaro, S. Corning, P-P. Pastoret, D. Chaisemartin and others. All these papers highlighted the importance of veterinary services and promoted the compliance with OIE standards and recommendations in terms of quality criteria and evaluation procedures of veterinary services.

Above mentioned authors in collaboration with other scientists mainly concentrated their works on improvement and strengthen of public administration of veterinary services from the perspectives of international trade development. For example, B. Vallat and D.W. Wilson outlined the obligations of the OIE member countries in the organization of veterinary services. K. Hamilton and G. Brückner provided explanations on the OIE mandates in the context of improving animal health worldwide that aimed at strengthening the governance of veterinary services. The current OIE General Director of Dr. M. Eloit stated that the global public good

concept is a means of promoting good veterinary governance. L. Msellati, J. Commault and A. Dehove provided definitions, measurement and challenges of good veterinary governance. The second collaboration of K. Hamilton and G. Brückner focused on the good veterinary governance from the early detection and rapid response in animal disease perspectives. While P-P. Pastoret and D. Chaisemartin studied the importance of governance from the perspectives of reliable veterinary certification procedures applied in international trade in animals and food products.

There were also various research conducted in collaboration between different international organizations such as OIE and WHO, OIE and WB, OIE and FAO. For example, S. Forman, C. Planté, G. Murray, B. Rey, D. Belton, B. Evans, P. Steinmetz from the WB, EC and OIE in cooperation with civil servants and experts from Australia, France and Canada highlighted the impact of governance on the delivery of veterinary services and its benefits for improvement of veterinary governance. They also proposed the use of OIE PVS Pathway for investments from donor organizations. Other authors from the OIE and WHO S. de La Rocque, E.Tagliaro, G. Belot, R. Sreedharan, G. Rodier, S. Corning and F. Caya analysed the differences and synergies between the tools used by the WHO to monitor the implementation of the IHR and the OIE PVS Pathway and found a broad spectrum of similarities, complementarities and synergies on two guidelines. The findings should help member states of two organizations to strengthen good governance in animal and public health sectors.

Objective and tasks of the research. The objective of this thesis is development of recommendations on bringing the application of veterinary control measures of Kazakhstan in compliance with international standards and recommendations.

In order to achieve this objective the following tasks were set up:

– to study the definition and content of the veterinary system through defining its structural elements and institutional aspects;

– to determine the global challenges in the veterinary domain;

– to analyze the best international practices of the public management of veterinary system on the basis documentary analysis;

– to analyze the current state of the veterinary system of Kazakhstan from institutional and functional perspectives;

– to determine the fundamental principles and commitments in the application of veterinary measures in Kazakshtan under the membership to the WTO;

– to assess the effectiveness of public management of veterinary system in compliance with OIE PVS tool;

– to develop the new structure of veterinary system of Kazakhstan;

– to develop recommendation on amendments to the veterinary law of Kazakhstan with the aim to bring in line with WTO principles.

Object of research is the public management of veterinary system of Kazakhstan.

Subject of the research is a set of organizational and legal relations of the

veterinary system in the context of membership to the WTO.

Theoretical and methodological basis. The scientific works of leading specialists in the field of the veterinary system from the perspectives of governance, as well as the scientific papers of researchers conducted studies on organization of the veterinary services at the local level and the application of veterinary measures in accordance with international standards and recommendations were used as a theoretical basis. In addition, the international concepts «*from Farm to Table*» and «*One Health*» related to the veterinary domain were used in this theses.

The methodological basis is a set of common scientific methods for determination of characteristics and content of the veterinary system in accordance with relevant international agreements.

Methods of the research. The content analyse was used for peer reviewed publications, literature, legislation and international regulations. Structural and functional analyses were used for the veterinary system.

The assessment of the veterinary service was conducted using the PVS pathway tools, developed by the OIE in 2019. In particular the evaluation of the national veterinary service was conducted according to the assessment scale on four fundamental criteria that include 45 indicators.

There were also used statistical analyse for quantitative data on veterinary measures applied in Kazakhstan.

The scientific novelty of the thesis is following**:**

1. The term «veterinary system» has been introduced, and its definitions have been formulated. The author's vision of the veterinary system has been developed.
2. Two concepts «from Farm to Table» and «One Health» support each other by contributing to the achievement of their goals.
3. It has been confirmed that legitimate veterinary service is an important criterion for the full-fledged operation of the veterinary system.
4. It has been determined that the veterinary system in Kazakhstan has characteristics relevant to the public management.
5. It has been revealed consistency between the EU's and Lithuanian veterinary and food control system. The Lithuanian experience in application of veterinary measures does not affect its sovereign right for performing domestic veterinary control.
6. On the basis of the conducted analysis of the current state of veterinary service of Kazakhstan it was revealed several weaknesses from the structural and functional perspectives.
7. Based on the analysis of the global modern challenges it was supported that the intensive movement of people and goods contributes to the risks to animal and public health.
8. There was developed the new structure of the veterinary service of Kazakhstan from author's perspectives based on adaptation of internationally recognised concepts.
9. There have been developed the fundamental principles and criteria for the veterinary service of Kazakhstan in line with provisions and commitments under the

WTO SPS Agreement.

10. It has been drafted recommendations on improvement of the performance of veterinary service of Kazakhstan.

The key scientific provisions presented for discussion are following:

1. There has been confirmed that the veterinary system demands an integrated and multidisciplinary approach that includes protection of animal health, as well as protection of human health, food safety and protection of environment.

2. Two concepts «from Farm to Table» and «One Health» have similarities in their objectives. Therefore two concepts might be introduced simultaneously however they need adaptation to local conditions and factors.

3. The veterinary legislation in Kazakhstan consists of basic and multiple complementary regulations. It has been revealed that the development and adoption of the veterinary legislation is subject to burdensome procedures. The veterinary legislation in Kazakhstan has predominantly top-down character with a complex and fragmented (not systematized) structure. Based on the analyses of the legal basis of the veterinary system in Kazakshtan it was revealed that there is a lack of participation of civil society in the development and assessment of the public management outcomes.

4. The veterinary legislation of the EU as well as Lithuania experience is based on the concept «from Farm to Table» with focus on responsibilities of the business operators. The structure and performance of the Lithuanian veterinary and food control system is consistent with the EU requirements that subject to regular evaluation at the supranational level.

5. There were identified three groups of global challenges of the veterinary system in Kazakhstan that need to address properly in the context of international trade development in food products.

6. Based on the results of the assessment of veterinary service in Kazakhstan according to the OIE PVS Pathway tool, performance of the national veterinary system was graded at 2.9 that means at the low level (less than minimal).

7. There is a need to restructure the current veterinary service of Kazakhstan according to the new concept on enhancement of the veterinary and food control system in order to bring in line with international standards and recommendations.

8. There was developed the amendments to the veterinary legislation of Kazakhstan in order to meet the WTO SPS Agreement provisions as well as OIE recommendations.

9. Developed a set of recommendations will enable to improve of the performance of veterinary service of Kazakhstan for further development of international trade.

Theoretical and practical significance is determined by the applied character of the conducted research. There was presented a comprehensive content of the veterinary system that demands a multidisciplinary and integrated approach.

Practical significance of research includes the results of analyses, as well as the conclusions and recommendations of this research might be used for the development of national veterinary legislation in animal health and for modernization of the

veterinary and food control system. This will help to strengthen the veterinary service of Kazakhstan and comply with international standards and recommendations which result in ensuring food safety, consumer health and expanding the export potential.

Moreover, developed recommendations can be used for further presentation to the Government of Kazakhstan in order to enhance the effectiveness of veterinary service.

Testing of the practical results of thesis. Basic provisions and conclusions of this dissertation were presented on the international scientific conferences and published in the scientific national and international journals as articles, reports and presentations. The main ideas and outcomes of the research were published in the following publications:

In publications recommended by the Committee of education and science control of the Ministry of education and science of the Republic of Kazakhstan: Қазақстанның агроөнеркәсіптік кешенінің экспорттық әлеуеті (The export potential of agricultural sector of Kazakhstan) // Problems of AgriMarket (Almaty, 2019); State support of the veterinary system of Kazakhstan // Problems of AgriMarket (Almaty, 2020); Современные вызовы лидерства в государственном управлении: на примере системы ветеринарии Казахстана (Modern challenges of leadership in public administration: on the example of the veterinary system of Kazakhstan) // PSU Vestnik, Humanitarian serial. (Pavlodar, 2020); Зарубежная система контроля безопасности пищевой продукции: опыт ЕС (Foreign food safety control system: EU experience) // Problems of AgriMarket (Almaty, 2020).

In international scientific publication, included into the Scopus database: Policies and Livestock Systems Driving Brucellosis Re-emergence in Kazakhstan // EcoHealth (USA, 2017); Veterinary system management for ensuring safety of food products // International Journal of Supply Chain Management (UK, 2020).

In the materials of international conferences, including foreign conference: Global challenges in international trade in agricultural products: learned lessons // Proceedings of the int. res. conf. «State of the future: New technologies and public administration» (Astana, 2018); Пробелы и перспективы общественного контроля в системе ветеринарии в Казахстане // Proceedings of International scientific practical conference designated for 110 years of Saratov State University N.G. Chernyshev «Interaction of government, business and society in the implementation of public control» (Saratov, 2019); Perspectives of digitalization of the veterinary system of Kazakhstan // Collection of scientific articles of International scientific conference «Landmarks of the socio-political modernization of Kazakhstan» (Nur-Sultan, 2019); Применение ветеринарных мер в международной торговле: основные принципы и правила // Collection of scientific articles of International scientific practical conference «Scientific achievements in the context of improving the quality of life and sustainable development of society» (Almaty, 2019).

In addition various results of the thesis were discussed and tested at the central and local levels (Annex A). In particular different proposals made by the author regarding the control functions of the veterinary service were taken into account during development of the amendments to the Law of the Republic of Kazakhstan

«On veterinary». Another set of recommendations and outcomes of the thesis has been discussed within the Ministry of agriculture of Kazakhstan. At the local level, collaborative work between veterinary service and sanitary service in Pavlodar oblast were conducted according to the concepts «from farm to fork» and «One health».

The scope and the structure of dissertation are determined by the objective and tasks and include introduction, three chapters, nine subsections, conclusion, and list of references. The overall content of the thesis is written on 115 pages.

1 THEORETICAL AND METHODOLOGICAL FRAMEWORK OF THE PUBLIC MANAGEMENT OF VETERINARY SYSTEM

1.1 Theoretical and methodological aspects of the public management of veterinary system

Today the term veterinary system is often used in the management of veterinary services. The public management of veterinary system is about governance of veterinary services responsible for animal and human health and food safety. The root of this definition comes from the veterinary science. There are different opinions about the origin of this word, and according to some authors its origin relates to the veterinarian named Vegetius who is perceived as a father of veterinary medicine [1, 2]. However, in some sources it is written as a Latin origin word *veterinarius means caring for animals* [3]. This is a science studying livestock diseases and their treatment [4].

The development of veterinary science was closely linked to the development of medicine. Some academic resources use the term veterinary medicine [5-7]. Veterinary science has a rich history of contributions to public health, especially with regard to the provision of safe and adequate food, the prevention, control and eradication of zoonoses, the improvement of animal welfare and contributing to biomedical research. For example, the methods and means of treatment and diagnosis of human diseases had been tested on animals [8, 9], especially laboratory animals [10].

The primary focus of veterinary was livestock as they provide food for human consumption; utilize as transport; and provide clothes, incomes and necessary means for human life [11, 12]. Later the scientists started to study diseases of wild and aquatic animals as well as insects, as they serve as intermediate hosts of some pathogens. These animal species play an important role in introduction and spread of infectious diseases among livestock and humans [13, 14]. For example, wild wolves and foxes [15] are the main sources of rabies that infect animals and humans.

With further development of production, technologies and international trade in livestock products the definition of the term veterinary was expanded. Today, it is *a complex of science and practices aimed at prophylaxis, eradication of diseases and treatment of animals, ensuring the release of quality and safe livestock products, protecting people from diseases common to humans and animals, as well as protecting the environment* [16]. Similar definition is prescribed in the Law of the Russian Federation «On Veterinary Medicine» [17].

According to the veterinary legislation of Kazakhstan veterinary is «*an area of scientific knowledge and practical activities aimed at studying diseases and food-borne illnesses in animals, their prevention, diagnosis, treatment and eradication; ensuring compliance of objects subject to veterinary-sanitary control and supervision with requirements of legislation of Kazakhstan in the veterinary domain; as well as protecting the public health from diseases common to animals and humans*» [18]. In the context of veterinary legislation of Kazakhstan the terms «veterinary» and «veterinary domain» are equivalent therefore the same is accepted in this research.

The centric idea in the above mentioned definitions is knowledge on animal diseases and their linkage with other scientific domains. It means in a modern world the veterinary domain has a multidisciplinary nature where it overlaps with other fields of science.

According to the OIE veterinary public health is a component of public health that focuses on the application of veterinary science and that includes all actions directly or indirectly linked with animals, their products and by-products, so long as they contribute to the protection and improvement of the physical, mental and social well-being of humans [19]. Veterinary services play a key role in preventing, mitigating and controlling risks to public health at the origin or source of infection. The human health is closely connected with animal health due to zoonoses[1] [20, 21].

In this term the main source of infectious pathogens are animals. Without prevention and eradication measures applied against animal diseases it is challenging to combat with human diseases caused by zoonoses. Therefore veterinary includes prevention measures related to human health with the aim to eradicate the primary source of pathogens circulated in animal population. It is better to apply prevention measures in animals rather that dealing with negative consequences in public health.

Veterinary services contribute to public health in several areas such as, food safety (with respect to foodborne diseases as well as residues and pollutants), control of zoonoses and responses to natural disasters and bioterrorism.

Livestock is an important source of food products designated for human consumption. In the veterinary legislation of Kazakhstan apart from animals and animal diseases, processed and raw food products of animal origin are included into the objects that are subject to the veterinary-sanitary control and supervision [18].

The environment plays an important role in the spread of pathogens in animals and humans. In particular, pathogens of animal diseases can be transmitted through water, soil, air and other elements. Therefore, the environment can serve as a source or means of spreading animal diseases. For example, anthrax pathogens that infect animals and humans have the ability to form resistant spores that can persist in the soil for decades as a source of infection [22]. This property of the causative agent of this disease requires strict veterinary measures. In particular, this is a ban on the slaughter (division) of a sick animal, burning the bodies of sick cattle, and the installation of a high fence (metal or concrete) to exclude access for people and animals and a special designation [23]. Also, as a result of the spread of disease through infected natural water resource or soil, environmental pollution is occurred. For example, various wastes from animals and the bodies of dead sick animals touch upon environmental issues.

In order to analyse the public management of the veterinary system first it needs to understand the content of the veterinary system. As any system there are involved interested parties or stakeholders and their relationships. The interested stakeholders include the public authorities, state institutions, NGO, academia and educational organizations, business, private veterinarians, international communities

[1]Zoonoses – diseases common to animals and humans.

and foreign veterinary authorities [24]. Their relationship depends on the form on which is based the veterinary system. In the majority of cases the veterinary system has a public and mixed public-private form. Development of the veterinary system in Kazakshtan has the public form of governance [16, c. 5; 25]. This is mainly due to presenting a high impact on public health and well-being of society therefore it draws careful attention from governments.

Based on the analysis of various literatures there were found out that the veterinary system has a broad spectrum of structural elements with certain characteristics and relationships between them (figure 1). The main objects are livestock and their products for human consumption for food and living that subject to safety control. It also includes inputs such as animal feed and veterinary medicines. Animal and veterinary waste is also one of the objects of the veterinary system from the perspectives of contamination of environment.

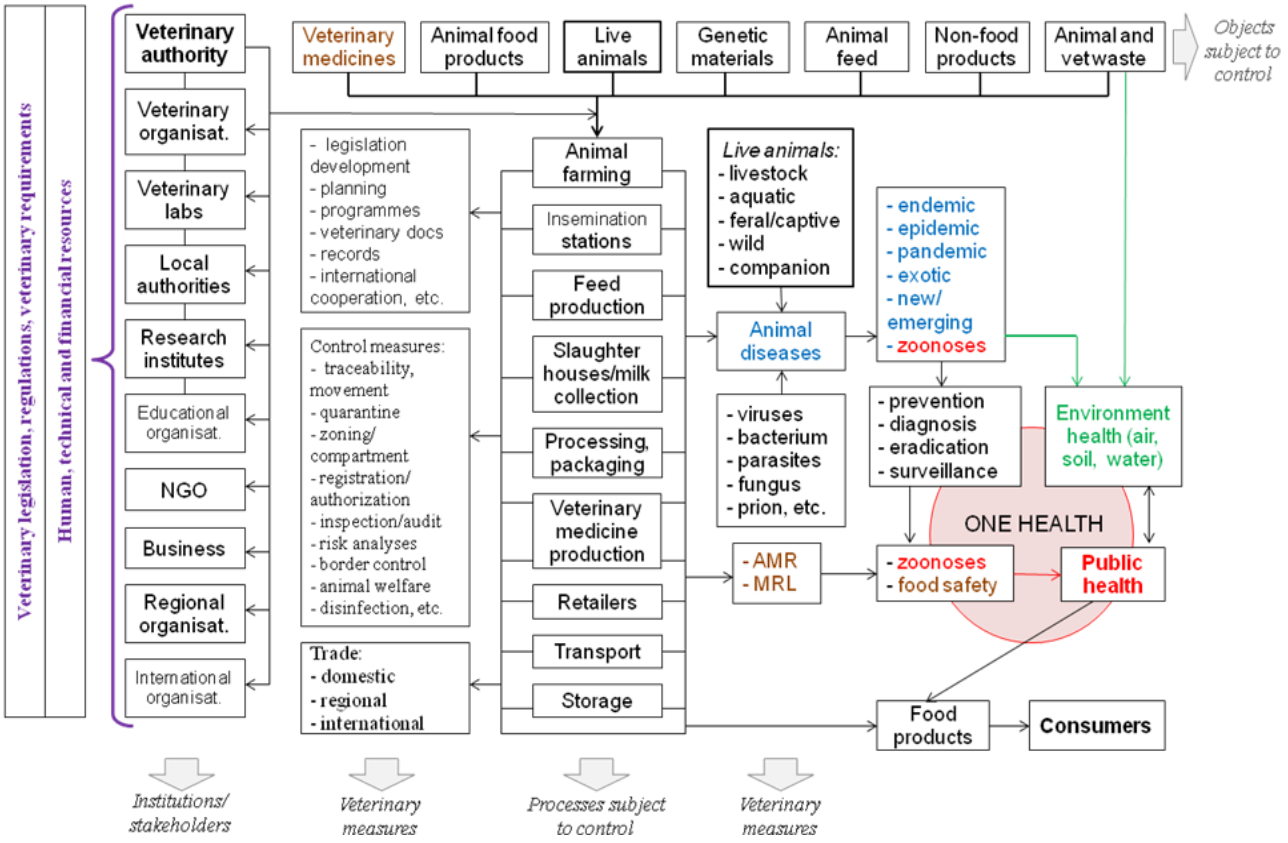

Figure 1 – The structure of the veterinary system

Note - Developed the by the author based on the PVS tool [25, c. iii]

The public management of the veterinary system can be viewed from two points of view. First, from the institutional point of view, the public management of the veterinary system involves various stakeholders with certain interests. Among them the veterinary authority at central and local levels, veterinary organizations including laboratories and research institutions, educational organizations, NGO, representatives of business carrying out the activities in the veterinary domain,

regional, international organizations, as well as foreign veterinary authorities dealing with import and export of livestock products.

Second, from the functional point of view, what functions does this system perform? The public management of the veterinary system is the activities and tools applied by veterinary authorities with the aim to ensure animal and human health from animal diseases, and food safety in conditions of limited resources (financial, labor, material and others) in order to increase the livestock production and improve the quality of food products and environmental protection. In this term their might be additional objectives that vary on the level of development of country, its long term strategies and other specific needs. For example, Kazakhstan stressed the need to expand its export potential for agricultural products in order to supply food products to the world market.

Public management is a modern multifaceted concept used to describe the role, functions and capacity of veterinary services at local, national, regional and international levels. In foreign literature veterinary governance is often used. Governance relates to the delivery of public services, where the political, economic and financial aspects are important elements [26]. Veterinary services can also be considered as public services delivered by governments with the aim to ensure animal health and interrelated safety issues [27]. Veterinary governance has various definitions and meanings that describe its content and objectives. From the perspectives of public services, it is an administration of veterinary service empowered with national jurisdiction in carrying out of measures in the animal health sector [28]. Later this concept has developed from the point of global challenges that need to address worldwide. Effective and efficient veterinary governance is an essential requirement in dealing with the animal health problems and risks associated with human health. According to the OIE the concept of good veterinary governance is explained from safe international trade perspectives. The key elements of the good veterinary governance are the competencies, confidence and integrity of veterinary service [19].

In international practice, the term «animal health» is often used instead of veterinary. For example, according to the OIE the new term «animal health management» is a system designated for optimization of physical health, behavioural patterns, and animal welfare [19]. This management system is aimed at prevention, treatment and control of animal diseases as well as conditions that affect animal population, including registration and recording of animals, their diseases, injuries, treatment, movements and mortality. This definition is short but broader than the definition «veterinary» largely used in the CIS countries. The veterinary services in CIS countries as well as in Kazakhstan are mainly concentrating their efforts on protection of physical health of animals [17; 18]. At the same time animal welfare issues are also relate to physical as well as mental state of animals [19; 29] and are subject to regulation and control. The legislation on animal welfare is aimed at regulation and discipline the use of animals for different purposes, including food production, companionship, work, research, entertainment and leisure [30].

In the context of this research the following terms are accepted as equivalent:

«veterinary », «veterinary domain» and «animal health». In advanced international practices, the last term is often used in the names of veterinary competent authorities. For example, Animal and Plant Health Inspection Service[2] (APHIS) in the United States. In the European Union, veterinary service is under the responsibility of the Directorate-General for Health and Food Safety[3].

Within the veterinary legislation of Kazakhstan the term «veterinary-sanitary» refers to animal and public health, as well as to food safety (sanitary). This term was introduced with amendments to the veterinary law in 2009 along with adoption of the Code on public health and healthcare system of Kazakhstan [31]. Application of the term «veterinary-sanitary» safety instead of just «veterinary» indicates that veterinary measures cover animal health issues and food safety of animal origin products. Therefore the terms veterinary and veterinary-sanitary are equal, that are displayed in the national veterinary legislation of Kazakhstan as well as in the relevant EAEU legislation [32]. According to the OIE sanitary measures are measures aimed at protecting the health of animals and humans from the risks coming from the entry, establishment and spread of pathogenic microorganisms [19]. The introduction of this term indicates that animal health is tightly connected with human health and vice versa. Therefore, these issues must be considered in conjunction with each other.

This close interconnection between human and animal health is evidenced by the new emerging diseases in the last decades. New emerging diseases transmitted from animals to humans have raised new challenges related to intersectoral collaboration. There are numerous existing zoonoses, common to humans and animals, such as tuberculosis, brucellosis, anthrax, rabies, opisthorchiasis (parasites in aquatic animals), etc. However, the spread of new unknown diseases registered for the first time worldwide in the last two decades indicates the presence of hidden public threats in animal population [33], where wildlife draws more attention [34]. The most recent of them are highly pathogenic avian influenza (HPAI) [35], swine influenza virus, Ebola virus disease (EVD), severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS) and recently registered COVID-19. All these diseases are transmitted from animals to humans and may result in serious damages to the human body and lethal consequences [36, 37]. There are also environmental factors such as air, water, soil and others that are involved in the transmission of pathogens. Moreover, along with livestock, the environmental factors might also play a significant role in the development of antimicrobial resistance presenting a global concern [38, 39]. From these perspectives, ecosystem health is also closely linked to the human and animal health. Therefore this linkage between health sectors demands a great attention of governments and international organizations.

In this light the concept «One health» highlighted its significance and needs for effective application. This is an interdisciplinary approach that addresses the joint efforts in three health sectors. The main focus of this concept is concentrated on a multi-sectoral integration of three health domains: human-animal-environment [40].

[2]https://www.aphis.usda.gov/aphis/home/

[3]https://ec.europa.eu/knowledge4policy/organisation/dg-sante-dg-health-food-safety_en

In the context of this integration, all efforts are focused on the cross-sectoral cooperation to develop and implement policy and strategy in order to achieve the best public health results. There were held various initiatives and meetings on discussion of the One Health concept [41, 42]. In the beginning of 2000s this concept was introduced that is based on idea that human and animal are parts of ecosystem and their health is interconnected with ecosystem health [43]. This approach is based on the evidence that more than 60% of human diseases are zoonoses, and largely came from wild animal population and brought severe losses for livestock [44, 45]. This is an evidence of efforts of the international organizations as an effective way to tackle the emerging diseases [46].

Therefore the main focus of governance should be done on the control of zoonoses at the level of livestock population. In some literature the term veterinary public health is used to describe the role of veterinary services in public health, particularly in prevention of zoonoses [47, 48]. Moreover, these risks are amplified with globalization, climate change and changes in human behavior, which provide pathogens with the opportunity to colonize new territories and develop in new forms. The most recent global threat posed by the COVID-2019 demonstrated that this interface has a global importance [49]. In this light the role of the veterinary service is crucial, which stands guard over the protection of animal and human health. Controlling zoonoses is a complex task for risk management, when the results are largely dependent on political will and governance ability [50].

Therefore OIE and WHO/FAO call for a global collaborative approach to address risks to the heath of humans, animals and the environment as a whole. Also, this concept offers a multidisciplinary approach to analysis and policy making-decision [51]. In 2014 OIE and WHO jointly developed the Operational framework for good governance at the human-animal interface [52]. This operational framework provides the principles and tools to support countries in their efforts to control human and animal health diseases. The framework is designated for the public health sector and veterinary service to bring them together and work collaboratively. This dialogue between the two health sectors helps to adequately inform policy decision-makers for capacity building on control of zoonoses [53]. Both WHO and OIE have developed a set of tools in the corresponding sectors in order to assist member-countries in assessing their capacities and to take actions to strengthen their services under the principles of good governance. The framework presents combination of the tools and criteria developed by two international organizations: WHO-IHR and OIE- veterinary service. It describes in detail the ways how these tools can work together adding the value to each other and creating bridges between two sectors in order to achieve One Health goals.

The WHO has developed the International Health Regulations Framework and Monitoring Tool (IHR) [54]. The IHR are designed to prevent, control and protect against human diseases, as well as to develop adequate responses to public health risks. The IHR include a set of 28 global indicators that measure the ability of the public health sector to identify, evaluate, inform and address the threats posed by human diseases.

At the same time, OIE has developed international standards on veterinary services that include the principles and quality requirements of the veterinary system [19]. Based on these requirements OIE has also developed the veterinary service pathway for evaluation of veterinary services its member-countries for sustainable improving and strengthening the national veterinary system [55]. The veterinary service pathway is an assessment methodology that helps to understand the weak and strong sides of the veterinary services, to reveal gaps and opportunities for future enhancement of the animal health sector.

Since this study concerns the veterinary system, it is therefore important to consider the veterinary service path in more detail. This assessment methodology has four stages such as orientation, evaluation, planning and targeted support. These stages are designated to assess, plan, cost and support national veterinary systems.

Each stage has own objective and missions/events that allow to understand the content and smoothly move from previous one to the next stage. Orientation stage is focused on providing information for better understanding of the veterinary service tools at the national level, the role, functions and engagement of the national veterinary service in the country. For this purposes the OIE hold different workshops and trainings on veterinary service orientation for its member-countries. Evaluation is a key stage and consists of two missions: initial assessment and follow-up assessment. The performance and capacity of the national veterinary service are assessed during the first mission. Follow-up mission is provided in order to evaluate the progress and update the initial assessment. There are certain criteria and toolkits used by certified OIE experts for evaluation of the national veterinary service. The evaluation missions should be requested by the member-countries. Planning stage is a veterinary service Gap Analysis that helps national veterinary services to plan their objectives, tasks, actions and financial resources based on the previous veterinary service evaluation results. This stage is also requested by the member-countries and conducted with the assistance of certified OIE experts. The last stage is the targeted support was developed by the OIE with the aim to assist member-countries in specific issues. Among them the development and strengthening One health approach based on WHO IHR and OIE veterinary service workshops, veterinary legislation, sustainable laboratory services, education of veterinarians and paraprofessional veterinarians, veterinary statutory body, public-private partnerships (PPP). Evaluation missions in Kazakhstan were held two times: veterinary service Gap analysis as the initial mission was held in 2011, and the veterinary service evaluation follow-up mission was provided in 2018 [56, 57]. The results of these missions also were used in this research to back up the empirical data with relevant evidences.

There is another concept related to the control of animal health and food safety that is based on the best international practices. This concept is well-known as «*from Farm to Fork*» or in some literature it is named as «from Stable to Table». This concept is based on the food safety control system that covers the entire food chain starting from production in the farm to the final consumer throughout the entire value chain of production. The main focus of this concept is concentrated on the establishment of traceability system. This food production chain involves a large

number of stakeholders involved, such as farmers, input suppliers, manufacturers, and processors, suppliers of raw materials and food ingredients, distributors, retailers, transporting companies, warehouses and supermarkets. Accordingly, the distance between the farmer and the consumer is large increasing the risks to human health such as consumption of unsafe food products. This concept was adopted in the EU in early 2000s as a result of profound changes taking place in the EU food control system in response to new risks in food products. These risks caused by new production practices, increased consumer awareness and demands have stipulated the formation of a comprehensive concept of the food production chain [58]. This means the verification of only the final product that was traditionally subjected, was gradually replaced by control at all production stages. Such an approach, when risks are taken into account along the entire length of the production chain and a new distribution of responsibilities arises between economic operators and the administration.

At the same time, the administration remains the ultimate guarantor of product safety. This concept was developed in comply with international standards. In particular, the WTO Agreement on SPS measures recognizes that risk analysis is a reference methodological basis that should be followed by competent authorities. To achieve consistency of standards, the task was set to harmonize the regulatory activities of the OIE and the Codex Alimentarius Commission. In this concept food control services should adapt to these changes, ensuring the effectiveness of the regulatory system throughout the food production chain. Veterinary services are the main performers of this work at the initial stage. Therefore veterinary services are included to this concept that enable to combine all tasks along the food chain "from the stall to the table". The cost and feasibility of measures should be taken into account when choosing the management strategy [58, p. 176].

This concept provides a fundamental basis for establishment of a control system based on the principle of registration of each business operator participated in the value chain of food production. This allows tracing the objects subject to control products along the entire food production chain. Accordingly, when identifying unsafe food products, it is possible to quickly trace back where a hazard appeared and forward to where such products arrived with the aim to remove them from the market as soon as possible. This approach is effectively applied in the EU, within the framework of which the independent European Food Safety Authority (EFSA) was established and the food and Rapid Alert System for Food and Feed (RASFF) was introduced.

In practice, the above mentioned two concepts can be applied simultaneously, since they complement and contribute to the achievement their goals. Moreover this promotes an establishment of cooperation between the animal and public health sectors on the one hand and of control system from between the veterinary and sanitary services on the other hand.

Thus, according to the above discussed research outcomes the following conclusions can be drawn:

Firstly, the veterinary system has a multidisciplinary nature. This includes

protection of animal health; as well as protection of human health; food safety; and protection of environment.

Secondly, the public management of veterinary system is viewed from the institutional and functional points of view. On the institutional side, the public management of this system includes all the stakeholders that are involved in the veterinary system. From the functional point of view, public management includes functions performed by the main stakeholders, in particular, their competences and relationships that affect other managed institutions of the veterinary system.

Thirdly, the close collaboration and an effective communication between public and animal health authorities is a key factor of the «One health» concept. This work is based on animal–human–ecosystems interface and represents as an efficient tool in addressing health associated risks.

Fourthly, the concept «*from Farm to Fork*» presents an integrated approach to food safety control system from livestock farming to delivering animal products to final consumers along the entire value chain of food production.

1.2 The legal framework of the public management of veterinary system of the Republic of Kazakhstan

Governance can be considered as a public good delivered by governments. In this light legislation plays a key role in the governing of state and economic sectors. Veterinary domain is not exclusion and the governance of veterinary services is prescribed in the national legislation. Therefore this subsection is aimed at analyzing the legal framework of the veterinary system of Kazakhstan. In the context of this research veterinary legislation means all laws, regulations and associated legal documents related to the veterinary domain.

It is relevant to begin with briefly description the legal system in place and then analyse its content. There is a strict hierarchy of the legal documents at the national level leaded by the Constitution of Kazakhstan adopted in 1995 [59]. Constitution has the highest juridical force. Basic regulations in all economic sectors are outlined in laws signed by the President of Kazakhstan and followed by the decrees adopted by the Government of country. With the aim of implementation of the laws and decrees there is also a set of detailed orders and decisions adopted by the central and local executive authorities and other state bodies according to their competencies.

The public management system of Kazakhstan is prescribed in a set of legal documents and regulations. There is a strict hierarchy of the national legislation [60]. This includes constitutional laws, codices, consolidated laws and laws, normative decrees of the Parliament, normative legal decrees of the President, normative legal decrees of the Government, normative legal orders of the Ministers and other heads of the state bodies, normative legal orders of the state organizations under the state bodies and then local executive bodies. Provisions of laws and other legal documents cannot conflict with the higher placed laws according to the hierarchy of national legislation. Veterinary law of Kazakhstan is a part of the legal system and it states that veterinary legislation is based on the Constitution of Kazakhstan and consists of the veterinary law and other legislation of the Republic of Kazakhstan.

The legal framework of the veterinary system of Kazakhstan has a hierarchical and complex structure and content (figure 2). The fundamental documents of the legal framework of the veterinary system are the Constitution, international agreements, national laws and codices covering issues on veterinary safety. The Constitution of Kazakhstan takes a leading place in the political and legal system of the state. It regulates the most important relations determining the economic, political and social system; the national-state and administrative-territorial structure; defines the status of individuals; and regulates activities of the state [61]. All regulatory legal documents may not contradict the Constitution and constitutional laws. Therefore, there is an article in all the laws of Kazakhstan stating that this law is based on the Constitution, this law and other regulatory documents adopted to implement the provisions of the relevant law.

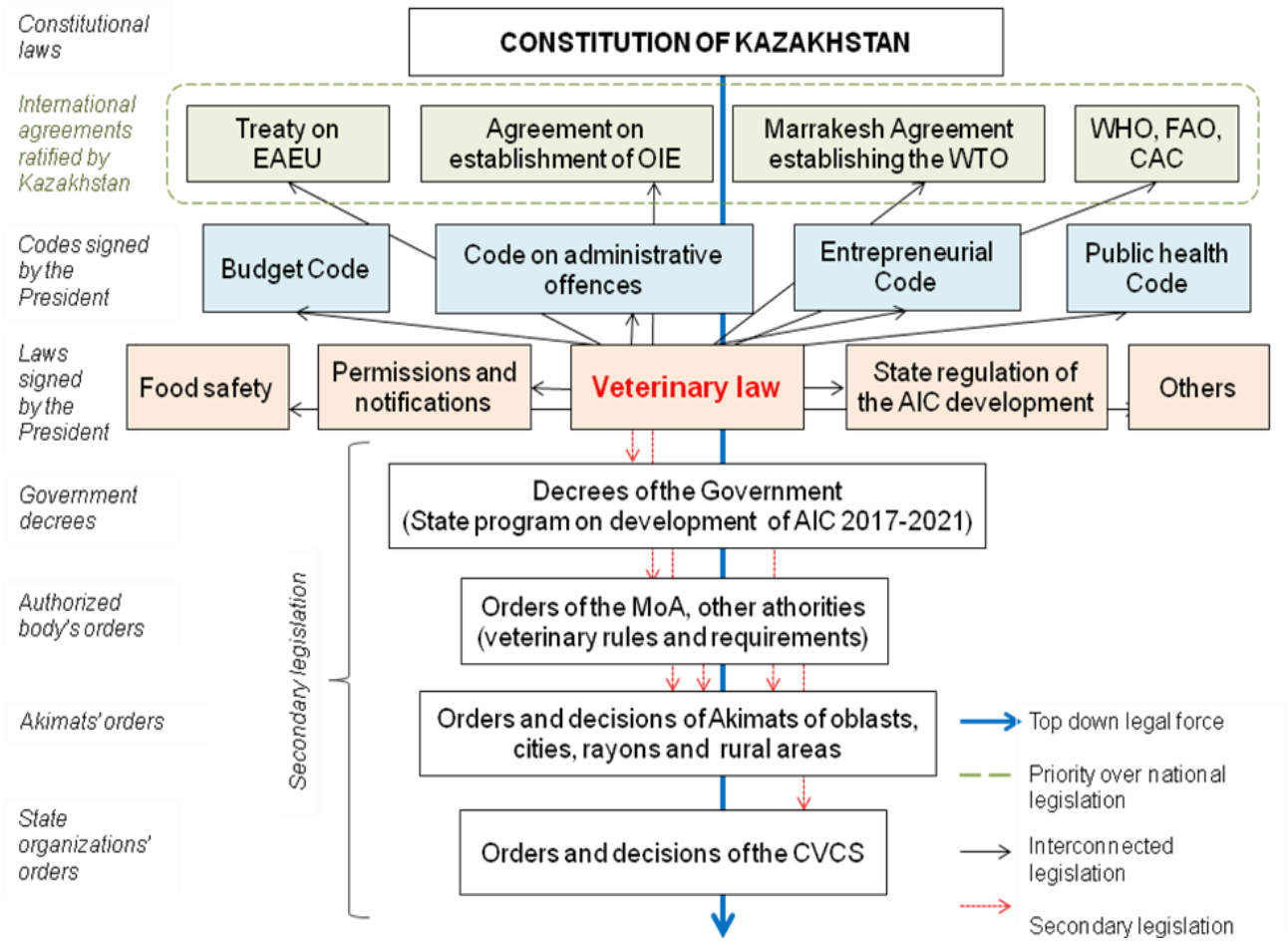

Figure 2 – The legal framework of the veterinary system of Kazakhstan

Note – Developed by the author on the basis of relevant legislation of Kazakhstan

According to the Constitution, international agreements ratified by the law of Kazakhstan take precedence over the national legislation. In other words, if the international agreements provide other rules than outlined in the veterinary legislation, then the international rules apply. Therefore international agreements

ratified by Kazakhstan are placed above the national laws and codices in the legal framework of the veterinary system in the figure 2.

There are several main multilateral international agreements concerning veterinary safety ratified by the law of Kazakhstan. The most significant ones in the scope of this research are the Agreement on establishment of the Office International des Epizooties (OIE) in Paris in 1924 [62], the Treaty on Eurasian Economic Union (EAEU) established in 2014, the Protocol on accession of the Republic of Kazakhstan to the Marrakesh Agreement on Establishing the World Trade Organization (WTO) in 1994 [63] and international agencies in the UN system (FAO, WHO, CAC). There are also bilateral international agreements signed between veterinary services of Kazakhstan and foreign countries in terms of veterinary measures applied during trade with them. These agreements are not subject to ratification due to their bilateral nature covering specific narrow issues however they are also a part of the legal framework of the veterinary system. They were not displayed in the structure of the legal framework as they were not considered within this research.

The OIE[4] is the main international organization in the domain of veterinary. This organization is responsible for improving animal health in the world. The OIE ensures transparency on animal disease situation; provides scientific information on animal diseases; encourages international solidarity in animal disease control; develops international standards and recommendations for international trade in animals and animal products; assists in strengthening veterinary services; and promotes science-based approaches to food safety and animal welfare. Kazakhstan submitted its intention to become a member of the OIE in 1993 along with Russia however the OIE agreement was ratified in 2008 (OIE). There are 182 member-countries as of the end of 2019. The OIE is one of the international standard-setting bodies officially recognized by the WTO. It means that the provisions of the OIE Terrestrial and Aquatic Animal Health Codes (hereinafter - OIE Health Codes) are recommended international standards that serve as a basis for development of national veterinary measures. Development and adoption of the OIE international standards are made by a World Assembly of Delegates forming from the member-countries designated delegates. Each country designates one delegate and usually it is a head of veterinary service of the country or sometimes its deputy. All OIE members have the equal right to participate in setting international standards. However this right is not actively used by Thus Kazakhstan in practice. For example since Kazakhstan became the WTO member in 2015 the MoA and/or CVCS has not submitted or initiated any proposals to the OIE regarding the international recommendations set out in the OIE Health Codes and in the development of guidelines. The activity of the veterinary service of Kazakhstan in the OIE work is limited only by its formal participation in the World Assembly of Delegates once a year. In this situation, the national veterinary service mostly relies on EAEU regulations that were largely developed by Russian veterinary specialists.

The EAEU[5] is a regional economic integration between the initially three

[4]https://www.oie.int/

[5]http://www.eurasiancommission.org/ru/Pages/structure.aspx

countries - the Republic of Belarus, the Republic of Kazakhstan and the Russian Federation, created by the Treaty on the EAEU in 2014 [32]. Two more countries acceded later next year: the Republic of Armenia and the Kyrgyz Republic. In 2007 at the summit the creation of Eurasian Economic Community was agreed that laid the foundation for the creation of a legal framework for the Customs Union. In 2010 the Customs Union between above mentioned countries was created with establishment of a single customs territory. Further the Common Economic Space was formed in 2012 between the same three states along with establishment of Eurasian Economic Commission. Deeper integration was resulted in signing of the Treaty on Eurasian Economic Union in Astana that entered into force on 1 January 2015. The headquarter of the EEC is located in Moscow (Russia).The EAEU provides the freedom of movement of goods, services, capital and labor, and implements a coordinated, agreed or single policy in certain economic sectors determined by the Treaty or international agreements within the Treaty. Application of veterinary measures along with sanitary and phytosanitary measures are also included into the integration area where the agreed policy is implemented. It includes the common development, adoption and implementation by member-states of the EEC veterinary regulations. There is a set of regulations on application of veterinary measures in the EAEU territory. The principal of them are followings:

– common list of goods subject to veterinary control;

– common veterinary requirements to goods subject to veterinary control;

– common forms of veterinary certificates;

– common veterinary requirements for enterprises subject to veterinary control;

– regulation on common procedures for conducting joint inspections of enterprises and sampling of goods (products) subject to veterinary control;

– regulation on common procedures of the veterinary control at the customs border of the EAEU and on the customs territory;

– technical regulations on meat food products, milk, fish and their products.

All EAEU regulations in veterinary are compulsory for implementation in Kazakhstan and applied directly without incorporation into the national legislation. They all regulate the movement of goods subject to veterinary control within the EAEU territory (between member-states) and in trade with third (foreign) countries.

There are sometimes different and contradict norms and requirements at the national and international levels. For example, some terms and articles prescribed in the Rules for interaction between the EAEU countries in prevention, diagnosis, localization and eradication of infectious animal diseases, adopted by the EEC Council decision on 10.11.2017, №79, do not correspond to the definitions and provisions contained in the veterinary legislation. There are several reasons for that. Firstly, the development of the EAEU regulations and amendments to the national veterinary legislation are not consequent procedures. Secondly, two departments are responsible for the development of these regulations: DVFS – for national legislation, CVCS – for the regulation of the EAEU. Thirdly, apparently the most important, there are insufficient interaction or notification procedures between these two

departments despite both being under the MoA. Unfortunately such situation is similar to the other international regulations in veterinary, including the OIE, WTO and Codex regulations.

The WTO[6] is an international organization providing a platform to member-states for trade in goods and services. The WTO serves as a forum for trade negotiations between member-states, a place for solving the trade problems and for discussing trade agreements and rules. The WTO was established in Geneva (Switzerland) on 1 January 1995 as a result of negotiations of the Uruguay Round and General Agreement on Tariffs and Trade (GATT) in the period of 1986-1994. Today there are 164 member-states to this organization covering 98% of the world trade. Kazakhstan acceded to the WTO in late 2015 a few years later after Russia (2012). Kazakhstan began the negotiation process in 1996, and this process was accelerated after the Russia's accession to the WTO in 2012. Thus, WTO member states perceived Kazakhstan as part of a large market with Russia after creation of the EAEU territory, rather than a stand-alone small Central Asian market. This led to the longer list of commitments undertaken by Kazakhstan related to the SPS measures applied in trade in agricultural and food products (Annex A), which were set out in the Working Party Report on accession of the Republic of Kazakhstan WT/ACC/KAZ/93 [63]. This document is an integral part of the accession package of Kazakhstan, which has been ratified by the relevant Law on the Marrakesh agreement [64].

Kazakhstan as a member of the WTO is bounded by its multilateral obligations and legally has to comply with certain trade rules and implement its certain commitments in the application of veterinary measures in international trade with member-states. The trade principles and rules related to the animal health (veterinary measures) are set out in the specific WTO Agreement on the application of SPS measures[7]. The SPS agreement also applies to the sanitary (food safety) and phytosanitary measures (plant health) (figure 3). Three international organizations are recognized by the WTO under the SPS Agreement as standard-setting bodies in the above-mentioned three domains. These organizations are co-called «three sisters» and their representatives always participate in the all meetings related to the SPS measures held by the WTO SPS Committee. The principles and rules for the application of veterinary measures, as well as the obligations undertaken by Kazakhstan, within the membership to the WTO, pose certain challenges for the state veterinary service in trade. These issues are discussed in detail in the following relevant subsection.

[6]https://www.wto.org/english/thewto_e/thewto_e.htm
[7]https://www.wto.org/english/tratop_e/sps_e/spsund_e.htm

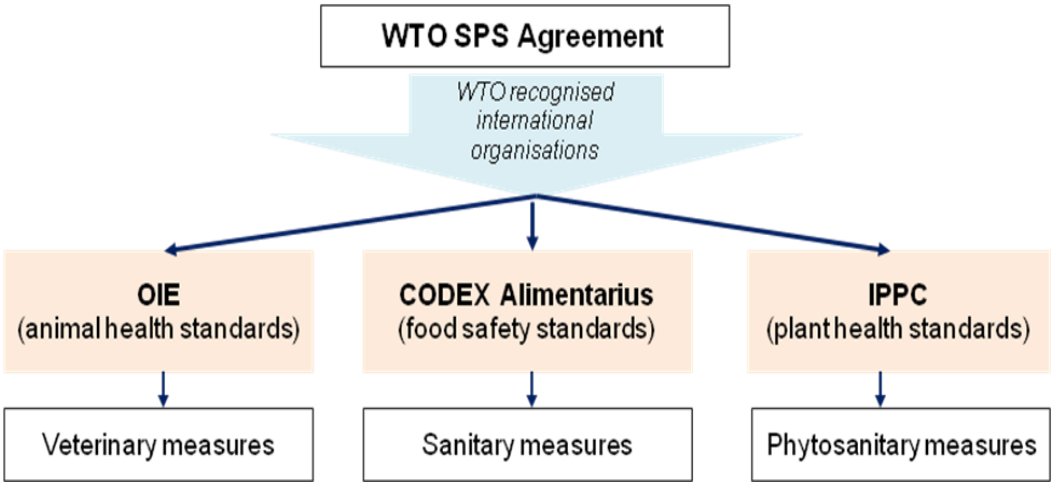

Figure 3 – International organizations under the WTO Agreement on SPS measures

Note – Developed by author based on the SPS Agreement

FAO[8] is a specialized United Nation's agency leading the fight against global hunger. It was established in 1949 during the first session of the UN. Today FAO's headquarter is located in Rome (Italy). The main objective of FAO is to ensure food security for all people in the world through regular access to high-quality food in the required quantity for a healthy and active life. Today there are 194 member-states to the UN[9], and Kazakhstan is a member since 1992. All UN member states are considered as members to all its agencies, programmes and funds in the UN system[10]. FAO has offices located in over 130 countries, including Kazakhstan (Nur-Sultan). There are numerous FAO programs and initiatives that were implemented and are ongoing, such as the World Food Forum, World Food Review, World Food Program, Conference on Food Security, Technical Assistance Programs, Agriculture Development, Conference on Nutrition and etc. In 2015 there were developed 17 Sustainable Development Goals (SDGs) by the UN with the aim to design national development by 2030 [65]. SDGs cover all sectors including social, economic and environmental aspects of sustainable development. Among these SDGs food safety as well as veterinary safety issues concern end poverty (SDG1), zero hunger (SDG2), climate change (SDG13) and sustainable natural resources (SDG15). It means that all these global objectives are around food and agriculture systems where food safety (including veterinary) is one of the essential elements. Therefore these SDGs were included in the State program of Kazakhstan on development of AIC for 2017-2021 [66].

Codex Alimentarius[11] is a joint Food Standards Program created by FAO and WHO. The latter is also a specialized agency of the UN system, created in 1948. Since 1950, a joint meeting of FAO and WHO experts began dealing with nutrition, nutritional supplements and related issues. Later, these food standardization activities

[8]http://www.fao.org/home/ru/.
[9]https://www.un.org/en/member-states/index.html.
[10]https://www.un.org/en/pdfs/un_system_chart.pdf.
[11]http://www.fao.org/fao-who-codexalimentarius/about-codex/en/.

were continued by WHO, EU and FAO. This work led to the creation of the Codex Alimentarius Commission (CAC) in 1961. A year later Codex Alimentarius was created. The CAC headquarter is located in Rome (Italy). Since then, Codex Alimentarius has developed a set of food standards for safety, quality, test methods and management in food sector. Today, the Codex Alimentarius is one of the recognized standard-setting bodies of the WTO, food standards of which are mandatory for compliance in the global food trade. The objectives of food standards and related texts are to protect health and ensure fair practice. For example, Kazakhstan has a set of commitments within the WTO membership to comply with international food standards in world trade [63]. All UN member-states have the rights to participate in development and revision of any food standards of the Codex in accordance with the established mechanism. The focal point of CAC in Kazakhstan is Committee for quality control and safety of goods and services of the MH.

All of the above mentioned international agreements, to which Kazakhstan is a member, require compliance with specific requirements and impose certain commitments when conducting trade in agricultural and food products. About these requirements and commitments in the veterinary domain are discussed in details in the following relevant subsections.

The challenge with these international regulations is they are not incorporated into the national veterinary legislation. In fact they exist as separate international regulations without any reference provisions in the corresponding national veterinary legislation. For example, OIE Health codes are published on their official website[12], WTO SPS Agreement and the Working parties report on accession of Kazakhstan to the WTO[13] are placed on their official website, while EAEU regulations are also published on the official website of the Eurasian commission[14]. It also makes it difficult to find all necessary requirements regarding, for example, a procedure or product. Despite being open to the public, these regulations are not published either in Legal Information System of normative legal documents of the Republic of Kazakhstan «Adilet» (hereinafter - database «Adilet») or on the MoA's official website.

The core of the legal framework of the veterinary system is the main law on Veterinary of Kazakhstan (figure 2). The first veterinary law in Kazakhstan was adopted by the Decree of the President of Kazakhstan having the force of law in 1995 «On Veterinary». This law set up the legal basis for the veterinary system including its structure, functions and competencies. This legislation was aimed at regulating relations in the domain of prevention and treatment of animal diseases, prevention of diseases common to animals and humans, organization of anti-epizootic measures, establishment of the legal basis for veterinary control, as well as for activities of the state bodies, veterinary organizations and private veterinarians. In terms of ongoing economic reforms in the country at the end of the twentieth century, this veterinary

[12]https://www.oie.int/en/standard-setting/terrestrial-code/access-online/
[13]https://www.wto.org/english/thewto_e/countries_e/kazakhstan_e.htm
[14]http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Pages/default.aspx

law could not adequately deal with challenges. Firstly, the law was developed in terms of the strict state of control rather than making favourable conditions for the development of veterinary activities. In other words the law had an imperative form and focused on only regulating the limited areas of veterinary activities aimed at prevention and treatment of animal diseases while development private veterinary entrepreneurship, livestock development and export capacity were left out of the attention. Secondly, there were introduced various reforms that affected the veterinary legislation that resulted in emerging new areas for state regulation in the veterinary domain [67]. For example, identification of animals, system of permits and licensing in veterinary, list of objects subject to veterinary control, veterinary documents, etc. Thirdly, the law was developed without taking into account the positive international experience and recommendations of relevant international recommendations. By that time Kazakhstan paid a great attention to becoming a part of a global world and integration to the international organisations. Consequently, this law was subsequently repealed in connection with the adoption of a new veterinary law in 2002 [18].

Today the current Veterinary law adopted in 2002 is the basic legislation in this domain. The law defines legal, organizational and economic basis for the implementation of activities in the veterinary domain and is aimed at ensuring veterinary-sanitary safety. The veterinary law consists of 6 chapters and 37 articles including definitions of terms used in the veterinary legislation. Since 2004, the Veterinary law has been annually introduced numerous updates and amendments in connection with the ongoing reforms and changes in public administration, the economy and the budget system. By 2020, the law has been amended more than fifty times. For example, amendments to the veterinary law of the Russian Federation were introduced around twenty times, which are 2.5 times less than in Kazakhstan.

The veterinary system in the main legislation is considered only from institutional perspectives. It the Government of Kazakhstan, veterinary authority (MoA and CVCS), veterinary units of the state bodies, working in the veterinary domain, state veterinary organizations under the state bodies, individuals and legal enterprises. However, as it was identified in the previous subsection there were missed other various institutions and stakeholders participating in the veterinary system as well as in the value chain of animal production. For example, academic institutions, educational organizations, scientific community, quasi-state bodies, NGO, foreign veterinary services, regional and international organizations.

It seems there is a lack of understanding what is the public policy in the veterinary domain? The veterinary legislation lists the main tasks (article 3) and directions of public policy (article 4) in the veterinary domain however it seems they are mixed (table 1). In fact they both outline almost the same things, and it is unclear the course of public policy in this domain. The public policy is mainly focused on a few certain veterinary measures rather than on scope or directions of the veterinary policy.

Table 1 – The main tasks and courses of public policy according to the Veterinary law of Kazakhstan

Main tasks	State policy courses
– protection of animals from diseases and their treatment	– ensure the independence of the state veterinary-sanitary control
– protection of public health from diseases common for animals and humans	*– ensure interconnection of the state authorities in application of the veterinary measures*
– ensure veterinary-sanitary safety	– implementation of the state veterinary-sanitary control during production, storage and distribution of the movable (transportable) objects
– protection of the country's territory from introduction and spread of contagious and exotic animal diseases from other states	*– protection of the territory of the Republic of Kazakhstan from the introduction and spread of contagious and exotic animal diseases from other states*
– safety and quality control of veterinary drugs, feed and feed additives	– achievement of a higher level of veterinary measures than provided by the international recommendations if they are scientifically justified
– development and use of diagnostic, against animal diseases and veterinary-sanitary safety tools and methods	– prevention of unjustified restrictions in application of the veterinary measures during distribution of the transferable (transportable) objects
– prevention and elimination of environmental pollution during the implementation of activities by individuals and legal entities in the veterinary domain	– reimbursement of the value of taken away and destroyed sick animals, contaminated and disinfected products and raw materials of animal origin that pose a risk to animal and human health
– development of veterinary science, education and training of veterinary specialists	*– development of veterinary (veterinary-sanitary) rules, norms and veterinary normative on a scientific basis taking into account an objective assessment of the epizootical (epidemiological) situation and international standards in the veterinary domain*
Note – compiled from the Veterinary law of Kazakhstan [18]	

The Veterinary law lists a set of competence and responsibilities of the main regulators in the veterinary domain. They are the authorized body, other state bodies, including local executive authorities (Akimats) of oblasts, cities and rayons, state veterinary organizations and private sectors' obligations. All state veterinary organizations including the authorized body shall act within the competencies listed in the law and cannot carry out the functions that are not in the law unless they are listed in the other secondary regulations. The law also indicates the types of the entrepreneurial activities in veterinary, and provides requirements to the notifications of certain veterinary activities done by the individuals and legal entities.

The state veterinary control and surveillance measures are also prescribed in the Veterinary law. The veterinary control and surveillance are concentrated in the hands of the state, therefore only the state veterinary inspectors of the CVCS carry out all the types of control measures in this domain. There are articles specifying in

details the process of the state control, its objects, competence, rights and independence of the state veterinary inspectors.

With regard to animal disease prevention measures the law provides obligations of individuals and legal entities carrying out veterinary activities. There are also briefly described veterinary measures related to the infected areas, animal identification, republican reserve of veterinary drugs, development of veterinary science, social support of veterinary specialists in rural areas, and funding of veterinary measures.

However there are certain gaps in the veterinary legislation of Kazakhstan. According to the OIE recommendations veterinary service should be transparent, independence and integrated [19]. However the veterinary law of Kazakhstan does not contain such provisions. For example, there is no transparency mechanism that allows an inventory of veterinary legislation to be easily accessible and understood.

Moreover, there veterinary legislation has no provisions on health provisions related to animal production, animal reproduction and animal feed, animal welfare, control of antimicrobial and biological products, antimicrobial resistance in livestock and food products and responsibilities of business operators along the food production chain. For example, animal welfare should include provisions on cruel and neglect attitudes toward animals, stray dogs and abandoned animals, and the obligations of owners. As for veterinary drugs and biological products, it is limited only by the provision on registration of veterinary drugs.

A little attention is paid to the quality of veterinary drugs and raw materials. There are almost no provisions on the withdrawal periods and maximum levels of residues for veterinary drugs and biological products, no requirements to substances in veterinary drugs that might interfere with laboratory test results, and no rules for transparency in decision-making. Regarding the food production chain there are two state bodies are responsible for the control measures during production, processing, storage, transportation and distribution processes. They are CVCS under the MoA and CQCS under the MH. Both authorities have overlapping areas and gaps in the control measures along the value chain of food production.

In the hierarchy of the legal framework of Kazakhstan, Codes are placed above the laws as they have a higher legal force than laws [60]. For example, if there are inconsistent (conflicting) provisions in the Code and Law, then provision of the Code are prevail, while the provision of the Law should be amended in accordance with the relevant Code. This is positive side, however sometimes the provisions in the Codes do not take into account the provisions of the main veterinary legislation due to burdensome procedures of adoption of amendments to the legislation.

There are around 14 Codes of Kazakhstan on regulation of specific areas as public health, land, water resources, forestry, environment protection, civil rights, customs, taxation system, labour force, budget, entrepreneurial development, administrative and crime offences. All of these Codes contain provisions related to veterinary activities where they affect (or relate to) their main area of regulation.

Budget Code of the Republic of Kazakhstan regulates budgetary, intergovernmental relations, establishes the main provisions, principles, mechanisms

of the functioning of the budget system, the formation and use of budget, as well as the National Fund of Kazakhstan [68]. The Government of Kazakhstan pays a great attention on budget administration as it influences on public management in all economic sectors. For example, there are central and local (oblast, city, rayon) budgets that serve to finance various veterinary activities, where the administrators of the corresponding budget are responsible for planning and utilizing financial resources within the financial year.

The Code of administrative offenses contains provisions on administrative offenses in all sectors of economy [69]. The Code prescribes certain types of administrative offenses in the veterinary domain and accordingly the types of administrative liability. Both officials and business entities are responsible for fulfilling their duties and meeting the certain requirements in the course of their work.

The Code one entrepreneurship defines the legal, economic and social conditions ensuring freedom of entrepreneurship in Kazakhstan, and regulates the relationship between the business entities and state [70]. This Code prescribes the common approaches and processes of the state control and surveillance carried out by relevant authorities. For example, the Code outlines 116 areas of entrepreneurial activities where the state control and surveillance are carried out. The veterinary domain is also included into the state control and surveillance areas. The Code does take into account the nature and objectives of the area where the state control is applied. The Criminal Code of Kazakhstan has the only articles on responsibilities in case of breaking the veterinary legislation [71].

The Public health code almost does not contain any direct provisions related to veterinary measures [31]. There are also secondary regulations adopted by the MH and MoA regarding the sanitary-epidemiological requirements to the prevention measures of diseases common for humans and animals.

The legal framework of the veterinary system of Kazakhstan includes also horizontal legislation (figure 1). There are a number of laws regulating other social and economic spheres of the country that affect veterinary activities. For example, there are laws on development of the AIC, animal breeding, food safety, a licensing system, etc. The most important laws that contain rules and requirements to the veterinary activities are followings: State regulation on development of the Agro-industrial complex development (2005), Food safety law (2007), the law on permissions and notifications (2014) and others.

The law on the state regulation of the AIC and rural territories development regulates a wide range of issues regarding the agriculture [72]. The objectives of the law are development of social and engineering infrastructure of rural areas; ensure of food security of the country; ensure of sustainable economic and social development of the AIC and rural areas; and development of economic conditions for competitive agricultural production.

The Food safety law was adopted with the aim to define the boundaries of the competencies of three authorized bodies which are responsible along the value chain of food production [73]. They are MoA is for veterinary-sanitary safety, MH is for

sanitary-epidemiological safety and MTI is for quality of food products (technical regulation and standards).

Decrees' of the Government of Kazakhstan are located at the next level after the Laws of Kazakhstan according to their legal hierarchy (figure 1). This type of legal documents aimed at implementing the provisions of laws and codes, as well as at adopting of the state programs. Currently the main document is the State program for development of AIC for 2017-2021 updated in 2018 that covers the veterinary measures along with other issues in agriculture [66]. In accordance with this program it is expected to achieve by 2021 such indicators as increases in the labour productivity index in agriculture by more than two and half times, in the physical volume of GDP in agriculture by almost two times, and in the physical volume of investments in basic assets in agriculture by five times and in food production by more than two times. In addition, it is expected that the volume of food imports will decrease by 20%, while the volume of exports of processed agricultural products will increase by two and half times.

The program determines several weaknesses of the AIC including veterinary, phytosanitary and food safety. There was noted a poor interaction between the authorized bodies in the domain of veterinary, phytosanitary, technical regulation, sanitary-epidemiological welfare, and customs authorities in exchange information on products that do not meet the requirements. There are also highlighted the problems associated with the veterinary system, such as a lack of an effective system of the veterinary control and surveillance of animal welfare, veterinary drugs and feed; absence of a clear delineation of functions and competencies between the authorized body and the local executive bodies; insufficient veterinary control on compliance with veterinary legislation at the local level, including the movement of objects subject to control; weak development of domestic production of vaccines; challenges related to the certification of private veterinary specialists; and problems with emerging and new animal diseases registered for the first time in the country.

The program also contains a number of general measures for further implementation in order to achieve the planned indicators. For example, the program states that measures will be taken to strengthen the effectiveness of veterinary control, taking into account the recommendations of international standards of the WTO, OIE and EAEU. Namely, the implementation of diagnostic and preventive measures against animal diseases, of animal identification measures, of measures on risk management taking into account zoning of the country, harmonization of veterinary legislation with international recommendations and standards, and, the introduction of information systems for monitoring from the "farm to table" and others. However, all the measures mentioned in the program are currently and already being implemented, and unfortunately the program does not specify the concrete measures and mechanisms on how these challenges will be addressed to achieve the planned indicators. In general the program primarily aimed at developing of the livestock production for the export purposes and a little attention is given for strengthening the food safety system that includes veterinary measures.

The largest amount of veterinary measures and requirements is prescribed in

the secondary legislation adopted by the MoA. There are more than sixty decrees adopted by the MoA and published in the database «Adilet»[15]. They are detailed veterinary requirements, rules, orders and procedures, including the veterinary control and surveillance measures. In addition, there is also secondary legislation adopted by other state bodies that cover veterinary safety issues within the other laws.

There is burdensome and long process of development and adoption of legislation. According to the Law on legal documents, adoption of a normative legal document by authorized body is allowed only in case if it is directly provided in the relevant law [60]. Therefore all secondary legislation in the veterinary domain is written in the Veterinary law. If there is a need to adopt a new regulation in veterinary by MoA's decision, then the name of this rule should be clearly indicated in veterinary law. Otherwise, the Veterinary Law must first be amended and then the necessary rules adopted. Development and adoption of law normally takes on from one to two years. For example, last amendments to the Veterinary law adopted in October 2019 were initiated in late 2017.

There is a lack of systematised structure of the veterinary legislation coupled with absence of transparency. For example, there are difficulties in finding the right rule or all the requirements associated with one product or procedure. Unfortunately, the only one electronic database for veterinary legislation, as well as for all national regulations, is the database «Adilet». The search of certain regulation may take a long time or end up with fail. Despite having the official website of the MoA, there is not even published veterinary legislation in full. For example, on the official website of Rosselkhoznadzor[16] of Russian Federation has a section for normative legal documents that is categorized by themes, types of documents and adopted authority bodies. It is very convenient and easy to find and access the relevant legislation for interested stakeholders.

Based on the analysis of the regulatory framework of the veterinary system of Kazakhstan, the following conclusions can be drawn:

Firstly, the legal framework of the veterinary system has a complex multilayered structure and interdisciplinary nature. There is a lack of references in national veterinary legislation to the international regulations.

Secondly, there are some inconsistent provisions between national and international regulations. In particular, the EAEU regulatory documents contain provisions that are inconsistent with national legislation in the veterinary domain.

Thirdly, there are several gaps in the national veterinary legislation in terms of comply with international standards and recommendations. As a member of the WTO under the SPS Agreement, Kazakhstan has a commitment to harmonise with OIE recommendations.

Fourthly, the veterinary legislation of Kazakhstan has not a systematized and transparent interface. Veterinary legislation is published only in the Adilet database and not presented on the official website of the authorized body.

[15]http://adilet.zan.kz/rus/index/docs
[16]http://www.fsvps.ru/fsvps/laws

1.3 International experience of the public management of veterinary system

As the international experience of the public management of the veterinary system it was chosen the food safety control system of the EU. The main reason is the EU food safety control system is one of the best foreign practices in building and functioning of the public management in this area. Moreover, the EU food safety control and supervision system is based on the concept of «*from Farm to Table*» [74]. Moreover, this concept has been introduced at supranational and national levels. Therefore, the experience of the EU is of practical interest for Kazakhstan particularly being is a member of the EAEU.

The main goal of the economic integration of the EAEU, as in the EU, is to create a single market for free movements of goods and services, as well as capital and labour between the EAEU member countries [32; 75]. In the field of application of sanitary, veterinary-sanitary and quarantine phytosanitary measures (SPS measures) there is an agreed policy carried out at the EAEU level. Joint development, approval and implementation of regulation are in force throughout the EAEU region.

The development and adoption of veterinary regulations in Kazakhstan are carried out by EAEU and national level. The EEC is not yet recognised as a supranational body as it is a lack of independence in making decision process [76]. Today this organisation has an intergovernmental form [77]. However, there are plans to deepen the economic integration in the EAEU in future including the application of veterinary measures. Today, there have been done some activities for delegation of certain competencies from country level to the EAEU [32].

In thin context the EU's experience considers as the main benchmark for further economic integration of EAEU. Therefore, consideration of the EU experience in terms of compliance of the food safety management system with international standards also presents interest to Kazakhstan.

1.3.1 EU veterinary and food safety system

Food safety control and supervision system in the EU is clearly divided between two levels in accordance with relevant legislation. In particular the food safety strategy is developed and enforced at the supranational level, while control over the food safety through the whole European market is carried out at the country level. At the same time, the main competence at the supranational level are concentrated on the legislative support of the food safety control system, and on the monitoring and supervision of compliance with EU legislation by national authorized bodies of the EU member states, as well as foreign countries, upon receipt of such a request. The national authorized bodies of the EU member states in the field of food safety are responsible for the circulation of food products produced in these countries, including the circulation of such products within the country and between EU member states, as well as at the border control points.

The veterinary system is an integral part of the EU food safety control system. Therefore, in this part of the study, the object of analysis is the EU food safety and

control system, which includes the protection of animal and plant health, designed to ensure veterinary and phytosanitary safety [78, 79].

Veterinary measures are also a part of the SPS measures. These are measures aimed at ensuring the health of animals (veterinary measures) and plants (phytosanitary and quarantine measures), and food safety (sanitary, veterinary-sanitary measures). SPS measures are all legislative and regulatory legal acts in the field of veterinary medicine, phytosanitary and sanitation, including all decrees, rules, requirements and procedures for the control and supervision, laboratory tests, certification and processing of food products related to its procurement, production, processing, transportation, storage, packaging and labelling, as well as methods for sampling and assessing food safety risks [80].

The system of control and supervision of animal health and food safety is a key factor in the functioning of the single EU market. The main component of the control and supervision system is the application of SPS measures. Moreover, the effective application of SPS measures ensures the free movement of products in the EU, which in turn is the basis for ensuring food security in the EU countries [78, c. 41]. Therefore, food safety in the EU is the foundation on which the free movement of products is ensured.

In order to conduct a structured analysis of the EU food safety system, including veterinary safety, the EU experience is presented in three aspects: legislative support, institutional composition and the basic principles of the system of control and supervision of food safety and animal health. At the supranational level in the EU, the fundamental food legislation is Regulation of the European Parliament and of the European Council No 178 of 2002 [81]. This law prescribes general principles and requirements for food products. This law also established the European Food Safety Authority (EFSA) and provides for procedures related to food safety.

The law covers all stages of the food chain, including feed production, primary production, processing, storage, transportation and marketing of food products. This law is the basis of legislation on food and feed, which establishes universal and consistent criteria for the development of legislation on food and feed at the supranational and national levels [82]. This law applies both to the control of food products and animal feed. To this end, the law sets out general principles, requirements and procedures on the basis of which management decisions are made on the safety of food and feed at all stages of production and distribution.

According to the basic law, the food and feed safety control system in the EU is based on the *«from farm to fork»* concept, which is designed to provide control over the entire agro-food chain (figure 4). This includes food safety controls at all stages of the production chain [81]. This chain can be divided into three key blocks. The first block focuses on farms where animals and plants are grown, and checks are carried out by the national authorities of the EU member states. Such checks include not only control of animal and plant diseases, but also the welfare of animals, the use of hormones and other protective agents, such as antibacterial agents and pesticides. In the case of food products at the farm level, chemical residues, microbiological

standards, storage conditions, general hygiene practices, labeling and deceptive practices are also monitored.

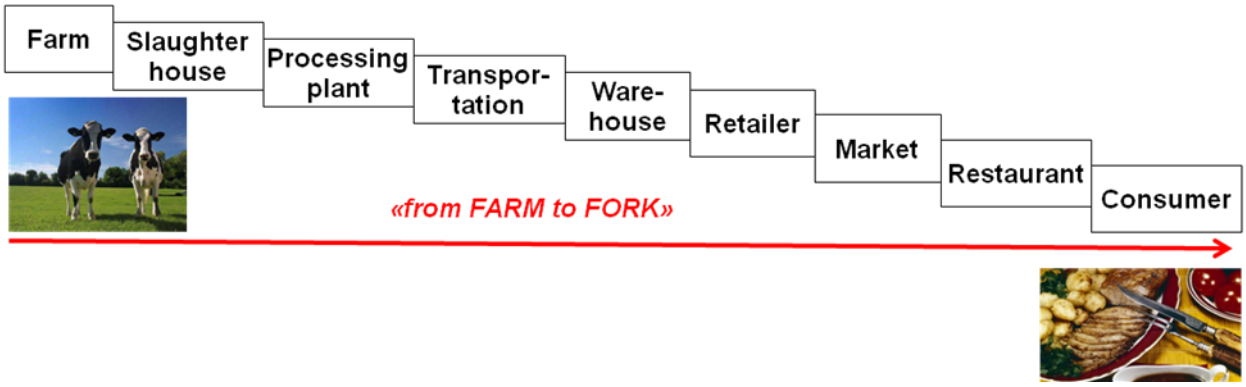

Figure 4 – Food safety control system along the food production chain

Note – Developed by the author based on the concept "from Farm to Table"

Food safety policy focuses on four main areas: food hygiene, animal health, plant health, and residues of harmful substances. Protection of animal health includes veterinary measures and pet control, control and monitoring of diseases of farm and wild animals, the traceability of the movement of all farm animals, and animal welfare. Food hygiene includes monitoring the activities of food producers from farms to restaurants, in terms of compliance with food laws, including animal feed. Control of residues of harmful substances includes monitoring residues of contaminants in food products and feed, the level of which should not exceed the established limits according to relevant EU regulation.

The main veterinary law establishes definitions of relevant terms that indicate the extension of the law to specific types of products. For example, 'food' (or 'foodstuff') means any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans. 'Food' includes drink, chewing gum and any substance, including water, intentionally incorporated into the food during its manufacture, preparation or treatment [81]. Food ingredients are also included in the concept of food products, which are also subject to the provisions of the basic law. However, significant differences in EU law exist in the provisions on labeling of food products and food ingredients [83].

Animal feeds are also subject to the EU basic food safety law. This approach is based on the consideration of feeds as necessary substances for growing animals from which food products for human consumption are produced [81; 82, p. 320]. Accordingly, in the food chain of animal feed are considered as primary products necessary for animal life. The inclusion of animal feed in the basic law was a logical decision as a result of a number of food incidents that occurred in some EU countries. The most controversial incident was an outbreak of cow rabies (spongiform encephalopathy - BSE) in the UK in the early 1990s [84].

The main law sets out general objectives that are prioritised in ensuring food safety. The main objectives are to ensure a high level of protection of human life and

health, and to protect the interests of consumers. The following objectives come out from this, such as adhering to good trading practices and taking into account the protection of animal, plant health and the environment, where necessary [75]. Such statement of objectives indicates the priority of protecting human life and health, which is reinforced by another goal of protecting animal and plant health. That is, this formulation is also based on the concept of «*from farm to table*», where all these goals are common throughout the food chain and lead to a single goal - human health. Other objectives of the fundamental law are to ensure the free movement of food and feed in the EU and to facilitate the trade in safe food and feed. This ensures the production of food and feed in accordance with the general principles and requirements of the basic law. It also contributes to the development of global trade through the application of international standards and agreements in the development of EU legislation.

EU food law includes responsibilities, competencies and requirements for the three main players. These are government agencies, business representatives and consumers. Figure 5 illustrates the structure of the food law, in terms of the requirements, powers and interests of all participants. They can be indicated by with the abbreviation «ABC» - Authority, Business and Consumers [82, p. 310].

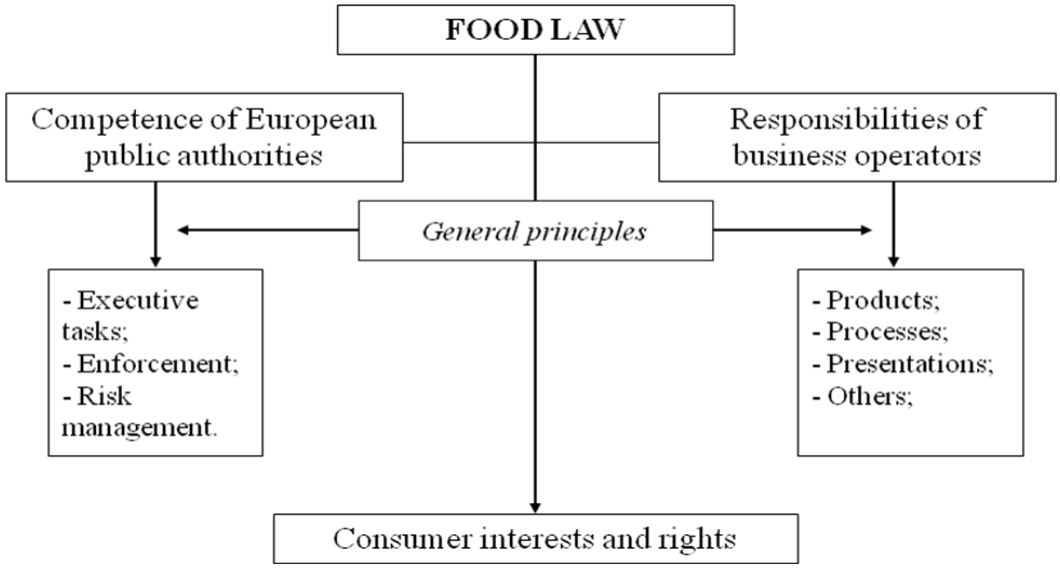

Figure 5 – The structure of the EU Food Law

Note – Compiled from the source [83, p. 72]

EU authorities at the supranational and national levels have the power to conduct risk assessments, inspections, sanctions and risk management. Representatives of the business are required by the food law in terms of food products, processes and related procedures, such as labeling, communication risk and materials in contact with food. Consumers are end users of food products, the interests of which are directed by food law. The law does not set forth the rights of consumers, but they are regulated by another general law, within the framework of which their rights are protected [82, p. 336].

Since the main objective of the EU food law is to protect the health, life and other interests of consumers, the activities of government bodies and businesses are also aimed at achieving these goals. The main requirements for food products are presented to businesses that are fully responsible for the safety of food products at all stages of the food chain. The responsibility of state authorities at the supranational level and in the EU countries is secondary to business. Therefore, their activities are more focused on ensuring compliance of business activities with the requirements and standards established by food law.

From an institutional point of view, the main state bodies at the EU level are the European Commission (EC), the European Council and the European Parliament. The EU represents 27 EU member states (excluding the UK), the EP represents the people of the EU. Both bodies have the right to adopt various laws, regulations and EU directives. For example, the basic food law is approved by a decision of both bodies. The EC is a supranational executive body that is the administrator of EU legislation.

The authorized body in the field of food safety in the EC is the General Directorate of Health and Food Safety (DG SANTE). Until 2014, this body was responsible for food safety and consumer protection (DG SANCO). Later, public health issues were included in the competence of the management, in connection with which it was renamed. Therefore, today DG SANTE oversees two areas: public health and food safety. Public health issues are limited by the main current issues, which the EU has identified as priority areas (Division B - the healthcare system and medical devices, and Division C - public health and crisis management).

In terms of food safety, DG SANTE is responsible for developing food safety policies and monitoring the implementation of relevant legislation. The head office is located in Brussels, Belgium. Food safety issues are divided between the four divisions D, E, F and G. Division F (Directorate for health and food audits) plays a key role in implementing the farm-to-table concept. In particular, it audits control and supervision systems in EU member states and foreign control systems in importing countries in order to assess their competence for compliance with EU standards and requirements [83, p. 80].

An audit is carried out in the following areas: food safety, feed safety, food quality, animal health and well-being, and since 2013 medical equipment and active pharmaceutical ingredients have been included [85]. The audit includes verification at all stages of the food chain: from animal rearing, feeding and veterinary services, slaughter, sanitary assessment of raw materials, procurement, production process, processing, packaging, labelling, storage, transportation and to the sale of food products.

Publication of audit results ensures public availability. Based on the audit, recommendations are given to the competent authorities of the countries in order to solve the identified problems and strengthen weaknesses in their competence. Moreover, it can conduct follow-up checks to assess the implementation of recommendations and the application of corrective measures. As part of their activities, they contribute to the development of policies and the management of the

overall activities of the EC. The audit of the EU member states is carried out in accordance with the annually approved Work Plan, which is published on the EC website. Foreign countries that wish to export food products to the EU should formally submit an application for an audit indicating the specific list of food products planned for export.

The EU has a deep level of economic integration between the EU member states. This supports with the evidence that the competence of providing audits of the food safety control and surveillance system was delegated by EU member states to the EU level. In this case DG SANTE in particular Division F plays a key role in ensuring the safe functioning of a single food market [86]. This integration was achieved by keeping the balance of interests between the EU member countries. Therefore an important role of economic and political integration is to keep the adequate balance in order to ensure equal observance of the all members' interests. The cornerstone of creating a single food market in the EU is food safety. EAEU strives to develop the similar integration however there is imbalance of interests between its member countries [87] that largely depend on the size of their financial contributions.

Current EU food safety system is centralized particularly in terms of imports of food products placed in the EU market. It is suggested that decentralized food safety system has challenges faced in the way of prevention food incidents; therefore centralization food safety system in the EU is a matter of future [88].

The fundamental principles of the EU food law are risk analysis, traceability, precautionary and transparency. Almost all EU food regulations and food safety measures of the DG SANTE are built on these principles. The application of the above principles is carried out by various methods and tools, as well as in the adoption of strategic and managerial decisions within the EU. These principles are also binding on EU member states.

The principle of risk analysis in food and feed is implemented through the use of various tools and methods. In particular, risk analysis includes three elements: risk assessment, risk management and risk communication. According to the main law, risk assessment (scientific support) and risk management (policy) should be separate in order to avoid conflicts of interest.

Risk assessment is carried out through a mechanism of scientific and technical assessment. In order to implement this mechanism, the independent EFSA[17] was established in 2002 by the main food law of the EU. The EFSA provides scientific advice through risk assessment and the presentation of its results for further risk management decision making.

Risk management is carried out by the European Parliament and European Council and at the national level by the authorized bodies of the EU member states. It is a decision-making process by weighing alternatives based on the results of a risk assessment. The purpose of risk management is to prevent, eliminate or reduce risks. Also, when making decisions, it is necessary to take into account a number of other

[17]http://www.efsa.europa.eu/

factors, such as socio-economic consequences, environmental impact, the ability to control risk and other ways to reduce risk including information related to risks.

Risk communication is also carried out by EFSA through various mechanisms and sources of obtaining information. Risk communication involves risk communication, which is carried out through the exchange of information and opinions in the process of risk analysis between experts, relevant managers and consumers, representatives of business, the academic environment and other interested parties.

Governance of the EFSA is carried out by the management board that ensures independence. According to the Regulation 178/2002 the board has the mandate to work in public interests in a broad range of expertise related to the food chain. It consists of fifteen members four of which have relevant working experience in organisations that represent consumers and other interests in the food chain [81]. There are also EC representatives. The EC calls for expressions of interests for members of the management board. Then after short-listing the interested candidates the European Council appoints the members in consultation with the EP.

Being one of the prominent promoters at global level the EFSA develops a broad range of publications. There are various guidelines, reports and other supporting materials published on their official website. For example, EFSA Guidance on Application of systematic review methodology to food and feed safety assessments to support decision making is used by food safety authorities of the EU member-states [89]. There are also national institutes of the EU member-states that collaborate with EFSA [90].

EFSA also has a wide range of risk communication channels that ensure proper data collection and effective communication with different stakeholders. It recognizes that data is valuable for scientific advice and risk assessment. The data collected from various sources such as the EU member-states, the EC, research and industry. Another source is data collected from information systems developed by the EC: TRACES и RASFF. These systems are mainly designated for implementation of traceability and risk analyses principles.

TRAde Control and Expert System (TRACES) is an online management tool for internal trade in the EU including imported food, feed, plant, live animals and other non-edible animal products. This tool was initially developed as an integrated computerised veterinary system in 2003 [91] and introduced as TRACES in 2004 [92]. This decision was made after the outbreak of African swine fever in Europe in late 1990s and early 2000s [93, 94].

Rapid Alert System for Food and Feed (RASFF) is an online tool for ensuring stable exchange of information on risks to public health throughout the entire food chain «from farm to table». This system was introduced in 1979 with the aim ещ manage incidences and emergencies in food production. According to the RASSF Annual Report in 2018 there were received around 3700 notifications of which 1118 were alerts harmful effects of food and feed to EU consumers [95]. This enabled to recall unsafe food products from the EU market.

There are two RASSF portals accessible to public. First is RASSF portal[18] is an online database with interactive search functions that presents summary and detailed information on RASFF past and recent notifications. Second is RASFF consumer's portal[19] that is available since 2014 and provides information by countries on recalls and warnings related to public health. These portals ensure open access to all involved parties into the food chain including all businesses, authorities and consumers.

The precautionary principle applies to specific situations. For example, when there is no scientific justification regarding the level of health risk, or in case of insufficient information to conduct a full risk assessment. In such cases, management decisions or other measures are taken on the basis of the precautionary principle until sufficient information or scientific justification has been collected to conduct a full risk assessment.

A striking example of this situation is the global pandemic COVID-2019, when a number of countries established quarantine in a number of cities, closed crowded places, closed borders and stopped the movement of not only people, but also goods [96], including the EU. However, this principle should be applied along with the principles of non-discrimination, proportionality and temporality. Similar principles are prescribed by the SPS agreement [80].

The implementation of the principle of transparency is ensured by publication on the official website of the EC. This means open and public access to legislation, reports and all other materials of the EC. For example, all acts of the EU food law in a systematic form are posted on the online database EUR-lex[20]. Another example is the publication of all reports on audits of food safety control and surveillance systems on the EC official website[21]. This approach ensures the openness and accessibility of audit results and audits to the public.

1.3.2 A case study at country level: Lithuanian experience

The EU respects sovereignty of the Member-states along with institutional The EU member-states retain their sovereign rights and institutional autonomy at country level. Therefore the member-states are free in organisation of the national system of food safety control and surveillance. However they are responsible for enforcement of the provisions of the EU Food law. There might be different national authorities sharing the responsibilities along the food production chain. In the majority cases they are ministry of agriculture and ministry of public health. In some EU member-states there was established a single national competent authority responsible for food safety.

In order to analyse the implementation of the EU Food legislation at the country level, a case study was conducted. For this purpose Lithuanian experience was chosen based on two criteria. Firstly, Lithuania is a post Soviet country.

[18]https://webgate.ec.europa.eu/rasff-window/portal/?event=SearchForm&cleanSearch=1.

[19]https://webgate.ec.europa.eu/rasff-window/consumers/.

[20]https://eur-lex.europa.eu/summary/chapter/food_safety.html?root_default=SUM_1_CODED%3D30 &locale=en.

[21]https://ec.europa.eu/food/audits-analysis/audit_reports/index.cfm.

Secondly, the country has adapted the EU food safety control system that includes establishment of a single authority that is responsible for the entire food chain, including veterinary safety.

Lithuania is located in the south-eastern part of the Baltic Sea. The country shares its border with Latvia, Belarus, Poland and Kaliningrad oblast that is Russia's exclave. The country declared its independence in March, 1990 from the Soviet Union. The constitution was adopted in 1992 through the referendum. Lithuania is a full legitimate member of the EU since 2004 and joined to Schengen Agreement in 2007. The official language is Lithuanian however English language is used for communication within the EU. The country is relatively small in terms of territory (65.2 thousand km^2) and human population (around 2.8 million as of 2019).

Lithuania presents one of the best international practices on adoption of the concept and principles of food safety control system from the perspectives of legal framework and institutional infrastructure. According to the World Bank classification the country was ranked in the high-income group (Kazakhstan is an upper middle income country) and took 39th place (Kazakhstan took 55th) in the Global Competitiveness Index 4.0 in 2019 [97].

Lithuanian State Food and Veterinary Service[22] (LFVS) is a single competent authority with general responsibilities in food and feed safety, including animal health and animal welfare. It is directly accountable to the Government of the Republic of Lithuania. This authority was established in 2000 by reorganizing three state agencies: the State veterinary service under the Ministry of agriculture, the State Hygiene Inspection under the Ministry of Health and the State Quality Inspection under the State Service for Competition and Protection of Consumer Rights. Today the veterinary service is in charge of all control functions at all stages of the food production chain «*from Farm to Fork*». Later in 2014 the responsibility for placing unsafe food products and food contact materials in market was assigned to the veterinary service. It was introduced in order to simplify the decision-making process and optimize the official control with the aim to improve food safety and animal health [98].

The veterinary service participates in development of public policy on food and feed safety and quality, labeling feed, mandatory requirements to food and animal by-products, feed, feed additives, product information, veterinary medicines and veterinary measures on protection of animal health and animal welfare, including diseases common for humans and animals, and protection of consumer rights related to food and feed [99].

There are also other state authorities that are in charge of activities related to food and feed safety control. The Ministry of agriculture is responsible for food safety related issues. Among them animal identification system, food quality, organic farming, raw materials, plant production and plant health, including control and authorization of plant protection products. The Ministry of health is responsible for legislation on food contaminants, food additives, novel food, special nutrition

[22]https://vmvt.lt/?language=en.

products, genetically modified food products, food contact materials, food hygiene and labelling. There is also Centre for development of agricultural information and rural business that is responsible for development and maintenance of agricultural database and registers for animals, crops and agricultural businesses.

The structure of the LFVS consists of 14 departments leaded by the director and four deputies. The veterinary service has 52 territorial divisions at the local level and 13 border inspection posts (BIPs). Territorial divisions are in charge of official controls of food and feed safety, while BIPs are responsible for control of export and import of food and feed, including live animals and animal products.

Six departments of LFVS are responsible for control of food and feed, animal health and welfare. They are department for animal health and welfare, food department, border control department, emergency response department, strategy and quality management department and veterinary sanitary department. Animal health and welfare department provides control on animal health situation, prevention, monitoring, surveillance and eradication of animal diseases, control on animal identification and registration, import and export of live animals, animal by-products, feed, application of veterinary drugs and control of animal welfare.

The process of risk analyses in Lithuania at national level corresponds to the approach adapted in the EU as shown in the figure 6. The National Food and Veterinary Risk Assessment Institute (NVRAI) is responsible for two components of risk analysis: risk assessment and risk communication, while the veterinary service is responsible for risk management. Hence the NFVRAI has similar functions as the EFSA and interacts closely with it on relevant issues.

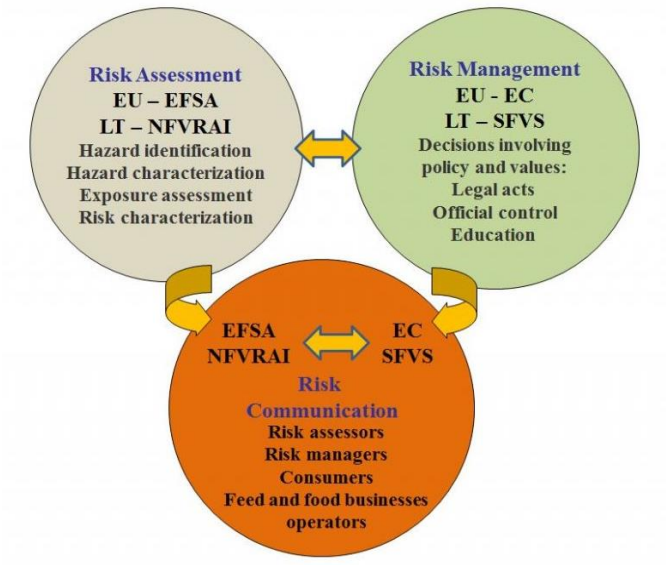

Figure 6 – Risk analysis in Lithuania

Note – Compiled from the country profile report developed by DG SANTE [98, p. 8]

The veterinary service uses scientific support provided by the NFVRAI similar to the competence of the DG SANTE. This work format is almost the same in Lithuania with only one exception that the NFVRAI is not an independent agency.

However this system is not contradicting with the EU principles as long as each authority carries out its functions independently and in a transparent manner. For example, for the risk assessment the NFVRAI follows the relevant Guidelines for risk assessment developed by EFSA. The aim of risk assessment is to promote consumers confidence in the decision making process on the food safety system.

The EU food legislation ensures the food safety on the EU territory through the relevant national authorities. The food law provides general principles and requirements to competent authorities of the EU member-states. The national authorities at country level subject to inspection with the aim to verify its compliance with the EU food legislation on enforcement of its provisions. This verification procedure carries out via submission of annual reports by national authorities. DG SANTE provides verification and regular inspections in order to confirm the compliance with the food legislation, including feed, animal health and welfare according to the EU regulation No882/2004.

For example, the veterinary service uses scientific support provided by the NFVRAI similar to the competence of the DG SANTE. This work format is almost the same in Lithuania with only one exception that the NFVRAI is not an independent agency. However this system is not contradicting with the EU principles as long as each state agency carries out its own functions independently and in a transparent manner. For example, for the risk assessment the NFVRAI follows the relevant Guidelines for risk assessment developed by EFSA. The aim of risk assessment is to promote consumers confidence in the decision making process and entire food safety system.

NFVRAI submitted its annual report on implementation of the national plan on food safety control in 2018 and published it on its official web-site[23]. The last audit of the food safety control system of Lithuania was conducted by experts of the DG SANTE in 2017 and relevant Report was developed and published on EC website[24]. Moreover there are other audits preformed by the DG SANTE in various aspects of veterinary and food safety system.

To sum up the analysis of the EU experience on veterinary and food control system the following conclusions were developed:

Firstly, the veterinary legislation of the EU as well as Lithuania practice is based on the concept «*from Farm to Table*» with focus on responsibilities of the business operators.

Secondly, the structure and performance of the Lithuanian veterinary and food control system is consistent with the EU requirements that subject to regular evaluation at the supranational level.

Thirdly, it has been revealed consistency between the EU's and Lithuanian veterinary and food control system. In addition, the Lithuanian experience in application of veterinary measures does not affect its sovereign right for performing domestic veterinary control.

[23]https://vmvt.lt/sites/default/files/annual_report_on_lithuanians_national_control_plan_for_ period_2018_ final_ec.pdf.

[24]https://ec.europa.eu/food/audits-analysis/country_profiles/details.cfm?co_id=LT.

2 ANALYSIS OF THE PUBLIC MANAGEMENT OF VETERINARY SYSTEM OF THE REPUBLIC OF KAZAKHSTAN

2.1 Analysis of the current situation of the public management of veterinary system

The veterinary system of Kazakhstan has undergone through the major reforms and transformation since 1991 that affected the approaches in the public management of this system. These state reforms were applied to all economic sectors including agriculture. Being a subsector of agriculture its development has been largely influenced on the veterinary system in terms of organisation, interaction and its functions.

The initial structure of the veterinary system of Kazakhstan was formed in 1995 with adoption of the first veterinary law of Kazakhstan. The public management of the veterinary system was in the hands of republican and local veterinary authorities, and specifically authorized state bodies within their competencies.

According to the current Veterinary law adopted in 2002 (with amendments introduced in 2019) the current structure of the veterinary system of Kazakhstan seems to be shortened from the institutional perspective. As it was mention in the previous chapter it includes only public and private sector.

The public management of the veterinary system in Kazakhstan mainly focuses on the responsibilities of veterinary authorities. In particular the veterinary law consists of 6 chapters and 37 paragraphs, of which 20 paragraphs prescribe the competences of veterinary authorities. These competences are mainly concentrated on providing control measures in the veterinary domain rather than on responsibilities of business.

The Government of Kazakhstan plays a central role in decision making process in veterinary at the interagency and international levels. Until 2014, the Government had a wide range of competencies in the veterinary sphere, which include the adoption of a long list of regulations, including veterinary requirements and other rules related to veterinary control and supervision. Today development, adoption and amending all regulations in the veterinary domain are under the competency of MoA. While the Government has only competencies on: the development of main directions of the state policy in veterinary, and cooperation with foreign and international organizations in the veterinary domain. In fact the CVCS as the veterinary authority shall be the last decision-making body in this domain and has the right to cooperate and negotiate with any other organizations. However, sometimes the MoA and Prime Minister’s Cabinet might make a decision without the consent of the MoA or CVCS, unfortunately which has occurred in the past. For example, despite the MoA's objections, the state veterinary control at the automobile checkpoints across the customs border was transferred from the MoA to the competence of the customs authorities in late 2014. Despite *de jure*, the customs authorities at the check posts could not carry out this function on their own due to the high risks associated with the introduction of animal pathogens across the border that can be identified only by veterinary specialists. Hence, *de facto* this function was

carried out by veterinary specialists of the Committee of veterinary control and surveillance (CVCS) who were attached to the customs service posts located at the state border that was agreed without written agreement. This was due to lack of relevant professional competencies and later, this function was returned to the CVCS amendments introduced in late 2019.

The authorized body of Kazakhstan in the veterinary domain is the MoA with its unit the CVCS (figure 7). The competencies of the authorized body in the veterinary domain are divided between the MoA and the CVCS.

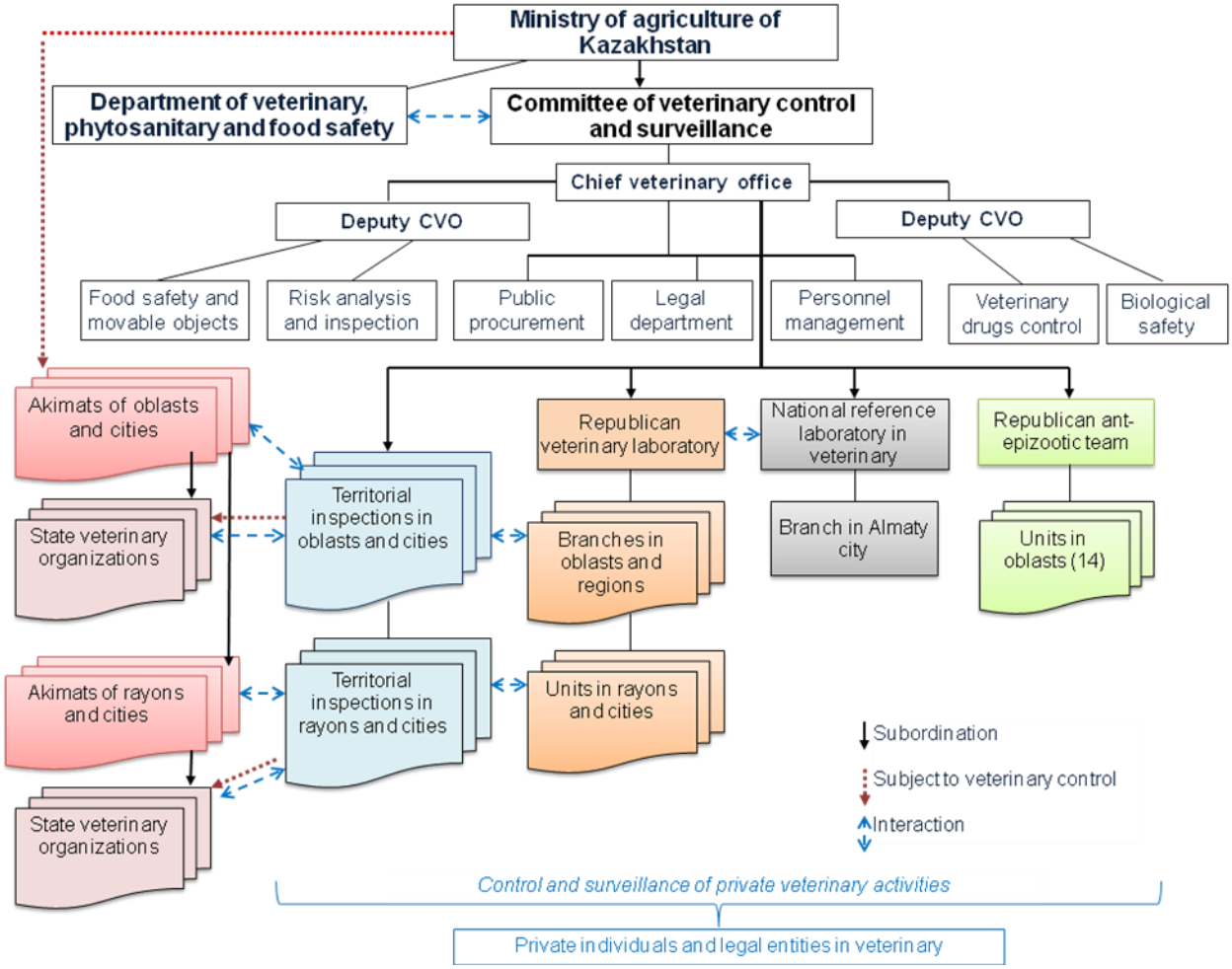

Figure 7 – The structure of the authorized body of Kazakhstan in the veterinary domain

Note – developed by the author based on veterinary legislation [18]

Being under the MoA's coordination, the CVCS is a separate legal entity in the form of a state organization with certain duties empowered by the veterinary legislation. Today CVCS carries out the state veterinary-sanitary control and surveillance through the 15 territorial inspection branches at the oblast and republican importance of cities (Nur-Sultan, Almaty and Shymkent). The CVCS has territorial inspection offices at oblasts and rayons including the veterinary border inspection points (figure 8).

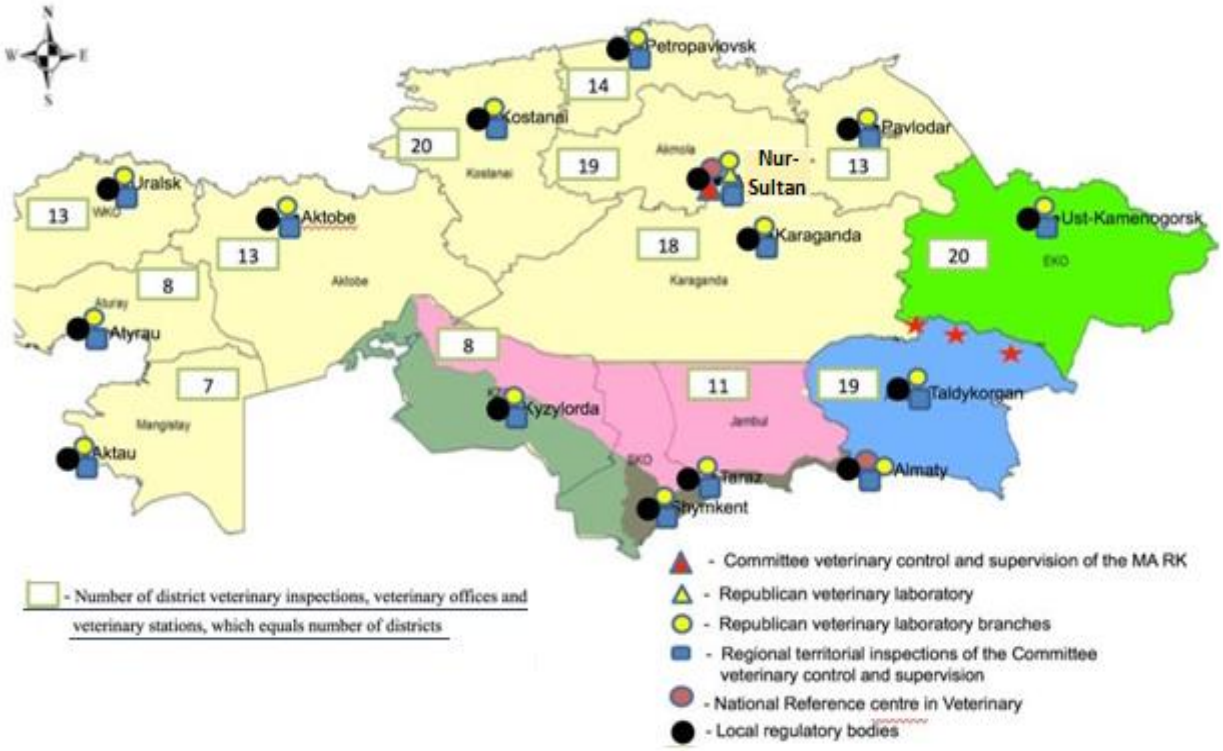

Figure 8 – Distribution of the CVCS territorial inspection offices

Note – compiled from the CVSC data [57, p. 143]

The head of the CVCS has an official title the Chief State Veterinary-Sanitary Inspector of the Republic of Kazakhstan that assigned by the MoA's decision according to the veterinary legislation. Correspondingly the heads of the territorial inspection units of the CVCS have similar titles at the regional levels assigned by the relevant decisions of the head of CVCS. In fact these titles have no advantages, and obviously, this is an echo of the Soviet Union era when the state veterinary service was considered as an inspection service along with the police service. Anyway this title gives an official status to the public veterinary specialists in their daily work.

The public veterinary specialists have the right to enter without obstacles the enterprises producing livestock products in order to verify the implementation of the veterinary legislation and to request information on the activities of individuals and legal entities in the veterinary domain. However, according to the Entrepreneurial Code, it needs registration with the prosecutor's office the on-site inspection of the enterprise prior to visit. This means that veterinary specialists cannot enter the business operators without permission of local prosecutors.

Border inspection points (BIPs) are under the authority of the CVCS and coordinated by the territorial inspection offices of the oblasts. There is also coordination work with the customs service that ate located at the same places. The distribution of the BIPs in Kazakhstan is illustrated in the figure 9.

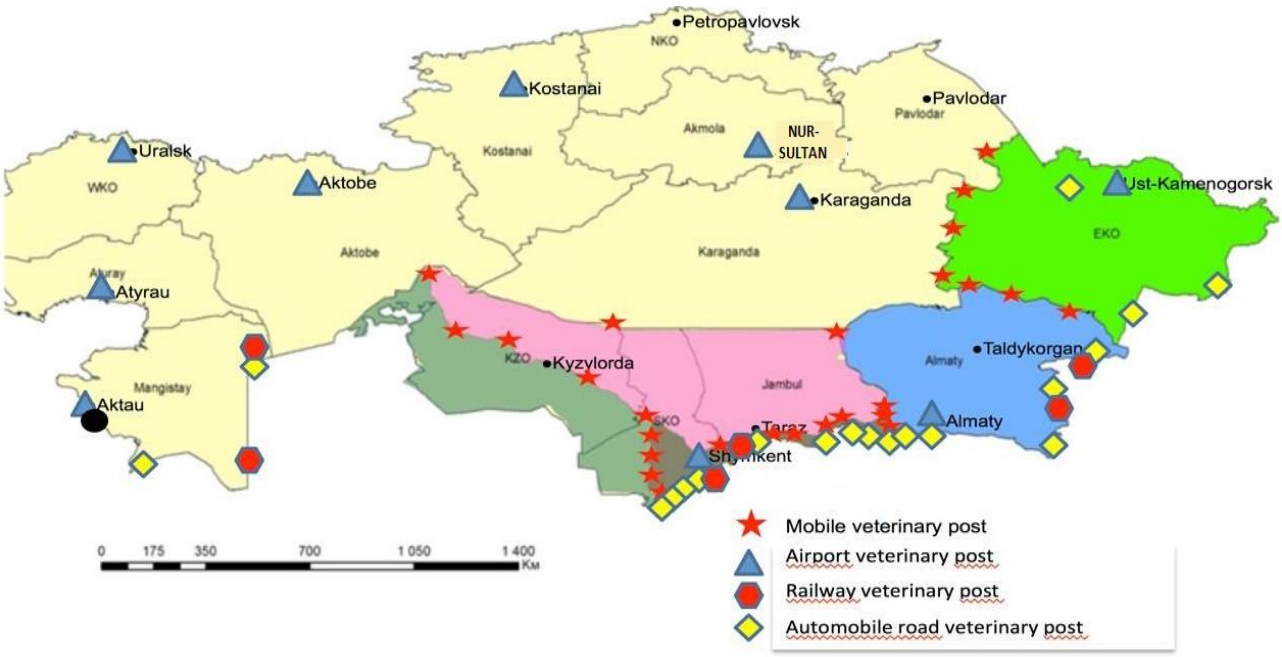

Figure 9 – Distribution of the BIPs in Kazakhstan

Note – compiled from the CVSC data [57, p. 145]

Despite the appropriate personnel of the BIPs they experience a lack of technical equipment such as modern computers with relevant software and facilities for control and quarantine. The overall number of BIPs is 36, of which 10 are located at the airports, 6 in the railway stations, 19 on the automobile roads and 1 at the seaport. Veterinary inspectors of BIPs have to report to the relevant territorial inspection offices.

Three state veterinary organizations under the CVCS are responsible for diagnosis, data collection and eradication of animal diseases. They are the National Republican Veterinary Laboratory, National Reference Veterinary Laboratory and Anti-epizootic team. They were established by the Government's decision according to the Veterinary law.

The veterinary laboratory network is well developed in Kazakhstan, in particular the Republican veterinary laboratory. It is in charge of routine laboratory tests of blood samples according to the annual programmes on diagnostics of animal diseases conducted for the active surveillance purposes. It is also responsible for the laboratory tests of food products for safety parameters, the disposal and destruction of biological waste. RVL has a broad network in the country with 15 branches in oblasts and large cities and 183 units in rayons. However, only few of them were accredited on ISO 17025, and for limited number of tests.

Blood samples are collected throughout the country from farm animals according to the annually adopted plan that are funded by the central budget. Republican laboratory is a monopolist with a sole competence in carrying out of the laboratory tests of animal diseases included into the List of highly dangerous animal diseases approved by the MoA's decision. Veterinary measures, such as diagnosis,

vaccination and eradication, against animal diseases included into the above mentioned list are funded from the central budget and free of charge to farmers and other livestock keepers.

National Reference Veterinary Laboratory is located in Nur-Sultan with only one small branch in Almaty. It is responsible for the reference functions in diagnosis of animal diseases, epidemiological monitoring, collection and storage of strains of pathogens, laboratory control of veterinary medicines and laboratory tests of animal origin food products.

Anti-epizootic team[25] is an organization in charge of eradication measures against certain highly dangerous animal diseases listed in the regulation and storage of veterinary vaccines. There are 14 branches of this organization operating in oblasts of the country.

Local executive bodies (Akimats) in oblasts and rayons are also involved into the veterinary system. They are responsible for annual vaccination campaign and collection animal blood samples within the programme on epizootic measures adopted by the MoA and funded from the republican budget. Moreover, Akimats are responsible for licensing certain veterinary activities including attestation of private veterinarians.

The last entities in the veterinary system are individuals and legal enterprisers carrying out entrepreneurial activities in the veterinary domain. The last category of stakeholders include private veterinarians, farmers, producers of animal products and other enterprises involved into the activities related to animals breeding and production of animal products.

There is also a conflict of interests in the certain objectives of the MoA as a competent authority in a broad spectrum of agriculture development. The MoA is responsible for sustainable development of AIC, which is a set of economic sectors, including the production, procurement, storage, transportation, processing and retail of agricultural products, fisheries, as well as the food industry, related industries and areas of activity, providing them with modern equipment, technological equipment, finances, information and other resources, veterinary and phytosanitary safety, scientific support and training. The major efforts of the MoA are aimed at the development of livestock and crop production, which is further complicated by the task of development of export potential primarily in livestock production. This is clearly indicated in the AIC development program for 2017-2021 with concrete indicators [66].

Prioritizing the access to new foreign markets of livestock products, which largely depends on the national veterinary service and animal disease status in the country (or zones in the country), the MoA has often neglected the objectives of the veterinary safety. In case of notifying (registering and reporting) an outbreak of animal disease to the OIE and trading partners (importing countries), which is

[25]Epizootic is the appearance of a particular disease in a large number of animals in the same place at the same time (definition in the online Cambridge dictionary). In English literature it is often used epidemiologic(al). For example according to the OIE Terrestrial Animal Health Code, epidemiological unit means a group of animals with a defined epidemiological relationship that share approximately the same likelihood of exposure to a pathogenic agent.

required under the WTO and OIE membership, the exporting (Kazakhstan) and importing countries have to immediately apply emergency veterinary measures such as introduction of a quarantine and a ban on export/import of certain livestock products for the certain period. Later the ban might be lifted by the importing country after certain period of time depending on an animal disease followed by demonstration of the absence of a diseases and/or consultation between the competent authorities of exporting (Kazakhstan) and importing countries. This is the common practice applied according to the OIE and WTO standards and commitments [19; 63].

The ban introduced by the importing countries means blocking the export of certain livestock products and the application of more stringent veterinary measures by trading partners, which leads to additional financial costs incurred by the business. Therefore, when outbreaks occur, it is often hidden by the competent authority of Kazakhstan in order to avoid the blockage of livestock product export. The most detrimental consequences of such situations that the competent authority has no legal right to apply emergency measures including the appropriate funding and eradication measures such as quarantine, stamping out, vaccination and compensation of expenses to animal holders. This approach is not commonly practiced and sometimes depends on anthropogenic factor, in particular the individual mindset and professional skills of the top managers.

Another conflict of interests is noted in the mechanism of public control through which the society has the right to participate in the policy development and making decision process. In particular, the members of the public council formed for carrying out the public control are appointed from the state authorities and affiliated bodies, and therefore they are dependent in their primary duties [100]. For example, according to the Law on Public council of Kazakhstan adopted in 2015 (amended in 2019) one third of the public council members are the representatives of relevant public authority chaired by its minister. This indicates the absence of independence and autonomy as the main principles of the public control. Moreover it is difficult to achieve the principal objective of public councils which is an expression of the opinion of civil society on socially important issues.

The frequent change of leadership in the competent authorities is a feature common to the public management of Central Asian countries, and Kazakhstan is not an exception. In the past two decades, twelve people have been appointed to the position of the Chief veterinary office (CVO), one of which did not have even relevant education and experience. The average working period of each CVO varies from one 1 to 3 years. The last six CVO appointments happened in the period of 2012-2018 under the one minister and deputy minister of agriculture who is responsible for veterinary service. Therefore there is a close relationship between the appointments of CVO and minister/deputy minister. This situation has certain implications resulting in the development of uncertainty among the interested stakeholders, lack of consistency in the policy developments and making decisions [101].

This situation has also influenced the frequent structural changes taking place in the veterinary service of Kazakhstan. In particular, in the last two decades the

organizational structure of the veterinary service has significantly changed several times. Initially independent Committee of veterinary service was charged under the competence of MoA in 2000 in the form of a structural department of veterinary supervision. Later in early 2007 the veterinary service was reformed again by division into two divisions. First division which is responsible for development of policy, strategy and veterinary legislations was jointed with the livestock development, while the other part responsible for inspection and control measures was joined with the phytosanitary and plant (wheat, seed and cotton) inspection. The latter one was formed as a as the Committee of state inspection in AIC operating under the MoA with responsibilities in veterinary and phytosanitary control. This reform was aimed at separating the development of the strategy and budget planning from the veterinary control and inspection activities (CVCS).

In early 2012 veterinary inspection service was reorganised again in a separate established Committee of veterinary control and supervision operating under the MoA. It was done based on the recommendations of evaluation of veterinary service conducted by OIE experts. This decision was made by the Minister in order to emphasise the importance of the veterinary service and supported by the Prime minister's cabinet. In this case there was a powerful political will supported and promoted by the head of the MoA of that time. This indicates that in the public management system of Kazakhstan the power and reputation of the individual political managers largely affect the course of and changes on development of the relevant sector leaded by them.

At the same time political managers are not in charge of the achievements and outcomes of implemented policies, strategies and programmes due to frequent changes in their appointments. For example, since independence of Kazakhstan in three decades there were appointed 18 Ministers of agriculture with an average work time counted for 19 months. This situation does not enable to finalize the results and measure the outcomes of adopted policies and programmes due to frequent changes and inconsistencies in the course of developments.

Meanwhile there is a positive link of appointment of ministers and their period of work with adoption of state programmes on development of agriculture. For example, since 1991 there were adopted 11 state programmes on development of agricultural sector, of which 4 programmes with the implementation period of 5 years were adopted in the last decade. This fact has also negative impact on development of institutional memory, consistency of the policy developments and individual responsibility for outcomes.

There are veterinary measures applied in Kazakhstan aimed at protection of highly dangerous animal diseases funded by the public budget. Therefore application of veterinary measures is primarily concentrated on vaccination and laboratory tests of blood samples collected from farm animals [102]. These veterinary measures are implemented on an annually basis strictly in accordance with the List highly dangerous animal diseases adopted by the MoA.

The preventive measures through the vaccination campaign are aimed at creation of collective immune background in livestock in Kazakhstan. In this term

there is a broad vaccination campaign in place throughout the country. It is believed that the vaccination is the main tool applied for prevention of emergence and spread of animal diseases. However there is a little attention paid on other preventive common veterinary measures that should be applied and controlled at the farm level. Vaccination is a specific preventive measure applied in conjunction with common preventive measures and cannot solely serve as the main approach to animal disease control strategy.

Massive vaccination against animal diseases is a primary focus of the public policy in the veterinary domain of Kazakshtan. There are certain allocated finances from the republican budget that annually increases. The CVCS is responsible for public procurement procedures including purchase of vaccines and their delivery to oblasts, storage and injection of vaccines in livestock. The vaccination of farm animals is conducted by the veterinary specialists organizations established under the local executive bodies, particularly Akimats of rayons.

Public veterinary organizations under the competence of Akimats of rayons are the main obstacle of the development of private veterinary services in rural areas. Today there is a lack of private veterinary specialists practicing at the village and farm levels due to hiring them by the public veterinary organizations. This situation is also complicated by the low level of incomes in rural areas. The major part of rural population keeping a little number of livestock does afford the private veterinary services therefore they largely rely on public veterinary services provided free of charge.

Vaccination and laboratory tests of certain acute and chronic animal diseases covered by republican budget had stable growing dynamics in the last two decades as seen in the figure 10. This growth was also affected by the annual increase of livestock population in the country however this is not the only one reason. The increases of annual public expenses were also affected by the regular changes and updates in animal disease strategies based on epizootic situation in the country as well as in the territory of neighboring countries. Funding for laboratory tests has always exceeded the spending on vaccines [102, p.77].

A significant difference in public spending on vaccination and laboratory tests was noticed in the period from 2007 to 2012. This was a result of changes in strategy against chronic animal disease Brucellosis. In 2008 there was introduced the new programme on control of Brucellosis in cattle and small ruminants. The strategy of massive vaccination of farm animals against Brucellosis was replaced by «test and slaughter» strategy and compensation for slaughtered cattle and small ruminants was introduced [103]. This approach was based on the OIE recommendations for the countries where the sero-prevalence of Brucellosis is less than 0,2%.

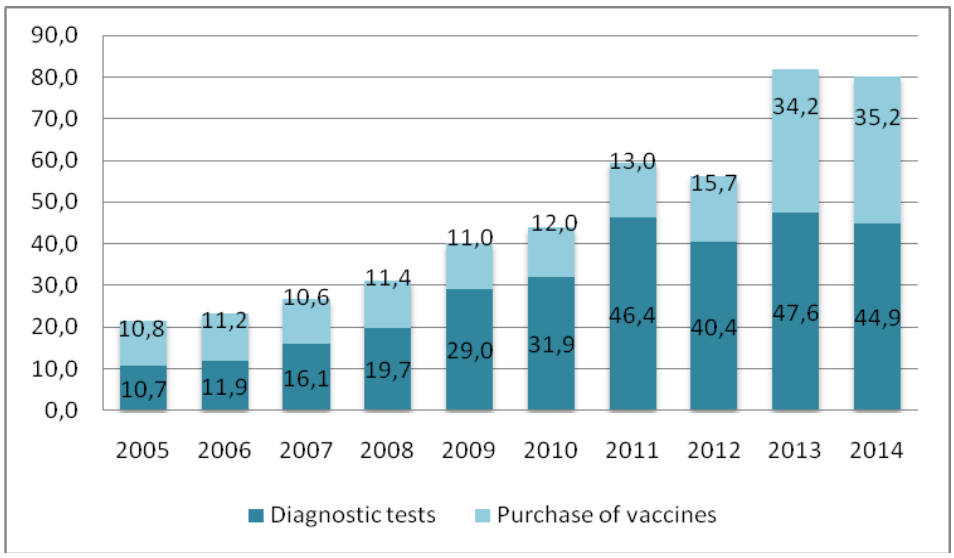

Figure 10 – Public spending on vaccination and laboratory tests in 2005-2014 ($ millions)

Note – Developed by the author based on CVCS data [102, p. 77]

In the structure of public spending for laboratory tests, Brucellosis has taken the largest part (figure 11). In 2005 the share of public spending on Brucellosis was accounted for 63%, and since then its share was constantly increasing. In 2014 its share increased by more than two folds taking 84% of total public spending for laboratory tests. This indicates a great attention of the MoA drawn on this chronic disease. However, despite these efforts it seems there is no significant achievement in the last decade. This trend supports suggestion that the strategy on control of Brucellosis needs to reconsider and update [103, p. 405].

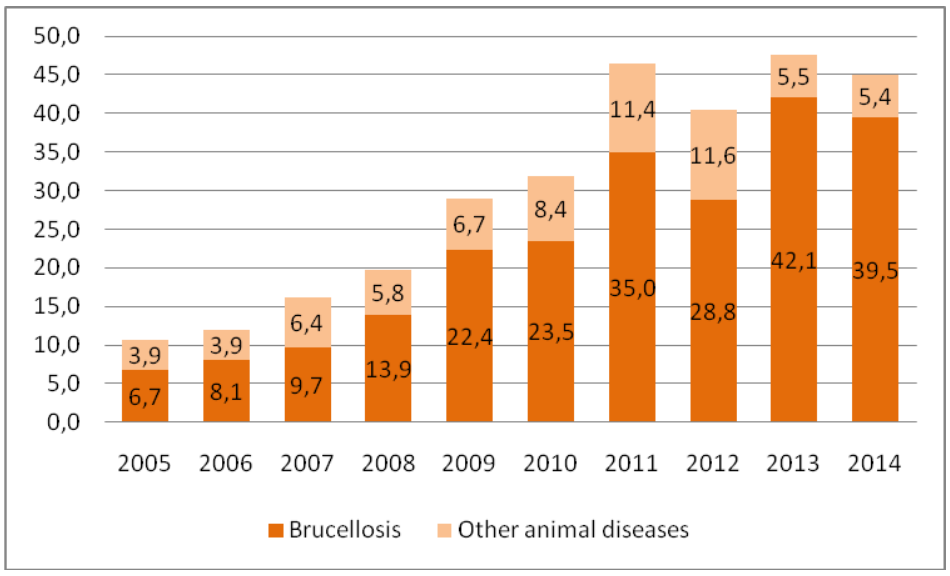

Figure 11 – Public spending on laboratory tests against animal diseases in 2005-2014 ($ millions)

Note – Developed by the author based on CVCS data [102, p. 78]

The number of laboratory tests on Brucellosis has a stable increase in the period from 2007 to 2010 (figure 12). Particularly the highest growth was in the number of tests sampling from small ruminants by more than one third and tests sampling from cattle by two folds. The number of laboratory tests of blood samples collected from the other farm animals (horses, swine and camels) had a stable trend with a minor public spending.

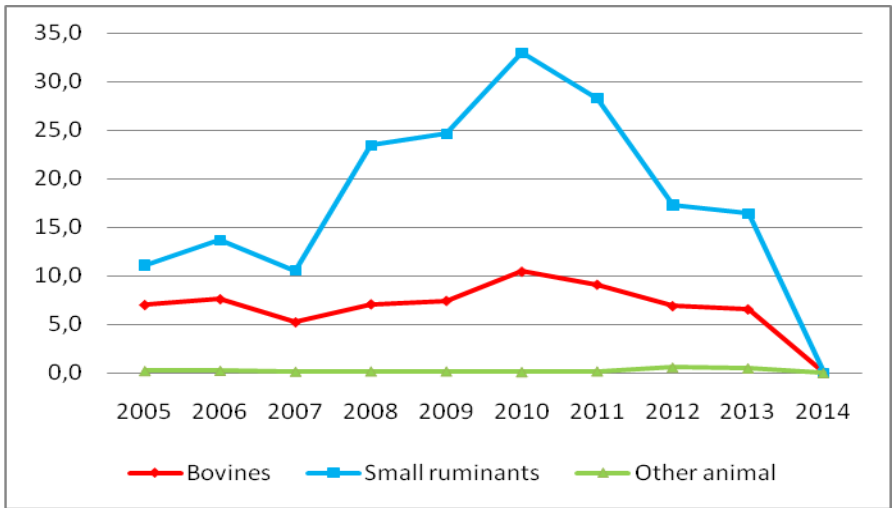

Figure 12 – Dynamic of laboratory tests on Brucellosis in 2005-2014 (mln. tests)

Note – Developed by the author based on CVCS data [102, p. 78]

Despite the large public spending on Brucellosis the dynamic of the registered outbreaks of this animal disease has unstable dynamics over two decades (figure 13). For example, the number of outbreaks in small ruminants has a fluctuating trend. It sharply increased from 2006 to 2008 as a result of introduction the new strategy «test and slaughter». However it seems this strategy did not bring the long term results as there the number of outbreaks in small ruminants again started to gradually increase.

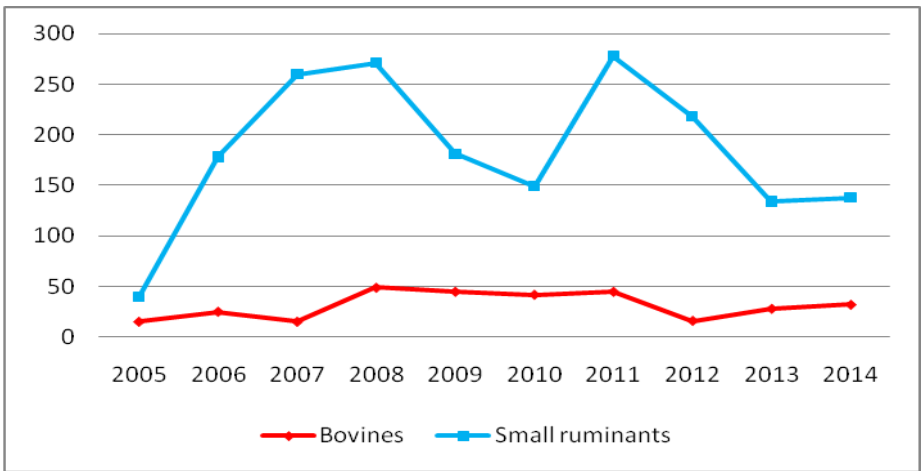

Figure 13 – Dynamic of the number of outbreaks on Brucellosis in 2005-2014

Note – Developed by the author based on CVCS data [102, p. 78]

The trends observed on Brucellosis present a room for further discussion among the scientists and policy makers of the veterinary service of Kazakhstan. Certainly, the policy on control of Brucellosis needs to reconsider based on empirical data of past years. There also should be given an adequate consideration to small settings in the form of family-based farms in rural areas [104], especially keeping small ruminants, as they might greatly affect the positive outcomes of the strategy on Brucellosis in future [103, p. 405]. There also should be reliable data on Brucellosis including appropriate blood sampling, delivery to laboratories and the laboratory test methods and good trainings of staff.

Regarding the public spending for vaccine procurement there was also analyzed the structure and trends in the period from 2005 to 2014 (figure 14). There are around 20 highly dangerous animal diseases against of which the procurement of vaccines covered by the republican budget. Since 2012, the public spending on vaccination was sharply increased by more than two times from $15 million in 2012 to $34 million in 2013. This increase was due to change in vaccine prices particularly for vaccine against Foot and Mouth Disease (FMD). Since 2011 its price grew double times in 2012 and 2013. According to the CVCS data, there was decision to use the FMD vaccine that meets the relevant OIE standards on vaccine quality.

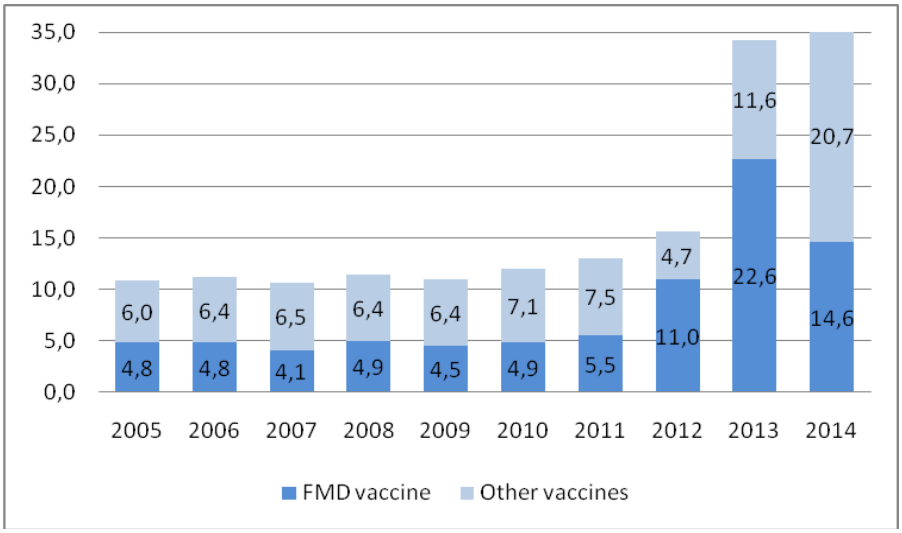

Figure 14 – Public spending on procurement of vaccines in 2002-2019 ($ millions)

Note – Developed by the author based on CVCS data [102, p. 79]

The share of vaccine against FMD in the structure of public spending was significantly high all the time. The procurement of this vaccine is conducted since 2002 and its share has been on average above 40%. However, in the period 2012-2013 its share was sharply increased by almost 70% in the total public spending ($11 and $22.6 million respectively). This structure of the public spending for vaccines demonstrates a great attention on FMD drawn by the veterinary service of Kazakhstan due to its risk to international trade.

Kazakhstan gives an excessive attention to the international trade in livestock

products that negatively influences the real animal health situation in the country. For example, the zoning strategy in terms of FMD control is applied on the entire territory of the country since 2015. In particular, the whole territory of the country was divided in two main zones with different animal heath statuses (figure 15): free zones from FMD with vaccination (Zhambyl, Kyzylorda, Almaty, South-Kazakhstan and East-Kazakhstan oblasts); and free zones from FMD without vaccination (Akmola, Atyrau, Aktobe, Mangystau, Karagardy, Kostanay, Pavlodar, North-Kazakhstan and West-Kazakhstan oblasts). These zones were officially recognised at the OIE World Assemble of Delegates of member-countries in 2015 and 2017[26] and re-confirmed in 2016 and 2018 accordingly.

Figure 15 – FMD free zones in Kazakhstan recognized by the OIE

Note – Compiled from the OIE, 2020

[26] https://www.oie.int/en/animal-health-in-the-world/official-disease-status/fmd/en-fmd-carte/.

With regard to information systems applied in the veterinary system of Kazakhstan there is a strong need for introduction of new digital technologies. Today there are only two electronic databases used by the veterinary service of Kazakhstan namely: identification of farm animals system (IFAS) and E-agriculture (ЕАСУ) [105]. Despite the application of these electronic databases more than decade they simply serve as databases for registering and storing data on farm animal population and veterinary certificates.

On the basis of the conducted analysis of the current public management of veterinary system of Kazakhstan it was revealed several weaknesses from the structural and functional perspectives.

Firstly, there were frequent structural changes in the veterinary service since 2002 as well as in leadership of the veterinary service and head of MoA, This had a negative impact on sustainable development and implementation of strategies and control programmes.

Secondly, the there is a lack of institutional memory and personnel responsibility of political managers due to frequent changes in leadership and their short-term period of works.

Thirdly, there is a conflict of interests in tasks between MoA and CVCS due to differences in understanding of the achievement of long-term objectives. The MoA being as a competent authority in the veterinary domain focused on development of export in livestock products, while the efforts of CVCS are directed to the prevention of diseases and treatment of animals.

Fourthly, animal disease control strategies and programmes need revision and update based on the analysis of the outcomes of the past diseases control strategies and adjusted with the current tasks.

Fifthly, there is a weak collaboration between veterinary and public health service that affect the public health and food safety issues.

2.2 Global challenges in the veterinary domain related to the membership of Kazakhstan to the WTO

The development of international trade is affected by the global challenges driven by political, economic and environmental factors. These factors often have mixed nature due to simultaneous or consequent effects on trade. In the context of this research the global challenges were split up in three categories. The fist category of challenges associated with growing risks to animal and human health due to development of international trade. There are new emerging diseases, in particular zoonoses, a high prevalence of food-borne illnesses, a large spread of transboundary animal diseases (TADs), and development of antimicrobial resistance in animals and humans. The second category refers to the modern changes that include a rapid development of food technologies, a wide range of new food products, significant changes in consumer behaviour and consumption preferences, and climate change. The third challenge is the WTO membership itself that has certain implications in terms of compliance with the SPS Agreement.

2.2.1 High risks to animal and human health

Accession to the WTO is often perceived as a possibility to participate in the global market that allows opening new supply markets and expanding export potential for goods and services. However, at the same time the global development of international trade in food products is associated with a high risk to human, animal and plant health.

Emerging diseases common to animal and human

The most dangerous of them are new emerging diseases with unknown gene structure and unpredictable consequences that affect animals and humans. Due to the intense movement of people and goods in recent years, emerging diseases have demonstrated the ability to spread rapidly in large geographical areas. Among them the most common diseases are Highly Pathogenic Avian Influenza (HPAI), zoonotic coronaviruses and others.

HPAI is a global threat posed by a highly pathogen virus in birds, in particular the type H5N1. Naturally this disease circulates among the wild aquatic birds including ducks, geese and swans. The first outbreak of this disease was registered in geese in Guangdong province of China in 1996 [106]. During 1997 the disease spread over the live poultry in Hong-Kong with a high mortality rate [107]. There were also reported human cases with deaths [108]. Avian influenza spread from Asian region to Europe and Africa countries. There is a broad variety of types of avian influenza. The latest human case with the type A (H7N9) of the influenza virus was reported in China in 2013 [109]. HPAI is one of the pandemic that has potential to severe impact on human health [110]. The most close to this disease is swine influenza that may infect humans as well [111].

Today there are three registered diseases known as zoonotic coronaviruses: the Severe Acute Respiratory Syndrome (SARS or SARS-CoV-1), the Middle East Respiratory Syndrome (MERS or MERS-CoV) and COVID-19 (previously named SARS-coronavirus-2 or SARS-CoV-2). These diseases have common origin from the coronaviruse family with similar clinical developments preliminarily affecting the respiratory systems in humans with severe pneumonia like symptoms. These diseases are drawn the global attention due to their epidemic potential and high mortality rates [112-114].

The first human case of SARS was registered in China in 64 years old physician travelling from South China to Hong Kong in February 2003 [115-117]. The Italian microbiologist Carlo Urbani first identified this virus and determined it as a highly dangerous viral disease. He was infected and died from this disease in the same year. The disease was rapidly spread affecting 29 countries with more than 8000 cases and around 800 deaths in humans. The epidemic SARS was end in July 2003.

The next outbreak known as MERS was first reported in a 60 years old human in September 2012. This patient died in June of the same year in Jeddah, Saudi Arabia [118]. The virus was extracted and identified from the lung sample of this patient. The similar case was discovered in April 2012 in Jordan based on retrospective analysis [119]. MERS still circulates and remains endemic to the

Mediterranean region [120]. Therefore public health authorities keep an eye on this disease while the WHO constantly informs about this disease. Since 2012 there were reported 2494 cases confirmed by laboratory tests and more than 800 deaths in humans from 27 countries of which 12 are located in the Eastern Mediterranean Region [121].

The recent global pandemic known as COVID-19 has resulted in numerous fatal cases in human population over the world. This is a highly infectious disease caused by a newly discovered coronavirus. The fist numerous cases were registered in Wuhan, China in late 2019 [122, 123] and rapidly spread across the globe [124]. WHO declared it as a pandemic disease COVID-19 on 12 March, 2020 and urged the countries to take serious actions in order to combat and restrict this global outbreak[27]. The most vulnerable to this disease is older people and people with serious health conditions such as chronic respiratory disease, diabetes, cardiovascular disease and cancer [124-126]. According to the WHO more than 200 affected countries and areas with around 5 million confirmed cases and more than 300 000 deaths in humans were reported on 21 May 2020 (table 2) [121].

Table 2 – The global statistics on COVID-19 as of May 21, 2020

WHO countries	The number of cases	The number of deaths
Globally	4 893 186	323 256
Africa	68 347	1 910
Africa	68 347	1 910
Americas	2 166 003	128 649
Eastern Mediterranean	376 379	10 468
Europe	1 946 610	170 283
South-East Asia	164 225	5 140
Western Pacific	170 910	6 793
Note – Developed by the author on the basis of WHO information on COVID-19		

Kazakhstan also timely took actions in the light the pandemic COVID-19 Kazakhstan introduced emergency situation since 16 March 202 according to the Decree of the President of the Republic of Kazakhstan N 285 as of 15 March 2020 [127].

Animal species is one of the main factors that play a key role in emergence, circulation and human infection of the above mentioned diseases. Palm civets and horseshoe bats were found to be natural reservoirs of the SARS [128, 129]. Camels were found to be a significant reservoir for transmission of the MERS to human [130, 131]. Regarding the COVID-19 it is suggested that the most probable animal source of this coronavirus is also bat [132]. Therefore identification and elimination of the

[27]http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/3/who-announces-covid-19-outbreak-a-pandemic.

zoonotic source is recognized as an important task in prevention of new diseases transmitted from animals to human [122, p. 690]. Scientists over the world and international organizations highlight urgent and effective that efforts shall be concentrated at the surface of Human-Environment-Animal promoting the «One Health» concept [133].

There is a link between globalization, international trade, emerging diseases and public health concerns. Each of them affects the other, endangering its future development. Recrudescence of infectious zoonoses is a priority agenda for all governments and international organizations. In fact the pandemic has blocked all activities worldwide that resulted in fall of the development of global economy. Globalization and its associated processes such as crowding, poor sanitation, travel and trade, intensive food production practices, and ecologic change, all increase the threat of pathogen emergence [134]. Emerging diseases still put at risk health of animals and humans. These risks might not be limited only by introduction and spread of emerging diseases. As a result of international trade development there is a strong need to take an action towards global and comprehensive approach to prevention, control and implementation of new strategies [135].

Food-borne diseases

One of the growing global concerns is a high prevalence of food-borne diseases [136]. According to the WHO around one from ten people around the world poisoned as a result of consuming contaminated food resulting in over 0.4 million of deaths annually. Particularly children are the most affected ones resulting in around 0.125 million deaths in under 5 years of age annually [137].

Food-borne diseases are caused by contamination of food. It can occur at any stage of the food production, delivery and consumption. Diseases may come from different forms of environmental contamination including pollution in water, soil or air, as well as unsafe food storage and processing. Most of them are gastrointestinal issues therefore they can also produce neurological, gynaecological and immunological symptoms [138]. Food-borne pathogens can cause severe diarrhoea or debilitating infections including meningitis.

Chemical contamination can lead to acute poisoning or long-term diseases, such as cancer. Foodborne diseases may lead to long-lasting disability and death. Examples of unsafe food include uncooked foods of animal origin, fruits and vegetables contaminated with faeces, and raw shellfish containing marine biotoxins.

The majority of these cases are caused by diarrhoeal diseases. Other serious consequences of food-borne diseases include kidney and liver failure, brain and neural disorders, reactive arthritis, cancer, and death. Over 200 diseases are caused by eating food contaminated with bacteria, viruses, parasites or chemical substances such as heavy metals.

This growing public health problem causes considerable socioeconomic impact though strains on health-care systems lost productivity, and harming tourism and trade. These diseases contribute significantly to the global burden of disease and mortality [137]. Food-borne diseases are closely linked to poverty in low- and middle-income countries but are a growing public health issue around the world.

Increasing international trade and longer, more complex food chains increase the risk of food contamination and the transport of infected food products across national borders. Growing cities, climate change, migration and growing international travel compound these issues and expose people to new hazards [139].

Kazakhstan is not exclusion in this regard. According to the MH of Kazakhstan there are annually reported more than 500 cases on food poisoning in human population of which 10% are children [140]. The competent authority in sanitary-epidemiologic services is the CQCS under the MH of Kazakhstan carries out regular inspections of catering places including restaurants, cafeterias and other public food serving places on a planned and random basis. However, there are still registered food-borne diseases that affect the public health.

Veterinary inspection also plays an important role in role prevention of contamination of food products such as meat, raw milk, fresh fish and other edible animal by-products such as liver, kidney, heart intestines and head. The post-mortem inspection of farm animal at slaughterhouses covers visual meat inspection of each carcass and offal. Examination of all external surfaces of the carcass and organs in order to exclude the patho-physiological changes that unfit for human consumption are an important element of veterinary inspection service [141].

Transboundary animal diseases (TADs)

TADs are highly contagious epidemic diseases that can spread extremely rapidly, irrespective of national borders. They cause high rates of death and disease in animals, thereby having serious socio-economic and sometimes public health consequences while constituting a constant threat to the livelihoods of livestock farmers. Animal diseases have potential to reduce quantity and quality of food, such as meat and milk, livestock products and animal power such as traction and transport.

Globalization, land encroachment and climate change contribute to outbreaks of such animal diseases, some transmissible to humans, as brucellosis, bovine tuberculosis, parasitic illnesses, anthrax, bovine spongiform encephalopathy (BSE) and certain strains of influenza viruses. High-impact animal diseases such as foot-and-mouth disease (FMD), peste des petits ruminants, classical or African swine fevers, while not directly affecting human health, do affect food and nutrition security and livestock production and trade.

In early 2004, the reporting of Highly Pathogenic Avian Influenza (HPAI) virus throughout 10 Asian countries, with mortalities in exposed humans, underlines the pressing need for improvement of disease management at its inception before TADs spreads to devastating proportions and early detection, reporting and reaction. Several international institutions have emphasized the need to prevent and control TADs due to their strong impact on livestock agriculture, trade and food security. African swine fever (AFS) is currently spreading across several countries including EU and Russia [142, 143].

Since then TADs have drawn a global attention that resulted in launch of the Global Framework for Progressive Control of Transboundary Animal Diseases (GF-TADs) in 2004. It was a joint FAO and OIE initiative that combined the strengths of both organisations to achieve agreed common objectives. GF-TADs is a facilitating

mechanism which will endeavour to empower regional alliances in the fight against transboundary animal diseases (TADs), to provide for capacity building and to assist in establishing programmes for the specific control of certain TADs based on regional priorities [144].

Antimicrobial resistance (AMR) in animals and humans

AMR is a global challenge of development of new resistance mechanisms in animals and humans. Its emergence and spread over the world jeopardising the ability to treat various infectious diseases in humans that result in a prolonged diseases, disabilities and mortalities [145]. Antimicrobial drugs can change the way for natural development. Among them antibiotics, antivirals, antifungals and antimalarials. The use of anitimicrobials may result in random changes in proteins and genetic codes of microorganisms such as bacteria, viruses, parasites and fungi than in turn might change the genetic codes of animal and human organisms [146]. The long term use of antimicrobials might develop adaptation and their accumulation in the organism may result in AMR development. The success in the use of antimicrobials has resulted in the overuse and misuse of antibiotics [147] consequently it has sped up the multi-drug resistance development [148].

The development of AMR to available medicines as well as to veterinary medicines is one of the reasons of persistent development and transmission of microorganisms. For example, it was reported that roughly 0.7 million deaths in humans annually were linked to the AMR [149]. Based on FAO statistics collected from countries there was an increase in the use of antimicrobial drugs in around 90 countries, while 118 countries use these drugs in livestock production [150]. Livestock is the main source of excessive use of antimicrobials. For example, annually approximately 60-70 thousand of antibiotics are used in farm animals. However, it is assumed that this data might be underestimated considerably. The direct use of antimicrobial drugs in humans is likely to exceed this number. This trend is suggested to increase due to indirect consumption by humans as a result of development of intensive animal husbandry practice and growing use of animal proteins [151].

The main challenge of AMR development is overuse of antibiotics in livestock and food production globally. For example, according to the results of one laboratory study *campylobacter* conducted in Russia, it was found the full resistance to fluoroquinolones in all samples from domestic poultry products in particular tetracyclines in the majority of cases [152]. Today EU countries also face with similar situation. According to the EFSA report on AMR, in *Campylobacter* from humans, food-producing animals and poultry meat, resistance to ciprofloxacin and tetracycline generally ranged from high to extremely high, particularly in *Campylobacter coli* isolates from humans and from poultry and derived meat [153].

It is supposed that the negligence of prolonged use of antibiotics in livestock results in food safety related problems along with biological risk to human beings. Therefore global challenges related to AMR should be addressed by countries at the highest level [152, p. 353]. In this light, the AMR has been raised by international communities. The World Health Assembly adopted a Global action plan on AMR in

2015 [154]. It is aimed at ensuring the use of safe and high quality assured medicines for successful prevention and treatment of diseases in a responsible manner that is accessible to all who need. The WHO recommends to its member-countries to develop and implement National Action Plans on AMR in compliance with the Global plan.

The OIE also concerns regarding the development of AMR in animals. Therefore this organization provides a set of recommendations on prudent use and control of antimicrobial drugs in veterinary [19]. Its objective is to provide methodologies for OIE member-countries to appropriately address the emergence or spread of resistant bacteria from the use of antimicrobial agents in animals and to maintain effective regulation of AMR through the control of use of antimicrobial agents [19].

2.2.2 Modern challenges related to the world development

Food systems over the world are changing due to population growth, increasing demand on goods and services and globalization processes in all economic sectors over the world. Today supply chains offer to consumers a broad spectrum of choice on a high variety of products via large and interconnected world markets. Therefore there are emerging modern challenges to food safety systems. Among them the rapid development of food technologies, a wide range of new food products, changes in consumer behaviour, consumption preferences and climate change. All these modern challenges demand new mythologies in application of food safety control measures.

There is emerging development of scientific and new technologies in food production systems. For example, cultured meat production for human consumption; meal replacement beverages for nutrition purposes; a new variety of food products; and food ingredients derived from insects.

Emergence of new food technologies development is also driven by the shifts in human consumption behaviours and preferences. This largely depends on food, food ingredients and additives as well as on human sensory abilities. However is suggested that sensory abilities of humans might be driven by the food consumption preferences [155]. The consumption preference is individual but, at the same time, it is complex, and there is a strong causal link with sensation, pleasure experience and the way of food intake. Moreover it is suggested that experiencing pleasures from food intake is influenced by not only the food components but also by the genetic variability in humans. In addition the consumer preference is affected by social, behavioral, and psychological factors [156]. For example, some consumers concern on ethical and environmental issues that includes vegetarian, vegans or eating insect proteins. While, others concern on nutrition and health issues such as organic food, gluten-free, GMO-free and etc.

2.2.3 The implications of compliance with the SPS Agreement

The main challenge in trade in agricultural products for developing world is comply with SPS requirements and commitments taken under the WTO obligations. Development of trade and application of SPS measures are increasingly

interconnected. The WTO regulations are aimed at liberalization of world trade that includes reduction of tariffs and elimination of quotas on agricultural products and expands export opportunities for many countries particularly for developing ones. At the same time, the application of SPS measures in conformity with WTO regulations demanding by trading partners might be challenging for some countries and may result in taking advantages by others. Therefore the policy in application of SPS measures is likely to become complex and its enforcement stricter along with further trade liberalization development [157].

Since Kazakhstan became the legitimate member of the WTO in late 2015 according to the relevant Law on ratifications of the Marrakesh Agreement [64] the country has to follow the certain rules in international trade in goods and services. According to the Article 20 of the GATT 1994, Governments have the rights to take actions on trade aimed at protection of human, animal and plant life and health however these actions should not create discrimination or disguised protectionism. There is a specific WTO Agreement on application of SPS measures that deals with human, animal and plant health and food safety [80]. This agreement prescribes the principles and provisions for meeting certain standards in food products while avoiding discrimination and protectionism in trade.

The application of SPS measures becomes more important. This is due to decreasing tariff barriers and increasing application of non-tariff barriers in agriculture and food trade. In addition there is a set of commitments related to the SPS measures prescribed in the Working Party Report on accession of Kazakhstan WT/ACC/KAZ/93 as of 23 June, 2015 [66] that are applied in trade in food products, including live animals and plants (Annex B). These rules and commitments undertaken by Kazakhstan require to follow and to comply with provisions of the WTO Agreements.

The global challenge faced Kazakhstan today is the balance between compliance with the provisions of the SPS Agreement and ensuring food safety of imported food products while protecting domestic production from imported cheaper and low quality of food products.

In order to analyses these challenges it is appropriate to understand the objectives of the SPS measures according to the SPS Agreement [80]:

– protection of human or animal life from risks coming from food additives, contaminants, toxins or microorganisms causing diseases in foods;

– protection of human life from plant or animal diseases;

– protection of animal or plant life from pests, diseases, or microorganisms causing diseases;

– protection or minimisation of other damages from introduction, establishment or spread of pests.

Food producers and suppliers should comply with the SPS requirements established by importing countries, as well as by their distributors and retailers in order to become and remain competitive supplier. Failure in compliance with SPS requirements of importing country prevents food products from entering to that market. This situation has also potential impact on other stakeholders, including

producers, buyers, retailers and suppliers, importing and exporting countries as well as for consumers that result in serious losses for industries that largely depend on certain supply markets. At the same time in order to earn the trust producers and suppliers must comply with SPS requirements that ensure the long-term trade flow. In this case the recognition by importing country and earned reputation will bring advantageous for all stakeholders as well [158]. For example, an import ban on Lake Victoria fish products imposed by the EU in 1999 due to toxic contamination negatively affected Tanzania, Uganda and Kenya fish industries. Around 0.2 million people in these countries that heavily relied on fishing and supplying of fish products lost their jobs due to closing fishing plants and reducing the volume of fish production [159-161]. The import ban was eliminated in late 2000 after introduction of improvements including the HACCP system in the value chain of fish production [162]. After a while these countries were able to restore their export share and in addition to extend the supply volume of fish products to other markets such as US and other countries.

There are also SPS requirements set up by the private sector that also should be met by importing producers and suppliers. In this case the buyers who are interested in these products can assist in meeting the quality and safety standards as well as requirements on packaging and labeling. Likewise, large supermarket chains require local and foreign suppliers to adhere to systems and procedures that can reliably meet quality and safety requirements. In addition, food from developing countries is made from more processed foods. This means that developing countries are using their comparative advantages in the form of cheap processing labour to be competitive in the global market. Manufacturers and suppliers that can comply with international SPS measures will have easier access to other markets, which will give them a competitive advantage over those that do not comply with SPS requirements.

Implementation of SPS measures that do not comply with provisions of the SPS Agreement, especially those are not harmonized with international standards can significantly impede trade. According to one study conducted by the WB, Africa annually would increase its income by more than $1 billion from expanded export of agricultural products in case of development and implementation of relevant international standards and recommendations [163]. Another case is South Africa it could expand its export of beef products on an annually basis by $160 million if it harmonized its MRL for veterinary drugs in concerned products with international standards. The last case, developing countries exporting bananas to EU could increase their incomes by $5 billion if EU applied the MRL for pesticide chlorpyrifos that is based on relevant international standard of Codex Alimentarius.

The veterinary and food safety control systems (SPS system) in developing countries that inconsistent with provisions of the SPS Agreement can significantly weaken the national economy and affect the public health. It is supported by the statistics on great losses of developing countries that suffer from weak SPS control regimes. For example, currently some European countries, Russia, China and Korea suffer from the outbreaks of African swine fever (AFS), Kazakhstan suffered from Limpy Skin disease in cattle last few years, while several African countries and

China experience breakdowns in FMD control (WAHIS). Therefore strengthening of SPS control regimes in developing countries needs to be considered in conjunction with development objectives related to protection of public, animal and plant health.

In general SPS control system of country should follow: implement WTO SPS measures and commitments; support the domestic business in their abilities to comply with SPS requirements of trading partners; actively take part in the SPS negotiations happened at the WTO and recognised international; standard setting bodies.

Compliance with SPS requirements in the world market is challenging for business itself. Manufacturers should be aware and able to comply with SPS requirements of exporting countries. Most of SPS requirements are formally adapted by legislations and controlled by the relevant authorities however there are also informal SPS requirements set up by business like supermarket chains. Satisfying market demands on competencies of producers and capacity of SPS control system operating in the exporting country. Importing countries (buyers) normally ask for evidences from exporting countries (producers and suppliers) to safe trade guarantees. For example, exporters of livestock products must be able to identify all veterinary risks of the product related to animal health (disease), and to apply relevant SPS measures, monitoring programme on MRL in food products (testing), inspection procedures and certification. It is beneficial if the SPS initiatives in the country are complemented with export strategies on accession of markets. Capacity building of the SPS control system that directed on support the access to export market can also contribute to the strengthening of domestic market and vise versa. Thus, integration of domestic and international goals is possible by an effective technical assistance.

The fulfillment of trade commitments demands efforts that should be applied by developing countries under SPS requirements and undertaken obligations. WTO member-countries in particular developing countries are responsible for fulfilling their obligations under the provisions of WTO agreements. It should be ensured that the standards developed and applied by them are consistent with their SPS obligations; the principle of national treatment should be respected, which requires the application of SPS measures to domestic food, plant and animal sources as well as to imported ones; support measures that are not based on international standards with relevant risk assessment. Numerous developing countries do not comply with international standards, recommendations and guidelines due to lack of capacity. Moreover, least developed countries often face difficulties in fulfilling their obligations on transparency, while the majority of developing countries feel uncertain and find it difficult to protect their rights under the SPS agreement.

Most of developing countries experience a lack of sufficient budget as well as qualified staff in order to participate in discussions on a regular basis that address trade related SPS concerns and SPS measures. This includes regular meetings of WTO SPS Committee and recognised international organizations such as the Codex Alimentarius Commission, OIE and IPPC. Accordingly they can miss opportunities to become aware of amendments and updates on SPS measures introduced in exporting markets, to participate and influence the development of international

standards, and to discuss SPS requirements planned to introduce into the concerned export market. They also can miss the opportunities for development of staff and professional network that enable to engage relevant international organizations as well as potential donors for investments. Due to these reasons most of developing countries are also unable to take a leading role through the hosting of meetings of technical committees and promoting their officials to higher positions of international organisations.

The implications of the SPS Agreement are complicated with regional or bilateral agreements signed by between several WTO members. For example, Kazakhstan is a member of the EAEU and has to follow the relevant EAEU regulation in particular the application of certain veterinary measures adopted by the EEC Commission. On the one hand these agreements demand greater responsibility and capacity of the infrastructures in the veterinary domain. Specifically, the SPS agreement emphases on importance of SPS measures, including improved surveillance and monitoring systems, adequate laboratory diagnosis, risk analysis capabilities and quality assurance [164]. On another hand, official veterinary services worldwide, and particularly in developing countries, are faced with enormous challenges related to shortage of budget, lack of qualified personnel and weak operational capability [165].

Any WTO member-country has the right to apply any veterinary measures in international trade however this should be consistent with WTO provisions. For example, the application of a veterinary measure must comply with the basic principles and rules of the SPS Agreement. In addition, investments and new technologies are essential for export trade development that in turn contributes to the development of industry in the conditions of absence of complaints from trading partners [143, c. 28].

To sum up the global challenges in the veterinary domain related to the international trade, there can be drawn following conclusions:

Firstly, the intensive movement of people and goods contributes to the risks to animal and public health. Current pandemic COVID-2019 firstly registered in China in late 2019 was rapidly spread over the globe in a short period of time.

Secondly, identified global challenges were grouped into three categories by their characteristics: risks to animal and human health due to development of international trade, to the modern challenges related to the world development and implications in terms of compliance with the SPS Agreement.

Thirdly, the risks to animal and human health have significant impacts on public health and international trade that consequently result in great losses in the economy of country.

Fourthly, modern challenges related to the rapid world development demand for constant update in SPS control system and timely response.

Fifthly, compliance with provisions of the SPS Agreement demands not only Governments but also stakeholders' efforts in meeting the SPS requirements of trading partners. In this term Governments should support business.

2.3 An assessment of effectiveness of the public management of veterinary system of the Republic of Kazakhstan

The assessment of effectiveness of the public management of current veterinary system of Kazakhstan was performed according to the OIE PVS tool designed for evaluation of veterinary service performance [55]. Particularly, there are certain indicators that determine strengthens and weaknesses of national veterinary service of its member-countries. This tool is used for the assessment of the country-member by the OIE certified experts as well as for the self-assessment of veterinary service by the country itself. The PVS tool is used for different purposes: the assessment in order to reveal the gaps and weaknesses for further development and strengthen; for attraction foreign investments and technical assistants from different donor international organizations; and for demonstration of independent evaluation provided by third party in order to expand export potential of the country.

Aimed at improving the animal health and welfare globally the OIE has developed a set of standards on quality and capacity of veterinary services prescribed in the OIE Health Code [19]. Based on these standards and principles of good veterinary governance there were adopted the PVS tool. The last edited version was developed in 2019, and this version was used in order to assess the effectiveness of the public management of veterinary system in Kazakhstan.

PVS tool includes 36 indicators grouped into four fundamental categories as illustrated in the table 3. Fundamental categories include human, physical and finding inputs, technical capacity, communication with stakeholders and access to markets. Overall 36 indicators consist of 45 assessment points that highlight the importance and character of come indicators. The assessment scale of the PVS tool with detailed description of each indicator is provided (Annex C).

Table 3 – The indicators of the OIE PVS tool

Indicators	Grade
1	2
I. Human, physical and financial resources	*3,3*
Professional and technical staffing of the Veterinary Services	
A. Veterinary and other professionals (university qualification)	4
B. Veterinary para-professionals and other technical personnel	4
Competencies of veterinarians and veterinary para- professionals	
A. Professional competencies of veterinarians	3
B. Competencies of veterinary para-professionals	3
Continuing education	2
Technical independence	3
Planning, sustainability and management of policies and programmes	
Coordination capability of the VS	3
A. Internal coordination (chain of command)	3
B. External coordination	3
Physical resources and capital investment	4

Continuation of the table 3

1	2
Operational funding	4
Emergency funding	4
II. Technical authority and capability	*2,8*
Veterinary laboratory diagnosis	
A. Access to veterinary laboratory diagnosis	4
B. Suitability of national laboratory infrastructures	4
C. Laboratory quality management systems (QMS)	4
Risk analysis and epidemiology	3
Quarantine and border security	2
Epidemiological surveillance and early detection	
A. Passive Epidemiological surveillance	3
B. Active Epidemiological surveillance	3
Emergency preparedness and response	3
Disease prevention, control and eradication	3
Animal production food safety	
A. Regulation, inspection (including audits), authorisation and supervision of establishments for production and processing of food of animal origin	2
B. Ante- and post-mortem inspection at slaughter facilities and associated premises	3
Veterinary medicines and biologicals	2
Antimicrobial resistance and antimicrobial use	3
Residue testing, monitoring and management	3
Animal feed safety	2
Identification, traceability and movement control	
A. Premises, herd, batch and animal identification, tracing and movement control	3
B. Identification, traceability and control of products of animal origin	2
Animal welfare	2
III. Interaction with interested parties	*2,3*
Communication	3
Consultation with interested parties	3
Official representation and international collaboration	3
Accreditation/Authorisation / Delegation	2
Regulation of the profession by the Veterinary Statutory Body (VSB)	1
Participation of producers and other interested parties in joint programmes	2
Veterinary clinical services	2
IV. Access to markets	*2,8*
Veterinary legislation	
A. Legal quality and coverage	3
B. Implementation and compliance	2
International harmonisation	3
International certification	3
Equivalence and other types of sanitary agreements	3
Transparency	3

Continuation of the table 3

1	2
Zoning	3
Compartmentalisation	2
Total grade	2,9
Note – compiled from the PVS tool [55]	

In order to brief explain each indicator of the PVS tool assessment scale, there was developed the overall grading from 1 to 5 that corresponds to following (table 4): 1 – Poor, 2 – Insufficient, 3 – Minimal, 4 – Good and 5 – Advanced. Furthermore, with the aim to score the assessment of veterinary service in Kazakhstan the methodology of the PVS tool was further elaborated by the author. In particular grades of the PVS tool assessment scale (Annex C) was calculated on average by fundamental categories as well as by all indicators in total (tables 3).

Table 4 – The overall assessment scale for evaluation the performance of the veterinary service

Grade	Description
1	Poor performance of the veterinary service that experiences scarce and gaps in fundamental components
2	Insufficient performance of the veterinary service that provides basic needs for the animal health with application of veterinary measures primarily in domestic market
3	Minimal performance of the veterinary service that indicates there is still gaps that need to address in order to achieve conduct the main tasks
4	Sufficient performance of the veterinary service that allows to provide veterinary control measures in domestic market and partly in the international trade
5	Advanced performance of the veterinary service that ensures sustainable development and control of animal health and food safety in the country
Note – Developed by the author	

Based on the conducted assessment of veterinary service of Kazakhstan according to the PVS tool the overall grade was accounted for «2.9» which is relevant to minimal level (table 3). This means that performance of the public veterinary service is at minimal level which indicates existence of significant gaps and weaknesses in management of veterinary service in Kazakhstan.

Below is provided key findings of the results of assessment of public veterinary service by indicators and fundamental principles.

I. Veterinary service capacity in terms of human, technical and financial resources. Kazakhstan is the largest country in Central Asia and ninth in the world by its territory with a low density of population. Livestock population consisted of around 7.4 million of cattle, 19.1 million of small ruminants, 2.8 million of horses, 0.8 million of swine and 45 million of poultry in 2019. Due to concentration of significant livestock population in the private small holder settings (around 60% of cattle and 80% of sheep and goats) and large distances between rural areas (rayons

and villages) the public veterinary service is well developed in terms of delivering veterinary services within the disease control programmes covered by republican budget. Therefore small holder settings keeping livestock are heavily rely on public veterinary services operating under Akimats in terms of receiving veterinary services free of charge (funded by the government) as well as on the basis of payment. Therefore private veterinary services in Kazakhstan are undeveloped particularly in rural areas. However there should be taken other factors such as the low level of incomes in rural areas, unwillingness of veterinary specialist to move and work in rural areas as well as low salaries of veterinary specialists.

The veterinary service in Kazakhstan was decentralized according to the public policy implemented in the country in 2014 in order to increase the responsibilities of local executive bodies (Akimats). In particular a part of public veterinary specialists with certain competencies was transferred to the Akimats' of oblasts and rayons. Consequently each Akimat (14 oblasts, 3 large cities and 183 rayons) established public veterinary organisations in charge of vaccination campaign, collection of blood samples from farm animals, identification of livestock and other functions listed in detail in articles 9-10 of the Veterinary law. Correspondingly there were established 197 public veterinary organisations and around 2300 veterinary units in oblasts and rayons. There are overall of 7.5 thousand veterinary specialists and around 5 thousand veterinary paraprofessionals work in the public veterinary organisations under the competencies of Akimats. There are in total approximately 12 thousand specialists including the technical staff such as accounting service, operational service, lawyers and other technician specialists.

There was no evidence of conducting evaluation on decentralizations of public veterinary service as well as on its impact on sustainable achievement of goals in the veterinary domain. There was not also provided any evaluation on returning the veterinary inspections services from Akimats to CVCS. This policy decision mainly was based on a number of mostly orally reported failures by veterinary inspectors of CVCS at local levels.

The CVCS with territorial inspection offices has more than two thousand veterinary inspectors working in oblasts and rayons. In late 2019 the veterinary staff of the Akimats in charge of inspection of farms and food producing establishments was returned under the competency of CVCS. There are two decrees adopted by the MoA that prescribe the responsibilities and rights of public veterinarians.

With regards to technical resources there were introduced numerous changes in the veterinary service structure and organization that affected its technical capacity and independence. Establishment of separate CVCS in 2012 with certain financial resources had a positive impact on decision making process. However there is still a lack of independence in one command chain due to being under the MoA which has interests that sometimes conflict with CVCS commitments on animal and public health and food safety.

Moreover relatively frequent changes of CVO resulted in uncertainty and inconsistency in making decision. In this term the CVCS has shown full dependence on the MoA in particular the Vice-minister responsible for veterinary safety issues.

Moreover there were frequent changes in the veterinary staff at the central level CVCS that resulted in change of staff almost by half in the last few years.

There is a lack of procedures on evaluation of performance of public and private veterinarians especially at farms, slaughterhouses and markets. The current veterinary control and supervision system is mainly concentrated on documentation checks. Moreover there was not found any annual report on public veterinary service and animal health in the last few years despite development of annual report is required by veterinary legislation at all levels.

In terms of coordination there is in place a command chain from the MoA to CVCS then to the territorial inspection offices, veterinary laboratories and Anti-Epizootic team. However there is a lack of one command chain or certain procedures between CVCS and public veterinary services under the Akimats. For example, the reporting channels are not directly connected with CVCS inspection offices, consequently there no reporting directly to the CVO. Coordination with and supervision by CVCS are however required by veterinary legislation however there is no recorded evidence on doing that.

There were made significant investments in the public veterinary services operating under Akimats, however the CVCS territorial inspection offices still have insufficient technical equipment. Moreover, main three veterinary educational institutions are lack of relevant technical equipment for educational purposes. Overall veterinary service of Kazakhstan has adequate physical and technical resources to implement disease control programmes.

In terms of financial resources there are operational and emergency budget which is steadily increasing on an annually basis. Routine veterinary measures are carried out by public veterinary organisations operating under the Akimats. The sufficient budget is allocated for laboratory tests annually. The emergency cases are also stable covered by republican budget. In case of outbreaks the Anit-epozootic team has sufficient personnel and equipment for implementation of eradication measures.

In the case of applications of quarantine and eradication measures there is a specific budget allocated for compensation of culled and dead animals caused by highly dangerous animal diseases.

Regarding veterinary laboratories there is well developed network distributed throughout the country with sufficient number of units at rayon levels. There were constructed 114 new buildings of veterinary laboratories located in 11 oblasts and 103 rayons. There are sufficient number of laboratory specialists and laboratory equipment that primarily work with tests on Brucellosis covered by the republican budget (see subsection 2.1). Overall there are 16 regional and 186 rayon veterinary laboratories under the competency of RVL. There is already capacity for tests on food safety parameters that are provided on the basis of payment to business and other interested stakeholders.

The challenge with RVL branches and units at the local level that most of them have large new buildings constructed few years ago. There was no evidence on evaluation on needs for construction of such large buildings. Therefore it was

suggested to use the spare rooms of these veterinary laboratories by sanitary services for food safety purposes in light of last emergency related to pandemic COVID-2019. In additions the costs of maintaining large veterinary laboratory network are considerably high therefore it is needed to optimize the organizational work in order to ensure sustainability of the network and sufficient use of highly sophisticated laboratory equipment as well as to train laboratory specialists.

There is in place regulation on coordination of activities of relevant authorities in implementation of veterinary activities (Decree No.16- 04/676 as of 2014) that determine the obligations of all relevant public authorities on collaboration and coordination of their activities aimed at implementation of animal health and food safety activities. This relates to the certain authorities in charge of veterinary safety, public health, internal affairs, protection of national borders and local executive bodies.

Currently there a comprehensive programme on implementation of IHR that includes development of detailed action plan for 2018-2022 by MH in collaboration with MoA, MIA and other relevant governmental authorities. This covers zoonosis, food safety issues, biosecurity, AMR and biologicals, chemical and radionuclide incidents. The main objective of this programme is to promote collaboration different governmental authorities in order to improve the legislative framework, epidemiological surveillance, national capacity in laboratory tests, risk communication as wee as rapid response in case of emergencies and incidents.

There is inadequate infrastructure and obsolete equipment of veterinary border inspection posts located. There is a lack of suitable facilities for veterinary check at the border as well as for quarantine and suspected. There was not also designated BIPs for import, export and transit of live animals as well as for perishable food products.

There is a gap between coordination and collaboration between veterinary and sanitary inspection services in official controls of food business operators due to being under authority of different ministers. Therefore it is not clear their functions in inspection procedure provided in food producing establishments. There is a strong need for improvement in delineation of responsibilities, communication and optimization of resources.

II. Technical authority and capability of veterinary service. In order to conduct risk assessment the CVCS established the risk analysis division in its structure. However there is no evidence in conducting risk analyses in the last few years. It is suggested that this is due to poor expertise in this division as well as in qualification of relevant specialists responsible for risk assessment. Thus technical support with regard to risk analysis is needed. Risk analysis capacity needs further strengthening to support epidemiological surveillance, disease control programmes and monitoring.

Border inspection posts (BIPs) are sufficiently staffed but have inadequate facilities and equipment. There is no categorization of BIPs in regards to the commodities allowed to be introduced and no infrastructure and equipment requirements have been defined.

The number public of veterinary specialists and veterinary laboratory network

present a solid ground for carrying out the active and passive surveillance within the animal disease control programmes, early detection and epidemiological investigations of outbreaks. The surveillance provided by the public veterinary service under Akimats is concentrated mainly on application of veterinary measures within the animal disease control programmes funded by the republican budget. This includes vaccination of animals and blood sampling and delivery them to veterinary laboratories, and identification of farm animals. These activities require public veterinarians visit farms on a regular basis at least two times per year (early spring and late fall) that increases the accessibility of veterinarians to farmers. The reports after farm visits include only quantitative data in vaccination, blood samples and animal identification. Within thin activities there are no documented evidences on surveillance or early detection of outbreaks. Outbreaks are mostly reported by farmers to public veterinarians and in the majority of cases only highly dangerous or emerging new animal diseases. There is a lack of surveillance and registration of non-infectious diseases in farm animals.

Since late 2019 the competence on inspection of food establishments and certification of animals and food products were returned back to the CVCS. Therefore today efforts of veterinary inspectors of the CVCS are mainly concentrated on two areas: control of food producing establishments according to the Plan of inspection adopted annually; and certification procedures for domestic, regional and international trade. There are few findings of non-compliances with veterinary requirements at the check points such as markets and slaughterhouses, while no reports on were made by food establishments that have private veterinarians. The only data submitted to the relevant higher authorities are only quantitative data on carried out inspection and control measures.

Prolonged absence of suspicious or positive findings of non-compliances at the check points of food production chain by public veterinary service raise concerns on quality and sensitivity of passive surveillance system as well as early detection in place in Kazakhstan. This also might be the problems of correct understanding the surveillance system as recommended by the OIE Code (OIE Code).

The active surveillance system (official programme on laboratory tests of animal diseases) also is not consistent with the OIE recommendations. Particularly, blood sampling strategy is not based on risk assessment and managed in terms of representativeness of samplings. The annual blood sampling plan is developed by the CVCS based on proposals submitted by the Akimats of oblasts that are collected from Akimats of rayons (public veterinarians). The latter develop the plans based on the number of livestock and veterinary requirements if any are prescribed (for example, there is a sampling strategy for Brucellosis).

There is a potential conflict of interests between selected animals for samplings and post-vaccination surveillance. Selection for blood samplings are made by veterinarians at farm levels on a random basis. This might result in cross-reaction of tested animals selected for samplings that were already vaccinated earlier. Moreover the sampling does not consider the commingling animal husbandry system in Kazakhstan and random selection methods based on herd, village or rayon.

Early detection and emergency plan are based on veterinary legislation. There is regulation that prescribes certain procedures for early detection of certain highly dangerous animal diseases. Anti-epizootic team is responsible for emergency plan funded from the republican budget. This is limited by the list of highly dangerous animal diseases adopted by the MoA. Anti-epizootic team is sufficiently staffed and technically equipped. There are 14 territorial branches at oblast level throughout the country. There is relevant information for contingency planning for animal diseases. However there is a lack of adopted contingency plans designated for taking common actions. This also relates to food safety emergencies.

Animal disease control programmes include vaccination and laboratory tests for certain animal diseases adopted by the CVCS. There are around twenty animal diseases included into the official control programme such as brucellosis, tuberculosis, FMD, HPAI, anthrax, rabies and others. It is stated that all animal diseases included into the official control programme based on the risk assessment supported by the Kazakh Scientific Research Veterinary Institute (KSRVI). However it seems the programme is not always supported by the scientific evidence and risk assessment because the majority of diseases have sustainable dynamics vaccination and tests over the years. For example the strategy for tuberculosis continues to test twice a year for all livestock while there are no reported outbreaks for several years. Therefore there is a lack of monitoring and scientific evaluation of efficacy and efficiency of control programmes. Moreover are no evidences of periodic revision and evaluation of the control programmes. When designing the disease control programmes the cost-benefit analysis is not used.

There is a lack of cooperation with sanitary service which is under the CQCS (MH). There are two authorities in charge of food safety along the entire food production chain: from farm to processing stage is under the CVCS; and from processing to marketing (including packaging and labelling) is under the CQCS. Due to the competencies of two authorities there are some overlaps and gaps between CVCS and CQCS. For example, veterinary service is responsible for providing veterinary-sanitary expertise that is pre-requisite for certification of food products. According to the Veterinary law, veterinary-sanitary expertise is the laboratory test for determining the compliance of animal origin food products and raw materials, feed and feed additives with veterinary norms through the complex of organoleptic, biochemical, microbiological, parasitological, toxicological and radiological tests. At the same time there are sanitary epidemiological and hygienic requirements to food products of animal and plant origin. These requirements include the same parameters of food safety such as biochemical, microbiological, parasitological, toxicological and radiological. Laboratories of both veterinary and sanitary services provide the same tests for food safety and therefore it is difficult to clearly define the boundaries of these two: under of which authorities these food safety parameters fall. In terms of the origin of food products it falls under the veterinary service authority, however in terms of for human consumption this falls under the authority of sanitary service. Furthermore duplications between these two authorities often appear at the check point where two services meet at the processing stage. Veterinary service is

responsible for slaughter and supply of raw meat to processing establishments, where the sanitary service is responsible for processing stage. All food producing establishments fall under the control of two services, and often they both check the same processes. With regard to control of zoonoses there often gaps observed. For example infection of humans from animals such Brucellosis, rabies and anthrax are the main area for gaps.

Quality management systems based on HACCP principles are mandatory only for export food products while domestic food producers implement the HACCP principles on a voluntary basis. This situation does not provide adequate assurance of food safety and accordingly affect the confidence of consumers.

Control of slaughterhouses is one of the most complex challenges for the veterinary service. There is a mandatory requirement for animal slaughter designated for human consumption under the official control of veterinary service. There was adopted a requirement that meat entering the market must originate from animals slaughtered after official veterinary control. However due to traditional and cultural perspectives adherence to this requirement is challenging.

Numerous veterinary measures applied for disease control purposes are not based on cost-benefit analysis. For example, imported animals and animal origin food products at the border check points undergo through the random checks based on veterinary inspectors' choices while the number of veterinary inspectors do not take into account the volume of imported goods subject to veterinary control.

There is no legal basis for control of sale and use of veterinary drugs and antimicrobials. There is registration requirement for imported and newly produced veterinary drugs including biologicals and feed additives provided by the CVCS. However it is not sufficient for ensuring the prudent use of antimicrobials and hormones in livestock. There is no requirement for ensuring slaughtered animals for food before the withdrawal period expired after the treatment with antibiotics. Furthermore there is no regulation for AMR programme. There is an attempt in this area through collaboration with CQCS on joint development of national AMR action plan.

The monitoring programme of residue levels in food products is not based in risk assessment. This monitoring programme is carried out by NRL however its capacity is not sufficient taking into account its location in Nur-Sultan (only one laboratory for the whole country) and technical capacity for all relevant tests. Moreover this programme covers only certain food products and limited residue levels in food products while no tests in live animals carried out.

III. Communication and consultation with stakeholders. There is a lack of communication channels between the veterinary service and stakeholders as well as between the veterinary service and public. For example there is no separate official web-site of the CVCS and there is only MoA's web resource. The content of the MoA's web site is poor in term of basic information such as veterinary regulations, plans, reports and animal disease information etc. There is a need to expand its content and fill in with information on veterinary requirements and measures applied with translation in English as well. In addition this would improve the visibility of the

veterinary service. Furthermore there is a lack of special communication officer responsible for extending the CVCS communication capacity. There is a lack of brochures, booklets and other info-graphs presenting the most important veterinary requirements in a visible and simple way.

There is a lack of association representing private veterinarians. There is a few NGO that represent the legal entities mainly producers of food products and veterinary medicines.

There is no evidence on consolation with interested parties on agenda of meetings of international organisations. For example since late 2015 after becoming the full member of the WTO most of time the head of the MoA participated in the meetings of SPS Committee. However there is Department for veterinary and food safety in the MoA (DVFS) in charge of development of legislation and international cooperation while the CVCS under the MoA is in charge of control and inspection measures. It is recommended participation of the veterinary service in discussions of topics specific to veterinary measures rather than political person. In this term the application of veterinary measures should be apart from political and economic issues. The same applied to the work of Codex Alimentarius where the veterinary service is a part of the team of national experts for the Codex Alimentarius.

There is poor collaborative work between DVFS and CVCS due to individual attitude of the head of the MoA to the veterinary service. This situation sometimes makes challenging the joint work of two divisions. Therefore it is recommended to consider integration in one authority without division by competencies that ensure the single vertical command chain.

There is undeveloped private veterinary service due to implementation of all measures within the disease control programmes by public veterinary service under the Akimats at local level. The decision on establishment of public veterinary services under the competence of Akimats at oblast and rayon level was made based on complaints from local veterinary inspectors. The complaints addressed the concerns on taking responsibilities upon carried out veterinary measures such as vaccination and blood samplings. However it is suggested that this decision was supported by risk assessment and cost-benefit analysis.

The absence of VSB is continued to be challenging despite repeated recommendations made by the OIE experts. There is still no legal basis for VSB, its role and competence. Since the private veterinary service is undeveloped at rural level due to hiring them by public veterinary service under the Akimats it is projected that private veterinary field network will continue be out of the attention. This situation does not add any value to the establishment of the VSB as there will be lack of members.

There are formal procedures for consultation with stakeholders, public and an assessment of economic impact in development of amendments to the veterinary legislation. However in fact these procedures do not add any value or make a significant impact on amendments. In particular the public council established within the MoA is leaded by the minister and their members mostly compiled from affiliated organisation. There are few gaps and weaknesses in public control of the veterinary

system that need to address.

IV. Access to markets. There is a lack of harmonization of veterinary regulation with international standards and recommendations. This includes provisions on establishment of Veterinary Statuary Body, animal welfare, control of AMR and food safety standards. In 2013 Kazakhstan established the OIE Sub-regional FMD Coordination Office located in Nur-Sultan. This aimed at development of collaboration in Central Asian region on issues related to FMD control. Therefore there is a room for further improvements and taking the leadership in the region.

The veterinary certification procedures are mainly focused on control of final food products and neglect implementation of HACCP principles and compliance with hygiene requirements at establishment level. Moreover there is a lack of training and authorization of veterinary inspectors of CVCS responsible for export certification.

There are some challenges reported by the OIE in terms of providing answers and clarifications on regular reports on animal diseases submitted by the CVCS. For example, there were mentioned about delays in responses of the CVCS when they were asked for clarifications in reports submitted for 2016-2017.

Moreover there is insufficient level of harmonization with SPS agreement. For example veterinary legislation does not consider the basic principles of the international trade such as equivalence, transparency, risk assessment, national treatment, non-discrimination and non-trade restriction. These provisions are in the EAEU regulations however most of veterinary inspectors do not familiar with them.

Based on the assessment of veterinary service of Kazakhstan following conclusions can be drawn:

Firstly, there are certain strengths of the veterinary system of Kazakhstan. The veterinary field network has been established with sufficient number of veterinarians and veterinary paraprofessionals to perform official activities. There are also required qualifications and working experience defined for each post. There is regular attestation (every three years) of public servants in place which includes theoretical examinations of veterinarians and veterinary paraprofessionals.

Secondly, several weaknesses in private and public veterinary service performance were found. There was no evidence of verification of performance of public and private veterinarians at the place where they conduct official activities (farms, slaughterhouses, markets). The current supervision system is focused mainly on documentation checks. Current system whereby all the official and unofficial animal health tasks are being performed by the public sector does not favour development of private veterinary services.

Thirdly, there are frequent changes of senior management of the CVCS that undermines a stable environment in consistency of making decisions.

Fourthly, there is a lack of cooperation with sanitary service which is under the CQCS (MH). There are two authorities in charge of food safety along the entire food production chain: from farm to processing stage is under the CVCS; and from processing to marketing (including packaging and labelling) is under the CQCS. Due to the competencies of two authorities there are some overlaps and gaps between CVCS and CQCS.

Fifthly, with respect to veterinary inspections there is a lack of findings on non-compliances and suspicious notifications at different parts of veterinary service visited. Ante- and post mortem inspection is performed by the veterinarians employed by the slaughterhouses. There is a burdensome procedure on inspections of food processing establishments that can be performed only with authorization of prosecutors or by invitation from establishments.

Sixthly, there is a lack of communication channels between the veterinary service and stakeholders as well as between the veterinary service and public. The content of the MoA's web site is poor in term of basic information such as veterinary regulations, plans, reports and animal disease information etc. There is a need to expand its content and fill in with information on veterinary requirements and measures applied with translation in English as well.

Seventhly, there is a lack of harmonization of veterinary regulation with international standards and recommendations. This includes provisions on establishment of Veterinary Statuary Body, animal welfare, control of AMR and food safety standards. Moreover there is insufficient level of harmonization with SPS agreement. For example veterinary legislation does not consider the basic principles of the international trade such as equivalence, transparency, risk assessment, national treatment, non-discrimination and non-trade restriction.

Eighthly, this assessment is based on PVS tool that enables the veterinary service to self-evaluate and to identify the gaps, weaknesses that need to address and opportunities for innovation in order to enhance and strengthen its quality and capacity. Finally it enables countries to prioritise further improvements in the veterinary system.

3 ENHANCEMENT OF THE PUBLIC MANAGEMENT OF VETERINARY SYSTEM OF KAZAKHSTAN WITHIN THE MEMBERSHIP TO THE WTO

3.1 A new structure (model) of the veterinary and food safety system of the Republic of Kazakhstan

Based on the conducted analysis of the current situation of the public management of veterinary system of Kazakhstan there is a justifiable need for reformation of the national veterinary system with introduction of a novel model of the veterinary service. There were found significant weaknesses of the veterinary system compromising a lack of horizontal command chain, some duplicating functions and gaps in control measures along the entire food production chain «from farm to table» and a weak cooperation on implementation of the «One Health» approach.

Moreover due to these shortcomings, the country's veterinary service does not comply with international standards and recommendations as part of the OIE membership. As a further implication of this, the application of veterinary measures is unlikely to meet the international trade rules and commitments undertaken under the WTO membership. In addition there are certain global and national challenges occurring in the constant changing world that demand to a holistic approach, agility, and timely responses.

These weaknesses and modern challenges therefore demand a comprehensive and integrated approach to food safety, including veterinary safety. This means that the responsibility for all aspects of food safety should be clearly defined. Involvement of central and local authorities and stakeholders is need to appropriate address these challenges and strengthen not only the veterinary system, but also the food safety system along the value chain of food production.

It is important to realize that the current food chain of Kazakhstan is not the safest in the world and in general it functions in a segregated manner. There are at least two competent authorities (MH and MoA) is responsible for food safety issues. There are gaps in the food chain that are beyond of the control. Since the Soviet Union collapse the national food industry is still undeveloped even after three decades. Therefore it needs to adapt a new concept of veterinary and food safety control system based on the control system «*from Farm to Table*». It is recommended to develop the veterinary and food safety policy around the standards of food safety. The main objective should be protection animal and public health and promotions of standards based on best international practices and recommendations. It is important for Kazakhstan to develop of agro-food sector, increase export of high quality of food products, in particular organic products according to the priorities consistent with development of agricultural policy [66].

It is recommended to organise the veterinary and food safety policy in an integrated and coordinated manner. In this term it is important to address revealed gaps, insufficiencies and at the same time to build the strong legal framework of veterinary and food safety policy in accordance with international standards,

recommendations and guidelines. This in its turn contributes to the accession new foreign markets that boost domestic food production. Meanwhile it is recommended to stress the cooperation between all interested stakeholders and involved parties that ensures full operation of the comprehensive system. In this term the commitments undertaken by all responsible stakeholders should ensure appropriate performance and maintenance of the system.

Moreover there is a need for development of confidence and trust in public. For this purposes the veterinary service should be transparent and closely communicate with public via channels of consultation. Transparency includes publication of all legislation, reports, information on diseases and results of control measures with a systematised interface. In this context the official web-site of the authority should provide all necessary information on veterinary requirements and procedures as well as drafts of legislation for public consultation. Communication with public and other stakeholders should provide a wide range of channels including online requests, compliance procedures as well as meeting for discussions. The trust should be earned with openness and demonstration of willingness of the veterinary service to communicate with public and other stakeholders.

There is also a need for development amendments to the existing veterinary legislation. In this light certain amendments to the Veterinary law are developed according to (Annex D). In particular principles of public policy in the veterinary domain as well as basic provisions of application of veterinary measures in accordance with internationals standards should be adopted.

The enforcement of provisions of veterinary legislation should be subject to regular inspection and assessment. This relates not only to business operators but also to public and private veterinary services in particular those working in the field with animals and food products.

These above mentioned recommendations should positively contribute the development of the EAEU single market. The main purpose of ensuring the single market at regional level should be protection of consumer health and animal health. Moreover the development of single market is possible in the conditions of ensuing food safety and trust of consumers.

A single Veterinary and Food Safety Agency (VFSA) should be established holding the competencies in veterinary, phytosanitary, food safety, including food hygiene and labelling requirements throughout the whole food chain from farm to fork (figure 16). This means establishment of single control and supervision over the food products produced within the country, as well as imported and exported food products, including live animals and plants. The VFSA will be formed from the MH's CQCS and MoA's two committees CVCS and CIS in the part of phytosanitary control. The new structure of the VFSA is illustrated in the figure 16. This organizational reformation can be done within the available personnel and financial resources of two committees.

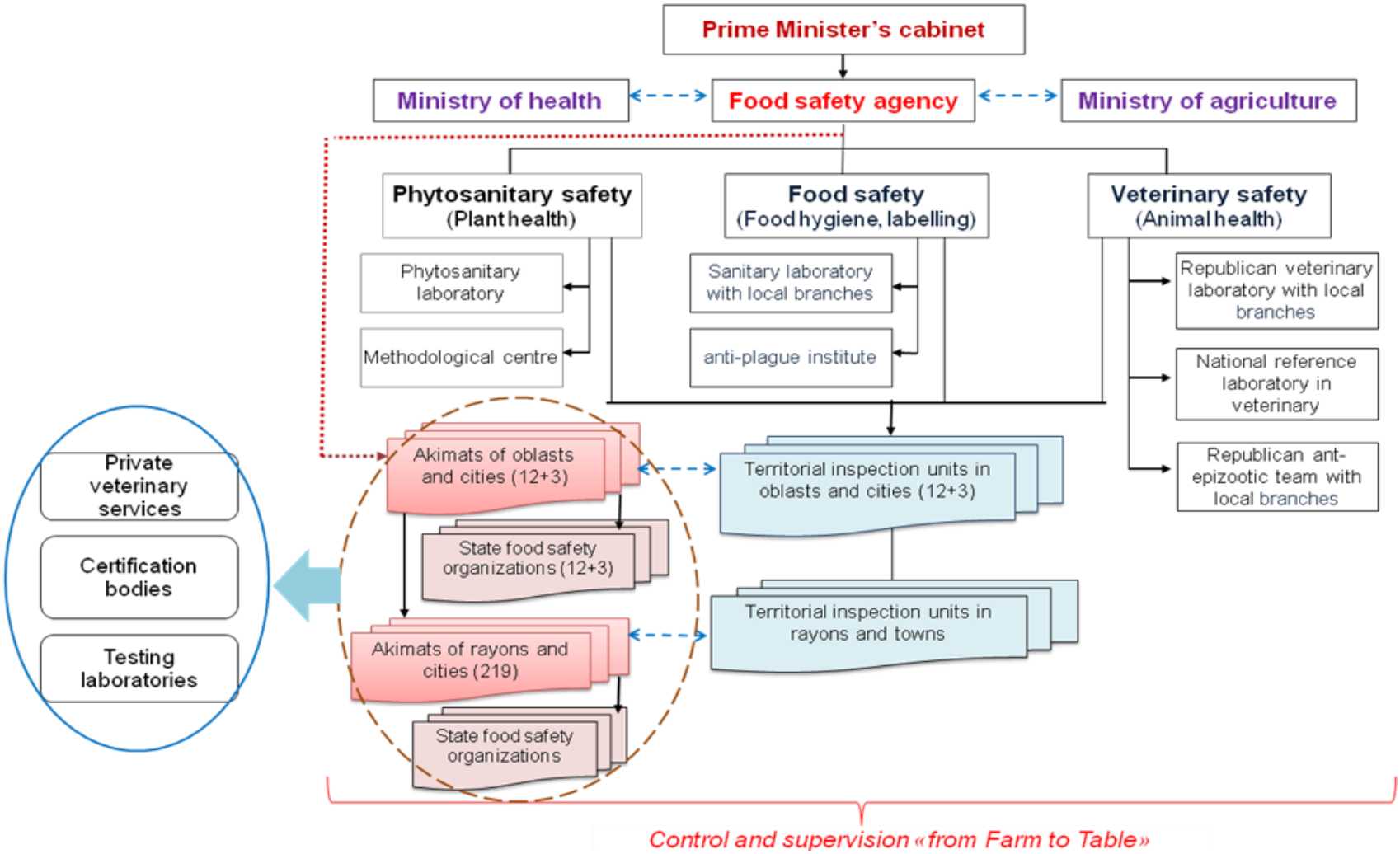

Figure 16 – The new structure of the Veterinary and food safety agency

Note – Developed by the author

VFSA will provide the effective means in achieving strategic goals to protect public health and to develop consumer confidence. The primary focus of this agency will be production, delivering, placement and export of safe and quality food in domestic and foreign markets.

The role and functions of VFSA must be determined in the context of risk analysis. This includes three components according to the OIE recommendations: risk management; risk assessment; and risk communication. The risk management will be provided by the VFSA. For this purposes should be developed appropriate legislation, including the update of existing regulations, and implemented effective control. Development of new and working food legislation is required that will replace the existing one. VFSA will also be in charge of implementation and enforcement of food legislation. The control measures will be carried by the through the territorial inspection offices at oblast and rayon levels of the VFSA and the results of control and relevant recommendations will be reported to the departments of the VFSA. Based on this information the VFSA will make decisions on applying safeguard measures.

Risk management consists of consulting and decision-making, monitoring and control of food safety programs and activities, liaising with stakeholders on the results of risk management. The above functions are based on the findings provided by the Risk Assessment Institute (RAI). This main purpose of the risk assessment is to provide science based advice and expertise. Collection of sufficient and valuable information is essential for development of solid science based advice. In this line surveillance and monitoring activities in the field of animal and public health, food safety, information systems in agriculture and rapid reporting system are valuable for generation of relevant knowledge.

Cooperation with other authorities and stakeholders and exporting countries will be carried out by VFSA. This includes activities regarding conclusion of agreements, development of international standards and recommendations, recognitions of equivalence and evaluation of foreign control systems.

Separation of competencies of risk management and risk assessment is based on the EU practice. It is recommended to have separate and independent institutions for these functions. One of the best examples the EU model, where the EFSA is an independent organization under the EC (not DG SANTE). However, taking into account EU member-states' experiences, institutions responsible for risk assessment might operate under the competency of the food and veterinary authority [97, p. 35].

The VFSA should have an independent status in order to have the sole power in decision making in the field of public, animal and plant health protection and ensure of food safety. This will eliminate the conflict of interests (e.g. agricultural development) between different authorities and brings confidence in making decisions. The independent status will contribute to the openness and bring the opportunities for development of sustainable and long term strategy in food safety. Therefore FSA should have the status of the agency under the direct coordination of the Prime Minster of Kazakhstan, and VFSA's chairman should be represented in the Government of Kazakhstan along with other ministers. The independence of the

VFSA also enables to achieve the agreement at the level of Prime Minster, in case of having disagreements with interested authorities (e.g. MoA, MH, MNE, etc).

The organizational chart of the VFSA is presented in the figure 17. There are three Departments responsible for three areas: A – veterinary service, B – Sanitary service and C – phytosanitary service. There is also RAI under the FSA that will provide risk assessment in all areas veterinary, phytosanitary and food safety, as well as food hygiene and labelling.

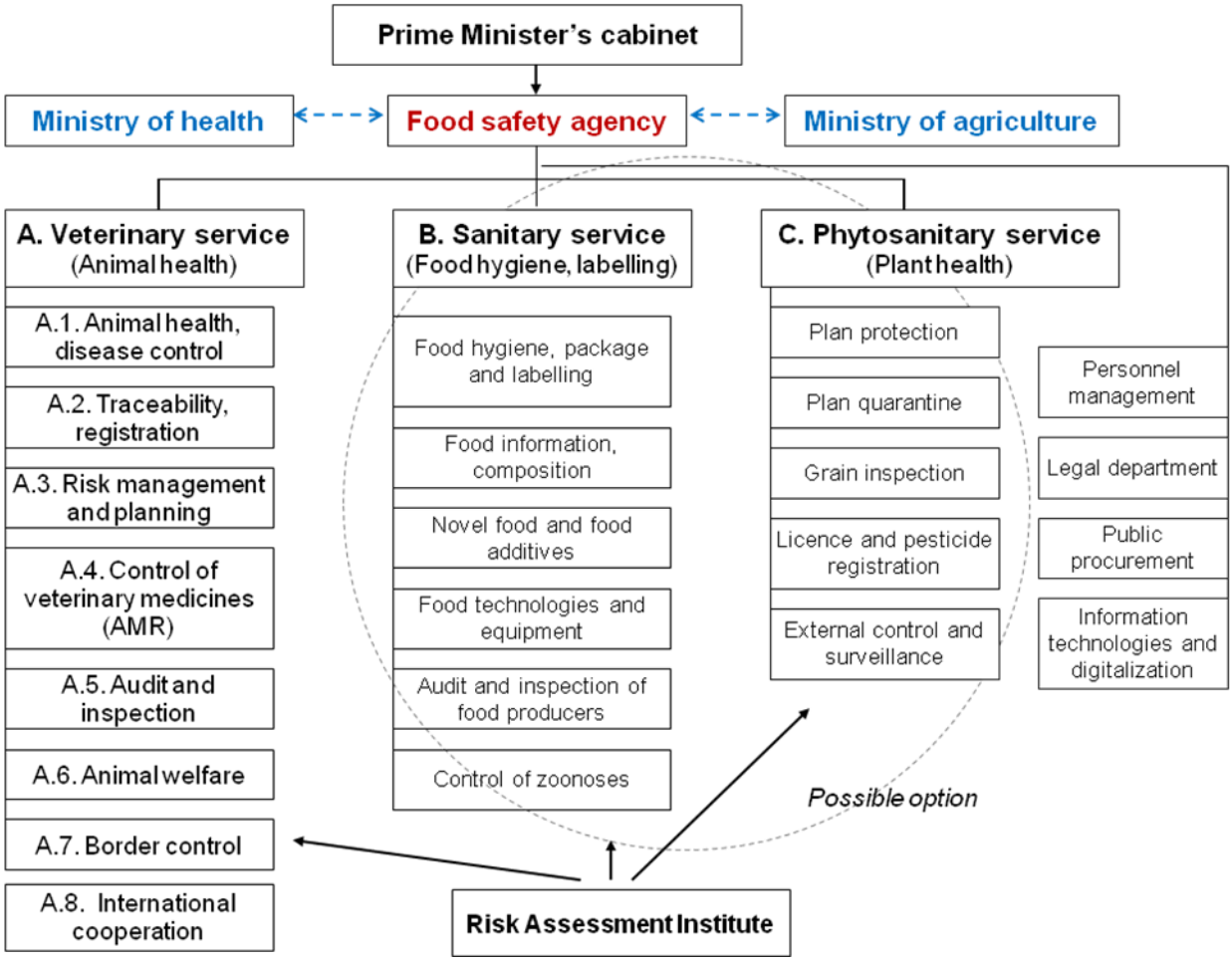

Figure 17 – Organisational chart of the Veterinary and food safety agency

Note – Developed by the author

The quality and effectiveness of performance of the FSA largely relies on the leadership including its confidence and reputation. The FSA should be led by an authoritative person with relevant education and experience in concerned areas. Moreover, the professional skills of leadership must meet the requirements to high level of top managers including managerial experience, speaking and persuasion abilities. The leader should be able to timey adapt and adequately response to the modern challenges [101, c. 160]. In this way it should be able to recommend itself as an authoritative landmark for food business, consumers, local executive bodies and the global arena in general.

The FSA will be accountable directly to the Prime Minister of Kazakhstan. This ensures its independence and confidence in duties carried out on behalf of consumer interests. This concentrated all efforts of the FSA on protection of the human health as well as animal and plant health. Moreover, this contributes to the development of consumer trust in supplying of safe food products placed in domestic market.

The FSA should have flexibility and rapid responsiveness that the modern challenges. It would provide a single and visible point of contact for all concerned parties. The FSA should become a consumer-accessible authority providing information and guidance on animal and public health, food safety development, including food incidences and emergencies. There should be presented information in order to ensure the awareness of consumers on food safety issues based on which they can make informed choices in food products.

The FSA should close cooperate with national authorities, scientific research institutions, NGO, quasi-sector and other interested stakeholders on food safety concerns. There must be active cooperation with international organisations in order to comply with certain obligations undertaken by Kazakhstan within the membership and to open new exporting channels for domestic agricultural products.

The FSA should ensure compliance with essential principles. This includes transparency, independence and excellence. In confirmation of applications of these principles the FSA should be able to demonstrate its accountability to the public and Government. Thus the FSA should be independent from political as well as business interests, leaded by the science based approach and open for thorough public control and work close with scientific communities and international organisations.

The FSA should learn and adapt the advanced international practices with a long term experience and successful development and performance. Among them the European Food Safety Agency, US Food and Drug Administration and Canadian Food Inspection Agency.

The professional and quality of personnel of the FSA as well as RAI should be one of the important tasks. It will ensure that the staff has suitable qualified specialists and relevant experience the field concerned. FSA should be able to respond in timely and flexible manner in order to tackle food incidences and emergencies. At the same time RAI should provide assistance to researchers that are in charge of scientific opinion and data collection and their analyses.

Transparency is important not only for data collection and evidence based decision making, also for building consumer trust. This includes open and fast presentation of information, recommendations and scientific advices by FSA. Delivery of necessary information to consumers and other interested stakeholders should be in a transparent and timely way, that response to human rights on accession to information. For this propose there should adapted procedures and maintained the open sources for publishing information. It is important to well maintain the official web-site of the FSA with providing all necessary and updated information.

The establishment of the novel model of food safety policy takes certain time. It needs to understand that this organizational reform should be introduced with a

well developed legislation, certain budget and clearly defined mechanism of implementation. Therefore the following timetable is projected:

1) development and agreement of the concept – 2021;
2) adoption of budget and new Food safety law – 2022;
3) establishment of the FSA and RAI – since 2023.

In order to tackle the global emergencies related to zoonoses and food-borne diseases it needs close and efficient cooperation with MH. On this matter it is proposed to develop emergency and action plans with clear identification of responsibilities, time frame and common actions for concrete emergency cases. This will introduce and adapt the concept «One health» between state MH, FSA and MEP. In this term relevant regulations developed by the WHO and OIE should be taken as a guidance. The establishment of FSA already covers the certain areas of «One health» concept in the part of food safety, hygiene norms and labelling requirements. However, continuous cooperation with other state authorities need for building preparedness and drafting prevention measures.

There should be created favourable conditions for development of private veterinary services, certification and laboratory tests in Kazakhstan. Especially this is relevant to rural areas where the livestock, farmers and business representatives are located. Today in the existing veterinary system the application of veterinary measures such as blood samples and vaccination against certain animal diseases are carried out by Akimats at rayon levels. These functions can be delegated to the private veterinarians in rural areas that in its turn will drive the further development of private market of veterinary services. This also positively contributes to the increase of livestock production through the treatment of non communicable animal diseases by private veterinarians. At the initial stage there can be introduced incentives and developed a mechanism for certain responsibilities of private veterinarians.

To sum up the above prescribed new food safety and animal health policies of Kazakhstan the following conclusions can be made:

Firstly, the veterinary system should be considered in the context of food safety policy based on the best international practice «*from farm to table*».

Secondly, a new food safety policy based on the control throughout the food production chain is recommended to develop.

Thirdly, there is need for establishment an independent Food Safety Agency encompassing veterinary, phytosanitary and food safety as well as separate Risk Assessment Institution for science based decision making and risk communication.

Fourthly, a great attention should be paid on staffing of the FSA and RAI, including the appointment of relevant leadership.

Fifthly, adoption of new legislation and accordingly the establishment of new organizations require certain time for smooth adaption and efficient performance in future.

Sixthly, close cooperation should be established between MH, FSA and MEP in order to efficiently deal with global emergencies. For this purpose it recommended to adapt the concept «One health».

3.2 Basic principles of the public management of veterinary service of Kazakhstan

Establishment of the fundamental principles and criteria of the public management of veterinary system is essential for building a strong and responsive national veterinary service in the country. In this regard international organizations have developed a set of standards and recommendations to the quality of veterinary service that enable to ensure of food safety at national and international levels. At the same time introduction and implementation of these principles contribute to the Kazakhstan's international commitments undertaken under the membership in such organizations. They are basic principles of the veterinary service recommended by the OIE, main principles of veterinary measures provided by the SPS Agreement and criteria for evaluation of the veterinary service.

In the context of this research the veterinary service is a part of veterinary system. The veterinary service often refers to the competent authority in terms of their responsibility and functions. According to the OIE, veterinary service means the governmental and as well as non-governmental organization(s) responsible for animal health and welfare measures and for the application of measures and standards in the veterinary domain.

3.2.1 Basic principles of the veterinary service

The OIE developed a set of principles of the veterinary services that depend to different factors. These factors relate to the organizational, legislative, regulatory, technical and ethical features. Despite political, economic and social situation of the country the veterinary service should comply with the basic principles provided by the OIE in order to establish and maintain the effective performance of the national veterinary service [19]. This certainly contributes to the development of confidence performance and trust in the veterinary service of country.

The veterinary service of Kazakhstan must confirm the following fundamental principles of the veterinary service: it should be legitimate, independent, impartial, objective, integrity, self-sufficient, professional judgement, with developed legislation, quality policy and standard operating procedures, adequate recording system, and self-evaluation.

1. Legitimate. The veterinary service should be legitimate in order to provide good veterinary governance. This is based on developed and adopted veterinary legislation. Legal framework of the veterinary service provides the competence and responsibilities of key actors. Developed veterinary legislation should contain basic principles and primary tasks of the veterinary service, its structure and relationships with other organizations involved in the veterinary system. Flexible veterinary legislation ensures timely responses in the context of changing conditions such as emergency situations, shortage of available resources and trade relationships. Veterinary legislation also should provide legal basis for making decisions and judgements in application of veterinary measures. There should be legal basis for veterinary organizations with their responsibilities and clear relationships between them. This includes animal identification and traceability system, animal movement,

veterinary control measures, surveillance and risk assessment, rapid alert system in case of emergencies and reporting mechanism, communication and consultation. Moreover legislations should outline the application of international rules and commitments within the international membership of the country. This covers all aspects of veterinary system including animal health and welfare, public veterinary service, food safety issues and protection of environment.

2. Independent. The veterinary service should be independent and free from political, economic, financial and commercial pressures. Otherwise these might negatively affect the performance of the veterinary serve and undermine its reputation and trust. Judgements and making decisions of the veterinary service should be targeted exclusively on protection of public and animal health. For example, the objectives of veterinary measures shall not be neglected in favour of the export of livestock products. In contrast the strengthening of the veterinary system shall contribute to the development of agriculture or support export potential in animal food products. Therefore the veterinary service should have absolute independence in order to avoid the conflict of interest with other authorities.

3. Impartial. This means making decisions and judgements of the veterinary service should be taken in a non-discriminatory manner. Particularly, all stakeholders involved into the veterinary system have the rights to receive equal, full and adequate veterinary services. This means that the application of veterinary measures should be based on concrete legislation and without prejudice preferences to some stakeholders. Moreover the application of veterinary measures should be based on equivalence, scientific evidence and risk assessment.

4. Objective. The veterinary service should act in an objective and non-discriminatory way. Objectivity means that making decisions and judgements should be based on facts and evidences without influence of personal beliefs, preferences or feelings. With regard to non-discriminatory manner it means that the application of veterinary measures should be applied on an equally basis. The latter one is also one of the key principles required in international trade among the trading partners [63].

5. Transparent. This principle is tightly connected with impartiality and objectivity of veterinary services according to the OIE. Transparent veterinary service is one of the fundamental principles. This ensures the openness of veterinary services contributing to the fast delivering of important information to the interested parties, raising awareness of the different stakeholders and helps to build the trust in society at national and international level. Moreover it would reduce the number of appeals and complaints of businesses, consumers and other interested parties. For example, one of the best ways to be transparent is to develop and timely maintain the open official internet resource of the veterinary service. This means publication of all necessary information on the official web-site of the veterinary service including systematized legislation, control programmes, budget plans, inspection plans, their results, all registers, updated animal health situation in the country and worldwide, important information for different stakeholders, etc. In order to improve the transparency and develop a participatory approach there might be set up online feedback channels, platform for discussions, last news, and veterinary statistics. The

overall content should be developed in a customer-oriented way, including business, consumers, experts, academia, international communities, foreign governments and etc. The web-site should present all information in three languages (Kazakh, Russian and English).

6. Integrity. The veterinary service should be honest with strong moral principles. It should guarantee that veterinary service including its organizations and territorial units have the high level of integrity and consistency. It also means that corruption, falsification and deceive practices should be timely identified, corrected and prevented.

7. Visible. The veterinary service should be visible within the country, district and rural area. Visible veterinary service enables to be alert through receiving timely information and notifications, and providing quick responses in emergency cases. This is also important for data collection and communication with not only interested direct stakeholders, but also for receiving the comments, feedback and proposals from indirect stakeholders such as NGO, academia, international communities and others.

8. Self-sufficient. This principle includes general organization, human, technical and financial recourses. The veterinary service should have an effective organisational structure, network and personnel in order to be able to carry out all veterinary measures and be responsible for public and animal health within their legal mandate. This also includes an effective and well-developed surveillance system for animal diseases, notifications and reports taking into account advanced information technologies. The veterinary service should be able to demonstrate its ability to adequately cover all animal population and carry out all veterinary measures including international activities related to veterinary certification of animals and food products. Moreover, the veterinary service should endeavour its performance aimed at improving the animal disease control system. There should be clear one command chain with documented responsibilities of all veterinary specialists.

Regarding the human, technical and financial recourse the veterinary service should have adequate sufficient personnel, technical capacity and allocated budget. The sufficient number of veterinary specialists should be able to cover all animals and planned veterinary measures in order to ensure public and animal health and safe trade in food products. Technical capacity is important, in particularly for delivering animal disease control programmes, border control and other veterinary measures that require special technical equipment, facilities and veterinary instruments and devices. Funding of the veterinary service should be considered in advance in order to achieve the objectives and cover needs of veterinary service. The above mentioned aspects should not be affected by political and economic factors.

9. Professional. This principle deserves to be outlined separate despite referring to the personnel of the veterinary service. Along with the sufficient number of personnel, their professional judgement is also important. They should have veterinary qualification, professional experience, soft skills and scientific expertise where necessary that allows them to make sound professional judgement.

10. Responsive. The veterinary service should act in a timely and responsive manner. For this purpose there should be established appropriate mechanisms for collecting information, appeals and complaints from different stakeholders and customers. In addition effective communication systems, internal and external, should be introduced in order to have sufficient evidence and data for adequate responses. This is also essential for the application of means for risk communication, monitoring and transparency. Responsive veterinary service also contributes to build trust and reputation in society at national and international level.

11. Quality policy. There should be developed and adopted the veterinary service policy with clear objectives and commitments in terms of quality of the veterinary service. This policy should be understood and implemented by all structural divisions, veterinary organizations and territorial units with reference to the areas and types of work. For example, the quality system management such as ISO 9000:2015 Quality management systems and ISO/IEC 17020:2012 Conformity assessment - Requirements for the operation of various types of bodies performing inspection.

12. Standard operating procedures (SOPs). There should be developed procedures and standards for all veterinary service providers including veterinary organizations and territorial units. The SOPs should cover all veterinary activities including animal disease control programmes, veterinary certification, diseases surveillance and monitoring systems, risk analysis, inspection and audit procedures, veterinary border controls, registration and control of veterinary drugs, notification and alert systems, emergency cases and other related activities carried by the veterinary service.

13. Recording system. The principle refers to documentation of all veterinary measures undertaken by the veterinary authority. This includes the development of regular reporting system and rapid notification in case of emergency. Moreover, the results of all veterinary measures shall be documented or registered in any suitable ways. With the fast development of digital technologies it is wise to introduce online information technologies that enable to collect, store and analyse the data across the country.

14. Self-evaluative. This principle is essential for effective and quality performance of veterinary service. It can be done by documenting achieved objectives and measuring indicators that in turn helps to identify gaps and weaknesses, understand inefficient activities, demonstrate the efficiency of organizational components, adequate reallocation of funding and prevent future failures. For this purpose the self-evaluation procedures should be in place including the evaluation of territorial veterinary inspection units and local authorities performing veterinary measures. The self-evaluation of veterinary service might be conducted according to the OIE PVS tool [55]. For veterinary inspection units it is recommend to apply the ISO/IEC 17020: 2012 «Conformity assessment - Requirements for the operation of various types of bodies performing inspection.

These fundamental principles also should apply in case of delegation of certain veterinary measures from veterinary authority to local executive bodies. However, the overall responsibility will be retained by the central veterinary authority.

3.2.2 Basic principles of veterinary measures in compliance with the SPS Agreement

The WTO member-states maintain the SPS measures in order to ensure safe trade for human, animal and plant health and food safety. SPS measures have various forms, such as requirements for vaccination and laboratory tests, inspection procedures, treatment and processing methods, accomplishment with health certificates, requirements for minimum residues and food additives.

According to the SPS Agreement there are a set of basic principles that should be followed by the WTO member-states in international trade. The main objective of the SPS measures is protection of human and animal health and life from risks posed by pathogens, toxins, contaminants, additives, food-borne diseases and pests [80]. At the same time, the application of SPS measures has a trade restrictive nature. This means that the SPS measures can serve as a barrier to trade development and liberalization. Moreover, the SPS measures might serve as a mean for disguised protectionism of domestic production. Therefore the principles set out in the SPS Agreement aimed at keeping the right balance between protection from the risk to animal, human and plant health and minimisation of trade restrictive influence of the application of SPS measures [143, c. 28].

First two fundamental principles of the SPS Agreement as well as the GATT 1994 are that trading partners should apply the SPS measures in non-discriminatory and non-restrictive manners.

Non-discrimination. Kazakhstan as a WTO member ensures that the application of SPS measures do not create arbitrary and unjustifiable discrimination in trade where the similar or identical conditions present. This refers to the own territory as well as to the territory of trading countries. This means that the same SPS measures should be applied for domestic products as well as for similar importing food products. Also it should not create a disguised restriction on trade. For example, the territory of Kazakhstan has regions where vaccination against FMD is not practiced (WAHIS). According to this epidemiological situation Kazakhstan requires importation of live animals non-vaccinated against FMD from exporting countries to the regions where similar practice is applied.

Non-restrictive trade. The SPS measures have restrictive influence on trade in order to ensure human, animal and plant health and food safety. However this should be minimised to the level that is necessary for protection of health. Sometimes member-states may apply the SPS measures in a manner that is beyond of the necessary level of protection in order to support domestic production instead of having fair economic competition in internal market. Such situations create trade barriers for importers. Moreover, over the last decades due to reduction of tariff measures, the application of non-tariff measures such as SPS is increasing due to their specificity and technical complexity. This principle encourages the member-

states to use the SPS measures to the extent of level that is necessary for health risks.

The SPS Agreement recognizes the sovereign rights of the WTO member-states to apply the SPS measures aimed at protection of health. However at the same time the SPS Agreement is aimed at trade protection. In this light the application of SPS measures should provide health protection to the appropriate level and should not be used for protectionism and create trade barriers.

Other principles of the SPS Agreement arise from the above explained fundamental principles and support them. The SPS Agreement encourages the member-states to apply the SPS measures that are based on international standards and recommendations. The member-states have the right to apply own SPS measures that are different than international standards and requirements. For this purposes the SPS Agreement provides certain principles such as harmonization, scientific justification and risk assessment.

Harmonisation. The member-states should harmonize their SPS measures with international standards and recommendations developed by the officially recognized standard-setting bodies. There are three international standard-setting bodies: OIE - for veterinary measures, Codex Alimentraius - for sanitary and hygiene measures, and IPPC - for phytosanitary measures. This means that Kazakhstan shall base its national SPS measures on international standards and recommendations though the harmonization process. This principle was taken into account during the development of the EAEU SPS measures. Moreover being a member of the OIE, CAC and IPPC, Kazakhstan has the right to participate in the development of international standards and recommendations.

Scientific justification. The member-states may use their own SPS measures that are higher or stricter than international standards and recommendations. In this case such SPS measures should be based on scientific justification. The use of this principle requires the member-states generate and develop the scientific justification that allows using a stricter measure. This is often necessary when the country is asked to provide the certain scientific justification by trading countries when applying the SPS measure which has a greater trade restriction. The country should demonstrate and justify that the applied SPS measure enables to achieve the necessary level of protection in the country.

Risk assessment. The SPS measures that are not based in international standards and recommendations, should be based in relevant risk assessment. For this purposes recognised international organisations have developed certain guidelines on conducting the risk assessment procedures that should be followed by member countries. The risk assessment also should take into account the real risks and other factors, including the level of risks defined as acceptable by country. Moreover, the risk assessment should be demonstrated to the trading partner in order to follow the transparency principle. The SPS Agreement encourages it member countries to use the risk assessment in order to apply evidence based SPS measures in trade.

Regionalization. It is not always possible to apply the same SPS requirements for food, animal or plant products from different countries due to different weather conditions, food safety conditions and prevailing diseases and pests. Therefore, SPS

measures sometimes differ depending on the country of origin of food products, animal or plant origin products. This situation is considered in the SPS agreement with the aim to provide possibilities to trade even in case of applications of different SPS measures or having different health situation. In this case the country needs to identify areas where disease present and adapt the SPS measures required by exporting country to products from these areas. However, the agreement does not allow unjustified discrimination when applying the SPS measures, as well as for the benefit of domestic producers, as well as among foreign trading partners.

Equivalence. The level of safety accepted as appropriate by the country often might be achieved by alternative ways. One alternative is that SPS measures are technically and economically feasible, and ensure the same level of safety. In this case member countries must choose the SPS measures that have less trade-restrictive impact while meeting the health goals. In addition, if SPS measures taken by another country can provide the same level of safety, then they should be considered as equivalent. This provides a wide and varied range of food products that are safe for consumers, a safe income for producers, and protection while ensuring fair economic competition.

Transparency. Member-states should establish enquiry points for SPS measures in order to inform other countries on introduction of new SPS measures or planned amendments to existing ones affecting trade, and to respond to enquiries for additional information on SPS measures. It is also required to be open for discussions on application of PSP measures. Exchange of information's and regular communication channels between the member-states are a good basis for national SPS standards. This high transparency also helps to protect the consumer and trading partners' interests from hidden protectionism.

In summary the basic principles of and criteria for the veterinary service is important in terms of effectiveness its performance and compliance with international obligations.

Summarizing the above explained principles of the application of SPS measures and criteria of the veterinary service in compliance with international standards following conclusions were made:

Firstly, in order to meet the WTO SPS Agreement provisions as well as OIE recommendations there should be was adopted amendments into the veterinary legislation of Kazakhstan. These include the basic principles of the WTO SPS Agreement.

Secondly, compliance with the fundamental principles and criteria for the veterinary service of Kazakhstan will improve the performance of veterinary service of Kazakhstan and enable to follow the provisions of the OIE recommendations.

Thirdly, introduction and implementation of these principles contribute to the Kazakhstan's international commitments undertaken under the membership in such organizations.

Fourthly, the application of veterinary control measures in accordance with the OIE and WTO provisions will strengthen the veterinary system of Kazakhstan and improve its performance at national and international levels.

Fifthly, the application of veterinary control measures in accordance with the OIE and WTO provisions will also contribute to the building trust in business operators and as well as in trading partners.

3.3 Recommendations on enhancement of effectiveness of the veterinary service of the Republic of Kazakhstan in the context of international trade development

According to the assessment of the veterinary service conducted in accordance with PVS tool, in order to achieve the sufficient level of development of veterinary service it is recommended to target on weaknesses in four fundamental components: human, physical and financial resources; technical authority and capability; technical authority and capability and access to markets.

1. Human, physical and financial resources.

There should be a systematic approach to defining work descriptions and promotion procedures for veterinarians and other professionals. The work of veterinary specialists should be effectively supervised on a regular basis by senior veterinarians, and relevant motivating system should be in place.

The competencies of veterinary specialists, including para-veterinarians, need to improve in terms of field work, surveillance and monitoring of animal diseases. The priorities should be given to raising their knowledge, skills and practices that are important for filed related work. This should be supported by providing regular trainings, seminars and workshops with participation of foreign experts and scientists. Moreover, post-graduate trainings are also important. There should be developed common professional standards for veterinary specialists and para-veterinarians. This should include field work such as collection of blood and tissue samples, identification procedures, vaccination, slaughter, meat inspection, border control and other manipulations related to animal health and animal welfare.

Regarding the continuing education there should be established a legal basis for that. The veterinary service should develop the programme on continuing education and update it annually. This programme should cover all all categories of veterinary specialists and para-veterinarians.

Policies and programmes should be developed based on scientific evidences and risk assessment. For this purposes there should appropriate reporting system from field to rayon, oblast then central level to RAI and FSA. Moreover there should be conducted surveillance and monitoring of animal diseases and other risks in veterinary based on which justified decision making is possible. Policies and programmes should be planned in advance and discussed with all interested stakeholders. There are important sustainability and measurement of results and outcomes in order to review and update the ongoing strategies and programmes over time. This allows to address the emerging concerns and adjust the course of actions as well as evaluate improve the effectiveness.

With regard to leadership in the veterinary system, there should be appointment based on qualification, experience and merits. Reputation of CVO is also important

that should be built over time in order to gain the trust among the staff as well as stakeholders and in public.

Internal coordination is also important in order to ensure one chain of command. The coordination mechanism should be clarified and documented. The command chain and implementation mechanisms for all veterinary measures should be developed, adopted and explained to all staff. Especially it is important for surveillance, monitoring, reporting and disease control programmes.

External coordination with all interested stakeholders is also should be maintained. For this aim formal coordination mechanisms with clearly described procedures for most important activities such as «One health» approach should be developed and implemented throughout the country at central, oblast and rayon levels.

In terms of physical resources the veterinary service should have suitable resources at all levels and well maintained. The capital investments are important for improvement of operational infrastructure of the veterinary service particularly in rural areas including rayons and villages.

Operational funding along with coverage of routine activities should include emergency cases. The funding of veterinary measures against animal diseases including food safety monitoring, residue levels of veterinary drugs and AMR should be based on risk analysis and benefit-cost analysis. Emergency funding arrangements should include adequate technical and human resources and its allocations procedures must go through the non-political process and be considered on a case-by-case basis.

2. Technical authority and capability

Regarding the veterinary laboratories there is already well-developed network. However taking into account the large buildings of the majority of them (availability of unused facilities) and their locations in particular at rayon level, there is a need optimization of veterinary laboratories in terms of providing all necessary diagnosis of animal diseases and food safety tests. Veterinary laboratory services should take into account zoonotic or economic importance of diseases prevailing in the country. In general the veterinary laboratory system should suit the needs of veterinary service, including biosafety and biosecurity measures. The number of laboratory test should take into account the capacity of laboratory equipment, testing requirements according to standards and qualification of laboratory specialists. Moreover relevant quality management systems (QMS) of veterinary laboratories should undergo the accreditation procedures a regular basis.

There must be a link between the animal disease control programmes and laboratory tests. In particular the surveillance and monitoring system should be adopted where the laboratory tests are a part of these activities. Moreover the results of surveillance and monitoring as well as laboratory tests should be analysed in order to evaluate and adjust ongoing animal disease strategies if necessary, or to justify the needs for amendments and changes.

Surveillance measures should consist of active and passive ones. Active surveillance should be followed with epidemiological outbreak investigation while passive surveillance should be implemented with routine laboratory tests. These

procedures should be implemented in compliance with relevant OIE scientific principles and standards, and adopted by veterinary legislation. Epidemiological disease investigation should cover all stages of food production chain from farm level to market and include all producers, slaughterhouses, retailers and markets. Moreover epidemiological investigation of animal disease should include the tracing system and characterization of pathogen.

Early detection procedures should be in place along with surveillance system. It is recommended to use information technologies such as early rapid notification at all stage of production and levels. For example, it is wise to consider development of tracebility and early rapid notification system, the roles of which are important for food incidents and emergencies.

The results of all above mentions measures and procedures should be regularly analysed by relevant veterinary specialists, reported and used for development of further surveillance activities and priorities in animal disease control strategies. It is important to raise the awareness of stakeholders and public, especially livestock keepers and owners in order to involve them into surveillance procedures and timely report to the veterinary service.

It is important to legally adapt the emergency preparedness and response procedures in case of outbreaks and food incidents. This should be supported with relevant funding and clearly defined responsibilities at all stages of food production chain. The veterinary service should develop the national emergence management plans for major highly dangerous animal diseases. It is recommended to link these activities with the national disaster management arrangements maintained by other relevant authorities. Moreover simulation exercises and trainings also should e introduced in the framework of emergency management plans.

Animal disease control strategies and programmes aimed at prevention, control or eradication of outbreaks should be based on epidemiological investigations and based on risk analysis. In additions these programmes should be subject to continuous evaluation of their effectiveness and efficiency. There are OIE standards of some animal diseases programmes that should be taken into account in development of relevant programmes. Maintenance of such programmes will contribute to extend the export potential of the country as an evidence of disease control activities applied by the veterinary service. The outcomes of such programmes should result in reduction of animal diseases and contribute to the development of livestock production.

There should be animal production food safety procedures. These include inspection, audit, authorisation and supervision of establishments of producing and processing animal origin food. The regular reporting of on non-compliances should be in place. Particularly it is important for ante-and post-mortem inspections at slaughterhouses and other associated premises with collections of samples. All these procedures should be in line with relevant OIE standards and guidelines, including Codex Alimentarius.

The veterinary service should conduct the risk analysis in accordance with relevant OIE standards and epidemiological principles. For this purpose there should be a legal basis that supports the application of risk analysis. There are three

components of the risk analysis should be in place: management, assessment and communication. The first component is based on the outcomes of the last two components. In this term the results of surveillance and monitoring should be taken into account.

Effective quarantine and border control procedures should be established and applied by the veterinary service. It is important to systematically address the formal pathways and informal activities such as close collaboration with custom services based on agreement. Moreover it is necessary to invest in border control posts in terms of technically suitable facilities and equipment for border checks and quarantine measures.

Production and use of veterinary medicines and biologicals rae are one of the important areas subject to control by veterinary service. Their registration and use should be comprehensively regulated from production and marketing to their use. Special attention should be given to the prudent use of antimictrobials in livestock and food production in order to combat with AMR. The illegal use of veterinary drugs should also be considered along with responsibilities prescribed in the veterinary legislation.

It is recommended to develop a national AMR action plan in accordance with OIE standards and procedures. This should be based on risk assessment including AMR surveillance for the most important pathogens of animal diseases including food borne diseases in humans. Monitoring the prudent use of AMR is critically essential in livestock in particular in intensive animal farming.

Monitoring the residue levels in food products is also important along with ensuring food safety. This should be implemented according to the monitoring plan at all stages of food production based on risk analysis. Special attention should be given to the food products for domestic and export production. There should be documented for the tracebility and establishment of maximum levels purposes.

Regarding the animal feed safety the appropriate regulations should be adopted and implemented. At the farm level the feed quality and safety should be regulated with determined responsibilities of their producers and farms.

Animal identification system along with tracebility should be in place. This should cover livestock, herds, flocks, farms, slaughterhouses, establishments and other retailers involved into the food production chain. Movement control of farm animals is one of the areas that should be regulated in terms of animal health statuses of different zones and regions in the country as well as for export. These activities should take into consideration the OIE standards.

Animal welfare is also the area of attention of the veterinary service. It is about a well-being of animals related to their mental state that affects physical health. The science on animal welfare is based on perception that animals have feelings and consciousness [166, 167]. This further raises other questions on animals for food, for scientific research, for entertainment (as pets, in zoos, farms, circuses, etc.), and the influence on wild animal well-being. Therefore the animal health policy has to address the above-mentioned challenges that also contribute to the compliance of Kazakshtan with its international obligations. This should be regulated in accordance

with the OIE standards and supported by the veterinary legislation and relevant funding. Animal welfare issues should be regulated in the relevant sectors and animal species with involvement of stakeholders. It is important to raise the public awareness on animal welfare.

3. Close interaction with stakeholders

Development of communication with stakeholders and interested parties is important for the veterinary service. It this regards there should be established contact points and official channels of communication. This contributes to the timely delivery of important information to stakeholders as well as for collection of data from stakeholders. For this purpose it is recommended to develop the communication plans where should be taken into consideration the means of communication (internet, meetings, call centre, forums, etc.) and the targeted audience.

For the consultation with stakeholders there should be organized meetings, events and workshops on different topics. There should be broad presentations and discussions with business, NGO, academia and scientists. The discussion results and proposals made by stakeholders should be documented and addressed in order to improve different aspect of veterinary service.

In terms of inter-sectoral communication and international cooperation there should be appointed contact points. Furthermore there should be involvement of NGO and business of which interests need to develop and to introduce intervention measures. The outcomes of these activates should be documented and followed up.

It is recommended establishment of the veterinary statutory body (VSB). It is important for regulation of veterinary professionals in the country. Its role and competence should be supported by the veterinary legislation. This should cover all veterinary specialists in all sectors and veterinary para-professionals. Its work should be transparent and ensure best performance of veterinarians.

Active participation of business and NGO representatives should be promoted. In particular it is possible through the development of joint programmes and action plans as well as public-private partnership.

4. Access to markets

Access to markets is the area of careful attention of the veterinary service in particular in developing countries. As Kazakhstan has prioritized the export potential in food products it is highly recommended to apply the veterinary measures in compliance with international standards, recommendations and guidelines.

Veterinary legislation is the ground on which the veterinary service is established, maintained and developed. All veterinary measures as well as competencies and responsibilities of the veterinary service should be legitimate. It should cover the entire veterinary domain and set up the basic principles and policy directions. The veterinary service should have the authority and capability to develop and update veterinary legislation. Veterinary legislation should consider the application of international standards, involvement of stakeholders, applicability and regulatory impact of its provisions. Enforcement of provisions of the veterinary legislation should be evaluated and promoted.

Veterinary certification is a key for international trade. Therefore it is recommended to develop and maintain the relevant certification programmes and procedures for animals and food products designated for export. In this context conformity with international stands will ensure better access to foreign markets.

Compliance with international standards in international trade development is important. Among them harmonization, equivalence, transparency and application of zoning and compartmentalization.

The veterinary service is responsible for harmonization of veterinary measures with international standards and timely update when relevant amendments are adapted. With this aim the veterinary service should actively participate in activities of international organisations including in the process of development of international standards.

Equivalence is a mean of international trade development designated to eliminate trade barriers when different veterinary measures are applied by trading partners. For this purpose the relevant agreement on equivalence is concluded. Such agreements include different types of products in relation to which different requirements, measures and procedures are applied. This also enables to follow the mandate of trading partners under the membership to the WTO. These agreements should be published and widely available to public.

Transparency is critical for development of trade, earn trust and build reputation of the veterinary service. The veterinary service should inform stakeholders on a regular basis on amendments and updates in veterinary regulations including the requirements, measures and procedures applied in the country as well as in export markets.

Zoning and compartmentalization of the territory within the county enable safe and smooth trade flow. Procedures for zoning and compartmentalization should be prescribed in the veterinary legislation and in accordance with OIE standards. These procedures should be arranged in close collaboration with interested stakeholders and Akimats. This is crucial to define responsibilities and actions of stakeholders for development and maintenance of biosafety procedures in relation to certain animal health status at zone or farm level.

To sum up the above mentioned recommendations on enhancement of the effectiveness of veterinary service of Kazakhstan the following general conclusions were made:

Firstly, in order to achieve the sufficient level of quality of veterinary service four fundamental components should be met. This includes sufficient and qualified human, physical and financial resources, good technical capability, close interaction with stakeholders, and compliance with international standards in order to ensure market access.

Secondly, human, physical and financial capacity should ensure sufficient and skilled professional veterinary specialists, adequate equipped veterinary service, access to continuous education, and sustainability in management of policies and programmes.

Thirdly, the technical capability should ensure the laboratory capacity, application of risk analysis, surveillance and early detection procedures, animal production food safety procedures, animal disease control programmes, effective control of veterinary drugs, AMR, monitoring of residue levels, etc.

Fourthly, close interaction with stakeholders is important for development of communication channels. It should be hold meeting and consolations in order to provide updated information to stakeholders.

Fifthly, compliance with international standards is important for access to foreign markets. Therefore, there should be in place appropriate veterinary legislations and applications of veterinary measures should be in line with provisions of the SPS agreement.

Sixthly, in order to improve the performance of veterinary service should be conducted self-evaluation in accordance with the PVS Pathway tool on a regular basis.

CONCLUSION

This thesis presents the full-fledged scientific research with practical significance that addresses the development of veterinary system in line with international standards and recommendations. Based on the results of the thesis the following **conclusions** are drawn:

1. The veterinary system has an integrated and multidisciplinary approach. This includes protection of animal health, protection of human health, food safety and protection of environment. Veterinary safety contributes to public health in several ways: ensure of food safety (with respect to foodborne diseases as well as residues and pollutants), control of zoonoses and responses to natural disasters and bioterrorism. At the same time the veterinary safety contributes to the environment health. The environment plays an important role in spreading of pathogens in animals and humans as well as prevention and eradication of animal diseases. In particular, pathogens are transmitted by water, soil, air and other elements.

2. Two concepts «from Farm to Table» and «One Health» have similarities in their objectives. The first concept is based on provision of food safety control system along the entire food production chain from livestock in the farm to the final consumer. The main objective is to ensure safe food products delivered to the consumer. While the second concept «One health» is aimed at multi-sectoral integration of three health domains: human-animal-environment. These two concepts support each other by contributing to the achievement of their common goals therefore they might be introduced simultaneously.

3. The veterinary legislation in Kazakhstan consists of basic and multiple complementary regulations. The legal framework of the public management of veterinary system of Kazakhstan has a complex multilayered structure and interdisciplinary nature. Despite the existence of the basic Veterinary law with its secondary legislation, there are more than one hundred legal documents related to ensuring veterinary safety on the one hand, and regulating the other economic sectors on the other hand. Another difficulty is the lack of references in national veterinary legislation to the international regulations. The veterinary legislation of Kazakhstan focused mainly on responsibilities of the veterinary service rather than business operators. The veterinary legislation in Kazakhstan has predominantly top-down character with complex and fragmented (not systematized) structure. Based on the analyses of the legal basis of the veterinary system in Kazakshtan there was revealed that there is a lack of participation civil society in the development and assessment of the public management outcomes. The measurable indictors outlined in the state programmes are mostly quantitative. Moreover the development and adoption of the veterinary legislation is subject to common and burdensome procedures.

4. The veterinary legislation of the EU as well as Lithuania experience is based on the concept «from Farm to Table» with focus on responsibilities of the business operators. The structure and performance of the Lithuanian veterinary and food control system is consistent with the EU requirements that subject to regular evaluation at the supranational level. The veterinary legislation of the EU as well as

Lithuania experience is based on the concept «from Farm to Table» with focus on responsibilities of the business operators. The structure and performance of the Lithuanian veterinary and food control system is consistent with the EU requirements that subject to regular evaluation at the supranational level.

5. It was determined that the veterinary system of Kazakhstan has several gaps and duplications in control measures between veterinary and sanitary services. There are several weaknesses in private and public veterinary service performance. There was no evidence of verification of performance of public and private veterinarians at the place where they conduct official activities (farms, slaughterhouses, markets). The current supervision system is focused mainly on documentation checks. Current system whereby all the official and unofficial animal health tasks are being performed by the public sector does not favour development of private veterinary services. Coordination with sanitary inspection in official controls of food business establishments is not clear and has a room for improvement in delineation of responsibilities, communication and optimization of resources. Considering the complexity of the system for rapid response, with the executive bodies having crucial roles in making decisions on quarantine measures (in consultation with territorial inspection) and the responsibility to develop and implement local contingency plans, it is a challenge to ensure that funding arrangements are documented and agreed to by all interested parties.

6. There were identified three groups of global challenges of the veterinary system in Kazakhstan that need to address properly in the context of international trade development in food products. The fist category of challenges associated with animal and public health risks, such as new emerging diseases, food-borne illnesses, transboundary animal diseases (TADs) and antimicrobial resistance in animals and humans, are the most significant that may result in detrimental consequences. The second category refers to the modern changes that include growing demand on food products, a wide range of new food products, a rapid development of food technologies, shifts in consumer behaviour and consumption preferences, and climate change. The third challenge is the WTO membership itself brings certain implications in terms of compliance with the SPS Agreement. Liberalization of global trade including reduction in agricultural tariffs and elimination of quota has expanded export opportunities for many of these countries. At the same time their inability to conform to SPS measures required by trading partners has hampered their ability to take advantage of these opportunities. SPS policies will likely become more complex and enforcement more stringent as trade becomes more liberalized.

7. The veterinary service of Kazakhstan demonstrated a low level (less than minimal) compliance with the OIE standards and recommendations. There is no connection between human and financial resources and technical authority and capability of veterinary service as well as between interaction with interested parties and access to markets. The allocation of funding of the veterinary measures is unevenly distributed. The large proportion of the public expenditures was taken by laboratory tests for Brucellosis (by 45%) and vaccination against FMD (by 35%). funding of the veterinary system of Kazakhstan is growing along with the number of

animal diseases outbreaks. Particularly, the most common chronic animal disease brucellosis is increasing annually along with an increase of the expenses for laboratory tests.

8. The new structure of the veterinary and food control system will enable to strengthen the national veterinary system in line with international standards and recommendations. It will also allow the application of the veterinary control along the entire food production chain. The new structure of the veterinary service and sanitary and phytosanitary services are comply consistent with two concepts. The establishment an independent FSA encompassing veterinary, phytosanitary and food safety will ensure the achievement of common goals. The Risk Assessment Institution under the FSA will help to provide science based decision making and to ensure risk communication channels. Close cooperation between MH, FSA and MEP will contribute to the efforts in addressing the global emergencies.

There were some limitations related to the data collection and transparency of the veterinary service of Kazakhstan. The official web internet resource of the MoA as well as of the CVCS has no valuable and informative data on animal diseases despite that this information is open and has no restriction to be not available for public. In these conditions it was difficult to access reliable information that would help to make more comprehensive analysis on animal disease strategies and their funding.

9. There were developed amendments to the veterinary legislation of Kazakhstan in order to meet the WTO SPS Agreement provisions as well as OIE recommendations. These include the basic principles of the WTO SPS Agreement. Compliance with the fundamental principles and criteria for the veterinary service of Kazakhstan will improve the performance of veterinary service of Kazakhstan and enable to follow the provisions of the OIE recommendations. Introduction and implementation of these principles contribute to the Kazakhstan's international commitments undertaken under the membership in such organizations.

The application of veterinary control measures in accordance with the OIE and WTO provisions will strengthen the veterinary system of Kazakhstan and improve its performance at national and international levels and helps to build the trust in business operators and as well as in trading partners.

These recommendations are aimed at improving the quality and performance of national veterinary service and comply with international standards and recommendations that unsure food safety in country. Moreover it positively contributes to the development of livestock production and its export potential.

REFERENCES

1 Fischer K-D. Ancient Veterinary Medicine: A survey of Greek and Latin sources and some recent scholarship // Medizinhistorisches Journal. – 1988. – Vol. 23(3-4). – P. 191-209.

2 History of Veterinary Medicine / Iowa State University Veterinarian. – 1939. – Vol. 2, Issue 1. – P. 6-10.

3 Online dictionary // https://www.dictionary.com/browse/veterinary. 25.05.2020.

4 Ожегов С.И. Толковый словарь русского языка. – Изд. 27-е. – М.: Мир и Образование, 2013. – 736 с.

5 Constable P., Hinchcliff K.W., Done S., Gruenberg W. Veterinary Medicine. – Ed. 11th. – Missouri, USA: Saunders Ltd., 2016. – 2278 p.

6 Irvine L., Vermilya J.R. Gender work in a feminized profession: The case of veterinary medicine // Gender and society. – 2010. – Vol. 24, Issue 1. – P. 56-82.

7 Corley T.A., Godley A. The veterinary medicine industry in Britain in the twentieth century // The Economic History Review. – 2011. – Vol. 64, №3. – P. 832-854.

8 Gauthier C., Griffin G. Using Animals in Research, Testing and Teaching // Rev Sci Tech. – 2005. – Vol. 24(2). – P. 735-745.

9 Jucker M. The benefits and limitations of animal models for translational research in neurodegenerative diseases // Nature Medicine. – 2010. – №1. – P. 1210-1214.

10 Taylor K, Gordon N., Langley G., Higgins W. Estimates for worldwide laboratory animal use in 2005 // Alternatives to Laboratory Animals. – 2008. – Vol. 36. – P. 327-342.

11 Alary V., Corniaux C., Gautier D. Livestock's Contribution to Poverty Alleviation: How to Measure It? // World Development. – 2011. – Vol. 39(9). – P. 1638-1648.

12 Bettencourt E.M.V., Tilman M., Narciso V. et al. The Livestock Roles in the Wellbeing of Rural Communities of Timor-Leste // Revista de Economia e Sociologia Rural. – 2015 – Vol. 53, Suppl. 1. – P. 63-80.

13 Appannanavar S.B., Mishra B. An Update on Crimean Congo Hemorrhagic Fever // J. Glob. Infect. Dis. – 2011. – Vol. 3(3). – P. 285-292.

14 Sprygin A., Artyuchova E., Babin Y. et al. Epidemiological characterization of lumpy skin disease outbreaks in Russia in 2016 // Transbound Emerg Dis. – 2018. – Vol. 65(6). – P. 1514-1521.

15 Rupprecht C.E. A Tale of Two Worlds: Public Health Management in Human Rabies Prevention // Clinical Infectious Diseases. – 2004. – Vol. 39, №2. – P. 281-283.

16 Никитин И.Н. Организация и экономика ветеринарного дела. – Изд. 6-е. – СПб.: Лань, 2014. – 359 с.

17 The Law of the Russian federation. On veterinary: adopted on 14 May, 1993, №4979-1 // https://fsvps.gov.ru/fsvps/laws/197.html. 20.05.2020.

18 The Law of the Republic of Kazakhstan. On veterinary: adopted on 10 July, 2002, №339 // http://adilet.zan.kz/rus/docs/Z020000339_. 20.05.2020.

19 OIE Terrestrial Animal Health Code // https://www.oie.int/standard-setting/terrestrial. 28.052020.

20 Christopher S., Umapathy B.L., Ravikumar K.L. Brucellosis: Review on the Recent Trends in Pathogenicity and Laboratory Diagnosis // J Lab Physicians. – 2010. – Vol. 2(2). – P. 55-60.

21 Grace D., Gilbert J., Randolph T., Kang'ethe E. The multiple burdens of zoonotic disease and an Ecohealth approach to their assessment // Tropical Animal Health and Production. – 2012. – Vol. 44(S1). – P. 67-73.

22 Goel A.K. Anthrax: A disease of biowarfare and public health importance // World J Clin Cases. – 2015. – Vol. 3(1). – P. 20-33.

23 The decree of the Ministry of Agriculture of the Republic of Kazakhstan. On adoption of veterinary (veterinary-sanitary) requirements: adopted on 29 June 2015 года, №7-1/587 // http://adilet.zan.kz/rus/docs/V1500011940. 15.04.2020.

24 Ilukor J., Birner R., Rwamigisa P.B., Nantima N. The provision of veterinary services: who are the influential actors and what are the Governance challenges? A case study of Uganda // Expl Agric. – 2015. – Vol. 51(3). – P. 408-434.

25 Бияшев А.Б., Мынжанов М.Т., Бияшев Б.К. Организация ветеринарного дела. – Изд. 2-е. – Алматы: ТОО «Алла-Прима», 2013. – 279 с.

26 Msellati L., Commault J., Dehove A. Good veterinary governance: definition, measurement and challenges // Rev. Sci. Tech. Off. Int. Epiz. – 2012. – Vol. 31(2). – P. 413-430.

27 Éloit M. The global public good concept: a means of promoting good veterinary governance // Rev. Sci. Tech. Off. Int. Epiz. – 2012. – Vol. 31(2). – P. 585-590.

28 Pastoret P.P., Chaisemartin D. The importance of governance and reliable veterinary certification // Rev. Sci. Tech. Off. Int. Epiz. – 2011. – Vol. 30(1). – P. 347-352.

29 Sinclair M., Phillips C.J.C. Asian Livestock Industry Leaders' Perceptions of the Importance of, and Solutions for, Animal Welfare Issues // Animals (Basel). – 2019. – Vol. 9(6). – P. 1-26.

30 Caporale V., Alessandrini B., P. Dalla Villa and S. Del Papa. Global Perspectives on Animal Welfare: Europe // Rev. Sci. Tech. Off. Int. Epiz. – 2005. – Vol. 24(2). – P. 567-577.

31 The Code of the Republic of Kazakhstan. On Public health and public health care system: adopted of 18 September, 2009, №193-IV // http://adilet.zan.kz/rus/docs/K090000193_#z1. 10.03.2020.

32 The Law of the Republic of Kazakhstan. On ratification of the Treaty on Eurasian Economic Union: adopted of 14 October 2014, №240-V // http://adilet.zan.kz/rus/docs/Z1400000240#z3082. 22.03.2020.

33 Hamilton K., Pavade G., Claes F. et al. Animal influenza research needs: protecting humans, animals, food, and economies // Influenza and Other Respiratory Viruses. – 2013. – Vol. 7(S2). – P. 34-36.

34 Hassell J.M., Begon M., Ward M.J., Fèvre E.M. Urbanization and Disease Emergence: Dynamics at the Wildlife–Livestock–Human Interface // Trends in Ecology & Evolution. – 2017. – Vol. 32(1). – P. 55-67.

35 Hamilton K., Bruckner G. Good Governance for Early Detection and Rapid Response // Avian Diseases Digest. – 2010. – Vol. 54(s1). – P. 384-386.

36 Thacker E., Janke B. Swine influenza virus: zoonotic potential and vaccination strategies for the control of avian and swine influenzas // Journal of Infectious Diseases. – 2008. – Vol. 197(s1). – P. 19-24.

37 Van der Meer F.J., Orsel K., Barkema H.W. The new influenza A H1N1 virus: Balancing on the interface of humans and animals // Canadian Veterinary Journal. – 2010. – Vol. 51(1) – P. 56-62.

38 Dafale N.A., Srivastava S., Purohit H.J. Zoonosis: An Emerging Link to Antibiotic Resistance Under «One Health Approach» // Indian J Microbiol. – 2012. – Vol. 60(2). – P. 139-152.

39 Fanning S., Whyte P., O'Mahony M. Essential veterinary education on the development of antimicrobial and anti-parasitic resistance: consequences for animal health and food safety and the need for // Rev. sci. tech. Off. int. Epiz. – 2009. – Vol. 28(2). – P. 575-582.

40 Okello A.L., Gibbs E.P., Vandersmissen A., Welburn S.C. One Health and the neglected zoonoses: turning rhetoric into reality // Veterinary Record. – 2011. – Vol. 169(11). – P. 281-285.

41 Bousfield B., Brown R. One World One Health // Veterinary Bulletin - Agriculture, Fisheries, and Conservation Department Newsletter. – 2011. – Vol. 1(7). – P. 1-12.

42 Papadopoulos A., Wilmer S. One Health: A Primer // https://ncceh.ca/sites/default/files/One_Health_Primer_Nov_2011.pdf. 18.01.2020.

43 Gibbs P., Anderson T. One World - One Health and the global challenge of epidemic diseases of viral aetiology // Vet. Ital. – 2009. – Vol. 45(1). – P. 35-44.

44 Jones K.E., Patel N.G., Levy M.A. et al. Global trends in emerging infectious diseases // Nature. – 2008 – Vol. 451. – P. 990-993.

45 Morse S.S. Factors and determinants of disease emergence. In Emerging zoonoses and pathogens of public health concern // Rev. sci. tech. Off. int. Epiz. – 2004. – Vol. 23(2). – P. 443-451.

46 Destoumieux-Garzón D., Mavingui P., Boetsch G. et al. The One Health Concept: 10 Years Old and a Long Road Ahead // Frontiers in Veterinary Science. – 2018. – Vol. 5. – P. 1-13.

47 Stöhr K., Meslin F.X. The role of veterinary public health in the prevention of zoonoses // In book: Viral Zoonoses and Food of Animal Origin. – Geneva, 1997. – P. 207-218.

48 Maccabe A.T., Matchett K.E., Hueston W.D. The Need for Public-Health Veterinarians as Seen by Future Employers // Journal of Veterinary Medical Education. – 2008. – Vol. 35(2). – P. 269-274.

49 Connolly J. Global Crisis Leadership for Disease-Induced Threats: One Health and Urbanisation // Global policy. – 2020. – Vol. 17(1). – P. 1-10.

50 Connelly J. Governing Towards 'One Health': Establishing Knowledge Integration in Global Health Security Governance // Global Policy. – 2017. – Vol. 8(4). – P. 483-494.

51 Pfeiffer D.U., Otteb M.J., Roland-Holstc D., Zilberman D. A one health perspective on HPAI H5N1 in the Greater Mekong sub-region // Comparative Immunology, Microbiology and Infectious Diseases. – 2013. – № 36. – P. 309-319.

52 WHO-OIE Operational Framework for Good governance at the human-animal interface: Bridging WHO and OIE tools for the assessment of national capacities / WHO; OIE. – Geneva, 2014. – 103 p.

53 De La Rocque S., Tagliaro E., Belot G. et al. Strengthening good governance: exploiting synergies between the Performance of Veterinary Services Pathway and the International Health Regulations // Rev. Sci. Tech. Off. Int. Epiz. – 2017. – Vol. 36(2). – P. 711-720.

54 International Health Regulations. – Ed. 3rd / WHO // https://apps.who.int/iris/bitstream/handle. 19.02.2020.

55 OIE Tool for the evaluation of performance of veterinary services (PVS tool) // https://www.oie.int/fileadmin/Home/eng/Support_to_OIE. 12.02.2020.

56 Barišić N., Balcet J.C., Plavšić B., Ralchev S. PVS Gap analysis report: Kazakhstan. – Astana, 2011. – 142 p.

57 Barišić N., Pärtel A. Republic of Kazakhstan: OIE PVS evaluation follow-up mission report. – Paris, 2018. – 176 p.

58 Bellemain V. Structure and organisation of Veterinary Services to implement the concept "from the stable to the table" // 21st conf. of the OIE Regional Commission for Europe. – Avila, 2004. – P. 167-186.

59 Constitution of the Republic Kazakhstan adopted of 30 August 1995 // http://adilet.zan.kz/rus/docs/K950001000_. 19.01.2020.

60 The law of the Republic of Kazakhstan. On legal documents: adopted on 06 April 2016, №480-V // http://adilet.zan.kz/rus/docs/Z1600000480#z353. 21.03.2019.

61 Баймаханов М.Т., Аюпова З.К., Ибраева А.С. и др. Становление правового государства и конституционный процесс в Республике Казахстан: монография. – Алматы: КазГЮА, 2001. – 164 с.

62 The law of the Republic of Kazakhstan. On ratification of the International agreement on establishment of the Office International des Epizooties in Paris: adopted on 24 December 2008, №109-IV // http://adilet.zan.kz/rus. 25.09.2019.

63 Report of the Working Party on accession of the Republic of Kazakhstan // https://www.wto.org/english/thewto_e/acc_e/completeacc_e.htm#kaz. 15.09.2019.

64 The Law of the Republic of Kazakhstan. On ratification of the Protocol on accession of the Republic of Kazakhstan to the Marrakesh Agreement Establishing the World Trade Organization of 15 April 1994: adopted on 12 October 2015,

№356-V // http://adilet.zan.kz/rus/docs/Z1500000356. 18.09.2019.

65 Transforming our world: The 2030 agenda for sustainable development United Nations // https://sustainabledevelopment.un.org/content. 12.09.2019.

66 The Decree of the Government of the Republic of Kazakhstan. On adoption of the State program on development of AIC for 2017-2021; adopted on 12 June 2018, №423 // http://adilet.zan.kz/rus/docs/P1800000423. 25.03.2020.

67 Kalymbek B. Legislation of the Republic of Kazakhstan on veterinary safety: problems and development prospects // Vetsnik KazNU. – 2010. – Vol. 2(54). – P. 112-118.

68 Budget Code of the Republic of Kazakhstan: adopted on 29 October 2015, №375-V // http://adilet.zan.kz/rus/docs/K080000095_. 12.04.2020.

69 Code on administrative offences of the Republic of Kazakhstan: adopted on 5 July 2014, №235-V ЗРК // http://adilet.zan.kz/rus. 12.04.2020.

70 Entrepreneurial Code of the Republic of Kazakhstan: adopted on 29 October 2015, №375-V ЗРК // http://adilet.zan.kz/rus/docs/K1500000375. 12.04.2020.

71 Penal Code of the Republic of Kazakhstan: adopted on 3 July 2014, №226-V ЗРК // http://adilet.zan.kz/rus/docs/K1400000235. 12.04.2020.

72 The Law of the Republic of Kazakhstan. On state regulation of development of the agro-industrial complex and rural areas: adopted on 8 July 2005, №66 // http://adilet.zan.kz/rus/docs/Z050000066_. 12.04.2020.

73 The Law of the Republic of Kazakhstan. On food safety: adopted on 21 July 2007, №301 // http://adilet.zan.kz/rus/docs/Z070000301_. 12.04.2020.

74 The Law of the Republic of Kazakhstan. On permissions and notifications: adopted on 16 May 2014, №202-V // http://adilet.zan.kz/rus/. 12.04.2020.

75 Treaty Establishing the European Economic Community: signed on 25 March, 1957 (in force since 1 January 1958) // https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Axy0023. 15.03.2020.

76 White paper on food safety / Commission of the European Communities. – Brussels, 2002. – 52 p.

77 Roberts S., Moshes A. The Eurasian Economic Union: A case of reproductive integration? // Post-Soviet Affairs. – 2015. – Vol. 32(6). – P. 542-565.

78 Сэдик Д., Ульбрихт К., Джаманкулов Н. Система контроля безопасности пищевой продукции в Европейском Союзе и Евразийском экономическом союзе // Торговая политика. – 2016. – №2/6, ч. 1. – С. 41-83.

79 Сэдик Д., Ульбрихт К., Джаманкулов Н. Система контроля безопасности пищевой продукции в Европейском Союзе и Евразийском экономическом союзе // Торговая политика. – 2016. – №3/7, ч. 2. – Р. 33-54.

80 The Agreement on the Application of Sanitary and Phytosanitary Measures // https://www.wto.org/english/res_e/booksp_e/agrmntseries4_sps_e.pdf. 22.03.2020.

81 Regulation of the European Parliament and of the Council. Laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety: adopted on 28 January 2002, №178/2002 // https://eur-lex.europa.eu/legal. 15.02.2020.

82 Van der Meulen B.M.J. The system of food law in the European Union //

Journal of Laws. – 2009. – Vol. 14, №2. – P. 305-339.

83 Van der Meulen B.M.J. The structure of European food law // Journal of Laws. – 2013. – №2. – P. 69-98.

84 Casalone C., Hope J. Atypical and classic bovine spongiform encephalopathy // Handbook of Clinical Neurology. – 2018. – Vol. 153. – P. 121-134.

85 Hönig S. The DG SANTE approach to evaluate food safety control systems in Member States and non-EU countries // The GLOBALG.A.P. Summit: mater. of the internat. conf. – Amsterdam, 2016. – P. 22-28.

86 Нуртазина Г. Зарубежная система контроля безопасности пищевой продукции: опыт ЕС // Проблемы агрорынка. – 2020. – №2. – С. 180-187.

87 Boguslavska K. The first steps of the Eurasian Economic Union: Disputes, initiatives and results // http://www.isn.ethz.ch/Digital-Library. 28.09.2019.

88 Leibovitch E. and Emilie H. Food safety regulation in the European Union: toward an unavoidable centralization of regulatory powers // Texas International Law Journal. – 2008. – Vol. 43, №3. – P. 429-450.

89 Application of systematic review methodology to food and feed safety assessments to support decision making: guidance / European Food Safety Authority // EFSA Journal. – 2010. – Vol. 8(6). – P. 13-21.

90 Guidance on the implementation of articles 11, 12, 14, 17, 18, 19 and 20 of regulation EC 178/2002 on General Food Law: Conclusions of the standing committee on the food chain and animal health // https://ec.europa.eu/food/sites/food/files/safety/docs/gfl_req_. 17.03.2020.

91 Commission Decision concerning the development of an integrated computerised veterinary system: adopted on 30 December 2002, 2003/24/EC // https://eur-lex.europa.eu/legal-content/EN/TXT/. 17.03.2020.

92 Commission Decision concerning the development of an integrated computerised veterinary system known as Traces: adopted on 19 August 2003, 2003/623/EC // https://eur-lex.europa.eu/legal-content/EN/TXT. 17.03.2020.

93 Elber A.R., Stegeman A., Moser H. et al. The classical swine fever epidemic 1997-1998 in The Netherlands: descriptive epidemiology // Preventive Veterinary Medicine. – 1999. – Vol. 42(3-4). – P. 157-184.

94 Sánchez-Cordón P.J., Montoya M., Reis A.L. et al. African swine fever: A re-emerging viral disease threatening the global pig industry // The Veterinary Journal. – 2018. – Vol. 233. – P. 41-48.

95 The Rapid Alert System for Food and Feed: 2018 annual report. – Luxemburg: European Union, 2019. – 53 p.

96 Rodriguez-Wallberg K.A., Wikander I. A global recommendation for restrictive provision of fertility treatments during the COVID-19 pandemic // Acta Obstetricia et Gynecologica Scandinavica. – 2020. – Vol. 99, Issue 5. – P. 569-570.

97 Schwab K. The Global Competitiveness Report. – Geneva, 2019. – 666 p.

98 Lithuania: country profile / Organization of official controls. – Luxemburg, 2017. – №2559418. – 52 p.

99 Lietuvos Respublikos: Daugiamečio nacionalinio kontrolės plano įgyvendinimo ataskaita už 2018 metus / Valstybinė maisto ir veterinarijos tarnyba. –

Vilnius, 2019. – 80 p.

100 Нуртазина Г. Пробелы и перспективы общественного контроля в системе ветеринарии в Казахстане // Взаимодействие власти, бизнеса и общества в осуществлении общественного контроля: сб. науч. ст. 12-й междунар. науч.-практ. конф., посв. 110-летию Саратовского государственного университета имени Н.Г. Чернышевского. – Саратов, 2019. – С. 180-184.

101 Нуртазина Г., Давлетбаева Ж. Современные вызовы лидерства в государственном управлении: на примере системы ветеринарии Казахстана // Журнал Вестник ПГУ. – 2020. – №1. – С. 151-162.

102 Lukauskas K., Nurtazina G. State support of the veterinary system of Kazakhstan // Проблемы агрорынка. – 2020. – №1. – P. 74-81.

103 Beauvais W., Coker R., Nurtazina G. and Guitian J. Policies and Livestock Systems Driving Brucellosis Re-emergence in Kazakhstan // EcoHealth. – 2017. – Vol. 14, Issue 2. – P. 399-407.

104 Нұртазина Г. Қазақстанның агроөнеркәсіптік кешенінің экспорттық әлеуеті // Проблемы агрорынка. – 2019. – №3. – С. 173-191.

105 Nurtazina G. Perspectives of digitalization of the veterinary system of Kazakhstan // Ориентиры социально-политической модернизации Казахстана: сб. матер. междунар. науч. конф. – Нур-Султан, 2019. – P. 95-104.

106 Wan X.F. Lessons from emergence of A/goose/Guangdong/1996-like H5N1 highly pathogenic avian influenza viruses and recent influenza surveillance efforts in Southern China // Zoonoses Public Health. – 2012. – Vol. 59, Suppl. 2. – P. 32-42.

107 Jones K.E., Patel N.G., Levy M.A. et al. Global trends in emerging infectious diseases // Nature. – 2008. – Vol. 451. – P. 990-994.

108 Cox N.J., Subbarao K. Global epidemiology of influenza: Past and present // Annu. Rev. Med. – 2000. – Vol. 51. – P. 407-421.

109 Avian and other zoonotic influenza // https://www.who.int/influenza/human_animal_interface/en/. 29.04.2020.

110 Peiris M., de Jong M.D., Guan Y. Avian Influenza Virus (H5N1): a Threat to Human Health // Clinical Microbiology Reviews. – 2007. – Vol. 20, №2. – P. 243-267.

111 Kitikoon P., Vincent A.L., Gauger P.C. et al. Pathogenicity and transmission in pigs of the novel a(H3N2)v influenza virus isolated from humans and characterization of swine H3N2 viruses isolated in 2010-2011 // Journal of Virol. – 2012. – Vol. 86(12). – P. 6804-6814.

112 Coronavirus disease (COVID-19) // https://www.who.int/emergencies/mers-cov/en/. 22.03.2020.

113 Emergencies, preparedness and responses. Severe Acute Respiratory Syndrome (SARS) // https://www.who.int/csr/sars/en/. 22.05.2020.

114 Middle East respiratory syndrome coronavirus (MERS-CoV) // https://www.who.int/health-topics/coronavirus#tab=tab_1. 22.05.2020.

115 Lee N., Hui D.S., Wu A. et al. A major outbreak of Severe Acute Respiratory Syndrome in Hong Kong // The New England Journal of Medicine. –

2003. – Vol. 348. – P. 1986-1994.

116 Peiris M., Yuen K.Y., Osterhaus A.D., Stöhr K. The Severe Acute Respiratory Syndrome // The New England Journal of Medicine. – 2003. – Vol. 349(25). – P. 2431-2441.

117 Peiris M., Chu C.M., Cheng V.C. et al. Clinical progression and viral load in a community outbreak of coronavirus-associated SARS pneumonia: A prospective study // Lancet. – 2003. – Vol. 361. – P. 1767-1772.

118 Zaki A.M., van Boheemen S., Bestebroer T.M. et al. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia // The New England Journal of Medicine. – 2012. – Vol. 367. – P. 1814-1820.

119 Hijawi B., Abdallat M., Sayaydeh A. Et al.. Novel coronavirus infections in Jordan, April 2012: Epidemiological findings from a retrospective investigation // Eastern Mediterranean Health Journal. – 2013. – Vol. 19, Suppl. 1. – P. 12-18.

120 Hui D.S., Azhar E.I., Kim Y.J. et al. Middle East Respiratory Syndrome Coronavirus: Risk factors and determinants of primary, household, and nosocomial transmission // The Lancet Infectious Diseases. – 2018. – Vol. 18(8). – P. 217-227.

121 Coronavirus disease (COVID-19): Situation report-121 on 21 May, 2020 / WHO // https://www.who.int/docs/default-source/coronaviruse. 25.05.2020.

122 Wu J.T., Leung K., Leung G.M. Nowcasting and forecasting the potential domestic and international spread of the 2019-nCoV outbreak originating in Wuhan, China: a modelling study // Lancet. – 2020. – Vol. 395. – P. 689-697.

123 Guan W., Ni Z., Hu Y. et al. Clinical Characteristics of Coronavirus Disease 2019 in China // The New England Journal of Medicine. – 2020. – Vol. 382, №18. – P. 1708-1720.

124 Overview of public health and social measures in the context of COVID-19. Interim guidance // https://www.who.int/publications-detail/overview-of-public-health-and-social-measures-in-the-context-of-covid-19. 25.05.2020.

125 Gupta R. Ghosh A., Singh A. K., Misra A. Clinical considerations for patients with diabetes in times of COVID-19 epidemic // Diabetes & Metabolic Syndrome: Clinical Research & Reviews. – 2020. – Vol. 14. – P. 211-212.

126 Singha A.K., Gupta R., Misra A. Diabetes & Metabolic Syndrome: Clinical Research & Reviews Comorbidities in COVID-19: Outcomes in hypertensive cohort and controversies with renin angiotensin system blockers // Diabetes & Metabolic Syndrome: Clinical Research & Reviews. – 2020. – Vol. 14, Issue 4. – P. 283-287.

127 The Decree of the President of the Republic of Kazakhstan. On introduction of the emergency situation in the Republic of Kazakhstan: adopted of 15 March 2020, №285 // http://adilet.zan.kz/rus/docs/U2000000285#z3. 22.05.2020.

128 Lau S.K., Li K.S., Huang Y. et al. Ecoepidemiology and complete genome comparison of different strains of severe acute respiratory syndrome-related Rhinolophus bat coronavirus in China reveal bats as a reservoir for acute, self-limiting infection that allows recombination events // Journal of Virology. – 2010. – Vol. 84(6). – P. 2808-2819.

129 Guan Y., Zheng B.J., He Y.Q. et al. Isolation and characterization of viruses related to the SARS coronavirus from animals in Southern China // Science. –

2003. – Vol. 302. – P. 276-278.

130 Kasem S., Qasim I., Al-Hufofi A. et al. Cross-sectional study of MERS-CoV-specific RNA and antibodies in animals that have had contact with MERS patients in Saudi Arabia Journal of Infection and Public Health // Journal of Infection and Public Health. – 2018. – Vol. 11, Issue 3. – P. 331-338.

131 Memish Z.A., Cotten M., Meyer B. et al. Human infection with MERS coronavirus after exposure to infected camels, Saudi Arabia // Emerg. Infect. Diseases. – 2013. – Vol. 20(6). – P. 1012-1015.

132 Xie M., Chen Q. Insight into 2019 novel coronavirus – An updated interim review and lessons from SARS-CoV and MERS-CoV // International Journal of Infectious Diseases. – 2020. – Vol. 94. – P. 199-124.

133 Hiu D.S., Azhar E.I., Memish Z.A., Zumla A. Human Coronavirus Infections – Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), and SARS-CoV-2 // Reference Module in Biomedical Sciences. – 2020. – Vol. 31(33) – P. 1-16.

134 Kimball A.M. Risky trade: Infectious diseases in the Era of Global Trade. – Aldershot: Ashgate Press, 2006. – 212 p.

135 Thiermann A. Emerging diseases and implications for global trade // Rev. sci. tech. off. int. Epiz. – 2004. – Vol. 23(2). – P. 701-708.

136 Havelaar A.H., Cawthorne A., Angulo F. et al. Claudia Stein, PhD. WHO initiative to estimate the global burden of foodborne diseases // Lancet. – 2013. – Vol. 381(S59). – P. 59-60.

137 Foodborne diseases burden epidemiology reference group 2007-2015 // https://www.who.int/publications-detail/who-estimates-of-the. 28.04.2020.

138 O'Brien S.J., Feldman R.A. Mortality Associated With Foodborne Bacterial Gastrointestinal Infections: Case Selection and Clinical Data Are Important // BMJ. – 2003. – Vol. 326. – P. 1265-1269.

139 Hadjigeorgiou A., Soteriades E.S., Philalithis A. et al. National food safety systems in the European Union: A comparative survey // International Journal of Food Studies. – 2013. – Vol. 2, №1. – P. 105-117.

140 Бекшин. Каждый третий случай зарегистрированных пищевых отравлений связана с домашними отравлениями // https://ortcom.kz/ru/ism /novosti/3150-kazhdyj-tretij-sluchaj. 28.04.2020.

141 Laukkanen-Ninios R., Rahkila R., Oivanen L. et al. Views of veterinarians and meat inspectors concerning the practical application of visual meat inspection on domestic pigs in Finland // Journal of Consumer protection and food safety. – 2020. – Vol. 15, Issue 1. – P. 5-14.

142 Оганесян А.С., Шибаев М.А., Баскакова Н.Е. и др. Эпизоотия африканской чумы свиней 2007-2017 гг. // Ветеринария сегодня. – 2018. – №2(25), ч. 1. – С. 18-25.

143 Нуртазина Г. Применение ветеринарных мер в международной торговле: основные принципы и правила // Достижения науки в контексте повышения качества жизни и устойчивого развития общества: сб. науч. ст. междунар. науч.-практ. конф. – Алматы, 2019. – С. 13-29.

144 The Global Framework for the Progressive Control of Transboundary Animal Diseases (TADs) // http://www.fao.org/3/a-ak136e.pdf. 13.04.2020.

145 About Antimicrobial Resistance / FAO // http://www.fao.org/antimicrobial-resistance/en/. 20.05.2020.

146 Davies J., Davies D. Origins and evolution of antibiotic resistance // Microbiol. Mol. Biol. Rev. – 2010. – Vol. 74(3). P. 417-433.

147 Ackerman S., Gonzales R. The context of antibiotic overuse // Ann Intern Med. – 2012. – Vol. 157(3). – P. 211-212.

148 Llor C., Bjerrum L. Antimicrobial resistance: risk associated with antibiotic overuse and initiatives to reduce the problem // Ther. Adv. Drug. Saf. – 2014. – Vol. 5(6). – P. 229-241.

149 O'Neill J. Tackling drug-resistant infections globally: final report and recommendations // https://amr-review.org/sites/default/files/160518. 07.03.2020.

150 Key facts on antibiotic resistance / WHO // https://www.who.int/news-room/fact-sheets/detail/antibiotic-resistance. 20.05.2020.

151 Van Boeckel T.P., Brower C., Gilbert M. et al. Global trends in antimicrobial use in food animals // Proc Natl. Acad. Sci. – 2015. – Vol. 112(18). – P. 5649-5654.

152 Sheveleva S.A. Antimicrobial-resistant microorganisms in food as a hygienic problem // Hygiene and sanitary. – 2018. – Vol. 97, №4. – P. 342-354.

153 The European Union summary report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2017-2018 / European Food Safety Authority; European Centre for Disease Prevention and Control // EFSA Journal. – 2020. – Vol. 18(3). – P. 1-166.

154 Global Action plan for antimicrobial resistance / WHO. – Geneva: WHO Document Production Services, 2015. – 28 p.

155 Lusk J.L., Briggeman B.C. Food Values // American Journal of Agricultural Economics. – 2009. – Vol. 91(1). – P. 184-196.

156 Lusk J.L., McCluskey J. Understanding the Impacts of Food Consumer Choice and Food Policy Outcomes // Applied Economic Perspectives and Policy. – 2018. – Vol. 40(1). – P. 5-21.

157 Nurtazina G. and Kemel M. Global challenges in international trade in agricultural products: learned lessons // State of the future: New technologies and public administration: proceed. of the internat. research conf. – Астана, 2018. – P. 65-72.

158 Van Den Bossche P., Zdouc W. The Law and Policy of the World Trade Organization: Text, Cases and Materials. – Ed. 4th. – Cambridge: Cambridge University Press, 2017. – 78 p.

159 Henson S.J., Brouder A-M., Mituulah W. Food Safety Requirements and Food Exports from Developing Countries: The Case of Fish Exports from Kenya to the European Union // American Journal of Agricultural Economics. – 2000. – Vol. 82(5). – P. 1159-1169.

160 Musonda F.M., Mbowe W. The Impact of Implementing SPS and TBT Agreements The Case of Fish Exports to European Union by Tanzania // Consumer

Unity & Trust Society. – 2001. – №5 – P. 23-34.

161 Zaramba S. Uganda Country Report on the Integration of Multiple Sources of Technical Assistance to Capacity Building on improving the Quality of Fish for Export // http://www.fao.org/3/ab535e/ab535e.htm. 10.03.2020.

162 General principles of food hygiene / FAO // http://www.fao.org/fao-who-codexalimentarius/codex-texts/codes-of-practice/en/. 19.03.2020.

163 Wilson J.S. and Abiola V.O. Standards and Global Trade: A voice of Africa. – Washington, DC: World Bank, 2003. – 434 p.

164 Vallat B., Wilson D.W. The obligations of member countries of the OIE in the organization of veterinary services // Rev. Sci. Tech Off. Int. Epiz. – 2003. – Vol. 22(2). – P. 547-552.

165 Zepeda C., Salman M., Thiermann A., Kellard J. et al. The role of veterinary epidemiology and veterinary services in complying with the World Trade Organization SPS agreement // Preventive Veterinary Medicine. – 2005. – Vol. 67. – P. 125-140.

166 Rutherford K. Assessing Pain in Animals // Animal Welfare. – 2011. – Vol. 11(1). – P. 31-53.

167 Edelman D., Baars B., Seth A. Identifying Hallmarks of Consciousness in Non-Mammalian Species // Consciousness and Cognition. – 2005. – Vol. 14. – P. 169-187.

ANNEX A

Letter on implementation of results №15-31/86 of 20.04.2020

"ҚАЗАҚСТАН РЕСПУБЛИКАСЫ АУЫЛ ШАРУАШЫЛЫҒЫ МИНИСТРЛІГІ ВЕТЕРИНАРИЯЛЫҚ БАҚЫЛАУ ЖӘНЕ ҚАДАҒАЛАУ КОМИТЕТІНІҢ ПАВЛОДАР ОБЛЫСТЫҚ АУМАҚТЫҚ ИНСПЕКЦИЯСЫ" мемлекеттік мекемесі

Государственное учреждение "ПАВЛОДАРСКАЯ ОБЛАСТНАЯ ТЕРРИТОРИАЛЬНАЯ ИНСПЕКЦИЯ КОМИТЕТА ВЕТЕРИНАРНОГО КОНТРОЛЯ И НАДЗОРА МИНИСТЕРСТВА СЕЛЬСКОГО ХОЗЯЙСТВА РЕСПУБЛИКИ КАЗАХСТАН"

140002, Павлодар қаласы, Крупская көшесі, 71, тел.: 8 (7182) 55-56-96, факс: 8 (7182) 51-30-70

140002, город Павлодар, ул. Крупской, 71, тел.: 8 (7182) 55-56-96, факс: 8 (7182) 51-30-70

от 20.04.2020 № 15-31/86

АКТ
о внедрении результатов диссертационного исследования Нуртазиной Г.С., докторанта Академии государственного управления при Президенте РК

Нуртазина Гулжан Сабыровна, докторант, обучающийся по образовательной программе «Executive Doctorate in Public Management/Государственный менеджмент» в рамках специальности 6D051000 – «Государственное и местное управление», проводит исследование на тему: Государственное управление системой ветеринарии Республики Казахстан в условиях членства в ВТО».

В рамках вышеуказанной исследования Нуртазиной Г.С. был разработан ряд предложений в части применения международных стандартов и рекомендаций МЭБ (OIE) и ВТО в целях усиления потенциала ветеринарной службы Казахстана в условиях развития международной торговли животноводческой продукцией. В частности, докторантом была проведена презентация основных результатов диссертационного исследования и представлена новая модель системы ветеринарии Казахстана в Территориальной инспекции Павлодарской области Комитета ветеринарного контроля и надзора МСХ РК и Департаменте контроля качества и безопасности товаров и услуг Павлодарской области Комитета контроля качества и безопасности товаров и услуг МЗ РК.

Основные выводы диссертационного исследования были апробированы на региональном уровне в Павлодарской области, в ходе которого было подтверждено, что в рамках концепции «от фермы до стола» ветеринарная безопасность является неотъемлемой частью системы контроля за пищевой безопасностью. По итогам данной работы были выработаны ряд практических предложений, которые были включены в основные положения диссертации, в части усиления системы ветеринарии Казахстана. Основные выводы и рекомендаций диссертационного исследования докторанта представляют интерес и могут быть использованы для дальнейшей модернизации государственного управления системой ветеринарии Казахстана.

Руководитель **Р. Нурбеков**

001495

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
АУЫЛ ШАРУАШЫЛЫҒЫ
МИНИСТРЛІГІ

МИНИСТЕРСТВО
СЕЛЬСКОГО ХОЗЯЙСТВА
РЕСПУБЛИКИ КАЗАХСТАН

010000, Нұр-Сұлтан қаласы, Кенесары көшесі, 36
тел./факс: +7 (7172) 55 59 95, тел.: +7 (7172) 55 58 03
e-mail: office@minagri.gov.kz

010000, город Нур-Султан, улица Кенесары, 36
тел./факс: +7 (7172) 55 59 95, тел.: +7 (7172) 55 58 03
e-mail: office@minagri.gov.kz

от 05.08.2020 № 12-13/191

АКТ
о внедрении результатов диссертационного исследования Нуртазиной Г.С., докторанта Академии государственного управления при Президенте РК

Министерство сельского хозяйства Республики Казахстан сообщает, что исследование на тему: Государственное управление системой ветеринарии Республики Казахстан в условиях членства в ВТО», проводимое Нуртазиной Гулжан Сабыровной, докторантом Академии государственного управления при Президенте Республики Казахстан, является актуальным и имеет практическое значение.

Нуртазина Г. возглавляет Департамент ветеринарной, фитосанитарной и пищевой безопасности, который формирует политику в области применения ветеринарных и фитосанитарных мер. В ходе ее деятельности в период 2016-2017 годы под ее руководством были подготовлены предложения по усилению системы ветеринарии, в том числе возвращение функций по контролю и надзору в государственную ветеринарную службу под единую вертикаль, а также установление единой методологии контроля за деятельностью местных исполнительных органов в области ветеринарии. Данные предложения были апробированы в ходе подготовки концепции законопроекта и были включены в законопроект по внесению изменений и дополнений в закон «О ветеринарии». Закон РК «О внесении изменений и дополнений в некоторые законодательные акты Республики Казахстан по вопросам регулирования агропромышленного комплекса» был принят 28 октября 2019 года № 268-VI ЗРК.

Другие положения и рекомендаций диссертационного исследования докторанта представляют практический интерес и будут использованы для подготовки предложений по усилению системы ветеринарии Республики Казахстана в соответствии с международными требованиями и рекомендациями.

И.о. Ответственного секретаря **А. Оразов**

005819

ANNEX B

Table B.1 – The list of commitments on application of SPS measures under the membership of Kazakhstan to the WTO

Paragraphs with commitments	Responsible authority	International requirements, standards and guidelines
1	2	3
704. Implementation of the CAC/GL/71-2009 Guidelines for the design and implementation of national regulatory food safety assurance programme associated with the use of veterinary drugs in food producing animals, that accepts the monitoring programmes carried out by trading partners	Veterinary service, Sanitary-epidemiology service	CAC/GL/71-2009 http://www.fao.org/fao-who-codexalimentarius/sh-proxy/ru/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B71-2009%252FCXG_071e_2014.pdf
711. Implementation of the CU Decision No. 726 "On Veterinary Measures" of 15 July 2011, in particular the provisions of bilateral new veterinary certificates agreed with foreign countries will include no less favourable terms than provisions agreed before 1 July, 2010 between the EAEU and foreign countries.	Veterinary service	CU Commission Decision of 18 June 2010, No. 317, CU Commission Decision "On Veterinary Measures" of 15 July 2011, No. 726 https://docs.eaeunion.org/docs/ru-ru/0055063/cuc_17082011_726
712. Negotiation and agreement on bilateral veterinary certificates on goods imported to Kazakhstan with a foreign country before the relevant EAEU veterinary certificates will enter force. Circulation of goods imported under the bilateral veterinary certificates will be only within the territory of Kazakhstan.	Veterinary service	Common veterinary requirements adopted by the CU Commission Decision of 18 June 2010, No. 317 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/2030.05.17.pdf
716. The amendments on bringing the CU common veterinary requirements in line with OIE standards and recommendations to the interconnected CU Decisions (N317 of 18 June 2010 and N455 of 18 November 2010) will be developed in parallel and introduced simultaneously in order to ensure their compatibility	Veterinary service	Common veterinary requirements adopted by the CU Commission Decision of 18 June 2010, No. 317 Common forms of veterinary certificates adopted by the CU Commission decision of 18 November 2010, N 455 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/vetsanmeri/Documents/P_455_1.pdf OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/

Continuation of the table B.1

1	2	3
720. If the appropriate safety level applied in the EAEU or Kazakhstan will be perceived as higher than it is set up in international standards by the exporting country then the relevant consultation will be carried out, and if necessary according to the consultation results the relevant provisions of veterinary certificates will be amended in line with international standards, and recommendations	Veterinary service	On application of international standards, recommendations and guidelines adopted by the CU Commission Decision of 22 June 2011, No 721 https://docs.eaeunion.org/docs/ru-ru/0056588/cuc_29102012_721
721. BSE-related provision in the veterinary certificates agreed bilaterally and between EAEU and foreign country will be in compliance with OIE standards	Veterinary service	Common veterinary requirements adopted by the CU Commission Decision of 18 June 2010, No. 317
722. Veterinary certificates would not include provisions for diseases that were not transmitted by/relevant to the concerned product, and would not require certification of provisions that were not justified based on mandatory requirements applicable and surveillance carried out within the territory of Kazakhstan or the whole EAEU	Veterinary service	OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/
724. Veterinary certificates include both veterinary and sanitary requirements and that only one veterinary sanitary document is required to cross the border for non-processed and processed milk and meat products. It will be specified in the EAEU technical regulations.	Veterinary service	CU/EAEU Technical Regulations: On Milk and Milk Products" TP TC 033/2013 On Meat and Meat Products TP TC 034/2013 On oil-fat products 024/2013 On fish and fish products TP ЕАЭС 040/2016 On poultry and its processed products (draft) http://www.eurasiancommission.org/ru/act/texnreg/deptexreg/tr/Pages/TRVsily.aspx
736. It would not require an establishment to be included in the Register as set out in *Annex 19* of this Report for importation into the territory of Kazakhstan. Moreover, in implementation of CU Commission Decision No317 "On Common veterinary requirements" of 18 June 2010, Kazakhstan would not require a	Veterinary service	Common veterinary requirements adopted by the CU Commission Decision of 18 June 2010, No. 317, Annex 1 - The list of regulations applied by EAEU authorised bodies to goods, imported to the customs territory of the EAEU

Continuation of the table B.1

1	2	3
successful audit as a pre-condition for importation into the territory of Kazakhstan of goods listed in Annex 19 of this Report.		http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/D0%9F%D1%80%D0%B8%D0%BB%D0%BE%D0%B6%D0%B5%D0%BD%D0%B8%D0%B5%201.pdf
738. With regard to the list of goods as set-out in *Annex 20* of this Report, categories of goods would be added to the list of goods subject to veterinary control or the form of veterinary control applied to categories of goods on the list would be modified only if such action was in compliance with the provisions of the WTO Agreement on the Application of SPS Measures.	Veterinary service	Common list of goods subject to veterinary control adopted by the CU Commission Decision of 18 June 2010, No. 317 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/%D0%9F%D1%80.1%20%D0%95%D0%B4%D0%B8%D0%BD%D1%8B%D0%B9%20%D0%BF%D0%B5%D1%80%D0%B5%D1%87%D0%B5%D0%BD%D1%8C%20%D1%82%D0%BE%D0%B2.pdf
747. It would provide three possibilities for exporting countries' establishments to become eligible to export to the territory of Kazakhstan, as contained in EEC Council Decision No. 94 "On Regulation on Common System of Joint Inspections of Objects and Sampling Goods (Products), Subject to Veterinary Control (Surveillance)" of 9 October 2014, and added to the Register where required pursuant to *Annex 20* of this Report including through a system audit, or a joint inspection or alternatively, based on guarantees of competent authorities of third countries.	Veterinary service	Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance), adopted by the EEC Decision of 9 October 2014, N 94. http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/Pologenieoproverkah.pdf
753. At the request of the competent authorities of the third country, the EAEU member States would conduct a system audit to determine if the official system of supervision of that third country was capable of providing a level of protection at least equivalent to that provided by EAEU requirements. If this audit of the official system of supervision was successful, the EAEU member States would include	Veterinary service	Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance) adopted by the EEC Decision of 9 October 2014, N 94. http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/Pologenieoproverkah.pdf

Continuation of the table B.1

1	2	3
establishments of the audited country on the Register of establishments. If an audit of a third country's official system of supervision was not carried out or was not completed or if, as a result of such audit, the third country's official system of supervision was not recognized as being capable to provide a level of protection at least equivalent to that provided by the EAEU requirements, the EAEU member States could agree to include establishments of that country to the Register on the basis of joint inspections or guarantees provided by the competent authority of the third country if listing was required for such products, as set out in Annex 19. The absence of the establishment on a list would not be a ground for rejection of the import of such product into the territory of Kazakhstan. The circulation within the EAEU of such product imported into the territory of Kazakhstan listed in Annex 19 of this Report may be limited to the territory of Kazakhstan.		Common veterinary requirements adopted by the CU Commission Decision of 18 June 2010, No. 317, Annex 1 - The list of regulations applied by EAEU authorised bodies to goods, imported to the customs territory of the EAEU http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/%D0%9F%D1%80%D0%B8%D0%BB%D0%BE%D0%B6%D0%B5%D0%BD%D0%B8%D0%B5%201.pdf On Equivalence of sanitary, veterinary and phytosanitary measures and risk assessment adopted by the CU Commission decision of 18 October 2011, N 835 https://docs.eaeunion.org/docs/ru-ru/0054949/cuc_21102011_835
762. Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance) provided for removal of an establishment from the Registry (delisting) in only two cases: (1) at the request of the relevant establishment, and (2) at the request of the competent authority of the third country. Instead of delisting an establishment, the EAEU could, in line with international standards or based on risk assessment, temporarily suspend imports from the establishment and/or subject imports from that establishment to intensified monitoring. Except in emergency situations, understood in the sense provided for in the OIE, a temporary suspension of imports from an establishment could be applied only: - upon the request of the establishment or the competent authority of	Veterinary service	Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance) adopted by the EEC Decision of 9 October 2014, N 94 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/Pologenieoproverkah.pdf OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/

Continuation of the table B.1

1	2	3
the third country; or - based on repeated non-compliances with EAEU requirements either detected during on-site inspection and/or re-inspection of the establishment by the competent authority of an EAEU member State, or as a result of monitoring and enhanced laboratory testing of the establishment's goods, which have been notified to the competent authority of the third country, if such non-compliances represented a significant threat to human or animal life and health		
764. Except in case of serious risks of animal or human health, its competent authority would not suspend imports from establishments based on the results of on-site inspection before it had given the exporting country the opportunity to propose corrective measures. As required under the Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance), the preliminary report would be sent to the competent authority of the exporting country for comments before the report was finalized. The EAEU member States had developed criteria and reasons for a decision to suspend imports from an establishment. Minor errors would not be valid grounds for suspending imports from an establishment and there would be an administrative procedure for appealing such decisions as well as recourse to the courts	Veterinary service	Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance) adopted by the EEC Decision of 9 October 2014, N 94 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/Pologenieoproverkah.pdf Regulation on common procedures of implementation of veterinary control (supervision) at the customs border of the EAEU and on the customs territory of the EAEU, adopted the CU Commission Decision of 18 June 2010, No. 317 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/%D0%9F%D0%BE%D0%BB%D0%BE%D0%B6%D0%B5%D0%BD%D0%B8%D0%B5%20%D0%BE%20%D0%BF%D0%BE%D1%80%D1%8F%D0%B4%D0%BA%D0%B5%20%D0%B2%D0%B5%D1%82.%20%D0%BA%D0%BE%D0%BD%D1%82%D1%80%D0%BE%D0%BB%D1%8F%20%D0%BE%D1%82%2023.11.pdf

Continuation of the table B.1

1	2	3
765. The decisions and procedures for the suspension of establishments would be in accordance with the WTO Agreement on the application of SPS measures	Veterinary service	WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm
766. In extraordinary cases, the Commission could take a decision to suspend a group of establishments or all establishments of a third country as the result of the detection of a serious systemic failure of the official system of control, as specified in the Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance). Kazakhstan confirmed that, upon taking such a decision, the EEC would have to provide the Competent authority of the third country with the technical information and scientific justification on the risk detected. The third country would be requested to take corrective measures within a specified timeframe for their adoption. Any suspension would not be implemented before the expiration of the specified timeframe. Once the corrective measures were taken, the Competent Authority of the third country would send a report on the corrective measures to the Commission. The Commission would evaluate the report and it would decide if the corrective measures were effective and sufficient. The suspension, if implemented, would be lifted within five working days after the decision. In case corrective measures were not taken or were considered ineffective by the Commission, the decision on a temporary suspension of imports from a group of establishments or all establishments of a third country could be implemented. Kazakhstan confirmed that such temporary suspensions would be proportionate to the risk to human health or life and not more restrictive to trade than necessary, as provided in the WTO Agreement on the Application of SPS measures	Veterinary service	Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance) adopted by the EEC Decision of 9 October 2014, N 94 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/Pologenieoproverkah.pdf WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm

Continuation of the table B.1

1	2	3
772. As of the date of accession of Kazakhstan to the WTO, specific guidelines on inspection that would reflect the principles of equivalence and reliance on international standards, guidelines and recommendations, as such principles were described in paragraph 771 above, would be adopted and applied by EAEU inspectors. Under these guidelines, referred to in paragraph 770 above, inspectors were instructed in particular to verify the compliance of establishments with relevant Codex Alimentarius recommended codes of practices such as CAC/RCP 1-1969, recommended International Code of Practice General Principles of Food Hygiene, the CAC/RCP 58 2005 Code of Hygienic Practice for Meat, the CAC/RCP 57-2004 Code of Hygienic Practice for Milk and Milk Products, the CAC/RCP 52 2003 Code of Practice for Fish and Fishery Products and other relevant international standards, recommendations and related texts. Inspectors would be provided information and training on the application of the principle of equivalence as provided in the WTO Agreement on the application of SPS measures, in the context of the Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance)" the guidelines	Veterinary service	On Equivalence of sanitary, veterinary and phytosanitary measures and risk assessment adopted by the CU Commission decision of 18 October 2011, N 835 https://docs.eaeunion.org/docs/ru-ru/0054949/cuc_21102011_835 On application of international standards, recommendations and guidelines adopted by the CU Commission Decision of 22 June 2011, No 721 https://docs.eaeunion.org/docs/ru-ru/0056588/cuc_29102012_721 Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance) adopted by the EEC Decision of 9 October 2014, N 94 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/Pologenieoproverkah.pdf OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/ CAC/RCP 1-1969 Code of Practice General Principles of Food Hygiene CAC/RCP 58 2005 Code of Hygienic Practice for Meat CAC/RCP 57-2004 Code of Hygienic Practice for Milk and Milk Products CAC/RCP 52 2003 Code of Practice for Fish and Fishery Products http://www.fao.org/fao-who-codexalimentarius/codex-texts/codes-of-practice/ru/

Continuation of the table B.1

1	2	3
777. By the date that Kazakhstan became a Member of the WTO, the Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance), as described in the Working Party Report, would be applied in compliance with the WTO Agreement on the application of SPS measures, including Article 2.3 thereof, and the WTO GATT 1994. In particular, it would not arbitrarily or unjustifiably discriminate between Members, where identical or similar conditions prevail, including between EAEU member States which were Members and other Members, with regards to requirements for on-site inspections, including for purposes of determination and maintenance of equivalence of the systems of control of products; and it would not be applied in a manner which would constitute a disguised restriction on international trade	Veterinary service	Regulation on common system of joint inspections of objects and sampling goods (products), subject to veterinary control (surveillance) adopted by the EEC Decision of 9 October 2014, N 94 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/Pologenieoproverkah.pdf WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm
784. It had made available to importers, as well as to third-country exporters through the website of the Ministry of Agriculture http://mgov.kz/napravleniya-razvitiya/information-for-third-countries full detailed conditions for import of specific products. Furthermore, information on EAEU veterinary requirements was available on the EAEU website at the following address: http://www.eurasiancommission.org/en/act/texnreg/Pages/acts.aspx Kazakhstan further confirmed that to this end, it would publish a list on the website of the National Enquiry Point in English of the products which were permitted to be imported into its territory; the countries and establishments authorised to export to Kazakhstan; and the conditions for import. Where an application for an import permit was denied, the would inform the applicant of the reasons for this rejection within 10 working days of the decision	Veterinary service	The MoA's link has changed: https://www.gov.kz/memleket/entities/moa/activities/1352?lang=ru&parentId=164 However this commitment is not fulfilled yet For the EAEU - in Russian http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Pages/%D0%92%D0%B5%D1%82%D0%B5%D1%80%D0%B8%D0%BD%D0%B0%D1%80%D0%BD%D0%BE-%D1%81%D0%B0%D0%BD%D0%B8%D1%82%D0%B0%D1%80%D0%BD%D1%8B%D0%B5-%D0%BC%D0%B5%D1%80%D1%8B.aspx Regulation on issue of a permit for export, import and transit of movable (transportable) objects adopted by the

Continuation of the table B.1

1	2	3
		MoA decision of 9 December 2014, N 16-04/647 http://adilet.zan.kz/rus/docs/V14F0010254#z6 Standard on public service "Issuance of a permit for export, import and transit of movable (transportable) objects" adopted of 6 May 2015, N 7-1/418 (Annex 8) http://adilet.zan.kz/rus/docs/V1500011959
785. Some Members asked Kazakhstan to confirm that its import permit system would comply with OIE rules, i.e., permits would not be refused on grounds not recognized by the OIE for the animal diseases concerned. Further, with regard to the discovery of unauthorized substances in cargos, Kazakhstan would comply with the principle of applying an SPS measure only to the extent necessary to protect human or animal life and health. In the view of these Members, a refusal to issue import permit after single findings of non-compliances with no immediate risk for the consumer would not comply with this principle. Kazakhstan confirmed that its procedures for considering applications for import permits would comply with these two principles	Veterinary service	Regulation on issue of a permit for export, import and transit of movable (transportable) objects adopted by the MoA decision of 9 December 2014, N 16-04/647 http://adilet.zan.kz/rus/docs/V14F0010254#z6 OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/ WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm
788. Minor documentation errors, which did not alter the basic data contained in the document, were not a basis for refusing an import permit. The legal circumstance that served as grounds for starting this administrative procedure for revocation of an import permit was the discovery of systematic (e.g., liable to administrative or criminal prosecution) violations, by the importer of the regulated cargo, of EAEU Decisions and other EAEU Acts and the laws of Kazakhstan in the field of veterinary (including the presentation of forged veterinary documents or the discovery of inconsistency between the presented documents and the regulated cargo). Furthermore, it was	Veterinary service	Regulation on issue of a permit for export, import and transit of movable (transportable) objects adopted by the MoA decision of 9 December 2014, N 16-04/647 http://adilet.zan.kz/rus/docs/V14F0010254#z6 OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/ WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm

Continuation of the table B.1

1	2	3
confirmed that the reasons for suspension, cancellation, or refusal of an import permit would be consistent with international standards, recommendations, and guidelines and the WTO Agreement on the application of SPS measures		
789. Import permit regime applicable to goods subject to veterinary and quarantine control would be operated under EAEU Decisions, other EAEU Acts, and provisions of the Law of Kazakhstan that were published and available to the public and that these measures would be developed and applied in compliance with the WTO Agreement. Kazakhstan also confirmed that information requirements for the purposes of applying for an import permit would be limited to what was necessary for appropriate approval and control procedures and that any requirements for control, inspection and approval of individual specimens of a product were limited to what is reasonable and necessary as provided for in Annex C of the WTO Agreement on the application of SPS measures. Moreover, it would maintain and notify the public of a clearly defined procedure under which an applicant for an import permit could appeal the suspension, cancellation, or refusal of an application, have that appeal adjudicated, and receive a written response explaining the reasons for the final decision and any further action required to obtain a permit	Veterinary service	Regulation on issue of a permit for export, import and transit of movable (transportable) objects adopted by the MoA decision of 9 December 2014, N 16-04/647 http://adilet.zan.kz/rus/docs/V14F0010254#z6 OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/ WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm
797. Concerns regarding the requirement for controlled goods in transit to comply with EAEU veterinary requirements and confirmed that CU Commission Decision No. 317 "On the Application of Veterinary-Sanitary Measures in the Customs Union" of 18 June 2010 had been amended by CU Commission Decision No. 724 of 22 June 2011 to eliminate this requirement, so that, controlled goods transiting through the territory of the EAEU under customs seal	Veterinary service	Regulation on common procedures of implementation of veterinary control (supervision) at the customs border of the EAEU and on the customs territory of the EAEU, adopted the CU Commission Decision of 18 June 2010, No. 317 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/%D0%9F%D0%BE%D0%B

Continuation of the table B.1

1	2	3
would not be subject to EAEU veterinary requirements. In addition, Kazakhstan confirmed that the relevant provisions of CU Commission Decision No. 317 "On the Application of Veterinary-Sanitary Measures in the Customs Union" of 18 June 2010, and any administrative regulations and other measures relating to the transit of goods subject to veterinary control through the territory of Kazakhstan would be applied in compliance with the OIE Code and the WTO Agreement on the application of SPS measures		B%D0%BE%D0%B6%D0%B5%D0%BD%D0%B8%D0%B5%20%D0%BE%20%D0%BF%D0%BE%D1%80%D1%8F%D0%B4%D0%BA%D0%B5%20%D0%B2%D0%B5%D1%82.%20%D0%BA%D0%BE%D0%BD%D1%82%D1%80%D0%BE%D0%BB%D1%8F%20%D0%BE%D1%82%2023.11.pdf OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/ WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm
803. The appropriate level of sanitary or phytosanitary protection was defined as the required level of protection established by a technical regulation for products and phytosanitary requirements to regulated products, produced on the territory of Kazakhstan aimed at prevention of factual scientifically grounded risks. Kazakhstan confirmed that the EAEU Treaty, EAEU acts, and Kazakhstan's legislation did not and would not in future establish additional SPS requirements for imported products that exceeded the requirements established for the EAEU or domestic products	Phytosanitary service	Phytosanitary and quarantine measures http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Pages/%D0%A4%D0%B8%D1%82%D0%BE%D1%81%D0%B0%D0%BD%D0%B8%D1%82%D0%B0%D1%80%D0%BD%D1%8B%D0%B5-%D0%BC%D0%B5%D1%80%D1%8B.aspx
812. When taking phytosanitary measures, Kazakhstan's authorities followed the relevant international practice and provisions established in the IPPC and the WTO Agreement on the application of SPS measures, including conducting a risk assessment. It is confirmed that, if the phytosanitary requirements of Kazakhstan resulted in a higher level of protection than would be achieved by measures based on relevant international standards, recommendations or guidelines,	Phytosanitary service	International Plant Protection Convention https://www.ippc.int/ru/ WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm On Equivalence of sanitary, veterinary and phytosanitary measures and risk assessment adopted by the CU

Continuation of the table B.1

1	2	3
Kazakhstan would apply its phytosanitary requirements in accordance with the WTO Agreement on the application of SPS measures. She also confirmed that the authorities of Kazakhstan would consult with exporting Members on the measures in question, if requested. Furthermore, if phytosanitary requirements applied in Kazakhstan resulted in a higher level of protection than would be achieved by measures based on relevant international standards, recommendations or guidelines, Kazakhstan would provide explanations of the reasons for such phytosanitary measure, including the relevant risk assessment, on a bilateral basis following receipt of a request from an exporting Member pursuant to Article 5.8 of the WTO Agreement on the application of SPS measures		Commission decision of 18 October 2011, N 835 https://docs.eaeunion.org/docs/ru-ru/0054949/cuc_21102011_835 On application of international standards, recommendations and guidelines adopted by the CU Commission Decision of 22 June 2011, No 721 https://docs.eaeunion.org/docs/ru-ru/0056588/cuc_29102012_721
830. EAEU would apply MRLs on chlorothalonil, clofentezine, cyprodinil, kresoxim-methyl, iprodione, propamocarb, pirimicarb, thiabendazole, carbendazim, famoxadone, copper compounds, and lambda cyhalothrin that corresponded to international standards in conformity with the WTO Agreement on the application of SPS measures no later than the date of the accession of Kazakhstan, and that these MRLs would be set out in EAEU acts	Sanitary-epidemiology service, Veterinary service	Common sanitary-epidemiological and hygienic requirements for products (goods) subject to sanitary-epidemiological supervision (control) http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/sanmeri/Pages/P2_299.aspx On application of international standards, recommendations and guidelines adopted by the CU Commission Decision of 22 June 2011, No 721 https://docs.eaeunion.org/docs/ru-ru/0056588/cuc_29102012_721 CU/EAEU Technical regulations on safety of food products http://www.eurasiancommission.org/ru/act/texnreg/deptexreg/tr/Pages/TRVsily.aspx
833. Certain standards for some veterinary drugs had been harmonized with international standards by the CU Commission Decision No. 889 of 9 December 2011. Currently, the results of the previous risk assessments were being revisited within the framework of the works on harmonization of MRLs for remaining veterinary drugs. The results of the risk assessment carried out by an EAEU member State were published on the official websites of the national competent bodies. The harmonization of remaining MRLs for veterinary drugs was currently in process and would be completed by	Sanitary-epidemiology service, Veterinary service	

Continuation of the table B.1

1	2	3
the date of Kazakhstan's accession to the WTO, unless application of an MRL that was not based on an international standard was justified under the WTO Agreement on the application of SPS measures		
835. As of the date of the accession of Kazakhstan to the WTO, the maximum levels of nitrates would be revised in accordance with international standards, recommendations, and guidelines	Sanitary-epidemiology service, Veterinary service	Common sanitary-epidemiological and hygienic requirements for products (goods) subject to sanitary-epidemiological supervision (control) http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/sanmeri/Pages/P2_299.aspx
838. Before the date of its accession to the WTO, would provide to any interested Member scientific evidence and an assessment of the risk associated with tetracyclines antibiotics residues, developed in accordance with methods of scientific evaluation set by the Codex Alimentarius, sufficient to justify the application of MRLs more stringent than those provided for in the relevant Codex standards. If such a scientific justification and risk assessment for a more stringent MRL was not provided, the MRLs for tetracyclines would be revised to correspond to Codex standards in national and EAEU acts as of the date of the accession of Kazakhstan to the WTO consistent with the provisions of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures	Sanitary-epidemiology service, Veterinary service	CU/EAEU Technical regulations on safety of food products http://www.eurasiancommission.org/ru/act/texnreg/deptexreg/tr/Pages/TRVsily.aspx CX/MRL 2-2018 Maximum residue limits (MRLs) and risk management recommendations (RMRs) for residues of veterinary drugs in foods http://www.fao.org/fao-who-codexalimentarius/sh-proxy/ru/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXM%2B2%252FMRL2r.pdf
841. In application of Article 3.1 of the WTO Agreement on the application of SPS measures, all sanitary and phytosanitary measures, whether adopted by Kazakhstan or the competent bodies of the EAEU, would be based on international standards, guidelines or recommendations as provided for in the WTO Agreement. Kazakhstan confirmed that, in cases in which no mandatory veterinary or phytosanitary, or sanitary epidemiological and hygienic requirements had been established at EAEU or Kazakhstan national	Sanitary-epidemiology service, Phytosanitary service	On application of international standards, recommendations and guidelines adopted by the CU Commission Decision of 22 June 2011, No 721 https://docs.eaeunion.org/docs/ru-ru/0056588/cuc_29102012_721 OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/

Continuation of the table B.1

1	2	3
level, Kazakhstan would apply the relevant standards, guidelines or recommendations, or parts thereof, of the OIE, IPPC and Codex respectively. Further, Kazakhstan confirmed that measures which were not based on international standards, guidelines and recommendations, where they exist, would not be applied in Kazakhstan without providing Members a scientifically based justification of the measures, in accordance with the SPS Agreement, including Article 3.3. In cases where relevant scientific evidence was insufficient, any measure adopted, whether by Kazakhstan or the competent bodies of the EAEU would comply with the SPS Agreement, in particular with Article 5.7 thereof. In the event that international standards were not considered to meet the appropriate level of protection, Kazakhstan would provide scientific justification for measures applied in Kazakhstan, in accordance with Article 5.8 of the SPS Agreement. Kazakhstan confirmed that this obligation currently was included in the EAEU legal framework, and Kazakhstan further would ensure that these obligations continue to be a mandatory part of the EAEU legal framework in the future		Codex Alimentarius standards and guidelines http://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/ International Plant Protection Convention https://www.ippc.int/ru/ WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm
848. As of the date of accession of Kazakhstan, goods would be included on the Common List of Goods Subject to Veterinary Control only if application of veterinary measures was in compliance with international standards, guidelines and recommendations, or if science or risk assessment justified, consistent with the SPS Agreement, subjecting a category of goods to veterinary measures. Similarly, the veterinary measures applied to each category of goods would also be in compliance with international standards, recommendations and guidelines or based on science or risk assessment. Moreover, Kazakhstan confirmed that consistent with	Veterinary service	Common list of goods subject to veterinary control adopted by the CU Commission Decision of 18 June 2010, No. 317 http://www.eurasiancommission.org/ru/act/texnreg/depsanmer/regulation/Documents/%D0%9F%D1%80.1%20%D0%95%D0%B4%D0%B8%D0%BD%D1%8B%D0%B9%20%D0%BF%D0%B5%D1%80%D0%B5%D1%87%D0%B5%D0%BD%D1%8C%20%D1%82%D0%BE%D0%B2.pdf On application of international standards,

Continuation of the table B.1

1	2	3
the SPS Agreement, that risk assessments would be conducted taking into account the risk assessment techniques developed by the relevant international organizations and their subsidiary bodies		recommendations and guidelines adopted by the CU Commission Decision of 22 June 2011, No 721 https://docs.eaeunion.org/docs/ru-ru/0056588/cuc_29102012_721 OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/
849. In accordance with the SPS Agreement, EAEU and Kazakh SPS measures would be based on an assessment, as appropriate to the circumstances, of the risk to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations. In accordance with the WTO Agreement on the Application of Sanitary and Phytosanitary Measures, these assessments would take into account the standards guidelines and recommendations of Codex, OIE and IPPC, in particular: Codex Guidelines on Working Principles for Risk Analysis for Food Safety for Application by Governments (CAC/GL 62-2007); chapter 2.1 on Import Risk Analysis of the OIE Terrestrial Animal Health Code; chapter 2.2 on Import Risk Analysis of the OIE Aquatic Animal Health Code; International Standards for Phytosanitary Measures (ISPM) No. 2 "Framework for Pest Risk Analysis", ISPMs Nos. 11, 21; and, the categories of commodities according to their pest risk established by ISPM No. 32	Veterinary service, Sanitary-epidemiology service, Phytosanitary service	On Equivalence of sanitary, veterinary and phytosanitary measures and risk assessment adopted by the CU Commission decision of 18 October 2011, N 835 https://docs.eaeunion.org/docs/ru-ru/0054949/cuc_21102011_835 OIE Terrestrial Animal Health Code https://www.oie.int/standard-setting/terrestrial-code/access-online/ CAC/GL 62-2007 Guidelines on Working Principles for Risk Analysis for Food Safety for Application by Governments http://www.fao.org/fao-who-codexalimentarius/sh-proxy/jp/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B62-2007%252FCXG_062r.pdf International Standards for Phytosanitary Measures (ISPM) No. 2, 11, 21 and 32 https://www.ippc.int/en/core-activities/standards-setting/ispms/

Continuation of the table B.1

1	2	3
856. Ensure compliance with Article 4 of the SPS Agreement. Further confirmed that, as provided for in Article 4 of the SPS Agreement, sanitary, veterinary, and phytosanitary measures of other Members, even when they were different from measures of Kazakhstan or the EAEU, would be accepted as equivalent, if the exporting country objectively demonstrated that its measures achieved the appropriate level of SPS protection applied in Kazakhstan. Kazakhstan also confirmed that procedures for recognition and determination of equivalence, consistent with the SPS Agreement, including Article 4 thereof, whether applied by Kazakhstan or competent bodies of the EAEU, would be based on relevant international standards, guidelines and recommendations, namely the Decision of the WTO Committee on Sanitary and Phytosanitary Measures (G/SPS/19/Rev.2), Codex Guidelines on the Judgment of Equivalence of Sanitary Measures Associated with Food Inspection and Certification Systems (CAC/GL 53-2003), Codex Guidelines for the Development of Equivalence Agreements Regarding Food Import and Export Inspection and Certification Systems (CAC/GL 34-1999); Chapter 5.3 of the OIE Terrestrial Animal Health Code "OIE Procedures Relevant to the SPS Agreement and International Standards for Phytosanitary Measures (ISPM) No. 24 Guidelines for the Determination and Recognition of Equivalence of Phytosanitary Measures	Veterinary service , Sanitary-epidemiology service, Phytosanitary service	On Equivalence of sanitary, veterinary and phytosanitary measures and risk assessment adopted by the CU Commission decision of 18 October 2011, N 835 https://docs.eaeunion.org/docs/ru-ru/0054949/cuc_21102011_835 G/SPS/19/Rev.2 Decision of the WTO Committee on Sanitary and Phytosanitary Measures https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009\DP.aspx?language=E&CatalogueIdList=36280,89035,54139,26319,16857,31568,60762,61432,3797,2154&CurrentCatalogueIdIndex=0&FullTextHash= OIE Terrestrial Animal Health Code (Chapter 5.3) https://www.oie.int/standard-setting/terrestrial-code/access-online/ CAC/GL 53-2003 Codex Guidelines on the Judgment of Equivalence of Sanitary Measures Associated with Food Inspection and Certification Systems http://www.fao.org/fao-who-codexalimentarius/sh-proxy/jp/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B53-2003%252FCXG_053e.pdf CAC/GL 34-1999 Codex Guidelines for the Development of Equivalence Agreements Regarding Food Import and Export Inspection and Certification Systems http://www.fao.org/fao-who-codexalimentarius/sh-proxy/jp/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B34-1999%252FCXG_034r.pdf

Continuation of the table B.1

1	2	3
		ISPM No. 24 https://www.ippc.int/en/core-activities/standards-setting/ispms/
859. All SPS measures are developed and applied in Kazakhstan, whether by Kazakhstan or competent bodies of the EAEU, would comply with the non discrimination provisions of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures, including those relating to the principles of national and most-favoured-nation treatment.	Veterinary service, Sanitary-epidemiology service, Phytosanitary service	WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm
872. Draft SPS measures applicable to imports into Kazakhstan would be notified to the WTO SPS Committee, including EAEU SPS measures, in accordance with Annex B of the SPS Agreement and following the principles of the WTO SPS Committee's "Recommended Procedures for Implementing the Transparency Obligations of the SPS Agreement" (G/SPS/7/Rev.3). SPS measures, including those relating to inspection, were published in publications, such as those mentioned in paragraph 867. Information on all proposed SPS measures and those in effect, as foreseen in Annex B of the SPS Agreement, could also be obtained from the SPS notification authority or from Kazakhstan's SPS enquiry point	Veterinary service, Sanitary-epidemiology service, Phytosanitary service	WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm G/SPS/7/Rev.3 Recommended Procedures for Implementing the Transparency Obligations of the SPS Agreement https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=79250&CurrentCatalogueIdIndex=0&FullTextSearch= Regulation on establishment and function of the Information Center on TBT and SPS measures adopted by the Government of the RK decree of July 11, 2005, N 718. http://adilet.zan.kz/rus/docs/P050000718_
874. All SPS measures adopted by Kazakhstan or the EAEU would be applied in conformity with the SPS Agreement. In particular these SPS measures would be applied only to the extent necessary to protect human, animal or plant life or health and would be not more trade restrictive than required to achieve the appropriate level of	Veterinary service, Sanitary-epidemiology service,	WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm

Continuation of the table B.1

1	2	3
sanitary or phytosanitary protection of the EAEU and Kazakhstan. Finally, when determining the appropriate level of sanitary, veterinary, or phytosanitary protection, Kazakhstan or the competent bodies of the EAEU, would take into account the objective to minimize negative trade effects in accordance with the SPS Agreement	Phytosanitary service	
875. All SPS measures would be developed and applied in Kazakhstan in accordance with the WTO Agreement and in particular, the SPS Agreement. SPS measures would be applied only to the extent necessary to protect human, animal, or plant life or health; would be based on scientific principles and, where they exist, on international standards, guidelines, and recommendations; and, would not be more trade restrictive than required to achieve the appropriate level of protection applied in Kazakhstan. SPS measures would not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between the territory of Kazakhstan and that of other Members. SPS measures would not be applied in a manner, which would constitute a disguised restriction on international trade, and would not be maintained without sufficient scientific evidence, except as provided for in Article 5.7 of the WTO SPS Agreement	Veterinary service, Sanitary-epidemiology service, Phytosanitary service	WTO Agreement on application of SPS measures https://www.wto.org/english/docs_e/legal_e/15sps_01_e.htm
Note – Compiled from the Working Party Report on accession of Kazakhstan WT/ACC/KAZ/93 [63]		

ANNEX C

Table C.1 – The assessment scale of the veterinary service according to the OIE PVS tool

Indicators	Assessment grade				
	1 – Poor	2 – Insufficient	3 – Minimal	4 – Good	5 – Advanced
1	2	3	4	5	6
I. HUMAN, PHYSICAL AND FINANCIAL RESOURCES					
I-1. PROFES-SIONAL AND TECHNICAL STAFFING OF THE VS *A. Veterinary and other profes sionals (university qualified)*	The majority of positions requiring veterinary or other professional skills are not occupied by appropriately qualified professionals.	The majority of positions requiring veterinary or other professional skills are occupied by appropriately qualified professionals at central and state/provincial levels.	The majority of positions requiring veterinary or other professional skills are occupied by appropriately qualified professionals at local (field) levels.	There is a systematic approach to defining job descriptions and formal, merit-based appointment and promotion procedures for veterinarians and other professionals.	There are effective procedures for formal performance assessment and performance management of veterinarians and other professionals.
B. Veterinary paraprofession als	1. The majority of positions requiring veterinary paraprofessional skills are not occupied by personnel holding appropriate qualifications.	Some positions requiring veterinary paraprofessional skills are occupied by personnel holding appropriate qualifications. There is little or no veterinary supervision.	The majority of positions requiring veterinary paraprofessional skills are occupied by personnel holding appropriate qualifications. There is a variable level of veterinary supervision.	The majority of veterinary paraprofessional positions are effectively supervised on a regular basis by veterinarians.	There are effective management procedures for formal appointment and promotion, as well as performance assessment and performance management of veterinary paraprofessionals.
I-2. COMPE TENCY AND EDUCATION	The veterinarians' knowledge, skills and practices, are	The veterinarians' knowledge, skills and practices are of a	The veterinarians' knowledge, skills and practices are sufficient	The veterinarians' knowledge, skills and practices are sufficient for	The veterinarians' knowledge, skills and practices are subject to

Continuation of the table C.1

1	2	3	4	5	6
OF VETERINARIANS AND VETERINARY PARAPROFESSIONALS *A. Veterinarians*	of a variable standard that allow only for elementary clinical and administrative activities of the VS	uniform standard sufficient for accurate and appropriate clinical and administrative activities of the VS.	for all professional/technical activities of the VS (e.g. surveillance, treatment and control of animal disease, including conditions of public health significance)	specialised technical activities (e.g. higher level epidemiological analysis, disease modelling, and animal welfare science) as may be needed by the VS, supported by post-graduate level training.	regular updating, and are internationally recognised such as through formal evaluation and/or the granting of international equivalence with other recognised veterinary qualifications.
B. Veterinarians paraprofessionals	Positions requiring veterinary paraprofessional skills are generally occupied by those having no formal training or qualifications from dedicated educational institutions.	The training and qualifications of those in positions requiring veterinary paraprofessional skills is of a variable standard and allows for the development of only basic competencies.	The training and qualifications of veterinary paraprofessionals is of a fairly uniform standard that allows the development of some specific competencies (e.g. vaccination on farms, meat hygiene control, basic laboratory tests).	The training and qualifications of veterinary paraprofessionals is of a uniform standard that allows the development of more advanced competencies (e.g. blood and tissue sample collection on farms, supervised meat inspection, more complex laboratory testing).	The training and qualifications of veterinary paraprofessionals is of a uniform standard and is subject to regular evaluation and/ or updating.
I-3. CONTINUING EDICATION (CE)	The VS have no access to veterinary or paraprofessional CE.	The VS have access to CE (internal and/or external training) on an irregular basis but it does not take into account needs, or new information or understanding	The VS have access to CE that is reviewed and sometimes updated, but it is implemented only for some categories of veterinary professionals and paraprofessionals.	The VS have access to a CE programme that is reviewed annually and updated as necessary, and is implemented for all categories of veterinary professionals and paraprofessionals.	The VS have up-to-date CE that is implemented or is a requirement for all relevant veterinary professionals and paraprofessionals and is subject to dedicated planning and regular evaluation of effectiveness.

Continuation of the table C.1

1	2	3	4	5	6
I-4. TECHNICAL INDEPENDENCE	The technical decisions made by the VS are generally not based on scientific considerations.	The technical decisions consider scientific evidence, but are routinely modified based on non-scientific considerations.	The technical decisions are based on scientific evidence but are subject to review and occasional modification based on non- scientific considerations.	The technical decisions are made and generally implemented in accordance with scientific evidence and the country's OIE obligations (and with the country's WTO SPS Agreement obligations where applicable).	The technical decisions are based on a high level of scientific evidence, which is both nationally relevant and internationally respected, and are not unduly changed to meet non-scientific considerations.
I-5. PLANNING, SUSTAINABILITY AND MANAGEMENT OF POLICIES AND PROGRAMMES	Policies and programmes are insufficiently developed and documented. Substantial changes to the organisational structure and/or leadership of the VS frequently occur (e.g. annually) resulting in a lack of sustainability of policies and programmes.	Some basic policy and programme development and documentation exists, with some reporting on implementation. Sustainability of policies and programmes is negatively impacted by changes in the political leadership or other changes affecting the structure and leadership of the VS.	There is well developed and stable policy and programme documentation. Reports on programme implementation are available. Sustainability of policies and programmes is generally maintained during changes in the political leadership and/or changes to the structure and leadership of the VS.	Policies or programmes are sustained, but also reviewed (using data collection and analysis) and updated appropriately over time through formal national strategic planning cycles to improve effectiveness and address emerging concerns. Planning cycles continue despite changes in the political leadership and/or changes to the structure and leadership of the VS.	Effective policies and programmes are sustained over time and the structure and leadership of the VS is strong and stable. Modification to strategic and operational planning is based on a robust evaluation or audit process using evidence, to support the continual improvement of policies and programmes over time.

Continuation of the table C.1

1	2	3	4	5	6
I-6. COORDINATION CAPABILITY OF THE VETERINARY SERVICES *A. Internal coordination (chain of command)*	There is no formal internal coordination and the chain of command is not clear.	There are internal coordination mechanisms for some activities but the chain of command is not clear.	There are internal coordination mechanisms and a clear and effective chain of command for some activities, such as for export certification, border control and/or emergency response.	There are formal, documented internal coordination mechanisms and a clear and effective chain of command for most activities, including surveillance (and reporting) and disease control programmes.	There are formal and fully documented internal coordination mechanisms and a clear and effective chain of command for all activities, and these are periodically reviewed/audited and updated to re-define roles and optimise efficiency as necessary
B. External coordination (including the One Health approach)	1. There is no external coordination with other government authorities.	There are informal external coordination mechanisms for some activities at national level, but the procedures are not clear and/ or external coordination occurs irregularly.	There are formal external coordination mechanisms with clearly described procedures or agreements (e.g. Memoranda of Understanding) for some activities and/or sectors at the national level.	There are formal external coordination mechanisms with clearly described procedures or agreements at the national level for most activities (such as for One Health), and these are uniformly implemented throughout the country, including at state/provincial level.	There are external coordination mechanisms for all activities, from national to field, and these are periodically reviewed and updated to re-clarify roles and optimise efficiency.
I-7. PHYSICAL RESOURCES AND CAPITAL	The VS have no or unsuitable physical resources at almost all levels and maintenance	The VS have suitable physical resources at national (central) level and at some state/provincial levels,	The VS have suitable physical resources at national, state/ provincial and some local levels but	The VS have suitable physical resources at all levels and these are regularly maintained. Major capital investments occur	The VS have suitable physical resources at all levels (national, state/provincial and local levels) and these are

Continuation of the table C.1

1	2	3	4	5	6
INVEST MENT	of existing infrastructure is poor or non-existent.	but maintenance, as well as replacement of obsolete items, occurs rarely.	maintenance, as well as replacement of obsolete items, occurs irregularly.	occasionally to improve the VS operational infrastructure over time.	regularly maintained and updated as more advanced items become available. Major capital investments occur regularly to improve the VS operational capability and infrastructure.
I-8. OPERA TIONAL FUNDING	Operational funding for the VS is neither stable nor clearly defined and depends on irregular allocation of resources.	Operational funding for the VS is clearly defined and regular, but is inadequate for their required baseline operations (e.g. basic disease surveillance, disease control and/or veterinary public health).	Operational funding for the VS is clearly defined and regular, and is adequate for their baseline operations, but there is no provision for new or expanded operations.	Operational funding for new or expanded operations is on a case-by-case basis, and not always based on risk analysis and/ or benefit-cost analysis.	Operational funding for all aspects of VS activities is generally adequate; all funding, including for new or expanded operations, is provided via a transparent process that allows for technical independence, based on risk analysis and/or cost-benefit analysis.
I-9. EMERGENCY FUNDING	No emergency funding arrangements exist.	Emergency funding arrangements with limited resources have been established, but these are inadequate for likely emergency situations (including newly emerging issues).	Emergency funding arrangements with limited resources have been established; additional resources may be approved but approval is through a political process.	Emergency funding arrangements with adequate resources have been established; their provision must be agreed through a non-political process on a case-by-case basis.	Emergency funding arrangements with adequate resources have been established and their rules of operation documented and agreed with interested parties.

Continuation of the table C.1

1	2	3	4	5	6
II. TECHNICAL AUTHORITY AND CAPABILITY					
II-1. VETERINARY LABORATORY DIAGNOSIS *A. Access to veterinary laboratory diagnosis*	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.	For major animal diseases and zoonoses of national importance, and for the food safety of animal products, the VS have access to and use a laboratory to obtain a correct diagnosis.	For animal diseases and zoonoses present in the country, and for animal feed safety and veterinary AMR surveillance, the VS have access to and use a laboratory to obtain a correct diagnosis.	For animal diseases of zoonotic or economic importance not present in the country, but that exist in the region and/or that could enter the country, the VS have access to and use a laboratory to obtain a correct diagnosis.	In the case of new and emerging diseases in the region or worldwide, the VS have access to and use a network of national or international reference laboratories (e.g. an OIE or FAO Reference Laboratory) to obtain a correct diagnosis.
B. Suitability of the national laboratory system	The national laboratory system does not meet the needs of the VS.	The national laboratory system partially meets the needs of the VS, but it is not sustainable, as the management and maintenance of resources and infrastructure is ineffective and/ or inefficient. Laboratory biosafety and biosecurity measures do not exist or are very limited.	The national laboratory system generally meets the needs of the VS. Resources and organisation are managed effectively and efficiently, but funding is insufficient for a sustainable system, and limits throughput. Some laboratory biosafety and biosecurity measures are in place.	The national laboratory system generally meets the needs of the VS, including for laboratory biosafety and biosecurity. There is sufficient sample throughput across the range of laboratory testing requirements. Occasionally, it is limited by delayed investment in certain aspects (e.g. personnel, maintenance or consumables).	The national laboratory system meets all the needs of the VS, has appropriate levels of laboratory biosafety and biosecurity, and is efficient and sustainable with a good throughput of samples. The laboratory system is regularly reviewed, audited and updated as necessary.

Continuation of the table C.1

1	2	3	4	5	6
C. Laboratory quality management systems (QMS)	No laboratories servicing the public sector VS are using formal QMS.	One or more laboratories servicing the public sector VS, including the major national animal health reference laboratory, are using formal QMS.	Most major laboratories servicing the public sector VS are using formal QMS. There is occasional use of multi-laboratory proficiency testing programmes.	Most of the laboratories servicing the public sector VS are using formal QMS, with regular use of multi-laboratory proficiency testing programmes.	All the laboratories servicing the public sector VS are using formal QMS which are regularly assessed via national, regional or international proficiency testing programmes.
II-2. RISK ANALYSIS AND EPIDEMIOLOGY	Risk management and risk communication measures are not usually supported by risk assessment.	The VS compile and maintain data but do not have the capability to carry out risk analysis. Some risk management and risk communication measures are based on risk assessment and some epidemiological principles.	The VS compile and maintain data and have the policy and capability to carry out risk analysis, incorporating epidemiological principles. The majority of risk management and risk communication measures are based on risk assessment.	The VS conduct risk analysis in compliance with relevant OIE standards and sound epidemiological principles, and base their risk management and risk communication measures on the outcomes of risk assessment. There is a legislative basis that supports the use of risk analysis.	The VS are consistent and transparent in basing animal health and sanitary measures on risk assessment and best practice epidemiology, and in communicating and/or publishing their scientific procedures and outcomes internationally.
II-3. QUARANTINE AND BORDER SECURITY	The VS cannot apply any type of quarantine or border security procedures for the entry of animals,	The VS can establish and apply minimal quarantine and border security procedures, or the VS only apply quarantine and border	The VS can establish and apply quarantine and border security procedures based on import protocols and international standards	The VS can establish and apply effective quarantine and border security procedures which systematically address legal pathways and illegal activities (e.g. through	The VS can establish, apply and audit quarantine and border security procedures which systematically address all risks identified, including through collaboration with their

Continuation of the table C.1

1	2	3	4	5	6
	animal products and veterinary products with their neighbouring countries or trading partners.	security procedures effectively at some official entry points via border posts.	at all official entry points via border posts, but the procedures do not systematically address illegal activities9 relating to the import of animals, animal products and veterinary products.	effective partnerships with national customs and border police).	neighbouring countries and trading partners.
II-4. SURVEILLANCE AND EARLY DETECTION *A. Passive surveillance 11, early detection and epidemiological outbreak investigation*	The VS have very limited passive surveillance capacity, with no formal disease list, little training/awareness and/or inadequate national coverage. Disease outbreaks are not reported or reporting is delayed.	The VS have basic passive surveillance authority and capacity. There is a formal disease list with some training/awareness and some national coverage. The speed of detection and level of investigation is variable. Disease outbreak reports are available for some species and diseases	The VS have some passive surveillance capacity with some sample collection and laboratory testing. There is a list of notifiable diseases with trained field staff covering most areas. The speed of reporting and investigation is timely in most production systems. Disease outbreak investigation reports are available for most species and diseases.	The VS have effective passive surveillance with routine laboratory confirmation and epidemiological disease investigation (including tracing and pathogen characterisation) in most animal sectors, and covering producers, markets and slaughterhouses. There are high levels of awareness and compliance with the need for prompt reporting from all animal owners/handlers and the field VS.	The VS have comprehensive passive surveillance nationwide providing high confidence in the notifiable disease status in real time. The VS routinely report surveillance information to producers, industry and other stakeholders. Full epidemiological disease investigations are undertaken in all relevant cases with tracing and active follow up of at-risk establishments.

Continuation of the table C.1

1	2	3	4	5	6
B. Active surveillance and monitoring	The VS have no active surveillance programme.	The VS conduct active surveillance for one or a few diseases, infections or hazards (of economic or zoonotic importance), but the surveillance is not representative of the population and the surveillance methodology is not revised regularly. The results are reported with limited analysis.	The VS conduct active surveillance using scientific principles and OIE standards for some diseases, infections or hazards, but it is not representative of the susceptible populations and/or is not updated regularly. The results are analysed and reported to stakeholders.	The VS conduct active surveillance in compliance with scientific principles and OIE standards for some diseases, infections or hazards which is representative of all susceptible populations and is updated regularly. Results are routinely analysed, reported and used to guide further surveillance activities, disease control priorities, etc.	The VS conduct ongoing active surveillance for most significant diseases, infections and hazards and apply it to all susceptible populations. The results are routinely analysed and used to guide disease control and other activities. The active surveillance programmes are regularly reviewed and updated to ensure they meet country needs and OIE reporting obligations.
II-5. EMERGENCY PREPAREDNESS AND RESPONSE	The VS have no field network or established procedure to determine whether a sanitary emergency threat exists or the authority to declare such an emergency and respond appropriately.	The VS have a field network and an established procedure to determine whether a sanitary emergency threat exists, but lack the legal and financial support to respond effectively. The VS may have basic emergency management planning, but this usually targets one or	The VS have the legal framework and financial support to respond rapidly to sanitary emergency threats, but the response is not well coordinated through an effective chain of command. They have national emergency management plans for some exotic diseases, but they are not	The VS have the legal framework and financial support to respond rapidly to sanitary emergencies through an effective chain of command (e.g. establishment of a containment zone). The VS have national emergency management plans for major exotic diseases, linked to broader national disaster management arrangements, and these are regularly	The VS have national emergency management plans for all diseases of concern (and possible emerging infectious diseases), incorporating coordination with national disaster agencies, relevant Competent Authorities, producers and other non-government stakeholders. Emergency management planning and response capacity is regularly tested,

Continuation of the table C.1

1	2	3	4	5	6
		a few diseases and may not reflect national capacity to respond.	updated/tested.	updated/ tested such as through simulation exercises.	audited and updated, such as through simulation exercises that test response at all levels. Following emergency events, the VS have a formal 'After Action Review' process as part of continuous improvement.
II-6. DISEASE PREVENTION, CONTROL AND ERADICATION	The VS have no capability to implement animal disease prevention, control or eradication programmes.	The VS implement prevention, control or eradication programmes for some diseases and/or in some areas or populations13, but with little or no epidemiological, risk-based planning or evaluation of their efficacy and efficiency.	The VS implement prevention, control or eradication programmes for some priority diseases in some areas or populations. There is variable epidemiological, risk-based planning and evaluation of efficacy and efficiency, with limited progress towards programme goals	The VS implement national prevention, control or eradication programmes for priority diseases with a high level of epidemiological, risk-based planning, and continual evaluation of efficacy and efficiency. They have or are progressing towards OIE official recognition of disease control programmes for relevant diseases. They can demonstrate some progress towards programme goals in reducing or eradicating disease.	The VS implement national prevention, control or eradication programmes for all priority diseases with scientific evaluation of their efficacy and efficiency consistent with relevant OIE international standards. They can demonstrate clear progress towards programme goals in reducing or eradicating disease, including achieving or progressing towards official recognition of freedom from relevant diseases.

Continuation of the table C.1

1	2	3	4	5	6
II-7. ANIMAL PRODUCTION FOOD SAFETY *A. Regulation, inspection (including audits), authorisation and supervision of establishments for production and processing of food of animal origin*	Regulation, authorisation, and inspection of relevant establishments and processes are generally not undertaken in conformity with international standards.	Regulation, authorisation and inspection of relevant establishments and processes are undertaken in conformity with international standards in some selected premises (e.g. export premises).	Regulation, authorisation and inspection of relevant establishments and processes are undertaken in conformity with international standards in large premises supplying major cities and/or the national market.	Regulation, authorisation and inspection of relevant establishments and processes are undertaken in conformity with international standards for premises supplying the national and local markets. There are some reports of dealing with non-compliance.	Regulation, authorisation, inspection and audit of relevant establishments and processes are undertaken in conformity with international standards at all premises. There are documented cases of the identification and effective response to non-compliance.
B. Ante- and post-mortem inspection at slaughter facilities and associated premises	Ante- and post-mortem inspection is generally not undertaken in conformity with international standards	Ante- and post-mortem inspection with collection of disease information is undertaken in conformity with international standards only in selected premises (e.g. export premises).	Ante- and post-mortem inspection with collection of disease information is undertaken in conformity with international standards for export premises and the major abattoirs in the larger cities and/or producing meat for distribution throughout the national market.	Ante- and post-mortem inspection with collection of disease information is undertaken in conformity with international standards for all slaughter facilities producing meat for export, national and local markets.	Ante- and post-mortem inspection with collection of disease information is undertaken in conformity with international standards at all premises (including municipal, community, and on-farm slaughtering and distribution) and are subject to periodic audits

Continuation of the table C.1

1	2	3	4	5	6
II-8. VETE RINARY MEDICINES AND BIOLO GICALS	The VS cannot regulate veterinary medicines and biologicals.	The VS have some capability to exercise regulatory and administrative control over the import, manufacture and market authorisation (registration) of veterinary medicines and biologicals to ensure their safety and quality, but cannot ensure their respon sible and prudent use in the field.	The VS exercise effective regulatory and administrative control for the market authorisation of veterinary medicines and biologicals and have some capacity to regulate to ensure their responsible and prudent use in the field, including reducing the risk from illegal imports.	The VS exercise comprehensive and effective regulatory and administrative control of all aspects of veterinary medicines and biologicals, including market authorisation, responsible and prudent use in the field, and reducing the risks of illegal distribution and use.	The control systems for veterinary medicines and biologicals are regularly audited, tested and updated when necessary, including via an effective pharmacovigilance programme.
II-9. ANTIMICRO BIAL RESISTANCE (AMR) AND ANTIMICRO BIAL USE (AMU)	The VS cannot regulate or control AMR and AMU, and have not developed or contributed to an AMR action plan covering the veterinary domain.	The VS 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 or farmers on the prudent use of.	The VS 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 antimicrobials for growth promotion is prohibited.	The VS are implementing a comprehensive AMR action plan based on risk, including AMR surveillance of the most important pathogens for animal health or food-borne diseases, the monitoring of AMU, and the prudent use of antimicrobials in animals (especially the use of critically important antimicrobials). The use of	An effective national AMR action plan covering the veterinary domain is regularly audited, reviewed and updated by the VS with the Public Health authorities and other stakeholders, using the results of AMU/AMR surveillance. The scale and type of antimicrobial usage in animals poses minimal risk of AMR and alternative

Continuation of the table C.1

1	2	3	4	5	6
		antimicrobial agents (antimicrobials). The use of antimicrobials for growth promotion is discouraged		antimicrobials for growth promotion does not occur.	solutions for the control of diseases in animals are being implemented.
II-10. RESIDUE TESTING, MONI TORING AND MANA GEMENT	No residue testing for animal products is being undertaken.	Some residue testing is being undertaken, such as for research or pilot purposes and/or it is conducted only on specific animal products for export.	A comprehensive residue monitoring programme is conducted for all animal products for export and some for domestic consumption based on limited risk analysis. Documented protocols exist for preventing residue risks (e.g. withholding periods for veterinary drugs) and for respon ding to breaches of MRL.	A comprehensive residue monitoring programme is conducted for all animal products for export and domestic consumption based on risk analysis. Effective protocols both reduce residue risks and respond to breaches of Maximum Residue Limits, including traceback and follow up.	The residue monitoring and risk management programme is subject to routine quality assurance and regular evaluation/ audit.
II-11. ANIMAL FEED SAFETY	The VS cannot regulate animal feed safety.	The VS have some capability to exercise regulatory and administrative control over animal feed safety.	The VS exercise regulatory and administrative control for most aspects of animal feed safety.	The VS exercise comprehensive and effective regulatory and administrative control of animal feed safety.	The control systems are regularly audited, tested and updated when necessary.

Continuation of the table C.1

1	2	3	4	5	6
II-12. IDENTIFICATION, TRACEABILITY AND MOVEMENT CONTROL *A. Premises, herd, batch and animal identification, tracing and movement control*	The VS do not have the authority or the capability to regulate the identification of animals, either individually, by batch, or by premises, or to trace and control their movements.	The VS can identify some animals by premises or location and control some movements, using traditional methods, and can demonstrate the ability to deal with a specific problem (e.g. to trace sampled or vaccinated animals for follow up, or to prevent theft).	The VS implement a system for animal identification, traceability and movement control for specific animal sub-populations (e.g. for export, at borders, specified zones or markets) as required for traceability and/or disease control, in accordance with international standards.	The VS implement appropriate and effective animal identification, traceability and movement control procedures for some animal species at national level, in accordance with international standards.	The VS carry out periodic audits of the effectiveness of their identification, traceability and movement control systems. They have been demonstrated as effective in dealing with a problem (e.g. tracing a disease outbreak, residue or other food safety incident).
B. Identification, traceability and control of products of animal origin	The VS do not have the capability or access to information to identify or trace products of animal origin.	The VS can identify and trace some products of animal origin, by coordination between Competent Authorities, to deal with a specific problem (e.g. high risk products traced back to premises of origin).	The VS have implemented procedures to identify and trace some products of animal origin, in coordination with Competent Authorities, for food safety, animal health and trade purposes, in accordance with international standards.	The VS have implemented national programmes enabling them to identify and trace all products of animal origin, and respond to threats, in coordination with Competent Authorities, in accordance with international standards.	The VS periodically audit the effectiveness of their identification and traceability procedures, in coordination with Competent Authorities. The procedures have been demonstrated as being effective for traceback and response to a relevant food safety incident (e.g. foodborne zoonoses or residue incident).

Continuation of the table C.1

1	2	3	4	5	6
II-13. ANIMAL WELFARE	There is no national legislation or regulations on animal welfare.	There is limited national legislation or regulations on animal welfare covering some of the OIE standards, with limited stakeholder or public awareness.	The national veterinary legislation (including laws and regulations) on animal welfare cover most OIE standards, with some awareness programmes and implementation, but are in conformity with international standards in only some sectors (e.g. for the export sector).	Animal welfare programmes, supported by suitable veterinary legislation, are being implemented in conformity with relevant international standards and are applied to most sectors and species with stakeholders and public awareness17. Documented compliance programmes, including consequences of non-compliance are available.	Animal welfare programmes, supported by suitable veterinary legislation, are being implemented in conformity with relevant international standards. Comprehensive national programmes are applied to all sectors and species with the active involvement of stakeholders. The animal welfare programmes, including non-compliance issues, are subject to regular audit and review, with documented cases of responding effectively to non-compliance.
III. INTERACTION WITH STAKEHOLDERS					
III-1. COMMUNICATION	The VS do not inform stakeholders of VS activities and programmes.	The VS have informal communication mechanisms with some stakeholders (e.g. with the larger commercial livestock or related companies).	The VS maintain a dedicated and specialist communications function which communicates with stakeholders occasionally, but it is not always up-to-date	The VS contact point or unit for communication provides up-to-date information to most relevant stakeholders. This information is aligned with a well-developed communications plan, and accessible via the Internet	The VS have a well-developed communications plan, and regularly circulate information to all relevant stakeholders, well targeted to the audience via the full range of communications media, including social

Continuation of the table C.1

1	2	3	4	5	6
			or pro-active in providing information.	and other appropriate channels targeted to the audience, and covers relevant events, activities and programmes, including during crises.	media. The VS regularly evaluate and revise their communications plan.
III-2. CONSULTATION WITH STAKE HOLDERS	The VS have no mechanisms for consultation with non- government stakeholders.	The VS maintain informal channels of consultation with some non-government stakeholders (e.g. only the larger commercial livestock or related companies).	The VS hold formal consultations with non-government stakeholders, usually represented by industry groups or associations.	The VS regularly hold workshops and meetings with non- government stakeholders, who are organised to have broad representation, such as through elected, self-financed industry groups or associations. Consultation outcomes are documented and the views of stakeholders considered and occasionally incorporated.	The VS actively consult with all non-government stakeholders, including representatives of smaller producers, regarding current and proposed policies and programmes, developments in animal health and food safety, and proposed interventions at the OIE, CAC, WTO SPS Committee, etc. The consultation results in improved, better adapted activities and greater stakeholder support.
III-3. OFFICIAL REPRESENTATION AND INTERNATIONAL	The VS do not participate in or follow up on relevant meetings or activities of regional or	The VS sporadically participate in relevant meetings or activities and/or make a limited contribution.	The VS actively participate21 in the majority of relevant meetings and activities, and provide some feedback to national	The VS consult with non-government stakeholders and take into consideration their opinions in developing papers and making interventions in relevant	The VS consult with non-government stakeholders to provide leadership, to ensure that strategic issues are identified, and to ensure coordination among

Continuation of the table C.1

1	2	3	4	5	6
COLLABORATION	international organisations.		colleagues.	meetings and in following up on meeting outcomes at national or regional level.	national delegations as part of their participation in relevant meetings, and follow up on meeting outcomes at national and/or regional levels. The VS collaborate internationally by sharing information and assisting to build capacity where appropriate.
III-4. ACCREDITATION/ AUTHORISATION/ DELEGATION	The public sector of the VS has neither the authority nor the capability to accredit/authorise/ delegate to the private sector or NGOs official tasks.	The public sector of the VS has the authority or capability to accredit/ authorise/delegate official tasks to the private sector or NGOs, but there are currently no accreditation/ authorisation/ delegation activities.	The public sector of the VS develops accreditation/ authorisation/ delegation programmes for certain tasks using formal agreements, but these activities are not routinely reviewed.	The public sector of the VS develops and implements accreditation/authorisation/ delegation programmes using formal agreements, and these activities are routinely reviewed to maintain standards and manage performance.	The public sector of the VS carries out audits of its accreditation/ authorisation/delegation programmes, in order to maintain the trust of their trading partners and other stakeholders.
III-5. REGULATION OF THE PROFESSION BY THE VETERI	There is no VSB.	The VSB regulates veterinarians only within certain sectors of the veterinary profession and/or does not systematically	The VSB regulates veterinarians in all sectors of the veterinary profession setting educational standards and applying	The VSB regulates veterinarians in all sectors and some veterinary paraprofessionals in a transparent manner. It has defined one or more specific	The VSB regulates and applies disciplinary measures to veterinarians and veterinary paraprofessionals in all sectors throughout the

Continuation of the table C.1

1	2	3	4	5	6
NARY STATUTORY BODY (VSB)		apply educational standards or disciplinary measures.	disciplinary measures.	categories of veterinary paraprofessional and their qualifications for initial and ongoing registration.	country. Veterinarians and veterinary paraprofessionals are required to undertake continuing education to maintain their professional registration.
III-6. PARTICIPATION OF PRODUCERS AND OTHER STAKEHOLDERS IN JOINT PROGRAMMES	Producers and other non-government stakeholders do not participate in joint programmes.	Producers and other non-government stakeholders are informed of programmes by the VS and informally assist the VS in programme delivery in the field (e.g. industry groups helping to communicate the programme with their membership).	Producers and other non-government stakeholders formally participate with the VS in the delivery of joint programmes and advise of needed changes and improvements.	Representatives of producers and other non-government stakeholders actively partner with the VS to plan, manage and implement joint programmes.	Producers and other non-government stakeholders contribute resources and may lead the development and delivery of effective joint programmes with the VS. They also actively participate in their regular review, audit and revision.
III-7. VETERINARY CLINICAL SERVICES	There are no/few clinical services provided from either the public or private sector.	Clinical services are available to animal owners in some areas but the quality and coverage (i.e. access to qualified veterinarians and/or veterinary paraprofessionals) is highly variable.	Clinical services are available to most animal owners via the public and/or private sector. In rural areas this is delivered mostly by veterinary paraprofessionals with some formal training	Clinical services are available to all animal owners via an efficient network of veterinary clinics, including in rural areas, serviced by qualified veterinarians assisted by veterinary paraprofessionals. Diagnoses are generally	Clinical services are available to all animal owners through qualified veterinarians, with appropriate facilities, diagnostic equipment and treatments, and the opportunity for specialist referral if required.

Continuation of the table C.1

1	2	3	4	5	6
			and some veterinary supervision – but providing only basic clinical diagnosis and treatment.	made prior to treatment, including with supporting laboratory tests where appropriate and professional standards are maintained by a well-functioning VSB.	
IV. ACCESS TO MARKETS					
IV-1. VETERINARY LEGISLATION *A. Legal quality and coverage*	Veterinary legislation is lacking, out-dated or of poor quality. The VS do not have the authority or capability to develop and update veterinary legislation.	Veterinary legislation covers some fields of the veterinary domain. The VS, working occasionally with expert legal drafters and lawyers, have some authority and capability to develop and update veterinary legislation.	Veterinary legislation covers most fields of the veterinary domain, including those fields under other Competent Authorities. The VS, working in formal partnership with expert legal drafters and lawyers, have the authority and capability to develop and update national veterinary legislation, including via consultation with stakeholders, to ensure its legal quality and applicability.	Veterinary legislation covers the entire veterinary domain. The VS have the authority and the capability to develop and update veterinary legislation at national (and sub-national where relevant) level – using a formal methodology which considers international standards, consultation with stakeholders, legal quality and applicability, and regulatory impact.	Veterinary legislation comprehensively covers the entire veterinary domain. The VS regularly evaluate and update veterinary legislation at national (and sub-national where relevant) level, with reference to ongoing effectiveness and changing international standards and science.

Continuation of the table C.1

1	2	3	4	5	6
B. Implemen tation and compliance	Veterinary legislation is not implemented or poorly implement ted, and it is not supported by communi cation, compliance and inspection activities	Veterinary legislation is implemented through some activities of communication and awareness raising on stakeholder legal obligations, but few compliance and inspection activities are conducted	Veterinary legislation is implemented through a programme of com munication and aware ness raising, and through formal, docu mented compliance and inspection activities. The VS undertake some legal action (e.g. admi nistrative fines or pro secution) in instances of non-compliance in most relevant fields of activity	Veterinary legislation is implemented across the entire veterinary domain and is consistently applied. The VS work to minimise instances of non-compliance through multiple means, including through targeted communications, incentives and appropriate legal processes. They have documented reports of responding to non-compliance.	Veterinary legislation compliance programmes are regularly subjected to audit and review by the VS or external agencies.
IV-2. INTERNATIO NAL HARMO NISATION	National veterinary legislation and sanitary measures under the mandate of the VS do not take into account international standards	The VS are aware of gaps, inconsistencies or non-conformities in national veterinary legislation and sanitary measures as compared to international standards, but do not have the capability or authority to rectify the problems	The VS monitor the establishment of new and revised international standards, and periodically review national veterinary legislation and sanitary measures in response	The VS harmonise veterina ry legislation and sanitary measures, and can demons trate a level of alignment with changing international standards. The VS also review and comment on the draft standards of relevant intergovernmental organisa tions, and work through regional organisations, where available, to ensure better harmonisation with international standards.	The VS actively and regularly participate at the international level in the formulation, negotiation and adoption of international standards25, and use the standards to regularly harmonise national veterinary legislation and sanitary measures

Continuation of the table C.1

1	2	3	4	5	6
IV-3. INTERNATIONAL CERTIFICATION	The VS have neither the authority nor the capability to certify animals and animal products for export	The VS have the authority to certify certain animals and animal products for export, but are not always in compliance with national veterinary legislation, and international standards	The VS develop and carry out certification for certain animals, animal products, services and processes for export under their mandate in compliance with international standards	The VS develop and carry out all relevant certification programmes for all animals, animal products, services and processes for export under their mandate in compliance with international standards	The VS carry out audits of their certification programmes, in order to maintain national and international confidence in their system
IV-4. EQUIVALENCE AND OTHER TYPES OF SANITARY AGREEMENTS	The VS have neither the authority nor the capability to negotiate or approve equivalence or other types of sanitary agreements with other countries.	The VS have the authority to negotiate and approve equivalence and other types of sanitary agreements with trading partners, but no such agreements have been implemented.	The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes.	The VS actively pursue the development, implementation and maintenance of equivalence and other types of sanitary agreements with trading partners on matters relevant to animals, animal products and processes under their mandate. They publish their existing sanitary agreements in the public domain	The VS actively work with stakeholders and take into account developments in international standards, in pursuing equivalence and other types of sanitary agreements with trading partners.
IV-5. TRANSPARENCY	The VS do not notify.	The VS occasionally notify.	The VS notify in compliance with the procedures established by these organisations.	The VS regularly and actively inform stakeholders of changes in disease status, regulations and sanitary measures and systems, as applicable to international trade.	The VS, in cooperation with their stakeholders, carry out reviews or audits of their notification procedures.

Continuation of the table C.1

1	2	3	4	5	6
IV-6. ZONING	The VS do not have the authority or capability to initiate the establishment of disease free zones.	The VS have identified a geographical animal sub-population or sub-populations as candidates to target a specific health status suitable for zoning.	The VS are implementing biosecurity and sanitary measures with the intention of establishing a disease free zone for selected animals and animal products.	The VS have established at least one disease free zone of selected animals and animal products with collaboration from producers and other stakeholders in alignment with OIE standards	The VS can demonstrate the scientific basis for any disease free zone and have gained recognition by OIE and/or trading partners that they meet the criteria established by the OIE (and by the WTO SPS Agreement where applicable)
IV-7. COMPART-MENTALISATION	The VS do not have the authority or capability to initiate the establishment of disease free compartments	The VS can identify animal sub-populations as candidate establishments with a specific health status suitable for compartmentalisation, in partnership with interested stakeholders	The VS, working in close partnership with interested stakeholders, ensure that planned biosecurity measures to be implemented will enable the establishment and maintenance of disease free compartments for selected animals and animal products	The VS collaborate with producers and other stakeholders to define responsibilities and undertake actions that enable the establishment and maintenance of disease free compartments for selected animals and animal products, including a national government certification and accreditation system	The VS can demonstrate the scientific basis for disease free compartments and have gained recognition by other countries that they meet the criteria established by the OIE (and by the WTO SPS Agreement where applicable)
Note – Compiled from the OIE PVS tool [55] and further elaborated by the author					

ANNEX D

Table D.1 – The comparative table on amendments to the Law "On veterinary" of the Republic of Kazakhstan in accordance with the international standards and commitments

Structural element	Current provision	Proposed provision	Justification
1	2	3	4
Chapter 2. Public regulation in the field of veterinary medicine Article 4	Article 4. Public policy in the veterinary domain The public policy in the veterinary domain is aimed at: 1) implementation of state veterinary and sanitary control and supervision during the production, storage and sale of moved (transported) objects; 2) excluded by the Law of the Republic of Kazakhstan dated 10.07.2012 No. 34-V (shall be enforced from the date of its first official publication); 3) protection of the territory of the Republic of Kazakhstan from the introduction and spread of infectious and exotic animal diseases from other states; 4) ensuring the independence of the state veterinary and sanitary control and supervision; 5) development of veterinary (veterinary and sanitary) rules, norms and veterinary standards on a scientific basis, taking into account an objective assessment of the	Article 4. Article 4. Public policy in the veterinary domain Public policy of the veterinary domain is aimed at: 1) prevention rather that cure; 2) ensure of safe animal food production; 3) ensure veterinary control along the food production chain; 4) harmonization of veterinary measures based on relevant international standards and recommendations; 5) development and application of veterinary measures based on science and risk assessment; 6) ensure of safe trade in livestock and animal products; 7) protection of public health from zoonoses and food contaminants; 8) protection of environment from animal and veterinary waste; 9) active participation in activities of regional and international organization on setting relevant standards and trade development; 10) strengthen the capacity of veterinary service.	Basic principles of the concepts «from Farm to Fork» and «One health» The WTO Agreement on application of SPS measures Terrestrial Animal Health Code

Continuation of the table D.1

1	2	3	4
	6) epizootic situation and international standards in the field of veterinary medicine; 7) achieving a higher level of veterinary measures than provided for by international recommendations, if there is a scientific basis for them; 8) prevention of unreasonable restrictions in the sale of moved (transported) objects in the implementation of veterinary measures in order to ensure veterinary and sanitary welfare; 7-1) ensuring the interaction of state bodies in the conduct of veterinary measures; 8) refund: - seized and destroyed sick animals, products and raw materials of animal origin, that present risks a danger to the health of animals and humans; - neutralized (disinfected) and processed without withdrawal of animals, products and raw materials of animal origin, that present risks to animal and human health		
Article 6	Article 6 The veterinary system of the Republic of Kazakhstan The veterinary system of the Republic of Kazakhstan are: 1) the Government of the Republic of	Article 6 The veterinary system of the Republic of Kazakhstan The veterinary system is complex relationships between its objects, processes, involved institutions and interested stakeholders aimed at ensuring of	The OIE PVS Tool

Continuation of the table D.1

1	2	3	4
	Kazakhstan; 1-1) the authorized body; 2) subdivisions of state bodies carrying out the activity in the veterinary domain; 3) state veterinary organizations established in accordance with the state normative network of the state veterinary organizations; 4) individuals and legal entities carrying out entrepreneurial activity in the veterinary domain.	1) veterinary safety in the country. includes following: 1) objects subject to veterinary control and supervision, including pathogens, animals, farms, processing establishments, vehicles, storage facilities; 2) processes of farming, production, animal feeding, slaughtering, transportation, storing, retailing, delivering, testing, sampling and other processes related to livestock; 3) administrative territories, zones and compartments in terms of animal health status; 4) public institutions: – veterinary authority; – veterinary organizations established by the central and local executive authorities; – subdivisions of other authorities carrying out the veterinary activities; – local executive bodies; 5) individuals and legal entities carrying out entrepreneurial activity in the veterinary domain; 6) educational institutions and academia; 7) research organizations and scientific community; 8) non-governmental organizations; regional and international organizations in the veterinary domain.	

Continuation of the table D.1

1	2	3	4
Article 24-7	Missing …	Article 24-7 Control of antimicrobial resistance 1. Antimicrobial resistance in animals and animal food products is subject to surveillance and monitoring. 2. Active and passive surveillance of antimicrobial resistance is carried out. 3. Surveillance and monitoring of antimicrobial resistance are based on science or (and) risk assessment. 4. Surveillance and monitoring of antimicrobial resistance include following stages: - determination of antimicrobial resistant bacteria; - detection of the mechanisms of antimicrobial resistance; - data collection; - risk analyses for animal and human health; - development of proposals and recommendations; - development of regulation on prudent use of antimicrobials; - assessment of effects of actions against antimicrobial resistance. 4. Control of antimicrobial resistance is carried out in animals, animal food products, feed, humans and environment. 5. Control of antimicrobial resistance in animal food products is carried out at all stages of food production chain, including production, processing, packing, storing and retailing	Terrestrial Animal Health Code, Volume 1, Chapter 6.7-6.8

Continuation of the table D.1

1	2	3	4
		6. The sampling strategy of antimicrobial resistance should take into account the size, source, frequency, test methods and interpretation. 7. The bacteria strains that develop antimicrobial resistance is subject to store at the veterinary laboratory with relevant competence. 8. Surveillance and monitoring of antimicrobial resistance are recorded, and stored.	
Article 26-1	Article 26-1. Implementation of the veterinary-sanitary measures 1. In cases when upon analysis and risk assessment, the possibility of adverse effect on human life and health is identified, but available scientific data is insufficient for determination of its degree, the authorized body has the right to take all necessary veterinary-sanitary measures on risk management. 2. Veterinary-sanitary measures shall be based on scientific data, objective assessment of risk to life and health of animals and human taking into account international standards and recommendations in the field of veterinary-sanitary safety. 3. Upon assessment of equivalence of applied veterinary-sanitary measures with international standards and recommendations in the field of veterinary- sanitary safety, the	Article 26-1. Implementation of the veterinary-sanitary measures in accordance with WTO Agreement on application of sanitary and phytosanitary measures 1. Veterinary-sanitary measures are applied in a non-discriminatory manner, and should not be used for arbitrary and unjustifiable discrimination between trading partners where identical conditions exist. 2. Veterinary-sanitary measures are applied in a non-trade restrictive manner, and do not create a disguised restriction in trade. 3. Veterinary-sanitary measures are applied to the appropriate safety level that is necessary to ensure animal and human health. The appropriate safety level is determined taking into account the minimisation of restriction to trade. 4. Veterinary-sanitary measures should be based on relevant international standards, recommendations and guidelines where it is possible.	The WTO Agreement on application of SPS measures The Law of the Kazakhstan “On ratify cation of the Protocol on accession of the RK to the Marrakesh Agreement Establishing the WTO of 15 April 1994” adopted on 12 October 2015, N 356-V. Report of the Wor king Party on acces sion of the Republic of Kazakhstan WT/ACC/KAZ/93

Continuation of the table D.1

1	2	3	4
	scientific data, results of investigations (as well as laboratory tests), monitoring of spreading particular diseases and available of zones shall be considered. 4. Veterinary-sanitary measures of other countries shall be recognized equivalent in terms of the following conditions: 1) compliance of applied veterinary-sanitary measures with international standards and recommendations in the field of veterinary-sanitary safety; 2) ensure of appropriate level of veterinary-sanitary safety of the territory of the Republic of Kazakhstan from introduction and spread of contagious and exotic animal diseases	5. Veterinary-sanitary measures that are not based on relevant international standards, recommendations and guidelines should be scientifically based on relevant principles and evidences. 6. Veterinary-sanitary measures are based on assessment of risks to animal and human health taking in account the methods developed by relevant international organisations. The economic factors should take into account during the risk assessment process, including potential reduction of production and sales in case of outbreak, cost of veterinary-sanitary measures for control and eradication, and alternative options with cost analyses. 7. Veterinary-sanitary measures of trading partners are accepted as equivalent if they differ from veterinary-sanitary measures applied in Kazakhstan if the trading partner demonstrates that its measures enable to achieve the appropriate safety level accepted in Kazakhstan. With the aim to recognise the equivalence of veterinary-sanitary measures relevant agreement is concluded. 8. Veterinary-sanitary measures are applied taking into account the local animal health status and measures applied in certain zones, areas and territories of importing and exporting counties. For this purposes zoning and compartmentalization are provided according to the certain procedures taking into account the recommendations and guidelines of relevant	

Continuation of the table D.1

1	2	3	4
		international organisations. 9. Adoption and application of veterinary-sanitary measures should be transparent. Relevant notification procedures should be in place in order to inform trading partners in a timely manner. 10. The authorised body Provisional measures 11. Veterinary-sanitary control measures applied for inspection purposes should take into account the main principles developed by the relevant international organisations. 12. Any agreement and discussions on application of veterinary-sanitary between trading partners should be through the consultation procedures upon relevant request	
Article 32-1	Missing …	Article 32-1 Animal welfare 1. Animal welfare is a state of animal in terms of physical and mental health in the living environment. 2. Animal welfare is ensured when animal is healthy, fed, nourished, safe and not experienced any unpleasant feelings such as pain, stress, fear and able to express its natural behaviour. 3. Animal welfare includes prevention of diseases, adequate veterinary service, feed, shelter and management, suitable environment, appropriate handing and slaughtering. 4. Basic guiding principles of animal welfare: - interconnection of animal health and welfare; - maintain five freedoms: hunger, thirst,	

Continuation of the table D.1

1	2	3	4
		malnutrition; fear and stress; physical and thermal displeasure; disease, pain and injury; display the normal behaviour); - careful use animals in science, research, education, agriculture, entertainment and companionship; - scientific assessment of animal welfare; - relationship of animal welfare with animal production; - ethical responsibilities in animal use. 5. Main principles of farming animal welfare: - careful consideration in genetic selection; - new environment for animals should take into account adaptation to climate conditions, to local feed and diseases; - physical factors of environment should take into account the species and its specific patterns in order to minimise risks of injuries and diseases; - physical environment should be suited for safe, comfortable rest and movement that allow to display natural behaviour; - social factors should take into account positive socialising, minimum injuries, stress and fear; - in house animals should take into account air flow, temperature and quality; - stable access to sufficient food and water; - good husbandry practice: prevention from diseases and facility for treatment of sick animals;	

Continuation of the table D.1

1	2	3	4
		- minimisation of painful procedures; - adequate handling with no fear, panic, stress and injuries, positive relegations with humans; - high skilled personnel, particular handlers	
Note – Developed by the author			